



Host User Guide

Version 4.1, Build 3

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1 INTRODUCTION AND OVERVIEW

MONAHRQ®—My Own Network, powered by AHRQ—is innovative software 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, 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 to inform decision-making. Public and private sector organizations can find quality reporting efforts expensive and time consuming. Fortunately, by using MONAHRQ, individual organizations do not need to invent their own reporting methods.

In 2010, AHRQ addressed quality reporting needs by releasing MONAHRQ. MONAHRQ is software that allows organizations to quickly and easily generate and host a fully functional website that reports on hospital performance. AHRQ plans to expand the settings of care and measures that will be included in future versions of MONAHRQ. Currently, a MONAHRQ-generated website can provide information on topics such as: hospital quality; hospital inpatient and emergency department (ED) utilization, rates, and costs; and potentially avoidable hospital stays. MONAHRQ uses local hospital inpatient and ED discharge data, measure results from the Centers for Medicare & Medicaid Services (CMS) Hospital Compare, and other pre-calculated measure results.

MONAHRQ is a desktop tool, not an AHRQ service. An individual in an organization simply downloads MONAHRQ, maps it to locally-supplied hospital inpatient discharge and ED treat-and-release data and/or CMS Hospital Compare results, generates the website onto a local computer, then hosts the website. Each organization decides how to use MONAHRQ to make the most of **local** data on a **local** website.

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 data tools and products: the Healthcare Cost and Utilization Project (HCUP) and the AHRQ Quality Indicators™ (QIs). MONAHRQ has also been shaped based on AHRQ's extensive expertise in quality 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 47 states and includes 97% of all hospital discharges in the country (www.hcup-us.ahrq.gov). The HCUP project uses these data to create three nationwide datasets (Nationwide Inpatient Sample, Kids' Inpatient Database, Nationwide Emergency Department Sample) and to create enriched state datasets (State Inpatient Databases, State Emergency Department Databases, State Ambulatory Surgery Database) that are used by researchers around the country. Parts of the MONAHRQ-generated website are modeled after HCUPnet—HCUP's online aggregate data query system. Although HCUP data are used in the development of MONAHRQ, HCUP data are not used to create MONAHRQ-generated websites. For more information about restrictions on the use of each of the HCUP databases, go to: <http://www.hcup-us.ahrq.gov/databases.jsp>

AHRQ Quality Indicators™: The AHRQ Quality Indicators (QIs) are a set of standardized, evidence-based health care quality measures that can be used with hospital inpatient discharge data (www.qualityindicators.ahrq.gov). Approximately half of the AHRQ QIs are endorsed by the National Quality Forum (NQF). AHRQ supplies technical measure specifications and two software tools with which to calculate the indicators directly from data. The AHRQ QI software for Windows (WinQI) provides an intuitive, easy-to-use interface for calculating indicator results. The AHRQ QI software for SAS® consists of SAS statistical analysis programs (SAS Institute Inc.; Cary, NC) to calculate indicator results.

The first three releases of MONAHRQ included WinQI as an embedded function. Starting with MONAHRQ

4.0, WinQI is no longer embedded. Instead, organizations using MONAHRQ, import their own pre-calculated measure results, including those generated separately from WinQI or the AHRQ QI software for SAS.

A brief summary of the release history of MONAHRQ and the features in each release is in [Table 1](#).

Table 1. Versions of MONAHRQ®

Version of MONAHRQ	Features / Enhancements
MONAHRQ 1.0	<p>Ability to load local inpatient discharge data to generate a website that:</p> <ul style="list-style-type: none"> • Reports on hospital utilization, costs, and rates • Ability to calculate and report on the AHRQ Inpatient Quality Indicators (IQIs), Prevention Quality Indicators (PQIs), Pediatric Quality Indicators (PDIs), and Patient Safety Indicators (PSIs)
MONAHRQ 2.0	<p>The features above, plus:</p> <ul style="list-style-type: none"> • Ability to report Centers for Medicare & Medicaid Services (CMS) Hospital Compare measure results • Additional IQI, PQI, and PSI indicators • Streamlined web page design to improve ease of use
MONAHRQ 3.0	<p>The features above, plus:</p> <ul style="list-style-type: none"> • Updated the embedded version of WinQI • Updated the cost-to-charge ratio data • Added AHRQ QI composite indicators • Added CMS Hospital Compare measure results for surgical patient safety, imaging, and outpatient measures • Added a health topic on nursing-sensitive care • Enhanced the suppression logic, including the ability to suppress results based on denominator size • Added the ability for MONAHRQ users to define their own diagnosis-related group (DRG) and Major Diagnostic Category (MDC) groupings • Added the ability to save and reload hospital information • Added the ability for Host Users to save and reload the customization and configuration options they have selected
MONAHRQ 4.0	<p>The features above, plus:</p> <ul style="list-style-type: none"> • Added the ability for Host Users to use multiple years of cost-to-charge ratio data to calculate and report costs • Added more CMS Hospital Compare measures (See the complete measures list at http://monahrq.ahrq.gov/MONAHRQ_41_Measure_List.xlsx) • Redesigned the software <p>Removed the following:</p> <ul style="list-style-type: none"> • Embedded WinQI software (including estimated cost savings calculation tool), thus enabling organizations to always use the latest version of WinQI with MONAHRQ

Version of MONAHRQ	Features / Enhancements
MONAHRQ 4.0.1	<p>The features above, plus:</p> <ul style="list-style-type: none"> • Added the ability to report estimated cost savings by using a stand-alone software program • Updated ZIP code data • Added the ability to create customized footnotes in the Hospital Utilization and County Rates paths
MONAHRQ 4.1	<p>The features above, plus:</p> <ul style="list-style-type: none"> • Enhanced Cost Reporting: <ul style="list-style-type: none"> ◦ Embedded cost savings calculator to enable easier reporting of cost savings estimates ◦ Elevated visibility of reports on estimated cost savings • Added the ability to report on Emergency Department (ED) Utilization if MONAHRQ Host Users import an ED treat-and-release data file • Enabled the use of an optional “ED Services” MONAHRQ data element in the Inpatient Discharge data to indicate that the inpatient stay began in the ED • Added CMS Hospital Compare measures related to imaging • Added new reports showing: <ul style="list-style-type: none"> ◦ Summary pages by hospital ◦ Side-by-side comparisons of up to five hospitals ◦ Summary of hospital utilization by county or region • Added ability to hide links to “MyQI” Quality Improvement materials • Added ability to include Search Engine Optimization elements in the MONAHRQ-generated website • Added ability to include a feedback form in the MONAHRQ-generated website • Added ability for End Users to save, print, share, e-mail reports from within the MONAHRQ-generated website • Added ability for an organization to modify the “508 Compliance” elements of their MONAHRQ-generated website • Refined the data upload process to use the MS-DRG Grouper from the National Technical Information Service (NTIS)

1.2 MONAHRQ Reporting Options

A MONAHRQ[®]-generated website provides several options or ‘paths’ for reporting Hospital Quality, Inpatient and ED Utilization, Potentially Avoidable Hospital Stays, and County Rates of Hospital Use, as shown in Screenshot 1.

Screenshot 1. MONAHRQ-Generated Website Reporting Paths

Hospital Quality

- Ratings for the Public**
Find and compare hospitals in your area. Some hospitals provide better quality care than others. Learn more.
- Detailed Quality Statistics**
Find and compare hospitals by the number of patients they treat for different medical conditions and procedures.

Utilization

- Inpatient Hospital Utilization**
Find and compare hospitals by the number of patients they treat for different medical conditions and procedures.
- ED Utilization**
Find and compare hospitals by the number of patients they treat for different medical conditions and procedures.

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.

- Hospital Quality**
 - AHRQ Quality Indicators
 - Hospital Compare measures
 - HCAHPS patient survey
- Avoidable Stays**
 - AHRQ Quality Indicators
- Utilization**
 - Discharges, LOS, charges/costs
 - Inpatient Hospital Utilization: By MDC, DRG, condition, procedure, or combined
 - ED Utilization: condition or combined
- County Rates**
 - Discharges, discharge rate, charges/costs
 - By MDC, DRG, condition, or procedure

Organizations using MONAHRQ may generate any combination of paths described in the sections below.

1.2.1 Hospital Quality

Purpose: The “Hospital Quality” path can include provider-level AHRQ QIs, CMS Hospital Compare measures, and Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) patient survey measures. There are two sub-paths. The “Ratings for the Public” sub-path provides information that is easier to understand for those without training in statistics or medicine. The “Detailed Quality Statistics” sub-path is more appropriate for researchers or medical professionals. The measures are grouped into health topics such as “Heart Failure” or “Deaths and Readmissions”. These topics are used when selecting and displaying the measures and related results.

