



Quality Indicators Software Instruction, WinQI Version 4.3 (October 2011)

Prepared for:

Agency for Healthcare Research and Quality
U.S. Department of Health and Human Services
540 Gaither Road
Rockville, MD 20850
<http://www.qualityindicators.ahrq.gov>

Contract No. 290-04-0020 (AHRQ SQI-II)

Prepared by:

Battelle
505 King Avenue
Columbus, OH 43201

October 2011 (Revised 10/7/2011)

Version 4.3a is a maintenance release of Version 4.3. The differences between the two versions are:

- Version 4.3a includes Version 29 of the Limited License edition of the 3MTM APR-DRG Grouper. This grouper corrects an issue found in Version 28 of the Limited License edition of the 3MTM APR-DRG Grouper. The grouper is only used with the Inpatient Quality Indicator (IQI) mortality measures. Version 4.3 includes Version 28 of the Limited License edition of the 3MTM APR-DRG Grouper, which was incorrectly assigning a Risk of Mortality (ROM) subclass for cases dated on or after 10/1/10.
- Version 4.3a allows users to calculate area-level indicators for years 2010 and 2011, correcting an issue previously identified in Version 4.3.

All other aspects of the software, including measure specifications, remain the same. Thus this document (related to Version 4.3) remains unchanged.

This document is based on research conducted by the Battelle under contract to the Agency for Healthcare Research and Quality (AHRQ), Rockville, MD (Contract No. 290-04-0020). The findings and conclusions in this document are those of the author(s), who are responsible for its content, and do not necessarily represent the views of AHRQ. No statement in this report should be construed as an official position of AHRQ or of the U.S. Department of Health and Human Services.

The information in this report is intended to help clinicians, employers, policymakers, and others make informed decisions about the provision of health care services. This document is intended as a reference and not as a substitute for clinical judgment.

This document may be used, in whole or in part, as the basis for the development of clinical practice guidelines and other quality enhancement tools, or as a basis for reimbursement and coverage policies. AHRQ or U.S. Department of Health and Human Services endorsement of such derivative products may not be stated or implied.

This document is in the public domain and may be used and reprinted without permission except those copyrighted materials that are clearly noted in the document. Further reproduction of those copyrighted materials is prohibited without the specific permission of copyright holders.

Suggested Citation:

Battelle Software Team. Quality Indicators Software Instruction, WinQI, Version 4.3 (Prepared by Battelle, under Contract No. 290-04-0020). Rockville, MD: Agency for Healthcare Research and Quality. October 2011.

None of the investigators has any affiliations or financial involvement that conflicts with the material presented in this document.

Abstract

This software documentation is for the AHRQ Quality Indicators Windows Application (WinQI), Version 4.3, which is provided for download on the AHRQ QI website. The software was developed in Microsoft Visual Studio using C# and .NET. The software uses Microsoft SQL Server Express for data storage and manipulation. The application is targeted for and tested on personal computers running the Microsoft Windows XP operating system. By making this tool available, we hope to assist others in producing health care quality information cost-effectively.

Table of Contents

Abstract	iv
1.0 Installation	1
2.0 Overview of the Quality Indicators	5
2.1 Rates Calculated	5
2.2 Reference Populations	6
2.3 Data Included.....	6
2.4 Benchmarks.....	6
2.5 Using the QIs for Analysis	7
2.6 Other Documentation	7
2.7 QI Flowchart	7
3.0 Technical Questions.....	9
3.1 About the Software	94
3.2 About the Input Data.....	94
3.3 Specifying and Viewing Reports.....	101
3.4 Using Different Types of QI Rates.....	102
3.5 Data Security and Privacy	Error! Bookmark not defined.
4.0 Input Data.....	3
4.1 Questions on Input Data.....	3
5.0 Main Screen and Session Log	Error! Bookmark not defined.
5.1 Main Screen.....	9
5.2 QI Session Log	Error! Bookmark not defined.
6.0 Quality Indicators Wizard	6
6.1 Welcome to the Quality Indicators Wizard	7
6.2 Select Input File	8
6.3 Input File Options	9
6.4 Check Readability.....	13
6.5 Data Mapping	15
6.6 Mapping Quick Check	19
6.7 Check for Data Errors.....	21
6.8 Data Errors Report	23
6.9 Crosswalk – Map Input Values to QI Values	26
6.10 Load Data	28
6.11 Data Load Report	30
6.12 Generate Indicator Flags	32
6.13 Save Data and Mapping.....	34
6.14 Data Load Completed.....	37
7.0 Reports.....	38
7.1 View Saved Reports	39
7.2 Quick Report.....	39
7.3 Patient Level Report	42
7.4 Case Details	Error! Bookmark not defined.
7.5 Predicted Probability.....	49
7.6 Welcome – Quality Indicators Reporting Wizard.....	42
7.7 Select Indicators	53
7.8 Select Stratifiers For Use With Provider Indicators	63
7.9 Select Stratifiers For Use With Area Indicators	66
7.10 Select Composite Indicators and Weights.....	Error! Bookmark not defined.
7.11 Select Hospitals (Provider Reports Only).....	70
7.12 Select Date Range (Provider Reports).....	58
7.13 Select Date Range (Area Reports).....	60
7.14 Additional Options For Data Analysis	71
7.15 Generating Report	75
8.0 Helpful Tools	85

8.1	Program Options	86
8.2	Hospital Table.....	88
8.3	Data Mapper Shortcuts.....	90
8.4	Code List.....	92
9.0	Sampling Wizard	79
9.1	Quality Indicators Sampling Wizard.....	79
9.2	Select Sampling Parameters	80
9.3	Run Sample	83
9.4	View Sample.....	84
10.0	Reference	85
10.1	Quality Indicators Name and Definition	Error! Bookmark not defined.
10.2	Inpatient Quality Indicators (IQI).....	Error! Bookmark not defined.
10.3	Patient Safety Indicators (PSI)	Error! Bookmark not defined.
10.4	Pediatric Quality Indicators (PDI)	Error! Bookmark not defined.
10.5	Prevention Quality Indicators (PQI).....	Error! Bookmark not defined.
10.6	Experimental Indicators (EXP)	Error! Bookmark not defined.
11.0	Index	105
Appendix A: WinQI Input Data Dictionary		107
Appendix B: WinQI Output Data Dictionary		112

List of Figures

Figure 1. Data Flow Diagram for AHRQ QI Windows Application (Win QI)	8
--	---

1.0 Installation

Before You Begin

- 1) Make sure that you have Administrator permissions on your computer so that you can install the software. This level of access is only required during the installation.¹
- 2) Download the latest Service Pack and updates for your Windows Operating System.
- 3) Check your system for minimum requirements (see section below on **Hardware and Software Requirements**).
- 4) Uninstall any previous versions of the WinQI Software by going to **My Computer** and choosing **Add/Remove Programs** in Windows XP or **Uninstall or change programs** in Windows 7. You should **not** uninstall Microsoft® .NET Framework or SQL Server Express if you already have them.

Hardware and Software Requirements

The WinQI software has been tested
on the following configuration:

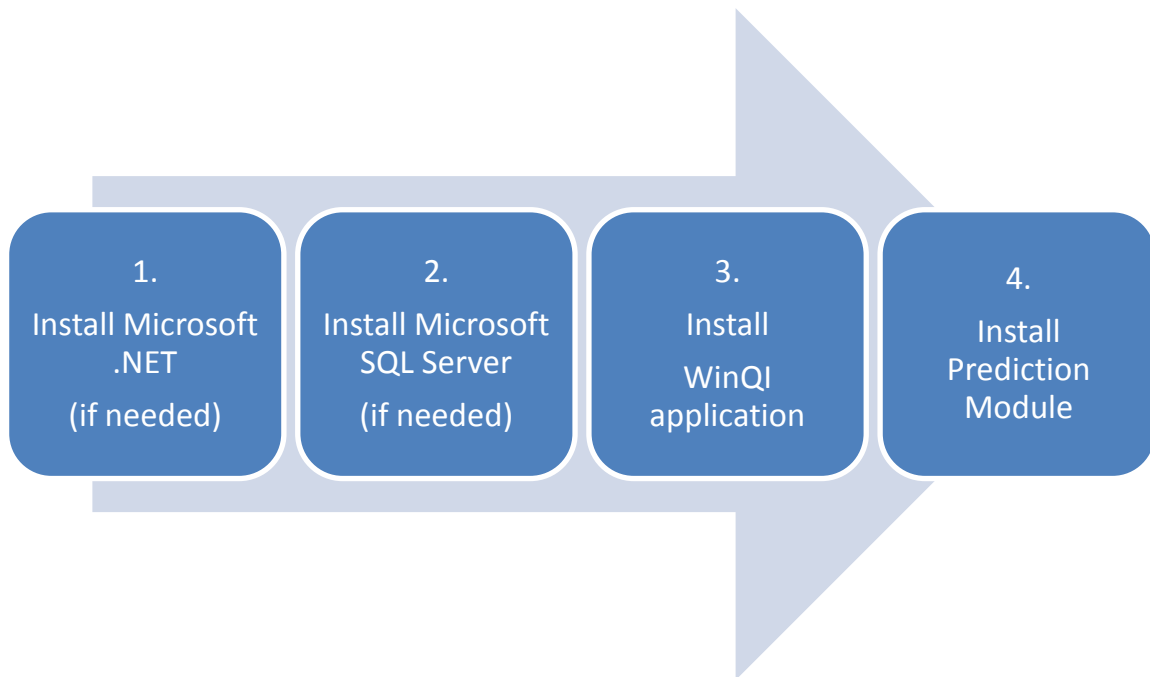
- Windows 2000, Windows XP (32 bit) and Windows 7 (64 bit)
- .NET Framework 4.0
- Microsoft SQL Server 2005 (any edition)

Approximate disk space requirements

- Microsoft .NET Framework 4.0: 850 MB
- Microsoft SQL Server Express 2005: 600 MB
- WinQI application: 110 MB
- QI Data – 100 MB is typical, but it can range up to 4GB depending on the number of discharges you wish to process.

¹ The installer for WinQI will create a database called 'qualityindicators' and then create all necessary database objects. If the database already exists on your system, WinQI can be installed with an account that has permissions to create and drop database objects. You may change passwords, rename the account, change permissions, or rename the database after the installation has completed. The database connection settings can be changed from within WinQI under Program Options. For ongoing operation, WinQI requires the ability to insert and delete data as well as to truncate tables, drop and create indexes and drop and create tables.

Installation Process



Step 1. Microsoft .NET Installation

WinQI requires Microsoft .NET Framework Version 4.0 or higher. This is a change from previous versions which only required version 2.0.

To install:

- 1) Click **Microsoft .NET Framework Version 4.0** on the Windows QI Download Page (<http://www.qualityindicators.ahrq.gov/Software/WinQI.aspx>). This will take you to the .NET download website.
- 2) Click the **<Download>** button, then **<Run>**. You can also choose to **<Save>** it to your desktop and then **<Run>** it.
- 3) The program prompts you for confirmation and asks you to accept a license agreement. Afterwards, the installation will proceed on its own.
- 4) If you already have .NET 4.0 installed, the program will prompt you to **<Repair>** or **<Uninstall>**. Just click **<Cancel>**.
- 5) You may need to reboot your system.

Step 2. SQL Server Installation

WinQI is a single-user desktop application that requires an SQL Server database to store program data. You may choose from several different editions of SQL Server. This can be installed on your PC or accessed over a network. Most users will prefer to use SQL Server 2005 Express Edition installed on their PC unless local Information Technology (IT) policies prohibit this setup.

If you choose to use an existing SQL Server, contact your database administrator for the connection hostname, login and password that will be required by the WinQI installer.

Microsoft SQL Server 2005 Express Edition is recommended for WinQI and a download is provided on the quality indicators website. This replaces Microsoft SQL Server 2000 Desktop Edition (MSDE) that was included with the earlier versions of WinQI.

If you...	The best choice is...
Already installed a local database with a previous version of WinQI.	Retain or upgrade to SQL Server 2005 Express Edition
Have IT rules that prefer a central SQL Server instead of desktop software.	Do not install SQL Server. Get connection information from your database administrator.
Have PC with at least 1Ghz processor, 512 MB RAM and 600MB free disk space.	Download SQL Server 2005 Express Edition

To install:

- 1) Click **SQL Server 2005 Express Edition** on the Windows QI Download Page. This will take you to the SQL Server download website.
- 2) Choose the **<Download>** button for the file called **SOLEXP.R.EXE**. Then choose **<Run>**, or **<Save>** it to your desktop and then **<Run>** it.
- 3) If you are running Windows 7, you will see a **User Access Control Panel** prompt, asking you if it should allow the installation software to make changes to your computer. Choose **<Yes>**.
- 4) Accept the **End User License Agreement**, then click **<Install>** and **<Next>** on the next pages.
- 5) Complete setup and installation by choosing all default options on the SQL Server Installation Wizard. At the end of the Wizard, you will click **<Install>** and then **<Finish>** to complete the process.
- 6) The SQL Server folder is created automatically in your Program Files folder.

Step 3. WinQI Installation

To install:

- 1) Click **Combined Quality Indicators Modules Software for WinQI** on the Windows QI Download Page.
- 2) Accept the 3M APR-DRG license agreement.
- 3) Click **<Save>** to download the application to your desktop.
- 4) You will then be prompted with a screen to **<Run>** the application. If you are running Windows XP or 2000, choose **<Run>** and continue to the next step. If you are running Windows 7, choose **<Don't Run>**, then right-click on the **Quality Indicators** icon on your desktop and choose **<Run as administrator>**.
- 5) Click **<Next>**, accept the terms in the license agreement, and click **<Next>**.
- 6) Choose the directory in which to install the software and click **<Next>**.
- 7) On the Database Server screen choose from the following:
 - a. If you installed SQL Server as above with default options, just click **<Next>**.
 - b. If you are using a remote SQL Server, use the information provided by your database administrator.
- 8) Click **<Next>** to begin the install.
 - a. The installer will build the QI database and install files, and then it will run the "PopLoader" program to install the population table. Ensure that a message window appears showing the status of the "PopLoader" program as it loads records from the population file.
- 9) Click **<Finish>** when the program has completed.

This completes the installation of the **Win QI**.

To start the program, click **Start → Programs → Agency for Healthcare Research and Quality → Quality Indicators**. You can also pin the program to your desktop for easier access by right-clicking on **Quality Indicators** in the **Program** menu and choosing **Send to... Desktop (create shortcut)**.

Step 4. Prediction Module Installation

To install:

- 1) If an existing module exists on your system, you must remove it before installing the updated version.
 - a. Locate previous installation .msi file
 - b. Right click on the .msi file and choose **<Uninstall>**
- 2) Click the **Prediction Module** link on the WinQI Download Page and download the software.
- 3) Select **<Run>** and choose all default settings in the installation process.
- 4) If you are running Windows 7, you will see a **User Access Control Panel** prompt, asking you if it should allow the installation software to make changes to your computer. Choose **<Yes>**.

2.0 Overview of the Quality Indicators

The Agency for Healthcare Research and Quality (AHRQ) Quality Indicators (QI) use commonly available hospital administrative data to highlight potential quality concerns, identify areas that need further study and investigation, and track changes over time. The AHRQ QI are comprised of the following modules:

- Prevention Quality Indicators (PQI) identify hospital admissions that evidence suggests could have been avoided, at least in part, through access to high-quality outpatient care. These types of measures are also referred to as ambulatory care sensitive condition (ACSC) hospitalizations.
- Inpatient Quality Indicators (IQI) reflect quality of care inside hospitals and include:
 - Inpatient mortality for medical conditions
 - Inpatient mortality for surgical procedures
 - Utilization of procedures for which there are questions of overuse, under use, or misuse
 - Volume of procedures for which there is evidence that a higher volume of procedures maybe associated with lower mortality
- Patient Safety Indicators (PSI) also reflect quality of care inside hospitals, but focus on potentially avoidable complications and iatrogenic events
- Pediatric Quality Indicators (PDI) both reflect quality of care inside hospitals and identify potentially avoidable hospitalizations among children.

This document describes the AHRQ QI Windows Software, a free tool that allows users to run AHRQ QI analyses with data that they provide. Anyone who has access to administrative discharge data can run this software. Current users include state and federal governments, researchers, hospital associations and individual hospitals.

2.1 Rates Calculated

The QI are available in one of two levels:

- **Area-level indicators** – Measure utilizations, events, or admissions within geographic areas such as a county or metro area. This level may be of interest to a government agency or association that looks at quality measures for an entire region. All of the PQI and a few of the IQI, PSI and PDI are area-level indicators. For the purposes of rate calculations, the denominator for area level indicators is based on the population of the region from the US census.
- **Provider-level indicators** – Measure procedure volume, rates of mortality, and rates of adverse events within a hospital. For rate calculations, the denominator for provider level indicators is based on qualifying admissions to each hospital.

Volume indicators are reported in just one unit -- the number of times a procedure is performed. All other indicators are expressed as rates: the number of times an event occurs out of the number of persons at risk for that event. The QI software will identify the numerator, the denominator and calculate an *observed rate* for each indicator.

In addition to the observed rate, the software calculates:

- An *expected rate*, or the rate one would expect for hospitals with the same demographics and case mix;
- A *risk adjusted rate*, or the rate adjusted to reflect a typical case mix; and
- The statistical confidence interval and smoothed rate.

2.2 Reference Populations

The software calculates risk-adjusted and expected rates using a reference population that is an aggregation of 2008 discharges from all of the states that participate in the Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID). See <http://www.ahrq.gov/data/hcup/> for information on the HCUP SID.

Risk-adjustment covariates and reference population rates are computed using all the 2008 SID data that include Present on Admission values from 22 states that provided POA data to the HCUP program. As additional states collect the POA indicator and provide the data to the HCUP program, the POA reference population will be updated in future AHRQ QI releases to include these states. See “What about present on admission?” in section 4.1.

2.3 Data Included

The QI software does not include data for any individual hospitals or groups of hospitals. The only QI rates included in the software are for the *reference population*. (See section 2.2.) You cannot use this program unless you provide your own data to analyze.

In addition to the reference population rates, the software also includes risk-adjustment coefficients and model parameters (e.g. signal variance estimates) based on a statistical analysis of the reference population.

2.4 Benchmarks

Having calculated an observed rate for an indicator, the obvious next question is “Compared to what?” Users typically want comparisons with other hospitals or a national rate. However, neither of these is generally appropriate since hospitals vary in the patients they treat. For example, it would not be fair to compare mortality rates from a hospital that specializes in high-risk cases to an “average” hospital, nor would it be reasonable to compare a hospital that serves a largely elderly population with one that serves a more balanced area. An appropriate benchmark for a hospital is necessarily specific to the demographics and the type of cases it receives.

For most purposes, the most useful check is to compare the observed rate with the expected rate calculated from the same group of cases. The QI software will allow you to calculate these rates. (See section 9.4)

For provider level indicators, the expected rate takes into account the age, sex, comorbidities, severity and other characteristics of the actual patients at risk for each outcome. For area level indicators, the expected rate takes into account the mix of age and sex in each area. The WinQI

software provides an option to risk-adjust based on poverty demographics in a given area along with age and sex for the PQI and the area level PDI ([see section 6.15](#)).

2.5 Using the QI for Analysis

The QI Software provides built-in tools to assist users in analyzing the rates that are produced.

2.5.1 Reviewing individual cases

The QI Software includes tools to review the individual cases that are selected for each indicator. Once you have loaded your data, click on <Patient Level Report> ([see section 6.3](#)) on the Main Screen and select an indicator to view all the cases flagged for that indicator. This tool can be useful for selecting cases for chart review and further study.

Double-click on an individual case to get more information about that case². The Case Details screen ([see section 6.7](#)) traces an indicator for a single case, showing why each case was or was not flagged -- including which DRG or ICD-9-CM codes contributed to this assignment.

2.5.2 Stratification

You may “drill into” QI rates by using the Report Wizard to generate reports that are stratified. Stratification allows you to divide the discharges into groups by attributes such as age or race and view the observed and expected rates for each group. This tool helps to identify whether there are differences in quality of care for different groups. When using the QI to identify areas for quality improvement, this tool can help show where the greatest opportunities might be found.

2.6 Other Documentation

The QI are separated into four modules, PSI, IQI, PQI and PDI. Each module is documented separately in *Technical Specifications* that provide the detailed definitions.

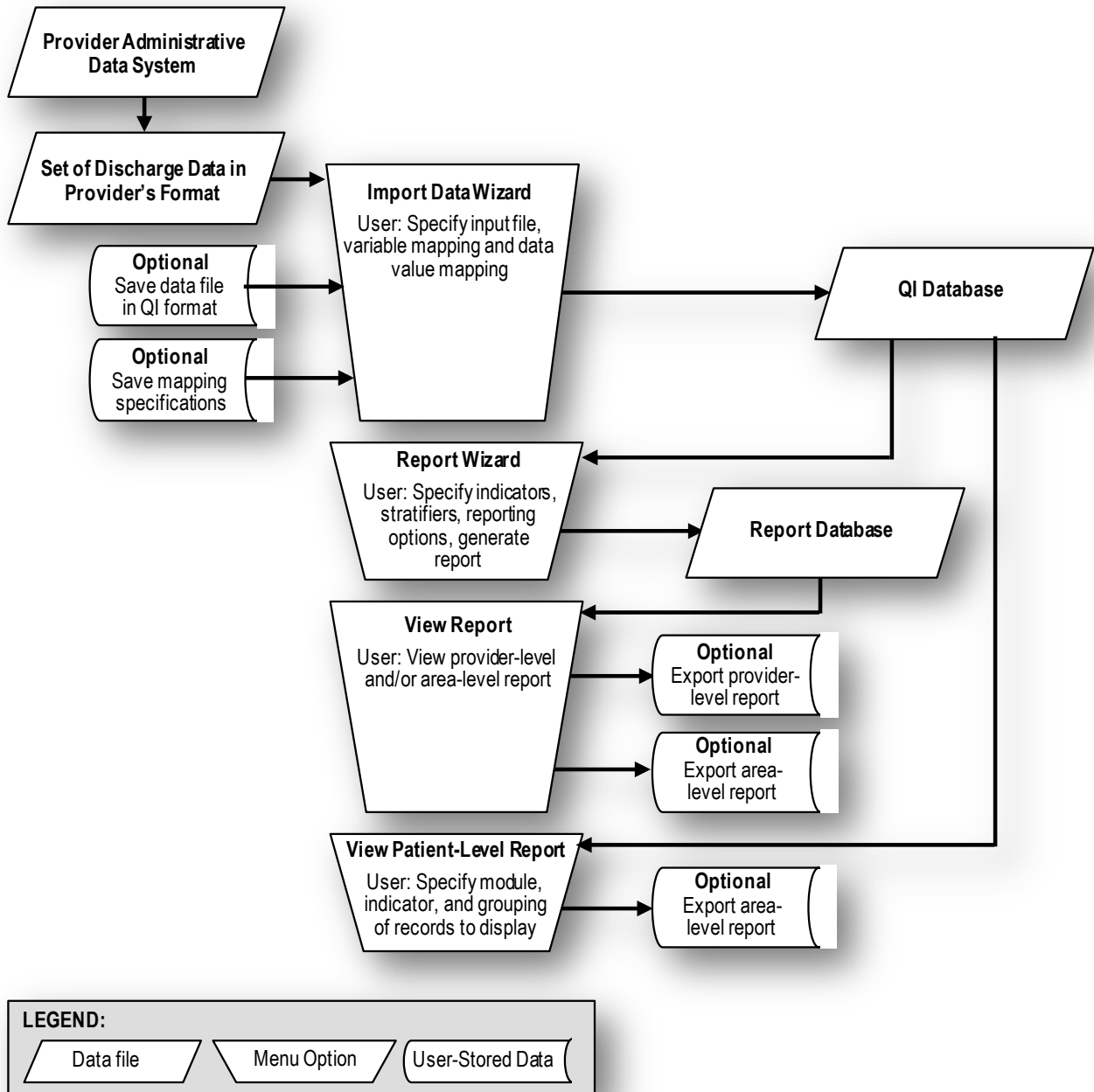
The four Technical Specifications documents provide the codes from the hospital discharge data record that are included in the numerator, the denominator, and exclusion criteria for each indicator. Other available downloads include the SAS® syntax and instructions, a list of the coding changes made for the fiscal year, and a *Change Log* for each module (see release notes for details on Windows 4.3 and SAS® Version 4.3). These documents can be found organized by module ([PQI](#), [PSI](#), [IQI](#), and [PDI](#)).

2.7 WinQI Flowchart

The figure below illustrates how the WinQI software is used.

² Please note that this feature may not be compatible with Windows 7.

Figure 1. Data Flow Diagram for AHRQ WinQI Application (Win QI)



3.0 Getting started

3.1 Using WinQI

3.1.1 How do I start the WinQI software?

Click on your computer's <Start> button, point to “Programs”, point to the “Agency for Healthcare Research and Quality” folder, point to the “AHRQ Quality Indicators” folder, and then click on “AHRQ Quality Indicators”.

3.1.2 How do I use this instruction manual?

The main part of this manual is organized into the following subsections:



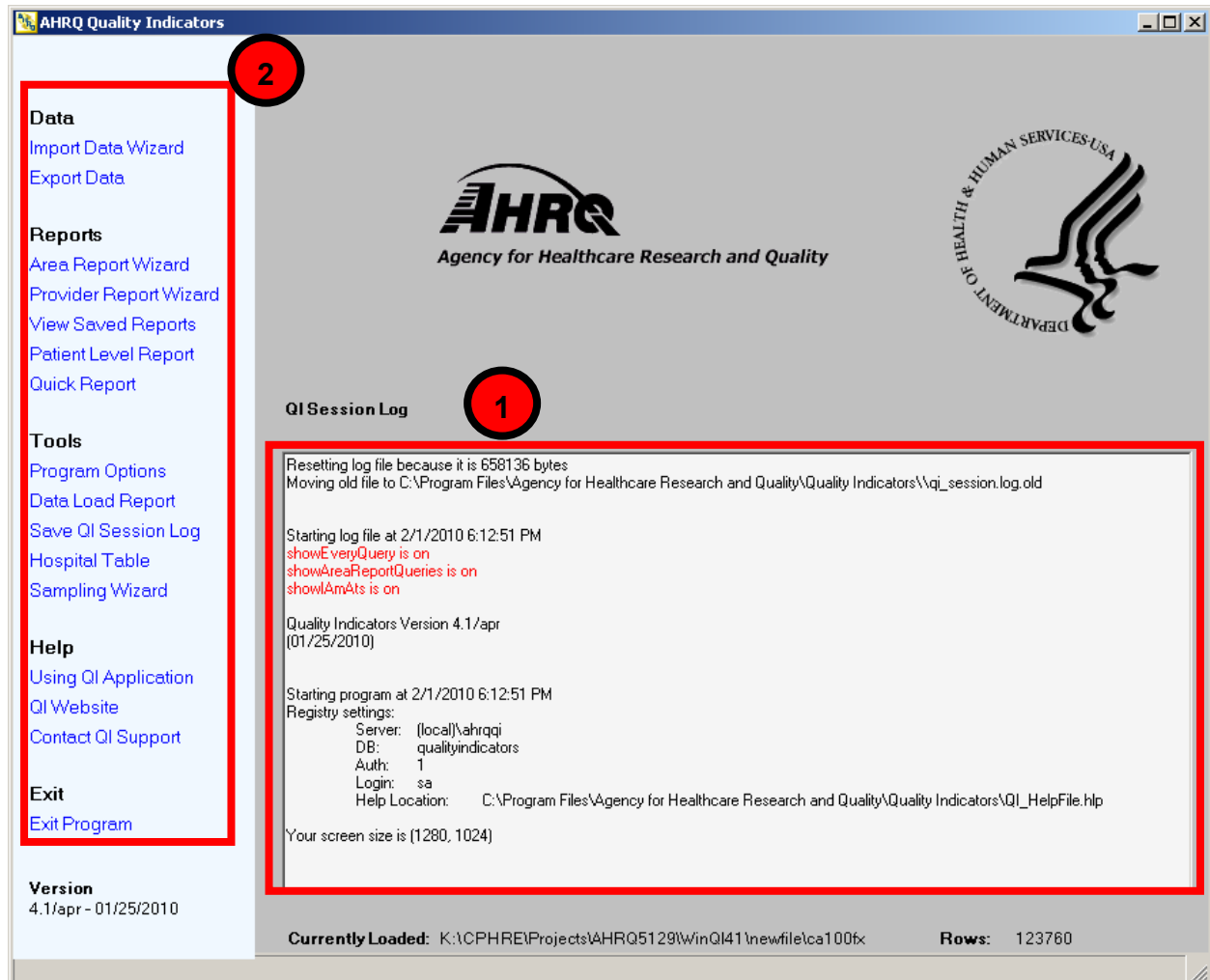
Most of these sections show screen shots of each process step for each software function. The discussion of each screen’s capabilities includes answers to the questions “What is this screen for?”, “How is this screen organized?”, and “What do I do here?”

Timesaving Tips and Other Questions may also be included in the discussion.

3.2 Main Screen

3.2.1 What is this screen for?

This screen provides access to all features of the AHRQ Quality Indicators software.



3.2.2 How is this screen organized?

- 1
QI Session Log

The QI Session Log keeps a record of all actions performed by the application. During the data check some helpful error messages are written to the log about some of the invalid values found. See [section 5.7](#) for more information.

2 Menu Bar

Data

- **<Import Data Wizard>** - Launches the Wizard that walks you through the process of preparing your data. This wizard is also known as the Quality Indicators Wizard.
- **<Export Data>** - Accesses the screen that allows you to save the data in the QI format and to save the data mapping that was generated using the Quality Indicators Wizard.

Reports

- **<Report Wizard>** - Launches the Wizard that walks you through the process of creating a new rate report.
- **<View Report>** - Accesses the screen that displays reports created using the Report Wizard.
- **<Quick Report>** - Shows the total numerator and where applicable the denominator and observed rate for each indicator. Also shows the overall population rate of indicators for which risk adjustment is applied.
- **<Patient Level Report>** - Accesses a tool that allows you to view all discharge records associated with a selected indicator. This report uses the data that were prepared using the Quality Indicators Wizard.

