



Input your data. Output your website.

MONAHRQ Host User Guide

Version 4.0.1

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1 INTRODUCTION AND OVERVIEW

MONAHRQ®—My Own Network, powered by AHRQ—is an innovative software tool from the Agency for Healthcare Research and Quality (AHRQ). AHRQ's mission is to improve the quality, safety, efficiency, and effectiveness of health care for all Americans. To improve health care, it is clear that we must be able to measure associated quality and costs. We must also be able to effectively communicate this information to consumers, providers, payers, and other stakeholders. Local organizations can find quality reporting efforts expensive and time consuming. Fortunately, individual organizations do not need to invent their own reporting methods.

In 2010, AHRQ addressed quality reporting needs by creating MONAHRQ software. MONAHRQ is a tool that allows any organization to quickly and easily generate a fully functional local health care reporting Web site, which the local organization then hosts. A MONAHRQ-generated Web site can provide information on topics such as hospital quality; hospital utilization, rates, and costs; and potentially avoidable hospital stays. MONAHRQ software uses local hospital discharge data, other pre-calculated measure results, and measure results from the Centers for Medicare & Medicaid Services (CMS) Hospital Compare.

The MONAHRQ software is a desktop tool, not an AHRQ service. You download the MONAHRQ software, supply your own hospital inpatient discharge data, generate the Web site onto your own computers, and host the Web site yourself. The choice is yours as to how you use the MONAHRQ software—*your* data on *your* Web site.

1.1 History of the MONAHRQ Project

The MONAHRQ project was first conceived in 2008. The project was born of two popular and widely used AHRQ products: the Healthcare Cost and Utilization Project (HCUP) and the AHRQ Quality Indicators (QIs). It has also benefitted from AHRQ's extensive work in measurement and public reporting.

Healthcare Cost and Utilization Project: HCUP is the largest all-payer database in the United States. HCUP collects voluntarily submitted all-payer hospital administrative data from 46 States and includes 97% of all hospital discharges in the country. The HCUP project uses these data to create three national datasets and to create enriched State datasets that are used by researchers around the country. Parts of the MONAHRQ-generated reporting Web site are modeled after HCUPnet, HCUP's online aggregate data query system.

The AHRQ Quality Indicators: The AHRQ QIs are a set of standardized healthcare quality measures that can be calculated using hospital inpatient discharge data. Approximately half of the AHRQ QIs are endorsed by the National Quality Forum (NQF). AHRQ supplies technical measure specifications and software tools with which to calculate the indicators directly from data. AHRQ provides two software tools to calculate the AHRQ QIs. The *AHRQ QI software for Windows* provides an intuitive, easy-to-use interface for calculating quality indicator results. The *AHRQ QI software for SAS* utilizes SAS statistical analysis programs (SAS Institute Inc.; Cary, NC) to calculate quality indicator results.

The first three releases of the MONAHRQ software embedded the AHRQ QI software for Windows to calculate the AHRQ QIs, including risk adjustment. The MONAHRQ 4.0 release no longer embeds the AHRQ QI software for Windows. You may provide your own pre-calculated measure results, including those from the AHRQ QI software for Windows or SAS. A brief summary of the release history of the MONAHRQ software and the features provided in each release is provided in Table 1.

Table 1. Versions of MONAHRQ Software

Version of MONAHRQ Software	Features / Enhancements
MONAHRQ 1.0	<p>Provides the ability to load your inpatient discharge data to generate a Web site that:</p> <ul style="list-style-type: none"> • Reports hospital utilization, costs, and rates • Calculates and reports the AHRQ Inpatient Quality Indicators (IQIs), Prevention Quality Indicators (PQIs), Pediatric Quality Indicators (PDIs), and Patient Safety Indicators (PSIs)
MONAHRQ 2.0	<ul style="list-style-type: none"> • Provides the ability to report CMS Hospital Compare measure results • Calculates and reports additional IQI, PQI, and PSI indicators • Provides streamlined Web page design for ease of use
MONAHRQ 3.0	<ul style="list-style-type: none"> • Updates the version of the embedded AHRQ QI software • Updates cost-to-charge ratio data • Calculates and reports AHRQ QI composite indicators • Reports additional CMS Hospital Compare measure results for surgical patient safety, imaging, and outpatient measures • Adds new nursing-sensitive care health topic • Adds enhanced suppression logic, including support for denominator suppression • Adds support for user-defined diagnosis-related group (DRG) and Major Diagnostic Category (MDC) groupings • Adds ability to save and reload hospital information • Adds ability to save and reload customization and configuration options
MONAHRQ 4.0	<ul style="list-style-type: none"> • Removes the AHRQ QI analytic code • Provides support for multiple years of cost-to-charge ratio data • Reports additional CMS Hospital Compare measures • Contains redesigned host user application
MONAHRQ 4.0.1	<ul style="list-style-type: none"> • Adds the ability to report estimated cost savings • Contains cost-to-charge ratio data • Contains updated ZIP code data • Provide support for customizable footnotes in the Hospital Utilization and County Rates paths

1.2 MONAHRQ Software Reporting Options

A MONAHRQ-generated Web site provides several options or paths for reporting Hospital Quality Ratings, Maps of Avoidable Hospital Stays, Hospital Utilization, and County Rates of Hospital Use.

Screen 1. MONAHRQ-Generated Web Site Reporting Paths

The screenshot displays the MONAHRQ web site reporting paths. The interface is organized into a grid of four main reporting categories, each with a sub-path and a brief description. Below the screenshot, a list of sub-paths is provided for each main category.

- Hospital Quality Ratings**
 - AHRQ Quality Indicators
 - Hospital Compare measures
 - HCAHPS patient survey
- Maps of Avoidable Hospital Stays**
 - AHRQ Quality Indicators
- Hospital Utilization**
 - Discharges, LOS, charges/costs
 - By MDC, DRG, condition, or procedure
- County Rates of Hospital Use**
 - Discharges, discharge rate, charges/costs
 - By MDC, DRG, condition, or procedure

You may choose to generate any combination of the following paths:

1.2.1 **Hospital Quality Ratings**

Purpose: The Hospital Quality Ratings path can include provider-level AHRQ Quality Indicators, CMS Hospital Compare measures, and Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) patient survey measures. There are two subpaths. The Ratings for the Public subpath provides user-friendly information for the public. The Detailed Quality Statistics subpath is more appropriate for researchers or medical professionals. For selection and display, the measures are grouped into health topics such as “Heart Failure” or “Deaths and Readmissions.”

Selection Options: (1) Select hospitals by name, ZIP Code, or region; (2) Select a health topic.

Data Display: Results graphically show quality ratings for each indicator and hospital selected. You may drill down to view the information in a bar chart. The Detailed Statistics path provides additional statistical results such as confidence intervals, and it allows you to drill down to statistics in tabular form.

1.2.2 **Maps of Avoidable Hospital Stays**

Purpose: The Maps of Avoidable Hospital Stays path includes area-level AHRQ Quality Indicators. Denominators are county populations from Census data. These indicators measure the quality of *community* care rather than hospital care. For selection, the indicators are grouped into health topics such as “Diabetes” or “Patient Safety.”

Selection Options: (1) Select a health topic; (2) Select a quality indicator.

Data Display: Rates are shown in a map of counties. You can drill down to view the rate statistics in tabular form. Optionally, you can also show estimated cost savings for reducing avoidable hospital stays.

1.2.3 Hospital Utilization

Purpose: The Hospital Utilization path shows detailed information about hospital discharges, charges, estimated costs, and length of stay.

Selection Options: (1) Select hospitals by name, ZIP Code, or region; (2) Select discharges for these hospitals by condition, procedure, major diagnostic category (MDC), or diagnosis-related group (DRG).

Data Display: The results are displayed in sortable tables by hospital and by condition or procedure, and in tables stratified by age group, sex, payer, and race/ethnicity.

1.2.4 County Rates of Hospital Use

Purpose: The County Rates of Hospital Use path shows detailed information about numbers and rates of hospital discharges, charges, and estimated costs by county.

Selection Options: (1) Select hospitals by name, ZIP Code, or region; (2) Select discharges for these hospitals by condition, procedure, MDC, or DRG.

Data Display: The results are displayed in sortable tables by county and by condition or procedure, and in tables stratified by age group, sex, and race/ethnicity. You can also view the data in county map displays.

1.3 Overview of Using the MONAHRQ Software

The MONAHRQ software is easy to use and provides a step-by-step process to guide you through loading your data and creating a Web site. You will generate your own health care quality reporting Web site, as described below and depicted in Figure 1 following the description.

1. Install the MONAHRQ software.
 - a. Prepare your computing environment. You need:
 - i. A MONAHRQ-compatible Windows® operating system
 - ii. The free Microsoft® .NET 4.0 framework
 - iii. Microsoft SQL Server or the free SQL Server Express.
 - b. Download and run the MONAHRQ software installation package. During this process, you will create a new MONAHRQ database or connect to an existing one. See Chapter 2 for setting permissions to install the MONAHRQ software and to create or connect to the MONAHRQ database.
2. Prepare input data files that you will load into the MONAHRQ software.
 - a. Decide which health care data and/or quality measures you wish to report. Chapter 3 describes the types of data and quality measures the MONAHRQ software uses in each path in a MONAHRQ-generated Web site.
 - b. Prepare the files of health care data and/or quality measures that you will import into the MONAHRQ database. These may include one or more of the following:
 - i. **Inpatient discharge data.** You supply these data yourself. The MONAHRQ software helps you map your inpatient discharge data into the format required by the MONAHRQ software. The format is specified in Chapter 3.

- ii. **CMS Hospital Compare measures.** These measures include the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) patient satisfaction survey measures. You should obtain these measures from the MONAHRQ download Web site. CMS calculates the Hospital Compare measures and makes them publicly available on the Hospital Compare Web site in downloadable database files. The MONAHRQ project obtains these downloadable database files, reformats them for import into the MONAHRQ database, and posts them on the MONAHRQ download Web site. These files are formatted by the MONAHRQ project team.
- iii. **AHRQ Quality Indicators (AHRQ QIs).** You must calculate the AHRQ QIs yourself, using your own inpatient discharge data. AHRQ provides two tools that you can use to calculate the AHRQ QIs: the AHRQ QI software for Windows and the AHRQ QI software for SAS. More information about the AHRQ QIs can be found at: <http://qualityindicators.ahrq.gov>. After you calculate the AHRQ QIs, follow the instructions in this guide to save the results in a format that can be loaded into the MONAHRQ software. This format is specified in Appendices E and G.

3. Prepare your MONAHRQ configuration files (optional).

The MONAHRQ software provides an intuitive, easy-to-use “wizard” interface that allows you to enter data manually. The MONAHRQ software also provides support for configuration files that remove the burden of manually entering data. The formats for these files are provided in Chapter 3. These configuration files include:

- a. Region definitions
- b. Hospital definitions
- c. Measure and health topic description information
- d. Host user application settings and customization options.

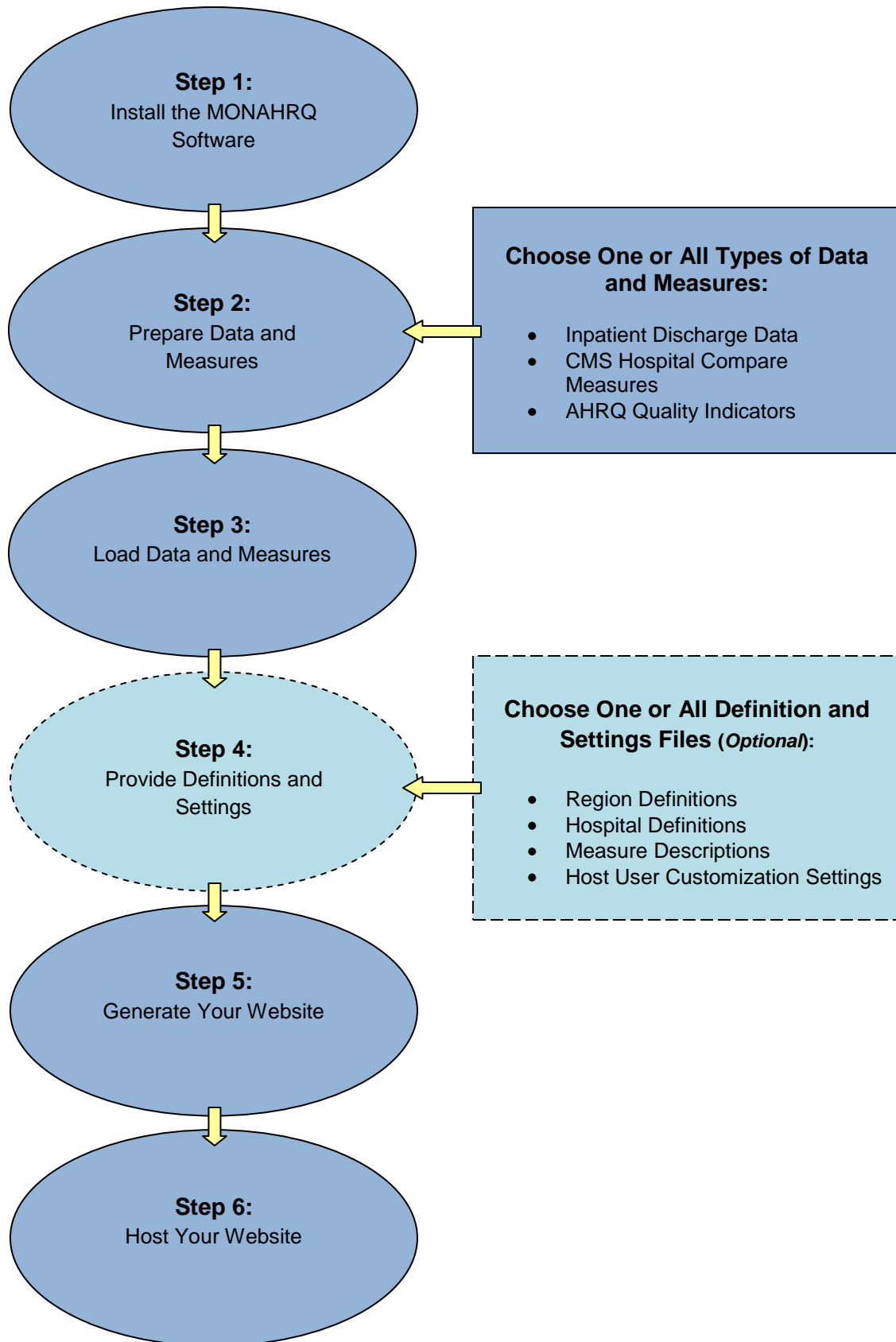
4. Run the MONAHRQ software and generate your Web site.

- a. Open the MONAHRQ software.
- b. Load your prepared health care data and quality measures into the MONAHRQ database.
- c. Provide information about reporting regions and hospitals. You can provide this information using the MONAHRQ application’s user interface screens, or you can load it from prepared files as detailed in Chapter 3.
 - i. The MONAHRQ software can assign reporting regions by Dartmouth Hospital Service Area or Hospital Referral Region. You can also define custom regions.
 - ii. Hospital information includes name, ZIP Code, county, reporting region, cost-to-charge ratio (optional, if you wish to override the cost-to-charge ratio data included in MONAHRQ), and CMS provider ID (optional, if you use CMS Hospital Compare measures).
- d. Select customization options for display of your Web site. These include:
 - i. Banner to be displayed on each Web page
 - ii. Logo image to be displayed on each Web page
 - iii. Color and font styles used throughout the generated Web site.
- e. Generate your Web site. The MONAHRQ software writes the Web site files to a local directory you specify.

5. Host your generated Web site.
 - a. Transfer the MONAHRQ-generated Web site to your Web server or other hosting environment: compress the Web site files, transfer them, and uncompress them—preserving directory structure. To host the MONAHRQ-generated Web site, you only need a Web server. You do not need a database connection, application server, or other special hosting environment.
 - b. Customize your generated Web site (optional). The MONAHRQ software allows you to customize the logos, fonts, and colors used throughout the Web site. You may wish to implement further customizations to your MONAHRQ-generated Web site. Please refer to Chapter 5 for a description of the directory structure and files in the MONAHRQ-generated Web site and information on how to customize the site after it is generated.
6. Refresh your Web site.

As new data become available, you may wish to refresh your Web site. You may generate a new Web site with new data for each year, or you may overwrite your existing database. Some host users refresh their existing Web site quarterly as new CMS Hospital Compare measure results become available, but they generate a completely new Web site with new discharge data and quality indicator data each year. Instructions for refreshing your Web site can be found in Chapter 6.

Figure 1. MONAHRQ Application Process Flow



1.4 Additional Information

1.4.1 Session Logs

As you load data into the MONAHRQ software and generate a Web site, the MONAHRQ application maintains status information in a session log. The information in this log will help you or the MONAHRQ technical support staff identify any errors or problems that you may have while working with the MONAHRQ software or host user application. You can save the session log by selecting the Save Session Log button near the top of the MONAHRQ host user application Main Screen.

1.4.2 Glossary

The following terms are used throughout this guide.

Measure description information: information about quality measures that MONAHRQ uses when generating Web pages.

MONAHRQ download Web site: the MONAHRQ Web site that provides software and data downloads as well as information about MONAHRQ. It can be found at <http://monahrq.ahrq.gov>.

MONAHRQ end user: a visitor to a Web site generated by the MONAHRQ host user application.

MONAHRQ-generated Web site: a Web site that a MONAHRQ host user generates using the host user application.

MONAHRQ host user: an organization that downloads the MONAHRQ software and uses it to generate a reporting Web site.

MONAHRQ software: the desktop MONAHRQ software that a host user downloads and uses to generate a Web site.

1.4.3 Technical Support

If you have any questions or comments as you use MONAHRQ, do not hesitate to contact MONAHRQ Technical Assistance at MONAHRQ@ahrq.gov.

2 INSTALLATION

The MONAHRQ software is easy to install. This section provides instructions for preparing your system and installing the MONAHRQ host user application. We also discuss system requirements and additional software that may need to be installed.

2.1 Preparing Your Computing Environment

Before you begin, make sure that you or the person who is installing the MONAHRQ software has administrator privileges or rights. If a system administrator downloads the software on behalf of another user, ensure that the appropriate access privileges are granted. Administrator privileges or rights are only required during the installation.

2.1.1 System Requirements

The MONAHRQ host software is supported on the following operating systems:

- Windows XP
- Windows Server 2003 or higher
- 32- and 64-bit Windows 7.

To verify the version of your operating system, right-click on the **My Computer** icon on your desktop. A window will appear to indicate the version you are using.

Approximate disk space requirements for the MONAHRQ software and associated components are:

- MONAHRQ host user application: 150 MB
- Microsoft .NET Framework 4.0: 50 MB
- Microsoft SQL Server Express: 600 MB (1.5 GB for 64-bit systems)
- MONAHRQ data: requirements vary depending on the number of discharges you wish to process. About 100 MB is typical, but this can extend up to 4GB.

The MONAHRQ host user application can run on most desktop computers. We recommend the following specifications for your computer:

- 2 GHz processor speed
- 2 GB of memory.

2.1.2 Required Supporting Software

The following software is required before installing the MONAHRQ host software. These can be downloaded from the Software section of the MONAHRQ download Web site (http://monahrq.ahrq.gov/monahrq_software.shtml):

- Microsoft .NET Framework, version 4.0
- Microsoft SQL Server 2005 or higher. If the Express Edition is used Microsoft SQL Server Express Edition 2008 R2 is recommended due to its larger database size limit. This software may reside on a remote server.

Before you begin installation of these tools, you should verify whether you have a 32-bit or 64-bit system. Please refer to Appendix B for instructions on verifying this information.

2.1.2.1 Microsoft .NET Installation

Microsoft .NET is a set of standard software libraries provided by Microsoft and used by the MONAHRQ software. MONAHRQ 4.0.1 requires the 4.0 version of the .NET framework. You may already have this version installed on your computer. Please refer to Appendix C for instructions on determining the version of the Microsoft .NET framework that is installed on your system and installation instructions.

2.1.2.2 Microsoft SQL Server Installation

The MONAHRQ software is a single-user desktop application that requires a Microsoft SQL Server database to store data. Microsoft SQL Server has several editions, ranging from a free edition (Microsoft SQL Server Express Edition) to the Enterprise Edition. Microsoft SQL Server can be installed on your PC or accessed over a network. Most users prefer to use the Microsoft SQL Server Express Edition installed on their PC unless local information technology (IT) policies prohibit this setup. If you have an especially large dataset, it will be more efficient to use the full Microsoft SQL Server rather than the free Microsoft SQL Server Express Edition.

If you choose to use an SQL Server database on your desktop, you may download and install the software from the MONAHRQ download Web site at: http://monahrq.ahrq.gov/monahrq_software.shtml. If you choose to use an existing SQL Server database, contact your system or database administrator for the connection host name, login, and password that will be required to connect to the database.

As you are installing SQL Server, the installer will perform a “Setup Support Rules” check to identify any additional tools or updates that may be needed. You may be asked to install additional supporting software including a Windows Installer update or Windows Power Shell. You will need to install these tools before SQL Server can be installed. You may need to restart your computer after these auxiliary applications are installed.

You can accept the default configuration settings provided by Microsoft. You must select the following options:

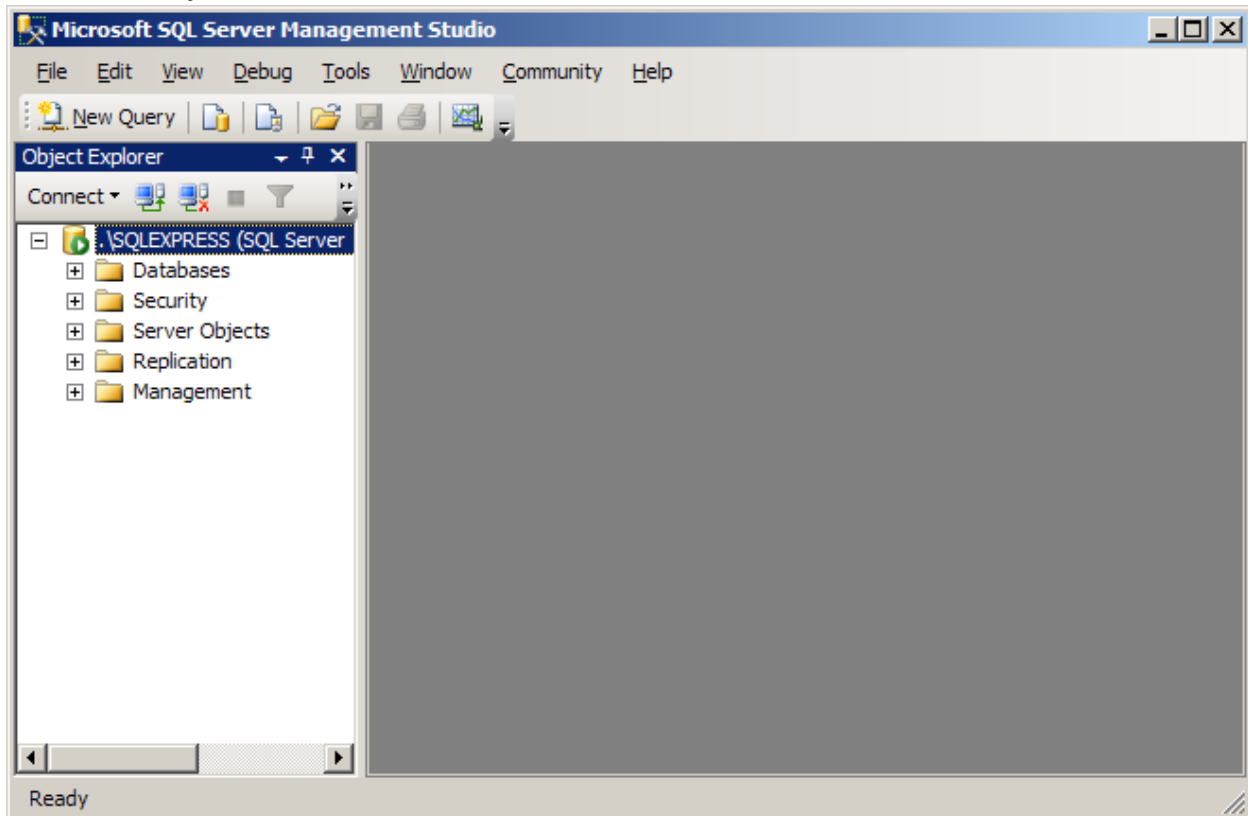
- Feature Selection. You must install the Database Engine Services; the Management Tools-Basic is optional, but it is recommended because it provides tools for viewing and manipulating your databases. The other options are not used by the MONAHRQ software.
- Instance Configuration. Use Named Instance; the default is “SQLEXPRESS”
- Server Configuration. Under Services → SQL Server Database Engine → Account Name → select name with “System.”

Once SQL Server is installed, you may test the installation to determine if you can connect to the database, if you have installed the Management Tools. Test the installation by going to Start → All Programs → Microsoft SQL Server 2008 R2 (or whichever version is downloaded) → SQL Server Management Studio. The Management Studio application will start. A login window will appear as shown in Screen 2. Verify that authentication is set to Windows Authentication. Click “Connect.” The login window will disappear. You will know that you have connected if there are no error messages and the window in Screen 3 appears.

Screen 2. SQL Server Management Login Screen



Screen 3. Verify Database Connection



2.1.3 Permissions

Before you begin, make sure that you have the appropriate operating system and database permissions to run the software on your computer. Please refer to Appendix D for information on verifying and setting your operating system and database permissions.

2.1.4 Optional Supporting Software

The following software is not required to run the MONAHRQ host user application.

2.1.4.1 *AHRQ Quality Indicators Software*

The AHRQ Quality Indicator (QI) software will only be used with MONAHRQ 4.0.1 if you choose to load pre-calculated measure results for the AHRQ QIs into MONAHRQ. AHRQ provides two software tools to calculate the AHRQ QIs. The AHRQ QI software for Windows provides an intuitive, easy-to-use interface for calculating quality indicator results. The AHRQ QI software for SAS utilizes SAS to calculate quality indicator results. MONAHRQ 4.0.1 runs separately from the AHRQ QI software. Refer to the AHRQ QI Web site for software and download information: <http://qualityindicators.ahrq.gov/software/default.aspx>.

2.1.4.2 *Area QI Cost Calculators*

To report the estimated cost savings for potentially avoidable hospital stays, AHRQ has developed the Area QI Cost Calculator for Windows and SAS. The Area QI Cost Calculators provide the estimated cost savings calculations which are displayed in the Maps of Avoidable Hospital Stays path of a MONAHRQ-generated Web site. The Area QI Cost Calculators affect only the area-level measures. Instructions for installing and running the Area QI Cost Calculators can be found in Appendix F for the Windows version and Appendix H for the SAS version.

2.1.4.3 *SAS Formatting Utilities for the AHRQ Quality Indicators*

If you will be loading pre-calculated measure results using the AHRQ QI software for SAS, you will need to use additional formatting utilities. You will only need to use these SAS formatting utilities for the AHRQ QIs if you will be loading the AHRQ QIs into MONAHRQ 4.0.1 using the AHRQ QI software for SAS. The utilities reformat the QI results into a format that can be imported into the MONAHRQ software. These utilities run separately from MONAHRQ 4.0.1. You can access and download these utilities from the MONAHRQ download Web site (http://monahrq.ahrq.gov/monahrq_resources.shtml). Instructions for installing and running the utilities are provided in Appendix G.

2.2 Uninstalling Previous MONAHRQ Software

If you have MONAHRQ software that is version 2.0.4 or later, you do not need to uninstall your earlier version of the MONAHRQ software. If you have previously installed version 4.0, or have an existing installation of the MONAHRQ software before version 2.0.4, you must uninstall it before installing version 4.0.1.

To uninstall a previous version of MONAHRQ software:

1. From the Windows start menu, select the **Control Panel** menu option.
2. Select the **Add or Remove Programs** menu option.
3. In the list of applications that appears, select **MONAHRQ**.
4. Select the **Remove** button.
5. Close out of the window when the removal process is complete.

2.3 Installing MONAHRQ Software

To install MONAHRQ software, run the installation package downloaded from the MONAHRQ download Web site (http://monahrq.ahrq.gov/monahrq_software.shtml). When you run the installation file, an Install Wizard will appear. You may choose to install the MONAHRQ software for “**Just Me**” or “**Everyone**.” You may use either selection depending on whether you wish other users who access this computer to run the MONAHRQ software. The install package will prompt you to **specify the directory** in which you would like the MONAHRQ software installed. The default installation directory is C:\Program Files\AHRQ\MONAHRQv4\ . Progress meters keep you informed on the progress of the setup process. A window will appear to indicate that the installation has completed successfully.

3 PREPARING STANDARD DATA FILES

The MONAHRQ software allows you to load hospital inpatient discharge data, Centers for Medicare & Medicaid Services (CMS) Hospital Compare measures, and AHRQ Quality Indicator (QI) measures. This section will provide information on which data and measures are needed for each reporting path as well as information on preparing the data and measures to be loaded into the MONAHRQ database. Finally, we discuss several optional files that provide configuration information.

3.1 MONAHRQ Software Data and Measures

3.1.1 Reporting Paths and Their Associated Data and Measures

The MONAHRQ software provides several reporting paths. Each path requires different data. You only need to load data for the paths you wish to report. Table 2 lists the components and their required data.

Table 2. Data and Measures for MONAHRQ Paths

MONAHRQ Path	Data and Measures	Source
Hospital Quality Ratings	Provider-level AHRQ Quality Indicators	AHRQ QI software
	CMS Hospital Compare measures	MONAHRQ download Web site
Maps of Avoidable Hospital Stays	Area-level AHRQ Quality Indicators	AHRQ QI software Area QI Cost Calculator
Hospital Utilization	Inpatient discharge data	Your organization
County Rates of Hospital Use	Inpatient discharge data	Your organization

3.1.2 Data and Measures

MONAHRQ allows you to import data and measures from several sources, including inpatient discharge data, CMS Hospital Compare measures, and the AHRQ QIs.

3.1.3 Inpatient Discharge Data

MONAHRQ uses inpatient discharge data that provide demographics on the patient and the provider, diagnosis codes, procedure codes, and information about the admission, payer(s), and discharge. These data are used to populate the Hospital Utilization and County Rates of Hospital Use. The software is designed for processing one *calendar year* of data at a time. The software will walk you through a very simple, “point and click” process for mapping your data elements and value codes.

The software accepts three common formats for your local inpatient discharge data:

- Text (comma-separated values [CSV])
- Microsoft Access database
- Microsoft Excel spreadsheet.

Two key formatting issues are:

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

CSV files use commas to separate the data values. If you have commas within any data values (for example, "Private, incl. HMO"), you will need to insert double quotes around each data element. An exception is the variable "Total Charge." Many data elements in inpatient discharge data have leading zeros; if you are working from Excel, we recommend that all appropriate fields or cells be formatted as text to ensure full conversion of the data.

Input data have specific meaning according to the coding conventions in your organization. The data need to be mapped to the specific meaning used by the MONAHRQ software. The data elements in MONAHRQ are based on the coding specifications used in the Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID), which are similar but not identical to the Uniform Bill (UB-92/04). MONAHRQ's Crosswalk Screen provides the opportunity to map your variable values to the values used in the software. *Present on Admission* is the only variable with values that are automatically mapped. Please review Table 12 (located in Appendix J) to ensure that your data are coded correctly. You may prepare your dataset in advance by using names and codes that match those in the MONAHRQ software so that the software will automatically recognize data element names and value codes.

The MONAHRQ software is designed to recognize HCUP-formatted data. If you are using these data, most data elements and data values will be mapped for you. HCUP-formatted data are not a requirement of the software. If you would like to further prepare your data, refer to Table 12. If your data elements use the same names and coding values as shown in Table 12, the process of identifying and mapping data elements will be faster. Table 12 also identifies which data elements are required and what happens if an optional element is missing.

When you prepare your data, it is not necessary to create "dummy variables" or to fill in missing values. Your input file may contain extra data that are not required; you do not need to remove extra variables. Any variables that are not used will not be imported with your data.

3.1.4 Measures

3.1.4.1 CMS Hospital Compare Measures

MONAHRQ supports reporting capabilities using the CMS Hospital Compare database. CMS currently reports these data on the Hospital Compare Web site (<http://www.hospitalcompare.hhs.gov/>) and makes them publicly available. The CMS Hospital Compare measures provide information on performance ratings for hospitals giving care to patients in the United States.

Recent copies of the CMS Hospital Compare database that are formatted to be compatible with the MONAHRQ software are available for download on the MONAHRQ download Web site (http://www.monahrq.ahrq.gov/monahrq_data.shtml). It is important to use the version posted on the MONAHRQ download Web site because we have made structural alterations to ensure that the data will work with the software.

The CMS Hospital Compare measures report on topics such as heart attack, heart failure, pneumonia, surgical care, and imaging. If you would like to learn more about the CMS Hospital Compare measures, visit the Hospital Compare Web site at <http://www.hospitalcompare.hhs.gov/>.

3.1.4.2 AHRQ Quality Indicators

The AHRQ QIs use hospital inpatient discharge data to highlight potential quality concerns, identify areas that need further study and investigation, and track changes over time. The AHRQ QIs are comprised of the Inpatient Quality Indicators (IQIs), Prevention Quality Indicators (PQIs), Pediatric Quality Indicators (PDIs), and Patient Safety Indicators (PSIs). Prior to version 4.0, MONAHRQ embedded a version of the AHRQ QI software. With version 4.0, you must calculate the measure results externally and import the results into the MONAHRQ software. More information about the AHRQ QIs, including technical

specifications and analytic methods, can be found in on the Web site:
<http://www.qualityindicators.ahrq.gov/>.

AHRQ provides Windows and SAS versions of the AHRQ QI software. Reports generated from the AHRQ QI software for Windows can be loaded directly into the MONAHRQ software. Reports generated from the AHRQ QI software for SAS require additional formatting for use with MONAHRQ software.

Information and instructions for preparing data using the AHRQ QI software for Windows can be found in Appendix E.

Information and instructions for preparing data using the AHRQ QI software for SAS can be found in Appendix G.

After the data are prepared, they are ready to be loaded into the MONAHRQ database. Information and instructions for loading the AHRQ QIs into MONAHRQ can be found in Chapter 4.

3.2 Other Files

The MONAHRQ software provides an intuitive interface for loading data and generating a Web site. You may, however, configure several aspects of the MONAHRQ-generated Web site through the use of external files. These include measure description information, health topics and subtopics used in the Hospital Quality path, the mapping of topics to measures, and host user preferences. These files are described below.

3.2.1 Description Information for Measures and Health Topics

The MONAHRQ software provides measure description information for describing the AHRQ QIs. By default, the MONAHRQ software provides this information based on version 4.4 of the AHRQ QIs. Any database you create using this measure description information will be marked as version 4.4. You can verify the version of the measure definition information on the Program Options screen when you select to “View All Options and Settings.” In addition, the Database Manager will also log this information when a database is created or overwritten.