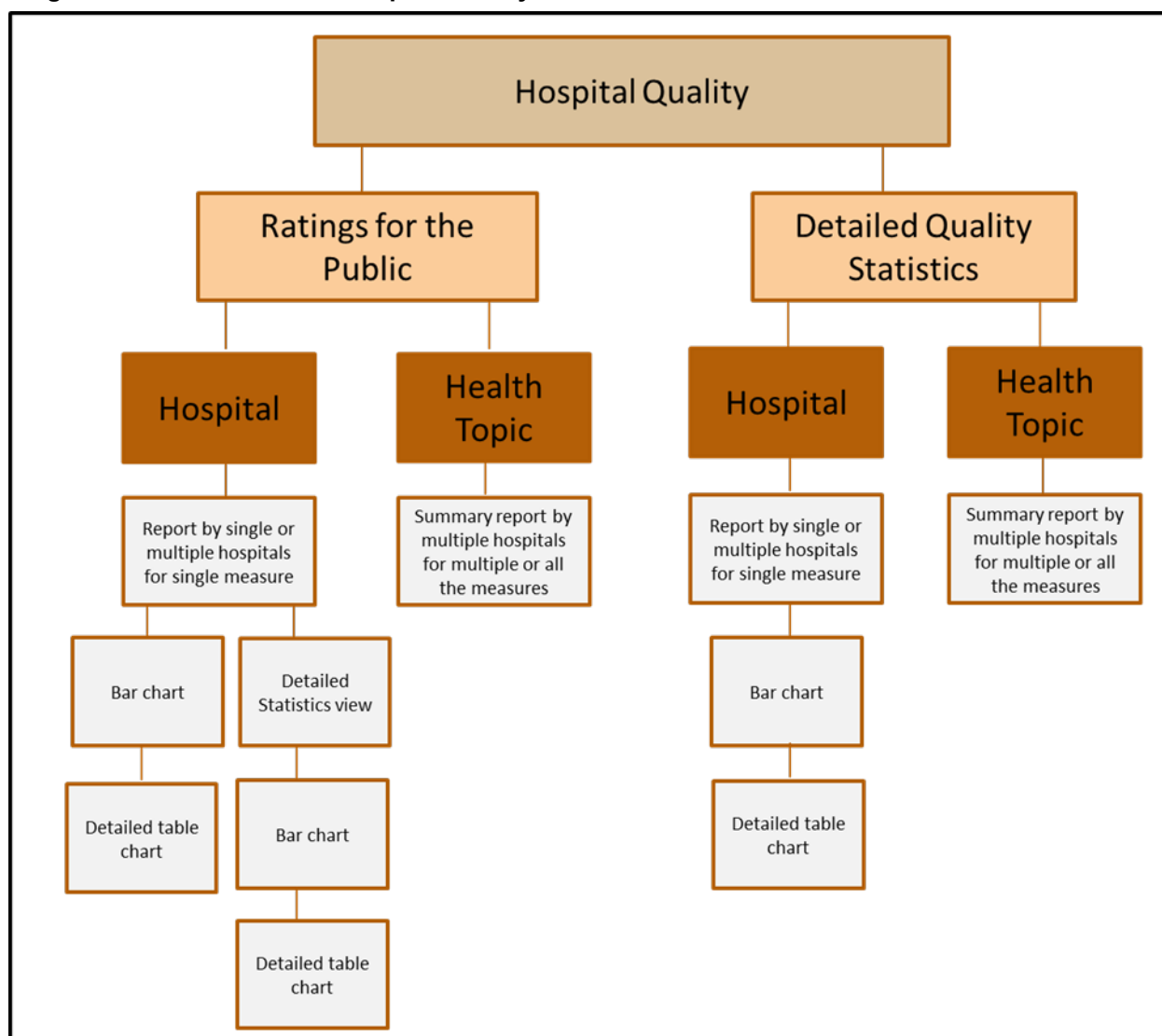
Selecting the Type of Report:

Under each sub-path, there are two options

- 1. By Hospital.** First select hospitals by name, ZIP Code, or region, then select a health topic.
- 2. By Health Topic.** First select hospitals by name, then select one or more health topics.

Displaying Data: Under the “By Hospital” option, multiple providers can be selected for each health topic. Under the “By Health Topic” option, up to five hospitals can be selected to see how they compare with each other for one or more topics. The “By Hospital” path graphically shows quality ratings for the hospitals selected, with the ability to drill down to view the information in a bar chart, a table, and detailed statistics in a tabular form. The “Detailed Statistics” shows additional information such as rates and confidence intervals. The “By Health Topic” path shows a summary page in which one or more measures are listed in rows (X axis) and the results for one or more hospitals are displayed in columns (Y axis). Diagram 1 illustrates the overall process flow for this path.

Diagram 1: Flowchart of the Hospital Quality Path



1.2.2 Utilization

Purpose: There are two sub-paths under “Utilization”: “Inpatient” and “ED.” The “Inpatient Hospital Utilization” sub-path shows detailed information about hospital discharges, charges, estimated costs, and length of stay. The “ED Utilization” sub-path shows detailed information about ED discharges such as: number of ED visits; percentage of patients admitted to hospital from the ED; percentage of patients who died during the ED visit; and percentage of patients who died during the hospital stay following an ED visit.

Selecting the Type of Report:

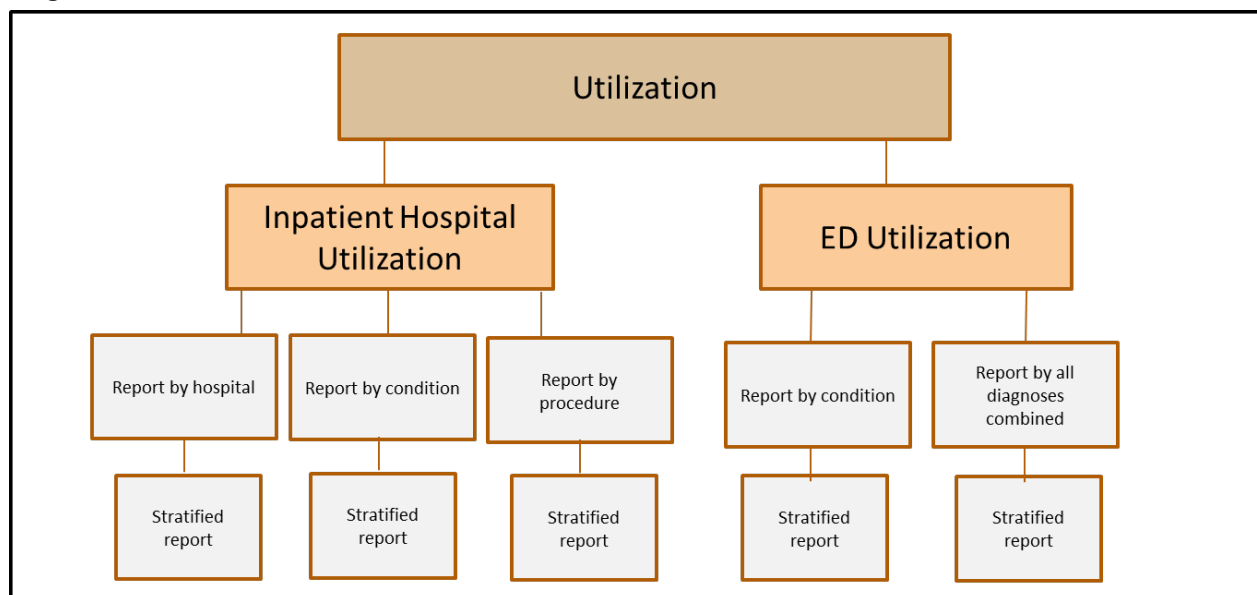
There are two options to choose from, as shown in Diagram 2:

1. **Inpatient Hospital Utilization:** Select hospitals by name, ZIP Code, or region, then select discharges for these hospitals by condition, procedure, major diagnostic category (MDC), or diagnosis-related group (DRG).
2. **ED Utilization:** Select hospitals by name, ZIP Code, or region, then select discharges for these hospitals by condition or by all diagnosis combined.

Displaying Data: The results using the inpatient discharge data are displayed in sortable tables by hospital and by condition or procedure, and in tables stratified by age group, sex, payer, and race/ethnicity.

The results using the ED data are displayed in sortable tables by hospital and by condition or by all diagnosis combined. Similar to the utilization reports using inpatient discharge data, all ED reports drill down to display the information stratified in various ways. Unlike the discharge data report, estimated costs are not reported in the ED utilization path.

Diagram 2: Flowchart of the Utilization Path



1.2.3 Avoidable Hospital Stays

Purpose: The “Avoidable Hospital Stays” path includes AHRQ QIs calculated for a region or area. The denominators are derived from county populations, based on Census data. These indicators measure the quality of care across a community rather than by hospital. The indicators are grouped into health topics such as “Diabetes” or “Patient Safety”.

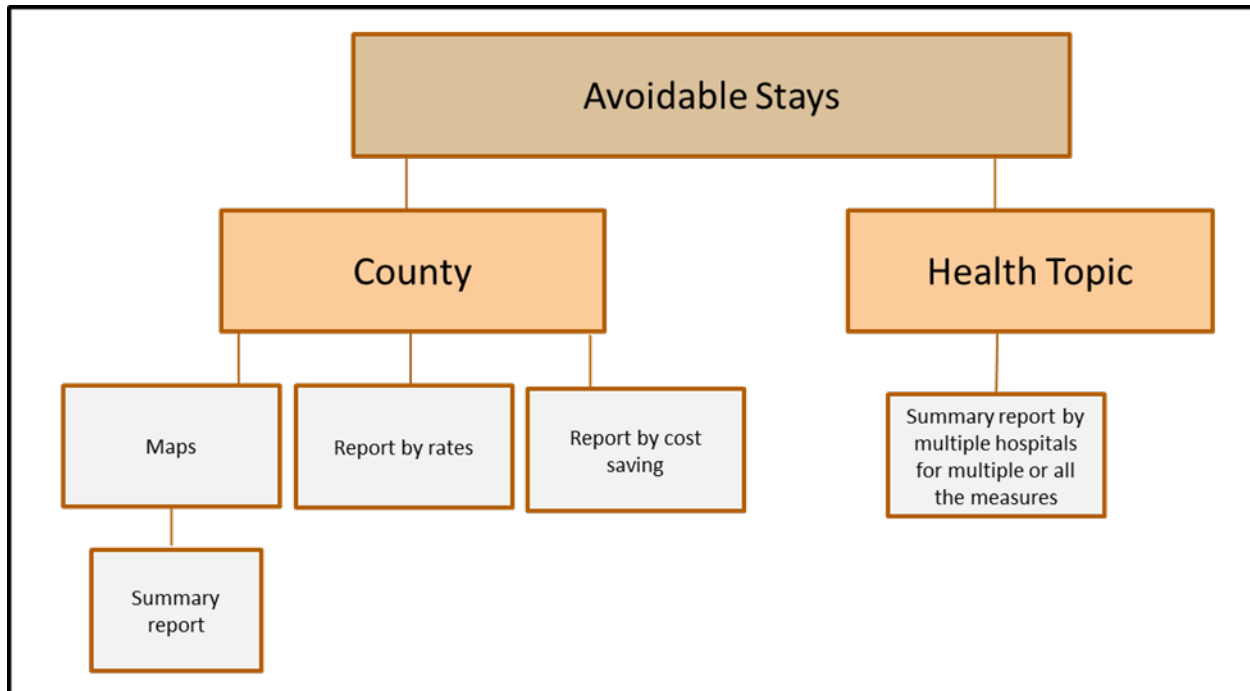
Selecting the Type of Report:

There are two options, as shown in Diagram 3 below:

1. **By County.** Select a report type, then select a health topic, then select a quality indicator.
2. **By Health Topic.** Select a county, then select a health topic.