Tools

- **<Program Options>** - Allows you to save the Session Log and change database connection and other system settings.
- **<Data Load Report>** - Displays the Data Load Summary screen seen at the end of the Quality Indicators Wizard.
- **<Save QI Session Log>** - Allows you to save the “Session Log” window to a file. It is often helpful to include a copy of the session log if you contact the AHRQ QI support email with questions.
- **<Hospital Table>** - Allows you to change the county code or provide a name for hospitals in the data file.
- **<Sampling Wizard>** - Launches the Wizard that walks you through the process of selecting cases at random for study.

Help

- **<Using QI Application>** – Accesses the application Help system.
- **<QI Website>** – Launches the Quality Indicators website.
- **<Contact QI Support>** - Displays the contact information for the QI Support Team.

Exit

- **<Exit Program>** - Closes the AHRQ QI application.

3.2.3 What do I do here?

Click one of the options in the Menu Bar. You will need to use the Import Data Wizard option to open the Quality Indicators Wizard and load your file before you will get any results using any of the other items.

3.2.4 What data are recorded in the Session Log?

The Session Log provides a record of all activities during the session. It also records any errors that might be generated during the session. This information can be useful when trying to solve problems.

3.2.5 How can I save the data in the Session Log?

A cumulative QI Session Log is stored automatically in a text file that has the “.log” extension. The location of this file can be changed (see “Logging” in section 8.1).

There is also a <Save QI Session Log> control on the Main Screen. Selecting this control allows you to specify a different location (such as the Desktop) to save a snapshot of the log information for the current session. This information is saved in Rich Text Format (RTF).

A third way to save the Session Log data is to select the text to be saved, press Control-c to copy the text, and then paste the saved text into a document using menu options or Control-v. When contacting AHRQ Support, please only include the relevant portions of your log file.

3.2.6 What happens to the data after the application is closed?

The most recent set of selections is saved between sessions. Once new selections are made, they overwrite the previous selections.

3.2.7 What if I forget to save a report?

The report will stay in memory until you use the Report Wizard to generate a new report. You can use the <View Report> option to access the report, and then use the <Export All> button on that screen to save the report to a file.

3.2.8 What if I have a problem?

You may contact support@qualityindicators.ahrq.gov if you have problems running the QI application. To provide context for your questions, please include a copy of the QI Session log (see section Error! Reference source not found.) and a copy of your column mapping – either the .QIM mapping file or the contents of the Mapping Quick Check screen. (See section 5.6)

4.0 About Input Data

See Appendix A for a detailed description of the input data elements and coding conventions used by the Windows QI software.

4.1 Questions on Input Data

4.1.1 Where do I begin?

The first thing you need to do is obtain a file that contains the inpatient discharge records you want to analyze. Once you have this file, run the QI application, starting with selecting Import Data Wizard from the menu on the left-hand side. This will open the QI Wizard. The graphical user interface will guide you through the steps to load data, generate reports and review cases.

4.1.2 What kind of input data can be used by the software?

The software uses readily available hospital inpatient administrative data that provide demographics on the patient and the provider, diagnosis codes, procedure codes, and information about the admission, payer, and discharge.

4.1.3 What format should the data be in?

Two key formatting issues are that:

- Each row of data should represent a separate discharge record.
- Each column of data should represent a single variable for all discharges.

If the data file meets these requirements, the Quality Indicators Wizard will assist users in transforming their data into the QI format.

4.1.4 What is the easiest format to work with?

If you have the flexibility to create your input file in any format, it is easiest to use comma-separated variable (CSV, or .csv), and use the variable names in the Data Elements table as column headers. For each *mapped* variable in the Data Elements Table, use the numeric values listed. None of these suggestions are mandatory, but they will simplify data import.

**The software accepts
three common
data formats:**

**Text
(comma-separated)**

Microsoft Access

Microsoft Excel

4.1.5 What data must be included?

The input data dictionary (See Appendix A) lists the data that should be included for each discharge.

4.1.6 What if I don't have all the data?

You may leave out any data that you can't get. It is not necessary to create "dummy data" to fill the column. See the comments in the Data Elements table, and on the Data Mapping screen (See section 5.5) in the QI Wizard to determine the consequences of leaving any variable out.

4.1.7 What if my data have additional variables that I want to use?

Your input file may contain extra data that are not required. Any variables that are not used in the Data Mapping Screen will not be imported with your data.

The software allows you to use up to 3 "Custom Stratifiers". These fields allow you calculate rates for provider-level indicators using whatever custom grouping you wish. However, the application can only use variables in the first 200 fields of your data, so you should be sure that all required variables are in the first 200 fields.

4.1.8 My file does not have column headers. Do I need to put them in?

Column headers are required for Excel files but are not required for CSV files. The software includes an Quality Indicators Wizard that allows you to map variables by name or by position. However, it is generally easier and less error-prone to include column headers.

4.1.9 What are the different data types?

Numeric and string values must match the format specified.

Mapped variables have specific meaning according to the coding conventions in your organization and they have specific meaning to the QI application. For example, the QI disposition value for "died" is "20". Your data does not have to use "20" to mean "died," but in order for the QI application to calculate mortality indicators, you will need to provide the translation in the [Crosswalk Screen](#).

**There are four types of data elements:
Numbers, Dates,
Strings and Mapped
Variables.**

4.1.10 What if I have commas in some of my data values?

CSV files use commas to separate the data values. If you have commas within any data values, e.g. "Private, incl. HMO", then you will need to put double quotes around each data element. When selecting your file, check the appropriate box to have the quotes recognized.

4.1.11 Can I use tabs instead of commas as a delimiter?

Yes. You can switch the delimiter to Tabs on the Program Options screen in the QI Wizard.

4.1.12 What about E-codes?

External cause of injury code (E-code) variables may be used in place of secondary diagnosis fields in the QI software. If your data have separate variables for E-codes, you can use the

Data Mapping feature (see Section 5.5) in the QI Wizard to map the QI variables to your E-code variables, starting with the first available (unmapped) secondary diagnosis QI variable. If the number of diagnosis fields plus the number of E-code fields in your input data exceeds 35, then you may wish to preprocess your data to fill in the gaps and get the maximum use of the 34 secondary diagnosis fields.

4.1.13 What about APR™ DRG codes?

Risk adjustment for some of the IQI relies on the 3M™ All-Patient Refined Diagnosis-Related Groups (APR™ DRG) system, which has been reported to perform well in predicting resource use and death when compared to other DRG-based systems.

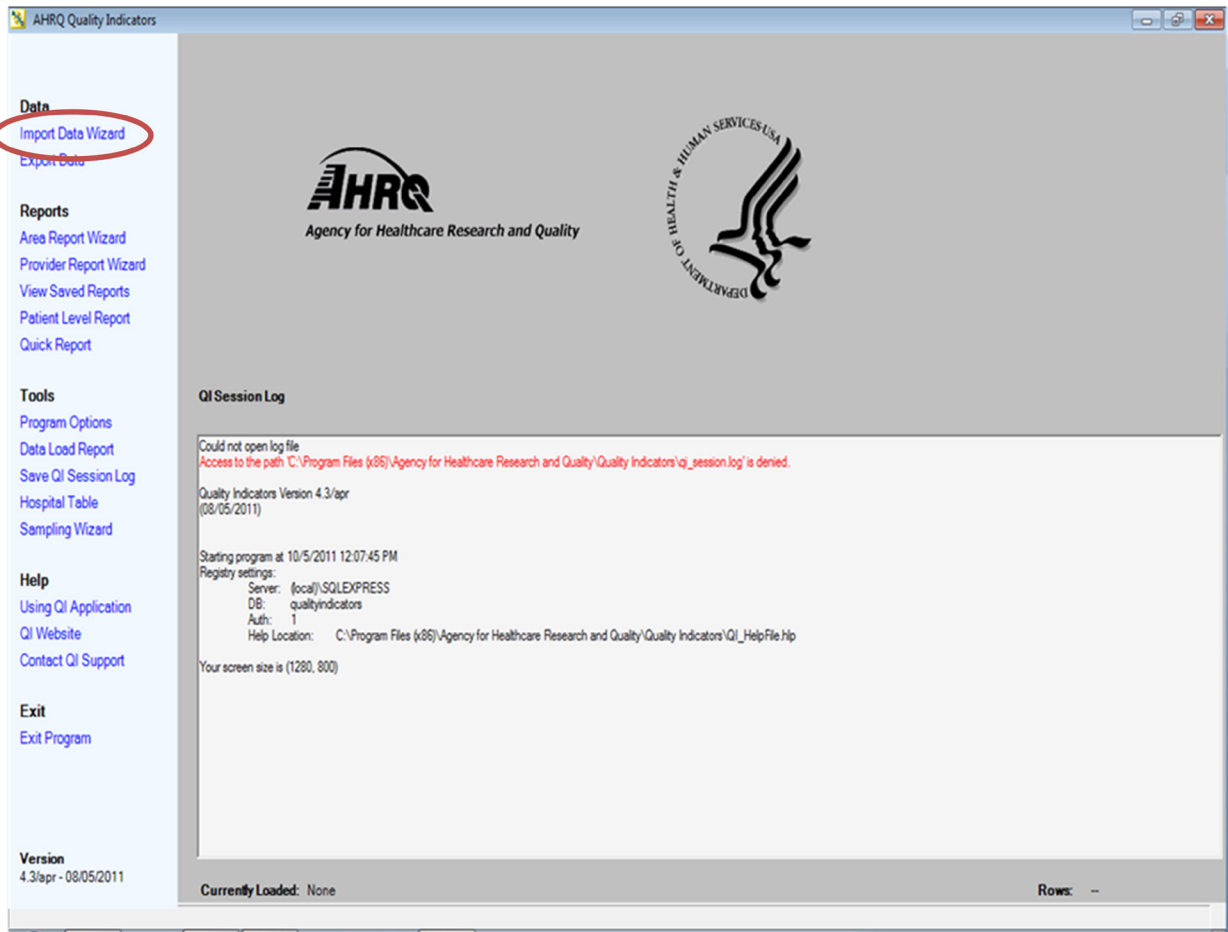
Users who want to report risk-adjusted IQI rates may use the built-in limited license version of the 3M™ APR™ DRG grouper. The optional limited license grouper available with the AHRQ QI software is “multi-version” (i.e., Version 20, 23-28). The software will apply the correct version based on the discharge year and quarter. Users who have their own APR-DRG grouper can use either the applicable DRG version or the ICD-9-CM mapping to Version 20.

Information on the 3M™ APR™ DRG system is available at:

http://solutions.3m.com/wps/portal/3M/en_US/3M_Health_Information_Systems/HIS/Products/APRDRG_Software/.

5.0 Quality Indicators Wizard

The QI Wizard walks you through the process of preparing data for calculating all of the AHRQ QI, calculates the values for the QI, and then allows you to save the resulting data for later use. You can get to the QI Wizard by selecting **<Import Data Wizard>** from the menu on the lefthand side of the main screen in WinQI.



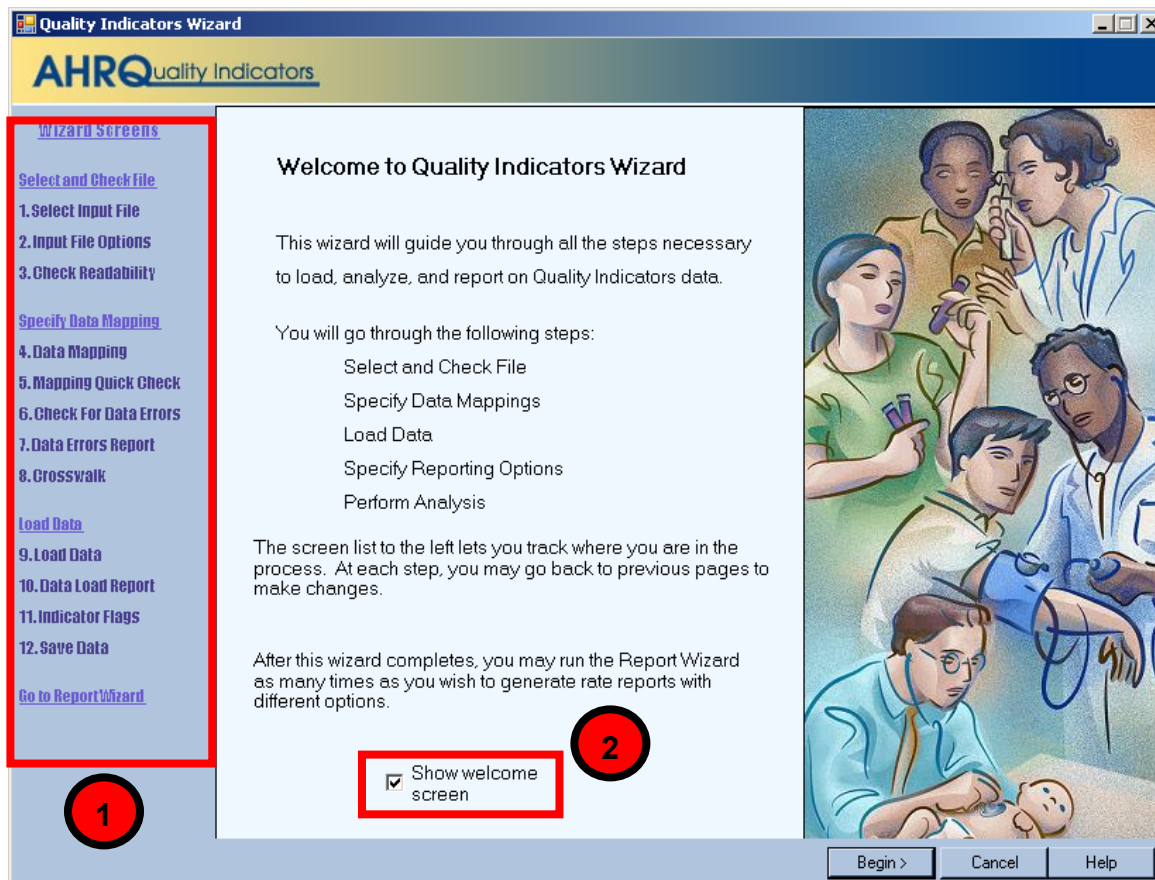
Saving the data is optional. You can use the QI data immediately and in subsequent sessions to generate reports. The data will not be discarded or overwritten until the next time you run the Wizard. You can save the data for use in an external program at any time by selecting the **<Export Data>** option on the application menu.

The Wizard also provides the option to save the specifications for mapping your data variables to the QI variables. This option can save time the next time you import data files that have the same structure.

5.1 Welcome to the Quality Indicators Wizard

5.1.1 What is this screen for?

This screen introduces the Quality Indicators Wizard.



5.1.2 How is this screen organized?

1 Wizard Screens

Lists the names of all screens in the QI. This list is displayed on every screen in the Wizard. As you progress through the wizard, the title of the current screen will be highlighted in red.

2 “Show welcome screen” checkbox

If you uncheck this box, the next time you open the QI Wizard it will skip this screen and proceed directly to the <Select Input File> screen.

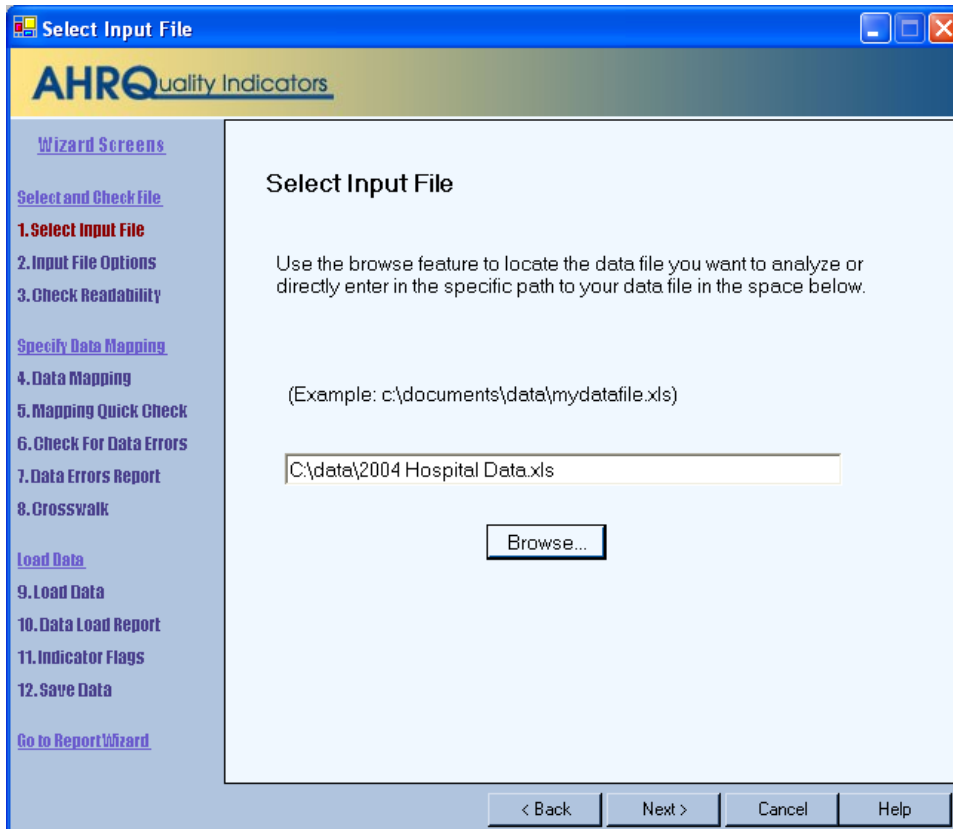
5.1.3 What do I do here?

Click the <Begin> button to proceed to the first Wizard screen. If you click the <Cancel> button on any screen, the Wizard will close.

5.2 Select Input File

5.2.1 What is this screen for?

Use this screen to specify the data file you want to load.



5.2.2 How is this screen organized?

The file name field displays the name of the data file selected for loading. This field will be blank the first time you use the Wizard. In subsequent sessions, the Wizard will default to the most recent data file loaded, displaying the complete path to the file.

5.2.3 What do I do here?

Use the <**Browse**> button to locate and select the data file you wish to load. Click the <**Next**> button after a file has been selected.

5.3 Input File Options

5.3.1 What is this screen for?

Use this screen to provide information about your data format. You may also specify a mapping file on this screen. A mapping file describes the contents of your file to the QI Wizard. See the description below for more information on mapping files.

Input File Format

AHRQ Quality Indicators

Wizard Screens

[Select and Check file](#)

1. Select Input File

2. Input File Options

[3. Check Readability](#)

Specify Data Mapping

[4. Data Mapping](#)

[5. Mapping Quick Check](#)

[6. Check For Data Errors](#)

[7. Data Errors Report](#)

[8. Crosswalk](#)

Load Data

[9. Load Data](#)

[10. Data Load Report](#)

[11. Indicator Flags](#)

[12. Save Data](#)

[Go to Report Wizard](#)

Additional Options For: State_Data_2006.csv

Values are enclosed in quotes (e.g. "value1", "value2")
(Check this box if any values in any record have quotes that must be removed.)

First row contains column headers

APR-DRG Grouper

Use the built-in limited APR-DRG Grouper provided by 3M (tm)
[View APR-DRG License](#)

Load APR-DRG values from the data file. (if available)

Data Mapping and Crosswalk

My data is in an unknown format [Edit Mapper Shortcuts](#)

Use a mapping specified in a file

Mapping File: [Browse...](#)

Skip validation and mapping screens (jump to Data Load)

< Back Next > Cancel Help

5.3.2 How is this screen organized?



Additional Options For: <Filename>

The title of the screen displays the name of the file you selected on the Select Input File screen. The selections available in this area depend on the type of file you selected.

Access file (.mdb)

- You will be prompted to **<Select Table>** to use for the input data.

Excel file (.xls)

- You will be prompted to **<Select Worksheet>** to use for the input data. Column headers are required input for Excel files.

Comma-Separated Value file (.csv)

- Checkboxes are provided for you to select whether the first row of the file contains column headers and whether values are enclosed in quotes.



APR-DRG Grouper

This section provides options for either using the built-in limited license 3M™ APR™ DRG Grouper or mapping the APR™ DRG, severity-of-illness (not used), risk-of-mortality and risk-of-mortality data elements from the input data file. If you use the built-in grouper, your file must have the discharge date and quarter.



Data Mapping and Crosswalk

This section provides options to use a mapping file that was created in a previous session. Doing so allows you to skip several steps in the data import wizard.

5.3.3 What do I do here?

Specify Table or Worksheet

Options available in this section depend on the type of file selected for loading. If an Access or Excel file was selected for loading, use the drop-down menu to select which of the Worksheets (Excel) or Tables (Access) to use.

Select Options for CSV Files

First row contains column headers - Check this box if the first row of your file contains variable names rather than data. By default, the option is checked. (This option is also displayed for Excel files, but it may not be unchecked.)

If your data values are enclosed in quotation marks, click the *Values are enclosed in quotes...* checkbox to have the quotation marks removed when the file is loaded (double-quotes only).

Specify Mapping Method

Data elements in your file need to be mapped to the QI format. The program uses a mapping shortcuts table to automatically match input variables in your data to variables used by the QI software. Initially, the shortcuts table matches HCUP variable names (e.g., “ASOURCE” is mapped to “Admission Source”).

If you choose *My data are in an unknown format*, the Wizard will step you through the process of specifying your data format. Once you have completed the Wizard, you can save the data mapping for reuse.

If you have a saved mapping file that you want to load, refer to the directions below under Timesaving tips. If you use a mapping file, you have the option of skipping the validation and mapping steps and jumping directly to the data load.

If you know that your input file has variables that do not use HCUP data element names, you can save time by editing the mapping shortcuts table to increase the number of automatic matches made by the program. To do so, click the <**Edit Mapper Shortcuts**> button. After you are finished, close the screen, leave *My data are in an unknown format* selected, and proceed.

Select a Mapping File

By default, the *My data are in an unknown format* radio button is selected. If you have a saved mapping file that you want to load, refer to the directions below under Timesaving tips. If you use a mapping file, you have the option of skipping the validation and mapping steps and jumping directly to the data load.

5.3.4 Timesaving tips

- Once you have been through the QI Wizard and created and saved a mapping of your variables, you can reuse those specifications with other data files that have the same variables in the same order. Click the *Use a mapping specified in a file* radio button, and use the <**Browse**> button to locate and select the data file you wish to load.
- Mapping files may be used in three ways:
 - 1) With a mapping file, you may bypass the data validation, data mapping and crosswalk screens. To do so, click the checkbox *Skip validation and mapping screens*.
 - 2) You may use a mapping file that does not perfectly match your input data specification. Make sure that *Skip validation and mapping screens* is **not** checked. This option will allow you to add any additional information.
 - 3) You may import data directly from the command line³ using a mapping file.
- There are two types of mapping files.
 - 1) “By Position” mapping files define columns based on the exact order of columns. The column headings of text files imported with positional mappings are ignored and may be excluded. An error message will be displayed if you attempt to use a “By Position” mapping file with an MDB data file.
 - 2) “By Name” mapping files can only be used with files that have column names. These columns may be in any order. The program will not allow you to use a mapping file that is inappropriate for the type of file you have selected.

5.3.5 Other questions

Why can't I uncheck the *First Row Contains Column Headings* checkbox for an Excel file?

The QI Wizard requires alphanumeric column headings for Excel files. You should make sure that all of your column names have alphabetical characters in them—otherwise data values may be misread and lost (e.g., E-codes and ICD-9-CM codes that look like numbers but are not purely numeric.)

Why are alphabetical column headers so important for Excel?

The driver that reads Excel files examines the first few rows of the file to “guess” whether each column should be interpreted as a column of text or as column of numbers. If the driver decides to interpret the column as numeric, then it will cause an error or silently skip over any data that is not a valid number. This error can easily happen if a column contains numeric ICD-9-CM codes mixed with E- or V-codes.

³ *Advanced users who wish to use this feature may contact the AHRQ QI Hotline for more information.

5.4 Check Readability

5.4.1 What is this screen for?

This screen displays the progress and results of a scan of the data to verify that the data can be read by the application.

Checking File Readability

Reading through the input file to make sure that every row can be read and that every row has the same number of columns.

Progress

File Size:	47,955 KB
Records Read:	123,774
Current Status:	Finished

47,955 / 47,955 KB Some rows had more than 200 columns.
Only the first 200 can be read. (see log)

Filename: ...lelca100fx_for40_w_all_.csv

Stats and Warnings

Variables Per Record

FirstRow	200
Min / Max	-
Most Frequent	200

Show Distribution

< Back Next > Cancel Help

5.4.2 How is this screen organized?



Progress

Displays the file name and size on entry. The number of records read increments as the readability check progresses, and the *Current Status* value will change from “Reading file” to “Finished” on completion.



Stats and Warnings

Displays a report on the Variables found per record.

5.4.3 What do I do here?

Pay attention to the number of variables found in your file. Normally, all rows will contain the same number of variables. If there are numbers displayed next to *Min/Max*, some rows have more variables than others. Check to make sure that the correct data file has been specified and that the file has not become corrupted.

When you click the <**Show Distribution**> button, the QI Wizard displays a table showing the number of rows found for each different set of column numbers. Ideally, there should be only one row in this table. In other words every row should have the same number of variables. If this is not the case, then either some rows have extra values or some rows have values missing. The pop-up window also shows the row number of the first row with each count of values. This window can be helpful in figuring out where and why a file became corrupted.

5.5 Data Mapping

5.5.1 What is this screen for?

This screen lets you map variables used by the QI software to the variables in your input file.

Data Mapping

Wizard Screens

- Select and Check File
 1. Select Input File
 2. Input File Options
 3. Check Readability
- Specify Data Mapping
 - 4. Data Mapping**
 5. Mapping Quick Check
 6. Check For Data Errors
 7. Data Errors Report
 8. Crosswalk
- Load Data
 9. Load Data
 10. Data Load Report
 11. Indicator Flags
 12. Save Data
- Go to Report Wizard

Data Mapping

Input File Variables

Input Variable (Column Number, Name)	Maps To QI Variable
1 : DISCWT	
2 : PCTPOA	
3 : AGE	Age
4 : AGEDAY	Age in Days
5 : ASCHED	
6 : ASOURCE	Admission Source
7 : ATYPE	Admission Type
8 : AWEEKEND	
9 : DISP	Discharge Disposition
10 : DISPUNIFORM	
11 : DQTR	Discharge Quarter
12 : drg	Diagnosis Related Group

Variables Used By QI Software

- Days on Mech Ventilator
- Birth Weight Grams
- Custom Stratifier 1
- Custom Stratifier 2
- Custom Stratifier 3
- Patient ID
- Birth Date
- Admission Date
- Discharge Date

Sample View of Input File Data

- 1 -	- 2 -	Age	Age in Da	- 5 -	Admissio	Admissio	- 8 -	Discharge	- 10 -	Dis
DISCWT	PCTPOA	AGE	AGEDAY	ASCHED	ASOURC	ATYPE	AWEEKE	DISP	DISPUNI	DQ
1	1	29		0	5		1	1	1	1
1	1	31		0	5		0	1	1	1
1	1	32		0	5		0	1	1	1
1	1	37		0	5		0	1	1	1
1	1	0	0	0	5		0	1	1	1
1	1	0	0	0	5		0	1	1	1

< Back Next > Cancel Help

5.5.2 How is this screen organized?



Input File Variables

Lists the names of all variables found in your data file along with the position of each variable (the column number) within each row.



Variables Used By QI Software

Lists the names of all QI variables that have not been mapped to one of your data input file variables. If any required variables have not been mapped, the title “Required” will appear above those variable names, and the title “Optional” will appear above the other variable names. Once all required variables have been mapped (all the remaining variables are optional), these titles are not displayed.



Sample View of Input File Data

Lists the contents of the first 50 rows in your data file.

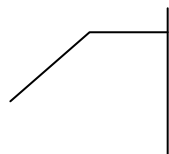
5.5.3 What do I do here?

Map a QI variable to the variable in your data file by clicking on a variable in the right-hand list, dragging it to the **Input File Variables** list on the left, and dropping it next to the corresponding variable name in your input data file.

Remove a mapping by dragging the QI variable back to the QI variable tray.

If you aren't sure how one of your variables matches up to a QI variable, look at the **Sample View** of your data to see what values are stored in the variable.

Example: The required variable **Sex** is listed under **Variables Used By QI Software**. You are not sure which of your variables corresponds to this. You look at the **Sample View** and notice that a column named **GG** contains the values “m” and “f”. Therefore you conclude that you need to drag the **Sex** variable to the empty spot next to **GG** in the **Input File Variables** area.



NOTE: If you want to use custom stratifiers in your reports, you must map them to Custom Stratifier 1, 2 or 3, provided in the **Variables used by QI Software** list.

5.5.4 Timesaving tips

- **Select variable names**

If possible, use the QI variable names for the columns when you create your data file. If they are found (spelled exactly the same), they will be matched up automatically.

- **Data Mapper Shortcuts**

Other column names can be matched automatically to QI variables. These include the SAS[®] equivalent variable names and other common mappings such as “Ecode1” to “Diagnosis Code 31”. You may edit the shortcut table on the Data Mapper Shortcuts screen.

5.5.5 Other questions

What is the difference between “required” and “optional” variables?

Certain variables are critical to the proper flagging of the majority of the QI. You will not be allowed to load a file that does not have each of these variables.

Other variables are used for optional reporting features, such as expected rates and particular stratifiers. If you leave these variables unmapped, they will be treated as blanks in every record.

What if I have extra variables in my file?

Just leave the data mapping blank for variables that aren’t used. These variables will not be imported and will not affect the QI calculations.

What if I have fewer than 35 diagnoses or 30 procedures?

Just map the number of diagnosis and procedure variables that are coded according to the conventions in your institution. Unmapped QI variables will be treated as blank.

What if I have separate fields for E-Codes?

Diagnosis fields 31-35 are intended for E-codes, however you may put E-Codes in any secondary diagnosis field.

What if I have more than 35 diagnoses or 30 procedures?

You may only use up to 35 diagnosis and procedure codes. You may wish to preprocess your data to remove empty elements in order to get maximum efficiency out of the 35 codes. If you do preprocess your data, be careful to make sure that the procedures and procedure day fields are appropriately matched.