You may use alternate versions of the measure description information based on the version of the AHRQ QI software you use to generate your pre-calculated measure results. Measure description information for alternate versions of the AHRQ QIs can be found on the MONAHRQ Download site at: http://monahrq.ahrq.gov/monahrq_resources.shtml. To install the measure description information, download and save the installation package. When you run the installation package, you will be prompted for an installation directory. You must specify the root directory where the MONAHRQ software is installed. The files will automatically be placed in the appropriate subdirectory. Please note that the previous files will be overwritten.

Measure description information is stored in tables in the MONAHRQ database. The information is delivered in tab-delimited files that are loaded when a database is created. These files have a .DAT extension and are stored in the “BaseData” folder beneath the MONAHRQ installation folder. The file names of the tab-delimited files match the table names described in the following section. You may alter the data either before they are loaded into a database or in the database tables directly. Editing the tab-delimited files can be difficult, because the columns are not clearly delineated. SQL Server Management Studio provides a spread-sheet style interface for editing the values in each column of the table containing the metadata. Clicking the top-left corner of the table editor will highlight all data and allow them to be copied and pasted into Notepad. There, they can be saved to the tab-delimited file used by the MONAHRQ software to create new databases.

Description information for the measures is stored in the Web_Measures table. Each row contains the complete description of a single measure. Contents are loaded from a tab-delimited file (web_measures.DAT). The columns in the Web_Measures table are shown in Table 3.

Table 3. Measure Description Information File Format

Field Name	Description
Code	Unique code for the measure
MeasureType	Measure type defines what data apply to the measure
Source	Supplier of the measure (e.g., AHRQ, CMS)
ClinicalTitle	Clinical title of the measure as published
WebName	Friendly label for the measure used on Web pages
Desc	Brief description of the measure
Method	Text shown as “Additional Information” about a measure
Footnote	Indicates if a prescribed footnote applies to the measure
Rate_Label	Overriding label to use for special measures
NQF_Endorsed	Indicates measure is National Quality Forum (NQF) endorsed [Y/N]
NQF_ID	NQF endorsement number
BetterHighLow	Indicates whether higher [H] or lower [L] rates are desirable or if the measure (e.g., volume measures) is not rated [N]
RA_Method	Risk Adjustment Method [no, yes, comp, obsv, mcmc, surv]
Scale_By	Indicates the scale of the denominator rate (e.g., 10,000)
Scale_Target	“People” or “Discharges”
Nat_Benchmark	National Rate (risk-adjusted, where applicable) that is used for “National Rating”
Numerator	Numerator of National Rate
Denominator	Denominator of National Rate
Obsv_Rate	Observed National Rate
Peer_Benchmark	Input File Mean Rate used for “Peer Rating”
Imported	Yes/No flag indicating that data have been imported

The columns that may be edited are: WebName, Desc, and Method. The other columns should be correct as delivered with the MONAHRQ software and should not be changed.

Health Topics and Subtopics definitions used in the Quality paths are stored in the Web_Topics table (see Table 4). Major topics are coded with a single capital letter; subtopics have a letter + number combination, where the prefix letter indicates the parent topic. This supports the two-level categorization technique used in Provider Quality Pages. To support the single-level category groupings of the Avoidable Hospital Stays maps, a special singular topic code of “MAPS” will be used. There are currently seven map categories that are treated as subtopics: Chronic Lung Conditions, Diabetes, Heart Conditions, Other Conditions, Composites, Patient Safety, and Procedure Rates. The table has a

sequence field so that topics and subtopics can be reordered at will, which is an option that some people may wish to use. These data are loaded from a tab-delimited file (web_topics.DAT).

Table 4. Health Topics and Subtopics Description File Format

Field Name	Description
Code	Unique code (UI) for the topic (single letter) or subtopic (letter plus number separated by a period).
Name	Short name displayed on the MONAHRQ-generated Web pages
Title	Full label for the topic shown when it is selected
Method	Text shown as “Additional Information” about a topic. Must be in HTML format.
Footnote	Indicates if a prescribed footnote applies to the topic
Seq	Sequence order in which topic or subtopic is shown
Selected	Indicates that a host user wants this topic or subtopic

Topic or subtopic names and titles can be edited in this table. New topics may be added by choosing a letter that is not currently in use and then creating subtopics for that new topic. This scheme allows for 26 top-level topics and 10 subtopics within each topic. The presentation layout of a MONAHRQ-generated Web site is designed to fit these parameters. More topics or subtopics will not present well in the style that a MONAHRQ-generated Web site currently uses.

3.2.1.1 Assigning Measures to Subtopics

Assigning specific measures to these subtopics is accomplished with a mapping table named Web_Topic_Measures. Measures must be assigned to subtopics and not to top-level health topics. A measure may appear in more than one subtopic. A special Topic-Code of “MAPS” is used to support the measures of the Avoidable Hospital Stays Maps. Area-based measures can be assigned to the MAPS subtopics. The columns are listed in Table 5.

Table 5. Mapping of Quality Measures to Topics and Subtopics, Description File Format

Field Name	Description
T_Code	Code for the subtopic
M_Code	Code of the measure
Sequence	Sequence order of the measure in subtopic display
Selected	Indicates that the measure is selected for Web page display

Display of a quality measure within a subtopic can be removed by deleting the row in this table that lists that measure within the given subtopic. A quality measure can be moved from one subtopic to another by simply editing the T_Code (subtopic code) to be the desired subtopic. Quality measures can be added to a subtopic by creating a new row in this table. The contents of this table drive the MONAHRQ software screen for selecting which measures should be reported on the Web pages. The “Selected” field is set by the MONAHRQ software, although it may also be set when editing this table.

3.2.2 Region Information File

The MONAHRQ software supports searching and reporting data at the regional level. You may define your regions within the user interface or through a file-based format.

There are four fields on each line of the CSV file (see Table 6). It is assumed that the file contains a header row. The titles within the header row are ignored but provided for readability; the order of the fields within the file must be maintained. The first field must be a number that is the Region ID. The next field is the title of the region and must be enclosed in double quotes if commas appear in this field. The third field is the two-letter State code. The fourth field must be a Y (yes) or N (no) to indicate if the region is selected for reporting.

Table 6. Region Information File Format

Field Name	Description	Notes
REGION_ID	Numeric region identifier	Required field
REGION_NAME	Region name	Required field
STATE	Two-letter State identifier	Required field
ACTIVE	Flag to indicate whether this region should be reported	One of two values, Y or N

A sample regions file is included below.

```
RegionID,RegionName,State,Active
1,NorthEast,MD,Y
2,Central,MD,Y
3,South,MD,Y
4,NorthWest,MD,Y
5,Mid-Central,MD,Y
```

3.2.3 Hospital Information File

The MONAHRQ software provides the ability to customize how hospital information is displayed. It allows you to associate regions with hospitals for reporting purposes (see Table 7).

You may load hospital data from a previously created external file or a file that was previously exported from the MONAHRQ software. The file maps the hospital identifier in the data to hospital demographic data. It is assumed that the file contains a header row. The titles within the header row are ignored; the order of the fields within the file must be maintained. The format for the external file is a CSV file that lists the Hospital ID, Federal Information Processing Standards (FIPS) county code, hospital name, ZIP Code, cost-to-charge ratio (if desired), region (if desired), and CMS provider ID (if desired). If the hospital names contain commas, the names must be enclosed in double quotes. The Dartmouth Atlas Hospital Service Areas (HSAs) will automatically assign county names and regions. If you have provided your own regions, the region ID for your defined regions must map to a region ID that you provided when defining them.

Table 7. Hospital Information File Format

Field Name	Description	Notes
HOSPITAL_ID	Hospital identifier	Required field
FIPS	FIPS State-county code	Not required, but must contain a value. The MONAHRQ software will determine the correct county and region from the Dartmouth Atlas HSAs.
HOSPITAL_NAME	Hospital name for display	Required field. The name can be masked using the Mask Hospital Names button.
ZIP	ZIP Code	Required field
CCR	Cost-to-charge ratio	Not required, but field must be present
REGION	Region identifier	The region identifier specified in the Define Regions step executed previously
CMS_PROVIDER	CMS Provider ID	Not required, but field must be present

A sample hospital file is included below.

```
DSHOSPID,FIPS,Name,ZIP,CCR,REGION,CMS_Provdr_Num  
123477,24005,Facility 46,21201,0.8,3,210001  
123475,24005,Facility 34,21133,0.8,3,210002  
123494,24003,Facility 2,21401,0.8,4,210003  
123464,24033,Facility 36,20785,1,1,210004  
123456,24017,Facility 10,20646,1,1,210005  
123504,24045,Facility 21,21804,1,5,210006
```

3.2.4 Host User Configuration

The MONAHRQ software allows you to save all of your configuration options in a database and load them into a new database. These configuration options include items such as the header title of the Web site and customized colors. This feature allows your settings to be brought forward from one version of the MONAHRQ software to the next, or within the same version from one database to the next. The **save** operation should be performed from a MONAHRQ database that has been run to completion, meaning that data have been loaded and a Web site has been generated. You will find the *Save Configuration Options to File* button on the Program Options screen as pictured in Screen 4.

Screen 4. Program Options

Logging

Disable Save Session Log to Log File if you do not want session log messages written to the Log File.

Changing the active Log File name will switch files.

This setting remains in effect when you end this program.

Save Session Log to Log File

Log File:

Maximum log file size (at program start): bytes

Error messages to print per column:

Total error messages to log:

Frequency of "rows loaded" messages:

Log Verbosely (for trouble shooting)

Performance

Default

Long Query Timeout: 600

Short Query Timeout: 60

Max Rows in Readability Check: no max (0)

You should use the default values unless advised to edit these timeouts by a support team member.

Data Load Status

CMS Hospital Compare Data Loaded: 0

AHRQ QI Data Loaded: 0

Discharge Data Loaded: 0

Text Files

Column Separator Character (Tab or Comma):

Hospitals

Maximum Number of Hospitals for Report Selection

You will be prompted for the name and location of the Configuration File. It will be saved as a *comma separated values* (CSV) file. This file can then be loaded into another MONAHRQ database regardless of the version. These settings can be loaded from the Program Options screen for an existing database using the *Load Configuration Options from File* button, as seen on the previous screen shot. They can also be loaded when a database is being created from the Database Manager screen.

4 LOADING DATA AND GENERATING A WEB SITE

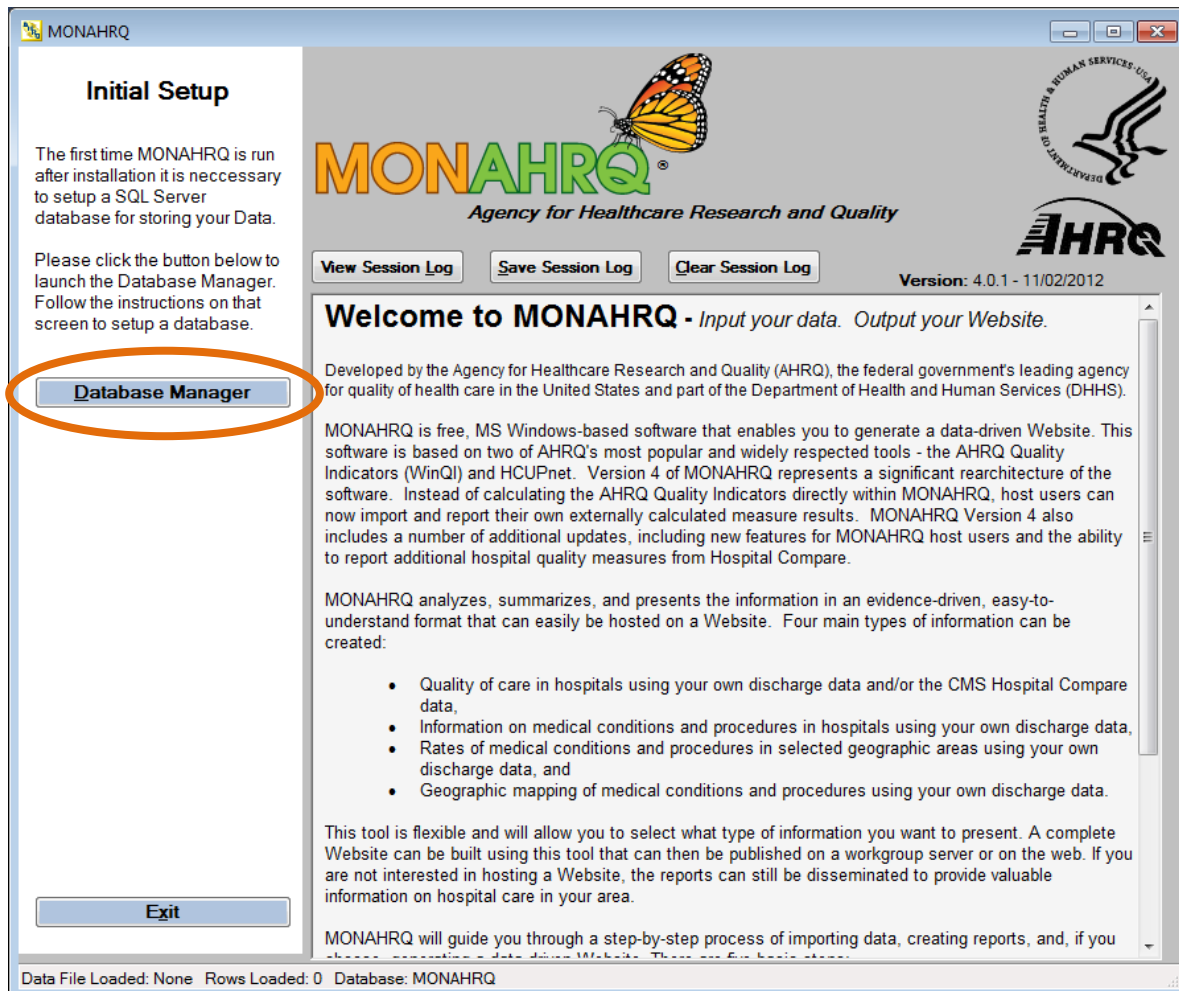
With your data and measures prepared, you are ready to load data into the MONAHRQ database and generate your Web site. This section will walk you through the process of creating the MONAHRQ database, loading data, and generating the Web site. Screen shots of the software with helpful hints and background information are provided.

4.1 Create a Database

The first time you run the MONAHRQ software, you will see the main screen with a special left-side panel with the title *Initial Setup* that guides you through the process of creating your first database. Once you complete this step (described below), the left-side panel will contain the *Task Menu* (Screen 7), which gives you access to all of the MONAHRQ software features. On the initial MONAHRQ software main screen (Screen 5), you may select **View Session Log** before launching the Database Manager or choosing an item on the regular *Task Menu*. This log will help you or MONAHRQ technical support identify any errors or problems that you may have while creating the Web site. Please note that you must return to the main screen to see the log.

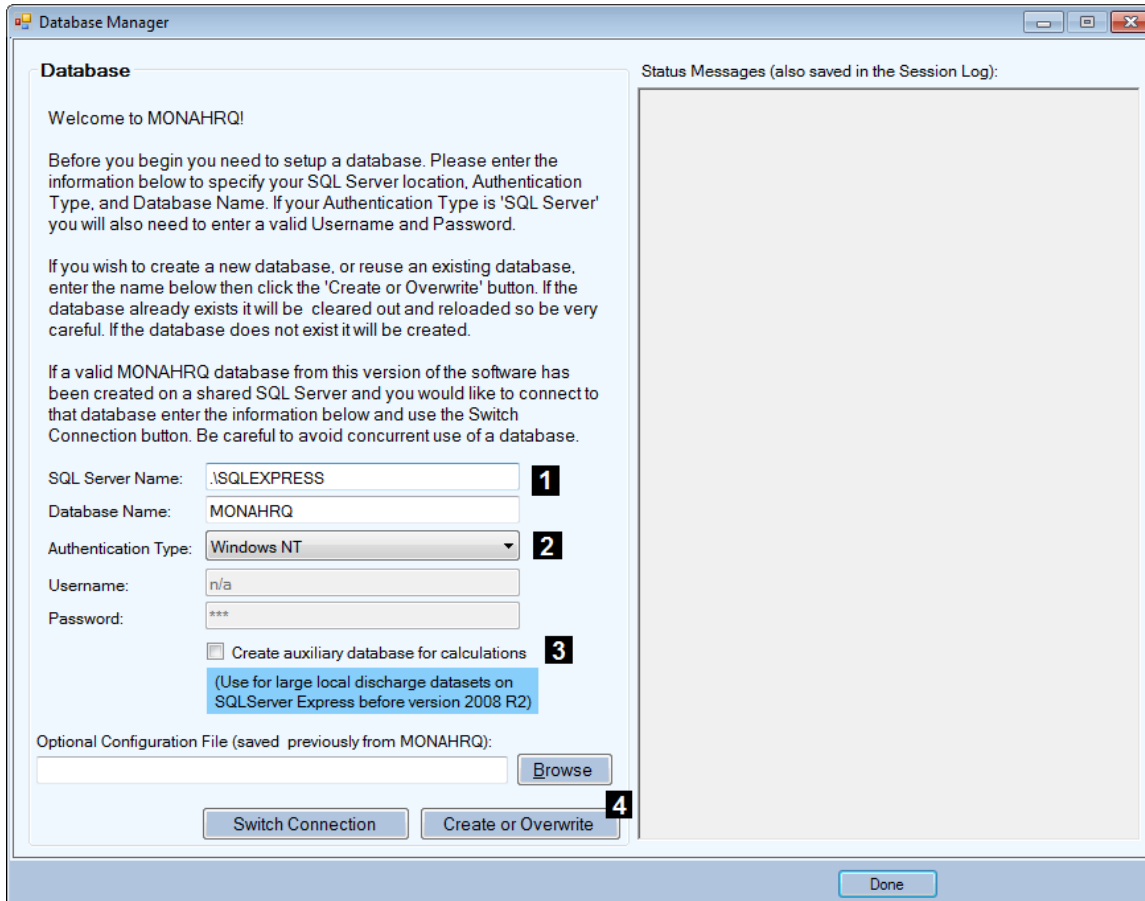
Before loading data into the MONAHRQ database and building a Web site, you must create a database. Select Database Manager to begin creation of a database.

Screen 5. MONAHRQ Main Screen



The Database Manager (Screen 6) will appear.

Screen 6. Database Manager



If you are using the free SQL Server Express edition installed locally on your computer, the server name and authentication is prefilled for you (Screen 6, fields labeled 1 and 2). You will only need to enter your desired database name or accept the default of *MONAHRQ*. If you are using an advanced edition of SQL Server installed on a remote computer, you will need to alter the server name (field 1), change the Authentication Type (field 2) to SQL Server, and enter a username and password. Your system or database administrator can provide this information to you.

You may choose to have the MONAHRQ software create an auxiliary database to store calculations for the Hospital Utilization and County Rates of Hospital Use paths. Use this option if you feel that using a single database for all operations will exceed the maximum size of your database. SQL Express 2008 R2 has a 10GB limit, which should handle most datasets. SQL Express 2005 has a 2GB limit, which is easily exceeded with a modest sized dataset. Advanced SQL Server editions have no size limit.

If you have saved a *Configuration File* from a previous run of the MONAHRQ software (either version 3 or 4) and would like to load those configurations into your new database (screen label 3), use the **Browse** button to locate and select your Configuration File.

You must create a new database the first time you use the 4.0 version of the MONAHRQ software. When upgrading to a new version of MONAHRQ, you must also create a new database. The MONAHRQ 4.0.1 database uses different data structures than prior versions of the database.

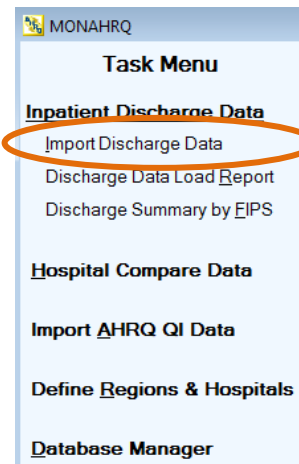
Once you have provided the database information, select **Create or Overwrite** (screen label 4) to create the database. (Select “Yes” when prompted if you want to create or overwrite the database.) Status messages will appear in the box on the right of the screen as the steps to create the database are accomplished. When the process has finished, select **Done** to return to the main screen.

If you think that you might want to alter a MONAHRQ Web site at a later time, we suggest that you use a different database name each time you create a new SQL database. For example, if you would like to create a MONAHRQ Web site for 2009 and another Web site for 2010, you would create distinct SQL databases (e.g., MONAHRQ_2009 and MONAHRQ_2010). To alter a previously generated Web site, you will type in the name of the database and select **Switch Connection** and then **Done**.

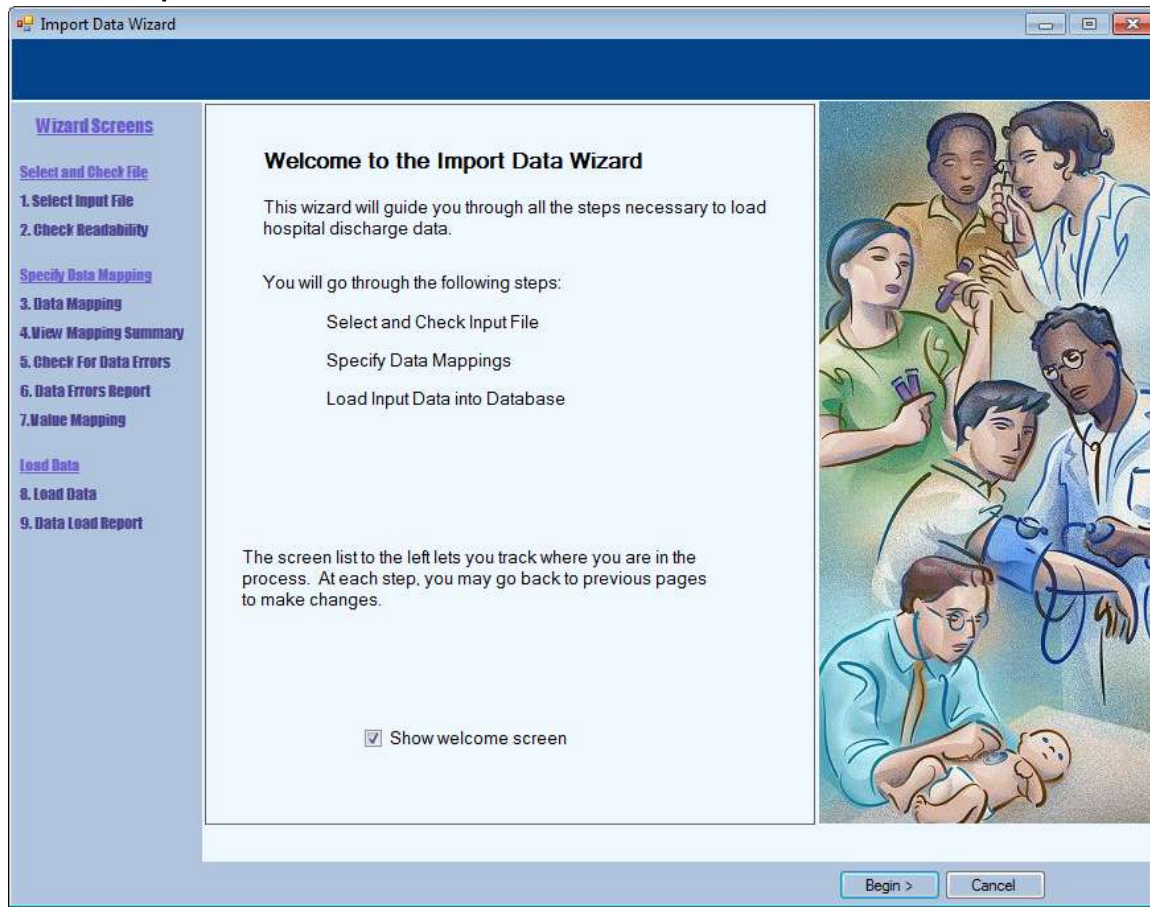
4.2 Load Inpatient Discharge Data

This section will walk you step-by-step through the process of loading and analyzing your local inpatient discharge dataset. Local inpatient discharge data populates the Hospital Utilization and County Rates of Hospital Use paths of a MONAHRQ-generated Web site. Choose **Import Discharge Data** from the *Task Menu* to launch this multi-screen wizard.

Screen 7. Task Menu



Screen 8. Import Data Wizard



The Welcome screen explains the Import Data process; select **Begin** to continue.

Step 1: Select Input File Screen

Select the **Browse** button to locate the discharge data file to be loaded. Once you have found the appropriate file, check an option in the **Import Data File Options (Specific to File Type)** box:

- If applicable, check **First row contains column headings**.
- If you are unsure of data format, check **Values are enclosed in quotes**.

Select a file that contains one calendar year of inpatient discharge data. The MONAHRQ software only allows one calendar year of data to be analyzed at a time. If you have fiscal data that span two calendar years and would like to include all records in your analysis, you will need to manipulate the values in the source data for the variable **Year** before loading the data. You may alter the fiscal data to reflect either the later or former calendar year (e.g., 2006–2007 fiscal-year data would need to be coded as either 2006 or 2007).

Please note that the MONAHRQ software can only load data with fewer than 200 variables. Any data beyond column 200 in the input file will be ignored.

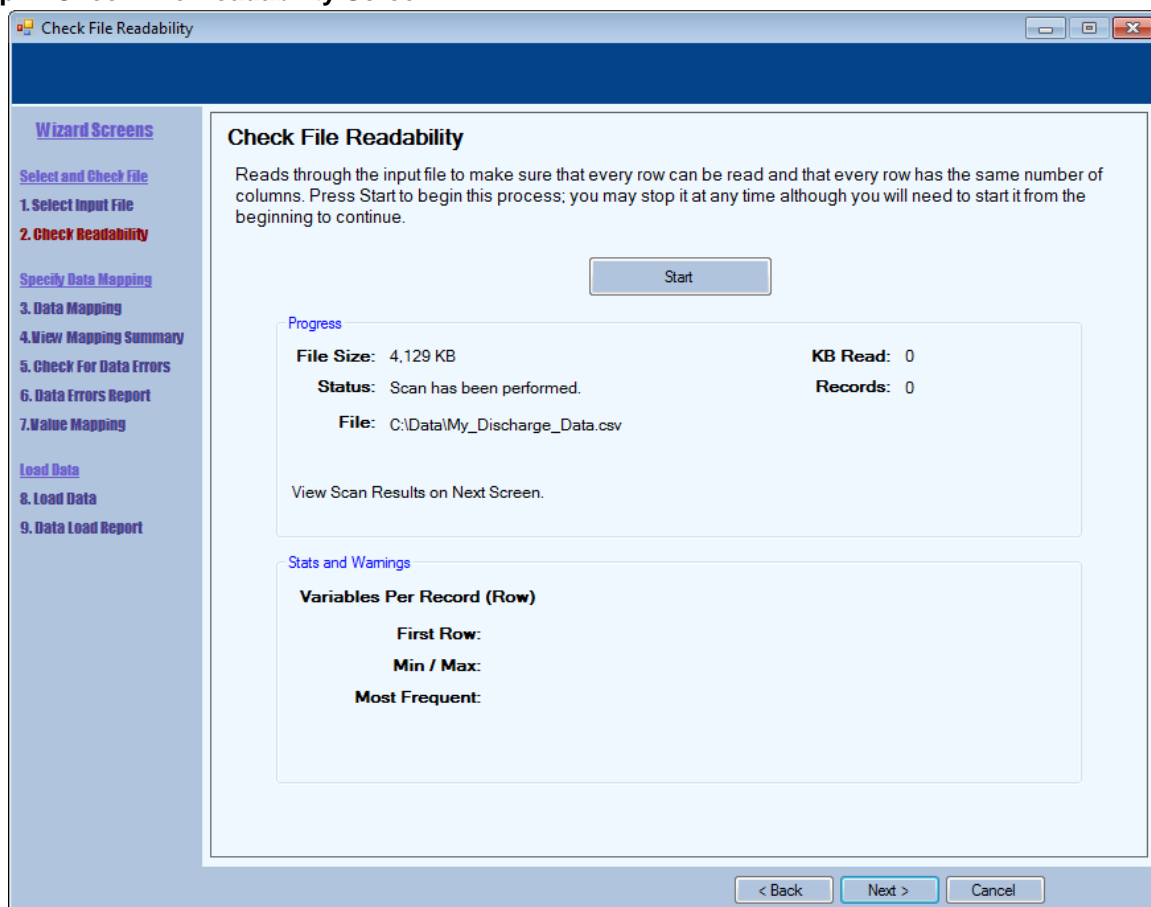
The types of file formats accepted by the MONAHRQ software are: CSV, XLSX or XLS (Excel), and ACCDB or MDB (MS Access). Users have experienced difficulty using Excel files because of the way Excel handles character fields and leading zeroes; we recommend you confirm that the Excel file has maintained the original data values before loading the file into the MONAHRQ database.

Next, select an option in the **Data Mapping and Crosswalk box**:

- If this is the first time you are loading the data (i.e., you do not have a previously created data mapping file from the AHRQ Quality Indicators software for Windows or from the MONAHRQ software, select **Data Layout Unknown**.
- You may use a data mapping file created by the AHRQ Quality Indicators software for Windows or the MONAHRQ software. If you previously loaded your data and created a data mapping file in MONAHRQ, select **Browse** to locate the .qim mapping file.
 - If you are using a .qim file, you can check **Skip data validation and mapping screens**.

Once you have completed this page, select **Next**. You can return to the previous page by using the Back button, which appears on the bottom of this page and subsequent pages.

Step 2: Check File Readability Screen

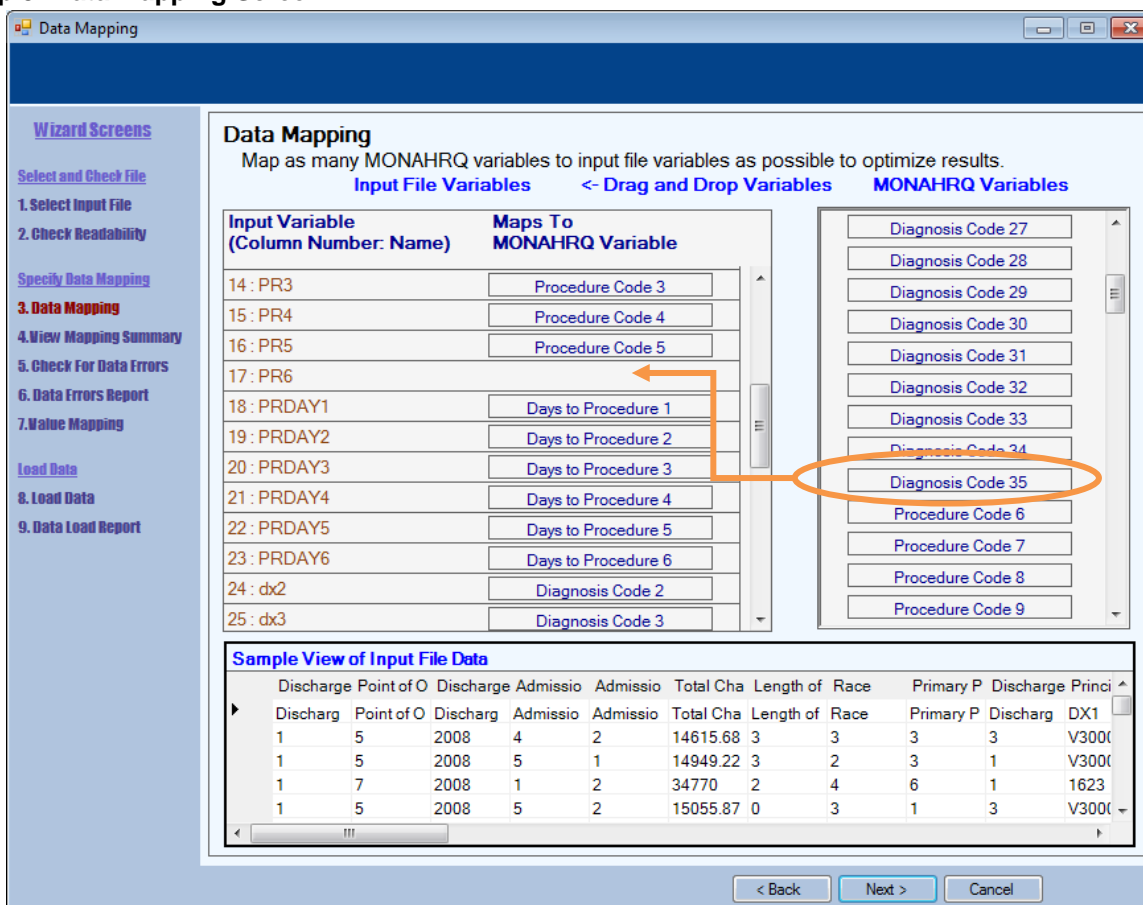


The MONAHRQ software will check to ensure that the data are legible and each row has the same number of columns. On the Check File Readability screen, verify the file selection shown. If correct, select the **Start** button. You may select **Stop** to terminate the process (the Start button will change to “Stop” once the checking process begins).

When the check is complete, the **Status** message will read **Finished**.

Select **Next** to continue.

Step 3: Data Mapping Screen



Once the data have been loaded, you will be asked to map your dataset to the MONAHRQ software variable names. MONAHRQ's Data Mapping Screen provides the opportunity to map your data elements to the data elements used in the software. Although a sample of your dataset is provided on the screen, it is useful to either know your element names or have access to your data dictionary.