Displaying Data: Under “By County”, select a report type for each of the health topics. There are three types of reports: maps, rates, and cost saving. Rates can be displayed in a map of counties, with more detailed information available by drilling down to the statistical details in tabular format. Cost savings for reducing avoidable hospital stays can also be estimated. Under “Health Topic”, select a county for one or more of the health topics in order to view the reports either by rates or by estimated cost savings.

Diagram 3: Flowchart of the Avoidable Stays Path



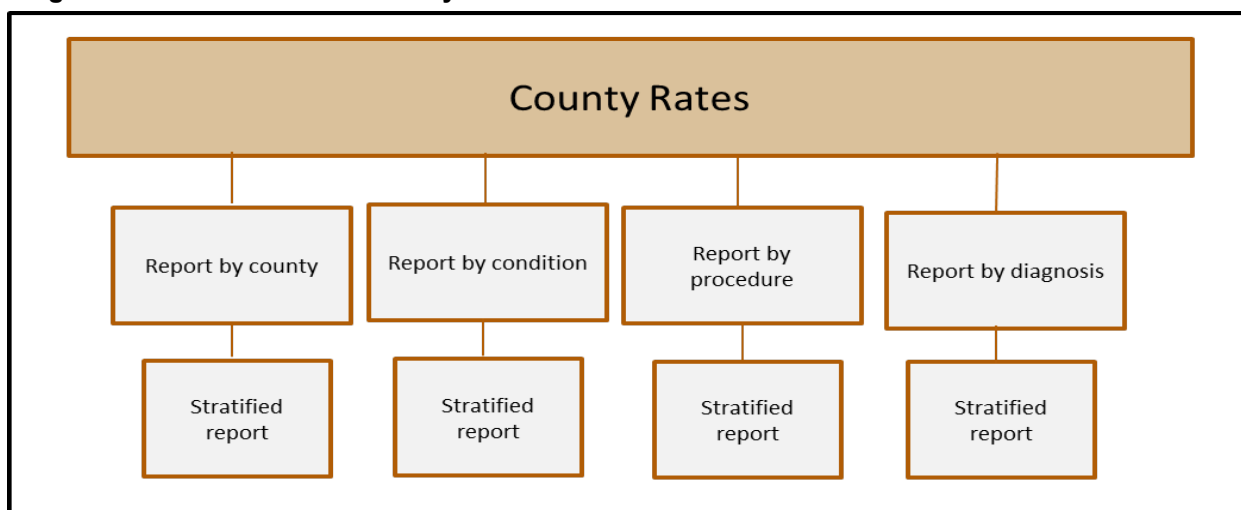
1.2.4 County Rates of Hospital Use

Purpose: The “County Rates of Hospital Use” path shows detailed information about numbers and rates of hospital discharges, charges, and estimated costs, by county, as shown in Diagram 4 below.

Selecting the Type of Report. Select hospitals by name, ZIP Code, or region, then select discharges for these hospitals by condition, procedure, MDC, or DRG.

Displaying Data: 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. The data can also be displayed in a map of counties.

Diagram 4: Flowchart of the County Rates Path



1.3 Overview of Using MONAHRQ®

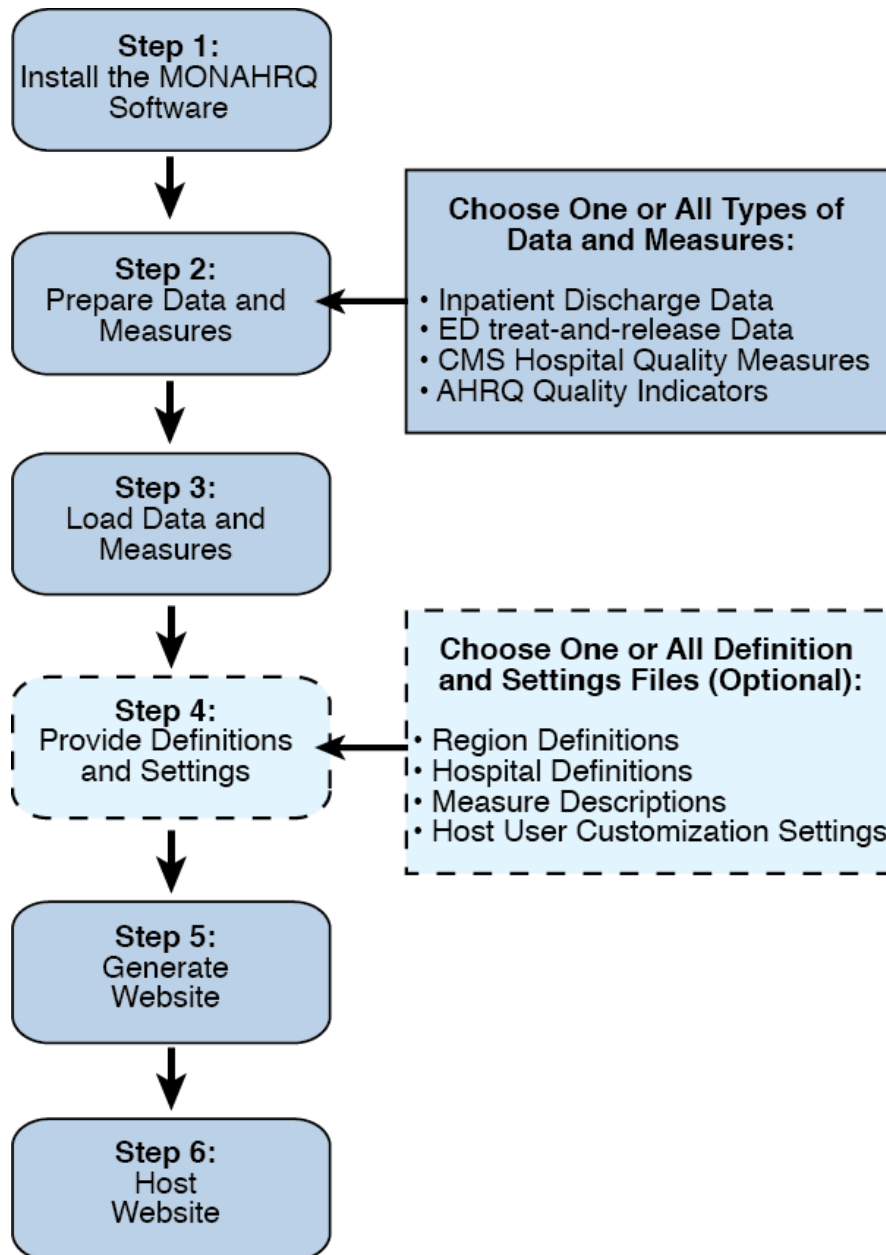
MONAHRQ provides a step-by-step process to guide organizations in loading their local data and creating a website. The process to generate a health care quality reporting website is described below and depicted in Figure 1.

1. Install MONAHRQ.
2. Prepare the computing environment. (See [Chapter 2](#) and Appendices A-D.)
 - a. A MONAHRQ-compatible Windows® operating system
 - b. The free Microsoft® .NET 4.0 framework
 - c. Microsoft SQL Server™ or the free SQL Server Express
 - d. Download and run MONAHRQ installation package. This process will create a new MONAHRQ database or connect to an existing one.
3. Prepare the input data files that will be loaded into MONAHRQ. (See [Chapter 3](#) and Appendices E-G.)
 - a. Decide which health care data and/or quality measures to report. [Chapter 3](#) describes the types of data and quality measures MONAHRQ uses in each path in a MONAHRQ-generated website.
 - b. Prepare the files of health care data and/or quality measure results that will be imported into the MONAHRQ database. These may include one or more of the following:
 - **Inpatient discharge data.** The organization using MONAHRQ must supply this data. MONAHRQ helps map this inpatient discharge data to the format required by MONAHRQ. The format is specified in [Chapter 3](#) and [Appendix E](#).
 - **ED treat-and-release data.** The organization using MONAHRQ must supply this data. MONAHRQ helps map this ED treat-and-release data to the format required by MONAHRQ. The format is specified in [Chapter 3](#) and [Appendix F](#).
 - **CMS Hospital Compare measures.** This includes the HCAHPS patient satisfaction survey measures. These measures can be obtained from the MONAHRQ download website. CMS calculates the Hospital Compare measures and makes the results publicly available in downloadable format on the Hospital Compare website. The MONAHRQ project team obtains these downloadable database files, reformats them for import into MONAHRQ, and posts them on the MONAHRQ download website.
 - **AHRQ QIs.** Organizations using MONAHRQ must calculate the AHRQ QIs, using inpatient discharge data obtained locally. AHRQ provides two tools to calculate the AHRQ QIs: the AHRQ QI software for Windows (WinQI) and the AHRQ QI software for SAS. (More information about calculating the AHRQ QIs can be found at: <http://qualityindicators.ahrq.gov>.) After calculating the AHRQ QIs, follow the instructions in this guide to save the results in a format that can be loaded into MONAHRQ. This format is specified in [Appendix G](#).
 - c. Prepare MONAHRQ configuration files (optional).
 - MONAHRQ provides an intuitive, easy-to-use “wizard” interface that allows organizations to enter data manually. MONAHRQ also provides support for configuration files that remove the burden of manually entering data. The formats for these files are provided in [Chapter 4](#). These configuration files include:
 - Region definitions
 - Hospital definitions
 - Measure and health topic description information
 - Application settings and customization options
 - d. Open MONAHRQ.