What if I don’t have inputs for all variables?

Normally, you should correct your input file to get the best results possible.

What are the data elements “Days on Mechanical Ventilation“ and “Birth Weight in Grams“ used for?

The data elements are optional inputs into the limited license 3M[™] APR[™] DRG Grouper.

Why does my data view display quotation marks?

On an earlier screen, Select File Input, there is a checkbox “Values are enclosed in quotes...” Go back and enable this option in order to automatically remove the quotation marks.

Why are none of my e-code variables mapped to a QI variable?

You may map any of the unused secondary diagnosis variables from the list of Variables Used by QI Software to your data's e-code variables.

How should I map my data element for the patient's location?

If you intend to use the area level rates, we recommend that you map the patient FIPS state/county code to the data element labeled "Patient State/County Code." If the FIPS state/county code of the patient's residence is not available, then you may map the hospital FIPS state/county code to the data element labeled "Patient State/County Code." However, we then recommend that you analyze the area rates at the state or METRO AREA level. Otherwise patients that reside outside the same county as the hospital will be included in the numerator but not the denominator. The larger the geographic unit of analysis, the less likely it is that this situation will occur. However, if the hospital FIPS state/county code is used instead of the patient FIPS state/county code, the area rates must still be interpreted with caution.

What is the proper format for Diagnosis Codes?

Diagnosis codes are always 3, 4 or 5 characters long. The first 3 digits range from "001" to "999." Some diagnoses require a 4th or even a 5th digit to be a valid code. V codes and E codes may also be supplied in the diagnosis fields. V codes range from "V01" to "V85" and E codes range from "E800" to "E999". V codes and E codes may also require additional digits. In all cases, you must remove the decimal point before loading the data.

The QI software does an exact textual comparison of all codes. Therefore, it is important not to pad any additional characters (such as trailing zeros) to the right of ICD-9-CM codes. Similarly, if the rightmost character is a zero, you should not remove this zero as it will change the meaning of the code.

What is the proper format for Procedure Codes?

Procedure codes are always 2, 3 or 4 characters. The first two digits range from "00" to "99" and they may require 3rd or 4th digits to be valid codes. As with diagnosis codes, you should remove any decimal points and you should not add or remove characters on the left or right side of the code.

Can custom stratifiers be used for personal information?

Custom stratifiers are intended for grouping records, they are not intended to store patient information. For small data sets, it is feasible to store extra patient information (such as name), but doing so will cause the program to run slower and require more disk space. You can instead save information in the Key field or in the Patient ID field.

What's the difference between Key and Patient ID?

The Key field is intended to distinguish discharge records while the Patient ID field is intended to help link patients across discharges. However, any data may be stored in either field. The Key field is displayed in several places in the application, but the Patient ID field is only included in the Export Data. Additionally, Patient ID is stored in a separate table and requires additional disk space.

5.6 Mapping Quick Check

5.6.1 What is this screen for?

This screen provides a double check of the mapping of QI variables to input file variables. It shows the set of variables from the opposite perspective from the previous screen.

Data Mapping Quick Check

AHRQ Quality Indicators

Wizard Screens

- Select and Check File
 - Select Input File
 - Input File Options
 - Check Readability
- Specify Data Mapping
 - Data Mapping
 - Mapping Quick Check**
 - Check For Data Errors
 - Data Errors Report
 - Crosswalk
- Load Data
 - Load Data
 - Data Load Report
 - Indicator Flags
 - Save Data
- Go to Report Wizard

Summary of Variables

This report summarizes the Data Mapping between the input file and the QI Dataset that you assigned on the previous screen. Certain variables are required to continue with the data analysis. See the Host User Guide for more detailed information.

Values for Present on Admission (POA) will be automatically mapped as follows:

- 'Y', 'W', 'E', or '1' map to '1' (Present);
- 'N', 'U', or '0' map to '0' (Not Present);
- A blank value maps to a blank value (Missing).

See the AHRQ QI Software Documentation for details.

Variables in Input File: 130
 Input Variables Mapped to QI Variables: 124
 Unused Input Variables: 6
 Unmapped Required QI Variables: 0
 Unmapped QI Variable Warnings: 2

Variables

QI Variable	Input Variable(column #)
Key	Key (1)
Age	Age (2)
Age in Days	AgeInDays (3)
Race	Race (4)
Sex	Sex (5)
Primary Payer	PrimaryPayer (6)
Patient State/County Code	StateCountyCode (7)
Hospital ID	HospitalID (8)
Discharge Disposition	DischDisposition (9)
Admission Type	AdmissionType (10)
Admission Source	AdmissionSource (11)
Length of Stay	LengthOfStay (12)
DRG Version	Stratifier3 (123)
DRG (42)	DRG (42)

Buttons: Save Report, < Back, Next >, Cancel, Help

5.6.2 How is this screen organized?



Summary of Variables

Displays counts of mapped and unmapped variables and data warnings.



Variables

Displays two columns of variables and warning messages. QI variables are listed on the left, and variable names from your input data file are listed in the right-hand column of variables. Warnings, if any, are displayed to the right of the name of the variable to which they apply.

5.6.3 What do I do here?

Scan the list of messages to see if anything needs to be corrected. You may return to the **Data Mapping** screen to correct mappings, or you may need to load a different file.

If there are any *Unmapped Required QI Variables* you will not be able to proceed further through the wizard.

5.7 Check for Data Errors

5.7.1 What is this screen for?

The program scans your file for errors and potential errors in your data. At the same time, it creates a list of values needed for the Crosswalk screen.

Checking for Data Errors

Scanning the entire file for all distinct values in mapped variables. Also searching for invalid data and warnings.

Progress

File Size:	47,955 KB	1
Records Read:	123,774	
Current Status:	Finished	
	47,955 / 47,955 KB	
Filename:	...lelca100fx_for40_w_all_.csv	

Stats and Warnings

Severe Errors:	13	2
Invalid Values:	0	
Warnings:	522	
Count of Values for Crosswalk:	26	

< Back Next > Cancel Help

5.7.2 How is this screen organized?



Progress

Lets you know how far along the read has progressed within your file. The number of records read increments as the check progresses. The *Current Status* value will change from “Reading file” to “Finished” upon completion.



Stats and Warnings

Displays a report on the number of errors, invalid values and warnings found. Ideally, these values should all be “0”.

The number of unique values found for the six Crosswalk variables is also displayed. This count is usually in the mid 20s; however, it will vary between different institutions. It should be fairly consistent, however, when the same data source is polled for different time periods. A sharply higher or lower value can be an indication of a mismatched variable.

5.7.3 What do I do here?

There are no user actions on this screen.

When the data check finishes, click the <Next> button.

5.8 Data Errors Report

5.8.1 What is this screen for?

This screen displays information about the values stored in your input data file.

Data Errors Report

The QI Wizard has scanned your input file and found the following warnings and errors. No data has yet been loaded. You may choose to exclude data based on the values of certain variables on the following screen.

Column	Records Affected	Message
* Age	2	Required Field Empty - Record will not be loaded
	* 1	Required numeric value is not a valid number - Record will not be loaded
Diagnosis Code 11	-	Column of ICD-9-CM codes does not have any leading zeros (warning)
Diagnosis Code 12	-	Column of ICD-9-CM codes does not have any leading zeros (warning)
Procedure Code 7	-	Column of ICD-9-CM codes does not have any leading zeros (warning)
Procedure Code 8	-	Column of ICD-9-CM codes does not have any leading zeros (warning)

Variables

The following statistics describe the data within your file. Your QI dataset may be different if rows are excluded during the data load.

Column	Number Missing	% Missing
Key	0	0%
Age	2	0%
Age in Days	3 532	97%
Race	3 603	99%
Sex	0	0%
Primary Payer	0	0%
Patient State/County Code	5	0%
Hospital ID	0	0%
Discharge Disposition	2	0%
Admission Type	6	0%
Admission Source	13	0%

5.8.2 How is this screen organized?

1 Warnings and errors

If there are any warnings or errors found during the check, the column (variable) name, number of records affected, and the message will be displayed.

2 Variables

Lists the QI variable names under *Columns*, along with the number and percent of missing values for each.

5.8.3 What do I do here?

If there are errors in the data values, you may need to edit the data or select a different input file. Know your data. The warnings provided are intended to catch common errors. However, depending on the typical case mix and coding conventions in your institution, these warnings may or may not be significant.

Click the <Next> button to proceed.

5.8.4 Warnings

The screen checks for several different types of data errors such as missing data, invalid numbers and numbers out of range (such as “Age in Days” over 365).

5.8.5 Timesaving tip

- Use caution when saving a data file using Excel, because the program sometimes tries to ‘simplify’ numbers and remove leading or trailing zeros from ICD-9-CM codes.

5.8.6 Other questions

How can I find out what rows had problems?

Formatting errors due to individual values on records are written to the QI session log. You can view the error messages along with the line number if you view the session log. In the above example, the following lines are printed to the session log:

```

Check For Data Errors
Reading column names from the first row in the file
Read 106 values from first row.
KEY column number = 1
Hospital ID column number = 34
Reading Text File (CSV)
File is 1046475 characters.
Row 4, COLUMN Age, KEY 94615.   Not an integer: "abcdefg"
Row 6, COLUMN Age, KEY 94617.   Missing or invalid required value
Row 7, COLUMN Age, KEY 94618.   Missing or invalid required value
Read 1046475 characters from file, total of 3637 rows
    
```

Do the “Number Missing” and “% Missing” columns denote errors?

This section of the report shows how many rows do not contain a value for each variable. The information that it reports should be checked for reasonableness with your own knowledge of your data. For example, a file that has only adult patients should have 100% missing for “Age in Days” but a file containing a mix of adults and children should reflect this mix by having “Age in Days” for every child under a year old.

Does the program check for invalid ICD-9-CM codes?

No, the program only verifies that data is in the correct format. It does not check the reasonableness of the data. Any 3 to 5 character string will be accepted as a diagnosis code regardless of whether it “looks like” an ICD-9-CM code. Users should verify the quality of their discharge data by some other means before loading the file with this program.

Why does it check for leading zeros in ICD-9-CM codes?

QI users often use a spreadsheet program such as Excel to calculate some fields prior to loading data into the QI software. Frequently, the spreadsheet will reformat text it considers numbers into the simplest format. For example it may remove a leading zero that it considers unnecessary from “04567” and change the code to “4567”. This is a completely different diagnosis code and will result in errors in your QI results.

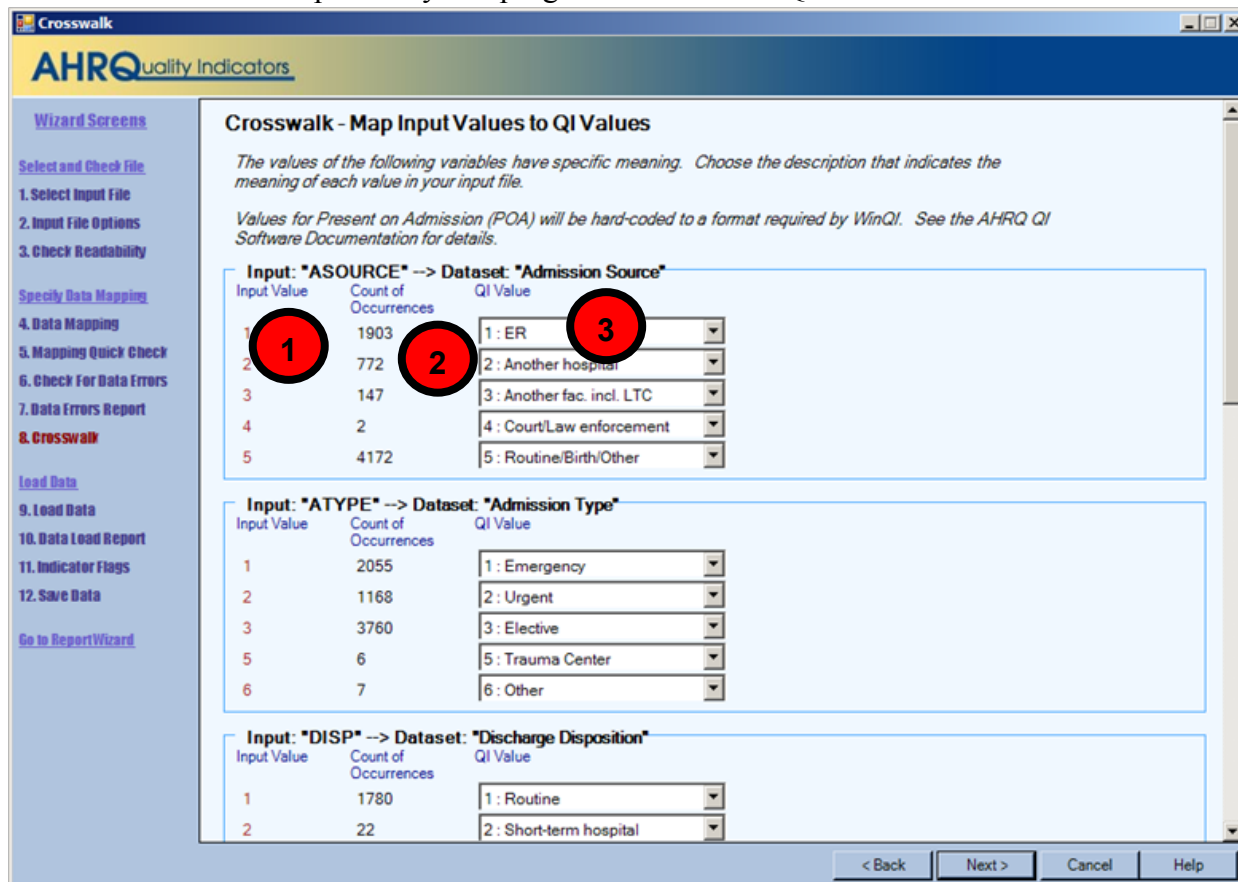
The diagnosis codes in the range of 001 to 100 are related to infectious diseases. Removing all leading zeros can result in a subtle error in which some of the QI are unaffected and some are incorrect.

Since most diagnosis codes do not have leading zeros, it is certainly possible a data file will not have any leading zeros in a column. If you see a message, “Column of ICD-9-CM codes does not have any leading zeros (warning)” consider the number of diagnosis codes involved. The more codes found in a column, the more improbable it is that they will all happen to not having leading zeros. If all or most of the diagnosis and procedure code columns have this warning, it may signal that they zeros were stripped out of the entire file at some point prior to importing the file into the QI Wizard.

5.9 Crosswalk – Map Input Values to QI Values


5.9.1 What is this screen for?


This screen allows you to update the mapping between data values that occur in your input file and those that are expected by this program for 6 critical QI variables.



5.9.2 How is this screen organized?

A separate area is provided for each of the six variables. Within each area, the following lists are displayed:

 **Input Value** – lists each unique value found in the input data file for that variable

 **Count of Occurrences** – lists the number of times that value occurred

QI Value – lists the QI value proposed to correspond to the Input Value

Warning messages, if any, are displayed to the right of the *QI Value* column.

5.9.3 What do I do here?

Compare the *Input Value* to the proposed *QI Value*. In particular, look for warning

messages that read “Case will be excluded from analysis set.”

You may reassign any input value to a value that is already known to the QI software. For example, the QI software uses “1” for male and “2” for female, but your input file may have them reversed, or it may not use numbers at all.

To specify a different QI value, click the arrow next to the QI Value select one from the drop-down menu.

When you have completed the value mapping, click <Next> to proceed with the data load.

5.9.4 Other choices

In addition to the recognized QI values, you may also use the following:

- <Exclude From Dataset> All cases with the particular value will not be loaded at all. This option allows you to remove invalid cases from analysis. It is also a useful way to “filter out” cases and limit your analysis to a particular sub-population that you are studying.
- <Map to Missing> This option is the default choice, which leaves the field blank in the QI data for any cases with this value. See the comments in the following section for more information.
- <Retain Value> This option leaves the value in the variable as-is. This option may be particularly useful if your data have different values for the Race variable since it will allow you to stratify by those races instead of the built-in values.

Using <Retain Value> or <Map to Missing> will result in the value not being used in the indicator analysis. This choice will have a different effect on each indicator for each field. Take note of the warning messages onscreen, and review the comments in the Data Elements table in the documentation.

All three choices may not be available for some variables depending on how they are used in the application.

5.9.5 Other questions

What effect does <Map to Missing> have?

Missing values affect different variables in different ways. Records with missing values for Sex will not be loaded. You may map values to missing for Admission Type, Admission Source and Discharge Disposition, but this will affect the assignment for some indicators. Primary Payer is used solely for stratification; missing values will be displayed as “Missing” in any reports. Missing Race values affect provider level and area level indicators differently. For Provider indicators, a missing race may be used in stratification. However, race is required for obtaining the denominator of Area indicators and missing values cannot be used.

Why would I want to exclude cases from the dataset?

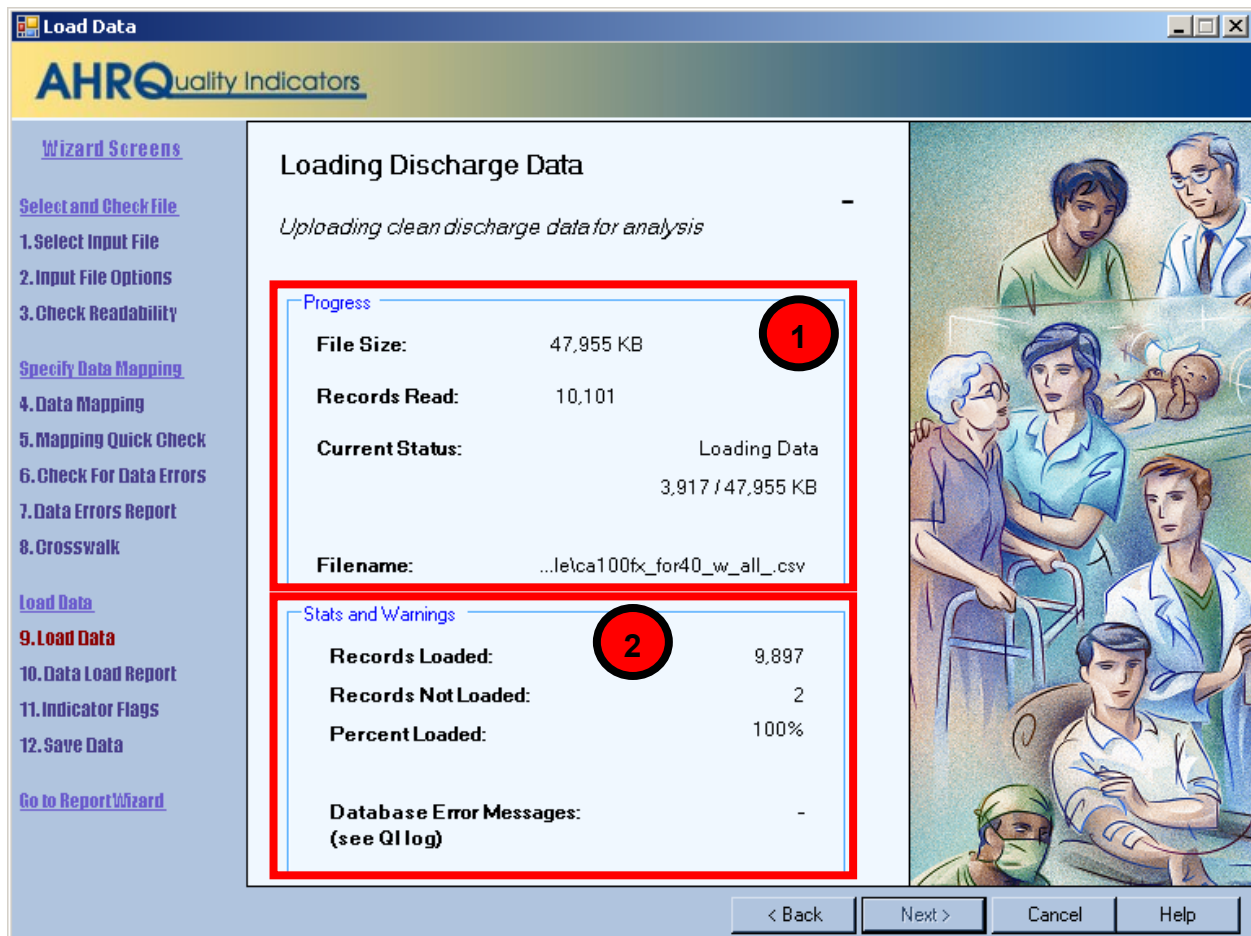
This option will depend on your knowledge of your input data. Particular values may be the result of data errors or they may be from cases that are incomplete.

You can also use this option to limit your analysis to a particular population of interest. For example, to get female only rate reports, you can exclude all males.

5.10 Load Data

5.10.1 What is this screen for?

The program reads the input file, translating data as necessary and getting ready to run the indicators. Depending on the size of the file, this may take anywhere from a few seconds to several minutes.



5.10.2 How is this screen organized?



Progress

The number of records read increments as the check progresses, and the *Current Status* value will change from “Reading file” to “Finished” on completion.



Stats and Warnings

Displays running totals of the number of records loaded, records not loaded (for any reason) and percent loaded. The Wizard also displays the number of error messages generated.

5.10.3 What do I do here?

Check the values displayed next to *Records Loaded* and *Records Not Loaded* to confirm that they match your expectations.

Confirm that “-” appears next to *Database Error Messages*.

If the number of records loaded looks correct and “-” appears next to *Database Error Messages*, click <Next> to proceed.

5.10.4 Questions

Why are records “not loaded”?

There are several reasons this might be true. Records may be excluded because you specified <Exclude from Dataset> in the crosswalk. They may also be excluded due to data value errors, such as invalid numbers in the Age or DRG field. You will have an opportunity to review the reasons for excluded rows on the following screen.

What should I do if no records were loaded?

If no records were loaded, click <Back> to return to the Crosswalk screen and correct the value settings for records excluded from analysis. If you have errors in your data file, then you may need to edit the file and restart the Quality Indicators Wizard.

What should I do if there is a number displayed next to *Database Error Messages*?

Database errors can be caused by unanticipated data within your input file, by external causes such as a network failure between your computer and your database server or by errors in the QI program.

Click <Cancel> to close the Wizard. The **QI Session Log** will then be visible. Click the <Save QI Session Log> link on the main menu and send a copy of the session log to AHRQ Quality Indicators Support.

5.11 Data Load Report

5.11.1 What is this screen for?

This screen provides confirmation that the file was loaded and gives a summary of any errors found.

Data Load Summary
Data has been loaded from your input file and is ready for Quality Indicators analysis. The following sections show descriptive statistics of the data as it has been loaded. You may go back and change any of your data mapping and crosswalk options and reload the file to correct any errors.

Total Rows Loaded	6,996	1
Total Rows Excluded	0	
Number of variables per record	103	

Record Warnings

Column	Records Affected	Message	2
Patient State/County Code	3	Value less than minimum (1000) - changed to a blank	
Point of Origin	6,085	Value mapped to null based on crosswalk (info)	

File Warnings

Column	Message	3

Variables
The following statistics describe the cleansed data that will be used for analysis. It does not include data from any rows that were excluded during the data load. (either due to errors or user specified exclusions)

Column	Number Missing	% Missing	Min	Max	4
Key	0	0%	-	-	
Age	0	0%	17	96	
Age in Days	6996	100%	-	-	
Race	0	0%	-	-	
Sex	0	0%	-	-	
Primary Payer	0	0%	-	-	
Patient State/County Code	0	0%	-10000	99999	
Hospital ID	0	0%	-	-	

Buttons: Save Report, < Back, Next >, Cancel, Help

5.11.2 How is this screen organized?



Data Load Summary

Displays total statistics for the file.



Record Warnings

This area displays warning messages that apply to values found in some of the records. The number of affected records will be displayed along with the Column name and warning message. You may have more than one warning message.



File Warnings

This area displays warning messages that apply to a particular variable over all records in the file.



Variables

Displays statistics about all the QI variables, including the number and percent missing values, and the minimum and maximum value found.

5.11.3 What do I do here?

Scan this report to verify that your data were loaded correctly.

5.11.4 Other questions

Doesn't this tell me the same information as the previous reports?

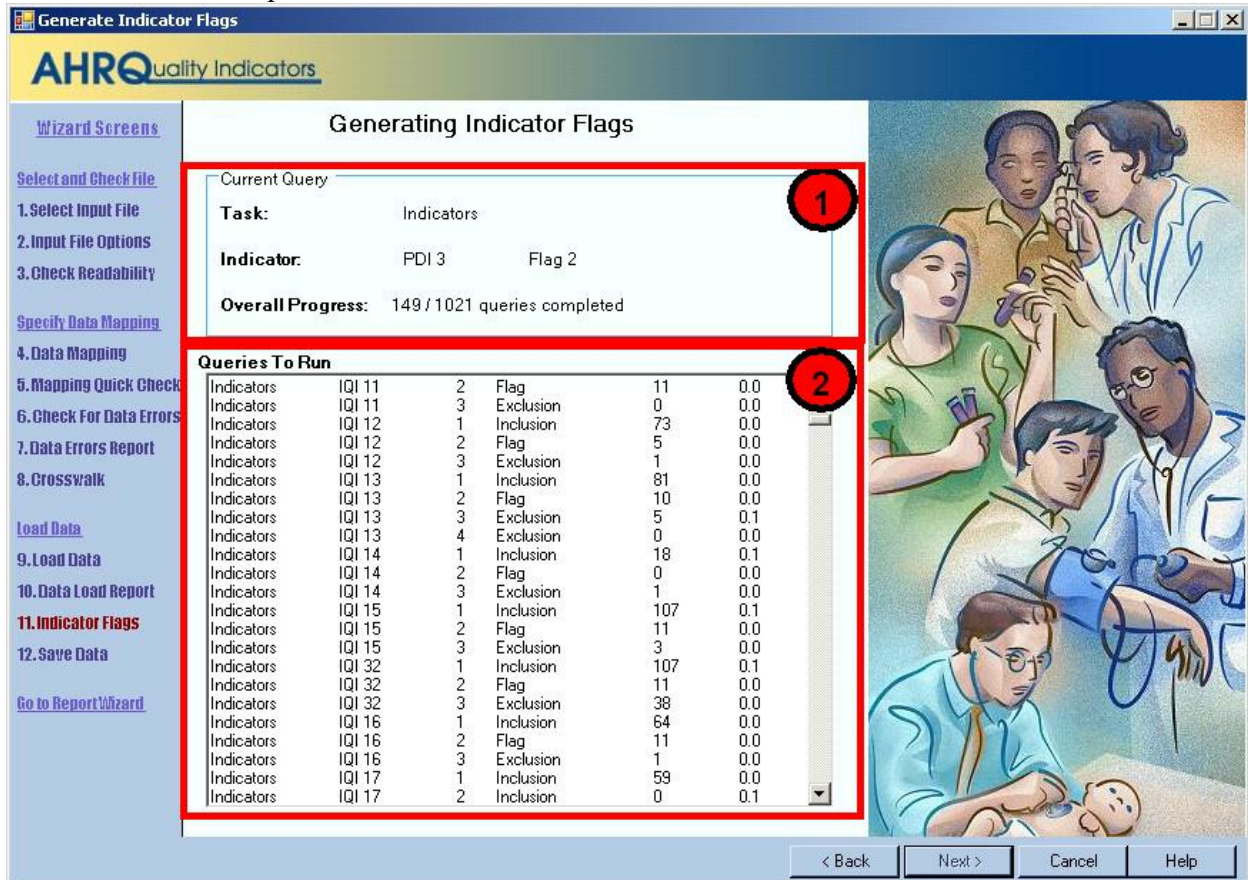
Not exactly. The previous reports tell you what will be loaded before the settings are finalized; this screen tells you what was actually loaded. The counts may be different when more than one error occurs on the same record.

5.12 Generate Indicator Flags

5.12.1 What is this screen for?

This screen does the Quality Indicators analysis of your data. It scans your entire input for cases of interest in each of the indicators and calculates expected rates based on demographic information and comorbidities for each case.

For thousands of cases, this may take several minutes. For millions of cases, this may take several hours to complete.



5.12.2 How is this screen organized?

1 Current Query

This area tracks the analysis progress.

2 Queries to Run

This area displays a list of all the work that the QI program is doing. Queries correspond to specific inclusion or exclusion rules listed in the Technical Specifications for each indicator. This information may also be helpful to QI support if you have questions about your results.

5.12.3 What do I do here?

Be patient; some indicators are complex and the analysis may take several minutes or even hours. The <Next> button will be unavailable until all the queries have been run.

5.12.4 Other questions

What's a "Query"?

This term is an instruction to the database. There is roughly one query per inclusion or exclusion rule listed in the AHRQ QI Technical Specifications.

What do I do if I get an error?

If you have a SQL error on this screen, your entire results should be considered invalid. Check the QI Session log to see what the error was. The error may be due to your database server being shut down; in that case retry the data load at another time. Other errors should be sent to QI support for assistance.

What do I do if I'm loading millions of rows and a SQL query times out?

You may edit the maximum amount of time each query is permitted to run on the Program Options Screen. The default setting for *Indicator Query Timeout* is 7,200 seconds (2 hours). Normally, this is more than sufficient, but for very large datasets, you may need to increase this value. This timeout is the maximum allowed time for each query to complete without error; most queries will run much faster.

Why are there so many queries?

There are approximately 100 indicators, each with multiple rules. Additionally, there are queries to assign categories to discharges and to calculate risk adjusted rates.

Why does it run all indicators when I am only interested in a few?

You only need to generate indicator flags once. The results are then summarized for quick reporting. Once this screen has completed, you may use the **Report Wizard** multiple times to prepare reports that display as many or as few indicators as you wish. The entire indicator flagging analysis must run before you can generate any reports.

5.13 Save Data and Mapping

5.13.1 What is this screen for?

This screen lets you export your data at a discharge level for analysis in other programs. It also lets you save your data mapping for use with additional files in the same format.