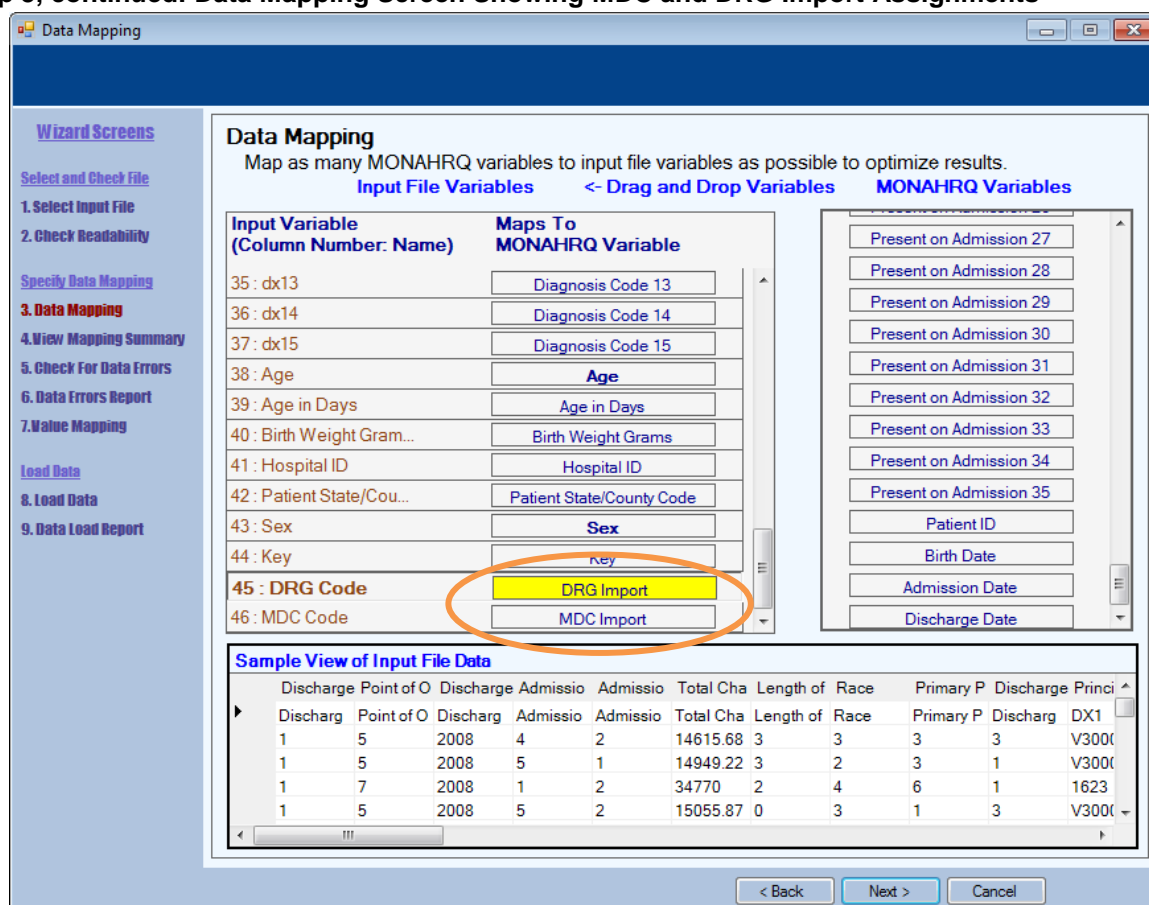
Data elements in your discharge data that have the same name as MONAHRQ software data elements will automatically be mapped for you. Variable names used in the MONAHRQ software are the same as those that appear in the Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID). To map variables, drag and drop the variables from the **MONAHRQ Variables** column to the correct position in the **Maps to MONAHRQ Variable** column that corresponds to the **Input Variable** column containing your data elements (moving right to left between the columns). The MONAHRQ software requires the following in order to calculate rates and utilization data: Age, Sex, Discharge Year, Discharge Quarter, and Principal Diagnosis. All of these variables must be linked to an input file variable. The MONAHRQ software will not run without all required variables. If a variable is mapped incorrectly, simply drag the mapped variable to the correct position in the **Maps to MONAHRQ Variable** column or drag it back to the **MONAHRQ Variable** column on the right side of the screen.

All other fields are optional. The optional fields are not required, but as many variables as possible should be mapped to optimize the output. The MONAHRQ software has been programmed to "automatically guess" some of the mapping options, so it is important that you check these to ensure that they are correct.

MONAHRQ software provides the ability to import your own major diagnostic category (MDC) and diagnosis-related group (DRG) assignments. The next screen provides more information about this feature.

Please refer to Table 12 and Table 13: Present-on-Admission Coding for a complete listing of variable names, descriptions, and coding. Note that Present on Admission (POA) is automatically mapped by MONAHRQ.

Step 3, continued: Data Mapping Screen Showing MDC and DRG Import Assignments



The MONAHRQ software embeds an MDC-DRG grouper produced by Innovative Resources for Payors (IRP). The MONAHRQ software makes it optional to use this embedded grouper; you can now choose to load your own MDC-DRG assignments.

To override MONAHRQ's embedded MDC-DRG grouper, include your own MDC-DRG assignments in the inpatient discharge data file that is to be loaded into MONAHRQ. If you have chosen to load your own MDC-DRG assignments, scroll to the bottom of the **Input File Variables** section and map these MDC-DRG values to MONAHRQ variables named "DRG Import" and "MDC Import." Please note that when using your own MDC-DRG assignments, no error checking will be performed. Records with missing or incorrect MDC and DRG information will not be processed.

Once you have finished mapping elements, select **Next**.

Step 4: View Mapping Summary Screen

Wizard Screens

- Select and Check File
- 1. Select Input File
- 2. Check Readability
- Specify Data Mapping
- 3. Data Mapping
- 4. View Mapping Summary**
- 5. Check for Data Errors
- 6. Data Errors Report
- 7. Value Mapping
- Load Data
- 8. Load Data
- 9. Data Load Report

Summary of Variables

This report summarizes the Data Mapping between the input file and the MONAHRQ 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 by MONAHRQ 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 MONAHRQ User Guide for details.

Variables in Input File:	46
Input Variables Mapped to MONAHRQ Variables:	46
Unused Input Variables:	0
Unmapped Required MONAHRQ Variables:	0
Unmapped MONAHRQ Variable Warnings:	0

Variables

MONAHRQ Variable	Input Variable(column #)
Key	Key (44)
Age	Age (38)
Age in Days	Age in Days (39)
Race	Race (8)
Sex	Sex (43)
Primary Payer	Primary Payer (9)
Patient State/County Code	Patient State/County Code (42)
Hospital ID	Hospital ID (41)
Discharge Disposition	Discharge Disposition (1)
Admission Type	Admission Type (4)
Admission Source	Admission Source (5)
Point of Origin	Point of Origin (2)
Length of Stay	Length of Stay (7)
Discharge Year	Discharge Year (3)
Discharge Quarter	Discharge Quarter (10)

Save Report < Back Next > Cancel

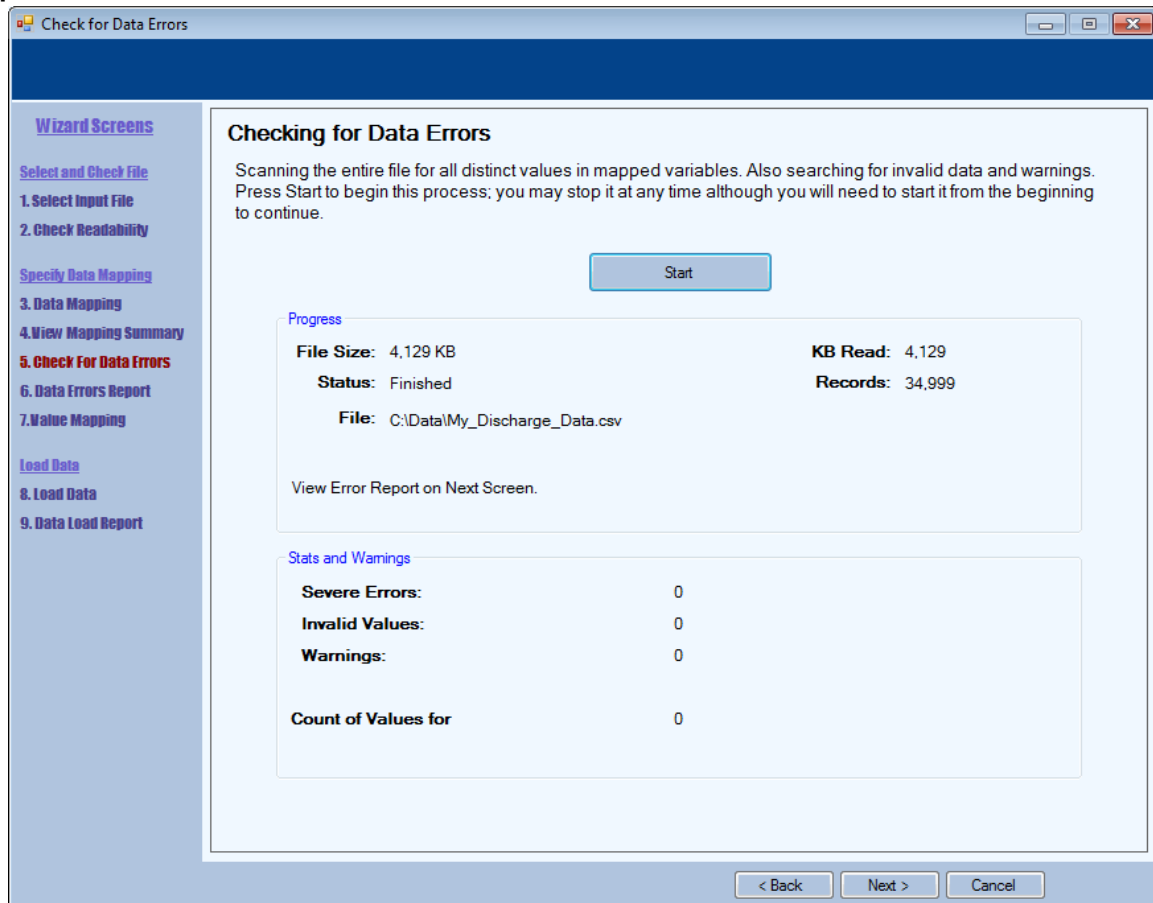
On the Mapping Summary screen, it is important to focus on the number of unmapped required variables. **Unmapped Required MONAHRQ Variables** should have a value of zero. If this number is greater than zero, it indicates that there was a data load error or you did not crosswalk all of the required variables. In this case, examine your input file to determine if the required variables were mapped correctly and the input file format matches the mapping you specified.

Once the Unmapped Required MONAHRQ Variables number is at zero and the number of variables in the input file matches the number of input variables mapped to MONAHRQ variables, you may select **Save Report** to create an .rtf file of information on the screen.

Note that the POA value mappings are provided on this screen.

Select **Next** to continue.

Step 5: Check Data for Errors Screen

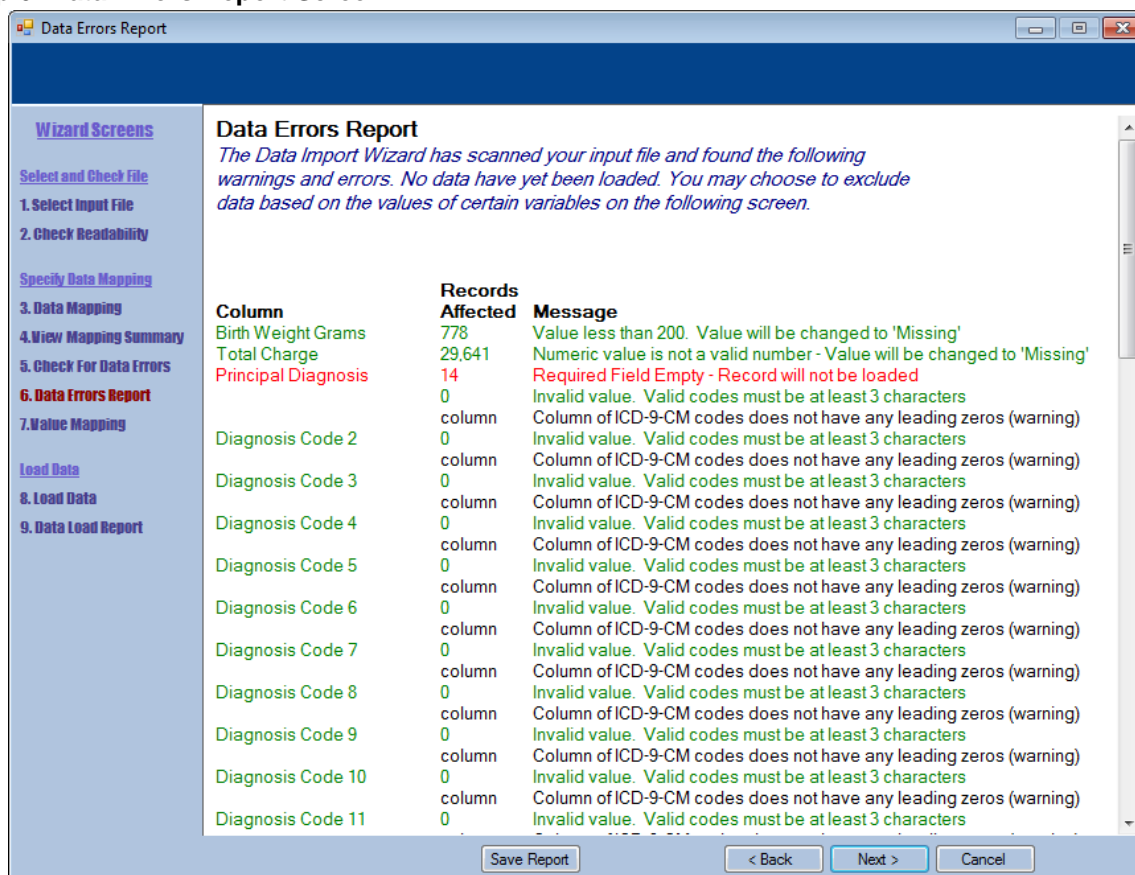


To check for errors within the mapped dataset, select the **Start** button on the Check Data for Errors screen. You may select **Stop** to terminate the process (the Start button will change to Stop once the checking process begins).

When the check is complete, **Status** changes to **Finished**. If there are errors, status messages will appear on the screen. Additional details are provided in the session log. Examine the error messages in the session log to determine the cause of the error. When the error in the input file has been identified and rectified, load the file again.

Select **Next** to continue.

Step 6: Data Errors Report Screen



The Data Errors Report will show the number of records affected by data errors. If a data error occurs in a required field and affects a large percentage of records, the Web pages generated may be incomplete.

Some errors may be acceptable. For example, if the **Total Charges** element in the input file is not a numeric value (i.e., left blank, or “none”), the software treats the variable as missing. For other elements, the acceptability of an error is based on host user discretion, such as if the error only affects a small number of records or if it occurs in a variable that is not required for the analysis. Finally, some errors may require research and/or manipulation of the input data file. If you manipulate the input data file, you will need to start the data load from the beginning.

Below are four common errors and guidelines for checking them:

- Required Field Empty: Record will not be loaded (highlighted in red).**
 Verify that the count (indicated in the Records Affected column) is a small percentage of your discharges. If the error affects a large number of records, make sure that the variable mapping was correct (use the Back button to return to the Data Mapping screen).
- Diagnosis Codes/Procedure Codes: Invalid value. Valid codes must be at least 3 characters (highlighted in green).**
 Verify that the count (indicated in the Records Affected column) is a small percentage of your discharges and investigate the input data values. For example, how are missing values identified?

- **Birth Weight Grams: Value less than 200.**

Value will be changed to “Missing” and/or “Value Greater Than 7,000.”

- **Age in Days: Age is greater than zero.**

Age in Days only applies for Age less than 1 year. If the value is greater than 365 days, it will be changed to “Missing.”

To correct errors, use the **Back** button to return to the Data Mapping screen to review and correct the mapping of MONAHRQ variables to input file variables. Once the results are to your satisfaction, select **Save Report** if you would like to create an .rtf file of information on the screen.

Select **Next** to continue.

Step 7: Crosswalk Values Screen

Crosswalk - Map Input Values to Value Meanings

The values of the following variables have specific meaning. Choose the description that indicates the meaning of each value in your input file.

Values for Present on Admission (POA) will be automatically mapped by MONAHRQ. See the Mapping Summary screen or the MONAHRQ User Guide for details.

Input: "Admission Source" -> Dataset: "Admission Source"

Input Value	Count	Value Meaning
	39	0 : Missing
1	6237	1 : ER
2	10199	2 : Another hospital
3	10023	3 : Another fac. incl. LTC
4	6184	4 : Court/Law enforcement
5	2316	5 : Routine/Birth/Other

Indicators that rely on this field set to missing for these cases

Input: "Admission Type" -> Dataset: "Admission Type"

Input Value	Count	Value Meaning
1	5784	1 : Emergency
2	11660	2 : Urgent
3	5903	3 : Elective
4	5779	4 : Newborn
5	5872	5 : Trauma Center

Input: "Discharge Disposition" -> Dataset: "Discharge Disposition"

Input Value	Count	Value Meaning
	73	0 : Missing

Indicators that rely on this field set to missing for these cases

< Back Next > Cancel

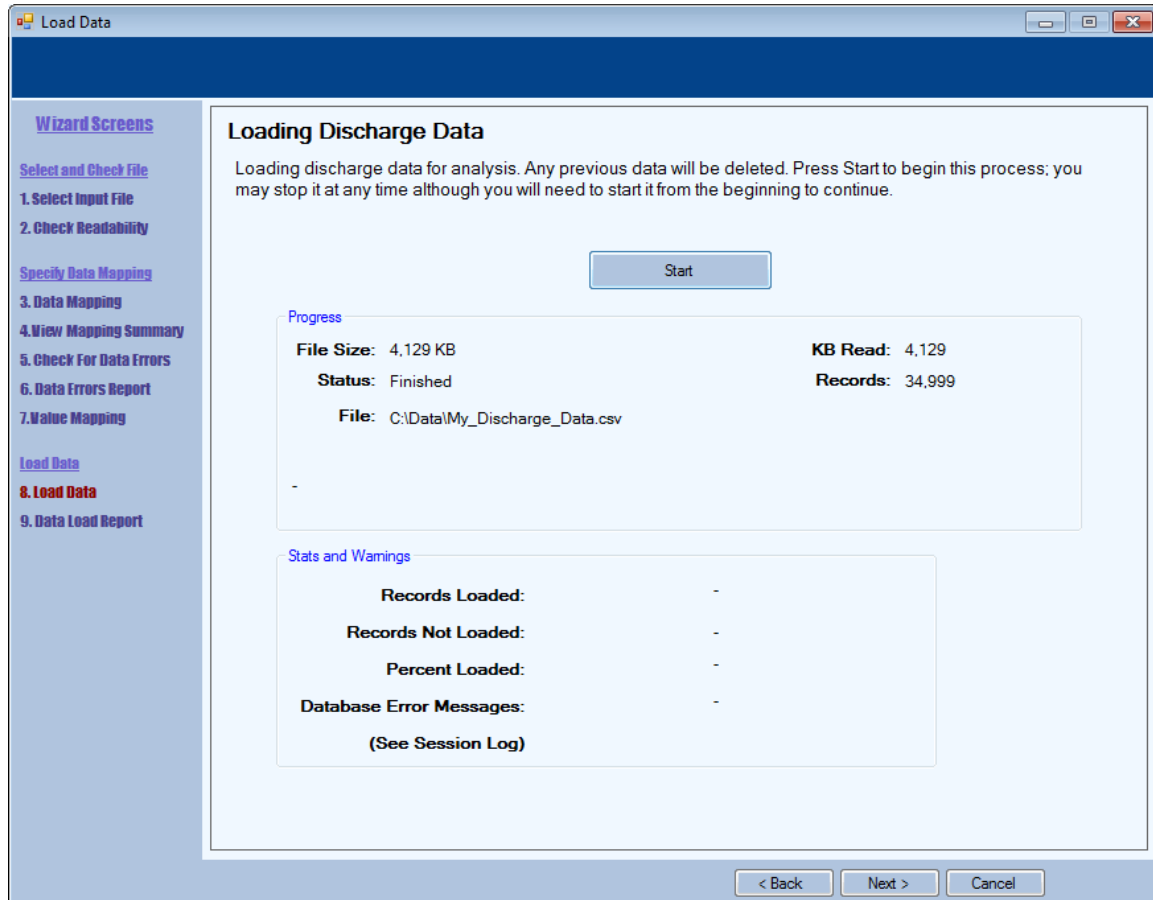
Once the data elements are loaded, the values for each element need to be identified. The MONAHRQ software makes some assumptions about the meaning of the variable values. Use your own data documentation to verify the assumed values. We recommend that each input value be reviewed to ensure that the correct value meaning was assigned to your data.

If your data are formatted in the HCUP standard or you have altered the data according to Table 12, the software will crosswalk values and meanings for you. You should still review the values and meanings for accuracy.

Please note that Present on Admission is automatically mapped by MONAHRQ. Refer to Table 12 for detailed coding information.

Once all variables have been coded, continue by selecting **Next**.

Step 8: Loading Discharge Data Screen



To begin loading your inpatient discharge data, select the **Start** button. You may select **Stop** to terminate the process (the Start button changes to Stop once the load process begins).

Depending on the number of records, the data load process may take a long time. When the loading process is complete, the **Status** changes to **Finished**.

Select **Next** to continue.

Step 9: Data Load Summary Screen

Data Load Summary
Discharge data have been loaded from your input file and are ready for analysis. The following shows descriptive statistics for the loaded data. 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	34,976
Total Rows Excluded	22
Number of variables per record	46
Records with extra values (more than 46)	34,998

Record Warnings

Column	Records Affected	Message
Sex	8	Rows excluded because the value a crosswalk selection
Primary Payer	399	Value mapped to null based on crosswalk (info)
Discharge Disposition	75	Value mapped to null based on crosswalk (info)
Admission Source	7	Input value has no mapping defined - changed to blank
Point of Origin	39	Value mapped to null based on crosswalk (info)
Birth Weight Grams	456	Value mapped to null based on crosswalk (info)
Total Charge	777	Value less than minimum (200) - changed to a blank
Principal Diagnosis	29,641	Numeric value is not a valid integer - changed to blank
Diagnosis Code 1	14	Required field empty - Rows not loaded
Diagnosis Code 2	198	String value less than 3 characters
Diagnosis Code 3	23	String value less than 3 characters
Diagnosis Code 4	10	String value less than 3 characters
Diagnosis Code 5	6	String value less than 3 characters
Diagnosis Code 6	8	String value less than 3 characters
Diagnosis Code 7	4	String value less than 3 characters
Diagnosis Code 8	4	String value less than 3 characters
Diagnosis Code 9	3	String value less than 3 characters
Diagnosis Code 10	2	String value less than 3 characters
Diagnosis Code 11	1	String value less than 3 characters
Diagnosis Code 12	2	String value less than 3 characters
Diagnosis Code 13	1	String value less than 3 characters
Diagnosis Code 14	1	String value less than 3 characters

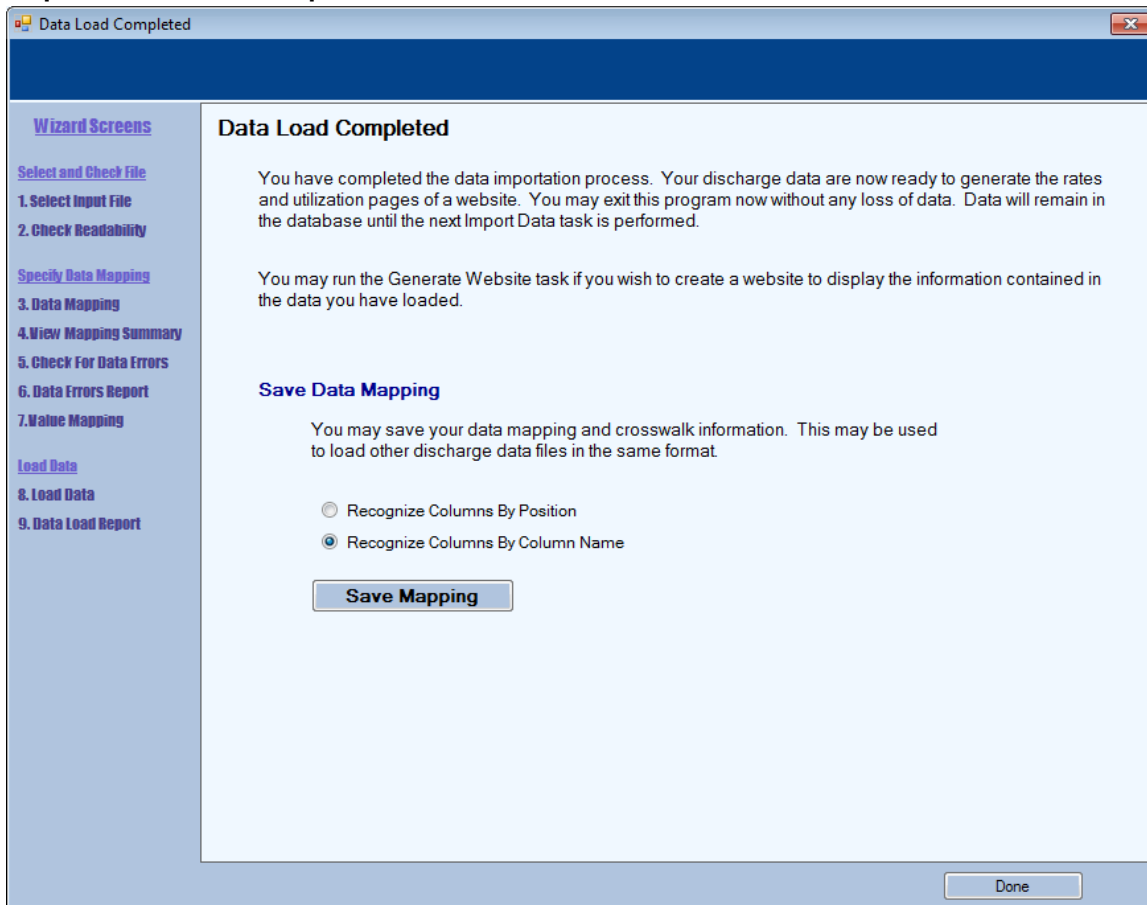
Once your data have finished loading, you will be taken to a **Data Load Summary** page. Warning messages are shown in red and green font to indicate inconsistencies with the loaded data that may affect the quality indicator calculations. You may adjust any inconsistencies in your raw data file and reload the data.

In addition, the number of records with **Required field empty—Rows not loaded** should be a small number. If there are substantial amounts of missing data for any given variable (or combination of variables), the overall number of discharges will decrease accordingly. For analyses with small populations, the results may be statistically unreliable.

Select **Save Report** to create an .rtf file of the Data Load Summary information.

Select **Next** to continue.

Step 10: Data Load Completed Screen



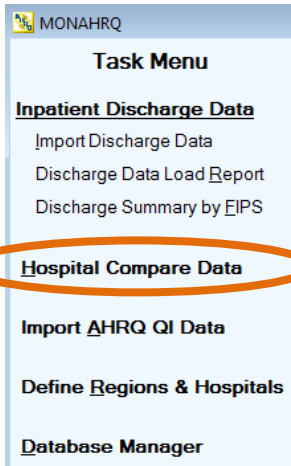
After you have reviewed the data load summary, you will be taken to a **Data Load Complete** page. On this page, you may save your data mapping and crosswalk information. You will be prompted to provide a file name and may choose where you want to save the file. If you have other data files that have the same variable names and same structure, you can load this mapping file to save time.

Select **Done** to return to the Task Menu Screen.

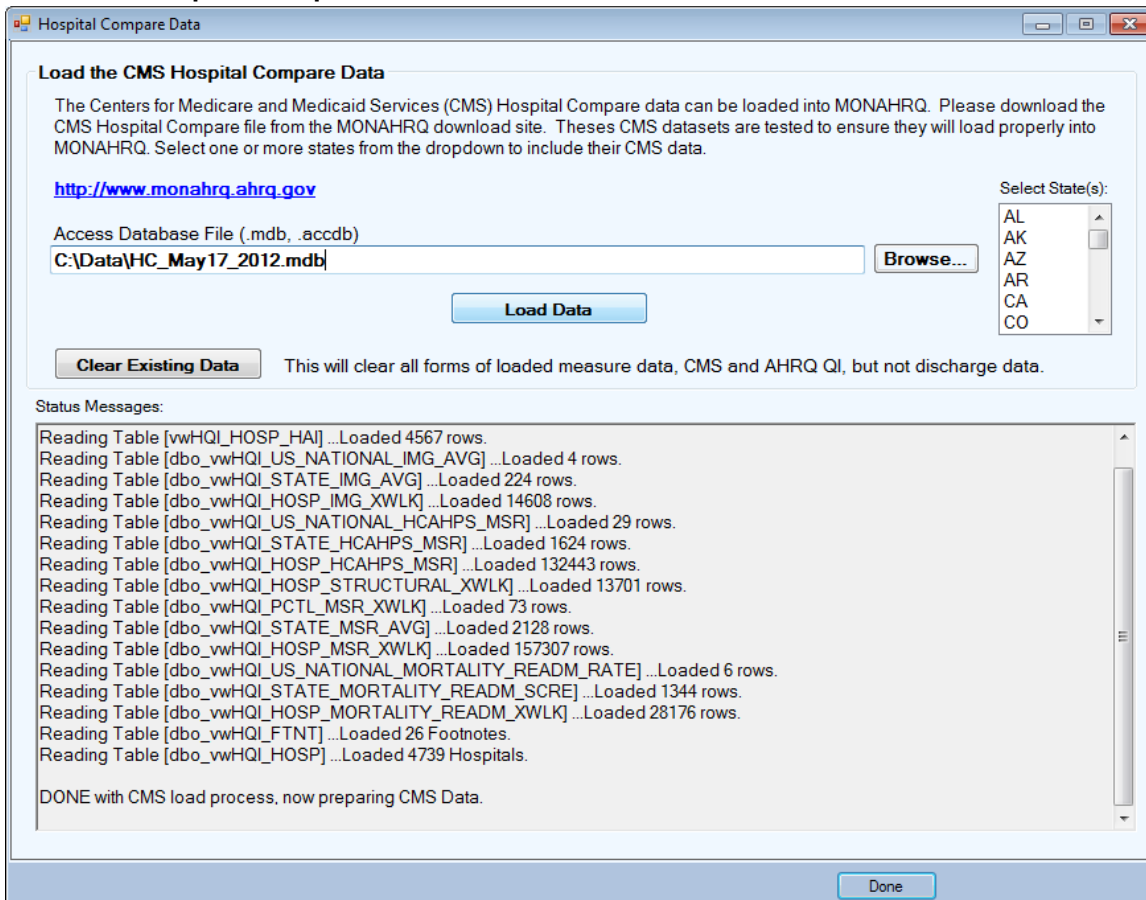
4.3 Load CMS Hospital Compare Measures

This section will walk you step-by-step through the process of loading the CMS Hospital Compare measures (Screen 10). These measures populate the Hospital Quality Ratings path of a MONAHRQ-generated Web site. To load the CMS Hospital Compare dataset, select Hospital Compare Data on the left menu bar. Please note that you will need to use a CMS Hospital Compare database file provided on the MONAHRQ download Web site. Alterations were made to the CMS Hospital Compare database so that it loads properly in the MONAHRQ software (http://monahrq.ahrq.gov/monahrq_data.shtml).

Screen 9. Hospital Compare Data Option in Task Menu



Screen 10. Hospital Compare Data



Use the **Browse** button to locate the CMS Hospital Compare file to be loaded. Select the State(s) on which you wish to report from the Select State(s) menu. Select **Load Data**; the message “DONE with load process, now preparing CMS Data” will appear at the bottom of the Status Messages box when the process is completed (Screen 10).

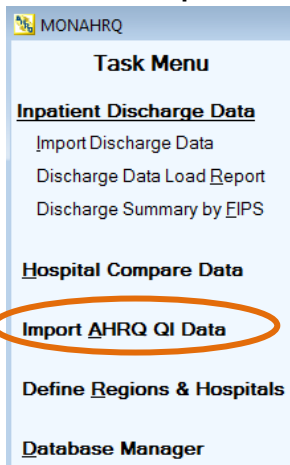
If you would like to reload data, select **Clear Existing Data**. Previously imported measure data will be cleared from the database.

Once you have completed the data load, select **Done**. You will return to the Task Menu screen.

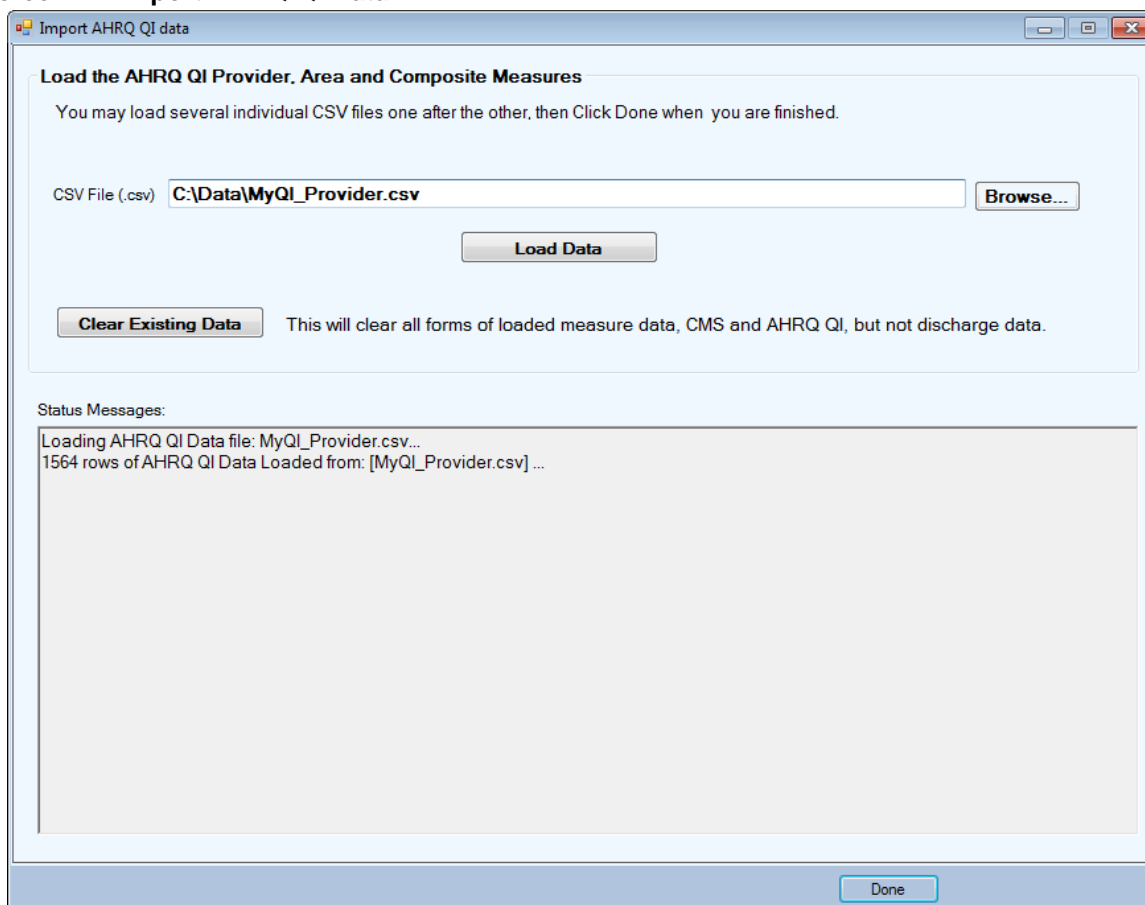
4.4 Load the AHRQ Quality Indicators

This section will walk you step-by-step through the process of loading measure results exported from the AHRQ Quality Indicators (QI) software. The AHRQ QIs populate two paths of a MONAHRQ-generated Web site: the Hospital Quality Ratings path and the Maps of Avoidable Hospital Stays path. If you wish to activate the *Cost Savings* feature of the Summary Tables in the Maps of Avoidable Hospital Stays path you must download and use the Cost Estimator tool from the MONAHRQ download web site. Select **Import AHRQ QI Data** from the Task Menu to open the screen for this task.