4. Load the prepared health care data and quality measures into the MONAHRQ database. (See [Chapter 4](#).)
 - a. Load local discharge data
 - b. Load results from Hospital Compare and AHRQ QI measures
 - c. Enter information about reporting regions and hospitals. This information can be provided using MONAHRQ's user interface screens, or it can be loaded from prepared files.
 - MONAHRQ can assign reporting regions by Dartmouth Hospital Service Area or Hospital Referral Region. Alternatively, custom regions can be defined. Hospital information includes name, ZIP Code, county, reporting region, cost-to-charge ratio (CCR), and CMS provider ID.
 - Note that adding CCR information is only needed if the organization wants to override the CCR data already included MONAHRQ. If the CMS Hospital Compare measures are used, the CMS provider ID does not need to be added.
5. Select customization options affecting the website display (see [Chapter 5](#)). These include:
 - Banner to show on each web page
 - Logo image to use on each web page
 - Color and font styles to use throughout the website
6. Generate the website. MONAHRQ writes the website files to a local directory that is specified in the process.
7. Upload the generated website.
 - a. Transfer the MONAHRQ-generated website to a web server or other hosting environment: compress the website files, transfer them, and extract them—preserving the directory structure. To host the MONAHRQ[®]-generated website, only a web server is needed. A database connection, application server, or other special hosting environment is not required.
 - b. Further customize the generated website is optional. As noted above, MONAHRQ allows customization of the logos, fonts, and colors used throughout the website. Please refer to [Chapter 5](#) for a description of the directory structure and files in the MONAHRQ-generated website and information on how to customize the site after it is generated.
 - c. Refresh the website, by clicking on browser's "refresh" button or using the "F5" key.

Organizations can update their websites as new data become available. A new website may be generated with new data for each year, or the website can be regenerated by overwriting the existing database. Some choose to refresh their existing website as new CMS Hospital Compare measure results become available. Instructions for refreshing a website can be found in [Chapter 6](#).

Figure 1. MONAHRQ® Application Process Flow



1.4 Additional Information

1.4.1 Session Logs

As data are loaded into MONAHRQ and a website generated, MONAHRQ maintains status information in a session log. It is important to save the session logs by clicking on the 'Save Session Log' button near the top of the MONAHRQ Main Screen (see Screenshot 9 in [Chapter 4](#).) The information in this log will help should there be a need to identify any errors or problems that occur while working with MONAHRQ.

1.4.2 Glossary

The following terms are used throughout this guide.

End User: a visitor to a website generated by MONAHRQ software.

Host User: an organization or individual that downloads MONAHRQ software and uses it to generate a reporting website.

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

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

MONAHRQ-generated website: a website that a Host User creates using MONAHRQ software.

MONAHRQ: the desktop software that a Host User downloads and uses to generate a website.

MONAHRQ Variable: This term is interchangeably used for data elements.

1.4.3 Resources

The following updated resources for MONAHRQ 4.1 are available on the Resources page on the MONAHRQ website at <http://monahrq.ahrq.gov> to complement the MONAHRQ 4.1 Host User Guide:

- **MONAHRQ Fact Sheet –**
(http://monahrq.ahrq.gov/MONAHRQ_v41_FactSheet.pdf) is an updated overview of MONAHRQ and its capabilities through its latest version, MONAHRQ 4.1.
- **MONAHRQ 4.1 Quick Start Guide –**
(http://monahrq.ahrq.gov/MONAHRQ_v41_Quick_Start_Guide.pdf) highlights changes in MONAHRQ 4.1 and is designed to guide an experienced MONAHRQ Host User in quickly upgrading to the 4.1 release.
- **MONAHRQ 4.1 Release Notes –**
(http://monahrq.ahrq.gov/MONAHRQ_v41_ReleaseNotes.pdf) documents the new features and changes in MONAHRQ 4.1.
- **MONAHRQ 4.1 Measure List –**
(http://monahrq.ahrq.gov/MONAHRQ_41_Measure_List.xlsx) is an easy-to-reference spreadsheet listing all of the measures available in MONAHRQ 4.1. The measure list reflects the default measure description information provided for MONAHRQ 4.1.
- **MONAHRQ 4.1 Informational Presentation –**
(http://monahrq.ahrq.gov/MONAHRQ_v41_Presentation.ppt) is an overview presentation of MONAHRQ including the specific capabilities and features in MONAHRQ 4.1.

1.4.4 Technical Support

For questions or comments about using MONAHRQ, contact MONAHRQ Technical Assistance at MONAHRQ@ahrq.gov.

2 INSTALLATION

This section provides instructions for preparing the computing environment and installing MONAHRQ.

2.1 Preparing the Computing Environment

2.1.1 Permissions

Before beginning the installation, make sure the appropriate operating system and database permissions to run the software on your computer are in place. If a system administrator downloads the software on behalf of another user, ensure that the appropriate access privileges are granted to the other user.

Administrator privileges or rights are only required during the installation. Please refer to [Appendix A](#) for information on verifying and setting operating system and database permissions.

2.1.2 System Requirements

MONAHRQ® is supported on the following operating systems:

- Windows® XP 32- and 64-bit
- Windows Server 2003 or higher 32- and 64-bit
- Windows 7 32- and 64-bit
- Windows 8 32- and 64-bit

To verify the version of an operating system, right-click on the **My Computer** icon on the desktop and select **Properties**. A window will appear to indicate the version of the operating system in use. (See [Appendix B.](#))

Approximate disk space requirements for MONAHRQ and associated components are:

- Microsoft® .NET 4.0— 850 MB for 32-bit system, 2 GB for 64-bit systems
([http://msdn.microsoft.com/en-us/library/8z6watww\(v=vs.100\).aspx](http://msdn.microsoft.com/en-us/library/8z6watww(v=vs.100).aspx))
- Microsoft SQL Server™ Express 2008 R2—2 GB for 32-bit and 64-bit systems
([http://technet.microsoft.com/en-us/library/ms143506\(v=sql.100\).aspx#HardDiskSpace](http://technet.microsoft.com/en-us/library/ms143506(v=sql.100).aspx#HardDiskSpace))
- MONAHRQ application—350 MB
- MONAHRQ data—Requirements vary depending on the volume of data regarding hospital discharges and ED treat-and-release records. Approximately 100 MB is typical, but it may require up to 4 GB.
- MONAHRQ-generated web pages—Typically 500 MB but may be up to 4 GB

MONAHRQ can run on most desktop computers, but the following specifications are recommended:

- 2 GHz processor speed
- 2 GB of memory

2.1.3 Required Supporting Software

The following software must be on your system in order to install MONAHRQ. These can be downloaded from the Software section of the MONAHRQ download website

(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 installing these tools, verify whether you have a 32-bit or 64-bit system. Please refer to [Appendix B](#) for instructions on how to verify this information.

2.1.3.1 Microsoft .NET Installation

Microsoft .NET is a set of standard software libraries provided by Microsoft and used by MONAHRQ. MONAHRQ 4.1 requires Microsoft .NET framework 4.0. Please refer to [Appendix C](#) for instructions on determining whether Microsoft .NET framework 4.0 is already installed on your system and for the installation instructions, if needed.

2.1.3.2 Microsoft SQL Server Installation

MONAHRQ 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 a PC or accessed over a network. Most prefer to use the Microsoft SQL Server Express Edition on their PC unless local information technology policies prohibit this setup. For especially large datasets, using the full Microsoft SQL Server is more efficient.