Save Data and Mapping (optional)

AHRQ quality Indicators

Wizard Screens

[Select and Check File](#)

- Select Input File
- Input File Options
- Check Readability

[Specify Data Mapping](#)

- Data Mapping
- Mapping Quick Check
- Check For Data Errors
- Data Errors Report
- Crosswalk

[Load Data](#)

- Load Data
- Data Load Report
- Indicator Flags
- Save Data**

[Go to ReportWizard](#)

Save Data and Mapping

Save Data

Save your data in the QI format. This is not mandatory. Your data will remain until you load a new data file -- even after you quit the program.

Select Items to Include:

- Discharge Data
- Procedure and Diagnosis Codes
 - Present on Admission
- Indicator Flags
- Adult and Pediatric Comorbidities
- Discharge Level Predicted Probabilities (Provider Indicators)
- Patient Identifier Data (Medical Id, Birth Date, etc)
- Temporary Flag Variables

Save Data To File (CSV)

Save Data Mapping

Save your data mapping and crosswalk information. This may be used to load additional files in the same format.

- Recognize Columns By Position
- Recognize Columns By Column Name

Save Mapping

< Back Next > Cancel Help

5.13.2 How is this screen organized?



Save Data

This area lets you save your cleaned and translated data in a comma separated file along with indicator results.



Save Data Mapping

Provides the option to save the mapping of variables and values (Crosswalk).

5.13.3 What do I do here?

Save Data

Use the checkboxes to indicate the data you want to include in the file (see **Export File Options** below), and then click the <**Save Data**> button. You will be prompted to provide a file name and may choose where you want to save the file.

Save Data Mapping

Click the <**Save Mapping**> button. You will be prompted to provide a file name and may choose where you want to save the file. If you have other data files that have the same variable names and same structure, you can load this mapping file to save time.

5.13.4 Export File Options

- **Discharge Data.** Check this option to include the formatted discharge data that you imported into the QI application.
- **Procedure and Diagnosis Codes.** Check this option to include the ICD-9-CM procedure and diagnosis codes that you imported into the QI application.
- **Indicator Flags.** Check this option to include a column for each indicator in your output file. That column will contain the following values:

1 – Outcome of Interest. Case is included in the numerator and the denominator.

0 – Population at Risk. Case is included in the denominator but not the numerator.

Missing – Case is not included in either total, which may be because the case is not of interest at all for that indicator (e.g., males for a female only indicator) or it may have been excluded for a particular reason. (See the Technical Specifications.)

- **Adult and Pediatric Comorbidities.** Check this option to include a column for each of the comorbidity definitions. Adult comorbidities are based on the AHRQ Comorbidity software and are used in risk adjustment. See the PSI Guide for more information. Pediatric comorbidities are used in pediatric risk adjustment.
- **Discharge Level Predicted Probabilities.** Check this option to include the predicted probability for each case based on demographics, comorbidities, and risk of mortality ratings for each case in the population at risk.

- **Patient Identifier Data.** Check this option to include the following fields: Patient ID, Birth Date, Admit Date, and Discharge Date. These fields are only recommended if they are required for your analysis. This checkbox is disabled if those fields have not been loaded.
- **Temporary Flag Variables.** Check this option to include some additional fields used in the calculation of the PSI and PDI indicators.

5.13.5 Mapping File Options

- **Recognize Columns By Name** – Use this option if you have other data files to import that have column names identical to column names in this data file.
- **Recognize Columns By Position** – Use this option if you need to import text or Excel files that have the same columns in the same order as this data file. Text files do not require column headings.

5.13.6 Other questions

Why would I want to save my data?

You can reload this file later for the purpose of generating reports. You can also import the resulting QI dataset into other programs.

Why would I want to save my data mapping?

Once you have been through the Wizard and created and saved a mapping of your variables, you can reuse those specifications with other data files that have the same variable names.

Should I save mappings “By Name” or “By Position”?

If you do not have column names in your file, then your only option is to save mappings by position. If you do have column names, these will be ignored in future files if “By Position” is selected. You may use either, however, “By Name” mappings are generally less error-prone if your source file is changed.

5.14 Data Load Completed

5.14.1 What is this screen for?

This screen lets you know that the process of using the Quality Indicators Wizard is complete.

5.14.2 What do I do here?

Click the <Close Window> control.

6.0 Reports

6.1 Report Basics

6.1.1 What kinds of reports can I generate?

The WinQI Software provides several types of reports. This list specifies the kinds of reports that WinQI can generate and the instruction manual sections that cover them.

Quick Report on input data

- Section 6.2

Patient Level Report

- Sections 6.3, 6.4, 6.5

Provider-level rates report

- Sections 6.6, 6.7, 6.8, 6.9, 6.11, 6.13, 6.14, 6.15, 6.16

Area-level rates report

- Sections 6.6, 6.7, 6.10, 6.12, 6.13, 6.14, 6.15, 6.16

6.2 Quick Report

The Quick Report screen can be accessed from the main menu after data have been loaded.

6.2.1 What is this screen for?

This screen allows you to view the overall observed rates for your input file without going through the Report Wizard. The report serves as a quick check to see if your data appear to have been loaded properly.

Quick Report
This is a summary of the numerators, denominators and observed rates for your currently loaded data.

Filename: D:\Documents And Settings\Kellere\AHRQ\Windows Software Update Nov\DataFiles
 \2007-03-02.csv
Number of records: 3635
Has POA Flags: N

Provider Level Indicators 1

Indicator	Name	Num.	Den.	Rate	Pop. Rate
IQI1	Esophageal resection volume	13	-	-	-
IQI2	Pancreatic resection volume	15	-	-	-
IQI4	Abdominal aortic aneurysm repair (AAA) volume	34	-	-	-
IQI5	Coronary artery bypass graft (CABG) volume	73	-	-	-
IQI6	Percutaneous transluminal coronary angioplasty (PTCA) volume	67	-	-	-
IQI7	Carotid endarterectomy (CEA) volume	26	-	-	-
IQI8	Esophageal resection mortality rate	0	3	0	0.09372661
IQI9	Pancreatic resection mortality rate	1	8	0.125	0.06802855
IQI11	AAA repair mortality rate	2	4	0.5	0.0815796
IQI12	CABG mortality rate	2	24	0.08333333	0.0344299
IQI13	Craniotomy mortality rate	4	40	0.1	0.07367922
IQI14	Hip replacement mortality rate	0	12	0	0.00285651
IQI15	Acute myocardial infarction (AMI) mortality rate	5	42	0.11904762	0.09403269
IQI16	Congestive heart failure (CHF) mortality rate	3	34	0.08823529	0.04571578
IQI17	Acute stroke mortality rate	11	33	0.33333333	0.113857
IQI18	Gastrointestinal (GI) hemorrhage mortality rate	1	20	0.05	0.03187448
IQI19	Hip fracture mortality rate	23	49	0.46938776	0.03220228
IQI20	Pneumonia mortality rate	60	92	0.65217391	0.08331052
IQI21	Cesarean section delivery rate	25	770	0.03246753	0.23201326
IQI22	VBAC rate - uncomplicated	43	55	0.78181818	0.18762232
IQI23	Laparoscopic cholecystectomy rate	25	51	0.49019608	0.75767869
IQI24	Incidental appendectomy among the elderly rate	26	114	0.22807018	0.02407018

Save Report Close

6.2.2 How is this screen organized?

1 Provider Level Indicators Displays the observed numerator, denominator, observed rate, and population rate for all provider level indicators.

- **Num.** The total number of cases that meet the inclusion criteria as well as the flag criteria but do not meet the exclusion criteria. This term is the numerator for the observed rate.
- **Den.** The total number of cases that meet the inclusion criteria but do not meet the exclusion criteria. This term is the denominator of the observed rate. Volume indicators are not reported as a rate and do not have a denominator.
- **Rate.** The observed rate for the indicator. This term is equal to the Num./Den.

• **Pop. Rate.** The overall rate for this indicator in the reference population. The reference population is pooled discharges for the 2008 SID database. This rate is used in the calculation of the risk adjusted rate (observed rate / expected rate × population rate), and it is not affected by the currently loaded data. The population rate can serve as a quick national comparison to your observed rate, but a more appropriate benchmark is generally the expected rate that is calculated by the Report Wizard.

2 Area Level Indicators Displays the number of cases found for each indicator in your discharge data along with the overall population rate.

- **Num.** The total number of cases that meet the inclusion criteria as well as the flag criteria but do not meet the exclusion criteria. This term is the numerator for the observed rate.
- **Pop. Rate.** The overall rate for this indicator in the reference population. The reference population is pooled discharges for the 2008 SID database. This rate is used in the calculation of the risk adjusted rate (observed rate / expected rate × population rate), and it is not affected by the currently loaded data.

Indicator	Name	Num.	Pop. Rate
IQI26	CABG rate	73	0.00252096476
IQI27	PTCA rate	67	0.00556709128
IQI28	Hysterectomy rate	89	0.00479891447
IQI29	Laminectomy rate	166	0.00254624995
PD114	Pediatric asthma admission rate	3	0.00154871398
PD115	Pediatric diabetes short-term complication admission rate	0	0.00028189688
PD116	Pediatric gastroenteritis admission rate	6	0.00161193717
PD117	Pediatric perforated appendix admission rate	87	0.31128074795
PD118	Pediatric urinary tract infection admission rate	0	0.00043744794
PD190	PDI Composite - Overall	4	0.00387999597
PD191	PDI Composite - Acute Conditions	3	0.00204938512
PD192	PDI Composite - Chronic Conditions	1	0.00183061086
QI01	Diabetes short-term complication admission rate	7	0.00046584943
QI02	Perforated appendix admission rate	93	0.30800430487
QI03	Diabetes long-term complication admission rate	25	0.00104196573
QI05	Chronic obstructive pulmonary disease admission rate	18	0.00223971674
QI07	Hypertension admission rate	5	0.00040688885
QI08	Congestive heart failure admission rate	42	0.00420875061
QI09	Low birth weight rate	0	0.05939908912
QI10	Dehydration admission rate	17	0.00123020178
QI11	Bacterial pneumonia admission rate	148	0.00376623343
QI12	Urinary tract infection admission rate	15	0.00150178436
QI13	Angina without procedure admission rate	6	0.00045796864
QI14	Uncontrolled diabetes admission rate	5	0.00019980525
QI15	Adult asthma admission rate	10	0.00107045389
QI16	Rate of lower-extremity amputation among patients with diabetes	19	0.0003321566
QI90	QOI Composite - Overall	300	0.01686854274
QI91	QOI Composite - Acute Conditions	180	0.00647814225
QI92	QOI Composite - Chronic Conditions	120	0.01038584852
PSI21	Foreign body left in during procedure	11	-
PSI22	Ischemic pneumothorax	60	-

6.2.3 What do I do here?

The provider-level indicators are displayed first. Use the scroll bar to see the area-level indicators. You can use this screen to verify that your data have been loaded properly before you go through the Report Wizard. This report can be saved in Rich Text Format using the <Save Report> button.

6.2.4 Other questions

Why is the Population Rate inappropriate for comparison?

The population rate is based on the reference population, which is a nationwide sample of discharges. It would only be fair to compare your observed rate with the population rate if your hospital(s) perfectly matched the average demographics and severity of case in this sample. A more appropriate rate to compare with is the Expected Rate that can be calculated by the Report Wizard (see sections 6.2 and section 9.4.)

Why is the Population Rate displayed?

It can be useful to see if your observed rates are “in the same ballpark” as the population rate to determine whether the data load was correct. You can use the population rate to verify the calculation of the Risk Adjusted Rates that are calculated by the Report Wizard.

Why are no denominators or rates displayed for area level indicators?

It is necessary to go through the Report Wizard to select the correct census population to get a denominator for area level indicators. Also, many discharge files will contain a few out of state discharges that can inflate the total population counts if the proper stratifiers are not selected.

6.3 Patient Level Report

6.3.1 What is this screen for?

This screen provides a view of the individual cases flagged for each indicator. This screen can be useful for exploring which cases were actually included in the numerator and denominators for each Indicator.

1

Module: Display: Search: Go

Indicator: POA rates

Rows Per Page: Doubleclick to the left of any record to display the case details for this indicator. Records:

Row in File Key	Hospital ID	Age	Sex	MDC	DRG	DRG Ver	Num	Den	Wtd Num	Pred. Probability	Weight
16712	MEXICO	83	1	1	33	27	0	1	0	0.004346	1.000000
19068	SCOTLAND	53	2	1	21	27	0	1	0	0.027439	1.000000
19240	SCOTLAND	75	2	1	23	27	0	1	0	0.196854	1.000000
19243	SCOTLAND	63	1	1	26	27	0	1	0	0.020154	1.000000
19475	SCOTLAND	84	1	1	23	27	0	1	0	0.165630	1.000000
19523	SCOTLAND	64	1	1	27	27	0	1	0	0.022800	1.000000
19537	SCOTLAND	62	1	1	23	27	1	1	0.837999	0.146071	0.838000
19617	SCOTLAND	59	1	1	27	27	0	1	0	0.044371	1.000000
20303	SCOTLAND	59	1	1	31	27	0	1	0	0.045453	1.000000
20395	SCOTLAND	65	1	1	23	27	1	1	0.911000	0.530811	0.911000
20827	SCOTLAND	40	2	1	26	27	0	1	0	0.040047	1.000000
20843	SCOTLAND	71	1	1	27	27	0	1	0	0.017709	1.000000
20890	SCOTLAND	53	1	1	27	27	0	1	0	0.047117	1.000000
21811	SCOTLAND	58	2	1	25	27	0	1	0	0.026452	1.000000
22281	SCOTLAND	72	1	1	20	27	0	1	0	0.120735	1.000000
23179	MO260105	55	2	1	27	27	0	1	0	0.013579	1.000000
23227	MO260105	62	2	1	25	27	0	1	0	0.031618	1.000000
23298	MO260105	71	1	1	27	27	0	1	0	0.017876	1.000000
23309	MO260105	48	2	1	32	27	0	1	0	0.004851	1.000000
23456	MO260105	76	1	1	23	27	1	1	0.842999	0.158783	0.843000
23489	MO260105	76	2	1	26	27	0	1	0	0.047925	1.000000
23676	MO260105	57	2	1	25	27	0	1	0	0.028972	1.000000
23840	MO260105	41	2	1	27	27	0	1	0	0.027548	1.000000
23935	MO260105	69	1	1	23	27	1	1	0.940999	0.439975	0.941000
23974	MO260105	75	2	1	27	27	0	1	0	0.016564	1.000000
23985	MO260105	68	1	1	27	27	0	1	0	0.016871	1.000000

2

3

4

Export All Page 1 of 1 < Previous Page Next Page > Cancel Help

6.3.2 How is this screen organized?



Report controls

Controls at the top of the screen allow you to select a QI module, an indicator from that module, a grouping of records to display, and the number of rows per page to display in the report. The options available under **Display** to select the grouping of records are as follows:

- **Population at Risk** – All records that are included in the denominator of the selected Indicator.
- **Outcome of Interest** – All records that are included in the numerator of the selected Indicator.
- **Population at Risk Before Exclusions** – All records that were initially flagged for inclusion in the denominator of the selected Indicator.
- **Outcome of Interest Before Exclusions** – All records that were included in the numerator of the selected Indicator, as well as cases that were excluded from the denominator. For more information on exclusions, see the appropriate Technical Specifications found on the QI website.
- **All discharges** – All records in the data file.



Display Case Details control

The area to the left of each row functions as a control to access the Case Details screen for the discharge record displayed in that row.



Report area

Displays a list of the actual discharges meeting the criteria of the Report Controls selections. The *Key* field and several other useful identifying columns are included.



Page controls

Buttons at the bottom of the screen allow you to export the records, and to navigate between pages of data in the Patient Level Report.

6.3.3 What do I do here?

Find the indicator that you are interested in by selecting the **Module** and then the **Indicator** from the drop-down lists. The drop-down list of indicators shows the number of cases included in the numerator, as well as the number of cases in the denominator (the denominator does not apply to all indicators.)

“Population at Risk” is selected for <**Display**> by default, so after an <**Indicator**> is selected, all records that were included in the denominator for the selected Indicator are displayed. Select a different value for <**Display**> if desired.

You may quickly search for a particular case by entering its Key value in the Search box and then selecting “All Discharges”. Records are returned if your search term can be found anywhere in the Key value.

Use the <**Export All**> button to export all records in the report.

You may drill into any one row of this report to show exactly why any particular case was flagged for this indicator. Double click to the left of the row to open the **Case Details** screen (see [section 6.7](#))

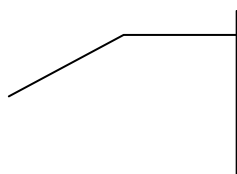
6.3.4 Other questions

What data are displayed?

Columns displayed on all reports include *Row in File*, *Key*, *Age*, *Sex*, *MDC*, *DRG*, *Numerator*, *Denominator* and *Predicted Probability*. A value of “1” under *Numerator* or *Denominator* indicates that the record was included in the rate calculation of the selected Indicator, and “0” indicates the record was not included.

An additional column appears on the report when any of the last three options is selected from the <**Display**> drop-down menu: *Excluded*.

A value of “X” in the *Excluded* column indicates that the record was excluded.



NOTE: Records excluded from the Population at Risk (denominator) are, by definition, also excluded from the Outcome of Interest (numerator), as well. In all QI, the numerator is a subset of the denominator

What is the predicted probability?

The predicted probability is the probability that the outcome of interest will occur for each case in the population at risk.

How can I see why a case was flagged?

Double-click on the case and open up the Case Details screen. (See [section 6.7](#))

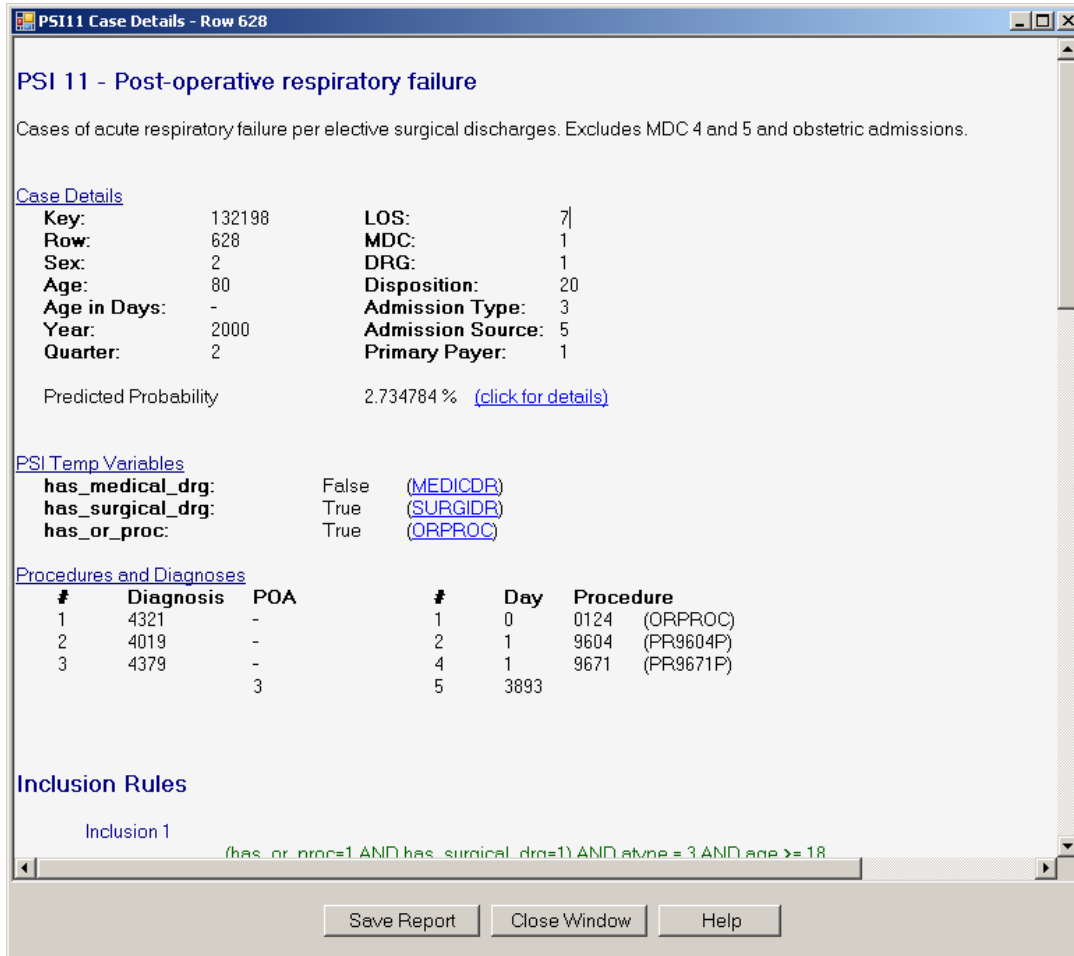
How is the predicted probability calculated?

The predicted probability is calculated from the age, sex, diagnoses and procedures on each discharge record. Open the Case Details screen for that case and click on the Predicted Probability link in that case. (See [section 6.8](#))

6.4 Case Details

6.4.1 What is this screen for?

This screen, accessed by double-clicking to the left of a row on the **Patient Level Report**, lets you see exactly why a particular case was or was not flagged for a particular indicator.



Use the scrollbar to view the entire report. For this case, the report shows the following:

PSI 11 - Post-operative respiratory failure

Cases of acute respiratory failure per elective surgical discharges. Excludes MDC 4 and 5 and obstetric admissions.

Case Details

Key:	131231	LOS:	7
Row:	628	MDC:	1
Sex:	2	DRG:	1
Age:	80	Disposition:	20
Age in Days:	-	Admission Type:	3
Year:	2004	Admission Source:	5
Quarter:	2	Primary Payer:	1

Predicted Probability 2.734784 % [\(click for details\)](#)

PSI Temp Variables

has_medical_drg:	False	(MEDICDR)
has_surgical_drg:	True	(SURGIDR)
has_or_proc:	True	(ORPROC)

Procedures and Diagnoses

#	Diagnosis	POA	#	Day	Procedure
1	4321	-	1	0	0124 (ORPROC)
2	4019	-	2	1	9604 (PR9604P)
3	4379	-	4	1	9671 (PR9671P)
		3	5	3893	

Inclusion Rules

Inclusion 1
 (has_or_proc=1 AND has_surgical_drg=1) AND atype = 3 AND age >= 18
Inclusion 1 Result = True

Case meets denominator inclusion criteria before exclusion

Exclusion Rules

Exclusion 1
 Primary DX or Secondary DX that is POA in set [ACURFID](#)
 Comments: "POST-OPERATIVE RESPIRATORY FAILURE PROVIDER INDICATOR / PSI # 11 ICD-9-CM DIAGNOSIS CODES"
Exclusion 1 Result = False

Exclusion 2
 Any Diagnosis above matches a Diagnosis in set [NEUROMD](#)
 Comments: "Neuromuscular Disorder"
Exclusion 2 Result = False

Exclusion 3
 The only operating room procedures are in the set [TRACHIP](#)
 Comments: "EXCLUDE: TRACHEOSTOMY ICD-9-CM PROCEDURE CODE"
 0124 (ORPROC)
Exclusion 3 Result = False

Exclusion 4
 A procedure in [TRACHIP](#) occurred before the first operating room procedure
[TRACHIP](#) Comments: "EXCLUDE: TRACHEOSTOMY ICD-9-CM PROCEDURE CODE"
Exclusion 4 Result = False

Exclusion 5
 mdc IN (4, 5, 14)
Exclusion 5 Result = False

Case is not excluded

Flag Rules

Flag 1
 Secondary Diagnosis above matches a Diagnosis in set [ACURFID](#)
 Comments: "POST-OPERATIVE RESPIRATORY FAILURE PROVIDER INDICATOR / PSI # 11 ICD-9-CM DIAGNOSIS CODES"
Flag 1 Result = False

Flag 2
 Procedure in set [PR9604P](#) occurs at least 1 days after the first orproc
 Comments: "Respiratory Failure"
 9604 INSERT OF SENSTAKEN TUBE
Flag 2 Result = True

Flag 3
 Procedure in set [PR9670P](#) occurs at least 2 days after the first orproc
 Comments: "Respiratory Failure"
Flag 3 Result = False

Flag 4
 Procedure in set [PR9671P](#) occurs at least 2 days after the first orproc
 Comments: "Respiratory Failure"

9671	CONTINUOUS MECHANICAL VENTILATION FOR LESS THAN 96 CONSECUTIVE HRS
Flag 4 Result = False	
Flag 5	Procedure in set PR9672P occurs at least 0 days after the first orproc Comments: "Respiratory Failure"
Flag 5 Result = False	
Case is flagged for the numerator	

6.4.2 How is this screen organized?

Case details

Displays information from the discharge record that may be used in some indicators.

Inclusion Rules

Displays the rules for including a case in the denominator of this indicator.

Exclusion Rules

Displays the rules for excluding a case from both the numerator and denominator of this indicator.

Flag Rules

Displays the rules for including this case in the numerator of this indicator.

6.4.3 What do I do here?

You can view one case using the scrollbar to display the entire report. Save this report as a Rich Text File that can be emailed or printed. You may also copy and paste from this screen using Ctrl+A (select all) and Ctrl+C (copy).

Click on any underlined set name to get a list of all the ICD-9 procedure, ICD-9 diagnosis or DRG codes that apply. [See section 8.4.](#)

6.4.4 What data are displayed?

The number and complexity of rules varies per indicator. Each rule may be based on a list of procedures, a list of DRGs, a list of diagnoses or it may be based on a Boolean expression. See the technical documentation applicable to this indicator to interpret each rule. If there are procedure or diagnosis codes that match any of the lists referenced, the ICD-9 codes and descriptions will be displayed along with the rule.

6.4.5 Example

In the above example, the following information can be seen for PSI 11:

Temporary Variables: has_surgical_flag = true, has_orproc_flag = true. This indicates that this record includes both a surgical DRG and an operating room procedure.

Inclusion Rules: This case is “true” for inclusion rule 1 (the only inclusion rule) and is therefore included in the denominator of PSI 11. The inclusion rule specifies that the case has a surgical DRG, an operating room procedure as determined above, and admission type of 3 (Elective) and the patient age is greater than or equal to age 18.

Exclusion Rules: This case is “false” for all of the exclusion rules and it thus remains in the denominator.

Flag Rules: This case is “true” for Flag Rule 4 and “false” for all other Flag rules. In order to satisfy the indicator, it is only necessary that at least one flag rules is true. Therefore, the case is flagged for the numerator due to the 9604 procedure that occurred on day 2. (As you can see above, 0124 was an operating room procedure that occurred on day 0.)

6.4.6 Other questions

What does ORPROC mean?

The ICD-9 codes for Operating Room procedures are denoted by (ORPROC). This term may be helpful in interpreting some of the exclusion rules for some PSI and PDI. The complete list of OR procedures can be found on the QI website.

What happens if there are two inclusion rules?

If there are two inclusion rules for an indicator, “Inclusion rule 1” and “Inclusion rule 2”, then the case will be included if either (or both) of the two rules is satisfied.

This rule is not the same as a rule having multiple conditions— e.g. a required primary diagnosis AND an age comparison. All parts of a single rule must be true for the rule to be satisfied.

How is the Predicated Probability calculated?

The predicted probability is calculated from the covariates that apply to this case. See [section 6.8](#).

6.5 Predicted Probability

6.5.1 What is this screen for?

This screen, accessed by clicking the <Predicted Probability> link on a **Case Details** screen (see section 6.7), displays information on how the Predicted Probability (the expected rate for a specific case) was calculated.

Case Details

PSI11 Predicted Probability for Row 627

Key: 10060102
Sex: 2 **Age:** 80
DRG: 1 **MDC:** 1

Predicted Probability: 0.02022276

To calculate the probability, the program adds up the coefficients that apply to this case, and applies the formula below. The covariates differ for each indicator. The table below shows the covariates for PSI11 that matched this case.

Covariate	Coefficient
Intercept	-6.41592744735382
Sex = 2	-0.138505784921742
Age Category = 17	-0.0781551288695272
Other Modified DRG	2.20473931764422
Other APR-DRG	0
Comorbidity HTN_C	0
Comorbidity HTN_C	0
Total:	-4.42784904350087

Formula

$$\text{EXP(Total)} / (\text{EXP(Total)} + 1)$$

$$= \text{EXP}(-4.42784904350087) / (\text{EXP}(-4.42784904350087) + 1)$$

$$= 0.0117992599312761$$

Save Report Close Window Help

6.5.2 How is this screen organized?



Case information

Relevant information about the case is displayed at the top of the screen.



Covariates

Displays the applicable covariates and corresponding coefficients.

Formula

Displays the formula used to calculate the predicted probability for the case.



6.5.3 What do I do here?

You can view the covariates that were included in the calculation of the predicted probability for one case. This screen is provided to help users understand the details of expected rate calculation.

This option is a new feature of the application that is not fully implemented.

6.5.4 Other questions

What is the Predicted Probability?

The predicted probability is the probability that an outcome will occur for a particular case that is at risk for that outcome. This probability is based on a regression model applied to approximately cases in the population at risk in the reference population (containing approximately 28 million adult and 7 million pediatric discharges).

How is the Expected Rate related to the Predicted Probability?

The expected rate for a group of cases is the average predicted probability of the cases. (Some QI documentation refers to the predicted probability as the “case level expected rate.”)

What other covariates are applicable to this indicator?

You may view the entire table of covariates for each QI module on the AHRQ QI website.

What if the numbers on the screen don't add up?

This predicted probability viewer is a new feature that does not yet fully support all types of covariates. If you find an error on this screen, please email it to QI support, support@qualityindicators.ahrq.gov.

How can an individual covariate be interpreted?

You can often see the relative importance of different covariates from the magnitude of the coefficient; however, individual covariates are not intended to be interpreted in isolation.