Screen 11. Import AHRQ QI Data Option in Task Menu



Screen 12. Import AHRQ QI Data



Select the **Browse** button to locate the AHRQ QI measure results files to be loaded. Once you have found the appropriate file, select the **Load Data** button to load it. You can load one file at a time; a status message will be displayed after each file has been successfully loaded. The status message will denote the number of records loaded into the MONAHRQ database. Note that the AHRQ QI software gives the provider, composite, and area measure data in three separate files. If you would like to reload your measure data, select **Clear Existing Data** to remove existing measure data from the database.

Once you have completed the data load, select **Done**. You will return to the Task Menu screen.

4.5 Define Regions and Hospitals

The MONAHRQ software provides the ability to select quality measure data, hospital utilization, and county rates of hospital use at a regional level. To enable this feature, you need to define these region groupings and the hospitals contained within them. This section provides step-by-step instructions for defining your regions and hospitals. If you have loaded only **area-level** AHRQ QIs, you do not need to define regions and hospitals—you may proceed to Web site generation and generate a Web site with county-based data only. The process for defining hospitals will vary slightly based on the types of data you have loaded. If you load CMS Hospital Compare measures as well as **provider-level** AHRQ QIs, and/or inpatient discharge data, you need to link the two hospital lists by mapping your discharge hospitals to the appropriate CMS Provider ID. To start, select **Define Regions & Hospitals** from the Task Menu.

Screen 13. Define Regions & Hospitals Option in Task Menu



Screen 14. Define Regions and Hospitals Wizard



The first screen of this wizard is the same no matter what types of data you loaded. It explains the steps you will go through, and it notifies you about what types of data were loaded under Data Load Status. It also asks you to specify the reporting year of your data. If you have imported inpatient discharge data, it will be able to determine this year and provide you with a default; you may override it. Once you have made this selection, press the **Begin** button to continue to the next screen, Edit Regions, which is also consistent regardless of what data types were loaded.

4.5.1 Define Regions for Hospital Groupings

Screen 15. Define Regions for Hospital Groupings

Users may define regions by Dartmouth Atlas Hospital Service Area (HSA), Dartmouth Atlas Hospital Referral Region (HRR), a single region, or custom regions (see Screen 16). You may manually identify the custom regions or load custom regions from a CSV file. Begin by selecting a State from the **Choose Your State** dropdown box. Then, select the button indicating how you would like to group hospitals into regions.

If you would like to learn more about Dartmouth Atlas HRRs or HSAs, visit <http://www.dartmouthatlas.org/>.

If you would like to manually define regions, type the name into the **Region Name** field and select **Add Named Region**. Repeat this process until all regions have been added. If you would like to remove a region after adding it, select the region and select the left arrow. If you chose **Load Regions from File**, refer to the following instructions. When the regions definition is complete, select **Next** to continue.

Loading Regions From File

The **Load Regions from File** button will open the following dialog-box:

Screen 16. Load Regions Table

Load Regions Table

Use the browse feature to locate the regions file. This file must be a comma separated text file (.csv). (Example: c:\data\regions.csv)

Clear existing regions before loading file.

File Format

Regions must be on separate lines with region ID, region title, 2-letter state code, and active flag (Y/N) on each line. The title field must be enclosed in double-quotes if it can contain commas. All fields must be present.

Example

```
0, Unknown, XX, N
1, North, MN, Y
2, South, MN, Y
```

Use the **Browse** button to select the CSV file that contains your saved region definitions. Additional information on the format of the Region Information file can be found in Chapter 3 under the section *Region Information File*. Use the **Load File** button to have the MONAHRQ software open the file and read in your region definitions. You will be notified of any errors. Click **Close** when you are finished and you will return to the Edit Regions screen. The regions from you file will appear on screen in the Selected Regions box.

4.5.2 Provide Hospital Information

The process for defining hospitals varies by the type of data loaded. If you have loaded inpatient discharge data and/or provider-level AHRQ QIs in addition to CMS Hospital Compare measures, you will encounter three screens: (1) Edit Discharge Hospital Information, (2) Link Local Inpatient Discharge and Hospital Compare Hospitals, and (3) Edit CMS Hospital Names and Assign Regions. If you have loaded only provider-level AHRQ QIs and/or inpatient discharge data, you will only see the Edit Discharge Hospital Information screen. If you have loaded only CMS Hospital Compare measures, you will only see the Edit CMS Hospital Names and Assign Regions screen.

In all cases, the final screen will be the Edit and Select Hospitals for Reporting screen.

Edit Inpatient Discharge Hospitals / Quality Indicators Hospitals (optional)

Imported inpatient discharge data and AHRQ QIs are grouped together because it is presumed that they cover the same hospitals and have the same hospital identifiers. If you loaded either type of data, the hospital identifiers were picked up during the import process and will be loaded into Screen 17. You will not see this screen if you have only loaded CMS Hospital Compare measures.

Screen 17. Edit Discharge Hospital Information

ID	Name	ZIP	County Name	Region	Discharges	Cost to Charge Ratio	CMS Provider ID
101				Unknown, XX	880	0.0000	
102				Unknown, XX	839	0.0000	
103				Unknown, XX	819	0.0000	
104				Unknown, XX	870	0.0000	
105				Unknown, XX	814	0.0000	
106				Unknown, XX	852	0.0000	
107				Unknown, XX	809	0.0000	
108				Unknown, XX	848	0.0000	
109				Unknown, XX	785	0.0000	
110				Unknown, XX	817	0.0000	
111				Unknown, XX	849	0.0000	
112				Unknown, XX	789	0.0000	
113				Unknown, XX	798	0.0000	
114				Unknown, XX	823	0.0000	
115				Unknown, XX	890	0.0000	
116				Unknown, XX	882	0.0000	
117				Unknown, XX	837	0.0000	
118				Unknown, XX	781	0.0000	
119				Unknown, XX	879	0.0000	
120				Unknown, XX	825	0.0000	
121				Unknown, XX	852	0.0000	
122				Unknown, XX	816	0.0000	

If you chose Dartmouth HSAs or HRRs, the hospital will already be assigned to a region; however, you may reassign it to a different region. If you choose to load custom regions (manually or with a file), you may use the **Region** dropdown box to assign each hospital to a region. The **County Name** and **Region**

dropdown boxes are prefilled; all you need to do is select your mapping choice. You may also edit the hospital **Name** and **ZIP Code**.

To load the hospitals from a file, select the **Load from File** button at the bottom of the screen; it will open the following dialog-box:

Screen 18. Load Hospital Table

Load Hospital Table

Use the browse feature to locate the hospital information file. This file must be a text file with comma separated values (.csv). (Example: C:\data\hospital_info.csv)

C:\AHRQ\Data\Hospital_Info.csv

Options

Overwrite existing hospital table entries.

Cleanup hospital table. (Remove entries with 0 discharges.)

File Format

Hospitals must be on separate lines with these fields on each line: hospital ID, FIPS county code, hospital name, ZIP code, cost to charge ratio, region code, and CMS provider ID. The name field must be enclosed in double-quotes if it can contain commas. Cost to charge ratio, region code, and CMS provider ID are optional. Include commas for missing fields.

Example

```
VA10322,51013,General Hospital,22201,0.88,1,2088902
VA10333A,51013,"Arlington Med Ctr, Wing A",22002,,1,2088903
```

This screen provides host users the opportunity to apply demographics to each hospital in the data, such as hospital names, counties, ZIP Codes, cost-to-charge ratios, CMS provider ID, or regions. Information must be in a CSV-formatted file. Please see the section *Hospital Information File* in Chapter 3 for more information about the hospital input file. Select the **Browse** button to locate the hospital file to be loaded.

Select options on how to load the file. We recommend always checking the **Overwrite existing hospital table entries** box. Overwriting is important if you are loading a hospital table for a different dataset where the hospitals may be different.

If you prefer to only include hospitals with discharges, choose **Cleanup hospital table**. If you would like to use all hospitals in your dataset, do not select this option.

Once this step is complete, select **Load File**. You will get a message listing the number of records loaded. Then, choose **Close** to return to the previous screen, where data will be loaded automatically (as displayed in Screen 19).

Screen 19. Edit Discharge Hospital Information

ID	Name	ZIP	County Name	Region	Discharges	Cost to Charge Ratio	CMS Provider ID
123459	Facility 1	05031	MY - Hoover	Chestnut, MY	2524	0.8043	301308
123501	Facility 15	05786	MY - Hoover	Redwood, MY	19650	0.6876	470012
123481	Facility 18	05143	MY - Hoover	Pine, MY	7277	0.4382	300034
123478	Facility 27	05038	MY - Hoover	Pine, MY	12613	0.7842	470001
123507	Facility 44	05488	MY - Hoover	Redwood, MY	8976	0.9724	471302
123470	Facility 48	05862	MY - Hoover	Maple, MY	20298	0.5659	300018
123476	Facility 8	05358	MY - Hoover	Pine, MY	17162	0.9724	471302
123491	Facility 17	05761	MY - Wilson	Oak, MY	4034	0.6507	471304
123494	Facility 2	05640	MY - Wilson	Oak, MY	28234	0.5012	300005
123484	Facility 38	05862	MY - Wilson	Pine, MY	28368	0.5000	
123486	Facility 5	05862	MY - Wilson	Oak, MY	7296	0.5000	
123489	Facility 40	05820	MY - Roosevelt	Oak, MY	22074	0.4086	300017
123456	Facility 10	05458	MY - Garfield	Chestnut, MY	8568	0.5240	300012
123493	Facility 24	05862	MY - Garfield	Oak, MY	444	0.7288	301310
123506	Facility 28	05855	MY - Garfield	Redwood, MY	131	0.5415	300023
123495	Facility 30	05855	MY - Garfield	Oak, MY	8635	0.3427	300029
123473	Facility 4	05855	MY - Garfield	Maple, MY	18659	0.0000	301302
123485	Facility 45	05038	MY - Garfield	Pine, MY	20420	0.9011	301309
123477	Facility 46	05474	MY - Garfield	Pine, MY	35921	0.4915	300001
123458	Facility 7	05855	MY - Garfield	Chestnut, MY	8941	0.5924	300020
123471	Facility 47	05250	MY - Buchanan	Maple, MY	2719	0.8406	301304
123490	Facility 14	05734	MY - Pierce	Oak, MY	29412	0.9220	470024

You may edit the hospital name, ZIP Code, cost-to-charge ratios, and CMS provider ID. We recommend that you review the county and region assignment for accuracy.

You may assign a CMS provider ID manually. Once the CMS provider ID is given, select the **Assign Cost to Charge Ratio** button. We strongly suggest that you review the assigned cost-to-charge ratios and make any appropriate adjustments; these ratios do not limit the range of acceptable values. A ratio of zero (0) will be treated as missing on the Web site. Charges will be displayed in the Hospital Utilization path, but costs will be displayed as a dash. Alternatively, you may assign custom cost-to-charge ratios either manually or by using the option to load from a hospital file. In the **Web Site Wizard**, you will select to display costs or charges as available in the Web pages.

If you would like to randomly assign a masked hospital name (shown in the Name column), select **Mask Hospital Names**; this option will reassign all hospitals to a blinded or masked name in the form of *Hospital 1, Hospital 2*, etc. If you would like to unmask the name, select **Unmask Hospital Names** (which will appear once you have chosen to mask). Select **Display Hospital List** for a crosswalk of the original hospital names and the masked hospital names.

You may also save this information to your Hospital Information File by selecting **Export This Data**. This file can be used to load hospitals should you wish to generate a new reporting Web site.

Once you have finished altering this page, select **Next** to continue.

Link Local Inpatient Discharge and Hospital Compare Hospitals (optional)

If you have loaded local inpatient discharge data and/or provider-level AHRQ QIs in addition to CMS Hospital Compare measures, you will be asked to link the hospitals by following the steps below. You will not see this screen unless you have loaded both types of provider-level quality data.

Screen 20. Link Local Inpatient Discharge and Hospital Compare Hospitals

Link Local Inpatient Discharge and Hospital Compare Hospitals

These hospitals in your local discharge data did not link with the CMS data. CMS Provider ID is used to link hospitals. If you are missing CMS provider ID in your local discharge data, you will need to enter the CMS provider ID under Local Discharge Data and select "Link" to refresh. You can find a listing of CMS provider IDs and hospital names <https://nppes.cms.hhs.gov/NPPES/NPIRegistryHome.do>. The columns on the right provide a listing of hospitals and provider ID from the CMS data that will help you link hospitals. You may sort the columns for easy viewing by selecting the column header.

Unlinked Local Inpatient Discharge Hospitals				CMS Hospital Compare Data		
Hospital ID	Hospital Name	ZIP Code	CMS Provider ID	CMS Provider ID	Hospital Name	ZIP Code
123462	Facility 39	03802		300001	CONCORD HOSPITAL	03301
123484	Facility 38	05862		300003	MARY HITCHCOCK MEMORIAL HOSPITAL	03756
123486	Facility 5	05862		300005	LAKES REGION GENERAL HOSPITAL	03246
123487	Facility 54	03257		300011	ST JOSEPH HOSPITAL	03060
123492	Facility 53	03802		300012	ELLIOT HOSPITAL	03103
				300014	FRISBIE MEMORIAL HOSPITAL	03867
				300017	PARKLAND MEDICAL CENTER	03038
				300018	WENTWORTH-DOUGLASS HOSPITAL	03820
				300019	CHESHIRE MEDICAL CENTER	03431
				300020	SOUTHERN NH MEDICAL CENTER	03060
				300023	EXETER HOSPITAL INC	03833
				300029	PORTSMOUTH REGIONAL HOSPITAL	03801
				300034	CATHOLIC MEDICAL CENTER	03102
				301300	UPPER CONNECTICUT VALLEY HOSPITAL	03576
				301301	COTTAGE HOSPITAL	03785

To paste a Provider ID click twice in the table cell for edit mode.

You may copy and paste the CMS Provider ID from this table to the local inpatient discharge hospital table.

Selecting Back or Next will save the links you have entered.

Link and Refresh List

< Back Next > Cancel

This screen allows you to manually link your local inpatient discharge hospitals with available CMS Hospital Compare measure data. The available CMS Hospital Compare data are based on your State selections.

The hospitals in the "Unlinked Local Inpatient Discharge Hospital" list are those that did not link based on CMS Provider ID. Review the hospitals provided in the "CMS Hospital Compare Data" box to find any that could link. You may sort the columns for easy viewing. When you have found the correct hospital in the CMS data, either copy and paste (double click the field first) the CMS Provider ID into your local inpatient discharge data, or manually enter the number. If there are no hospitals or providers that need to be linked, the list will be empty. Select **Link and Refresh List** to save your changes.

Once you have finished altering this page, select **Next** to continue.

Edit CMS Hospital Names and Assign Regions (optional)

During the CMS Hospital Compare Data load, the CMS names for hospitals were read from the input data. This step allows you to edit the name and region assignments of those hospitals. You will not see this screen unless you have loaded CMS Hospital Compare measures.

Screen 21. Edit CMS Hospital Names and Assign Regions

Edit CMS Hospital Names and Assign Regions

These are the hospitals available in the CMS Hospital Compare data for the regions you selected that do not correspond to Discharge Hospitals. You may edit the hospital names and reassign the regions as necessary.

CMS Hospital Compare Data

CMSProvider ID	Hospital Name	ZIP Code	Region
▶ 301307	MEMORIAL HOSPITAL THE	03860	Pine, MY

Selecting Back or Next will save the changes you have made.

Load From File < Back Next > Cancel

The screen provides a listing of the hospitals found in the CMS Hospital Compare dataset based on your State and region selections. You may edit hospital names in this screen. Verify that the hospitals were assigned to the correct region.

Once you have finished altering this page, select **Next**.

Screen 22. Edit and Select Hospitals for Reporting

Edit and Select Hospitals for Reporting

The following hospitals are available for reporting in your MONAHRQ generated Website. Please review the hospitals closely - you may edit the hospital names. Use the check boxes to indicate if you want to report each hospital in the generated Website. By default, each hospital is selected for reporting. Select the "Back" button to alter the hospital linking. If you choose to report a hospital with ONLY Local discharge data, only the AHRQ Quality Indicators will be used in the Website. If you choose to report a hospital with ONLY CMS data, only the CMS Measures will be used in the Website.

Hospitals with AHRQ QI and/or Discharge Data and CMS Hospital Compare Data						
	Hospital ID	CMS Provider ID	Inpatient Discharge Hospital Name	CMS Hospital Name	Region	Report Hospital
▶	123456	300012	Facility 10	ELLIOT HOSPITAL	Chestnut	<input checked="" type="checkbox"/>
	123457	471301	Facility 42	GIFFORD MEDICAL CENTER	Chestnut	<input checked="" type="checkbox"/>
	123458	300020	Facility 7	SOUTHERN NH MEDICAL CENTER	Chestnut	<input checked="" type="checkbox"/>
	123459	301308	Facility 11	VALLEY REGIONAL HOSPITAL	Chestnut	<input checked="" type="checkbox"/>

Hospitals with ONLY AHRQ QI and/or Discharge Data				
	Hospital ID	Hospital Name	Region	Report Hospital
▶	123462	Facility 39	Chestnut	<input checked="" type="checkbox"/>
	123484	Facility 38	Pine	<input checked="" type="checkbox"/>
	123486	Facility 5	Oak	<input checked="" type="checkbox"/>
	123487	Facility 54	Oak	<input checked="" type="checkbox"/>

Hospitals with ONLY CMS Hospital Compare Data				
	CMS Provider ID	CMS Hospital Name	Region	Report Hospital
▶	301307	MEMORIAL HOSPITAL THE	Unknown	<input type="checkbox"/>

< Back Done Cancel

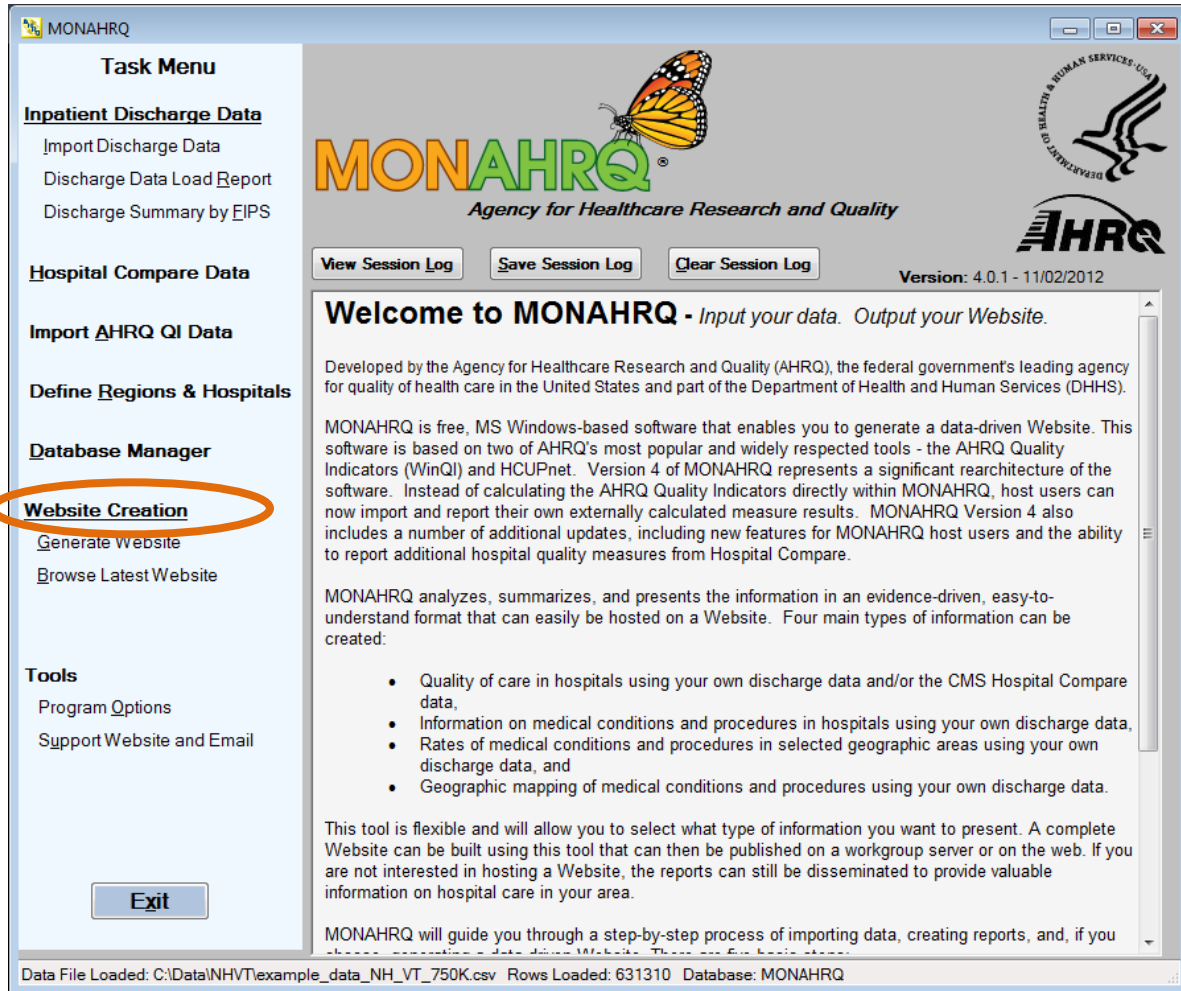
The **Edit and Select Hospitals for Reporting** screen allows you to select which hospitals you would like to report in your Web site. You will only see one list of hospitals if you loaded only one type of provider-level quality data (AHRQ QIs or CMS Hospital Compare). If you load both sources, you will see the three lists that are pictured in Screen 22. You may edit hospital names on this screen by double-clicking in the appropriate box on the screen. Check the **Report Hospital** box if you want the hospital to appear in the reports.

When you are finished, select **Done**. You will return to the Task Menu screen.

4.6 Generate a Web Site

Now that you have loaded your data and defined your regions and hospitals, you can generate your Web site. This section provides step-by-step instructions for building and customizing your MONAHRQ-generated Web site. The Web site options will vary slightly by the type of data loaded; these differences are noted. Choose the **Generate Website** item in the Task Menu to open the Generate Website screen.

Screen 23. MONAHRQ Main Screen with Generate Website Task Highlighted



Screen 24. Generate Web Pages

The screenshot shows a software window titled "Generate Website" with a sub-header "Generate Web Pages". The window is divided into two main sections: "Set Options" and "Generate Pages".

Set Options:

- Numerator Suppression Threshold
- Denominator Suppression Threshold
Enter zero to disable either suppression mode
- Perform Margin Suppression
- Map Font Size: (points)
- Height: (pixels)
- Width: (pixels)
- Select ZIP Code Radii: (dropdown menu)
- Buttons: "All Radii", "None"
- Browser Title:
- Name in Site Header:
- Logo Image - Height: Width: File:
- Timeframe Description: for example "in the year 2006"
- Area Description: for example: "in My State"

Generate Pages:

- Target Folder:
- Menu Pages, Images and Styles
- Hospital Quality Pages
- Maps of Avoidable Stays
- County Rates Pages
Select the denominator to use for rates:
 1,000 10,000 100,000
- Utilization Pages
 Show Charges
 Show Costs (Requires Valid Cost Ratios)
 Compute Medians (Very Time Consuming)

Progress:

The Generate Website screen will be used to generate all of the Web pages that constitute a MONAHRQ-generated Web site. They can be made all at once or in portions. This capability allows you to regenerate portions of the Web site, as needed. You must complete the mandatory information about your Web site in the **Set Options** section of this screen before you can generate Web pages to a target folder. You must also enter the location of the **Target Folder** where the Web site will be created.

4.6.1 Set Options

The Set Options portion of the screen provides several options for the display of the generated Web pages.

If you would like to suppress small discharge cell sizes or hospital display thresholds, you may enter a threshold number for the numerator and/or denominator. Please refer to Appendix A for detailed information on suppression settings and rules. You *must* enter values in both of these fields; enter zeros if you would like to disable this feature.

You can set the height and width of the area maps or change the font size of the text by specifying values in the Map Font Size section of the screen. This will allow county numbers to appear legible on maps for States with very small counties.

Select ZIP Code Radii. You may select any number of values in the list for ZIP Code radii used to search hospitals in the hospital-level paths.

Enter the name you would like to appear in the browser in the **Browser Title** section. Then, enter the name you would like to appear in the banner across the top of your Web page in the **Name in Site Header**.

Next, select the **Browse** button to choose a picture of a logo for your page. The program will use the default setting for **Logo Image** and **Image Size–Height**. The page can be customized by changing these settings. You may upload any image (png, jpg, bmp, or gif) and designate the desired size.

You may wish to enlarge the size of the maps if you have counties that are geographically small. Files that are not compatible will not show in the banner/header.

You must enter a phrase to describe the year of data analyzed by MONAHRQ software in the field **Timeframe Description** (e.g., in 2006, from June 2006 to May 2007). This phrase will appear throughout the generated Web site. Enter a phrase in the **Area Description** to describe your State or region for reporting (e.g., in My State). This phrase will appear throughout the generated Web site.

4.6.2 Generate Web Pages

The Generate Web Pages portion of the screen allows you to specify a folder on your computer that will hold the generated Web site and then create the Web pages. You may also customize the look and feel of your MONAHRQ-generated Web site and select what content to include.

To begin, select the **Browse** button to locate a folder in which to store the Web pages as they are produced. We highly recommend creating a new folder in which to store the generated Web pages, as opposed to the Windows Desktop. A large number of Web pages will be created, so writing many files to a remote network folder would greatly slow the process. The best way to put a MONAHRQ-generated Web site in a network folder is to generate the Web pages in a local folder and then compress them into a *zip*-file that can be moved to the network server and extracted there.

Choose the pages you wish to generate by selecting the appropriate check boxes. If data have not been loaded for a particular set of pages, the check box will be disabled. Hospital Utilization and County Rates of Hospital Use pages require inpatient discharge data. Hospital Quality pages require AHRQ Quality Indicator (provider-level) or CMS Hospital Compare measures. Maps of Avoidable Stays pages require area-level data from the AHRQ QIs.

Customizing the Appearance and Content of the Web Site

There are three buttons in the Generate Pages section of this screen that allow you to access screens that change the appearance and content of the Web site: (1) Customize Colors and Fonts, (2) Select Provider Measures, and (3) Select Area Measures. These three actions are described in the following section.

Screen 25. Generate Pages

The screenshot shows a software interface titled "Generate Pages". At the top, there is a "Target Folder:" label followed by an empty text input field. Below this, the interface is divided into three horizontal sections, each with a checkbox on the left and a button on the right. The first section is labeled "Menu Pages, Images and Styles" and contains a button labeled "Customize Colors and Fonts" with a black square containing the number "1" to its right. The second section is labeled "Quality Indicators Pages" and contains a button labeled "Select Provider Measures" with a black square containing the number "2" to its right. The third section is labeled "Maps of Avoidable Stays" and contains a button labeled "Select Area Measures" with a black square containing the number "3" to its right. To the right of these sections, there is a vertical column of checkboxes, some of which are checked.

Screen 26. Customize Colors and Fonts



Use Screen 26 if you want to change the font and color settings for your generated Web pages. The buttons that allow you to change the color of either background, foreground (text), or borders will open the standard Microsoft Windows Color Selection dialog-box. The on-screen samples will show the effects of your changes. The MONAHRQ software provides basic customization for colors, fonts, and other stylistic aspects of the Web site. Chapter 5 provides additional information on customizing a MONAHRQ-generated Web site. These changes will only take effect if you make them *before* generating your Web site.

Screen 27. Select Provider Measures by Health Topic

Select Provider Measures

Select Provider Measures by Health Topic

Deaths & readmissions | Surgical patient safety | Other patient safety | Patient experiences | Nursing sensitive care | Imaging | Composites
Stroke | Childbirth | Heart attack & chest pain | Heart failure | Heart surgeries & procedures | Other surgeries | Pneumonia

Practice patterns

- Cesarean Delivery Rate [AHRQ]
- Vaginal Birth After Cesarean (VBAC) Delivery Rate, Uncomplicated [AHRQ]
- Primary Cesarean Delivery Rate [AHRQ]
- Vaginal Birth After Cesarean (VBAC) Rate, All [AHRQ]

Results of care

- Birth Trauma - Injury to Neonate [AHRQ] *
- Obstetric Trauma Rate - Vaginal Delivery With Instrument [AHRQ]
- Obstetric Trauma Rate - Vaginal Delivery Without Instrument [AHRQ]

*These indicators are endorsed by the National Quality Forum (NQF). Visit www.qualityforum.org to learn more.

Note: This version of MONAHRQ does not include all quality indicators.
A future release of MONAHRQ will include the remaining quality indicators.

Cancel OK

The **Select Provider Measures Screen** (Screen 27) provides the ability to select the measures that will be reported on the Hospital Quality pages. If you have not loaded data from the AHRQ QIs or CMS Hospital Compare, this option will be disabled.

This screen lists all provider-level quality measures in individual tabs by topic and subtopic. These groupings are used in the MONAHRQ-generated Web site. The available measures will vary by the type of data loaded. If you loaded only CMS Hospital Compare measures, then only CMS Hospital Compare measures will appear. If you loaded only AHRQ QIs, then only AHRQ QIs will appear. The topics and subtopics and the measures associated with each can be customized. Please read the section titled, “3.2.1.1 **Assigning Measures to Subtopics.**”

All of the measures for each topic are preselected. Remove the check from the box for measures that you **do not** wish to show on your MONAHRQ Web site.

All measures endorsed by the National Quality Forum (NQF) are marked (*). This information is correct at the time of release. For the most current information, please visit the National Quality Forum Web site at <http://www.qualityforum.org/Home.aspx>. To learn more about the AHRQ QIs, visit <http://www.qualityindicators.ahrq.gov/>. To learn more about the CMS Hospital Compare measures, visit <http://www.hospitalcompare.hhs.gov>.

Screen 28. Select Area Measures by Category

Select Area Measures

Select Area Measures by Category

Chronic Lung Conditions | Diabetes | Heart Conditions | Other Conditions | Composites | Patient Safety | Procedure Rates

- Foreign Body Left During Procedure [AHRQ]
- Iatrogenic Pneumothorax Rate [AHRQ]
- Central Venous Catheter-Related Blood Stream Infection Rate [AHRQ]
- Postoperative Wound Dehiscence Rate [AHRQ]
- Accidental Puncture or Laceration Rate [AHRQ]
- Transfusion Reaction Rate [AHRQ]
- Postoperative Hemorrhage or Hematoma Rate [AHRQ]

*These indicators are endorsed by the National Quality Forum (NQF). Visit www.qualityforum.org to learn more.

Cancel OK

The **Select Area Measures Screen** provides the ability to select area-level measures for reporting on the Maps of Avoidable Stays pages. If you have not loaded area-level data from the AHRQ QIs, this option will be disabled.

All area-level quality measures are listed by topic in tabs. These groupings are used in the MONAHRQ-generated Web site. The topics and the measures associated with each can be customized. Please read the subsection titled **Assigning Measures to Subtopics** in Chapter 3.

All of the measures for each topic are preselected. Remove the check from the box for measures that you **do not** wish to show on your MONAHRQ Web site.

Screen 29: Generate Pages—County Rates of Hospital Use and Hospital Utilization Options

The screenshot shows a software dialog box titled "Generate Pages—County Rates of Hospital Use and Hospital Utilization Options". At the top right is a "Browse..." button. Below it is a section for "County Rates Pages" with a checkbox and the instruction "Select the denominator to use for rates:". Three radio buttons are present: "1,000" (selected), "10,000", and "100,000". Below this is a section for "Utilization Pages" with three checkboxes: "Show Charges" (checked), "Show Costs (Requires Valid Cost Ratios)" (checked), and "Compute Medians (Very Time Consuming)" (unchecked). At the bottom of the dialog are "Create Pages" and "Show Site" buttons, and a "Done" button at the very bottom center.

If you wish to generate the County Rates of Hospital Use path, select the **County Rates Pages** box. You may select the per population denominator in the County Rates pages as 1,000, 10,000, or 100,000. It may be more appropriate to use larger denominators for larger datasets.

If you wish to generate the Hospital Utilization path, select the **Utilization Pages** box. You may opt to display charges and/or costs in the generated pages. If you choose to display costs, you must provide valid cost-to-charge ratios when defining hospitals. You may choose to compute the medians by checking the **Compute Medians** box. If this option is not selected, means will be provided. Note that the median computing process may increase processing time by 50 percent.

Once you have specified how and where your page should be created, select **Create Pages**. This process may take a considerable amount of time, depending on the size of the dataset and the page sets you have chosen. You can monitor your status in the Progress Status box. When completed, the progress status of **All Pages Written** will appear.

Select **Show Site** to view the Web site in your default browser. You may review pages at any time by opening the **index.html** page in the directory where you saved the created Web pages. If you are using Microsoft Internet Explorer, you will need to allow it to display blocked content. A description of the paths and pages generated can be found in Appendix I.

If you would like to customize the Web site further, please review customization options in the next chapter. The next chapter will also provide information on the Web site architecture that enables you to perform customizations.

Your MONAHRQ-generated Web site has now been created and can be hosted on any HTTP-compliant Web server. Please refer to Chapter 5 for more information on how to configure your Web site.

5 UNDERSTANDING YOUR MONAHRQ-GENERATED WEB SITE

Many host users may want a more customized MONAHRQ Web site than is possible using the basic functions included in MONAHRQ software. This section details the architecture of the MONAHRQ-generated Web site and provides a few helpful hints for organizations that want to customize their Web site. It should be noted that the fonts and colors of the MONAHRQ-generated Web site can easily be changed within the MONAHRQ software, as detailed in the previous chapter.

5.1 Introduction to the MONAHRQ Web Site Architecture

There are two basic types of pages: *navigation* and *content*. The *navigation* pages allow the Web site user to visit the different paths that lead to the different types of *content* pages. The navigation pages start with the *home* page (index.html), which provides links to the pages for the four main paths. The navigation pages are created from templates that contain the static text and images of the pages, as well as *tags* for dynamic elements. The pages are converted into the final navigation pages by replacing the tags for the dynamic elements of the pages with the appropriate element. The content pages do not use templates, because they contain mostly tables of data and few images and static text. However, the content pages do rely on common JavaScript components that display the header and footer of the content pages, thus allowing customization of all content pages by editing just a couple of files.

MONAHRQ version 2.0 introduced the use of the [jQuery-UI](#) public domain JavaScript libraries to achieve more advanced page functionality and layout. The jQuery core libraries are also used in many of the scripts that handle page actions. Because the MONAHRQ software does not require a Web server and the pages are very dynamic, Javascript is often used to control page formatting.

The following folders are found under the *Web Site Root*: *css*, *img*, *js*, *qual*, and *util*. There is also a set of files with extensions .html. The .html files are the navigation pages. The building blocks for both content and navigation pages are in the *css*, *img* and *js* folders. All content pages live in the content folders *qual* and *util*. All content HTML pages are stored three folder-levels down from the *Web Site Root*, so that they can all use a common path up to the Web site root to access the Cascading Style Sheet (CSS) and JavaScript files. Content is divided into two main categories: quality (qual) and utilization/rates (util); each of these categories is further divided into more levels.