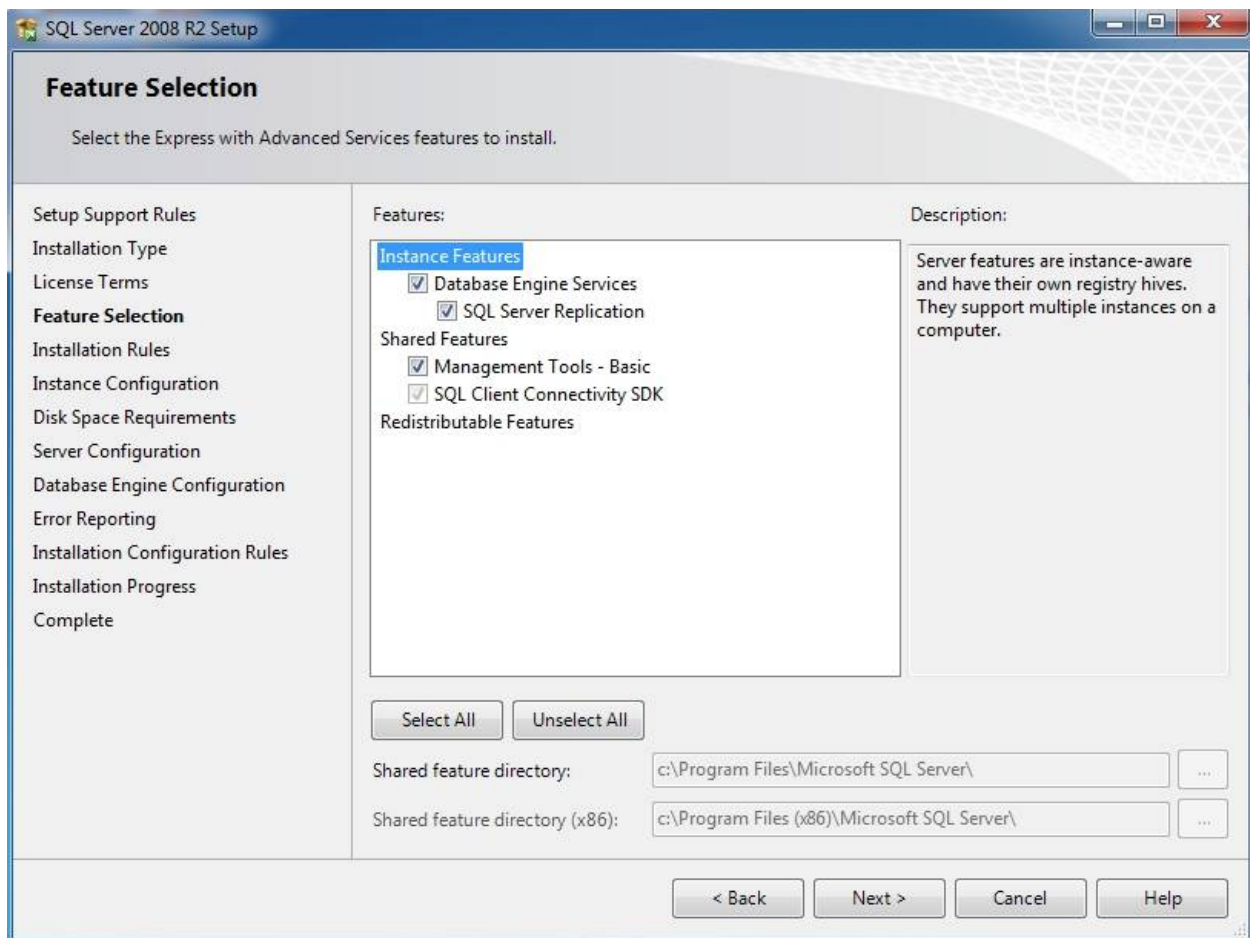
To create and use a SQL Server database on your desktop, download and install the software from the MONAHRQ download website at: http://monahrq.ahrq.gov/monahrq_software.shtml. To use an existing SQL Server database, contact your organization's system or database administrator for the connection host name, login, and password required to connect to that database.

When 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. These tools need to be installed before SQL Server can be installed. Restarting your computer may be needed after installing these auxiliary applications.

You can accept the default configuration settings provided by Microsoft. The following options must be accepted:

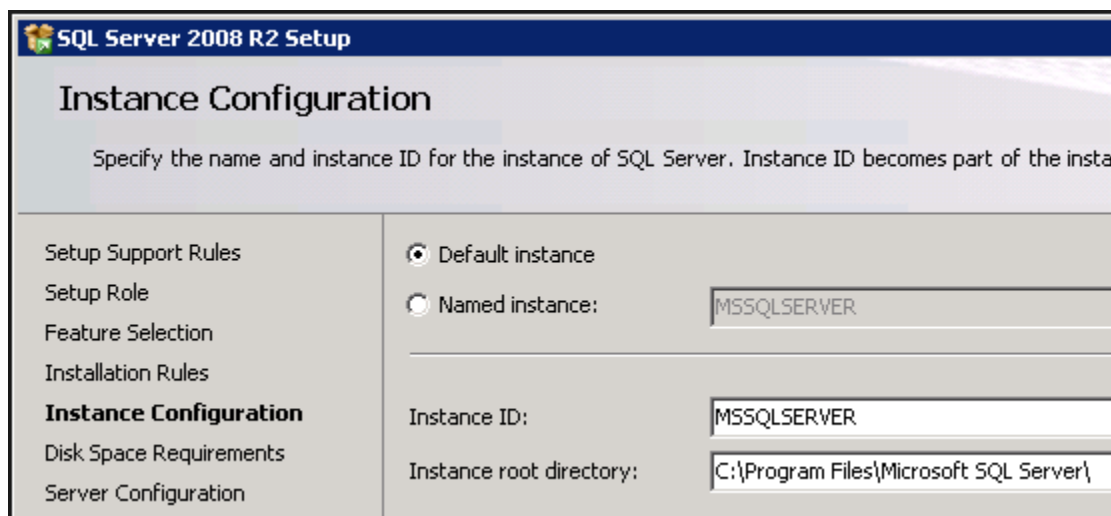
- **Feature Selection** (Screenshot 2). Install the Database Engine Services. The **Management Tools - Basic** is optional, but it is highly recommended because it provides tools for viewing and manipulating the databases. The other options are not used by MONAHRQ.

Screenshot 2. Feature Selection



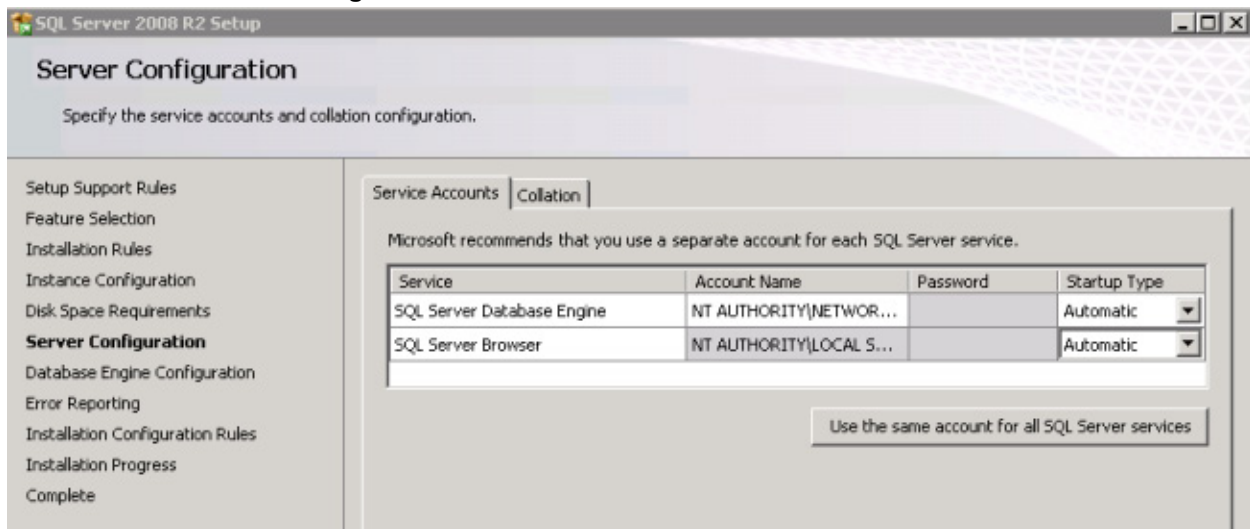
- **Instance Configuration** (Screenshot 3, below). As part of the installation for SQL Server 2008 R2, the wizard will ask you to choose between a default or named instance: Select **Default Instance**. The default instance name is “SQLEXPRESS.”

Screenshot 3. Instance Configuration



- **Server Configuration** (Screenshot 4). Under Service Accounts go to SQL Server Database Engine, then Account Name, and select Account Name with “System” in it.

Screenshot 4. Server Configuration



For the next few steps, use the default settings. There steps are:

- **Database Engine Configuration** – Use windows authentication mode if the user’s administrative privilege is enabled on the computer. Click Next to continue to the Reporting Services Configuration.
- **Reporting Services Configuration** -- Accept the default setting which will setup Reporting Services. Click Next to continue on to the Error Reporting.
- **Error Reporting** – No action is needed here. Click Next to complete the wizard and begin the installation.