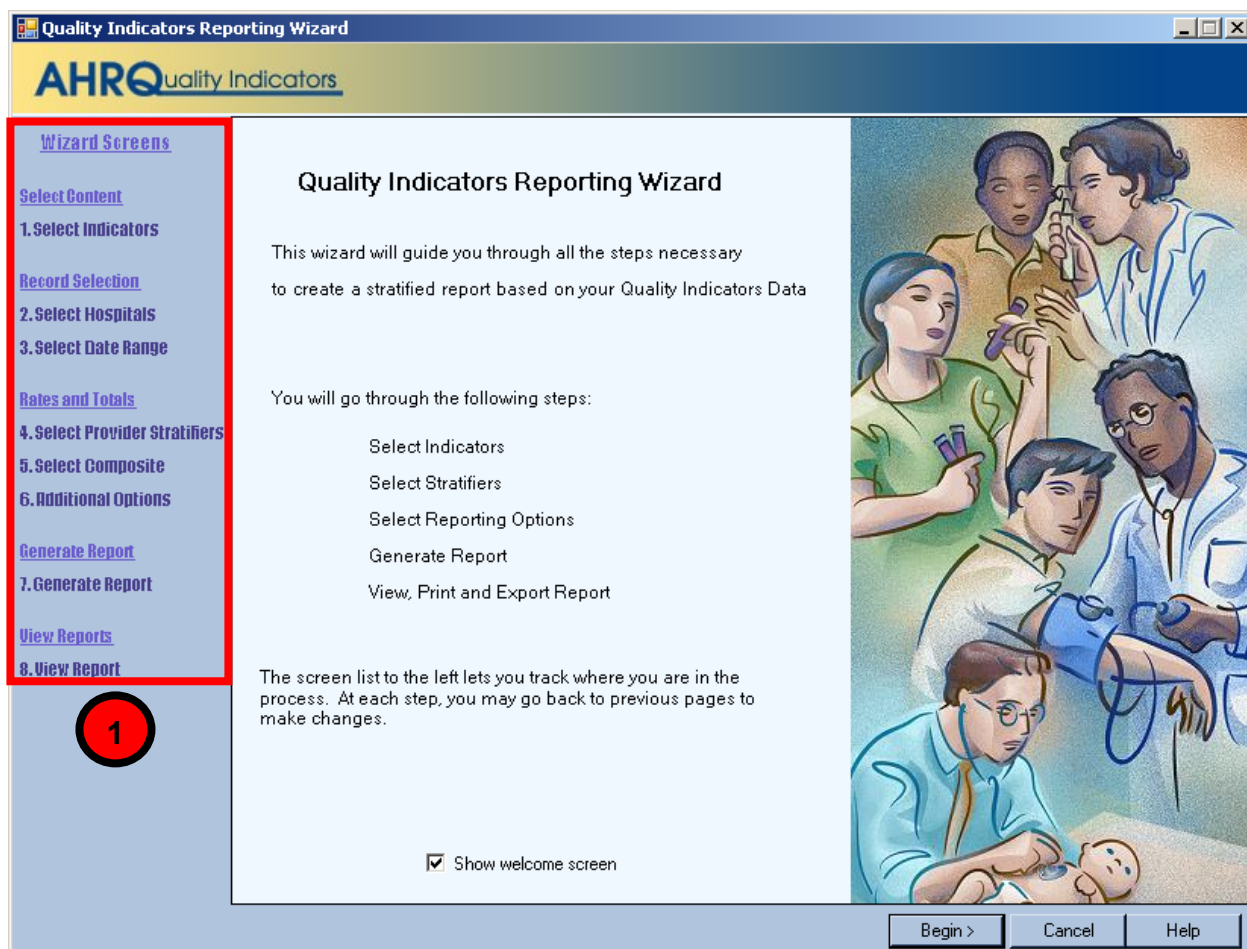
6.6 Quality Indicators Reporting Wizard

6.6.1 What is this screen for?

This screen introduces the Report Wizard. The Report Wizard has been separated into two Wizards, tailored for the Area and Provider level indicators.

The WinQI software provides Report Wizards that allow users to do the following:

- Select Quality Indicators to include in the report
- Select the hospitals and years by which you wish to select records
- Select stratifiers
- Select additional options for data analysis
- Generate and view provider-level and area-level reports



6.6.2 How is this screen organized?



Wizard Screens

Lists the names of all screens in the Quality Indicators Wizard. This list is displayed on the left side of every screen in the Wizard. The current screen will be highlighted in red as you progress through the wizard.

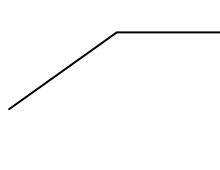
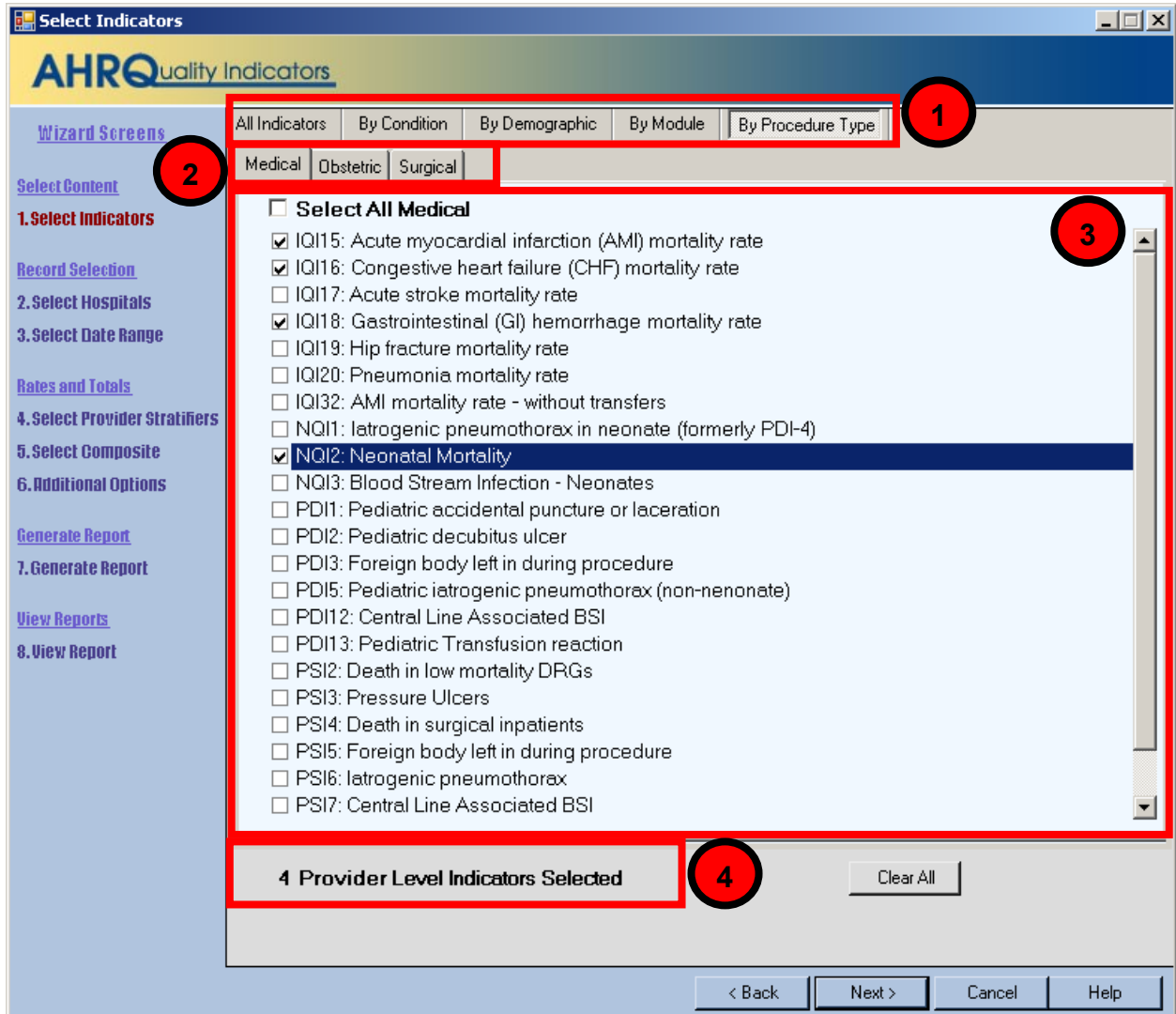
6.6.3 What do I do here?

Click the <**Begin**> button to proceed to the first Report Wizard screen. If you click the <**Cancel**> button on any screen, the Wizard will close.

6.7 Select Indicators

6.7.1 What is this screen for?

Use this screen to specify the Indicators to include in the report.



NOTE: If you have used the Report Wizard previously, all of your selections have been saved. To specify a new group of Indicators, use the <Clear All> button before proceeding.

6.7.2 How is this screen organized?

Indicators are organized according to categories that may be of interest to different types of researchers. Each indicator is listed in several different tabs. The available tabs, subtabs, and choices are geared to the type of report, Area or Provider.



Top-Level Tabs

- **All Indicators** – Quick access to all the PSI, PDI, IQI, PQI (Area level only) and/or EXP (Provider level only) indicators.
- **By Condition** – Pages for indicators that are grouped by the particular condition.
- **By Demographic** – Pages for each of several interesting demographic groupings.
- **By Module** – The traditional way of finding indicators; separate pages for the Patient Safety Indicators, the Inpatient Quality Indicators, the Prevention Quality Indicators, the Pediatric Quality Indicators, and the Experimental Quality indicators.
- **By Procedure Type** – Separate pages for indicators related to Medical, Surgical, and Obstetric cases.
- **Composite Measures** - The area level composite measures.⁴



Sub-tabs

The <All Indicators> tab has no sub-tabs. Each of the other tabs contains a number of pages as described above that are accessed via the sub-tabs.



Indicators

Each page (sub-tab) contains a list of indicators with checkboxes. There is also a checkbox above the list that can be used to select all indicators on the page.



Selection Summary Information

Displays the total number and type (Provider or Area) of indicators selected on all pages.

⁴ Provider level composite measures can be selected on a different screen.

6.7.3 What do I do here?

Click on one of the tabs in the top row to select a category. When a tab in the top row is clicked, sub-tabs are displayed below the main tabs.

Click one of the sub-tabs to select the page that lists the indicators for the selected topic.

Click the checkbox to select or deselect an indicator. You may also select or deselect all the indicators on a page at one time using the “Select All _____” checkbox.

Use the selection summary information at the bottom of the screen to track the number of indicators selected.

Click the <Clear All> button to deselect all indicators on all pages.

Click <Next> when the desired indicators have been selected.

6.7.4 Timesaving tips

- **Selecting Everything**

Click on “All Indicators” and check all modules on this page to get all the available indicators.

- **Currently Selected**

The number of Indicators currently selected is displayed at the bottom of the page.

- **Clearing a Page**

Click the “Select All _____” checkbox to select the entire page, and then click it again to unselect the entire page.

- **Clear All**

Each time you run the Report Wizard, your previous selection of indicators is automatically selected. Just click the <Clear All> button to clear the checkboxes on all pages if you want to start from scratch.

6.7.5 Other questions

Why can't I find an indicator that used to be on this screen?

Area and provider level indicators pertain to different populations and are now completely separated into two different wizards.

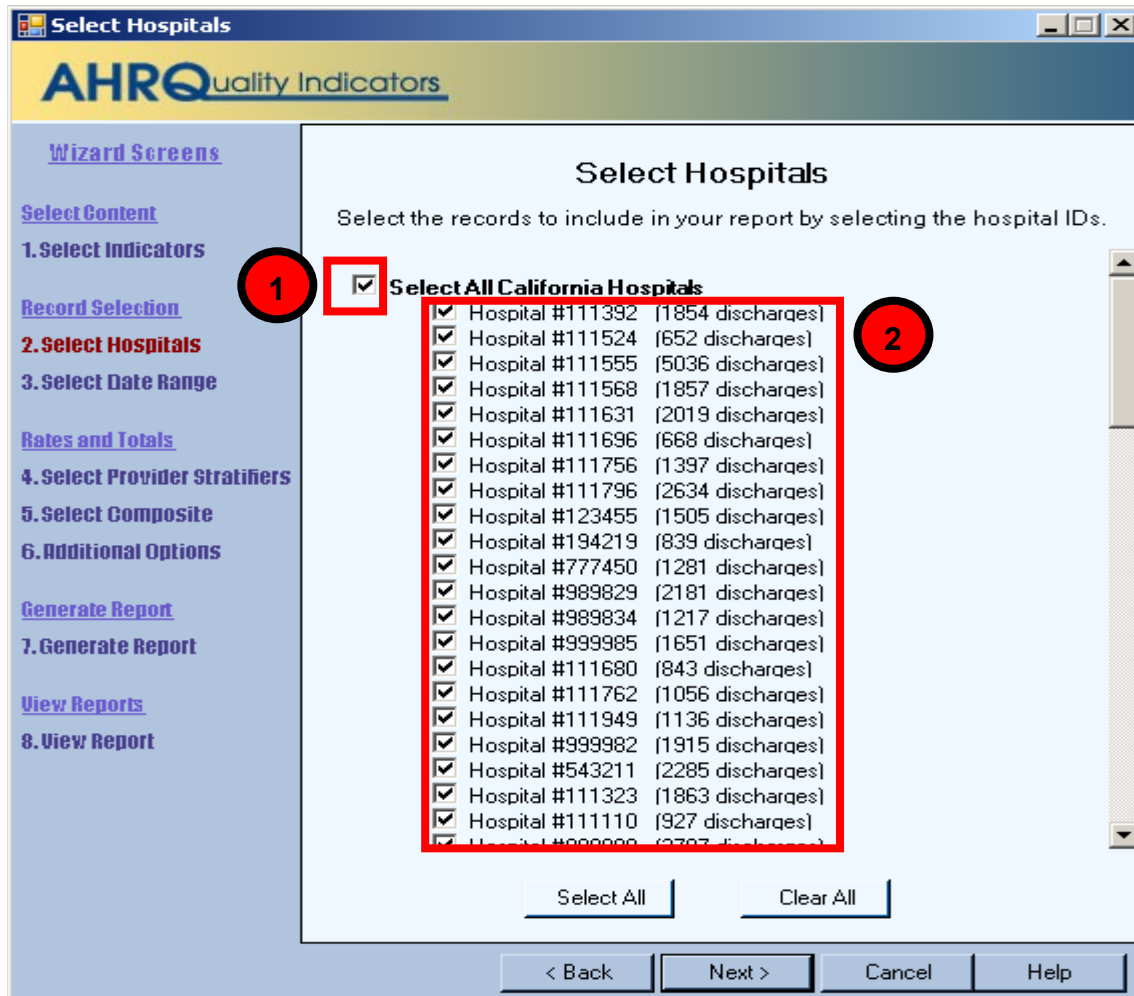
What if I just want to see the cases for each indicator?

You don't need to run the Report Wizard to see the individual cases for each indicator. After you have run the Quality Indicators Wizard, you can view the cases using the Patient Level Reporting option. (see section 6.3)

6.8 Select Hospitals (Provider Reports Only)

6.8.1 What is this screen for?

This screen lets you limit the discharge records that will be included in your report. There will be a list displayed of all of the states represented in the input data, and each hospital is listed under the state.



6.8.2 How is this screen organized?



States in Input Data

Checkboxes to allow you to select (or deselect) all the hospitals in a state at once.



Hospitals in each state

The hospitals and number of discharges are displayed here under their state.

6.8.3 What do I do here?

Check the states and hospitals you want to include in your report.

6.8.4 Other questions

How is the hospital's state determined?

During the data load, the program collects a list of hospitals from the *Hospital ID and Patient State/County Code* from the discharge records. The default hospital county is first county read for that hospital. You may change the hospital county code. (See section 8.2)

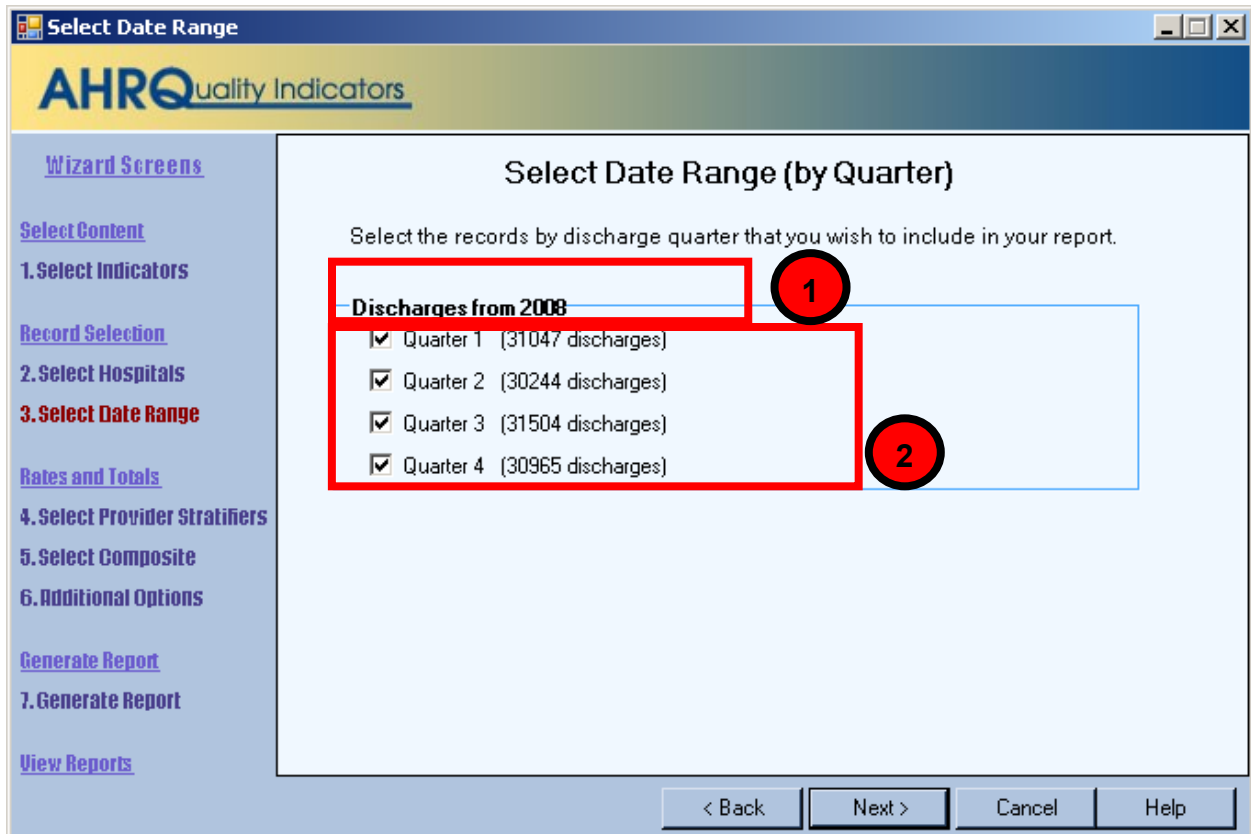
What is done with records from hospitals that are not checked?

These discharge records will not be included in your report. This feature allows you to generate different provider level reports with different data without having to edit and reload your data file.

6.9 Select Date Range (Provider Reports)

6.9.1 What is this screen for?

This screen allows you to limit the discharge records you wish to include on your report to only those that occurred during the selected quarters.



6.9.2 How is this screen organized?

1 Discharge Year
Each year represented in the Input Data is listed.

2 Quarters
The quarters for each year in the Input Data are listed under the corresponding year.

6.9.3 What do I do here?

Select the checkboxes next to the quarters that you wish to include in your report.

6.9.4 Other questions

How can I generate a “rolling year” report?

A “rolling year” report is a report in which the results reported for each quarter includes the previous 3 quarters of data, e.g., 2003 Q1 includes discharges from 2003 Q1 and 2002 Q2 - Q4, 2003 Q2 includes discharges from 2003 Q1-Q2 and 2002 Q3-Q4, etc.

The report wizard cannot generate this report in a single pass since each discharge record would have to be included in the total for different quarters. However, you can run the report wizard several times and select a different rolling set of quarters for each report. (Do not select year or quarter as stratifiers.) You will still need to merge these reports using a spreadsheet program.

What if I have discharge records without a discharge year or quarter data in my file?

Records that do not have year or quarter will be listed under “Missing Year” and “Missing Quarter”. You may select these just like any other selection for year and quarter. Note that discharge records missing these values will be excluded from the measure computations.

6.10 Select Date Range (Area Reports)

6.10.1 What is this screen for?

This screen allows you to limit the discharge records you wish to include on your report to only those that occurred during the selected quarters. Additionally, in this screen, you may select a different denominator for each year.

6.10.2 How is this screen organized?

1 Discharge Year
Each year represented in the Input Data is listed.

2 Quarters
The quarters in the Input Data are listed below the corresponding year.

3 Numerator and Denominator
The default Numerator (count of all flagged discharges for the corresponding year) and Denominator appear below the Quarters. The default Denominator is the population from the corresponding year.

6.10.3 What do I do here?

Select the checkboxes next to the quarters that you wish to include in your report. If desired, you may also change the default denominator for some or all of the years in your data. The following options are available:

- **County Population from X** – The default option. This option is the total population from the selected year for all counties in your input file.
- **Adjusted X population** – The denominator of each rate will be scaled down based on the number of quarters selected for that year. This option is useful if you want to get a annualized rates but only have a partial year’s data.
- **Population from a different year** – You may specify a different year’s population to go with your input data. This option may be useful if the year field is incorrect or missing.
- **None** – No population data will be included to match this year in your input file. This option may be appropriate if you have records with an invalid year field but still wish to count these records as part of the total. You should not use this option in combination with a stratification selection that includes Year.

6.10.4 Other questions

What if I have discharge records without a discharge year or quarter data in my file?

Records that do not have year or quarter will be listed under “Missing Year” and “Missing Quarter”. You may select these just like any other selection for year and quarter. Note that discharge records missing these values will be excluded from the measure computations.

How does the program determine the numerator and denominator for each rate?

The program first gets a list of all of the discharge year and quarter values that you have selected. This selection includes the records with a missing year or quarter value if you have checked the appropriate box.

The program then totals the numerators for the selected indicators for each year grouped by the selected stratifiers.

For the denominator, the program totals the census population that you have selected for each discharge year. These are also grouped by the selected stratifiers. Unless you have selected “none” above, you will have a separate total population for each discharge year.

The indicator numerator and denominators are joined together to get the observed rate grouped by the selected stratifiers.

Why should you not stratify by discharge year when you have selected “None” for a discharge year?

These records will be grouped by the discharge year, but they will not have a denominator.

When is it useful to select “None” for a denominator?

This option may be appropriate in two ways: (1) you have incorrect year data for some records or (2) you want a 1-year rate that spans multiple calendar years.

In the first case, suppose you have a many discharges that occurred in “2006” but a few are incorrectly recorded as “206”. If you select “County population for 2006” as the denominator for the 2006 records and “None” as denominator for the “206” records, the total numerator will include all records and the total denominator will include the population for 2006. (If you stratify by year, then the numerator cases will be separated and 206 records will have no denominator.)

The other application is if you want a 12-month rate that spans two calendar years. To achieve that result, you would select the population to go with one discharge year and not select a population for the other year.

How is an annualized rate calculated?

When selecting the denominator to go with a discharge year, the population is divided by 4 times the number of selected quarters. So if you only select 3 quarters but want an annualized rate, you would get the following:

- Total Numerator = Sum of the cases from 3 quarters.
- Total Denominator = 3 times 1/4 of the population. (If you stratify by quarter, this will be 3 lines)
- Total Observed Rate = 3 quarters of cases / (3/4 the total population). Multiplied through, this is 4 times the rate per quarter.

How does this compare with the options in the AHRQ QI SAS Syntax?

To use the QI SAS software for area level indicators, you must select the population year in your control file. Your data file is assumed to be a full year of discharges and thus the observed rate is calculated as the numerator total divided by the population for the selected year. It does not matter what data you have populated on the YEAR field in the discharge records—if you have several different YEAR values, these are treated as though they are all the same.

To get the same result from WinQI, you should select the year from the list. If you have more than one discharge year, you should select the year as the denominator only once, and select “None” for the other discharge years.

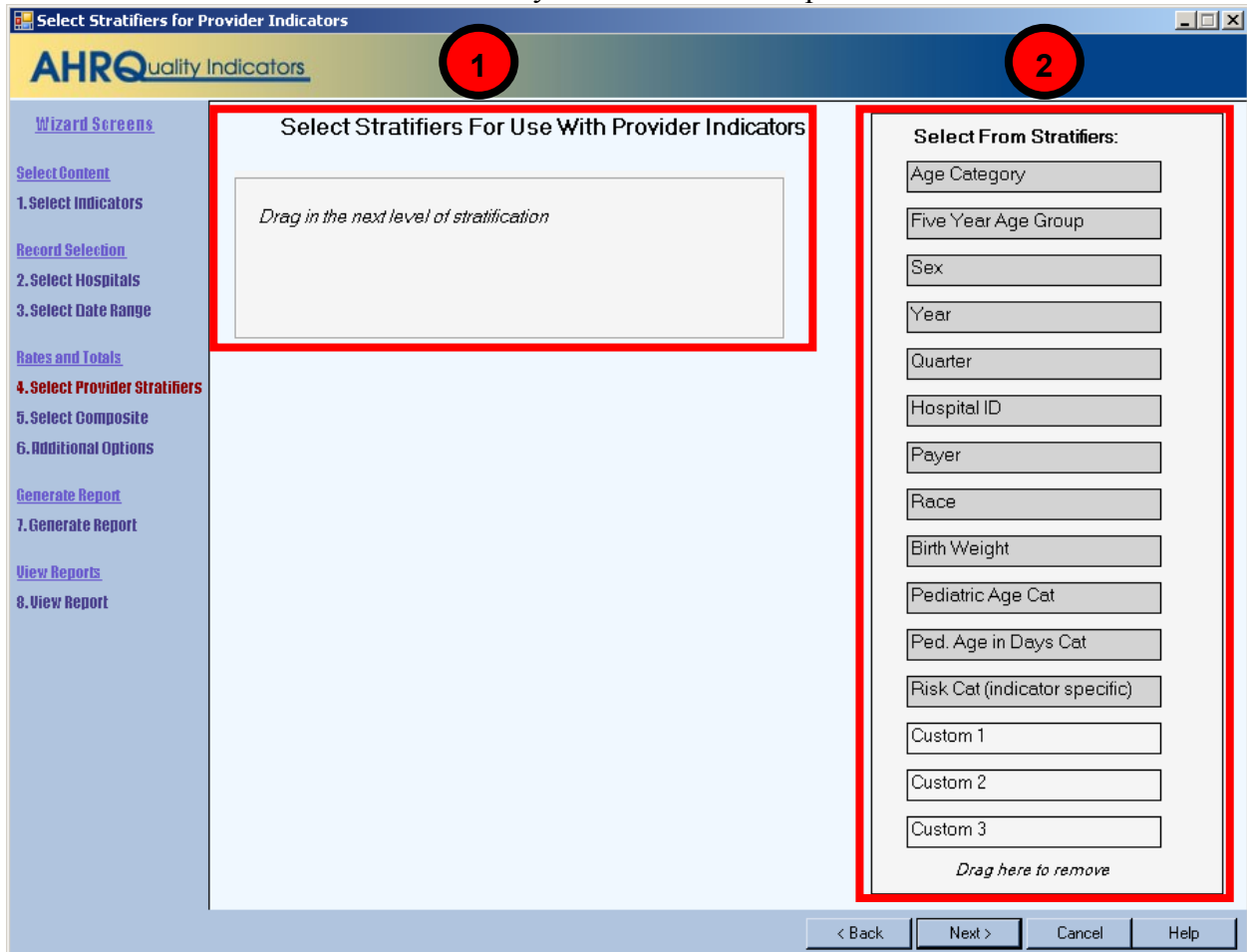
How does this compare with the Select Census Population in the previous versions of WinQI?

The denominator selection feature of this screen replaces the “Select Census Population” screen in version 3.0. In that version, you did not have the option of selecting “None” or of the quarters on your report. Therefore, every distinct “Year” value in your report contributes 1 times the population to the denominator. Area rates for anything other than exactly 12 months of discharges per Year would be incorrect. Version 3.0 does have the option of excluding records with a missing Year value; this is equivalent to unchecking the quarters in this box in this version.

6.11 Select Stratifiers For Use With Provider Indicators

6.11.1 What is this screen for?

This screen is used to build a hierarchy of stratification for provider-level indicators.



6.11.2 How is this screen organized?



Selected stratifiers

Displays the provider-level stratifiers currently selected, in the hierarchical order in which they will be sorted.



Select From Stratifiers

Displays a list of stratifiers that can be used for reports on provider-level indicators.

6.11.3 What do I do here?

Click on a stratifier box, drag it to the Selected Stratifiers area and drop it in the desired position.

To remove a selected stratifier, click and drag it back to the bottom of the Select From Stratifiers list.

To reposition a stratifier, click and drag it up or down in the list of Selected Stratifiers. You will see a line that shows you where the stratifier will be placed.

Stratifiers that were not used during the data load will be displayed. You can see the number of distinct values in a stratifier by pointing to the column name with your mouse.

6.11.4 Other questions

What is a “stratifier”?

A stratifier is how your data will be broken down. In database parlance, this is equivalent to an item in a “group by” clause.

What if I just want the totals for each indicator?

Do not select any stratifiers.

Does the order matter?

Yes, it determines the order in which the stratifiers are listed on the reports and the order in which the rows are sorted.

How do I know which stratifiers to select?

Select stratifiers that will provide you with useful information. For example, if you are processing data from a single provider, selecting the stratifier Hospital ID will not provide you with any useful information. If your data do not separate patients by Race, then the Race stratifier will be of no use.

How many stratifiers may I select?

You may not select more than 10 stratifiers. In practice, you will generally not want more than a few stratifiers. Selecting too many will subdivide your populations and reduce the statistical significance of the calculated rates.

What are “Custom 1”, “Custom 2” and “Custom 3”? Why can’t I select them?

These are custom stratifiers that may contain any information you wish. Each field will only be enabled if you provided a data mapping on the

Data Mapping screen (see section 5.5) Common custom stratifiers are physician name and hospital type.