You should also become familiar with the **SiteTemplate** folder under the MONAHRQ program installation folder C:\Program Files\AHRQ\MONAHRQv4 (on 64-bit systems it will be ...Program Files (x86)\...). It contains the templates used to generate the navigation pages as well as master copies of the CSS and JavaScript files used to create a MONAHRQ-generated Web site. If you edit the HTML in your generated Web site's target folder and you use the MONAHRQ software to regenerate Web pages, you may accidentally overwrite those files. Thus, it is better to make the customizations in the templates of your MONAHRQ program installation (in the **SiteTemplate** folder) and not directly in your generated Web site.

5.1.1 Folder Structure of the Web Site

Web site Root = the target folder from the MONAHRQ Web site Wizard

- **Navigation** = other static high-level Web pages (created from templates)
- **css** = folder for Cascading Style Sheets used on the site
- **img** = folder for graphics used on the site
- **js** = folder for JavaScript source files used on the site
- **qual** = high-level folder for quality content pages
 - **cls** = mid-level folder for Hospital Quality classification tables and charts
 - **pro** = content pages for professionals

- **pub** = content pages for the public
 - **chart** = content page data for charts
 - **det** = mid-level folder for quality detail pages
 - **reg** = content pages by region
 - **PHC** = mid-level folder for Avoidable Hospital Stays Maps
 - **maps** = content pages with map images
- **util** = high-level folder for utilization and rates content pages
 - **rav** = mid-level folder for rates and volumes pages
 - **agg** = content-level folder for aggregate detail pages
 - **cnty** = content-level folder for county detail pages
 - **cnty*** = content-level folders for county by ZIP Code detail pages
 - **std** = mid-level folder for standard utilization pages
 - **agg** = content-level folder for aggregate detail pages
 - **hosp*** = content-level folders for hospital detail pages
 - **reg*** = content-level folders for regional detail pages

It is important for all content pages to exist at a consistent folder depth so that they have homogeneous callouts to the building blocks. Editing the content pages should never be necessary. The following is a list of the major navigation and static pages:

- index.html – the home page for the Web site with links to main paths
- Quality.html – the navigation page of the Quality path
- AvoidableStays.html – the navigation page of the Maps of Avoidable Stays path
- RatesMaps.html – the navigation page of the Rates of Conditions path
- Utilization.html – the navigation page of the Utilization path
- Definitions.html – the common definitions page referenced by other pages
- AboutHospitalQuality.html – a page with an overview of the complete Web site
- Methods.html – a page explaining methodology used to produce the Web site
- Methodology.html – a page explaining each of the Quality Measures
- SiteMap.html – a page showing the architecture of the Web site
- Charts.html – a driver page that displays bar charts from JavaScript data¹
- ChartsText.html – a driver page that displays tabular charts from JavaScript data.¹

5.1.2 Navigation and Content Page Structure

The building blocks for a MONAHRQ Web site are Cascading Style Sheets, JavaScript files, and a folder of images. All pages, whether *navigation* or *content* pages, use these building blocks. For navigation pages, the building blocks are called out from within their templates; for content pages, the callouts to the building blocks are created as the page is written.

The *img* folder

This folder contains the large images that appear through the Web site, such as a copy of the user-selected logo image—the main menu images for the four basic paths. These images are referenced directly in the HTML pages.

5.1.2.1 *The css folder*

This folder contains Cascading Style Sheets used to apply style to your Web pages. It also has an *images subfolder* that contains images called out only in CSS styles. There is also a ui-lightness

¹ The bar charts and their text-rendered version (text charts are tables) are stored as data arrays in Javascript files and displayed as content pages by a heavily programmed driver page. These are the only content page types that are handled in this fashion.

subfolder that contains an images subfolder; the latter subfolder contains the images that are only used in the styling of jQuery-UI components. You should not need to make any changes in this subfolder.

5.1.2.2 The js folder

This folder contains the JavaScript source files that are used by the Web pages. There are only a few files that you may need to modify. Most of them implement logic that drives the dynamic features of the Web pages, but some are used strictly to *inject* common headers and footers into your Web pages—these are the ones that you may want to edit.

The control.css file is used to make MONAHRQ data paths invisible if the host user does not generate those pages. It holds the styles for the home page and menu links that cause them to *display:none* if the path is not generated. There is one entry in the control.css for each hidden path. The CSS style below shows how this is done. Each link to one of the data paths is given one of four classes, and any of these style classes can be set so that they do not display. Completely removing the style for class will allow it to appear on the Web pages.

```
.Qpath { display:none }  
  
.Apath { display:none }  
  
.Upath { display:none }  
  
.Rpath { display:none }
```

The basic.css file holds the styles applied to both navigation and content pages. For navigation pages, it has parts that are overridden with elements in the fluid.css style sheets—depending on the choices made within the Website Wizard. The fluid.css is only created if the host user selects the *Fluid* style. The content.css file holds the styling for content pages and is created from a template of the same name. The jquery-ui.css file has styles for the jQuery-UI components used in various places throughout the Web site.

5.2 Customizing the Site

The Firebug Tool

The Firefox browser has a plug-in tool called FireBug. It allows you to point at any element on a Web page, right-click, and inspect that element. It displays the HTML markup behind the Web page in one pane and shows the CSS styles that apply in another pane. It tells you the exact lines that apply in all CSS files. It is an excellent way to find which CSS needs to be modified in order to customize page elements.

5.2.1 Modifying the Common Web Page Headers and Footers

To customize the headers and footers on the pages in your Web site, you will need to make changes in the following files. Make the changes in the SiteTemplate folder before generating a Web site. The navigation pages get their header and footer sections from HTML snippets that are processed to undergo tag replacement. They are then injected into the navigation pages when they are extruded to the target folder. These snippet files are not copied to the target folder; however, the JavaScript files used by content pages are copied there. These files are:

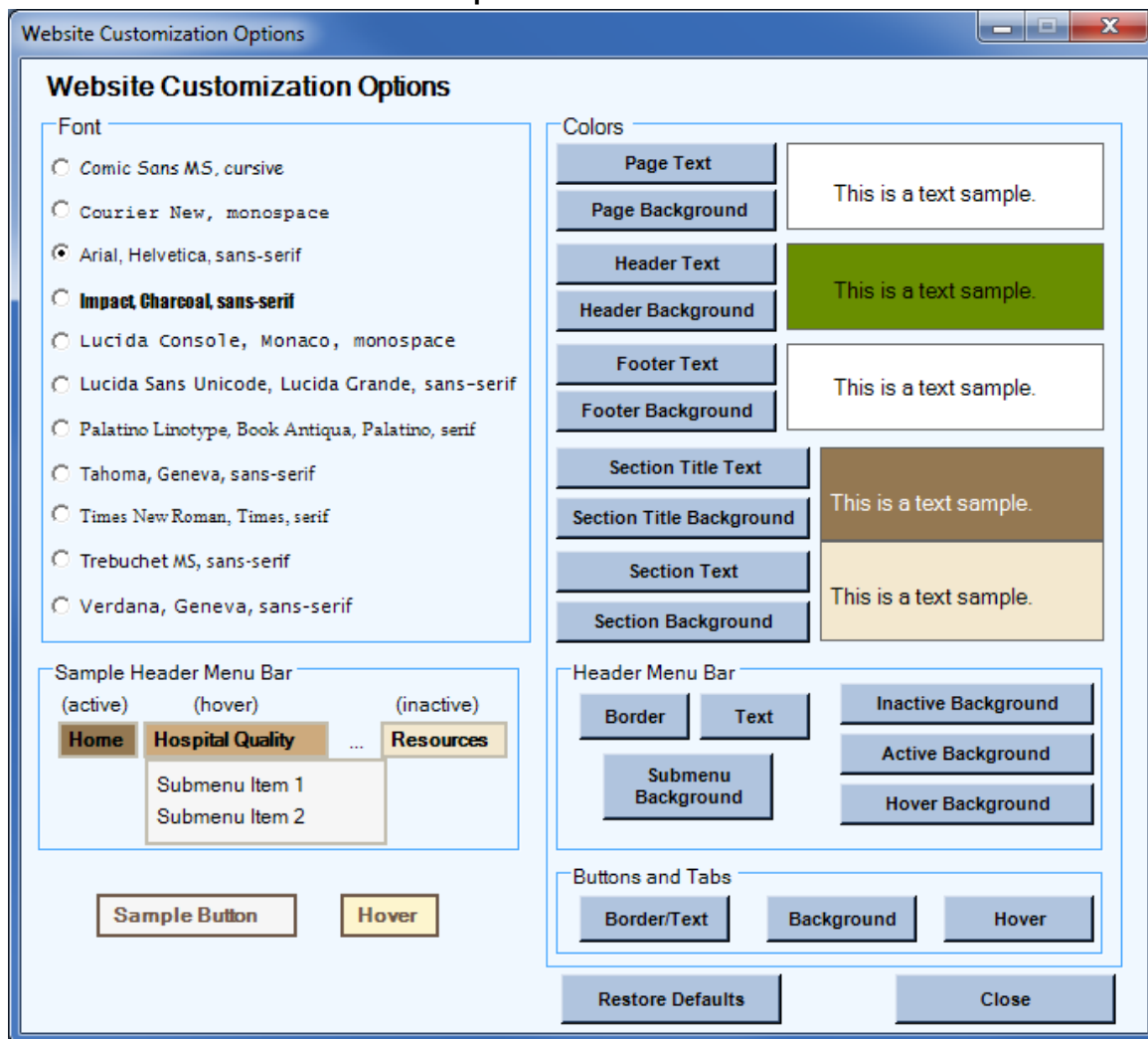
- SiteTemplate\Site_Header.html – partial html content injected at the top of navigation pages
- SiteTemplate\Site_Footer.html – partial html content injected at bottom of navigation pages
- SiteTemplate\js\header.js – JavaScript file included in all content pages to create the header
- SiteTemplate\js\footer.js – JavaScript file included in all content pages to create the footer.

You may want to test changes in the actual Web site and then move the changes to the templates. This allows you to see the results before generating a Web site. Be careful to make a copy of the changed file before regenerating it, so that you can trouble shoot anything that does not match after regenerating.

Changing Font and Colors in a MONAHRQ-Generated Web Site

You can change the color scheme of the generated Web site without editing the Cascading Style Sheets by hand from the *Customize Colors and Fonts* screen (pictured below). This screen contains options for changing the font and colors of basic components of the Web pages including the header, menu bar, buttons, and tabs. Samples are shown on the screen, but a preview of an actual Web page is very useful and will be discussed.

Screen 30. Web Site Customization Options



A screen shot of a sample navigation page in a MONAHRQ-generated Web site (Screen 30) explains where these options apply. Content pages follow basically the same rules.

Screen 31. Sample Navigation Page

The screenshot displays the MONAHRQ Demo Website interface. At the top, there is a green header with the MONAHRQ logo and the text "MONAHRQ Demo Website". Below the header is a navigation menu with tabs for "Home", "Hospital Quality", "Hospital Utilization", "Maps of Avoidable Stays", "County Rates", and "Resources". The "Hospital Utilization" tab is selected, and the page title is "Hospital Utilization".

The main content area is divided into two sections:

- Choose Hospitals:** This section has a header "Choose Hospitals" and a sub-header "Please select a hospital:". It features four tabs: "By Hospital", "By ZIP Code", "By Region", and "All Combined". The "By Hospital" tab is selected. Below the tabs is a list of hospital facilities: Facility 10, Facility 11, Facility 12, Facility 13, Facility 14, Facility 15, Facility 16, Facility 17, Facility 18, Facility 19, and Facility 2.
- Choose Conditions or Procedures:** This section has a header "Choose Conditions or Procedures" and a sub-header "Please select a MDC (Major Diagnosis Category):". It features five tabs: "By MDC", "By DRG", "By Condition", "By Procedure", and "All Discharges Combined". The "By MDC" tab is selected. Below the tabs is a search box with the text "Search:" and two buttons: "Find Next" and "Find From Top". Below the search box is a list of MDCs: 1 Diseases & Disorders Of The Nervous System, 2 Diseases & Disorders Of The Eye, 3 Diseases & Disorders Of The Ear, Nose, Mouth & Throat, 4 Diseases & Disorders Of The Respiratory System, 5 Diseases & Disorders Of The Circulatory System, 6 Diseases & Disorders Of The Digestive System, 7 Diseases & Disorders Of The Hepatobiliary System & Pancreas, 8 Diseases & Disorders Of The Musculoskeletal System & Connective Tissue, 9 Diseases & Disorders Of The Skin, Subcutaneous Tissue & Breast, and 10 Endocrine, Nutritional & Metabolic Diseases & Disorders.

Below the two sections is a checkbox labeled "Select to Open Report in New Browser Window / Tab". At the bottom of the main content area are two buttons: "< Back" and "Get Report".

The footer of the page contains the MONAHRQ logo, the text "Version 4.0.1", and "2006 Data in Demo State".

Page Text on Page Background is exemplified by the title "Hospital Utilization" and the "Select to Open Report in New Browser Window/Tab" text.

Header Text on the Header Background is exemplified by the title "Sample MONAHRQ-generated Website" on the green background.

Footer Text on the Footer Background is exemplified by the text "2008 Data in My State" in the lower right-hand portion of the page. The MONAHRQ logo and version number are also in the footer.

The Section Title Text on the Section Title Background is exemplified by the title "Choose Hospitals" in the section box on the left and by the title "Choose Condition or Procedures" in the section box on the right. The section is inside the borders of these boxes.

Section Text on the Section Background is exemplified by the label "Search" in the section box on the right. The tan color is the background. Note that the header titles of a section are the same color as the Section Title Background; in this case, the color is medium-brown.

The buttons and tab colors are located inside the section. In the "Choose Hospitals" section box on the left, the first tab "By Hospital" is selected and gets the background color of the section. The second and fourth tabs are not selected and not being hovered over by the cursor (unseen in this screenshot). The

third tab “By Region” has the cursor over it and gets the hover color of a tab or button. Buttons share the same color as an unselected tab and get the same hover color. Because a button launches an action, it can never remain in the “selected” state. Therefore, buttons are always either the button/tab background color or hover color. The border and text colors are the same for buttons and tabs. For tabs, the color includes the border around the complete tab panel as well as the border around the tabs.

Header menus are the most complex components to customize. The text color is always the same color, but the background of the top-level menu bar items changes based on one of three conditions: *inactive*, *active*, and *hover*. When a menu item is selected and that navigation page is displayed, it turns the active color (in this case, medium-brown). Menu items that are not selected have a light tan background. When the user hovers over a menu item, the item becomes the hover background color. This color is not shown in this screen shot, but it would be a light brown that is darker than the light-tan inactive color and the medium-brown active color. The border color must be chosen to contrast from both the Header Background color and the Page Background color, because it touches both sections of the Web page. Likewise, the text color must stand out against all three of the top-level background colors as well as the submenu background color. Not all top-level menu bar items have submenus. The sample Header Menu Bar on the host user screen will display all of the colors so that they can be visualized before Web pages are created.

5.3 Hosting the Site

The MONAHRQ software generates a Web site consisting of a set of static Web pages and places the pages in the directory that you specified during Web site generation. The Web site can be hosted using any Web server such as Apache or Internet Information Server (IIS) and does not require an application server. The MONAHRQ software relies on client-side Cascading Style Sheets and JavaScript for its dynamic features. Although the MONAHRQ software requires a database to generate the Web site, it does not require a database to host the Web site.

To deploy your MONAHRQ-generated site, you can compress (or zip) the directory containing the generated Web site and copy it to the Web server. Be sure to maintain the directory structure as you compress and uncompress the files. Your system administrator can uncompress (or unzip) the file into the appropriate location on the Web server. Your system administrator can also provide the appropriate configuration files for the Web server that is being used to host the Web site. The configuration files needed are specific to the Web server used.

The size of a MONAHRQ-generated Web site varies based on the amount of data you have imported.

5.4 Security Issues

We have tested MONAHRQ-generated Web sites using Veracode software to ensure that there are no security vulnerabilities such as Cross Site Scripting. Because a MONAHRQ-generated Web site consists of static Web pages and does not interact with a database, the risk of security vulnerabilities such as SQL Injection is low to non-existent. A large part of security of the hosted Web site is related to the configuration and management of the hosting environment.

A MONAHRQ-generated Web site presents data only at an aggregate level, either by hospital or by county. Inpatient discharge data is used to generate static Web pages for the Web site but is not retained as part of the site itself. Hosting the Web site requires only the generated Web pages, not the inpatient discharge data used to create it. The deployed MONAHRQ-generated website does not connect to any backend database. In particular, the Web site does not connect to the MONAHRQ database into which your data and measures were loaded. To ensure that patient-level data cannot be compromised, we strongly recommend that the server used to host the Web site does not contain any patient-level data.

Maintaining confidential or sensitive data on a server or system separate from the Web server eliminates the possibility that patient-level information can be accessed should the Web server experience a security breach.

If you would like to restrict access to the Web site to only a specific group of people, you must use a Web server that has this capability. The Apache Web server has the ability to force users to login with a username and provide a password when a Web visitor attempts to access Web pages below a given folder of a Web site. Early versions of Microsoft IIS will only protect ASPX pages (dynamic application Web pages), but their most recent versions will also allow securing of static pages.

5.5 Accessibility Issues

MONAHRQ-generated Web sites have been tested for compliance with Section 508 of the Rehabilitation Act, indicating compliance with Federal Government standards for users with disabilities. Automated testing was performed using IBM Rational Policy Tester® Accessibility Edition. Testing for accessibility using a screen reader was performed using JAWS for Windows screen reading software. We have tested to ensure that MONAHRQ-generated Web sites meet Federal requirements for accessibility. Local accessibility requirements may differ. To support these requirements, we provide the ability to customize the generated Web site. We have worked with organizations to understand and respond to their specific local accessibility requirements. In some cases, we incorporated such changes into the MONAHRQ software. Should you have specific accessibility requirements, please contact us at monahrq@ahrq.gov.

6 UPDATING MONAHRQ SOFTWARE AND THE MONAHRQ-GENERATED WEB SITE

This section describes the process for upgrading MONAHRQ and refreshing your data and generated Web sites.

6.1 Upgrading the MONAHRQ Software

Beginning with MONAHRQ version 2.0.4, you do not need to uninstall older versions of MONAHRQ before installing a more recent version. If you have previously installed version 4.0, or have a version of MONAHRQ prior to version 2.0.4 on your computer, you need to uninstall it before installing version 4.0.1.

If you are upgrading to a maintenance release of MONAHRQ of the same version, you will also need to uninstall the existing MONAHRQ installation before installing a new installation. For help with the uninstallation process, please refer to Section 2.2 in Chapter 2.

6.1.1 Migrating Your MONAHRQ Database

When refreshing data in the MONAHRQ database, you may overwrite your existing MONAHRQ database.

When upgrading to a new version of the MONAHRQ software, you must create a new database. MONAHRQ 4.0.1 uses different data structures than prior versions.

6.1.2 Migrating Your Stored Preferences

MONAHRQ provides the ability to store your preferences and configuration information in a file. Please see the **Program Options** and **Database Manager** sections for more information on this feature.

6.2 Refreshing Your MONAHRQ Web Site

6.2.1 Refreshing the Quality Measures in Your MONAHRQ Web Site

The AHRQ Quality Indicators (QIs) and Centers for Medicare & Medicaid Services (CMS) Hospital Compare measures must be updated at the same time. Both import screens contain a **Clear Data** button that will delete all quality measures while leaving your inpatient discharge data intact. If you only want to update one of the two sources of quality measures, you must reload the existing data for the other source.

6.2.2 Refreshing Hospital Compare Measures and AHRQ QIs in Your MONAHRQ Web Site

Updated data from CMS Hospital Compare is available on a quarterly basis. You may wish to update your Web site as new data become available. There may also be updated AHRQ Quality Indicators. To update your MONAHRQ Web site, perform the following steps:

1. Obtain the latest Hospital Compare database from the MONAHRQ Web site at monahrq.ahrq.gov/monahrq_data.shtml. Please note that you cannot use the data supplied directly from the CMS Web site. The Hospital Compare database provided on the MONAHRQ Web site has been reformatted for use with MONAHRQ. If you are only updating AHRQ QIs, you will need to reload your previously loaded Hospital Compare database.
2. Run the Load Hospital Compare Data process in the host user application as directed in the section of this document titled, **Load CMS Hospital Compare Measures**. Be sure to select the **Clear Data** button before loading the new measures.
3. Load your updated AHRQ QIs. You will need to reload your original AHRQ QIs from the original files if you do not have updated AHRQ QI measure results.

4. If you have added new hospitals, you must also run the **Define Regions and Hospitals** wizard. See the section of this document titled, **Defining Regions and Hospitals**.
5. Regenerate the Quality pages of your Web site by following the instructions in the section of this document titled, **Generate Website**. The Generate Website screen maintains your previously selected options. You should not modify any previously selected measures unless you no longer wish to provide them on your Web site. The target folder for the updated pages should remain the same. You only need to select the checkboxes for *Menu Pages*, *Images and Styles*, *Hospital Quality Pages*, and *Maps of Avoidable Stays*. The other paths will not be affected by updates to the quality measure data. Select the **Create Pages** button, and all of the Quality pages for your Web site will be overwritten. Pages for the other paths will remain the same.

6.2.3 Refreshing the Inpatient Discharge Data in Your MONAHRQ-Generated Web Site

The inpatient discharge data can be reloaded into an existing MONAHRQ database by simply rerunning the Import Discharge Data wizard. Select the comma-separated value (CSV) that contains the updated data, and run through the process of loading the data. All previous inpatient discharge data are deleted before the new data are loaded. Once the reload is complete, you will need to use the Generate Website screen to recreate the Hospital Utilization and County Rates pages.

APPENDICES

APPENDIX A. DATA SUPPRESSION IN MONAHRQ

Suppression refers to how the software handles small numbers of records available for computing rates. A simple rate is comprised of a numerator divided by a denominator. MONAHRQ offers flexibility in customizing suppression related to the denominator and numerator of a rate.

Denominator suppression is generally used to ensure a sufficient number of cases for reliability. Rating a provider on a small number of cases may not be accurate. *Numerator suppression* is generally used to protect privacy.

MONAHRQ provides the ability to suppress values based on a denominator threshold, a numerator threshold, or both. Denominator-based suppression takes precedence over numerator-based suppression.

The suppression logic for MONAHRQ is as follows:

1. If the denominator is below the specified denominator threshold, denominator-based suppression applies. The denominator value is displayed, but all other values (numerators and rates) are suppressed.
2. If the numerator is below the specified numerator threshold AND denominator-based suppression does not apply, numerator-based suppression applies. Rates are displayed but the numerator and denominator values are suppressed.
3. For measures that do not have a denominator, only numerator-based suppression applies.

At the option of the user, MONAHRQ also supports *margin suppression* as an additional numerator-related rule. *Margin* refers to how close the numerator is to the denominator. Margin suppression is triggered when the difference between the denominator and the numerator is below the numerator suppression threshold. For example, assume that the numerator suppression threshold is set at five. If the numerator equals 96 and the denominator equals 100, margin suppression applies.

APPENDIX B. DETERMINING YOUR SYSTEM TYPE

To determine if you have a 32-bit or 64-bit system, select **My Computer** from the Start Menu and select Properties. A pop-up box displaying your version of Windows will appear. If it does not say 64 bit, then your system is 32 bit. Screen 32 is an example of the Properties dialog box for a system that uses the 32-bit version.

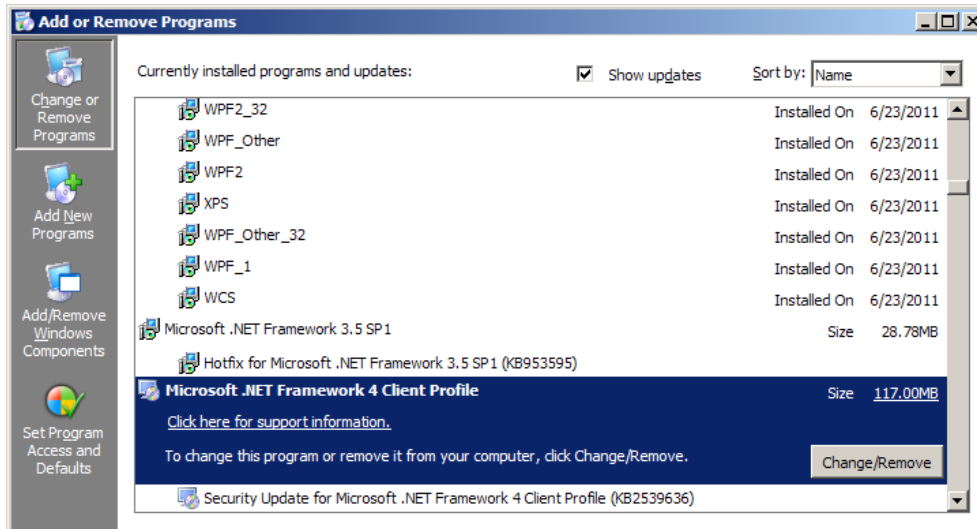
Screen 32. Properties Dialog Box for 32-Bit Version



APPENDIX C. MICROSOFT.NET INSTALLATION

Check that the Microsoft.NET 4.0 Framework is installed on your personal computer (PC). Open the **Windows Control Panel** and use the Add or Remove Programs utility to get a list of software programs installed on your PC. You can access the Control Panel from the Windows Start Button via the “Settings” option. Scroll down the alphabetical list of programs until you reach Microsoft programs. Screen 33 shows .NET Framework with a service pack. There may be several entries for the Microsoft.NET Framework. For the MONAHRQ software to work properly, you will need the 4.0 version.

Screen 33: Net Framework with Service Pack



If you do not have the Microsoft .NET 4.0 Framework installed, then download the installation package from the MONAHRQ Web site (under Software, located in the left bar on the home page). Note that the same installation package works for 32-bit and 64-bit systems. Select and save the version and then run the file. Your computer will need to be restarted after installing the .NET framework.

The Microsoft .NET Framework can be downloaded from the MONAHRQ Web site (http://monahrq.ahrq.gov/monahrq_software.shtml) or the Microsoft Web site.

APPENDIX D. MONAHRQ SOFTWARE PERMISSIONS GUIDE

It is important to make sure you have **full** permissions to run the MONAHRQ software. The following instructions explain how to ensure that you have set the appropriate permissions in your Windows operating system and your Microsoft SQL Server instance. This process often requires you to work closely with administrator or technical personnel in your organization.

Setting Permissions in the Windows Operating System

Certain permissions must be granted to the user who will be running the MONAHRQ software. These permissions apply only to those files and directions utilized by the MONAHRQ software.

Please follow the instructions below to set your operating system permissions for proper operation.

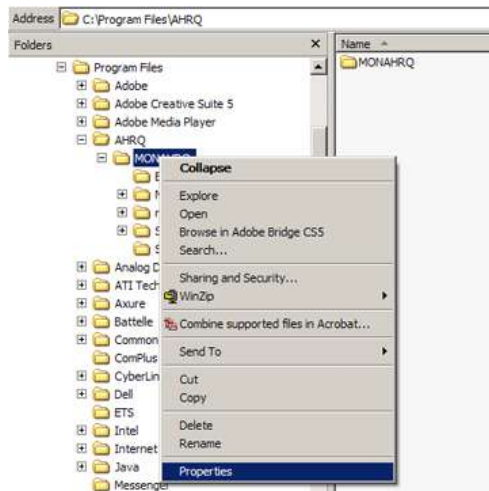
Step 1: Find the Installation Directory

A standard MONAHRQ software installation places the software in the directory “C:\Program Files\AHRQ\MONAHRQv4”. If an alternative installation directory location was used, you will need to modify permissions for that directory. For the following instructions, you would need to substitute the name of your alternative installation directory where the name “MONAHRQv4” appears.

Step 2: Open the Security Tab

Right click on the MONAHRQ directory to open the context menu (Screen 34).

Screen 34. Context Menu



Select **Properties**.

You will see a new popup window titled, **MONAHRQ Properties** (Screen 35).

Screen 35. MONAHRQ Properties Popup Window



Select the **Security** tab.

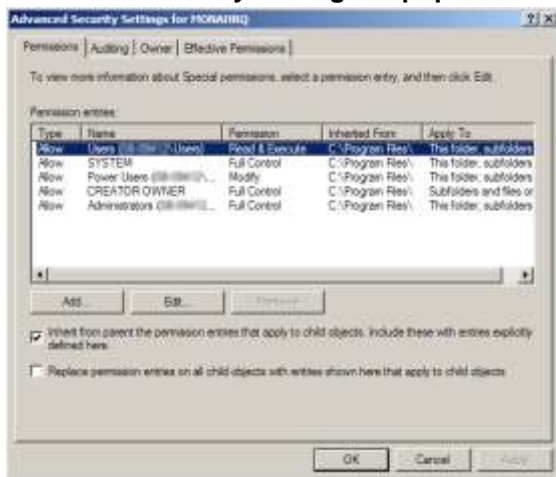
Click the **Advanced** button.

Note: If the security tab is not present, you will need to contact your information technology (IT) administrator for further assistance.

Step 3 – Provide the Proper Permissions

You will see a new popup window titled, **Advanced Security Settings for MONAHRQ** (Screen 36).

Screen 36. Security Settings Popup Window



Select the **Permissions** tab.

Find the entry that lists your user name in the "Permission entries" window.

Single click to highlight the entry.

Click the **Edit** button.

You will see a new popup window titled, **Permission Entry for MONAHRQ** (Screen 37).

Screen 37. Permission Entry Popup Window



Find the row entry “Full Control.”

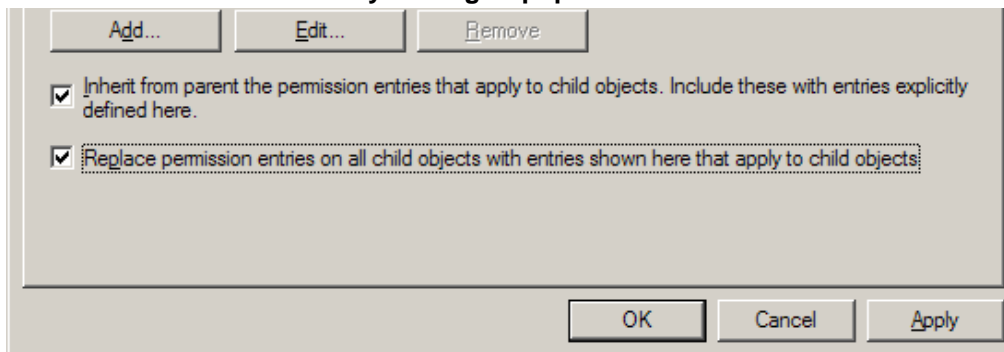
Select the **checkbox** under the column labeled “Allow.”

Click the **OK** button to close this popup window.

NOTE: If you are unable to click “Full Control” you will need your IT administrator to provide the necessary permissions.

You will return to the popup window titled, **Advanced Security Setting for MONAHRQ** (Screen 38).

Screen 38. Advanced Security Setting Popup Window



Select the checkbox labeled “**Replace permission entries on all child objects...**”

Click the **Apply** button.

Click the **OK** button to close this popup window.

Click the **OK** button to close this popup window.

You have now successfully set the permissions in your Microsoft Windows operating system to be able to run MONAHRQ.

Setting Permissions in MICROSOFT SQL SERVER

MONAHRQ has been tested with the following versions of Microsoft SQL Server. *Other versions of SQL Server may not behave as expected.*

- 1. SQL Server 2005**
- 2. SQL Server 2005 Express**
- 3. SQL Server 2008**
- 4. SQL Server 2008 Express**
- 5. SQL Server 2008 R2 Express**

Proper installation of the MONAHRQ software requires that certain permissions be provided during initial setup of the Microsoft SQL Server or SQL Server Express database. These permissions include the ability to create and drop databases.

Please follow the instructions below to set permissions in your SQL Server database for proper operation of the MONAHRQ software. These instructions apply to both SQL Server and SQL Server Express.

Step 1: Connect to the SQL Server Instance Using SSMS

Microsoft SQL Server Management Studio (SSMS) is the primary tool for interfacing with the SQL Server. It may be downloaded from Microsoft at the following URL:

http://download.microsoft.com/download/6/7/4/674A281B-84BF-4B49-848C-14873B22F977/SQLManagementStudio_x86_ENU.exe

You may require the assistance of your IT manager to install and use this software.

Open the SQL SSMS application and connect to the database server that was specified during installation. The default database name is “\SQLEXPRESS” (Screen 39). If you changed from the default you will need to specify that server name.

Screen 39. SQLEXPRESS Default



Step 2: Set Database Creation Permissions

You will see a popup window titled, **Microsoft Server Management Studio** (Screen 40).

Screen 40. Microsoft Server Management Studio Popup Window

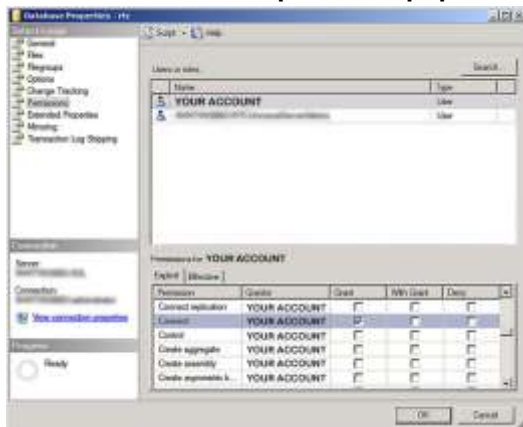


Right click on the name of the database server to which you are connected in order to open the context menu.

Select **Properties**.

You will see a new popup window titled, **Server Properties** plus the name of your database server (Screen 41).

Screen 41. Server Properties Popup Window



Locate the “Select a page” list on the left side of the popup window.

Select **Permissions**.

Locate the “Logins or roles” list in the upper right portion of the popup window.

Find the entry that lists the user name indicated during the initial MONAHRQ installation.

Single click to highlight the entry.

Locate the “Permissions” list in the lower right portion of the popup window.

Select the **Explicit** tab.

Find the following two rows in the list:

1. “Create any database”
2. “Alter any database”

Select the **checkbox** under the column labeled “Grant” in each of these two rows.

Click the **OK** button to commit changes and close the popup window.

Note: If you are unable to change the permissions, please contact your IT administrator for assistance.

You have now successfully set the permissions in your SQL Server database to be able to run the MONAHRQ software.

Additional Information

If the person installing the MONAHRQ software is *not* the person who will be using MONAHRQ, or if there will be more than one MONAHRQ user on the computer, then the **System Administrator** will need to add users to the “MONAHRQ” database. This can be done with a remote SQL Server Manager or by installing a local copy of the SQL Server Management Studio Express Edition and using it to add the required users.

APPENDIX E. PREPARING DATA USING THE AHRQ QUALITY INDICATORS SOFTWARE FOR WINDOWS

The AHRQ Quality Indicator (QI) software runs statistical analysis on local inpatient discharge data to calculate the measure results. Detailed instructions for running the software can be found at: <http://qualityindicators.ahrq.gov/software/default.aspx>. The AHRQ QI software is provided in Windows and SAS versions. Each version provides the same information in different formats.