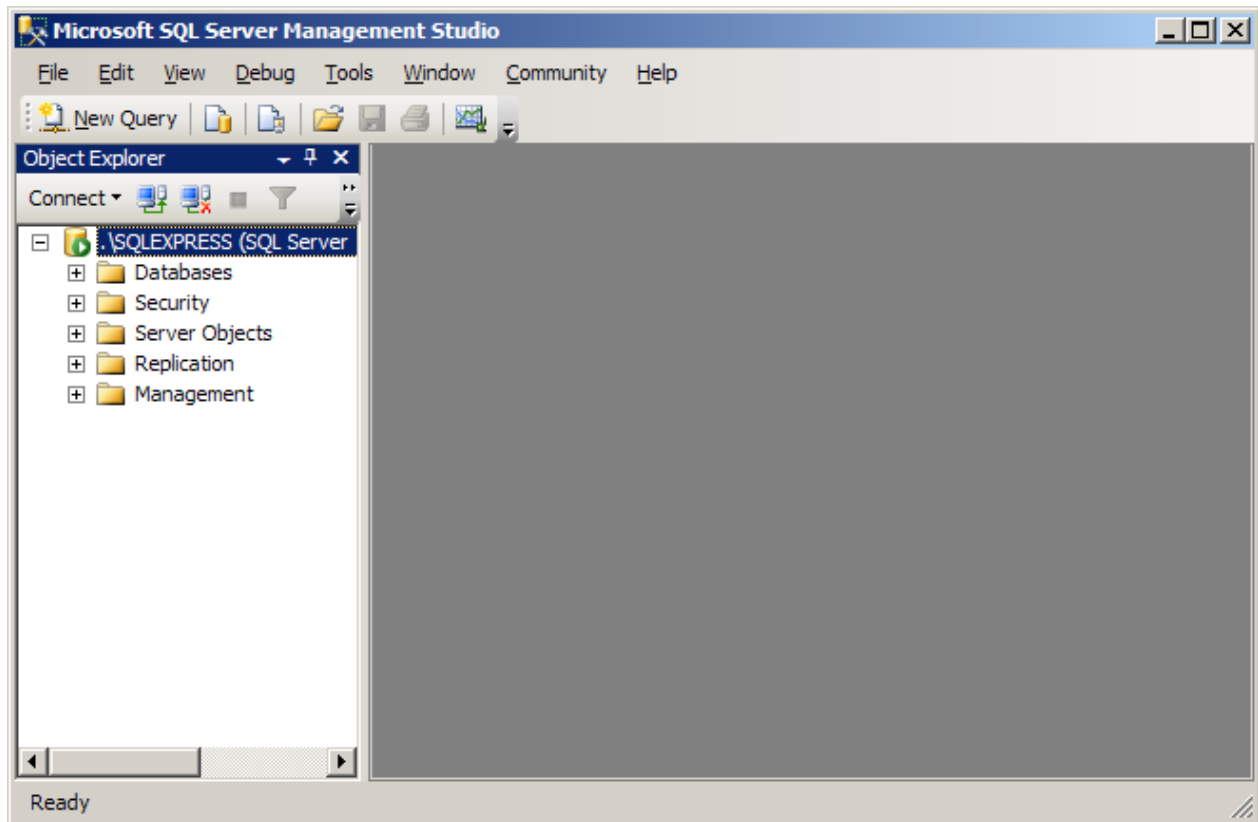
Once SQL Server is installed, if the Management Tools are installed, test the installation to determine if you can connect to the database. To test the installation, go to Start, then All Programs, then Microsoft SQL Server 2008 R2 (or whichever version is downloaded), then SQL Server Management Studio. The Management Studio application will start. A login window will appear, as shown in Screenshot 5 below.

Screenshot 5. SQL Server Management Login Screen



Verify that authentication is set to Windows Authentication. Click “Connect”. The login window will disappear. The connection is successful if there are no error messages and the window as seen in Screenshot 6 appears.

Screenshot 6. Verify Database Connection



2.1.4 Optional Supporting Software

The following software is not required to run MONAHRQ, but may be necessary to calculate specific measures.

2.1.4.1 **AHRQ Quality Indicators™ Software**

To load pre-calculated measure results for the AHRQ Quality Indicators (QIs) into MONAHRQ, the AHRQ QI software must be used separately from MONAHRQ 4.1. AHRQ provides two software tools to calculate AHRQ QIs and either one will generate pre-calculated measures for use in MONAHRQ 4.1:

1. AHRQ QI software for Windows® (WinQI)
2. AHRQ QI software for SAS®

WinQI provides an intuitive, easy-to-use interface for calculating quality indicator results. If you choose to generate estimated cost savings for potentially avoidable hospital stays, you must install WinQI before generating the website; the AHRQ QI software for SAS does not work for this feature. MONAHRQ uses information from the AHRQ QI database to calculate the cost savings. For all other purposes, MONAHRQ 4.1 runs separately from the AHRQ QI software.

The AHRQ QI software for SAS uses SAS (<http://www.sas.com>) to calculate quality indicator results. To load pre-calculated measure results using the AHRQ QI software for SAS, use **SAS Formatting Utilities for the AHRQ QIs**. These utilities run separately from MONAHRQ 4.1. Access and download these utilities from the MONAHRQ download website (http://monahrq.ahrq.gov/monahrq_resources.shtml).

Refer to the AHRQ QI website for software and download information:

<http://qualityindicators.ahrq.gov/software/default.aspx>.

The list below shows AHRQ QI software compatibility with MONAHRQ software:

- MONAHRQ 4.1 is compatible with AHRQ QI 4.4 or AHRQ QI 4.3a
- MONAHRQ 4.0.1 is compatible with AHRQ QI 4.4 or AHRQ QI 4.3a
- MONAHRQ 4.0 is compatible with AHRQ QI 4.4 or AHRQ QI 4.3a
- MONAHRQ 3.0 is compatible with AHRQ QI 4.3
- MONAHRQ 2.0 is compatible with AHRQ QI 4.2
- MONAHRQ 1.1 is compatible with AHRQ QI 4.2
- MONAHRQ 1.0 is compatible with AHRQ QI 4.2

Instructions for installing and running the AHRQ QI software are provided in [Appendix G](#).

2.2 **Uninstalling Previous Versions of MONAHRQ®**

All previous versions of MONAHRQ must be removed before installing MONAHRQ 4.1. To remove and uninstall previous versions of MONAHRQ:

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

2.3 **Installing MONAHRQ®**

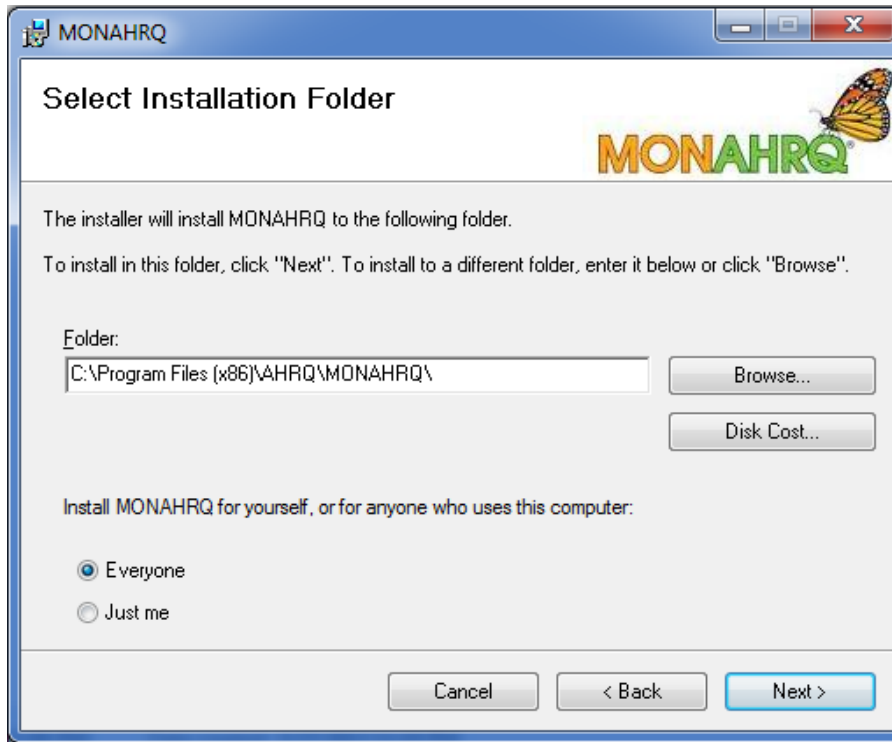
To install MONAHRQ, run the installation package from the MONAHRQ download website (http://monahrq.ahrq.gov/monahrq_software.shtml). When running the file, an Install Wizard will appear.

The install package will prompt you to **specify the directory** in which you would like MONAHRQ installed, as shown in Screenshot 7. The default installation directory is C:\Program Files\AHRQ\MONAHRQ\.

Progress meters show the progress of the setup process. A window will appear to indicate that the installation has completed successfully.

You may choose to install MONAHRQ for “**Just Me**” or “**Everyone**”. “**Just Me**” will install only to the user profile that is logged in during the installation process. “**Everyone**” will install MONAHRQ into the shared profile (All Users) to which every user can access.

Screenshot 7. Installation Folder



3 PREPARING STANDARD DATA FILES

Hospital inpatient discharge data, emergency department (ED) treat-and-release data, Centers for Medicare & Medicaid Services (CMS) Hospital Compare measures, and AHRQ Quality Indicators™ (QI) can be loaded into MONAHRQ®. 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 MONAHRQ. Finally, the section also provides information on several optional configuration files.

3.1 Data and Measures for MONAHRQ®

3.1.1 Reporting Paths and Their Associated Data and Measures

MONAHRQ provides several reporting paths. Each path requires different data. Only data that are used in the paths of interest need to be loaded. [Table 2](#) lists the components and their required data.

Table 2. Data and Measures for MONAHRQ Paths

MONAHRQ Path	Data and Measures	Source of data or software to generate data
County Rates of Hospital Use	Inpatient discharge data	Host User's organization
Utilization – Inpatient	Inpatient discharge data	Host User's organization
Utilization – Emergency Dept.	Combination of Inpatient discharge data and ED treat-and-release data	Host User's organization
Hospital Quality	<ul style="list-style-type: none">• CMS Hospital Compare measures• Provider-level AHRQ QIs	<ul style="list-style-type: none">• AHRQ QI software using data from the Host User's Organization• MONAHRQ download website
Avoidable Hospital Stays	Area-level AHRQ QIs	<ul style="list-style-type: none">• AHRQ QI software using data from the Host User's Organization

3.1.2 Inpatient Discharge Data

MONAHRQ uses inpatient discharge data that includes information about patient and hospital demographics, diagnosis codes, procedure codes, and information about the admission, payer(s), and discharge. These data are used to populate two MONAHRQ paths: Hospital Utilization and County Rates of Hospital Use. The software is designed for processing one **calendar year** of data at a time. The software enables the loading of local data through a simple “point and click” process for mapping the Host User's local data elements and value codes to MONAHRQ formats.