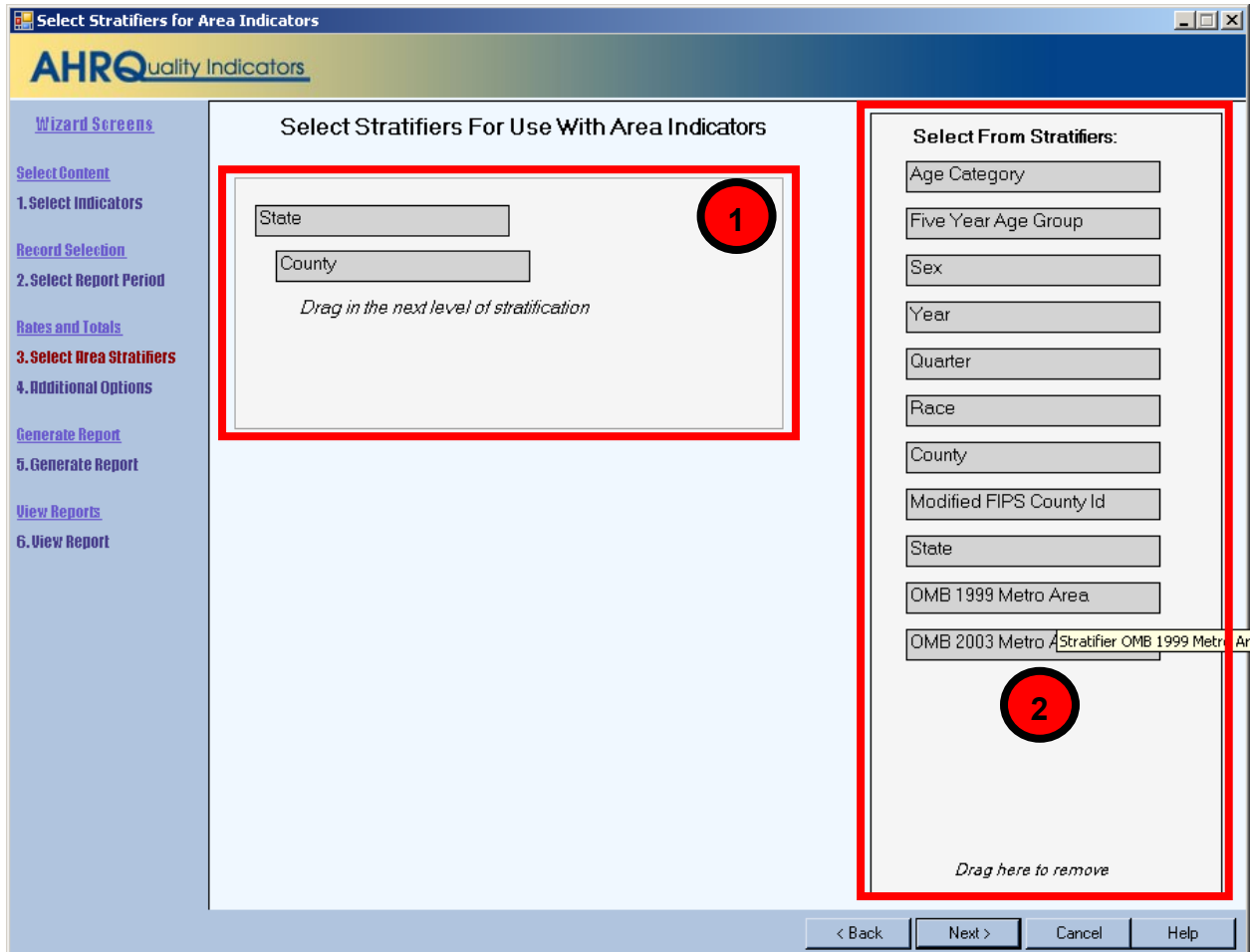
How large will my report be?

You can get a rough estimate of the number of rows in your file by multiplying the number of distinct values for each of your selected stratifiers. The number of values will be shown in a tool tip when you point to the stratifier name in the right panel with your mouse.

6.12 Select Stratifiers For Use With Area Indicators

6.12.1 What is this screen for?

This screen is used to build a hierarchy of stratification for area-level indicators.



6.12.2 How is this screen organized?



Selected stratifiers

Displays the area-level stratifiers current selected, in the hierarchical order in which they will be sorted.



Select From Stratifiers

Displays a list of stratifiers that can be used for reports on area-level indicators.

6.12.3 What do I do here?

Click on a stratifier box, drag it to the selected stratifiers area and drop it in the desired position.

To remove a selected stratifier, click and drag it back to the bottom of the Select From Stratifiers list.

To reposition a stratifier, click and drag it up or down in the list of selected stratifiers. You will see a line that shows you where the stratifier will be placed.

6.12.4 Timesaving tips

- If you hover the mouse over a stratifier, a tooltip will display the number of different values there are in your data.

6.12.5 Other questions

What's the difference between provider and area level stratifiers?

The population used to calculate area-level indicators is based on the US census. In that context, some fields do not make sense, such as “hospital id”.

What is a “stratifier”?

A stratifier is how your data will be broken down. In database parlance, this is equivalent to an item in a “group by” clause.

What if I just want the totals for each indicator?

Do not select any stratifiers.

Does the order matter?

Yes, it determines the order in which the stratifiers are listed on the reports and the order in which the rows are sorted.

How do I know which stratifiers to select?

Select stratifiers that will provide you with useful information. For example, if you are processing data from a single provider, selecting the stratifier Hospital ID will not provide you with any useful information. If your data do not separate patients by Race, then the Race stratifier will be of no use.

Can I display the names of each county?

Yes. Select the State/County stratifier, then choose the option *Show the names of each county, state, or metro area* on the Additional Options for Data Analysis screen.

What are the definitions of the metro areas?

The Office of Management and Budget (OMB) defines metropolitan and micropolitan statistical areas. Refer to <http://www.census.gov/population/www/estimates/metrodef.html> for more information.

What is the Modified FIPS stratifier?

Federal Information Processing Standards codes (FIPS codes) are a standardized set of numeric or alphabetic codes issued by the National Institute of Standards and Technology (NIST) to ensure uniform identification of geographic entities through all federal government agencies. The entities covered include: states and statistically equivalent entities, counties and statistically equivalent entities, named populated and related location entities (such as, places and county subdivisions), and American Indian and Alaska Native areas.

The modified FIPS stratifier aggregates the independent cities with the counties that surround them. This table can be downloaded from <http://www.arfsys.com/indep.htm>.

6.13 Select Composite Indicators and Weights

6.13.1 What is this screen for?

This screen lets you select whether to include the composite measures and if so, what weight to assign to each indicator that makes up the composite.

Select Composite Indicators and Weights

Composites are a weighted average of the smoothed rates calculated from the indicators on your report. Unselected indicators are not available. To calculate composites, you must select smoothed rates on the next screen.

IQI Mortality for Selected Conditions

15 - Acute myocardial infarction (AMI) mortality rate	0.1468	0.1468
16 - Congestive heart failure (CHF) mortality rate	0.2704	0.2704
17 - Acute stroke mortality rate	0.1356	0.1356
18 - Gastrointestinal (GI) hemorrhage mortality rate	0.1312	0.1312
19 - Hip fracture mortality rate	0.0679	0.0679
20 - Pneumonia mortality rate	0.248	0.248

IQI Mortality for Selected Procedures

	with POA rate	without POA rate
8 - Esophageal resection mortality rate	0.0032	0.0032
9 - Pancreatic resection mortality rate	0.0045	0.0045
11 - AAA repair mortality rate	0.0296	0.0296
12 - CABG mortality rate	0.168	0.168
13 - Craniotomy mortality rate	0.0889	0.0889
14 - Hip replacement mortality rate	0.1468	0.1468

< Back Next > Cancel Help

6.13.2 How is this screen organized?



Measures and components

A checkbox appears next to each of the composite measures. The indicators that make up each component are listed below the composite measure name.



Weights for component indicators

A field for the relative weight appears next to each indicator.

6.13.3 What do I do here?

Check the composite measures you wish to include in your report.

Initially a weight of “1” is assigned to each component indicator. You may increase or decrease the weight assigned to each indicator as desired, or you can set the weight to zero to exclude the indicator from the composite altogether.

6.13.4 Other questions

How are the composite measures calculated?

The provider level composite measures are calculated from the following formula:
$$\text{Sum}(\text{Smoothed Rate}[i] * \text{weight}[i]) / (\text{Population Rate } [i] * \text{Sum}(\text{weight}[i]))$$

My report has missing values for the composite measures. Why?

The mostly likely cause is that you did not select “Calculate Smoothed Rates” on the report options screen. If smoothed rates are blank, then the above formula will result in a missing value.

Where can I find more information about the use of composite measures?

The AHRQ QI team conducted several workgroups on composite measures, one for each of the QI modules. The reports from these workgroups can be downloaded from the QI website.

6.14 Additional Options For Data Analysis

6.14.1 What is this screen for?

This screen lets you choose additional options before generating reports.

Additional Options For Data Analysis

Wizard Screens

Select Content

1. Select Indicators

Record Selection

2. Select Hospitals

3. Select Date Range

Rates and Totals

4. Select Provider Stratifiers

5. Select Composite

6. Additional Options

Generate Report

7. Generate Report

View Reports

8. View Report

Rates

- Observed Rates
- Expected Rates
- Observed/Expected (OE) Ratio
- Reference Population Rate
- Risk Adjusted Rates
- Smoothed Rates 90%
- Report confidence intervals 95%
- Include Indicator Totals
- Use POA in rate calculation

Scaling

- Display Raw Rates
- Scale To Outcomes Per:
- Number of Decimals:

Report Layout

- Show Indicators In Rows
- Show Indicators In Columns
- Include Title in Exported Files
- Show Names of Indicators

Cell Suppression

- Exclude results that are based on too few patients?
- Minimum patients per cell:

Geography Stratifiers

- Show Numeric FIPS Codes
- Show the names of each county, state or metro area

Area Report Options

- Include only the population of counties with discharge records
- Use the total population of each state or metro area
- Risk adjust for SES poverty decile

Report Title

Report from 6/15/2011 8:05:54 AM

< Back Next > Cancel Help

6.14.2 How is this screen organized?



Rates

Provides checkboxes to select which columns you want included in your report. You may also decide whether or not to include the overall totals for each indicator here. If the Composite Measures have been selected, be sure to select “Smoothed Rates.”



Scaling

Allows you to select the scale that rates are reported in and the number of decimal places to use.



Report Layout

Allows you to select whether to display the indicators as rows (creating a long report format) or as columns (creating a wide report format). You may also select whether to include the title when exporting the report.



Cell Suppression

Provides the option to blank out rates for cells that are based on a small population or a small number of cases.



Geography Stratifiers

Allows you to select whether to display FIPS codes or the name of the county, state, or metro area.



Area Report Options

Allows you to select the population to be included in the denominator, and whether risk adjustment of area rates include adjustment for Socio-Economic Status (SES).



Report Title

Allows you to change the default report title, which includes the date and time the report was generated.

6.14.3 What do I do here?

Change any of the options for your report here.

6.14.4 Other questions

What are the definitions of Observed, Risk Adjusted, Smoothed, Expected Rates, and Reference Population rates?

Type of Rate	Definition
Observed	The rates as initially calculated applying the Indicator definitions (See Error! Reference source not found.) to the set of data for the numerator (outcome of interest) and denominator (population at risk).
Risk-adjusted	The estimated performance of providers or areas if those providers or areas had an 'average' case-mix. This average case mix is estimated using proportional indirect standardization: risk-adjusted rate = (observed rate/ expected rate) * reference population rate.
Smoothed	Estimated using multivariate signal extraction (MSX). MSX smoothing estimates the effect of random differences in the observed rate across providers or areas. In essence, smoothing describes how persistent a rate would be from year to year. Smoothing is a useful tool to "level the playing field" for providers or areas with a small numbers of cases.
Expected	Rates that assume an "average" performance for each patient group based on the reference population, but the provider's actual case-mix. The reference population is based on all states participating in the most recently available HCUP SID databases.
Reference Population	The rate for the current reference population (see section 2.2.)

For more information, (see section [9.4](#))

What is the Observed/Expected Ratio?

The observed rate divided by the expected rate. This ratio is the most appropriate benchmark of performance. A ratio of 1 indicates performance is as expected. A ratio over 1 is performance that is higher (usually worse) than expected, and a ratio less than 1 is performance that is lower than expected.

Why is the Risk Adjusted Rate disabled?

The risk adjusted rate is disabled if certain stratifiers are selected. Change your stratification to enable risk adjusted rates.

The Risk Adjusted Rate is only appropriate at the hospital level or above. Age and sex are attributes of the patients that affect the expected outcome. Thus it would be inappropriate to calculate a risk adjusted rate based on the total reference population but observed rates and expected rates that are only based on a segment of the population.

What are the recommended Rate Units?

The AHRQ WinQI Application calculates rates as raw rates ([see section 1.0](#)) In the Report Wizard, users may report rates using optional multipliers in order to facilitate interpretation and analysis and to compare user rates to published national rates.

Definitions

Term	Definition	Example
Raw rate	Numerator divided by denominator	0.0255
Multiplier	A unit of “per X”	100 or 1,000
Reported rate	Raw rate * multiplier	2.55 per 100

What are the Recommended Multipliers?

Provider or Area	Type of Rate	Example	Recommended Multiplier
Area	Avoidable hospitalization	CHF (PQI #8)	100,000
Area	Potentially preventable adverse event	Infection due to medical care (PSI #23)	100,000
Area	Utilization	CABG (IQI #26)	100,000
Provider	Mortality	AMI Mortality (IQI #15)	100
Provider	Potentially preventable adverse event	Pressure Ulcer (PSI #3)	1,000
Provider	Utilization	VBAC (IQI #22)	1,000
Provider	Volume	CABG Volume (IQI #6)	Not applicable

What does Cell Suppression mean?

In performance measurement work, it is often recommended that rates be suppressed when there are fewer than 11 cases in the denominator. This exclusion rule helps to protect the identities of hospitals and patients.

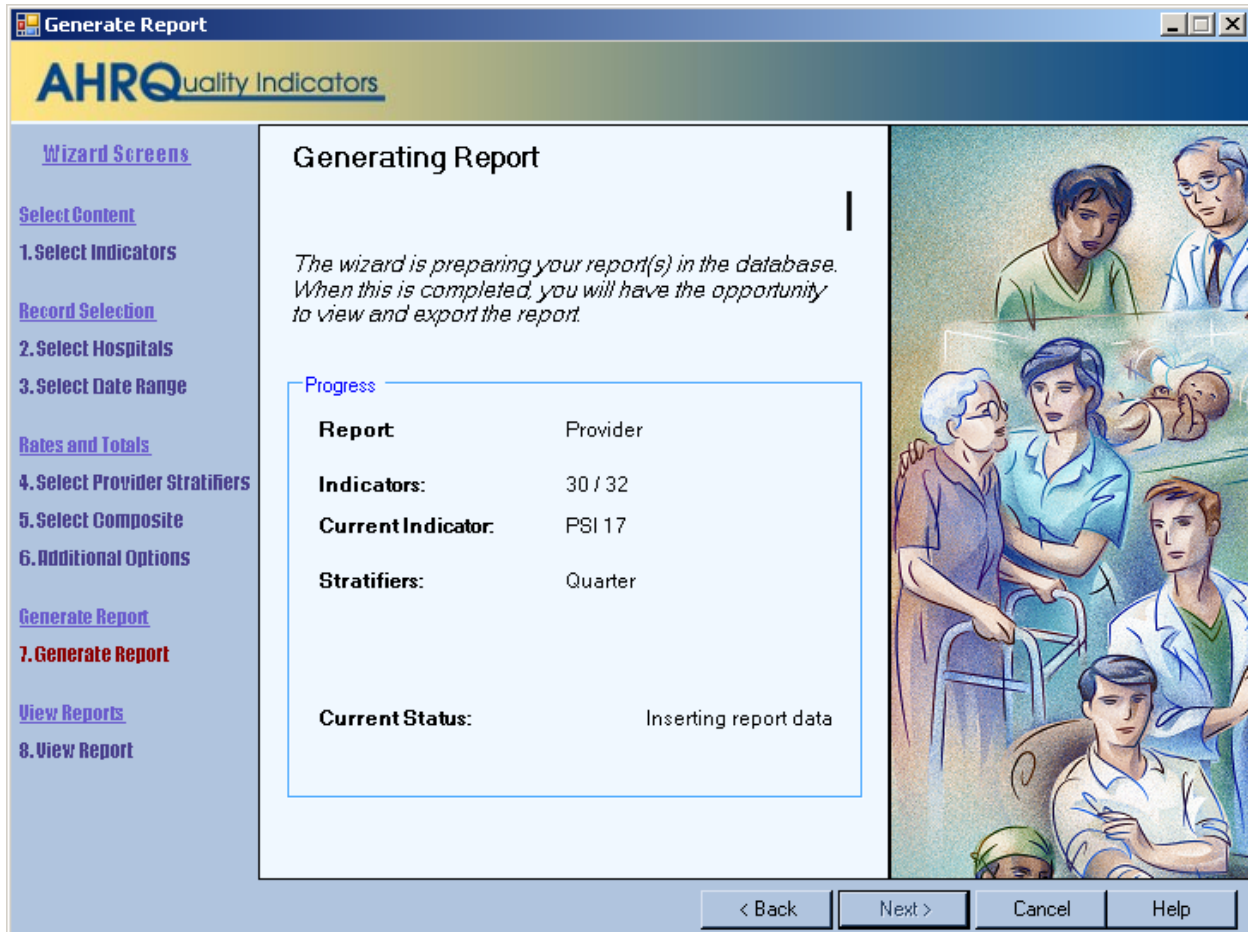
Rates will be suppressed (set to null) in the resulting report if:

- There are fewer than N people or cases in the denominator (where N is the value you supply for “Cell size to suppress”).
- There are fewer than N cases of interest in the numerator.
- There are fewer than N cases that are in the denominator less the the numerator.

6.15 Generate Report

6.15.1 What is this screen for?

This screen displays the progress of the process as your report is generated.



6.15.2 How is this screen organized?

The window displays its current processing, so that you can track its progress.

6.15.3 What do I do here?

There are no user actions on this screen. Wait for the processing to complete, and then click **<Next>**.

After the report has been generated, you are finished with the Report Wizard. When you click **<Next>**, you will go directly to the View Report screen (see section 6.2) This report can be viewed later from the main window using the **<View Saved Report>** menu item. The report will be saved until you generate another report.

6.16 View Saved Reports

6.16.1 What is this screen for?

This screen displays the Area and Provider level reports that have been generated through the Report Wizard. You can access this window from the main menu or you may access it as the last screen of the Report Wizard. Once a report has been generated, it stays in the database until another report is generated. Export the report to save the data permanently. See Appendix B for detailed information about the export format.

The screenshot shows the 'Reports' window in WinQI. The window title is 'Reports'. The header features the 'AHRQ Quality Indicators' logo. The report summary section displays: 'Report from 11/22/2005 6:24:26 PM', 'Source Data: ...ws Software Update Nov\DataFiles\Hospital Data.mdb', 'Date Created: 11/22/2005 6:24:50 PM', 'Rows in Report: 15', and 'Rates Per: 100 cases'. The controls section includes a 'Select Report' dropdown set to 'Provider', a 'Rows Per Page' dropdown set to '20', and a 'Show Indicator Definitions Window' link. The main data table lists various indicators with their observed and expected rates. The footer contains an 'Export All' button, a 'Page 1 of 1' indicator, and navigation buttons for '< PreviousPage', 'Next Page >', 'Close', and 'Help'.

Indicator	Observed Numerator	Observed Denominator	Observed Rate	Expected Rate	Risk Adjusted Rate	Smoothed Rate	Observed Conf. Int. Low	0
IQI 18	5	50	10.000	10.996	2.202	3.098	1.684	
IQI 23	34	88	38.636	73.449	40.353	43.371	28.463	
IQI 24	59	196	30.102	2.133	30.378	23.466	23.68	
PSI 1	22	1820	1.209	0.080	1.208	1.208	0.1	
PSI 2	10	1089	0.918	0.026	0.965	0.965	0.352	
PSI 3	267	1599	16.698	2.526	16.647	16.646	14.870	
PSI 4	269	549	48.998	16.252	45.929	45.929	44.816	
PSI 5	8	3562	0.225	0.013	0.220	0.220	0.069	
PSI 7	138	2955	4.670	0.359	4.542	4.542	3.909	
PSI 9	79	1747	4.522	0.233	4.506	4.506	3.548	
PSI 12	207	1749	11.835	1.082	11.636	11.636	10.321	
PSI 13	36	388	9.278	1.615	8.844	8.844	6.391	
PSI 14	11	856	1.285	0.252	1.228	1.228	0.531	
PSI 15	466	2678	17.401	1.053	16.695	16.695	15.965	
PSI 16	-	-	-	-	-	-	-	

6.16.2 How is this screen organized?

1 Report
Provides the following information about the displayed report:

- Title of the report
- **Source Data** Complete path to the data file that was used to generate the report
- **Date Created** – Date and time the report was generated
- **Rows in Report** – Total number of rows in report being displayed
- **Rates Per** – The report scale, depends on the level of report displayed
 - Area-level report = “case”
 - Provider-level report = “population”

2 Controls
This section of the screen provides options for report display, including the following:

- **<Select Report >**– Shows the type of report displayed: Area or Provider. (Since only one report is stored at a time, this control has no action.)
- **<Rows Per Page>** – The maximum number of rows displayed per page while viewing the report online. The default of 20 allows you to view the report without scrolling; a different value may be more appropriate for a faster computer, or if you wish to sort the data.
- **<Show Indicator Definitions Window>** – Opens a window that displays the names and definition for the Indicators selected for the report.

3 Report window
The large area in the center of the Reports screen displays the report data. Data displayed may include any of the following columns:

- *Indicator*
- *Stratifier(s)*
- *Observed Numerator*
- *Observed Denominator*
- *Observed Rate*
- *Expected Rate*
- *O/E Ratio*
- *Population Rate*
- *Risk Adjusted Rate*
- *Smoothed Rate*
- *Observed Conf Int Low*
- *Observed Conf Int High*
- *Expected Conf Int Low*
- *Expected Conf Int High*
- *Risk Adj Conf Int Low*
- *Risk Adj Conf Int High*

Page Controls

4
The buttons at the bottom of the Reports screen can be used to export the report and to navigate between pages in the report.

6.16.3 What do I do here?

If the report requires more than one page, you may use the <Next Page> and <Previous Page> buttons to see more data.

Use the <Export All> button to save the report in .CSV format that can be read by Excel and other programs.

To see more records, use the Page Controls, or use the <Rows Per Page> control at the top of the screen.

6.16.4 Timesaving Tip

- You can cut and paste directly from the data grid in this report into other applications such as Excel.

6.16.5 Other questions

I sorted the data, but when I went to the next page the data were not sorted. Why?

The report is sorted in order of the stratifier selected. If you want a different ordering, you should rebuild the report with a different order of stratification. You can also adjust the <Rows Per Page> control to include your entire report and temporarily sort it that way.

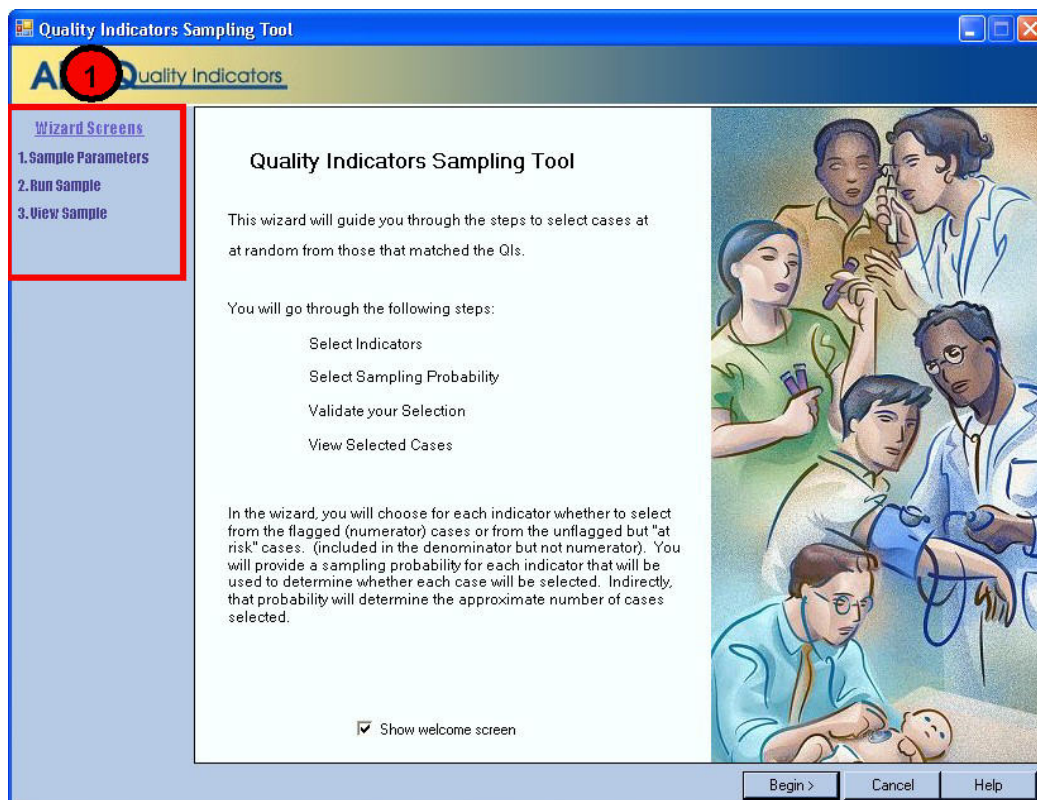
7.0 Sampling Wizard

The Quality Indicators Sampling Tool can select cases at random from specified indicators for study. In this wizard, you will select the indicators you wish to study, whether you want to select from flagged or unflagged cases, and the percentage of cases you want selected. The purpose of the sampling tool is to randomly select a subset of the flagged or unflagged cases for chart review and research purposes.

7.1 Quality Indicators Sampling Wizard

7.1.1 What is this screen for?

This screen introduces the Sampling tool.



7.1.2 How is this screen organized?



Wizard Screens

Lists the names of all screens in the Sampling Tool Wizard. This list is displayed on the left side of every screen in the Wizard. As you progress through the wizard, the title of the current screen will be highlighted in red.

7.1.3 What do I do here?

Click **<Begin>** to proceed through the Sampling Wizard.

7.2 Select Sampling Parameters

7.2.1 What is this screen for?

This screen is used for selecting the indicators to include in the report, the sample set, and the sampling probability.

Select Indicators and Sampling Parameters

Indicator	Numerator / Denominator	Sample Set	Sampling Probability	Approx. Cases	
PSI1 - Complications of an	18 / 1679	Flagged Cases	50 %	9	Remove
PSI3 - Decubitus ulcer	225 / 1345	Flagged Cases	4.888889 %	11	Remove
PSI5 - Foreign body left in	8 / 3377	Flagged Cases	100 %	8	Remove

Add Indicator

Estimated Total Number of Cases to be Selected: 28 of 251 Available

Desired Number of Cases: [Adjust Probabilities](#)

< Back Next > Cancel Help

7.2.2 How is this screen organized?



Indicators

Lists the Indicators that have been specified.



Numerator / Denominator

Lists the total numerator and total denominator for each indicator for all cases that are currently loaded. This area determines which cases are available for selection.



Sample Set

For each case, indicates whether you selected the “Flagged Cases” (i.e., those that are in the numerator) or the “Unflagged cases” (i.e., those that are in the denominator but not in the numerator.)



Sampling Probability and Approx. Cases

Determines the number of cases that are to be selected. You may either set the probability and let the number of cases be set automatically, or you may set the desired number of cases and let the probability be set automatically.



Add and Remove Indicators Buttons

These buttons allow you to add and remove indicators. You may include each indicator twice—once for the flagged cases and once for the unflagged cases.



Estimated Total Number of Cases

The approximate total number of cases that will be sampled for all of the selected indicators.



Desired Number of Cases and Adjust Probabilities

Control allows you to automatically adjust the probabilities of all the indicators in order get a specific total number of cases.

7.2.3 What do I do here?

Specify indicator

Click on <Add Indicator> to choose an indicator that you wish to select for your sample and then choose whether you want the Flagged or Unflagged cases.

Specify sample size

If you want to sample all of the cases for a particular indicator, select 100 for the sampling probability. Otherwise, you may set the probability by either entering a sampling probability percent or the number of cases you want to sample. You must have a nonzero probability or the indicator will be ignored.

Adjust Probabilities

The <Adjust Probabilities> button allows you to change the probabilities for all of your indicators simultaneously. Enter the desired total number of cases and click the button. It will

raise or lower the probabilities for each indicator so that the total estimated number of cases adds up to the desired number.

This function will not change the sampling probability of any indicators for which you have selected 100% or 0%. It will not work unless it is possible to adjust the other indicators and still have each indicator's probability fall between 0 and 100.

7.2.4 Other questions

How will the sampling probability be used?

The program will generate a random between 1 and 100,000 for each case that is available to be selected. If the random number is less than 1,000 times the sampling probability, then the case will be selected.

How is the number of available cases determined for each indicator?

If you have selected "Flagged" cases, then the available cases are all those that are in the numerator of that indicator. If you have selected "Unflagged" then the available cases are those that are in the denominator but not the numerator. (These have a zero in the export data.)

Why is the number of cases approximate?

This screen only determines the sampling probability. Random variation can result in more or less actual cases selected.

Can the same case be selected more than once?

Yes, the same case may be selected for different indicators.

How does the Adjust Probabilities function work?

The new probabilities are calculated as follows:

1. Tally the number of cases for indicators that are set at 100%.
2. Tally the number of cases for the indicators that are NOT set to 100%. Let this be A.
3. Subtract this from the number of desired cases. Let this be D.
4. Multiply each of the indicators in step #2 by A/D.

7.3 Run Sample

7.3.1 What is this screen for?

This screen lets you verify the indicators you want and actually execute the sampling. You cannot go back and change the sample parameters after this point.

Sample ID Prefix	Indicator	Cases	Selection Probability	Expected Cases
A	PSI1 - Flagged Cases	18	50	9
B	PSI3 - Flagged Cases	225	4.888889	11
C	PSI5 - Flagged Cases	8	100	8

7.3.2 How is this screen organized?



Sample Prefix

Each selected case will be assigned a random "Sample ID". You can assign a prefix to this sample here. The ID will be this prefix followed by a random number.