The MONAHRQ software can report on externally calculated measure results that are imported into MONAHRQ. The results must be supplied using a specific file format. These file formats are described in detail in Table 8, Table 9, and Table 10 within this appendix. When running the AHRQ QI software for Windows, the following reports provide measure results in the correct format:

- Provider-level reports
- Area-level reports
- Provider-level composite measure reports.

The provider-level and composite measure reports provide data for the *Hospital Quality Ratings* component of the MONAHRQ software. The area-level report provides data for the *Maps of Avoidable Hospital Stays* path of the MONAHRQ software. Composite measure data at the area level is included within the area-level reports.

NOTE: If you wish to use the *cost savings estimate* feature of the Maps of Avoidable Hospital Stays path it is **very important that you include total charges in your discharge data** when you import it into the AHRQ QI software for Windows. Because total charges is not a standard field used by the AHRQ QI software, you must map this field to the “Custom Stratifier 1” field, which is a character field in the AHRQ QI software. Thus, when preparing your discharge data, you must represent the total charges for each discharge as whole or decimal number that can be stored in a character field.

By default, the MONAHRQ software supports the Inpatient Quality Indicators (IQIs), Prevention Quality Indicators (PQIs), and Patient Safety Indicators (PSIs).

Provider-Level and Composite Measures

Data for provider-level measures are obtained through the AHRQ QI provider reports. To generate the appropriate reports, select the Provider Report Wizard within the AHRQ QI application.

Select the desired indicators. As mentioned, the MONAHRQ software supports the IQIs and PSIs for provider-level reporting. After selecting the desired measures, select the desired hospitals and date range for reporting on the subsequent screens. On the screen titled **Select Stratifiers for Use with Provider Indicators**, drag Hospital ID from the right hand list of stratifiers over to the box on the left (if it is not already present). **Hospital ID** should be selected by default. The *MONAHRQ software supports only stratification by Hospital ID for provider-level measures*.

The next screen will provide the option to select composite measures and update their weights. The final screen titled, **Additional Options for Data Analysis**, allows for the selection of additional report options. Under the **Report Layout** section of the screen, select the options **Show Indicators in Rows** and **Include Title in Exported Files** to ensure that the report will be saved in a format that can be read by MONAHRQ.

Screen 42 indicates the appropriate options to select.

Screen 42. AHRQ QI Software Analysis Options for Provider-Level Reports

Additional Options For Data Analysis

Rates

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

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

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

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

< Back Next > Cancel Help

Selecting Next on the screen will run the report (Screen 43). The MONAHRQ software relies on the file format from the AHRQ QIs to import calculated measure results. The file format is documented below in Table 8.

Select the **Export All** button in the Reports screen and save the results to a file.

Screen 43. AHRQ QI Software Provider-Level Report

The screenshot shows the AHRQ Quality Indicators Reports window. The report title is "Report from 5/15/2012 11:10:15 AM". The source data is "...NAHRQ\TestData\MONAHRQ_40". The date created is 5/15/2012 11:34:05 AM, and the rows in the report are 787. The rates are per case. The controls section shows "Select Report" set to "Provider" and "Rows Per Page" set to 50000. There is a link to "Show Indicator Definitions Window" and a note to "Select cells then use <Ctrl>-C to copy".

Indicator	Hospital ID	Observed Numerator	Observed Denominator	Observed Rate	Expected Rate	O/E Ratio	Reference Pop. Rate
IQI 19	128	0	5	0.000000	0.008856	0.000000	0.025824
IQI 19	129	1	5	0.200000	0.043914	4.554333	0.025824
IQI 19	130	0	3	0.000000	0.008682	0.000000	0.025824
IQI 19	131	2	6	0.333333	0.028057	11.880588	0.025824
IQI 19	132	1	4	0.250000	0.010294	24.285227	0.025824
IQI 19	133	0	1	0.000000	0.006334	0.000000	0.025824
IQI 19	134	0	4	0.000000	0.039887	0.000000	0.025824
IQI 19	135	0	3	0.000000	0.010332	0.000000	0.025824
IQI 19	136	0	7	0.000000	0.014477	0.000000	0.025824
IQI 19	137	0	2	0.000000	0.015020	0.000000	0.025824
IQI 19	138	0	1	0.000000	0.007267	0.000000	0.025824
IQI 19	139	0	4	0.000000	0.018562	0.000000	0.025824
IQI 19	140	0	5	0.000000	0.008451	0.000000	0.025824
IQI 19	141	1	2	0.500000	0.089685	5.575082	0.025824
IQI 19	142	0	6	0.000000	0.013270	0.000000	0.025824
IQI 19	TOTAL	7	150	0.046667	0.020355	2.292692	0.025824
IQI 20	101	0	24	0.000000	0.031894	0.000000	0.036602
IQI 20	102	0	19	0.000000	0.027708	0.000000	0.036602
IQI 20	103	1	22	0.045455	0.052213	0.870554	0.036602
IQI 20	104	1	25	0.040000	0.028436	1.406680	0.036602
IQI 20	105	1	36	0.027778	0.040220	0.690641	0.036602

The bottom of the window contains navigation buttons: "Export All" (circled in orange), "Composites", "Page 1 of 1", "< PreviousPage", "Next Page >", "Close", and "Help".

Table 8. Provider-Level Indicator Input File Format

Field Name	Description	Sequence
Module	Measure module such as IQI, PSI	1
Indicator	Measure identifier code	2
Hospital ID	Provider identifier	3
Observed Numerator	Numerator	4
Observed Denominator	Denominator	5
Observed Rate	Observed rate	6
Observed Conf Int. Low	Lower bound of the observed rate confidence interval	7
Observed Conf Int. High	Upper bound of the observed rate confidence interval	8
Expected Rate	Expected rate	9
O-E Ratio	Ratio of the observed and expected rates	10
Reference Pop Rate	Rate for reference population	11
Risk Adjusted Rate	Risk adjusted rate	12
Risk Adj Conf Int. Low	Lower bound of the risk adjusted rate confidence interval	13
Risk Adj Conf Int. High	Upper bound of the risk adjusted rate confidence interval	14
Smoothed Rate	Smoothed rate	15

Composite measures

The composite measure report is generated by selecting the **Composites** button at the bottom of the provider-level report results screen (see Screen 44).

Screen 44. AHRQ QI Software Composite Report

Report from 5/15/2012 11:10:15 AM

Source Data: ...NAHRQ\TestData\MONAHRQ_40
WIM MONAHRQ_processed.csv

Date Created: 5/15/2012 11:34:05 AM Rows in Report: 787

Rates Per: case

Controls

Select Report: Provider

Rows Per Page: 50000

Show Indicator Definitions Window

Select cells then use <Ctrl>-C to copy

Indicator	Hospital ID	Observed Numerator	Observed Denominator	Observed Rate	Expected Rate	O/E Ratio	Reference Pop. Rate
IQI 19	128	0	5	0.000000	0.008856	0.000000	0.025824
IQI 19	129	1	5	0.200000	0.043914	4.554333	0.025824
IQI 19	130	0	3	0.000000	0.008682	0.000000	0.025824
IQI 19	131	2	6	0.333333	0.028057	11.880588	0.025824
IQI 19	132	1	4	0.250000	0.010294	24.285227	0.025824
IQI 19	133	0	1	0.000000	0.006334	0.000000	0.025824
IQI 19	134	0	4	0.000000	0.039887	0.000000	0.025824
IQI 19	135	0	3	0.000000	0.010332	0.000000	0.025824
IQI 19	136	0	7	0.000000	0.014477	0.000000	0.025824
IQI 19	137	0	2	0.000000	0.015020	0.000000	0.025824
IQI 19	138	0	1	0.000000	0.007267	0.000000	0.025824
IQI 19	139	0	4	0.000000	0.018562	0.000000	0.025824
IQI 19	140	0	5	0.000000	0.008451	0.000000	0.025824
IQI 19	141	1	2	0.500000	0.089685	5.575082	0.025824
IQI 19	142	0	6	0.000000	0.013270	0.000000	0.025824
IQI 19	TOTAL	7	150	0.046667	0.020355	2.292692	0.025824
IQI 20	101	0	24	0.000000	0.031894	0.000000	0.036602
IQI 20	102	0	19	0.000000	0.027708	0.000000	0.036602
IQI 20	103	1	22	0.045455	0.052213	0.870554	0.036602
IQI 20	104	1	25	0.040000	0.028436	1.406680	0.036602
IQI 20	105	1	36	0.027778	0.040220	0.690641	0.036602

Export All Composites Page 1 of 1 < PreviousPage Next Page > Close Help

Select the **Save Report** button to generate the composite provider-level report (Screen 45).

Screen 45. AHRQ QI Software Composite Report

composite_name	Hospital ID	COMP1	COMP1VAR	COMP1SE	COMP1WHT	COMP1LB	COMP1UB
IQI Proc	101	1.0000000	0.0244612	0.1564006	1.1242	0.6934548	1.3065452
IQI Proc	102	0.9965562	0.0243899	0.1561727	1.0080	0.6904578	1.3026547
IQI Proc	103	0.9974672	0.0244087	0.1562330	0.5040	0.6912506	1.3036839
IQI Proc	104	0.9992469	0.0244470	0.1563554	1.6899	0.6927903	1.3057035
IQI Proc	105	0.9985488	0.0244313	0.1563053	0.8973	0.6921904	1.3049071
IQI Proc	106	1.0000000	0.0244612	0.1564006	0.4818	0.6934548	1.3065452
IQI Proc	107	0.9963676	0.0243860	0.1561602	0.8400	0.6902937	1.3024415
IQI Proc	108	1.0000000	0.0244612	0.1564006	0.4818	0.6934548	1.3065452
IQI Proc	109	1.0187445	0.0243584	0.1560717	0.5040	0.7128440	1.3246450
IQI Proc	110	0.9972348	0.0244039	0.1562176	1.3218	0.6910483	1.3034213
IQI Proc	111	1.0000000	0.0244612	0.1564006	0.0000	0.6934548	1.3065452
IQI Proc	112	1.0000000	0.0244612	0.1564006	0.8030	0.6934548	1.3065452
IQI Proc	113	1.0000000	0.0244612	0.1564006	0.9636	0.6934548	1.3065452
IQI Proc	114	1.0000000	0.0244612	0.1564006	0.4818	0.6934548	1.3065452
IQI Proc	115	1.0166250	0.0243645	0.1560913	0.8400	0.7106860	1.3225641
IQI Proc	116	1.0000000	0.0244612	0.1564006	0.8030	0.6934548	1.3065452
IQI Proc	117	1.0000000	0.0244612	0.1564006	0.6424	0.6934548	1.3065452
IQI Proc	118	0.9983485	0.0244272	0.1562920	0.8973	0.6920162	1.3046808
IQI Proc	119	1.0398912	0.0243780	0.1561345	1.1538	0.7338677	1.3459148
IQI Proc	120	0.9993478	0.0244477	0.1563575	1.1538	0.6928871	1.3058084
IQI Proc	121	1.0000000	0.0244612	0.1564006	0.0000	0.6934548	1.3065452
IQI Proc	122	0.9986547	0.0244335	0.1563123	1.5397	0.6922826	1.3050268
IQI Proc	123	1.0000000	0.0244612	0.1564006	0.4818	0.6934548	1.3065452
IQI Proc	124	1.0000000	0.0244612	0.1564006	0.4818	0.6934548	1.3065452
IQI Proc	125	1.0000000	0.0244612	0.1564006	0.0000	0.6934548	1.3065452

The MONAHRQ software accepts the file format provided by the AHRQ QIs. The file format is documented in Table 9.

Table 9. Composite Indicator Input File Format

Field Name	Description	Sequence
composite_name	Measure name	1
Hospital ID	Provider identifier	2
COMP1	Composite rate	4
COMP1SE	Standard error	5
COMP1WHT	Weight	6
COMP1LIB	Lower bound of the rate confidence interval	7
COMP1UB	Upper bound of the rate confidence interval	8

Area-Level Measures

Data for area-level measures is obtained through the AHRQ QI area reports. To generate the appropriate reports, select the Area Report Wizard within the AHRQ QI application (Screen 46).

After choosing the desired measures, select the desired hospitals and date range for reporting on the subsequent screens. On the screen titled, **Select Stratifiers For Use With Area Indicators**, drag “County” from the right hand list of stratifiers over to the box on the left (if it is not already present). County should be selected by default. The *MONAHRQ software supports only stratification by county for area-level measures.*

The final screen titled, **Additional Options for Data Analysis**, allows for the selection of additional report options. Under the **Report Layout** section of the screen, select the options **Show Indicators in Rows** and **Include Title in Exported Files** to ensure that the report will be saved in a format that can be read by the MONAHRQ software.

If you wish to display estimated cost savings information in the Summary Tables for these indicators in the Maps of Avoidable Hospital Stays path of your MONAHRQ-generated Web site, after you calculate the AHRQ QI you can also use the Area QI Cost Calculator tool.. This tool will process the standard exported Area Indicators file and add a total estimated costs column to the exported data file, which you will then import into MONAHRQ. The Cost Calculator tool is available for download from the *Resources* page of the MONAHRQ download site. Information about the Area QI Cost Calculator for Windows is provided in Appendix F.

Screen 46. AHRQ QI Software Analysis Options for Area-Level Reports

Additional Options For Data Analysis

Rates

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

Scaling

- Display Raw Rates
- Scale To Outcomes Per: 100
- Number of Decimals: 6

Cell Suppression

- Exclude results that are based on too few patients?
- Minimum patients per cell: 20

Geography Stratifiers

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

Report Layout

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

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 5/15/2012 11:48:33 AM

< Back Next > Cancel Help

Select the **Export All** button to save the results in a comma-separated values (CSV) file (Screen 47).

Screen 47. AHRQ QI Software for Area-Level Reports

Reports

AHRQ Quality Indicators

Report
Report from 5/15/2012 11:48:33 AM

Source Data: ...NAHRQ\TestData\MONAHRQ_40
WIM MONAHRQ processed on:

Date Created: 5/15/2012 11:49:06 AM Rows in Report: 475

Rates Per: population

Controls

Select Report: Area

Rows Per Page: 50000

[Show Indicator Definitions Window](#)
 Select cells then use <Ctrl>-C to copy

Indicator	County	Observed Numerator	Observed Denominator	Observed Rate	Expected Rate	O/E Ratio	Reference Pop. Rate
IQI 26	35001	13	276086	0.000047	0.001860	0.025320	0.001917
IQI 26	35003	8	2388	0.003350	0.002514	1.332394	0.001917
IQI 26	35005	5	27885	0.000179	0.001995	0.089859	0.001917
IQI 26	35006	8	11849	0.000675	0.001953	0.345774	0.001917
IQI 26	35007	9	7425	0.001212	0.002184	0.555097	0.001917
IQI 26	35009	5	17038	0.000293	0.001916	0.153125	0.001917
IQI 26	35011	8	1119	0.007149	0.002289	3.123918	0.001917
IQI 26	35013	8	79296	0.000101	0.001984	0.050840	0.001917
IQI 26	35015	8	23875	0.000335	0.001948	0.172021	0.001917
IQI 26	35017	5	16301	0.000307	0.002255	0.136005	0.001917
IQI 26	35019	9	2164	0.004159	0.002018	2.060764	0.001917
IQI 26	35021	10	424	0.023585	0.002475	9.527853	0.001917
IQI 26	35023	6	2522	0.002379	0.002085	1.140889	0.001917
IQI 26	35025	8	23281	0.000344	0.001890	0.181810	0.001917
IQI 26	35027	9	12391	0.000726	0.002226	0.326349	0.001917
IQI 26	35028	5	9880	0.000506	0.001903	0.265865	0.001917
IQI 26	TOTAL	124	513924	0.000241	0.001929	0.125080	0.001917
IQI 27	35001	0	276086	0.000000	0.005221	0.000000	0.005351
IQI 27	35003	0	2388	0.000000	0.006548	0.000000	0.005351
IQI 27	35005	0	27885	0.000000	0.005527	0.000000	0.005351
IQI 27	35006	0	11849	0.000000	0.005383	0.000000	0.005351

Export All Page 1 of 1 < PreviousPage Next Page > Close Help

The MONAHRQ software accepts the file format provided by the AHRQ QIs. The file format is documented in Table 10.

Table 10

Table 10. Area-Level Indicator Input File Format

Field Name	Description	Sequence
Module	Measure module such as IQI, PSI	1
Indicator	Measure identifier code	2
County	Federal Information Processing Standard (FIPS) code	3
Observed Numerator	Numerator	4
Observed Denominator	Denominator	5
Observed Rate	Observed rate	6
Observed Conf Int. Low	Lower bound of the observed rate confidence interval	7
Observed Conf Int. High	Upper bound of the observed rate confidence interval	8
Expected Rate	Expected rate	9
O-E Ratio	Ratio of the observed and expected rates	10
Reference Pop Rate	Rate for reference population	11
Risk Adjusted Rate	Risk adjusted rate	12
Risk Adj Conf Int. Low	Lower bound of the risk adjusted rate confidence interval	13
Risk Adj Conf Int. High	Upper bound of the risk adjusted rate confidence interval	14
Smoothed Rate	Smoothed rate	15
Total Cost	An optional field created by the Cost Calculator tool	16

APPENDIX F. AREA QI COST CALCULATOR FOR WINDOWS

To report the estimated cost savings for potentially avoidable hospital stays, AHRQ has developed the Area QI Cost Calculator for Windows. This tool provides estimated cost savings for the area-level AHRQ Quality Indicator modules. It outputs its results as CSV files. The output of the Cost Calculator can be imported directly into the MONAHRQ software as described in Appendix E.

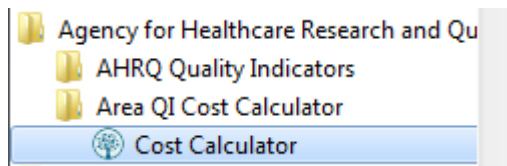
If you choose to use the Area QI Cost Calculator for Windows, you may download and install it from the **Resources** page of the MONAHRQ download site. This software must be used with the AHRQ Quality Indicators software for Windows. It requires the Area-level QI Report files that you produce by following the steps in Appendix E. To use the Cost Calculator, your Area-level QI Report files must include a “Total Charges” field. You must have imported this field into the AHRQ QI software as part of your inpatient discharge data and mapped it to the “Custom Stratifier 1” field, as described in Appendix E. Before you import your AHRQ QI results files into MONAHRQ, run the Cost Calculator tool in order to modify the Area-level QI Report by adding a Total Cost column to the end of every row.

The steps for using the Cost Calculator for Windows are detailed below.

1.1 Install Cost Calculator Software

To install the Area QI Cost Calculator for Windows, run the installation package downloaded from the MONAHRQ Web site (http://monahrq.ahrq.gov/monahrq_resources.shtml). When you run the installation file, an Install Wizard will appear.

Once you have installed the Cost Calculator tool, you will find the tool in the Windows **Start** menu under **All Programs** in the *Agency for Healthcare and Research and Quality* folder, in its own subfolder named *Area QI Cost Calculator*.



1.2 Identify Input Data Files

To run this program you will need the following:

1. The Area-Level QI Report exported from the AHRQ QI software for Windows (CSV format)
2. The Quality Indicators database (discharge-level SQL file created by the AHRQ QI software for Windows data wizard)
3. The Hospital Information File from MONAHRQ, or other file containing cost-to-charge ratios (CSV format).

1.2.1 Area-Level QI Report

The Cost Calculator tool appends a Total Cost field to the **AHRQ QI Area-Level Report** generated by the AHRQ QI software for Windows. Costs reflect the actual costs to a hospital for services performed, while charges represent what the hospital billed for the inpatient stay. Total charges are converted to estimated costs using hospital-level cost-to-charge ratios based on hospital accounting reports from the Centers for Medicare & Medicaid Services (CMS). The Cost Calculator computes Total Cost for each QI by aggregating Area-Level QI rates and summing costs by county.

The AHRQ QI software for Windows provides three area-level reports. You will need to run the Cost Calculator on each of the reports.

1.2.2 Quality Indicators Database

During the installation of the AHRQ QI software for Windows, the installer builds the AHRQ QI database, which contains the discharge-level QI rates. Data are stored in SQL server database format, with default file name “qualityindicators.” To assign costs to county-level QI rates, the Cost Calculator must read through the intermediate data in the AHRQ QI database, aggregate that data by QI, and sum costs by county.

1.2.3 Hospital Information File

The Cost Calculator tool requires hospital-level cost-to-charge ratios to assign estimated total costs. Since the inpatient discharge data include charges rather than costs, the cost-to-charge ratios must be fed into the Cost Calculator tool. If you created a Hospital Information File when you generated the MONAHRQ Web site, you can use this file with the tool.

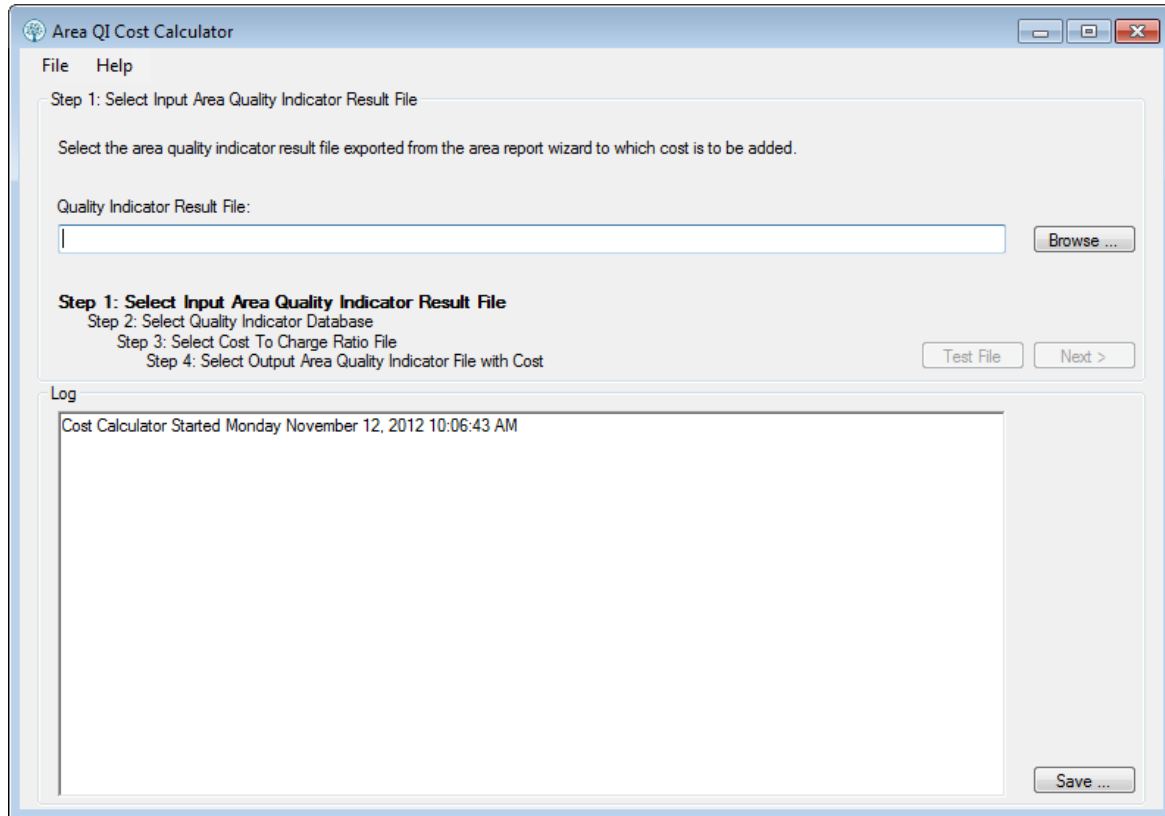
If you do not have a Hospital Information File in CSV format, you may create one using MONAHRQ. After loading your discharge data and/or AHRQ Provider-Level QI data into MONAHRQ, you may run the Define Regions & Hospitals step which will allow you to enter your hospital information. Instructions can be found in Chapter 4 under the section Provide Hospital Information. Once you have loaded the hospital data, select the **Edit Discharge Hospital Information** screen. The button labeled **Export This Data** at the bottom of the screen will create a Hospital Information File in CSV format.

You may also choose to load the cost-to-charge ratios from an external file. If you do so, the file must contain the fields “HOSPID” and “COST_CHARGE_RATIO.”

1.3 **Prepare Cost Estimates**

When you launch the Cost Calculator program you will see the following screen.

Screen 48. Area QI Cost Calculator Launch Screen



This screen contains a session log that provides a record on all activities while running the Cost Calculator.

Step 1: Select the Area-Level QI Result File

Enter the directory and file name for the Area-Level Quality Indicator Result File exported from the Area-Level Report wizard. You may use the **Browse** button to locate the file, which will automatically test the contents for the correct format. If you enter a file name manually the file is examined when you click the **Test File** or **Next** button. The file must contain a header row, where the first three fields are named "Module," "Indicator," and "County".

Screen 49. Enter Location of Area QI Report File

Area QI Cost Calculator

File Help

Step 1: Select Input Area Quality Indicator Result File

Select the area quality indicator result file exported from the area report wizard to which cost is to be added.

Quality Indicator Result File:

C:\Data\Area_Report.csv Browse ...

Step 1: Select Input Area Quality Indicator Result File
Step 2: Select Quality Indicator Database
Step 3: Select Cost To Charge Ratio File
Step 4: Select Output Area Quality Indicator File with Cost

Test File Next >

Log

Cost Calculator Started Monday November 12, 2012 11:13:52 AM

Testing the input quality indicator area result file
C:\Data\Area_Report.csv contains 882 lines, 36 QIs, 25 counties.]

Save ...

Once you have entered the file information, select **Next** to continue.

Step 2: Select Quality Indicator Database

Enter the SQL Server database connection information for the Quality Indicator database (server name, authentication type, database name). If the AHRQ QI software for Windows was run on the same machine, no changes are required to the default information. This file contains a *total charges* field from the input data, which was mapped to the “Custom Stratifier 1” field when the discharge data were imported into the AHRQ QI software.

Click the **Test** or **Next** button to perform a consistency check on the database. The following tests are performed.

- The database must contain a discharge_main table, which must contain *HOSPID* and *Custom1* fields, and must contain flag fields for each QI in the input area QI file.
- The discharge_main table must contain records with non-null values of *HOSPID*.
- The *Custom1* field must not contain non-numeric values other than Null or blank.

Screen 50. Enter Location of QI Database (SQL format)

Area QI Cost Calculator

File Help

Step 2: Select Quality Indicator Database

Select the WinQI database used to create the area QI file. This should not need to be changed if WinQI was run on this machine. A charge field from the input data file must have been mapped to the Custom1 field during the WinQI run.

SQL Server Name: (local)\SQLEXPRESS Username: sa

Authentication Type: Windows NT Password: [masked]

Database: qualityindicators

Step 1: Select Input Area Quality Indicator Result File
Step 2: Select Quality Indicator Database
Step 3: Select Cost To Charge Ratio File
Step 4: Select Output Area Quality Indicator File with Cost

< Back Test Next >

Log

Testing the input quality indicator area result file
C:\Data\Area_Report.csv contains 882 lines, 36 QIs, 25 counties.

Testing the quality indicator database
Testing Database Connection 'qualityindicators'...
Connection successful.
Finding hospitals that exist in the database ...
Note: 48 hospitals were found in the database. All hospital ids are integers.
Testing for non-numeric values for charges in the Custom1 field ...
Note: There are no non-numeric values in the Custom1 field.

Save ...

Once you have entered the file information, select **Next** to continue.

Step 3: Select Cost-To-Charge Ratio File

Select the CSV file containing cost-to-charge ratios for the hospitals. The ratios will be used to convert charges to costs. The file can be a Hospital Information File used with MONAHRQ, a cost-to-charge ratio file from the HCUP Central Distributor, or a user-created file with cost information. If you are reading cost data from your own file, it must contain the two fields, HOSPID and COST_CHARGE_RATIO.

The file is tested when you click the **Test** or **Next** button. The following tests are performed.

- The file must contain a HOSPID field.
- The file must contain either a COST_CHARGE_RATIO field or an APICC field (for a user-created CCR file).
- The file must contain cost-to-charge ratios for the hospitals in the AHRQ QI database.
- The user is warned if non-numeric cost-to-charge ratios are found.
- The user is warned if there are hospitals in the AHRQ QI database for which a valid cost-to-charge ratio was not found.

Screen 51. Enter Location of Cost-to-Charge Ratio File

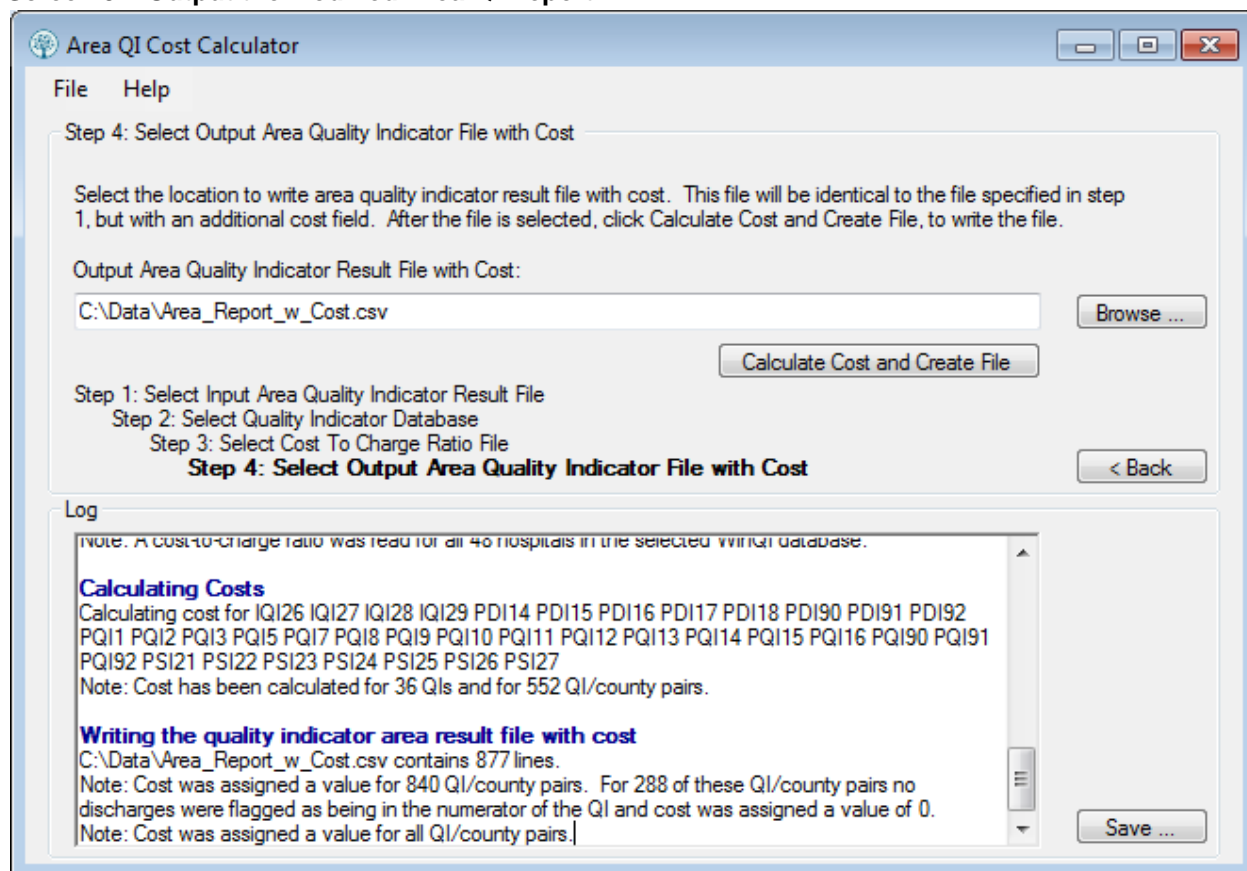
The screenshot shows the 'Area QI Cost Calculator' window. At the top, there are standard window controls (minimize, maximize, close) and a menu bar with 'File' and 'Help'. The main area is titled 'Step 3: Select Cost To Charge Ratio File'. Below this title, there is a paragraph of instructions: 'Select the file containing cost-to-charge ratio for the hospitals in the data imported into WinQI. This file may be hospital data exported from MONAHRQ (from Define Regions and Hospitals) or an HCUP cost-to-charge ratio file obtained from the HCUP Central Distributor. The file may also be a CSV file, which you create, with a field named HOSPID, containing hospital ids imported into WinQI, and a field named COST_CHARGE_RATIO, with cost-to-charge ratios.' Below the instructions, there is a label 'Cost to Charge Ratio File:' followed by a text input field containing 'C:\Data\Hospital_Info.csv' and a 'Browse ...' button. Below the input field, there are three buttons: '< Back', 'Test', and 'Next >'. At the bottom of the window, there is a 'Log' section with a scrollable text area containing the following text: 'Testing Database Connection 'qualityindicators'... Connection successful. Finding hospitals that exist in the database ... Note: 48 hospitals were found in the database. All hospital ids are integers. Testing for non-numeric values for charges in the Custom1 field ... Note: There are no non-numeric values in the Custom1 field. Testing the cost-to-charge ratio file C:\Data\Hospital_Info.csv contains 49 lines. Note: A cost-to-charge ratio was read for all 48 hospitals in the selected WinQI database.' To the right of the log area is a 'Save ...' button.

Once you have entered the file information, select **Next** to continue.

Step 4: Select Output File Information

Enter the file location for the output AHRQ QI Area-Level Report with the additional Total Cost field.

Screen 52. Output the Modified Area QI Report



When you select the **Calculate Cost and Create File** button, cost is calculated and the selected output file is saved with a Total Cost field added to each record of the AHRQ QI Area-Level Report file.

1.4 Technical Notes About Calculation of Total Costs by AHRQ QI

The output file will contain a total cost for each QI aggregated by county, for which there are one or more records in the `discharge_main` table with the QI indicator flag set. As each record of the input qualityindicators file is read, cost is calculated and added to the record before being written out.

For *discharge-level* rows, if the observed numerator is missing, cost is missing. If the observed numerator is zero, cost is zero. If the observed numerator is not missing or zero (0), and no records with the QI flag set for the county have a non-missing (discharge-level) cost, then cost is missing. Otherwise, mean cost is calculated as total cost divided by the number of records with non-missing costs, rounded to the nearest dollars and cents. Cost is calculated as mean cost times the observed numerator.

For the *total* rows for each QI, if the observed numerator is missing, cost is missing. If the observed numerator is zero, cost is zero. Otherwise, total cost and the total records with non-missing cost are aggregated over counties. If the total number of records with non-missing cost is 0, cost is missing. If the total number of records with non-missing cost is not zero, mean cost is calculated as total cost divided by the total number of records with non-missing cost rounded to the nearest cents. Cost is calculated as mean cost times the observed numerator.