The local inpatient discharge data file should be in one of three common applications or formats for use within MONAHRQ:

- 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 data element for all discharges.

CSV files use commas to separate the data values. If there are commas within any data values (for example, “Private, incl. HMO”), double quotes will need to be inserted around each data element. An exception is the data element “Total Charge”. Many data elements in inpatient discharge data have leading zeros and applications handle those leading zeros differently. For Excel files, for example, it is recommended that all appropriate fields or cells be formatted as text to ensure full conversion of the data.

A local inpatient discharge data file contains data element-specific names, meanings, and formats according to the coding conventions in a given organization. The data need to be mapped to the specific names, meanings, and format of data elements used by MONAHRQ. The data elements in MONAHRQ are similar but not identical to the Uniform Bill (UB-04). MONAHRQ’s Crosswalk Screen provides the opportunity to map local data element values to the values used in the MONAHRQ software.

In order to generate the Emergency Department (ED) Utilization path under the Utilization tab, an additional data element, **ED Indicator**, is required in the Inpatient Discharge file to indicate that the inpatient stay began in the ED. There are different options for populating the values for the ED Indicator element. Some Inpatient Discharge files will contain the ‘Point of Origin’ field with a value of ‘7’ representing an ED visit that resulted in admission to the hospital. Beginning in July 2010, the National Uniform Billing Committee removed the option of emergency room as a response to ‘Point of Origin’ and instead uses a Condition Code value of “P7”. The condition code field alone, however, may not be reliable to determine if the hospital stay began in the ED. Additional fields, such as line item detailed charges, revenue codes, and procedure codes may also be used to verify the value for **ED Indicator** data element. The values for this data element can be set to 1 or 0 to represent stays that began in ED or not, respectively. This data element must be supplied with the inpatient discharge data and is required in order to generate ED Utilization reports.

Evidence of ED services may include:

- Emergency department revenue code of 450-459 on record
- Positive emergency department charge, when revenue center codes are not available
- Condition Code of P7 (NUBC preferred coding for public reporting as of July 1, 2010)
- Point of origin of ED (NUBC preferred coding from October 1, 2007 to June 30, 2010)
- Admission source of ED (NUBC preferred coding prior to October 1, 2007)

Please review [Table 9](#) (located in [Appendix E](#)) to ensure that the local inpatient discharge data are mapped correctly. If possible, consider preparing the local dataset in advance by using names and codes that match those in MONAHRQ so that the software will automatically recognize data element names and value codes.

When preparing local inpatient discharge data, it is not necessary to create “dummy” data elements or to fill in missing values. The input file may contain extra data that are not required in MONAHRQ. Any data elements that are not used will not be imported. However, there is a **limit of 200 data elements in the inpatient discharge file; only the first 200 MONAHRQ data elements will be imported**. Any MONAHRQ data elements beyond the 200 count will not be imported. To ensure all of the necessary

MONAHRQ data elements are imported, sort the order of data elements in the local inpatient discharge data file so that the needed data elements appear within the first 200 columns.

3.1.3 **Emergency Department Data**

MONAHRQ uses emergency department (ED) data that provide patient demographics, hospital information such as trauma designation and region, diagnosis codes, payer(s), and information about the patient disposition upon release for ED visits that do not result in admission to the same hospital. These data are used to populate the part of the ED sub-path under the Utilization path. The reports under the ED Utilization path use the data from both the local inpatient discharge file and the ED treat-and-release file. These data files are connected by a common identifier, **Hospital_ID**. The subset of data from the inpatient discharge file is determined by the 'ED Indicator' data element mentioned in [Section 3.1.2](#) above.

The local ED treat-and-release data file should be in one of three common applications or formats for use within MONAHRQ:

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

Two key formatting issues are:

- Each row of data represents a separate ED treat-and-release record
- Each column of data represents a single data element for all ED treat-and-release visits

Please review [Table 10](#) (located in [Appendix F](#)) to ensure that the local data are coded correctly. Consider preparing the local dataset in advance by using names and codes that match those in MONAHRQ so that the software will automatically recognize data element names and value codes.

When preparing the local ED treat-and-release data, it is not necessary to create “dummy” data elements or to fill in missing values. The input file may contain extra data that are not required in MONAHRQ. Any data elements that are not used will not be imported, and therefore do not need to be removed. However, there is a **limit of 200 data elements in the ED treat-and-release file; only the first 200 MONAHRQ data elements will be imported**, and any MONAHRQ data elements beyond the 200 count will not be imported. To ensure all of the necessary MONAHRQ data elements are imported, sort the order of data elements in the local inpatient discharge data file so that the needed data elements appear within the first 200 columns.

MONAHRQ processes one **calendar year** of data at a time. Use MONAHRQ’s “point and click” process for mapping the local data elements and value codes to MONAHRQ.

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 website (<http://www.hospitalcompare.hhs.gov/>) and makes them publicly available. The CMS Hospital Compare measures provide information on performance ratings for hospitals.

Recent copies of the CMS Hospital Compare database formatted to be compatible with MONAHRQ are available on the MONAHRQ download website (http://www.monahrq.ahrq.gov/monahrq_data.shtml). It is important to use the version posted on the MONAHRQ download website specific to the MONAHRQ version of interest because structural alterations have been made to the original Hospital Compare files to ensure compatibility with MONAHRQ.

The CMS Hospital Compare measures report on topics such as heart attack, heart failure, pneumonia, surgical care, and imaging. To learn more about the CMS Hospital Compare measures, visit the Hospital Compare website at <http://www.hospitalcompare.hhs.gov/>.

3.1.4.2 AHRQ QIs

The AHRQ QIs use 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 Prevention Quality Indicators (PQIs), Inpatient Quality Indicators (IQIs), Patient Safety Indicators (PSIs), and Pediatric Quality Indicators (PDIs) (results of the first three modules are reportable in MONAHRQ). More information about the AHRQ QIs, including technical specifications and analytic methods, can be found at <http://www.qualityindicators.ahrq.gov/>.

For MONAHRQ 4.1, AHRQ QIs must be calculated separately and the results imported into MONAHRQ. To do this, AHRQ provides Windows and SAS versions of the AHRQ QI software. Reports generated from the AHRQ QI software for Windows (WinQI) can be loaded directly into MONAHRQ. Reports generated from the AHRQ QI software for SAS require additional formatting for use with MONAHRQ. Information and instructions for preparing data using the AHRQ QI software for Windows or for SAS can be found in [Appendix G](#).

When the data are ready to be loaded into MONAHRQ, refer to information and instructions for loading the AHRQ QIs into MONAHRQ found in [Chapter 4](#).

3.2 Other Files

MONAHRQ provides an intuitive interface for loading data and generating a website. Several aspects of the MONAHRQ-generated website may be configured by using 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 ([Appendix D](#)). These files are described below.

3.2.1 Description Information for Measures and Health Topics

MONAHRQ provides measure descriptions for Hospital Compare measures and the AHRQ QIs. By default, MONAHRQ provides this information based on AHRQ QI Version 4.4. Any local database created using these measure descriptions will be marked as AHRQ QI Version 4.4. Verify the version on the **Program Options** screen by selecting “View All Options and Settings”. In addition, the Database Manager will also log this information when a database is created or overwritten.

Alternative versions of the measure descriptions are available to coincide with whatever version of the AHRQ QI software that is used to generate local AHRQ QI results. Measure descriptions 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 the installation package runs, it will ask for the installation directory. Specify the root directory where MONAHRQ 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 MONAHRQ. This information can be customized, but that is optional and should be done only by advanced users of MONAHRQ. To customize measure description information, note that 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 installation folder for MONAHRQ. The file names of the tab-delimited files match the table names described in the following section. The data may be altered either before being loaded into a database or within 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 spreadsheet-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 MONAHRQ to create new databases.

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

Table 3. Format for Measure Description Columns in the Web_Measures Table File

Column Labels	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	User-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 if the 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 by an advanced user, through the advanced process described above, are: WebName, Desc, and Method. The other columns should be correct as delivered with MONAHRQ 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 plus number combination, where the prefix letter indicates the major topic to which the subtopic belongs. 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” is used.

There are currently seven categories for maps, 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, if desired. These data are loaded from a tab-delimited file (web_topics.DAT).

Table 4. Format for Health Topics and Subtopics Description in the Web_Topics File

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 the web_topics.DAT file. New topics may be added by choosing a letter that is not currently in use and then creating subtopics for that new topic. This approach allows for up to 26 topics and 10 subtopics within each topic. The presentation layout of a MONAHRQ-generated website is designed to fit these parameters. Adding more topics or subtopics beyond this limit will disrupt the current layout and display of MONAHRQ-generated websites.

3.2.1.1 Assigning Measures to Subtopics

Assigning specific measures to these subtopics can be done using a mapping table named Web_Topic_Measures. Measures must be assigned to subtopics and not to topics. A measure may appear in more than one subtopic. A special Topic-Code of “MAPS” is used to indicate measures for the Avoidable Hospital Stays Maps. Area-based measures can be assigned to the MAPS subtopics. The field names and their definitions in this mapping table 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

The contents of this table determine the selections for which measures should be reported on the web pages. Quality measures can be added to a subtopic by creating a new row in this table. A quality measure can be moved from one subtopic to another by simply changing the subtopic code (field name: T_Code) to the desired subtopic. Display of a quality measure within a subtopic can be removed by deleting the row that connects that measure to the given subtopic. The “Selected” field is set by MONAHRQ, although it may also be changed by editing this table.