Sample Data File

You must select a text file that will be created to store your sample. In addition to the text file, you may create a formatted version that is easier to read and print by checking the **Save Formatted RTF Sample Report as Well** box.

7.3.3 What do I do here?

Select prefixes for each indicator. Select an output file, and then click <Next> for the program to create your sample.

7.4 View Sample

7.4.1 What is this screen for?

This screen shows the cases that have been sampled. The same information is saved to a file during the previous screen.

Flagged Cases

Indicator	Available	Selected	Probability %
PSI1	18	11	50
PSI3	225	10	4.888889
PSI5	8	8	100

PSI1 Flagged Cases (Complications of anesthesia)

Sample ID	Patient ID	Birth Date	Admit Date	Discharge Date
A1652				
A1793				
A2279				
A4947				
A6969				
A7026				
A8474				
A8695				
A8765				
A926				
A9995				

PSI3 Flagged Cases (Decubitus ulcer)

Sample ID	Patient ID	Birth Date	Admit Date	Discharge Date
B2202				
B2264				
B2349				
B2932				
B3486				
B7009				
B7208				
B7738				
B8859				
B9838				

7.4.2 How is this screen organized?

1 Sample summary
Lists the indicators for each sample set along with the number of cases available, number of cases selected, and probability %.

2 Selected cases
Lists each indicator. The cases that were selected at random are listed under the indicator.

7.4.3 What do I do here?

Nothing. Your sample has already been generated and saved to a file. You should not go back and change your sample at this point.

8.0 Helpful Tools

The WinQI software includes several helpful tools. Many of these tools are menu options listed under Tools on the Main screen. The <Data Load Report> options accesses the screen described in section 5.11. The QI Session Log is discussed in sections.

Other tools are accessed from related screens.

8.1 Program Options

8.1.1 What is this screen for?

This screen, accessed by clicking the <Program Options> control under **Tools** on the Main screen allows you to change your database options and to save the Session Log.

Program Options

AHRQ Quality Indicators

Database 1

Server: .sqlexpress

Authentication Type: Windows NT

Database: qualityindicators

Username:

Password:

Do not change these settings unless instructed by your database administrator.

Edit Test and Save

Logging 2

Save QI Session Log

Log File: temp.log

Select File

Maximum log file size (at program start): 200000

Error messages to print per column: 10

Total error messages to log: 150

Frequency of "rows loaded" messages: 25000

Log report generation queries. (not recommended)

Text Files 3

Column Separator Character: Comma

Import Options 4

APR(tm) DRG Birth Weight Option for Grouper: 5 - Coded only, default available

Modify Prediction Module Seed

Seed 1: 1 Seed 2: 1

Hospitals 6

Maximum Number of Hospitals for Report Selection: 400

Performance 5

		Default
Indicator Flag Query Timeout:	43200	43200
Short Query Timeout:	60	60
Long Query Timeout:	600	600
Max Rows in Readability Check:	0	no max (0)

You should use the default values unless advised to edit these timeouts by AHRQ QI Support.

Save Cancel Help

8.1.2 How is this screen organized?

1 Database

You may change the database connection information here. This change should only be done when your database password has changed or if the database server has been renamed. Only make changes if you are instructed to do so by your database administrator. You cannot simply change to a blank database, because it would not contain the tables necessary for the program to run.

2 Logging

Specify a file to save the information written to the QI Session Log. The session log will be appended to the specified file until the file reaches 200KB. At 200KB, the file will be truncated and started again. When writing to the AHRQ Quality Indicators support, please include the relevant portions of your session log.

During the data error check screen, messages will be written to the log if certain types of data errors are found--for example an invalid number in a numeric column. This option may be helpful if you wish to make corrections to your input file. You may adjust the number of errors saved.

3 Text Files

You may change the separator between the values in a row of data to Tab instead of Comma.

4 Import Options

Used by the 3M™ APR™ DRG Grouper. The default value of 5 should be used in most cases. Do not modify this value without consulting 3M™ APR™ DRG Grouper documentation.

While performing computations for some measures, the prediction module performs a stochastic simulation which relies upon pseudo-random number generation. You can set the initial value of the seeds for pseudo-random number generation here. It is important to note that changing the seed will slightly alter the output of the prediction module and therefore the computed frequencies and rates. The amount of change depends upon the size of the dataset and the level of aggregation. For further information, please contact AHRQ QI support.

Performance

5 It is not recommended that you change any of these settings without consulting the AHRQ QI support.

6 Hospitals

You may change the maximum number of hospitals shown on the Select Hospitals portion of the Provider Report Wizard. While setting this number higher will result in more user control, it will also slow the report generation process.

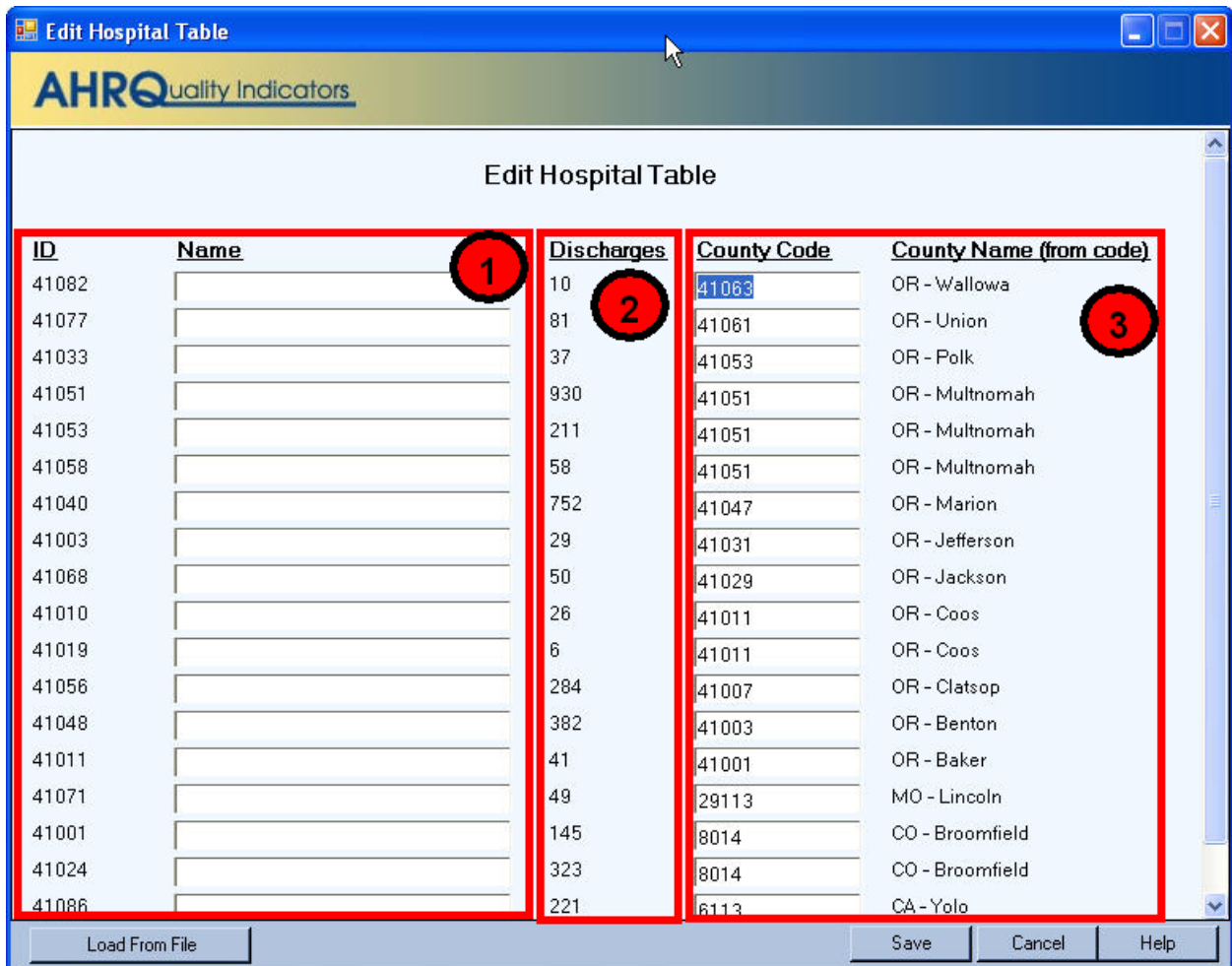
8.1.3 What do I do here?

It is recommended that you not change the database options unless your database administrator instructs you to do so. If you wish to change the location for the Session Log, use the options under Logging to do so.

8.2 Hospital Table

8.2.1 What is this screen for?

This screen, accessed by clicking the <Hospital Table> control under “Tools” on the Main screen allows you to specify a name and to change the county code for any hospital in the Input Data.



8.2.2 How is this screen organized?



ID and Name

Lists each of the hospital ID numbers and provides a field for entering a name.



Discharges

Displays the number of discharge records from the corresponding hospital.



County Code and County Name

Displays the County Code for the corresponding hospital in a field that can be edited, and the County Name associated with the displayed County Code.

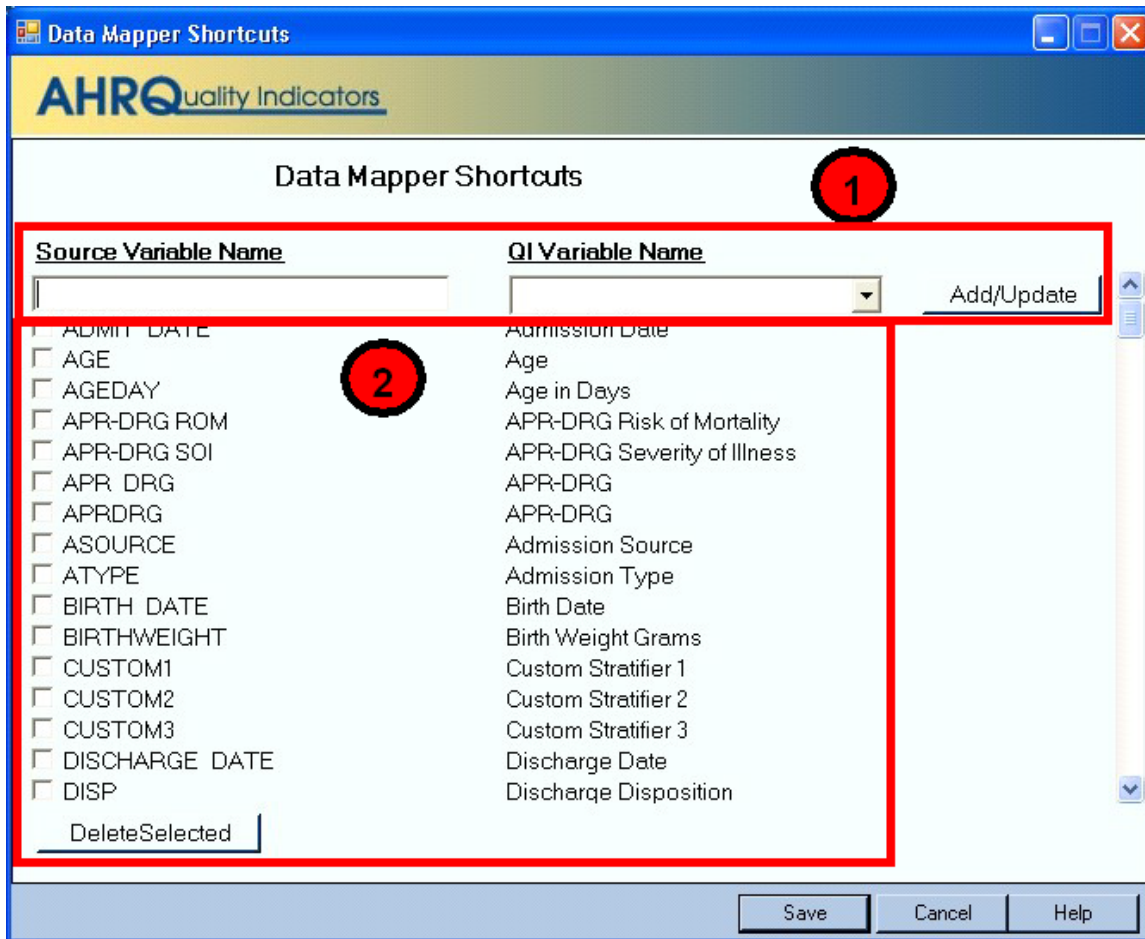
8.2.3 What do I do here?

You can type a name for a hospital in the field next to the ID. You can replace the County Code for a hospital with a different county code.

8.3 Data Mapper Shortcuts

8.3.1 What is this screen for?

This screen, accessed by clicking the <Edit Mapper Shortcuts> button on the Additional Options screen, allows you to map variables in the Data Mapper screen. If you load similar files but do not use a mapping file, this can save effort in the Quality Indicators Wizard.



8.3.2 How is this screen organized?



Mapping Controls

The controls used to create new matches include the Source Variable Name, the QI Variable Name, and the <Add/Update> button.



Mapped Variables

The mapped variables are listed, along with checkboxes and a <Delete Selected> button to delete selected variables.

8.3.3 What do I do here?

To delete the association between a source variable and QI Variable, click the checkbox next to the source variable and then click the <Delete Selected> button.

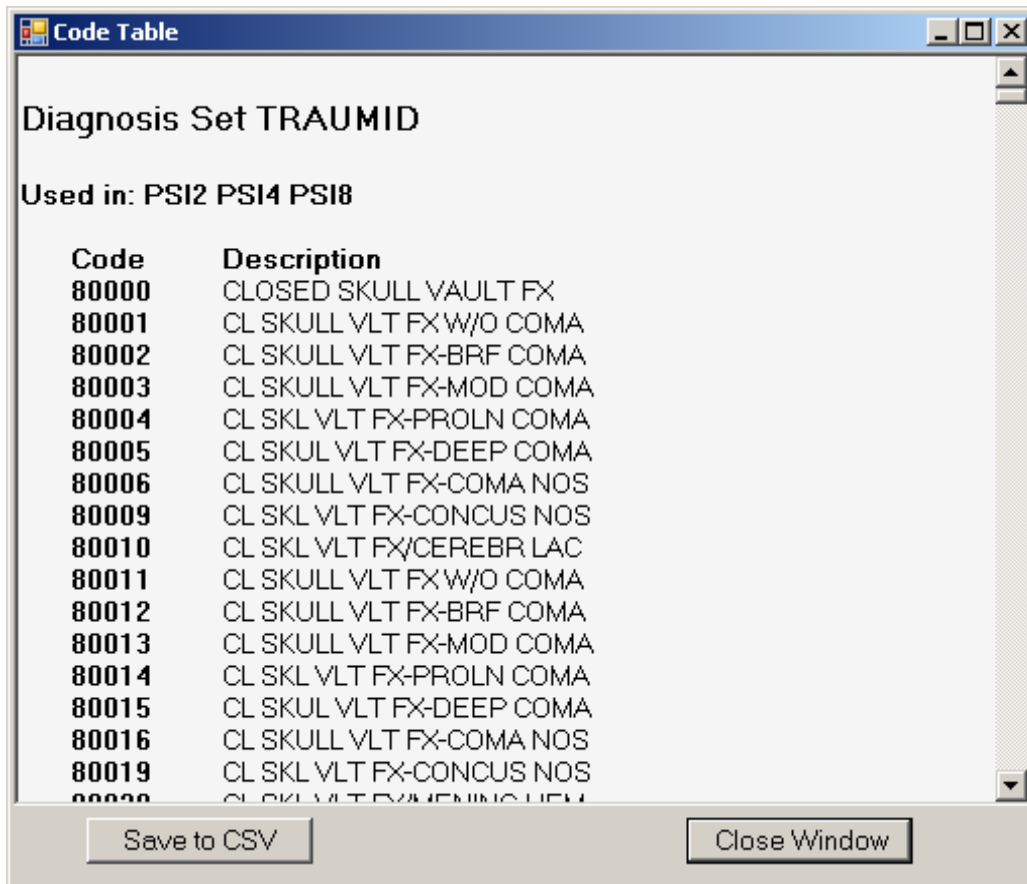
To create an association, type the variable name as it appears in the Input Data file into the “Source Variable Name” field, select a QI Variable Name from the drop-down menu, and then click the <Add/Update> button.

When all desired changes have been made, click the <Save> button at the bottom of the screen.

8.4 Code List

8.4.1 What is this screen for?

This is a pop-up window that displays the ICD-9-CM codes or DRGs that are used in indicator definitions. You can view these lists by clicking on the blue links on the **Case Details** screen. Each set corresponds to a list of codes that can be found in the Technical Specifications.



8.4.2 How is this screen organized?



Set Name

The name of this set of codes. This set of codes corresponds to the SAS format name in the formats library.



Used In

The list of indicators that directly use this set of codes.



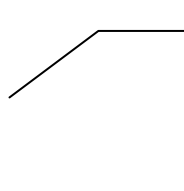
List of codes

The list of DRG or ICD-9-CM codes. Where available, the descriptions of each code are listed.



Save to CSV

This option allows you to save a list of codes to a separate file that can be used with other programs.



NOTE: Indicators that indirectly make use of a set of codes are not listed. Lists that are indirectly used include the list of surgical DRGs and operating room procedures.

8.4.3 What do I do here?

You can scroll through a list of codes here. Also, if you wish to import the list into another program, you may click on the <Save to CSV>button to save this list.

8.4.4 Other questions

What significance is the name?

The name of each “code set” corresponds to the same set of codes in the SAS® format library. This name is a succinct way of referring to a group of codes that may be used by more than one indicator.

9.0 Technical Questions

This section provides answers to frequently asked questions about the QI Software, data security and privacy, input data , specifying and viewing reports, and using different types of QI rates.

9.1 Software Installation and Data Security

9.1.1 What software needs to be purchased in order to run the Quality Indicators?

The QI software is provided free of charge by the Agency for Healthcare Quality and Research. WinQI is available for download from <http://www.qualityindicators.ahrq.gov/software/default.aspx>.

No additional software is required for purchase in order to use the WinQI software. The software does require Microsoft .NET Framework and Microsoft SQL Server. Both are available for download along with the QI application.

To calculate risk-adjusted rates for some of the IQI (see section 1.1), the 3M™ APR™ DRG grouper must be used. (See “What about APR™ DRG codes?” in section 9.1.3.) A limited license version of the 3M™ APR™ DRG system can be installed at no cost with the AHRQ WinQI software. If users prefer, they may use their own copy of the software to preprocess the data. However, the user must run the grouper software twice – once with all diagnosis codes and once excluding diagnosis codes that are not present on admission. Full versions of the product are available commercially. See the 3M™ Web site for more information: http://www.3m.com/us/healthcare/his/products/coding/refined_drg.jhtml.

9.1.2 How many discharges can be processed?

The WinQI software is only limited by the SQL Server maximum database size. For Express Edition installations, the limit is 4 GB (10 GB for SQL Server 2008 R2) which comes to approximately 4 million discharge records (10 million for SQL Server 2008 R2). There is no limit to the database size in a full version of SQL Server.

Users who have access to a Microsoft SQL Server for data storage may be limited by any local hardware or storage allocations which may be controlled by your local information technology office. Users should check with their local database administrator.

9.1.3 What type of data are required by the AHRQ QI software?

The AHRQ QI software is provided with no data. The AHRQ QI software is a tool that calculates the AHRQ Quality Indicators based on an input data file containing discharge level data from your organization. The software populates an SQL Server database with the data elements and data values in a format expected by the indicator logic. See the input data dictionary (Appendix A) for detailed descriptions of each required data element.

9.1.4 What information is collected by AHRQ?

None. No user registration is required to run this software. AHRQ does not collect or store data from users of this software. Users who wish to provide feedback may contact the AHRQ support hotline by emailing support@qualityindicators.ahrq.gov.

9.1.5 What kind of individually identifiable health information is required by the AHRQ QI software?

The AHRQ QI software does not require any direct identifiers. However, the software does require detailed information for each discharge, including demographic data elements like age and gender and relevant diagnosis and procedure codes. Use of this information must comply with the HIPAA privacy and security policies of your organization.

9.1.6 What fields contain personal identifying information?

There are 5 optional data elements to help identify particular cases. None of these fields are used in any QI definitions and all 5 may be omitted if desired. The field “Key” is printed on the Patient Level Report and on the Case Details report. There are 4 other fields that are not displayed at all within the QI application, but can be included on the data import and the data export to identify cases as part of other analysis. These are “Date of Birth”, “Admit Date”, “Discharge Date” and “Medical Record Number/Patient ID”. These 4 fields were introduced in version 4.1. For maximum patient privacy, it is not recommended that you import these fields at all unless required for your analysis.

9.1.7 What Information is stored in the “Key” data element?

The “Key” data element is optional and is not used in the AHRQ Quality Indicator flagging or rate calculation. The ‘Key’ data element could be populated with an blind identifier for each discharge or patient, a medical record number, a random sequence number, or be left blank. The intent is to provide a “Key” that allows quality improvement staff to conduct further analysis on individual cases that are flagged for specific indicators. However, the “Key” data element may be populated with any text or it may be left unmapped in the Data Mapping screen without affecting the flagging or rate calculation of the AHRQ QI. The Key field is not required to be unique.

9.1.8 What types of data files are used or generated by the AHRQ QI software?

The AHRQ QI Software uses or generates the following types of files:

Input Data File – The discharge level file that the user prepares outside the AHRQ QI software for loading with the Quality Indicators Wizard. After the data load has completed, this file is no longer required.

Patient Level Report – Users may export a file from the Patient Level Report screen that contains the discharge level indicator flags for the selected indicator and basic demographic data for each patient. This report allows users to see which cases were excluded, if desired.

Stratified Rate Report – Users may export a file from the View Report screen that contains the stratified rates for selected Area-level or Provider-level indicators. When the report is

generated, users may select not to report rates with less than a specified number of cases in the numerator (see Cell Suppression).

Case Details and Predicated Probability Reports – Users may save a copy of these reports as a rich text files for later viewing. These contain individual medical information.

Data Load Reports - Users may choose to save copies of the data load reports in rich text format. These reports contain descriptive statistics about the input file and do not contain personal information.

Export QI File – After using the Quality Indicators Wizard, users may export a file that includes only those data elements used by the AHRQ QI software as well as the indicator flags for each record. This file may be exported from the Wizard, or by using the <Export Data> option on the Main Menu.

Database Files – Each time the user runs the Quality Indicators Wizard, the discharge level data is populated into a SQL Server database, which stores data in its own database file. Each time the Report Wizard is used, the resulting Area-level and/or Provider-Level reports are stored in the SQL Server database. These are overwritten the next time the user runs the Wizard.

QI Session Log - This is a log of debugging information generated by the software. You may change the location of this file in the Program Options page.

9.1.9 Where is the SQL Server database file located?

The SQL Server database file may be located on the same PC as the AHRQ QI software, or it may be located on a remote server depending on the options the administrator selected when installing the AHRQ QI software.

If the administrator elected to follow the default option and installed the default SQL Server instance that is distributed with the AHRQ QI software, then the SQL Server database is physically located on the user's hard drive. By default, SQL Server stores the data in a file called "C:\program files\Microsoft SQL Server\MSSQL\$AHRQQI\Data\qualityindicators.mdf". This may start with "C:\Program Files (x86)" for 32-bit versions of SQL Server installed on 64-bit versions of Windows.

If the administrator selected a remote SQL Server database rather than installing the MSDE, then the file is physically located in that database on that remote server as established by the local IT administrator.

In either case, the file is machine-readable only and the location may be changed. However, care must be taken to secure the database system and database files as appropriate given applicable medical information privacy laws, regulations, and policies. See the question on "How do I customize the SQL Server?" below.

9.1.10 Does the AHRQ QI Software require any data sharing or Internet connection?

No. The AHRQ QI software does not share data with any other computer and does not require any Internet connection. Moreover, if the administrator selects a local database on the user's PC, it is not necessary to have any network connection at all.

9.1.11 What sort of password protection is used by the AHRQ QI Software?

The AHRQ QI software relies on the Windows authentication and permissions of the local PC. See the local IT administrator for the relevant policies and procedures.

By default, the AHRQ QI software accesses the SQL Server database using a password supplied when the AHRQ QI software is installed. The default password is “PSIIQIPQI”. However, the user may modify the database security mode for added protection. See the question on “How do I customize the SQL Server?”.

9.1.12 What permissions are required to install and run the AHRQ QI software?

The AHRQ QI software must be installed by a user with Windows administrator access.

On versions of Windows prior to Vista, all users with access to the PC may run the AHRQ QI software after it is installed. On Windows Vista and Windows 7, the software must be run as an administrator. If the SQL Server database is installed with Windows NT authentication, then only users with sufficient access will be able to run the software. See the question on “How do I customize the SQL Server?” below.

9.1.13 How do I customize the SQL Server?

The installer for SQL Server includes a file called “setup.ini” that contains options that may be customized prior to installing the database. If the user wishes to change these options, the user must do it before running the installer.

These options include:

SAPWD – The password for the “sa” user account. This is the administrative password for the SQL Server instance for this database. This password may need to be changed to comply with local network password requirements.

INSTANCENAME – The name of the database instance. The default value of “AHRQQI” may be used for most users.

SECURITYMODE - The provided value of “SQL” allows any local user to connect to the SQL server database if (a) they are an administrator on the local PC or (b) they know the SA password. This setting also allows non-administrative users to access the AHRQ QI software. However, if the only user of the AHRQ QI software is an administrator on the local PC, then the user may remove the line.

Using the included setup.ini file will not allow any users to access the database unless they are connecting from the same PC. It is possible, using the option, “DISABLENETWORKPROTOCOLS,” to set the SQL Server to allow remote connections to your PC from other computers. We do not recommend enabling remote connections.

9.1.14 Can I change the database password?

Yes. You may specify a different database password when you install the program. Refer to section 1.1 above for more information.

If your SQL Server database administrator changes the database password, you must update the database password setting on the Program Options screen of the QI Application. See section 8.1.

9.2 Input Data

9.2.1 What is the difference between this specification and the UB-92 specification?

The data elements in the AHRQ QI are based on the coding specifications used in the State Inpatient Data (SID) in the Healthcare Cost and Utilization Project. The SID coding specifications are similar to the Uniform Bill (UB-92) but not identical. For data elements used in the AHRQ QI, crosswalks between the SID and UB-92 coding specifications are included in the SID documentation available at <http://hcup-us.ahrq.gov/db/state/siddbdocumentation.jsp>.

9.2.2 What if my ICD-9-CM codes are in a different format?

You will need to translate your ICD-9-CM codes into the required format for the software to interpret them properly. The software uses exact text comparison of procedure and diagnosis codes with the list of expected values to indicate each condition. If leading or trailing zeros are missing from the input file, the codes will not match.

9.2.3 Please give examples of correct ICD-9-CM codes.

Consider “011.0”, a tuberculosis diagnosis. The required format for the QI software is “0110” which is the complete code with the decimal point removed. The following are incorrect:

- “011.0” - Wrong because the decimal point must be removed.
- “110” - Wrong because the leading zero has been lost. This code would be interpreted as “110.” which is a completely different family of diseases.
- “011” - Wrong because the required 4th digit is missing. This is not a complete diagnosis code.

In cases where a specific 4th or 5th digit is required by the ICD-9-CM definition, the complete code is required by the AHRQ QI definitions. For example, “8081” (acetabulum fracture) is a complete code, however “8084” is not a complete code without a 5th digit that indicates the location of the fracture. These codes are used to exclude trauma cases and could result in inflated rates for some PSI.

Similarly, you should not include additional digits where they are not required. In the previous example, the incorrect code “80810” will not match the correct “8081”.

Procedure codes are handled in the same manner as diagnosis codes except that procedure codes have one fewer digit. Valid diagnosis codes are a minimum of three digits with 4th or 5th digits required for some diagnoses. Valid procedure codes are a minimum of 2 digits with 3rd or 4th digits required for some procedures.

9.2.4 Must CMS- or MS-DRG grouper software be run before the data load?

Though the Diagnosis Related Group (DRG) is not technically required to run the software, without it the risk-adjusted results for the PSI and PDI will be problematic and surgical DRGs

will not be identified. If the DRG Version is not mapped then the DRG Version is calculated from DYEAR and DQTR.

9.2.5 Must the 3M™ APR™ DRG grouper software be run before the data load?

No. APR-DRG variables are used for IQI risk adjustment. A limited licensed grouper is packaged with this software and can be run during the data load. Users who already have APR-DRG values in their input file may choose to use those values instead.

9.2.6 Why might it be preferable to run the 3M™ APR™ DRG grouper prior to the data load?

The license agreement for the limited license 3M™ APR™ DRG grouper only permits its use for the calculation of IQI expected rates. APR-DRG values are only calculated for the minority of discharge records where it is required. The exported data file will therefore not contain APR-DRG data for all records.

9.2.7 Can E-codes be placed in diagnosis columns other than Dx31 through Dx35?

Yes. You may place E-codes in any diagnosis column except the primary diagnosis. Diagnoses 31-35 were created as a convenience to allow up to 30 diagnoses as well as up to 5 E-codes.

9.2.8 Can I use Zip Code instead of Patient State/County Code?

No. In order to calculate rates for area-level indicators, the QI software contains a table of population figures for each county. If you do not have valid state/county codes, the population cannot be used for the denominator of area rates. If you are not interested in area rates, you can leave out the state/county code.

9.2.9 Why is the patient's state/county preferred to the hospital's state/county code?

Area level indicators are designed to measure overall quality of care and access to care within the health system of a geographic area, such as a county. Patients in the numerator for an area level indicator should be counted with the denominator based on the county in which they reside, and this location may not necessarily be the county where they seek care.

9.2.10 What if my data don't contain "Days to Procedure"?

The days to procedure variables is used to determine the proper ordering of procedures relative to the operating room procedures. For example, PSI 8 excludes hip fracture repairs that occurred before any other operating room procedure since the hip fracture cannot be attributed to the operating room. Alternate specifications exist for each indicator if Days to Procedure is not loaded.

9.2.11 What if I can't determine the correct crosswalk for a variable?

Consult the SID documentation (<http://hcup-us.ahrq.gov/db/state/siddbdocumentation.jsp>) for a detailed discussion of each data element. Also, check the AHRQ QI Technical Specifications for the indicators in which you are interested. For most of the mapped variables, only a few of the crosswalk values are of interest to the QI software. For example, most of the mortality indicators need to distinguish between disposition = 20 (died), disposition is empty (unknown), and disposition = anything else.