Errors are reported if cost could not be calculated for any record on the file or if lines are too short to contain the observed numerator. The user is warned if there are records for which cost is missing.

APPENDIX G. PREPARING DATA USING THE AHRQ QUALITY INDICATORS SOFTWARE FOR SAS

The MONAHRQ software can display externally calculated quality measures from the AHRQ Quality Indicator (QI) software for SAS (SAS QI). The AHRQ QI results must be exported from the QI software using a specific file format. These file formats are described in detail in Table 8, Table 9, and Table 10.

The AHRQ QI software for SAS software provides a set of reports for each separate module: Inpatient Quality Indicators (IQIs), Prevention Quality Indicators (PQIs), and Patient Safety Indicators (PSIs). Although MONAHRQ does not specifically support the Pediatric Quality Indicators (PDIs), two measures—Low Birth Weight Rate (PQI-09) and Injury to Neonate (PSI-17)—are calculated by the SAS QI software through the PDI module. The available sets of reports for each module are:

- IQI—Provider, Area, and Composite
- PSI—Provider, Area, and Composite
- PQI—Area
- PDI—Provider (for PSI-17), Area (for PQI-09).

The software and documentation for the AHRQ SAS QIs can be found at:

<http://www.qualityindicators.ahrq.gov/software/SAS.aspx>

After running the desired AHRQ QI SAS modules using your inpatient hospital data, the data must be reformatted for use with the MONAHRQ software. If you wish to report estimated cost savings for potentially avoidable hospital stays, you must first use the Area QI Cost Calculator on the area-level output datasets before reformatting the data. Instructions for installing and running the Area QI Cost Calculator can be found in Appendix H.

Several SAS utilities have been developed to convert the output from the SAS QI software to a format suitable for MONAHRQ. There is a SAS formatting utility for each module and report type, as listed above. Each SAS formatting utility is QI module-specific and requires as input the SAS output files produced by the AHRQ QI module. The SAS output files must be available as permanent SAS data sets—as opposed to temporary “work” data sets—including output from the Composite runs for the IQI and PSI modules. The utilities will format the SAS files into a comma-separated value (CSV) file that can then be loaded into the MONAHRQ software. The final CSV file is identical to those used to import data from the AHRQ QI software.

Currently, MONAHRQ supports these levels of stratification: overall and hospital-level stratification for provider runs; overall and county or State-level Federal Information Processing Standard (FIPS) code stratification for area runs; and aggregate composite runs, as selected in the control file for the SAS “production” runs.

The following information details the necessary steps to create the CSV files using the AHRQ QI SAS Modules.

IQI Module

After completing the IQI module, download and modify the IQI-specific SAS Formatting Utilities for the AHRQ Quality Indicators from the **Resources** page of the MONAHRQ download Web site. The provider, composite, and area-level utility files for the IQIs are as follows:

1. IQI_Prov_V1_1.SAS
2. IQI_Comp_V1_1.SAS

3. IQI_Area_v1_1.SAS.

These utility files must be copied to the same production directory where the AHRQ IQI Module SAS jobs are stored. The SAS formatting utilities for the AHRQ IQIs depend on the IQI Module control file. Users must modify the section of code (provided below) in the IQI_Prov_V1_1.SAS, IQI_Comp_V1_1.SAS, and IQI_Area_V1_1.SAS files in order for the SAS jobs to be able to use the IQI Module control file:

```
FILENAME CONTROL 'C:\PATHWAY \CONTROL_IQI.SAS'; *<===USER MUST modify;
```

If the Area QI Cost Calculator for SAS (Appendix H) has been run, the user must specify the name of the modified rate file in the following section of IQI_Area_V1_1.SAS:

```
*=====*;
* CHOOSE NAME OF INCOMING RATE FILE, WITH COST *;
* OR THE STANDARD RATE FILE PRODUCED BY SASQI *;
*=====*;
%*let Ratefile_=iqa3_cost;          *<===USER MUST MODIFY, eg: IQa3_cost, or IQa3;
%let Ratefile_=iqa3;                *<===USER MUST MODIFY, eg: IQa3_cost, or IQa3;
```

Once the pathway has been assigned, run the three SAS formatting utilities for the AHRQ IQIs. They should produce three separate files in the production directory:

1. IQI_Prov_V1_1_IQI_P3.csv
2. IQI_Comp_V1_1_IQI_C3.csv
3. IQI_Area_V1_1_IQI_A3.csv.

All three files can be then be loaded into MONAHRQ.

PSI Module

After completing the PSI module, download and modify the PSI-specific SAS Formatting Utilities for the AHRQ Quality Indicators from the **Resources** page of the MONAHRQ download Web site. The provider, composite, and area-level utility files for the PSIs are as follows:

1. PSI_Prov_V1_1.SAS
2. PSI_Comp_V1_1.SAS
3. PSI_Area_V1_1.SAS.

The utility files must be copied to the same production directory containing the AHRQ PSI Module SAS jobs. The SAS formatting utilities for the AHRQPSIs depend on the PSI Module control file. Users must modify the section of code (provided below) in the PSI_Prov_V1_1.SAS, PSI_Comp_V1_1.SAS, and PSI_Area_V1_1.SAS files in order for the SAS jobs to be able to use the PSI Module control file:

```
FILENAME CONTROL 'C:\PATHWAY \CONTROL_PSI.SAS'; *<===USER MUST modify;
```

If the Area QI Cost Calculator for SAS (Appendix H) has been run, the user must specify the name of the modified rate file in the following section of PSI_Area_V1_1.SAS:

```
*=====*;
* CHOOSE NAME OF INCOMING RATE FILE, WITH COST *;
```

```

* OR THE STANDARD RATE FILE PRODUCED BY SASQI *;
*=====*;
%*let Ratefile_=psa2_cost;          *<===USER MUST MODIFY, eg: psa2;
%let Ratefile_=psa2;              *<===USER MUST MODIFY, eg: psa2_cost;

```

Once the pathway has been assigned, run the three SAS formatting utilities for the AHRQ PSIs. They should produce three separate files in the production directory:

1. PSI_Prov_V1_1_PSI_P3.csv
2. PSI_Comp_V1_1_PSI_C3.csv
3. PSI_Area_V1_1_PSI_a2.csv.

All three files can be loaded into MONAHRQ.

PQI Module

After completing the PQI module, download and modify the PQI-specific SAS Formatting Utilities for the AHRQ Quality Indicators from the **Resources** page of the MONAHRQ download Web site. The area-level utility file for the PQIs is as follows:

1. PQI_Area_V1_1.SAS.

The utility file must be copied to the same production directory where the AHRQ PQI Module SAS jobs are stored. The SAS formatting utilities for the AHRQ PQIs depends on the PQI Module control file. Users must modify the section of code (provided below) in the PQI_Area_V1_1.SAS file in order for the SAS job to be able to use the PQI Module control file:

```
FILENAME CONTROL 'C:\PATHWAY \CONTROL_PQI.SAS'; *<===USER MUST modify;
```

If the Area QI Cost Calculator for SAS (Appendix H) has been run, the user must specify the name of the modified rate file in the following section of PQI_Area_V1_1.SAS:

```

*=====*;
* CHOOSE NAME OF INCOMING RATE FILE, WITH COST *;
* OR THE STANDARD RATE FILE PRODUCED BY SASQI *;
*=====*;
%*let Ratefile_=pqa3_cost;          *<===USER MUST MODIFY, eg: pqa3 or pqa3_cost ;
%let Ratefile_=pqa3;              *<===USER MUST MODIFY, eg: pqa3 or pqa3_cost ;

```

Once the pathway has been assigned, run the SAS formatting utilities for the AHRQ PQIs. This should produce one file in the production directory:

PQI_Area_V1_1_PQI_A3.csv.

This file can be loaded into MONAHRQ.

PDI Module

After completing the PDI module, download and modify the PDI-specific SAS Formatting Utilities for the AHRQ Quality Indicators from the **Resources** page of the MONAHRQ download Web site. The provider and area-level utility files for the PDIs are as follows:

1. PDI_Prov_V1_1.SAS
2. PDI_Area_V1_1.SAS.

The utility files must be copied to the same production directory containing the AHRQ PDI Module SAS jobs. The SAS formatting utilities for the AHRQ PDIs depend on the PDI Module control file. Users must modify the section of code (provided below) in the PDI_Prov_V1_1.SAS and PDI_Area_V1_1.SAS files in order for the SAS jobs to be able to use the PDI Module control file:

FILENAME CONTROL 'C:\PATHWAY \CONTROL_PDI.SAS'; *<===USER MUST modify;

If the Area QI Cost Calculator for SAS (Appendix H) has been run, the user must specify the name of the modified rate file in the following section of PDI_Area_V1_1.SAS:

```
*=====*;
* CHOOSE NAME OF INCOMING RATE FILE, WITH COST *;
* OR THE STANDARD RATE FILE PRODUCED BY SASQI *;
*=====*;
%*let Ratefile_=PDa3_cost;                *<===USER MAY MODIFY, eg: PDa3;
%let Ratefile_=PDa3;                      *<===USER MAY MODIFY, eg: PDa3_cost;
```

Once the pathway has been assigned, run the two SAS formatting utilities for the AHRQ PDIs. They should produce two separate files in the production directory:

1. PDI_Prov_V1_1_PDI_P3.csv
2. PDI_Area_V1_1_PDI_A3.csv.

Both files can be loaded into MONAHRQ.

Once all SAS formatting utilities for the AHRQ QIs have been used to create the desired CSV files, the CSV files are ready to be loaded into MONAHRQ under the Import AHRQ QI Data section.

If you wish to display estimated cost savings information in the Summary Tables for these indicators in the Maps of Avoidable Hospital Stays path of your MONAHRQ-generated Web site, you can download and use the Area QI Cost Calculator tool for SAS from the MONAHRQ download Web site. This tool will process the standard exported Area Indicators file and add a total cost column to the exported data. Information about the Area QI Cost Calculator tool for SAS is provided in Appendix H.

APPENDIX H. AREA QI COST CALCULATOR FOR SAS

To report estimated cost savings for potentially avoidable hospital stays, AHRQ has developed the Area QI Cost Calculator for SAS. The Area QI Cost Calculator for SAS produces SAS datasets for the area-level QI modules that include estimated cost savings information. The output of the Cost Calculator must be reformatted into CSV files using the SAS formatting utilities described above in Appendix G.

The steps for running the Area QI Cost Calculator for SAS are as follows:

Step 1: Prepare the Data and Run the AHRQ QI Software for SAS

Select the desired version and module of the AHRQ QI software for SAS, available from <http://www.qualityindicators.ahrq.gov/>. Following the directions detailed in the AHRQ QI software for SAS instructions, prepare your data. The Area QI Cost Calculator for SAS supports all AHRQ QI modules (PQI, PDI, PSI and IQI) from version 3.0 to version 4.4.

There are some special considerations regarding your data and QI program settings:

1. Your input dataset must include the variables TOTCHG, HOSPID and KEY. The variable TOTCHG is not used by the QI software but will not cause an error. HOSPID refers to the HCUP-compatible uniform hospital identifier. The values of HOSPID should match your hospital discharge data. If you are using HCUP databases and HOSPID is not available in your data, you may need to use the HCUP Hospital crosswalk file provided with the data to obtain it.
2. It is advisable to limit your data to *one state only*. The Area QI Cost Calculator for SAS will attempt to assign costs to out-of-state hospitals, but there will be some undesirable side-effects. If retaining hospitals from other states is important to your analysis, one strategy is to recode out-of-state counties to the hospital county. If that is impractical, an alternate strategy is to limit out-of-state data to counties with sufficient volume to produce rates. For best results, in- or out-of-state, counties with complete discharge data should be used.
3. Be sure to request overall totals and county-level totals in the CONTROL program. When setting options in the CONTROL programs (CONTROL_PDI.SAS, CONTROL_IQI.SAS, etc.), the variable TYPELVLA (also called TYPELEVL in some versions and modules) should include levels 0 and 8. For example:

```
%LET TYPELVLA = IN (0,8);
```
4. It is acceptable to request other levels as well—e.g. `%LET TYPELVLA = IN (0,4,8,12,);`—provided 0 and 8 are always requested. Note that cost is calculated at the county-level (type 8) and overall level (type 0). These costs are applied to appropriate sub-levels; however, costs by age group, gender, etc. are not supported in MONAHRQ and will not be displayed.

Step 2: Gather the Required Data

You will need the following data to run the Area QI Cost Calculator for SAS:

1. The cost-to-charge ratio file. This file contains the cost-to-charge ratio for each hospital. If you created a Hospital Information File when you generated the MONAHRQ Web site, you can use this file with the tool. If you are using a Cost-to-Charge Ratio (CCR) file from the HCUP Central Distributor, the file name should follow the default naming convention `ccYYYYw.sas7bdat` where YYYY is the year of data being analyzed (e.g. `cc2009w`).

- The SAS dataset used as input to the QI software. This file should include TOTCHG, HOSPID and KEY. Other variables in the file will be ignored, so there is no need to limit the input file to only these variables.
- The discharge-level SAS dataset output by the indicator assignment program in the AHRQ QI module. This program reads in your input dataset and creates a new discharge-level dataset which contains quality indicator flags for each record. The program and default output name can be found in the table below (you may change the output name in the CONTROL program) (HOSPID must be added as an output variable in PQSAS1.SAS) :

QI Module	Indicator Assignment Program	Default Output File Name
IQI Area	IQSAS1.SAS	IQ1.sas7bdat
PDI Area	PDSAS1.SAS	PDI1.Sas7bdat
PQI Area	PQSAS1.SAS	PQ1.Sas7bdat
PSI Area	PSSAS1.SAS	PSI1.Sas7bdat

- The area-level SAS dataset output by the area rate program of the QI module. This program outputs a file with one record per requested area level. For example, if you requested county-level (type 8) and overall level (type 0), this file will have one total record and one record for each county. The program and default output name can be found in the table below (you may change the output name in the CONTROL program):

QI Module	Indicator Assignment Program	Default Output File Name
IQI Area	IQSASA3.SAS	IQA3.sas7bdat
PDI Area	PDSASA3.SAS	PDA3.Sas7bdat
PQI Area	PQSASA3.SAS	PQA3.Sas7bdat
PSI Area	PSSASA2.SAS	PSA2.Sas7bdat

Put all four datasets in a single directory on your local computer or server.

Step 3: Set Up and Run the Cost Module

Place the cost module file *costmodule.zip* in the directory from which it will be run. Uncompress and extract the files. Uncompressing the file will place program CONTROL.SAS in the directory where the file is uncompressed and create a folder called \INCLUDES below the directory containing CONTROL.SAS.

All options can be set in the CONTROL.SAS program. There is no need to alter the programs in the \INCLUDES directory.

Table 11 provides a list of options that should be set in the CONTROL.SAS file.

Table 11: Control File Options

Option	Setting
%let state	Input the two-character state postal code of choice. At the present time, the cost calculator only reports one state at a time, though it will internally calculate costs and cost-savings for all counties in the file.
%let data_yr	Enter the data year of the analysis file. The program assumes a single full year of data. If there are multiple years of data in your file, use one year (such as the most recent) to allow the program to run.
%let module	Indicate the QI module – PQI, PSI, IQI, or PDI.
%let version	Indicate the version of the AHRQ QI software for SAS. Versions 3.0 to 4.4 are supported at this time. For intermediate versions, such as version 3.1a and 4.1b, the letter suffix is ignored. Always specify the decimal part (e.g. version 3.0, not version 3) for correct execution of the software.
%let includes=pathname\INCLUDES	Replace <i>pathname\INCLUDES</i> with the name of the directory where the module programs are stored (e.g. %let includes=c:\work\costmodule\prog\includes).
%let input_dir=pathname	Replace <i>pathname</i> with the name of the directory where report file and output data files will be written. This can be the same as the input directory or a different directory.
%let output_dir= pathname	Replace <i>pathname</i> with the name of the directory where data files and cost-to-charge ratio file are located.
%let rate_in	Indicate the name of the area-level rate dataset generated by the SAS QI software, usually PQA3, IQA3, PSA2, or PDA3.
%let dsch_in	Indicate the name of the discharge dataset that was input to the SAS QI software. This dataset should contain the TOTCHG, KEY, and HOSPID variables.
%let qi1_in	Indicate the name of discharge dataset that was generated by the SAS QI software PQSAS1, PDSAS1, PSSAS1, or IQSAS1, usually named IQ1, PQ1, PD1, etc.
%let MONAHRQ	Request that the software create a MONAHRQ-compatible input dataset. This option is set to NO by default. Change to YES to create the dataset.
%let cutoff	Set the threshold for suppression; this is set to 10 by default (suppress cells of 10 or fewer records) to comply with HCUP small-cell disclosure requirements. Set to 0 to turn off suppression or enter a custom value.

USE CAUTION EDITING BELOW THE LINE. In general, the options below the dotted line should not be altered. However, `%LET VERBOSE=NO` suppresses notes on the SAS log. You may want to change to `%LET VERBOSE=YES` to examine the log file.

Once the options are set, run the Area QI Cost Calculator for SAS. Depending on the size of the data, the run should require no more than a few minutes to complete.

Step 4: Review the Output

The Area QI Cost Calculator for SAS will create up to three permanent files in the output directory:

1. *Rates spreadsheet XML file* – depending on the QI module used, the Area QI Cost Calculator for SAS will produce PQRates.xml, PSIRates.xml, IQIRates.xml, and PDIRates.xml. The XML file can be opened in Microsoft Excel.
2. *Rates SAS file* – depending on the QI module used, the Area QI Cost Calculator for SAS will produce PQRates.sas7bdat, PSIRates.sas7bdat, IQIRates.sas7bdat, or PDIRates.sas7bdat. This file is used to create the rates spreadsheet and can be used for diagnostics or input to other analyses. The file will contain out-of-state records (if present in data). Only the grand total (`_type_=0`) and county-level records (`_type_=8`) will have cost data; subgroups, such as race and sex, will be ignored.
3. *MONAHRQ file* – if you request a MONAHRQ-compatible dataset, the Area QI Cost Calculator for SAS will merge the cost data onto the QI area rate file appropriate for the module. The new file will be named the same as your input file with the suffix “_cost” added. For example, if your rate input file is PQA3.sas7bdat, the MONAHRQ file will be named PQA3_cost.sas7bdat.

Step 5: Reformat the SAS Datasets

Reformat the output SAS datasets using MONAHRQ’s SAS Formatting Utilities. Appendix G provides instructions on running the utilities.

APPENDIX I. MONAHRQ-GENERATED WEB PAGES

Web Pages Provided in a MONAHRQ-Generated Web Site

This section describes each of the Web pages within the paths and Web pages that you will find in your MONAHRQ-generated Web site.

Home Page

Screen 53: Home Page

MONAHRQ Demo Website

Home Hospital Quality Hospital Utilization Maps of Avoidable Stays County Rates Resources

Hospital Quality Ratings

Ratings for the Public Detailed Quality Statistics

Find and compare hospitals in your area. Some hospitals provide better quality care than others. Learn more.

Hospital Utilization

Find and compare hospitals by the number of patients they treat for different medical conditions and procedures.

Maps of Avoidable Hospital Stays

Map and compare counties by rates of potentially avoidable hospital stays. Compare cost savings from reducing avoidable stays.

County Rates of Hospital Use

Map and compare counties by rates of inpatient medical conditions and procedures.

MONAHRQ Version 4.0.1 2006 Data in Demo State

The MONAHRQ home page (Screen 53) displays four distinct pathways:

1. The **Hospital Quality Ratings** path provides hospital ratings for the public and other detailed statistics.
2. The **Hospital Utilization** path allows users to compare hospitals by the number of patients they treat for different medical conditions and procedures.
3. The **Maps of Avoidable Hospital Stays** path allows users to compare counties by rates of potentially avoidable hospital stays and cost savings from reducing avoidable stays.
4. The **County Rates of Hospital Use** path allows users to compare counties by rates on inpatient medical conditions and procedures.

MONAHRQ host users can select which paths to display and customize the elements and design of the generated Web pages in the MONAHRQ software.

Hospital Quality Ratings

Screen 54: Hospital Quality—Navigation Page

The screenshot shows the MONAHRQ Demo Website interface. At the top, there is a green header with the MONAHRQ logo (a stethoscope) and the text "MONAHRQ Demo Website". Below the header is a navigation menu with tabs for "Home", "Hospital Quality", "Hospital Utilization", "Maps of Avoidable Stays", "County Rates", and "Resources". The "Hospital Quality" tab is selected, and the breadcrumb trail shows "Home" > "Hospital Quality Detailed Quality Statistics".

The main content area is titled "Hospital Quality Ratings" and contains two primary sections:

- Choose Hospitals:** This section has three tabs: "By Hospital", "By ZIP Code", and "By Region". The "By Hospital" tab is active. It prompts the user to "Please select one or more hospitals:" and includes a checkbox for "Select/Deselect All Hospitals". A list of hospitals is displayed, including Facility 10 through Facility 18, each with a checkbox.
- Choose Health Topic:** This section prompts the user to "Please select a health topic:" and features a dropdown menu with the option "- Select a Topic -".

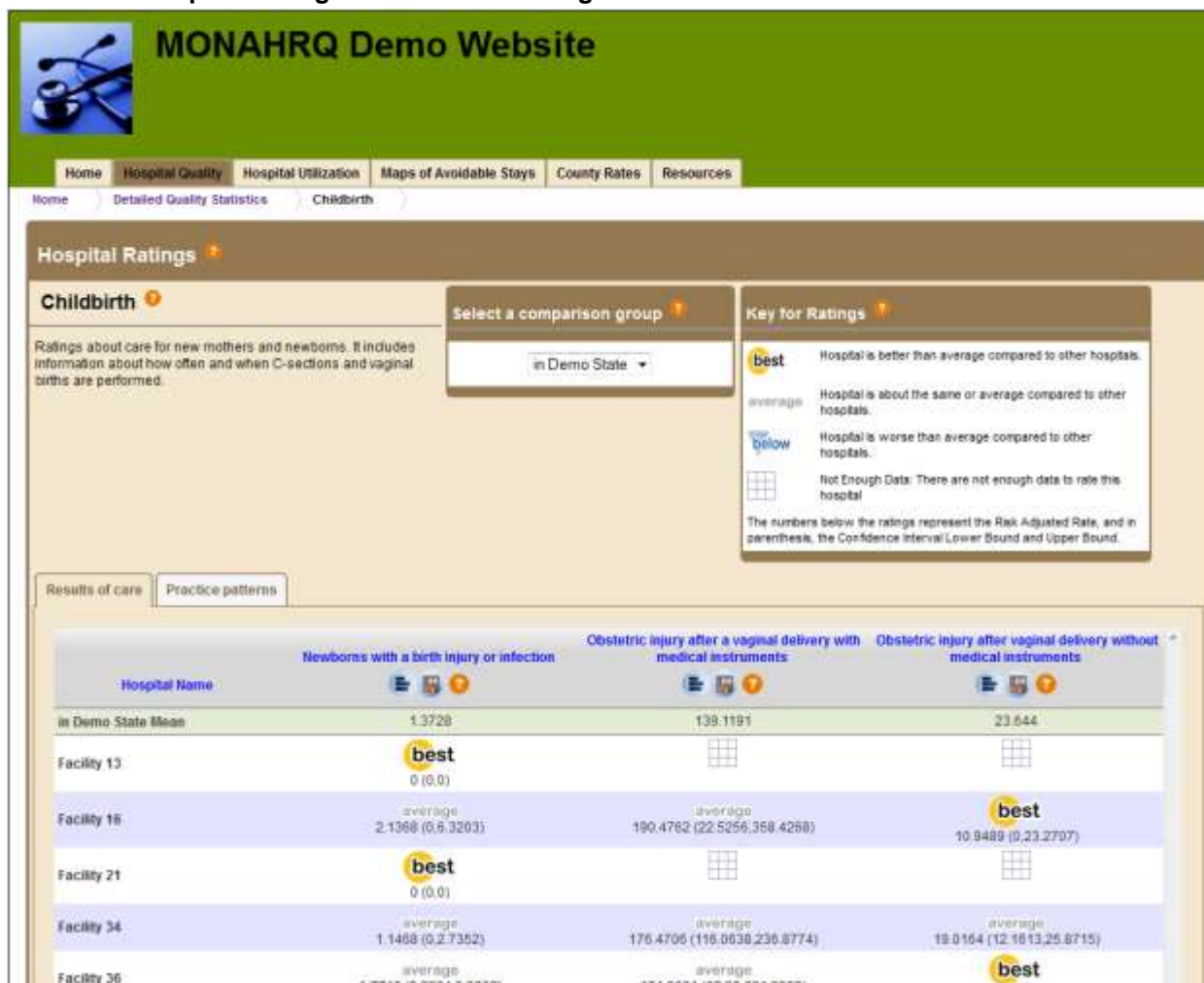
Below these sections, there is a checkbox labeled "Select to Open Report in New Browser Window / Tab". At the bottom of the form are two buttons: "< Back" and "Get Report".

The footer of the page includes the MONAHRQ logo with a butterfly icon, the text "Version 4.0.1", and "2006 Data in Demo State".

In the Hospital Quality Ratings path (Screen 54), users choose hospitals by a full list of hospitals or by ZIP Code or region. If no hospitals are selected, MONAHRQ will select all hospitals by default. The user then chooses the health topic of interest for hospital.

Host users have the option to define regions, select ZIP Code radii for searching, and select which measures to report.

Screen 55: Hospital Ratings—Classification Page



The Hospital Ratings table (Screen 55) classifies hospitals into one of three categories. The classification scheme varies by the measure type and the data available for each measure. Users can access detailed statistics, bar charts, and help from this page. Hospitals are compared to the nationwide average and to the average of reported hospitals in the Web site (i.e., the input file mean).

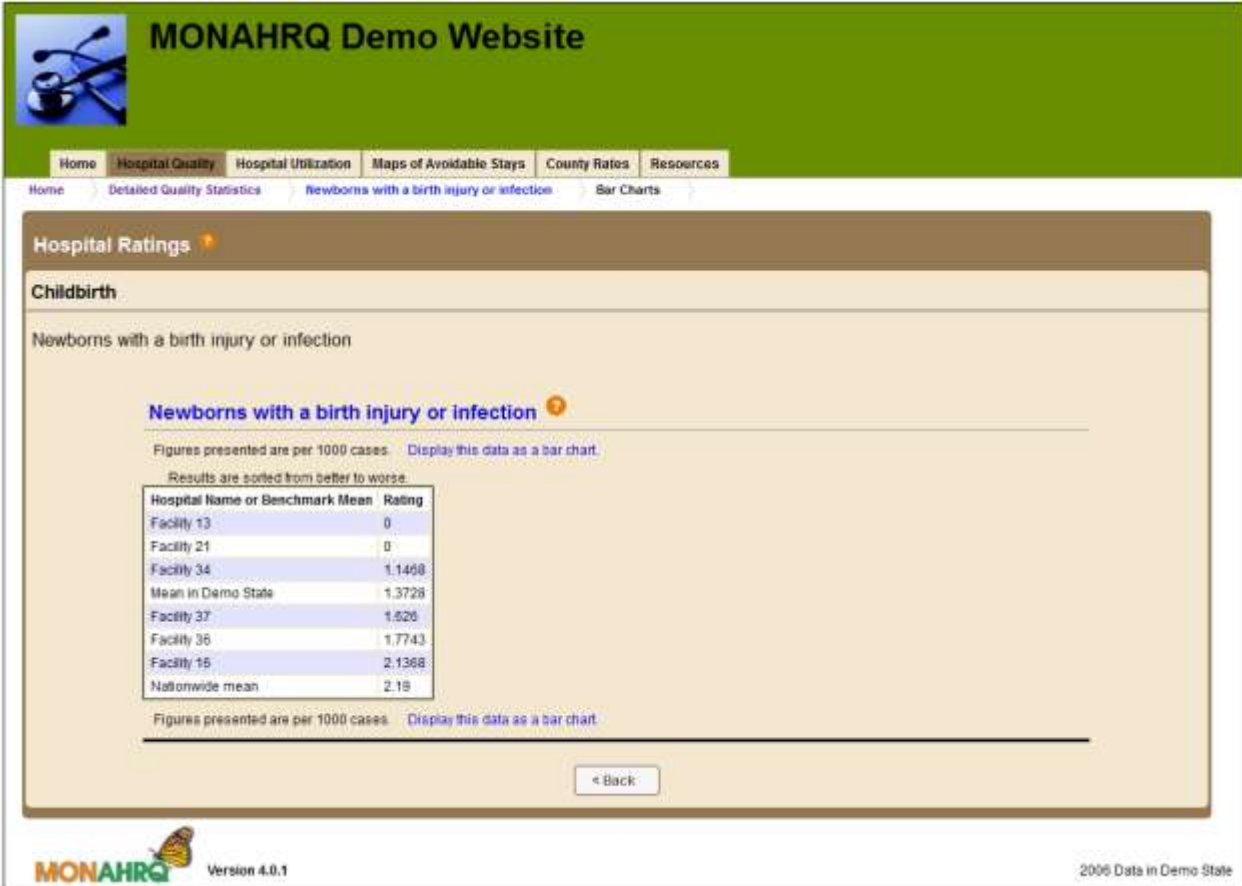
The Detailed Quality Statistics page displays the same information with two additions: (1) rates and confidence intervals (as available) are listed for each measure next to the ratings icon, and (2) an icon to access all statistics available for the selected measure (e.g., risk-adjusted rates, observed rates, confidence intervals, observations) is available in the Hospital Name header row.

Screen 56: Hospital Ratings—Bar Chart Page



Hospital ratings and benchmark values are displayed in bar charts for each measure (Screen 56). Hospitals are sorted from better to worse.

Screen 57: Hospital Ratings—Bar Chart Page as Text



MONAHRQ Demo Website

Home Hospital Quality Hospital Utilization Maps of Avoidable Stays County Rates Resources

Home Detailed Quality Statistics Newborns with a birth injury or infection Bar Charts

Hospital Ratings

Childbirth

Newborns with a birth injury or infection

Newborns with a birth injury or infection

Figures presented are per 1000 cases. [Display this data as a bar chart.](#)

Results are sorted from better to worse.

Hospital Name or Benchmark Mean	Rating
Facility 13	0
Facility 21	0
Facility 34	1.1408
Mean in Demo State	1.3728
Facility 37	1.526
Facility 36	1.7743
Facility 16	2.1368
Nationwide mean	2.15

Figures presented are per 1000 cases. [Display this data as a bar chart.](#)

[← Back](#)

MONAHRQ Version 4.0.1 2006 Data in Demo State

Hospital ratings and benchmark values are displayed in text charts for each measure (Screen 57). Hospitals are sorted from better to worse. To view charts as text, select the “Display charts as text” box on the previous page.

Screen 58: Hospital Ratings—Detailed Statistics Page

MONAHRQ Demo Website

Home Hospital Quality Hospital Utilization Maps of Avoidable Stays County Rates Resources

Home Detailed Quality Statistics Newborns with a birth injury or infection

Measure details for Newborns with a birth injury or infection

Select Report for Copying Use the Edit menu to Copy and Paste to another application. < Back

Hospital or Benchmark	Numerator	Denominator	Observed Rate	Observed Lower-bound CI	Observed Upper-bound CI
In Demo State mean	130	94504	0.0014	-	-
Nationwide mean	-	-	0.0022	-	-
Facility 10	1	759	0.0013	0.0000	0.0039
Facility 11	2	1873	0.0011	0.0000	0.0025
Facility 12	0	886	0.0000	0.0000	0.0000
Facility 13	0	424	0.0000	0.0000	0.0000
Facility 14	2	4279	0.0005	0.0000	0.0011
Facility 15	3	2806	0.0011	0.0000	0.0023
Facility 16	1	468	0.0021	0.0000	0.0063
Facility 17	3	746	0.0040	0.0000	0.0086
Facility 18	1	2192	0.0005	0.0000	0.0014
Facility 19	5	1488	0.0034	0.0004	0.0064
Facility 2	4	2673	0.0015	0.0000	0.0030
Facility 20	2	998	0.0020	0.0000	0.0048
Facility 21	0	109	0.0000	0.0000	0.0000
Facility 22	7	5102	0.0014	0.0004	0.0024
Facility 23	6	3437	0.0017	0.0004	0.0031
Facility 24	2	439	0.0046	0.0000	0.0109
Facility 25	0	514	0.0000	0.0000	0.0000
Facility 26	-	-	-	-	-
Facility 27	3	1542	0.0019	0.0000	0.0041
Facility 28	0	124	0.0000	0.0000	0.0000

Detailed statistics are reported for the selected measure by hospital (Screen 58). All available statistics for the given measures are displayed; the available statistics vary by type of measure.

Screen 59: Hospital Utilization—Navigation Page

The screenshot shows the MONAHRQ Demo Website interface. At the top, there is a green header with the MONAHRQ logo and the text "MONAHRQ Demo Website". Below the header is a navigation menu with tabs for "Home", "Hospital Quality", "Hospital Utilization", "Maps of Avoidable Stays", "County Rates", and "Resources". The "Hospital Utilization" tab is selected. The main content area is titled "Hospital Utilization" and contains two side-by-side panels. The left panel, "Choose Hospitals", has tabs for "By Hospital", "By ZIP Code", "By Region", and "All Combined". The "By Hospital" tab is active, and a dropdown menu is open showing a list of facilities from Facility 10 to Facility 19. The right panel, "Choose Conditions or Procedures", has tabs for "By MDC", "By DRG", "By Condition", "By Procedure", and "All Discharges Combined". The "By MDC" tab is active, and a dropdown menu is open showing a list of Major Diagnostic Categories (MDCs) from 1 to 10. Below the panels is a checkbox labeled "Select to Open Report in New Browser Window / Tab". At the bottom of the page are buttons for "< Back" and "Get Report". The footer includes the MONAHRQ logo, "Version 4.0.1", and "2006 Data in Demo State".

In the Hospital Utilization path (Screen 59), users choose hospitals from a full list of hospitals, or by ZIP Code, or by region. Users may generate statistics using common clinical groupers based on International Classification of Diseases, Clinical Modification (ICD-9-CM) codes, including: major diagnostic category (MDC), diagnosis-related group (DRG), Clinical Classifications Software (CCS) for diagnoses, or CCS for procedures.

This path is only available when local inpatient discharge data are loaded. Regions and ZIP Code radii are selected by host users.