9.2.12 Shouldn't Admission Source = 4 indicate transfers instead of 2?

See Section 4.1.1. It is important that the crosswalk for this variable be set to the SID specification. If your data are in an alternate format, you can change the crosswalk during the data load.

9.2.13 What about Present on Admission?

“Present on Admission” fields (POA) were first incorporated in the quality indicators in version 3.1.

In general, cases where the outcome of interest is present on admission will be excluded from the denominator, as these cases are no longer in the population at risk of having the outcome of interest occur during the hospitalization.

The use of POA fields can uniformly impact PSI and PDI rates by reducing the times that “false positives” occur -- diagnoses being identified as complications from the current hospitalization instead of a prior hospitalization or preexisting comorbidities. If you do not use POA data, an estimation procedure will be used to adjust the prevalence of the outcome of interest and for risk adjustment.

You may code POA for all your records, some of your records, or none of them. If POA data are present for all of your records, the software will not apply the estimation procedure (known as the “Prediction Module”). Mixing records with and without POA is also allowed; the estimation procedure is applied to those records where POA data are missing, and not to those records with POA data.

9.2.14 What about ‘Do not Resuscitate’?

“Do Not Resuscitate” (DNR) status is not imported nor used in the AHRQ QI because it is not universally available or applied in a uniformly unbiased manner. Risk-adjusted and expected rates take into account the overall health of the inpatient population.

9.2.15 What is the purpose of the patient identification fields?

The fields “Date of Birth”, “Admission Date”, “Discharge Date”, and “Patient ID” are pass-through fields in the QI application. These are available to identify patients in the QI export file as part of other studies such as the Collaborative Validation Pilot. In the interests of preserving privacy, they should not be used if these are not required for your study.

9.2.16 Can Length of Stay be calculated from the Admission and Discharge Dates?

No, Length of Stay must be present in the input file. Admission Date and Discharge Date are only pass-through fields.

9.2.17 What is Length of Stay for a same day discharge?

Length of stay should be 0 if the patient is discharged on the same day as admission.

9.2.18 My state has different crosswalk values. How can I determine the mapping?

If your state participates in the Healthcare Cost and Utilization State Inpatient Database (HCUP SID), you may wish consult the state specific HCUP documentation found at <http://www.hcup-us.ahrq.gov/db/state/siddbdocumentation.jsp>

9.3 Specifying and Viewing Reports

9.3.1 Can provider-level and area-level reports be combined?

No. Rates are expressed differently. Area-level indicators use the population of the county as the denominator. Provider-level indicators use the total number of at-risk patient discharge records as the denominator. The stratifiers available for reporting are limited by the information appropriate to each group.

9.3.2 Can I stratify area-level Indicators by hospital?

No. Area-level indicators are designed to measure potentially avoidable hospitalizations for the residents of a county. Although it could be possible to classify patients by the hospital they went to (stratify a numerator), it is not possible to classify the residents by the hospital they did not go to (stratify the denominator).

9.3.3 Can reports be viewed after closing the Report Wizard?

Yes. The View Report option on the main menu opens the Reports screen, displaying the data from the last set of reports generated using the Report Wizard.

9.3.4 What happens if a new report is generated?

The existing set of reports will be overwritten.

9.3.5 Is there a way to save reports for later viewing?

Immediately following generation, a report can be exported to a .CSV or .TXT file and viewed in other software such as Microsoft Excel. After a different report is generated, there is no way to view an earlier report from within the WinQI software.

9.3.6 How can I get a list of cases that contributed to my rate for an indicator?

Use the Patient Level Report. (See section [6.3](#))

9.3.7 Why was a particular case flagged by a particular indicator?

Use the Case Details Report to show you the definition of an indicator and how it is applied to a case. (See section 6.7)

9.4 Using Different Types of QI Rates

When should you use the observed, expected, risk adjusted, and/or smoothed rates generated by the AHRQ QI software? Here are some guidelines.

9.4.1 Observed rate

If the user's primary interest is to identify cases for further follow-up and quality improvement, then the observed rate would help to identify them. The observed rate is the raw rate generated by the QI software from the data the user provided. Areas for improvement can be identified by the magnitude of the observed rate compared to available benchmarks and/or by the number of patients impacted.

Additional breakdowns by the default patient characteristics used in stratified rates (e.g., age, gender, or payer) can further identify the target population. Target populations can also be identified by user-defined patient characteristics supplemented to the case/discharge level flags. Trend data can be used to measure change in the rate over time.

9.4.2 Expected rate

Another approach to identify areas to focus on is to compare the observed and expected rates. The expected rate is the rate the provider would have if it performed the same as the reference population given the provider's actual case-mix (e.g., age, gender, DRG, and comorbidity categories).

If the observed rate is higher than the expected rate (i.e., the ratio of observed/expected is greater than 1.0, or observed minus expected is positive), then the implication is that the provider performed worse than the reference population for that particular indicator. Users may want to focus on these indicators for quality improvement.

If the observed rate is lower than the expected rate (i.e., the ratio of observed/expected is less than 1.0, or observed minus expected is negative), then the implication is that the provider performed better than the reference population. Users may want to focus on these indicators for identifying best practices.

9.4.3 Population rate

Users can also compare the expected rate to the population rate reported in the Comparative Data document to determine how their case-mix compares to the reference population. The population rate refers to the overall rate for the reference population. The reference population is defined in the Comparative Data document available on the Quality Indicators website for each module. If the population rate is higher than the expected rate, then the provider's case-mix is less severe than the reference population. If the population rate is lower than the expected rate, then the provider's case-mix is more severe than the reference population.

We use this difference between the population rate and the expected rate to "adjust" the observed rate to account for the difference between the case-mix of the reference population and the provider's case-mix. This is the provider's risk-adjusted rate.

If the provider has a less severe case-mix, then the adjustment is positive (population rate > expected rate) and the risk-adjusted rate is higher than the observed rate. If the provider has a more severe case-mix, then the adjustment is negative (population rate < expected rate) and the risk-adjusted rate is lower than the observed rate. The risk-adjusted rate is the rate the provider would have if it had the same case-mix as the reference population given the provider's actual performance.

9.4.4 Smoothed rate

Finally, users can compare the risk-adjusted rate to the smoothed or "reliability-adjusted" rate to determine whether this difference between the risk-adjusted rate and reference population rate is likely to remain in the next measurement period. Smoothed rates are weighted averages of the population rate and the risk-adjusted rate, where the weight reflects the reliability of the provider's risk-adjusted rate.

A ratio of (smoothed rate - population rate) / (risk-adjusted rate - population rate) greater than 0.80 suggests that the difference is likely to persist (whether the difference is positive or negative). A ratio less than 0.80 suggests that the difference may be due in part to random differences in patient characteristics (patient characteristics that are not observed and controlled for in the risk-adjustment model). In general, users may want to focus on areas where the differences are more likely to persist.

10.0 Index

- Additional Options for <Filename>, 29
- Additional Options For Data Analysis, 84
- Admission source, 20
- AHRQ, 1
- Analysis, 6, 84
- APR-DRG, 8, 11, 19, 29, 90, 106
- Area Report Wizard
 - Additional Options, 84
 - Generating Report, 88
 - Select Date Range, 80
 - Select Indicators, 69
 - Select Stratifiers, 73
 - Welcome, 67
- Benchmarks, 5
- Birth Weight in Grams, 35
- Birth Weight Option, 90
- Case Details, 61
- Cell Suppression, 85, 87
- CMS DRG grouper, 19
- Code List, 94
- Column separator, 90
- Composite Indicators, 76
- Crosswalk Values, 21
- Custom stratifiers, 34
- Custom Stratifiers, 73
- Data Analysis, 84
- Data Errors, 38
- Data Errors Report, 39
- Data Import Wizard
 - Generate Indicator Flags, 47
- Data Included, 5
- Data Load Completed, 52
- Data Load Summary, 45
- Data Mapper Shortcuts, 35, 93
- Data Mapping, 33, 93
- Data Mapping Quick Check, 37
- Data Security, 14
- Data sharing, 16
- Database Error Messages, 45
- Database Options, 90
- Days on Mechanical Ventilation, 35
- Days to Procedure, 19
- Definitions
 - Inpatient Quality Indicators (IQI), 104
 - Patient Safety Indicators (PSI), 106
 - Pediatric Quality Indicators (PDI), 108
 - Prevention Quality Indicators (PQI), 109
- DNR, 20
- Documentation, 6
- E-codes, 11, 19, 35
- Edit Hospital Table, 91
- errors, 40
- Expected Rates, 86
- Files and reports, 15
- FIPS, 36
- Format codes, 36
- Generate Indicator Flags, 47
- Geography Stratifiers, 85
- Hospital Table, 91
- ICD-9-CM codes, 18
- Quality Indicators Wizard, 26
 - Additional Options, 28
 - Check for Data Errors, 38
 - Checking File Readability, 31
 - Crosswalk, 41
 - Data Errors Report, 39
 - Data Load Completed, 52
 - Data Load Report, 45
 - Data Mapping, 33
 - Data Mapping Quick Check, 37
 - Load Data, 43
 - Save Data and Mapping, 49
 - Select Input File, 27
 - Summary of Variables, 37
 - Welcome, 26
- Indicator Rate Display, 85
- Individual cases, 6
- Inpatient Quality Indicators (IQI), 104
- Input Data
 - Format, 9
 - Types, 10
 - Values, 9
- Input File Format, 28
- Input File Variables, 34
- Key data element, 14
- Length of Stay, 20
- Load Data, 43
- Main Screen, 22
 - Menu Bar, 23
 - QI Session Log, 24
- Map Input Values to QI Values, 41
- Map to Missing, 43
- Mapping
 - Values, 41
 - Variables, 33
- Mapping File, 29
- Observed Rates, 86
- Observed/Expected Ratio, 86
- Patient Level Report, 58
- Patient location, 36
- Patient Safety Indicators (PSI), 106
- Pediatric Quality Indicators (PDI), 108
- Performance, 90
- Permissions, 16

- Personal information, 14
- Predicted probability, 61
- Predicted Probability, 65
- Present on Admission, 20
- Prevention Quality Indicators (PQI), 109
- Program Options, 89
- Provider Report Wizard
 - Additional Options, 84
 - Generating Report, 88
 - Select Composite Indicators, 76
 - Select Date Range, 79
 - Select Hospitals, 77
 - Select Indicators, 69
 - Select Stratifiers, 71
 - Welcome, 67
- QI Session Log, 24, 25, 90
- Quality Indicators Name and Definition, 104
- Quick Report, 55
- Quotation marks, 35
- Rate Units
 - recommended, 86
- Rates
 - Definitions, 86
 - Expected, 13, 86
 - Observed, 12, 86
 - Population, 13
 - Risk-adjusted, 86
 - Smoothed, 13, 86
- Rates Calculated, 4
- Reference Populations, 5
- Report
 - Data Sorting, 55
- Report Layout, 85
- Report Title, 85
- Report Wizard
 - Additional Options, 84
 - Generating Report, 88
 - Select Indicators, 69
 - Select Provider Stratifiers, 71
 - View Report, 53
 - Welcome, 67
- Reports
 - Patient Level Report, 58
 - Quick Report, 55
 - View Saved Report, 53
- Reports Overview, 11
- Risk-adjusted Rates, 86
- Rolling year report, 80
- Sampling Wizard
 - Run Sample, 101
 - Select Sampling Parameters, 98
 - View Sample, 102
 - Welcome, 97
- Save Data and Mapping, 49
- Scaling, 85
- Security, 16
- Select Date Range
 - Area, 80
 - Provider, 79
- Select Hospitals, 77
- Select Indicators, 69
- Select Input File, 27
- Select Stratifiers
 - Area Indicators, 73
 - Provider Indicators, 71
- Session Log, 22
- Smoothed Rates, 86
- SQL
 - Database, 15
 - Server, 16
- State/county code, 19, 36
- Stratifer, 75
- Stratification, 6
- Stratifiers
 - Area, 73
 - Provider, 71
- Summary of Variables, 37
- Transfers, 20
- UB-92 specification, 18
- Values, 41
- Variables
 - Extra, 35
 - Input Data, 34
 - QI Software, 34
 - Required, 35
- View Report, 53
- Wizard Screens list, 27, 68, 98, 101
- Zip Code, 19

Appendix A: WinQI Input Data Dictionary

Variable Name	Description	Format	Value Description	Comments
Key	Sequence Number. Unique case identifier.	String Up to 20 characters	User defined unique numeric identifier for each discharge record	Not required by the AHRQ QI software, but available to allow users to link the discharge records in the Patient Level Report back to the input data.
Age	Age in Years at Admission	Numeric	Age in years	If this data element is missing the discharge record will be excluded from the analysis.
Age in Days	Age in Days at Admission (coded only when the age in years is less than 1)	Numeric 0 - 364 ⁵ days	Age in days	Used in the inclusion and exclusion criteria for several indicators. If this data element is missing (and age is 0), then generally an alternative specification applies.
Race	Race of Patient.	Numeric	1 - White 2 - Black 3 - Hispanic 4 - Asian or Pacific Island 5 - Native American 6 - Other	Used to stratify the AHRQ QI rates. For the area level indicators ⁶ , all the input data values must be mapped to one of the listed values. For provider level indicators, user-defined values may be retained.
Sex	Gender of Patient	Numeric	1 - Male 2 - Female	If this data element is missing the discharge record will be excluded from the analysis.
Primary Payer	Expected primary payer, uniform	Numeric	1 - Medicare 2 - Medicaid 3 - Private, incl. HMO 4 - Self-pay 5 - No charge 6 - Other	Used to stratify the AHRQ QI rates. Not used for the area indicators. For provider indicators, user-defined values may be retained.
Patient State/County Code	FIPS State/ County Code of Patient's Residence. Use Hospital's State/County if the patient's is unavailable. (Patient recommended) ⁷	Numeric Two digit state code followed by three digit county code (ssccc)	Modified Federal Information Processing Standards State/county code ⁸	Available at: http://www.census.gov/popest/geographic/codes02.html If this data element is missing the discharge record will be excluded from area rate calculations. This variable may be renamed in the future to reflect the preference for the location of the patient rather than the hospital.
Hospital ID	Data Source Hospital Id	String. Up to 12 characters.	Hospital identification number	Used to facilitate data exploration and possible trouble shooting. May also be selected as a stratifier for provider-level indicators.

⁵ The 365 day range is to allow for leap years.

⁶ Area level indicators are all the PQI, IQI #26-29, PDI #14-18, and PSI #21-26. Provider level indicators are IQI #1-25, 30-34, PDI #1-13, PSI #2-19, 27-29, and EXP #1, 2.

⁷ See "How should I map my data element for the patient's location?" in section 5.5.

⁸ Federal Information Processing Standard, as defined by the U.S. Department of Commerce, National Institute of Standards and Technology (formerly National Bureau of Standards). Note: Certain independent cities (Baltimore City, Carson City and St. Louis City), and areas within Hawaii and Virginia, are assigned to different area groupings in the Modified FIPS categories as compared to the U.S. Census Bureau groupings. The AHRQ QI software uses the Modified FIPS code assignment of these areas. Failure to use the Modified FIPS codes assignment will result in the use of incorrect denominator estimates for area indicators

Quality Indicators Software Instruction, WinQI

Variable Name	Description	Format	Value Description	Comments
Discharge Disposition	Disposition of Patient	Numeric	1 - Routine 2 - Short-term hospital 3 - Skilled nursing facility 4 - Intermediate care 5 - Another type of facility 6 - Home health care 7 - Against medical advice 20 - Died in the hospital	The values 2 and 20 are referenced by the QI code (to identify transfers to another short-term hospital and patients who died in the hospital). Values 1 through 7 and 20 are used in APR-DRG assignment. Not used for PQI.
Admission Type	Admission Type	Numeric	1 - Emergency 2 - Urgent 3 - Elective 4 - Newborn 5 - Delivery (1988-1997) 5 - Not used (1998-2002) 5 - Trauma Center (2003-) 6 - Other	The values 3 and 4 are referenced by the AHRQ QI code (to identify elective surgeries and newborn admissions). PSI 10, 11, 13, and 17 and PDI 8 and 9 will be affected if Admission Type values are missing. Used for PQI in newborn definition. Not used in IQI.
Admission Source	Admission Source	Numeric	1 - ER 2 - Another hospital 3 - Another facility incl LTC 4 - Court/law enforcement 5 - Routine/birth/other	The values 2 and 3 are referenced by the PSI, IQI and PDI code (to identify transfers from another hospital or facility)
POINTOFORIGINUB04	Point of Origin	Numeric	4 - Transfer from a hospital 5 - Transfer from a skilled Nursing Facility (SNF) or Intermediate Care Facility (ICF) 6 - Transfer from another health care facility IF ATYPE = 4 5 - Born inside this hospital 6 - Born outside of this hospital	Only these values are used by the QI programs.
Length of Stay	Length of Stay	Numeric	Number of days from admission to discharge	Same data discharges are coded as 0 days stay. Not used for PQI and IQI.
APR™ DRG	APR™ DRG Category	Numeric	APR™ DRG from 3M software	Optional. Currently the AHRQ QI software uses a —multi-version Version 20, 23-28) APR™ DRG to risk-adjust the IQI. A free version of the software is packaged with this program and can be run during the data load. Not used for PQI, PSI and PDI.
APR™ DRG Severity of Illness	APR™ DRG Severity Score	Numeric	APR™ DRG Severity Score from 3M software	Optional. Currently the AHRQ QI software uses APR™ DRG Version 20, 23-28 to risk-adjust the IQI. A free version of the software is packaged with this program and can be run during the data load. Not used for IQI, PQI, PSI and PDI.

Quality Indicators Software Instruction, WinQI

Variable Name	Description	Format	Value Description	Comments
APR™ DRG Risk of Mortality	APR_DRG Mortality Score	Numeric	APR™ DRG Risk of Mortality Score from 3M software	Optional. Currently the AHRQ QI software uses APR™ DRG Version 20, 23-28 to risk-adjust the IQI. A free version of the software is packaged with this program and can be run during the data load. Not used for PQI, PSI and PDI.
XAPR™ DRG Risk of Mortality	APR_DRG Mortality Score excluding Diagnoses that are not Present on Admission	Numeric	APR™ DRG Risk of Mortality Score from 3M software	Optional. Currently the AHRQ QI software uses APR™ DRG Version 20, 23-28 to risk-adjust the IQI. A free version of the software is packaged with this program and can be run during the data load. Not used for PQI, PSI and PDI.
Diagnosis Related Group	Diagnosis Related Group	Numeric	DRG from federal (CMS) Grouper	Required. For Version 24 and earlier, this is the CMS DRG. For Version 25 and later, this is the MS-DRG.
Diagnosis Related Group Version	Diagnosis Related Group Version	Numeric	DRG Version of federal (CMS) DRG Grouper	E.g. Version 25 for FY2008
Major Diagnostic Category	Major Diagnosis Category	Numeric	DRG from federal (CMS) Grouper	Required.
Principal Diagnosis	ICD-9-CM Diagnosis Code. Diagnosis 1 is the principal diagnosis.	String, 3, 4 or 5 characters (do not include decimal point)	Diagnosis code	Valid codes range from 001 to 999 in the first three digits. Some diagnoses require 4th and 5th digits. Decimal points, if any, must be removed before loading data.
Diagnosis Code 2 – Diagnosis Code 35 (up to 34 fields)	ICD-9-CM Diagnosis Codes. Diagnosis codes 2-35 are secondary diagnoses.	String, 3, 4 or 5 characters (do not include decimal point)	Diagnosis codes	NOTE: Seven of the PSI rely on External Cause of Injury codes (E-codes). If the data set contains E-codes in user-defined variables, these variables should be remapped to secondary diagnosis codes. See instructions for using the Data Mapping screen in the Quality Indicators Wizard.
Present on Admission 1 - Present on Admission 35 (up to 35 fields)	Present on admission indicator for each diagnosis code	String	1 - present at the time of inpatient admission ('Y','W','E','1') 0 - not present at the time of inpatient admission ('N','U','0','')	Optional. These are equivalent to the DXATADMITn fields in the UB-04 specification. Having the POA fields may eliminate 'false positives' from PSI results.

Quality Indicators Software Instruction, WinQI

Variable Name	Description	Format	Value Description	Comments
Principal Procedure Procedure Code 2 – Procedure Code 30 (up to 29 different columns)	ICD-9-CM Procedure Codes. Procedure code 1 is the principal procedure;	String, 2,3 or 4 characters (do not include decimal point)	Procedure code	Valid codes range from 00 to 99 in the first two digits and may require a 3rd or 4th digit. Decimal points, if any, must be removed before loading data.
	ICD-9-CM Procedure Codes. Procedure codes 2-30 are secondary procedures.	String, 2,3 or 4 characters (do not include decimal point)	Procedure codes	Include up to 30 procedures. It is not necessary to have 30.
Days to Procedure 1 – Days to Procedure 30 (up to 30 fields)	Days from Admission to Procedure. Procedure 1 is the Principal Procedure; procedures 2-30 are secondary procedures.	Numeric	Days from admission to procedure ⁹	It is expected that the number of Days to Procedure variables agrees with the number of Procedure codes present. Valid values may be negative or zero.
Year	Year of discharge. The patient's year of discharge. For example, a patient discharged on July 7, 2004 would have a discharge year of '2004.'	Numeric	YYYY Discharge year should be within the range of 1997 to present year.	Required data element and used to apply the proper fiscal year coding and to assign the APR-DRG if the limited license grouper is used.
Discharge Quarter	Quarter of discharge. The calendar quarter of the patient's discharge. For example, a patient discharged on July 7, 2004 would have a discharge quarter of '3.'	Numeric	1 - January-March 2 - April-June 3 - July-September 4 - October-December	Required data element and used to apply the proper fiscal year coding and to assign the APR-DRG if the limited license grouper is used.
Custom Stratifier 1 - Custom Stratifier 3	Custom stratification values.	String. 1-20 characters.	Any custom value you wish to stratify by.	This can be used for a variety of purposes -- groups of hospitals or groups of records with a hospital.
Days on Mechanical Ventilator	Number of days the patient spent on a mechanical ventilator.	Numeric		Option data element that is passed directly to the APR™ DRG Grouper.

⁹ Variables Days to Procedure 1 to Days to Procedure 30 are defined as the number of days from date of admission to date of procedure for each procedure. For example, if the patient was admitted on June 15th and had two procedures - the principal procedure on June 15th and a second procedure on June 18th – then the value of Days to Procedure 1 would be zero (0) and the value of Days to Procedure 2 would be three (3). For more information, consult the HCUP data documentation at <http://www.hcup-us.ahrq.gov/db/vars/prdayn/nisnote.jsp>

Quality Indicators Software Instruction, WinQI

Variable Name	Description	Format	Value Description	Comments
Birthweight in Grams	Birthweight for newborns.	Numeric		Option data element that is passed directly to the APR™ DRG Grouper. This field is not used for pediatric birthweight categories. ICD-9-CM diagnosis codes are used to indicate birthweight.
Date of Birth	Patient date of birth.	Date.	MM/DD/YYYY.	Option - (NOT RECOMMENDED). For identification purposes only on the data export. It is not recommended that you use this field unless required for external analysis.
Admission Date	Date of patient admission.	Date.	MM/DD/YYYY.	Option - (NOT RECOMMENDED). For identification purposes only on the data export. It is not recommended that you use this field unless required for external analysis.
Discharge Date	Date of patient discharge.	Date.	MM/DD/YYYY.	Option - (NOT RECOMMENDED). For identification purposes only on the data export. It is not recommended that you use this field unless required for external analysis.
Patient ID	Patient ID or medical record number.	String. 1-20 characters.		Option - (NOT RECOMMENDED). For identification purposes only on the data export. It is not recommended that you use this field unless required for external analysis.

Appendix B: WinQI Output Data Dictionary

WinQI Provider Output

Variable Group	Variable Name	Description	Format	Value Description	Comments
Indicator Identification (present if the user chooses to show indicators in rows)	Module	Indicator module identifier	Text	One of IQI, PDI, PQI, or PSI	
	Indicator Number	Identifier of the indicator within the module	Numeric		
	Name	The full name of the indicator	Text		
Stratifiers (the user may select between zero and ten of these variables in any order)	Age Category	Age Category in Years at Admission	Numeric range	# to # OR "TOTAL"	
	Five Year Age Group	Five Year Age Group in Years at Admission	Numeric range	## Years	
	Sex	Gender of patient	Numeric	1 = male; 2 = female	
	Year	Year of discharge	Numeric		
	Quarter	Quarter of discharge	Numeric	1-4	
	Hospital ID	Data Source Hospital ID	Text	Up to 12 characters	
	Payer	Expected primary payer, uniform	Numeric	1 = Medicare ; 2 = Medicaid ; 3 = Private, incl. HMO ; 4 = Self-pay ; 5 = No charge ; 6 = Other	
	Race	Race of patient	Numeric	1 = White ; 2 = Black ; 3 = Hispanic ; 4 = Asian or Pacific Island ; 5 = Native American ; 6 = Other	
	Pediatric Age Category	Pediatric age category in years at admission	Numeric range		
	Pediatric Age In Days	Pediatric age category in days at admission	Numeric range		
	Risk Category				
	Custom 1	Custom stratifier 1	Text	Up to 20 characters	
	Custom 2	Custom stratifier 2	Text	Up to 20 characters	
Custom 3	Custom stratifier 3	Text	Up to 20 characters		

Variable Group	Variable Name	Description	Format	Value Description	Comments
Calculated Values (always present, column names are prefixed with module and indicator number when the user chooses to show indicators in columns)	Observed Numerator	The number of discharge records included in the numerator (outcome of interest) as defined for the indicator	Numeric		
	Observed Denominator	The number of discharge records included in the denominator (population at risk) as defined for the indicator	Numeric		
	Observed Rate	The rate (observed numerator / observed denominator) as defined for the indicator	Numeric		
	Observed Conf Int. Low	The lower confidence bound of the observed rate	Numeric		
	Observed Conf Int. High	The upper confidence bound of the observed rate	Numeric		
	Expected Rate	Rate calculated by assuming an "average" performance for each patient group based on the reference population, but with the provider's actual case-mix	Numeric		The reference population is based on all states participating in the most recently available HCUP SID databases.
	O-E Ratio	The ratio of the observed to the expected rate	Numeric		
	Reference Pop Rate	The rate for the current reference population	Numeric		
	Risk Adjusted Rate	The estimated rate calculated by adjusting to an "average" case-mix	Numeric		This average case mix is estimated using proportional indirect standardization: risk-adjusted rate = (observed rate / expected rate) * reference population

Quality Indicators Software Instruction, WinQI

Variable Group	Variable Name	Description	Format	Value Description	Comments
					rate.
	Risk Adj Conf Int. Low	The lower confidence bound of the risk adjusted rate	Numeric		
	Risk Adj Conf Int. High	The upper confidence bound of the risk adjusted rate	Numeric		
	Smoothed Rate	The smoothed rate calculated using multivariate signal extraction (MSX)	Numeric		MSX smoothing estimates the effect of random differences in the observed rate across providers or areas. In essence, smoothing describes how persistent a rate would be from year to year. Smoothing is a useful tool to "level the playing field" for providers or areas with a small numbers of cases.

WinQI Area Output

Variable Name	Description	Format	Value Description	Comments
Module	Indicator module identifier	Text	One of IQI, PDI, PQI, or PSI	
Indicator Number	Identifier of the indicator within the module	Numeric		
Name	The full name of the indicator	Text		
Age Category	Age Category in Years at Admission	Numeric range	# to # OR "TOTAL"	
Five Year Age Group	Five Year Age Group in Years at Admission	Numeric range	#-# Years	
Sex	Gender of Patient	Numeric	1 = male; 2 = female	
Year	Year of discharge	Numeric		
Quarter	Quarter of discharge	Numeric	1-4	
Race	Race of Patient.	Numeric	1 = White ; 2 = Black ; 3 = Hispanic ; 4 = Asian or Pacific Island ; 5 = Native American ; 6 = Other	
County	County FIPS code (with independent areas left separate)	Numeric	Five digit numeric identifier	
Modified FIPS County ID	County FIPS code (with independent areas combined)	Numeric	Five digit numeric identifier	
State	State FIPS code	Numeric	Two digit numeric identifier	
OMB 1999 Metro Area	OMB 1999 metropolitan statistical area identifier	Numeric	Five digit numeric CBSA identifier	
OMB 2003 Metro Area	OMB 2003 metropolitan statistical area identifier	Numeric	Five digit numeric CBSA identifier	
Observed Numerator	The number of discharge records included in the numerator (outcome of interest) as defined for the indicator	Numeric		
Observed Denominator	The number of discharge records included in the denominator (population at risk) as defined for the indicator	Numeric		
Observed Rate	The rate (observed numerator / observed denominator) as defined for the indicator	Numeric		

Variable Name	Description	Format	Value Description	Comments
Observed Conf Int. Low	The lower confidence bound of the observed rate	Numeric		
Observed Conf Int. High	The upper confidence bound of the observed rate	Numeric		
Expected Rate	Rate calculated by assuming an "average" performance for each patient group based on the reference population, but with the provider's actual case-mix	Numeric		The reference population is based on all states participating in the most recently available HCUP SID databases.
O-E Ratio	The ratio of the observed to the expected rate	Numeric		
Reference Pop Rate	The rate for the current reference population	Numeric		
Risk Adjusted Rate	The estimated rate calculated by adjusting to an "average" case-mix	Numeric		This average case mix is estimated using proportional indirect standardization: risk-adjusted rate = (observed rate / expected rate) * reference population rate.
Risk Adj Conf Int. Low	The lower confidence bound of the risk adjusted rate	Numeric		
Risk Adj Conf Int. High	The upper confidence bound of the risk adjusted rate	Numeric		
Smoothed Rate	The smoothed rate calculated using multivariate signal extraction (MSX)	Numeric		MSX smoothing estimates the effect of random differences in the observed rate across providers or areas. In essence, smoothing describes how persistent a rate would be from year to year. Smoothing is a useful tool to "level the playing field" for providers or areas with a small numbers of cases.

codes?