Screen 60: Hospital Utilization—Results Page

MONAHRQ Demo Website

Home Hospital Quality Hospital Utilization Maps of Avoidable Stays County Rates Resources

Home Utilization Summary Statistics for all hospitals combined in Demo State by Major Diagnostic Category in 2006

Summary Statistics for all hospitals combined in Demo State by Major Diagnostic Category in 2006

Select Report for Copying Use the Edit menu to Copy and Paste to another application. < Back

Major Diagnostic Category	Number of discharges	Mean charges in dollars**	Mean costs in dollars**	Mean length of stay in days**
TOTAL U.S. in 2009 (standard error)*	39,434,956 (828,909)	\$30,655 (\$758)	\$9,173 (\$126)	4.6 (0.04)
All Conditions	631,310	\$28,854	\$19,315	4.2
15 Newborns & Other Neonates With Conditn Orig in Perinatal Period	101,580	\$8,232	\$5,898	4.2
14 Pregnancy, Childbirth & The Puerperium	88,109	\$11,199	\$7,563	4.2
5 Diseases & Disorders Of The Circulatory System	86,450	\$47,956	\$31,293	4.1
6 Diseases & Disorders Of The Digestive System	53,528	\$33,118	\$22,438	4.1
4 Diseases & Disorders Of The Respiratory System	51,871	\$35,396	\$22,505	4.1
8 Diseases & Disorders Of The Musculoskeletal System & Conn Tissue	51,837	\$44,059	\$30,332	4.1
1 Diseases & Disorders Of The Nervous System	30,262	\$34,564	\$23,684	4.1
11 Diseases & Disorders Of The Kidney & Urinary Tract	25,858	\$28,968	\$19,542	4.1
7 Diseases & Disorders Of The Hepatobiliary System & Pancreas	19,917	\$37,008	\$25,013	4.1
10 Endocrine, Nutritional & Metabolic Diseases & Disorders	17,803	\$23,627	\$15,754	4.1
9 Diseases & Disorders Of The Skin, Subcutaneous Tissue & Breast	15,491	\$22,077	\$14,545	4.1

The Hospital Utilization report displays number of discharges, charges, costs, and length of stay by selected clinical groups for each selected hospital (Screen 60). Users can select a condition or procedure group to access the utilization statistics by demographic groups (race/ethnicity, age group, payer, sex) for the selected hospital.

Cost is based on charges that have been adjusted to costs, using hospital-specific cost-to-charge ratios. Host users can select to show cost and charge information. Cost will not be reported if host users choose not to show charge information.

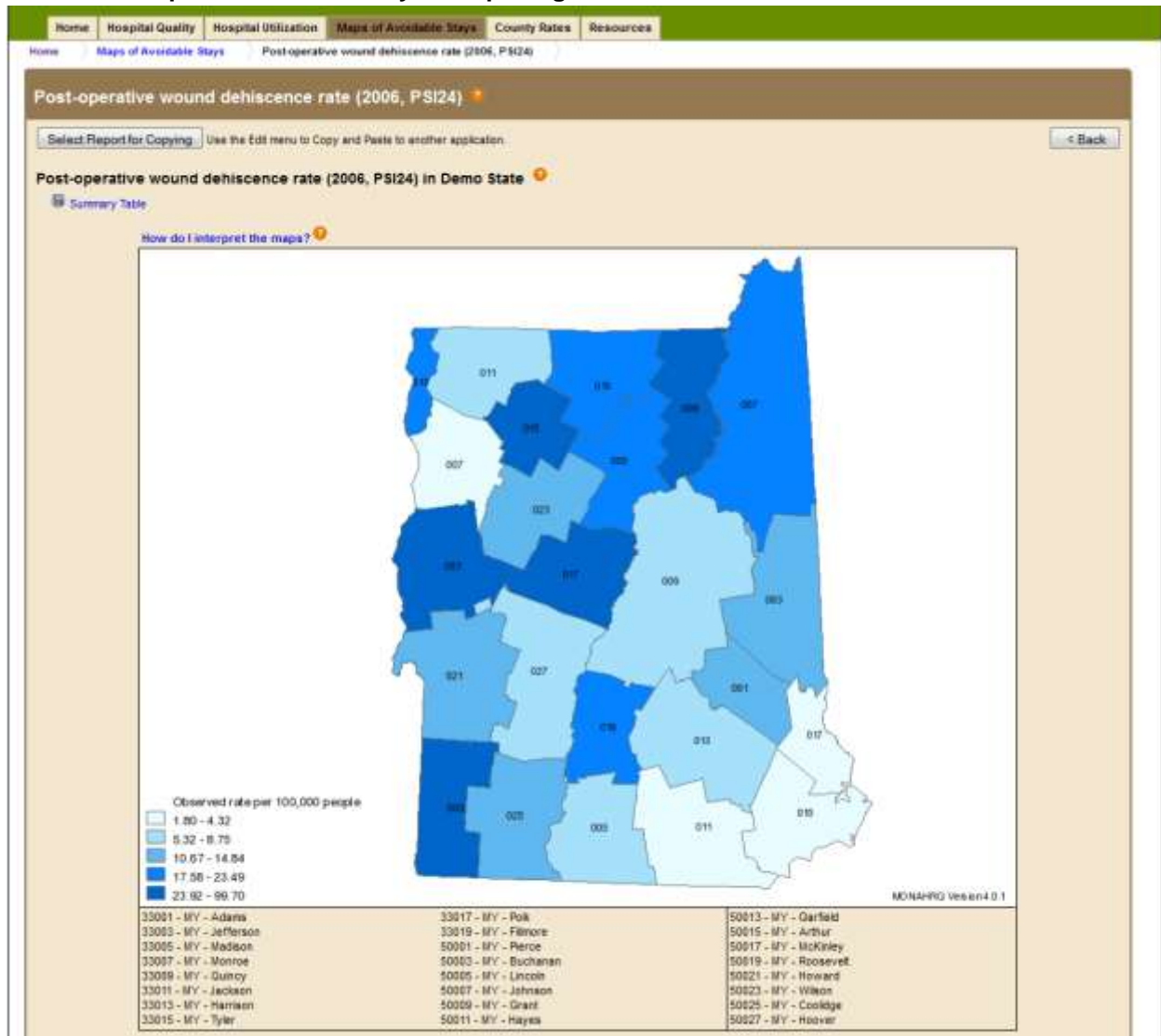
Screen 61: Maps of Avoidable Stays—Navigation Page

The screenshot shows the MONAHRQ Demo Website interface. At the top, there is a green header with the MONAHRQ logo (a stethoscope) and the text "MONAHRQ Demo Website". Below the header is a navigation menu with tabs for "Home", "Hospital Quality", "Hospital Utilization", "Maps of Avoidable Stays" (which is highlighted), "County Rates", and "Resources". Underneath, there is a sub-navigation bar with tabs for "Home", "Maps of Avoidable Stays", "Chronic Lung Conditions", "Diabetes", "Heart Conditions", "Other Conditions", "Composites", "Patient Safety", "Procedure Rates", and "All". The "Patient Safety" tab is selected, and a list of radio buttons is displayed under the heading "Patient Safety Maps". The list includes: "Foreign body left during procedure", "Iatrogenic pneumothorax rate", "Hospital acquired vascular catheter related infections rate", "Post-operative wound dehiscence rate", "Accidental puncture or laceration rate", "Transfusion reaction rate", and "Post-operative hemorrhage or hematoma rate". Below the list is a checkbox labeled "Select to Open Report in New Browser Window / Tab". At the bottom of the main content area are two buttons: "< Back" and "Get Report". The footer of the page includes the MONAHRQ logo with "Version 4.0.1" and the text "2006 Data in Demo State".

In the Maps of Avoidable Stays pathway, users choose to view maps by health topic or by selecting all maps/summary tables (Screen 61).


This path is only available when AHRQ Quality Indicator (QI) area-level data are loaded. Host users choose which measures to report.

Screen 62: Maps of Avoidable Stays—Maps Page



The map displays the rate per 100,000 people for each county; lighter colors indicate a lower rate (Screen 62). Some maps include links to Quality Improvement information.

Screen 63: Maps of Avoidable Stays



MONAHRQ Demo Website

Home Hospital Quality Hospital Utilization **Maps of Avoidable Stays** County Rates Resources

Home Maps of Avoidable Stays Post-operative wound dehiscence rate (2006, PSI24) in Demo State

Post-operative wound dehiscence rate (2006, PSI24) in Demo State


Select Report for Copying Use the Edit menu to Copy and Paste to another application. < Back

Post-operative wound dehiscence rate (2006, PSI24) in Demo State

How do I interpret the tables?

County FIPS Code	County Name	Numerator	Denominator	— Rates per 100,000 —		— Cost savings* with reduction in the numerator of —				
				Observed Rate	Risk Adjusted Rate	10%	20%	30%	40%	50%
33001	MY - Adams	7	47180	14.84	-	45,912	91,824	137,736	183,648	229,560
33003	MY - Jefferson	5	38044	13.14	-	45,786	91,572	137,359	183,145	228,931
33005	MY - Madison	4	60474	6.61	-	25,856	51,712	77,568	103,424	129,280
33007	MY - Monroe	5	27064	18.47	-	26,488	52,976	79,465	105,953	132,441
33009	MY - Quincy	4	69120	5.79	-	75,133	150,265	225,398	300,531	375,664
33011	MY - Jackson	6	300475	2.00	-	65,950	131,900	197,850	263,800	329,750
33013	MY - Harrison	6	112682	5.32	-	49,764	99,528	149,292	199,056	248,819
33015	MY - Tyler	4	222456	1.80	-	45,688	91,375	137,065	182,753	228,441
33017	MY - Polk	4	92524	4.32	-	34,086	68,133	102,199	136,265	170,332
33019	MY - Fillmore	6	33980	17.66	-	45,328	90,657	135,985	181,313	226,642
50001	MY - Pierce	7	28389	24.66	-	35,808	71,617	107,425	143,234	179,042
50003	MY - Buchanan	7	28270	23.92	-	36,525	73,051	109,576	146,101	182,626
50005	MY - Lincoln	5	24180	20.68	-	47,696	95,392	143,088	190,784	238,480
50007	MY - Johnson	4	118955	3.36	-	21,814	43,628	65,442	87,256	109,070
50009	MY - Grant	5	5015	99.70	-	34,551	69,103	103,654	138,205	172,756
50011	MY - Hayes	3	35373	8.48	-	11,249	22,498	33,748	44,997	56,246
50013	MY - Garfield	1	5687	17.58	-	4,079	8,157	12,236	16,315	20,394
50015	MY - Arthur	10	18145	55.11	-	95,544	191,088	286,632	382,177	477,721
50017	MY - McKinley	6	22758	26.36	-	84,202	168,405	252,607	336,809	421,011
50019	MY - Roosevelt	5	21286	23.49	-	50,770	101,540	152,311	203,081	253,851
50021	MY - Howard	6	49899	12.02	-	150,175	300,349	450,524	600,699	750,873
50023	MY - Wilson	5	48848	10.67	-	45,580	91,161	136,741	182,322	227,902
50025	MY - Coolidge	4	35143	11.38	-	26,692	53,385	80,077	106,770	133,462
50027	MY - Hoover	4	45697	8.75	-	45,880	91,760	137,640	183,519	229,399
Total	All	123	1490646	8.25	-	1,153,539	2,307,078	3,460,616	4,614,155	5,767,694

* Cost savings are based on charges that have been adjusted to costs, using hospital-specific cost-to-charge ratios.



Version 4.0.1

2006 Data in Demo State


The summary table displays detailed statistics by county for the selected measure (Screen 63).

Screen 64: County Rates—Navigation Page

The screenshot shows the MONAHRQ Demo Website interface. At the top, there is a green header with the logo and the text "MONAHRQ Demo Website". Below the header is a navigation menu with tabs for Home, Hospital Quality, Hospital Utilization, Maps of Avoidable Stays, County Rates, and Resources. The "County Rates" tab is selected. Below the navigation menu, there is a breadcrumb trail: Home > County Rates. The main content area is titled "County Rates" and contains two side-by-side panels. The left panel, "Choose Counties", has two tabs: "By County" and "All Combined". The "All Combined" tab is selected, and a dropdown menu is open showing a list of counties: All Counties, MY - Adams, MY - Jefferson, MY - Madison, MY - Monroe, MY - Quincy, MY - Jackson, MY - Hanson, MY - Tyler, MY - Polk, and MY - Fillmore. Below the dropdown, there is a note: "For county maps, select 'All Counties' and a condition or procedure." The right panel, "Choose Conditions or Procedures", has five tabs: "By MDC", "By DRG", "By Condition", "By Procedure", and "All Discharges Combined". The "By MDC" tab is selected, and a dropdown menu is open showing a list of MDCs: 1 Diseases & Disorders Of The Nervous System, 2 Diseases & Disorders Of The Eye, 3 Diseases & Disorders Of The Ear, Nose, Mouth & Throat, 4 Diseases & Disorders Of The Respiratory System, 5 Diseases & Disorders Of The Circulatory System, 6 Diseases & Disorders Of The Digestive System, 7 Diseases & Disorders Of The Hepatobiliary System & Pancreas, 8 Diseases & Disorders Of The Musculoskeletal System & Connective Tissue, 9 Diseases & Disorders Of The Skin, Subcutaneous Tissue & Breast, and 10 Endocrine, Nutritional & Metabolic Diseases & Disorders. Below the dropdown, there is a search box and two buttons: "Find Next" and "Find From Top". At the bottom of the main content area, there is a checkbox labeled "Select to Open Report in New Browser Window / Tab". Below the checkbox are two buttons: "< Back" and "Get Report". At the bottom left of the page, there is the MONAHRQ logo and the text "Version 4.0.1". At the bottom right, there is the text "2006 Data in Demo State".

In the County Rates path (Screen 64), users can choose counties individually or combined, with common groupings provided for ICD-9-CM codes (MDC, DRG, CCS for conditions, CCS for procedures). To access maps of the data, users should select “All Counties” and a specific condition or procedure.

This path is only available when local inpatient discharge data are loaded. Host users select the denominator used in the county rates pathway as 1,000, 10,000, or 100,000.



MONAHRQ Demo Website

Home | Hospital Quality | Hospital Utilization | Maps of Avoidable Stays | County Rates | Resources

Home > [County Rates](#) > Statistics by county for Diseases & Disorders Of The Eye (MDC 2) in Demo State, 2006 >

Statistics by county for Diseases & Disorders Of The Eye (MDC 2) in Demo State, 2006 ?

Use the Edit menu to Copy and Paste to another application.

[Map of Counties](#)

County	Number of discharges	Rate** of discharges (per 1,000 persons)	Mean costs in dollars***
TOTAL U.S. in 2009 (standard error)*	51,350 (2,552)	0.2	\$6,881 (\$211)
ALL COUNTIES IN DEMO STATE	897	0.5	\$15,391
33001 MY - Adams	45	0.7	\$11,814
50015 MY - Arthur	31	1.2	\$15,038
50003 MY - Buchanan	35	1.0	\$12,487
50025 MY - Coolidge	34	0.8	\$13,692
33019 MY - Fillmore	36	0.8	\$16,063
50013 MY - Garfield	34	4.5	\$15,301
50009 MY - Grant	32	5.0	\$10,663
33013 MY - Harrison	37	0.3	\$18,729
50011 MY - Hayes	47	1.0	\$16,109
50027 MY - Hoover	42	0.7	\$13,593
50021 MY - Howard	39	0.6	\$14,214
33011 MY - Jackson	27	0.1	\$19,984
33003 MY - Jefferson	50	1.1	\$18,362
50007 MY - Johnson	32	0.2	\$12,058
50005 MY - Lincoln	39	1.3	\$14,438
33005 MY - Madison	34	0.4	\$15,107
50017 MY - McKinley	43	1.5	\$18,888
33007 MY - Monroe	39	1.2	\$13,946
50001 MY - Pierce	42	1.1	\$11,730
33017 MY - Polk	36	0.3	\$12,403
33009 MY - Quincy	35	0.4	\$14,335
50019 MY - Roosevelt	38	1.4	\$28,632
33015 MY - Tyler	32	0.1	\$16,754
50023 MY - Wilson	38	0.6	\$14,084

*Weighted national estimates from HCUP Nationwide Inpatient Sample (NIS), 2009, Agency for Healthcare Research and Quality (AHRQ), based on data collected by individual States and provided to AHRQ by the States. Total number of weighted discharges in the U.S. based on HCUP NIS = 39,434,956. Statistics based on estimates with a relative standard error (standard error / weighted estimate) greater than 0.30 or with standard error = 0 are not reliable, and are designated with a †.

Statistics for County Rates are reported by county (based on patient residence if this data element was loaded), and includes the number of discharges and rate of discharges (Screen 65). Rates are based on the number of hospital discharges and county population data obtained from the U.S. Census Bureau. Users may select the county code to access statistics by patient demographics (age group, race/ethnicity, sex). Users may also choose maps of counties to see the information displayed in a map format.

APPENDIX J. MONAHRQ VARIABLE MAPPING FOR INPATIENT DISCHARGE DATA

Table 12. Preparing Your Local Inpatient Discharge Data: Variable Mapping

MONAHRQ Variable Name	Description	Required/Optional	Ramifications of Exclusion	Default Element Coding	Data Preparation
REQUIRED FOR MONAHRQ BASIC FUNCTIONS					
Age	Age in years at admission	Required	If this data element is missing, the discharge record will not be loaded.	Source value	Numeric. Convert to years; if age <365 days, set value to 0. If variable does not exist, it should be calculated from Admission Date and Date of Birth.
Sex	Sex of patient: male/female	Required	If this data element is missing, the discharge record will not be loaded.	1: Male 2: Female <Exclude from dataset>	No data preparation needed. Source values, alpha or numeric, will be mapped to accepted numeric value (1, 2) or excluded during data load.
Hospital ID	Data source hospital number	Required	Data element used to facilitate data exploration and as a stratifier for provider-level indicators (in the quality indicator [QI] reports section). If this data element is missing, the discharge record will be not be loaded.	Source value	No data preparation needed. Source values, alpha or numeric, accepted.

MONAHRQ Variable Name	Description	Required/Optional	Ramifications of Exclusion	Default Element Coding	Data Preparation
Discharge Year	Calendar year of patient's discharge	Required	<p>Data element used to apply the proper fiscal year coding (e.g., ICD-9-CM, CPT) and to assign the APR™ DRG Grouper version used. Discharge year should be within the range of 1997 to present year.</p> <p>If this data element is missing, the discharge record will be not be loaded.</p>	Source value, YYYY	<p>Numeric: YYYY</p> <p>Discharge year should be within the range of 1997 to present year.</p>
Discharge Quarter	Calendar quarter of the patient's discharge	Required	<p>Data element used to apply the proper fiscal year coding (e.g., ICD-9-CM, CPT) and to assign the APR-DRG Grouper version used.</p> <p>If this data element is missing, the discharge record will be not be loaded.</p>	<p>1: January–March 2: April–June 3: July–September 4: October–December</p>	<p>If data element does not exist, it should be calculated from discharge date. Value must be numeric (1, 2, 3, 4) with no leading alpha characters.</p>
Principal Diagnosis	ICD-9-CM diagnosis codes, without decimal points	Required	<p>If this data element is missing, the discharge record will be not be loaded.</p>	Source value; string value more than 5 characters will be shortened.	<p>Diagnosis Code 1 is the principal diagnosis.</p> <p>Decimal points, if any, must be removed before loading data. Do not remove leading or trailing zeros. Similarly, you should not include additional digits when they are not required. Diagnosis codes are always 3, 4, or 5 characters long. For example, a diagnosis code of 005.89 would be input as 00589.</p>

MONAHRQ Variable Name	Description	Required/ Optional	Ramifications of Exclusion	Default Element Coding	Data Preparation
REQUIRED FOR MONAHRQ-EMBEDDED MDC, DRG, AND CCS ASSIGNMENT					
Diagnosis Code, 2–35	ICD-9-CM diagnosis codes, without decimal points	Required – if available	Used in assigning MDC, DRG, and Clinical Classifications Software (CCS). Required for preparing pre-calculated AHRQ QIs rates.	Source value; string value more than 5 characters will be shortened.	Diagnosis Codes 2–35 are secondary diagnoses, and would include any External Cause of Injury codes (E-codes). Decimal points, if any, must be removed before loading data. Do not remove leading or trailing zeros. Similarly, you should not include additional digits when these are not required. Diagnosis codes are always 3, 4, or 5 characters long. Secondary diagnosis codes may include External Cause of Injury codes (E-codes).
Principal Procedure	ICD-9-CM procedure codes without decimals	Required	Used in assigning MDC, DRG, and CCS. Required for preparing pre-calculated AHRQ QIs rates.	Source value. String value more than 4 characters will be shortened.	Procedure Code 1 is the principal procedure. As with diagnosis codes, you should remove any decimal points; retain leading or trailing zeros; do not include additional digits when these are not required. Procedure codes are always 3 or 4 characters.
Procedure Code, 2–30	ICD-9-CM procedure codes without decimals	Required – if available	Used in assigning MDC, DRG, and CCS. Required for preparing pre-calculated AHRQ QIs rates.	Source value. String value more than 4 characters will be shortened.	Procedure Codes 2–30 are secondary procedures. As with diagnosis codes, you should remove any decimal points and retain leading or trailing zeros; do not include additional digits when these are not required. Procedure codes are always 3 or 4 characters.

MONAHRQ Variable Name	Description	Required/Optional	Ramifications of Exclusion	Default Element Coding	Data Preparation
OPTIONAL: ALLOWS HOST USER TO IMPORT OWN DRG and MDC					
DRG Import	User-defined Diagnosis Related Group (DRG)	Optional	The embedded Innovative Resources for Payors (IRP) Grouper will assign DRG codes in effect on discharge date (year and quarter).		No error checking will be performed on the imported DRG values. If a DRG is assigned, an MDC must also be assigned.
MDC Import	User-defined Major Diagnostic Category (MDC)	Optional	The embedded IRP Grouper will assign MDC value in effect on discharge date (year and quarter).		No error checking will be performed on the imported MDC values. If an MDC is assigned, a DRG must also be assigned.
OPTIONAL: SUPPORTS ADDITIONAL MONAHRQ FUNCTIONS					
Length of Stay	Number of days from admission to discharge	Optional	Statistics by length of stay will be excluded if this data element is missing.	Source value	Calculate if needed, from discharge data and admission date. Same-day stay should be set to 0.
Primary Payer	Expected primary payer	Optional	Statistics by payer will be excluded if this data element is missing. Records with this data element missing will be retained and the value set to Other.	1: Medicare 2: Medicaid 3: Private/HMO (Health Maintenance Organization) 4: Self-pay 5: No charge 6: Other 0: Missing 99: Retain value <Exclude from dataset >	Source values, alpha or numeric, can be mapped to accepted numeric value (0–6, 99) or excluded during data value mapping.

MONAHRQ Variable Name	Description	Required/Optional	Ramifications of Exclusion	Default Element Coding	Data Preparation
Patient State/County Code	FIPS State/county code of patient's residence	Optional	<p>If this data element is missing, the discharge record will be excluded from area rate calculations and the Website Wizard cannot create maps by showing rates of preventable hospitalization by area.</p> <p>We recommend analyzing the area rates at the <i>State or metro-area level</i>. Otherwise, patients who 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.</p> <p>If patient codes are not available, the hospital's codes can be loaded.</p> <p>If the hospital FIPS codes are used instead of the patient FIPS codes, the area rates must be interpreted with caution.</p>	Source value	<p>We recommend using the patient FIPS State/county code. The Federal Information Processing Standard (FIPS) codes may be obtained at http://www.census.gov/popest/about/geo/codes.html.</p>

MONAHRQ Variable Name	Description	Required/ Optional	Ramifications of Exclusion	Default Element Coding	Data Preparation
Race	Race/ethnicity of patient	Optional	Records with this data element missing will be retained and the value set to Other. The rates and utilization paths will not be stratified by race/ethnicity if the data element is completely missing.	1: White 2: Black 3: Hispanic 4: Asian or Pacific Islander 5: Native American 6: Other 0: Missing 99: Retain value <Exclude from dataset >	Source values, alpha or numeric, can be mapped to accepted numeric value (0–6, 99) or excluded during data value mapping.
Total Charge	Total charge associated with hospital stay	Optional	If this data element is not available, cost savings associated with reducing the level of potentially avoidable hospitalizations will not be included in summary report, costs and charges will be excluded from the utilization path, and cost will be excluded from the rates.	Source value. Must be integer (i.e., whole numbers only).	Must be integer: remove dollar signs and decimals (i.e., whole numbers only).

MONAHRQ Variable Name	Description	Required/Optional	Ramifications of Exclusion	Default Element Coding	Data Preparation
OPTIONAL: ASSOCIATED WITH AHRQ QI SOFTWARE (EXTERNALLY GENERATED MEASURES)					
Age in Days	Age in days at admission (coded only when the age in years is less than 1)	Optional	Used in the inclusion and exclusion criteria for indicators addressing neonates or neonatal conditions and in the Pediatric Quality Indicators (PQIs). If this data element is missing (and age is 0), generally, an alternative specification applies.	Age in days only applies for age < 1. If value is greater than 365, it will be changed to Missing.	Numeric: 0–364
Admission Type	Admission type	Optional	Used in the inclusion and exclusion criteria for several PSIs and PDIs. For indicators that rely on this field, records with this data element missing will be excluded from the denominator.	1: Emergency 2: Urgent 3: Elective 4: Newborn 5: Trauma center 6: Other 0: Missing <Exclude from dataset>	No data preparation needed. If loading discharge data into MONAHRQ, source values, alpha or numeric, will be mapped to accepted numeric values (0–6) or excluded during data load.

MONAHRQ Variable Name	Description	Required/Optional	Ramifications of Exclusion	Default Element Coding	Data Preparation
Admission Source	Admission source	Optional	Used in the inclusion and exclusion criteria for several PQIs, PDIs, PSIs, and IQIs. For indicators that rely on this field, records with this data element missing will be excluded from the denominator.	1: Emergency room 2: Another hospital 3: Another health facility, including long-term care 4: Court/law enforcement 5: Routine/birth/other 0: Missing	No data preparation needed. If loading discharge data into MONAHRQ, source values, alpha or numeric, will be mapped to accepted numeric values (0–5) or excluded during data load. Note: Admission Source uses HCUP uniform coding, which is a collapsed version of the UB-92 specifications, effective through September 2007. The UB-92 Admission Source codes must be mapped to HCUP uniform categories.
Point of Origin	Original source of admission	Optional	Used in the inclusion and exclusion criteria for several PQIs, PSIs, and IQIs. For indicators that rely on this field, records with this data element missing will be excluded from the denominator.	<i>When Admission Type is not "newborn":</i> 1: Non-Health Care Facility 2: Clinic or Physician's Office 4: Transfer from a Hospital 5: Transfer from a Nursing Facility 6: Transfer from Another Health Care Facility 7: Emergency Room 8: Court/Law Enforcement 11: Transfer from	No data preparation needed. If loading discharge data into MONAHRQ, source values, alpha or numeric, will be mapped to accepted numeric values (0–8, 11–15) or excluded during data load. Note: Point of Origin coding matches the UB-04 specifications, effective beginning October 2007.

MONAHRQ Variable Name	Description	Required/ Optional	Ramifications of Exclusion	Default Element Coding	Data Preparation
Point of Origin - continued				Another Home Health Agency 12: Readmission to Same Home Health Agency 13: Transfer from One Distinct Unit to Another Unit in Same Hospital 14: Transfer from Ambulatory Surgery Center 11: Transfer from Hospice <i>When Admission Type is "newborn":</i> 5: Born inside this Hospital 6: Born outside of this Hospital	

MONAHRQ Variable Name	Description	Required/Optional	Ramifications of Exclusion	Default Element Coding	Data Preparation
Birthweight in Grams	Birthweight for newborns	Optional	Optional data element that is passed directly to the APR-DRG Grouper in the AHRQ QI software. If this data element is not available, value will be set to default in the grouper software. This field is not used as stratification criteria; ICD-9-CM diagnosis codes are used to indicate birthweight.	Source value	If value greater is than 7,000, value will be changed to Missing because higher values are considered invalid birthweights.
Days on Mechanical Ventilator	Number of days the patient spent on a mechanical ventilator	Optional	Optional data element is passed directly to the APR-DRG Grouper in the AHRQ QI software. If this data element is not available, value will be set to default in the grouper software.	Source value	
Days to Procedure, 1–30	Days from admission to procedure. Procedure 1 is the principal procedure; procedures 2–30 are secondary procedures.	Optional	Used in several PSIs and PDIs. If this data element is not available, an alternative logic applies.	Source value.	If the data element does not exist, it should be calculated from the admission date and the procedure date(s). The number of Days to Procedure variables should agree with the number of procedure codes present.

MONAHRQ Variable Name	Description	Required/Optional	Ramifications of Exclusion	Default Element Coding	Data Preparation
Discharge Disposition	Disposition of patient	Optional	Used in the inclusion and exclusion criteria for several PQIs, PDIs, PSIs, and IQIs. For indicators that rely on this field, records with this data element missing will be excluded from the denominator.	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 0: Missing 99: Discharged alive, destination unknown <Exclude from dataset>	No data preparation needed. If loading discharge data into MONAHRQ, source values, alpha or numeric, will be mapped to accepted numeric values (0–7, 20, 99) or excluded during data load. Note: Discharge Disposition uses HCUP uniform coding, which is a collapsed version of the UB-04 (or UB-92) specifications. The UB Discharge Disposition codes must be mapped to HCUP uniform categories.

MONAHRQ Variable Name	Description	Required/Optional	Ramifications of Exclusion	Default Element Coding	Data Preparation
Present on Admission, 1–35	Flag indicating whether diagnosis was present on admission (POA)	Optional	<p>POA data elements may eliminate false positives from PSI results.</p> <p>IMPORTANT: If POA flags are used in the AHRQ QI software, a different set of risk adjustment covariates and reference population rates will be applied.</p>	<p>1 = present at the time of inpatient admission; undetermined; exempt 0 = not present at the time of inpatient admission</p>	<p>POA flag should be included for <i>all records</i> or <i>none of the records</i>. Mixing records with and without POA could adversely affect the expected rates. Please see Table 13 in Appendix K for a more detailed coding explanation for POA.</p>
Custom Stratifier, 1–3	Custom stratification values	Optional	<p>Custom stratifiers can be used in the reports section of the software (e.g., a user could stratify by type of hospital—teaching or nonteaching). This data element has no effect on the generated HTML pages.</p>		<p>May be used with the AHRQ QI software for Windows.</p>

MONAHRQ Variable Name	Description	Required/Optional	Ramifications of Exclusion	Default Element Coding	Data Preparation
OPTIONAL: NOT RECOMMENDED FOR USE (FOR PATIENT IDENTIFICATION WITH EXTERNAL ANALYSIS)					
Key	Unique case identifier	Optional	If this data element is not available, users cannot link the discharge records in the Patient-Level Report back to the input data file.	Source value	Maximum length: 20 characters
Admission Date	Date of patient admission for identification purposes only	Optional	None	It is recommended that you DO NOT USE this field unless required for external analysis, MM/DD/YYYY	It is recommended that you DO NOT USE this field.
Date of Birth	Patient date of birth for identification purposes only	Optional	None	It is recommended that you DO NOT USE this field unless required for external analysis, MM/DD/YYYY	It is recommended that you DO NOT USE this field.
Discharge Date	Date of patient discharge for identification purposes only	Optional	None	It is recommended that you DO NOT USE this field unless required for external analysis, MM/DD/YYYY	It is recommended that you DO NOT USE this field.

MONAHRQ Variable Name	Description	Required/ Optional	Ramifications of Exclusion	Default Element Coding	Data Preparation
Patient ID	Patient ID or medical record number for identification purposes only	Optional	None	It is recommended that you DO NOT USE this field unless required for external analysis.	It is recommended that you DO NOT USE this field.

APPENDIX K. SPECIAL CONSIDERATIONS FOR DATA ELEMENTS

Table 13: Present-on-Admission Coding

UB-04 Coding	UB-04 Description	AHRQ QI Data Values	AHRQ QI Description
Y – Yes	Present at the time of inpatient admission	1	Diagnosis present at admission
N – No	Not present at the time of inpatient admission	0	Diagnosis not present at admission
U – Unknown	Documentation is insufficient to determine if condition is present on admission (POA)	0	Diagnosis not present at admission
W – Clinically undetermined	Provider is unable to clinically determine whether or not condition was POA	1	Diagnosis present at admission
E – Unreported/Not used	Exempt from POA reporting	1	Diagnosis present at admission
1 – Yes	Present at the time of inpatient admission	1	Diagnosis present at admission
0 – No	Not present at the time of inpatient admission	0	Diagnosis not present at admission
Blank	Missing	Blank	Missing

**Note: Effective July 1, 2011, the UB-04 specifications accept values of '1' for "Exempt from POA reporting." If your data utilize this definition, apply a recode prior to building your MONAHRQ Web site.*

There are several supplemental data files embedded in the MONAHRQ software. The following provides a summary of these files, explains how the files are used in the software, and provides links for additional information.

Table 14. MONAHRQ Supplemental Files

File	Where Used in MONAHRQ-Generated Web Site	Purpose	Source
Cost-to-charge ratio files	Hospital Utilization Avoidable Hospital Stays	Estimate hospital costs based on charges.	Cost-to-charge-ratio files from the AHRQ Healthcare Cost and Utilization project (HCUP) (http://www.hcup-us.ahrq.gov/db/state/costtocharge.jsp)
Diagnosis Related Groups (DRG)	Hospital Utilization County Rates	Assign Medicare Severity DRG (MS-DRG) and Major Diagnostic Category (MDC) groupings to each hospital discharge record. DRG and MS-DRG groupings are assigned based on discharge date.	Innovative Resources for Payors (IRP) DRG Grouper (through FY 2011)
Census population data	Avoidable Hospital Stays County Rates	Provide denominators for area-level calculations.	Included in the AHRQ Quality Indicator software for Windows; originally obtained by AHRQ from the US Census Bureau (http://www.census.gov/popest/data)
Map Shape Files	Avoidable Hospital Stays County Rates	Provides Census boundary files for mapping software	Obtained from the US Census Bureau (2010 files used; http://www.census.gov/geo/www/cob/index.html)
Benchmarks for AHRQ Quality Indicators	Hospital Quality Ratings	Provide two types of pre-calculated benchmarks for the AHRQ Quality Indicators: <ul style="list-style-type: none"> – Nationwide – US Census regions (Northeast, Midwest, South, West) 	Included in the AHRQ Quality Indicators software for Windows; originally calculated by AHRQ using 2009 State Inpatient Databases (SID) data from the Healthcare Cost and Utilization Project (http://www.hcup-us.ahrq.gov/).
Benchmarks for hospital utilization and county rates	Hospital Utilization County Rates	Provide two types of pre-calculated regional and national benchmarks for hospital and county rates and utilization: <ul style="list-style-type: none"> – Nationwide – US Census regions (Northeast, Midwest, South, West) 	Calculated by AHRQ using 2009 NIS data from AHRQ's HCUP project (http://www.hcup-us.ahrq.gov/).

File	Where Used in MONAHRQ-Generated Web Site	Purpose	Source
Dartmouth Atlas Hospital Referral Region (HRR) and Hospital Service Area (HSA) files	Hospital Quality Ratings Hospital Utilization	Map hospitals to HRR or HSA regions. These are optionally used in the Web site to select hospitals by region.	HRR and HSA files (accessed 2010; http://www.dartmouthatlas.org/).
DRG and Clinical Classifications Software (CCS) Label Files	Hospital Utilization County Rates	Group ICD-9-CM diagnosis and procedure codes into meaningful clinical categories. These are used in the Web site to select conditions or procedures.	DRG and CCS labels are obtained from HCUP (http://hcup-us.ahrq.gov/)