3.2.2 Region Information File

MONAHRQ supports searching and reporting data at the intrastate regional level. Regions may be defined by the Host User, with specific hospitals assigned to each region, in order to reflect the unique geography of the area. A CSV file format can be used to load customized regions into MONAHRQ. The CSV file must have four fields on each line (see [Table 6](#)), in addition to a header row to ensure readability. The fields in the file must be in the following order: 1) a number that is the Region ID; 2) the title of the region and must be enclosed in double quotes if commas appear in this field; 3) the two-letter State code; and, 4) 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	Indicates whether this region should be reported	Required field: One of two values, Y or N

An example region file is shown below:

RegionID,RegionName,State,Active

```
1,NorthEast,MD,Y
2,Central,MD,Y
3,South,MD,Y
4,NorthWest,MD,Y
5,MidCentral,MD,Y
```

3.2.3 Hospital Information File

MONAHRQ 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 exported from MONAHRQ. The file maps the hospital identifier in the data to hospital demographic data. The file should contain a header row, and while the titles in the header row are ignored, the order of the fields in the file must be consistent. The external CSV file must list the fields in this order: 1) Hospital ID; 2) Federal Information Processing Standards (FIPS) county code; 3) hospital name; 4) ZIP Code; 5) cost-to-charge ratio (if desired); 6) region (if desired); and, 7) CMS provider ID (if desired).

If the hospital names contain commas, the names must be enclosed in double quotes. For the FIPS State-county codes, MONAHRQ will automatically determine the correct county and region using the Dartmouth Atlas Hospital Service Areas (HSAs). If the regions have been customized as described above, the region ID associated with each hospital must match one of the newly customized region IDs.

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. MONAHRQ 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 specified in the Define Regions step described above	Not required, but field must be present.
CMS_PROVIDER	CMS Provider ID	Not required, but field must be present.

An example hospital file is shown 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

All of the configuration decisions made when setting up MONAHRQ can be saved in a database and loaded into a new database. These configuration options include items such as the header title of the website and customized colors. This feature allows settings to be brought forward from one version of MONAHRQ 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 website has been generated. The *Save Configuration Options to File* button on the Program Options screen is pictured in Screenshot 8.

Screenshot 8. Program Options

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 Select 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

Long Query Timeout: Default 600

Short Query Timeout: Default 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): Comma

Hospitals

Maximum Number of Hospitals for Report Selection

Save Configuration Options to File Load Configuration Options from File View All Options and Settings

Save Cancel

After clicking the **Save Configuration Options to File** button, you will be prompted for the name and location of the Configuration File. It will be saved as a 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, also seen on Screenshot 8 above. The settings can also be loaded from the Database Manager screen when a database is being created.

4 LOADING DATA AND GENERATING A WEBSITE

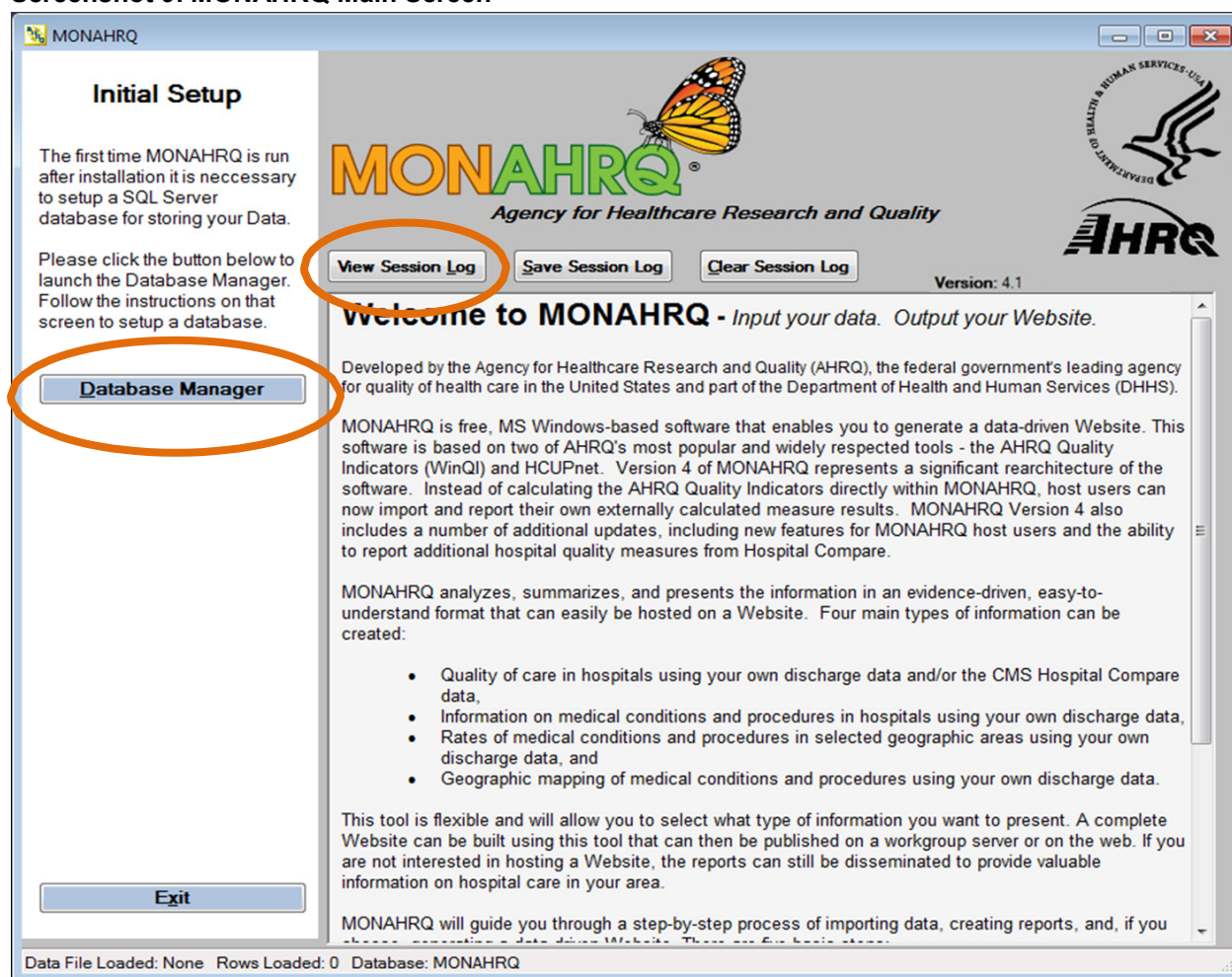
Prepared data and measures can now be loaded into the MONAHRQ® database to generate a website. This section describes the process of creating the MONAHRQ database, loading data, and generating the website. Screenshots of the software with helpful hints and background information are provided.

4.1 Create a Database

When running MONAHRQ for first time, the main screen (Screenshot 9) shows a left-side panel entitled *Initial Setup* that guides the Host User through the process of creating the first database. After completing this step (described below), the left-side panel will contain the *Task Menu* (Screenshot 11), which enables access to all of MONAHRQ's features.

On the initial MONAHRQ main screen (Screenshot 9), the Host User may select **View Session Log** before launching the Database Manager or choosing an item on the regular *Task Menu*. This log will help identify any errors or problems that may occur while creating the website. Please note that you must return to the main screen to see the log.

Screenshot 9. MONAHRQ Main Screen



Use the **Database Manager** button, shown on Screenshot 9 above, to launch the **Database Manager** screen (Screenshot 10) to then create a new MONAHRQ database. A new MONAHRQ database must be created before uploading data and generating a website.

Screenshot 10. Database Manager

Database

Welcome to MONAHRQ!

Before you begin you need to setup a database. Please enter the information below to specify your SQL Server location, Authentication Type, and Database Name. If your Authentication Type is 'SQL Server' you will also need to enter a valid Username and Password.

If you wish to create a new database, or reuse an existing database, enter the name below then click the 'Create or Overwrite' button. If the database already exists it will be cleared out and reloaded so be very careful. If the database does not exist it will be created.

If a valid MONAHRQ database from this version of the software has been created on a shared SQL Server and you would like to connect to that database enter the information below and use the Switch Connection button. Be careful to avoid concurrent use of a database.

SQL Server Name: .SQLEXPRESS **1**

Database Name: MONAHRQ

Authentication Type: Windows NT **2**

Username: n/a

Password: ***

☐ Create auxiliary database for calculations **3**
(Use for large local discharge datasets on SQLServer Express before version 2008 R2)

Optional Configuration File (saved previously from MONAHRQ): Browse **4**

Switch Connection Create or Overwrite

Done

When using the free SQL Server Express Edition installed locally on a computer, the server name and authentication will be prefilled (Screenshot 10, items 1 and 2). Enter the desired database name or accept the default name as **MONAHRQ**. When using an advanced edition of SQL Server installed on a remote computer, ensure that the server name is correct (item 1), change the Authentication Type (item 2) to SQL Server, and enter a username and password. Your system or database administrator should be able to provide this information.

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

If using a *Configuration File* saved from an earlier version of MONAHRQ (Screenshot 10, item 3), use the **Browse** button to locate and select the correct Configuration File.

When using MONAHRQ 4.1 for the first time, a new database must be created because MONAHRQ 4.1 database uses different data structures than prior versions.

After entering information about the database, select **Create or Overwrite** (Screenshot 10, item 4) to create the database (select "Yes" when prompted to create or overwrite the database). Status messages

will appear in the box on the right side of the screen as the steps to create the database are in process or completed. When the process has finished, select **Done** to return to the main screen.

If you might want to alter a MONAHRQ website at a later time, using a different database name each time you create a new SQL database is recommended. (To create a new database with an instant name, follow the instructions for creating a new database, as described above in this section.) To alter a previously generated website, enter the name of the database, select **Switch Connection** and then **Done**.

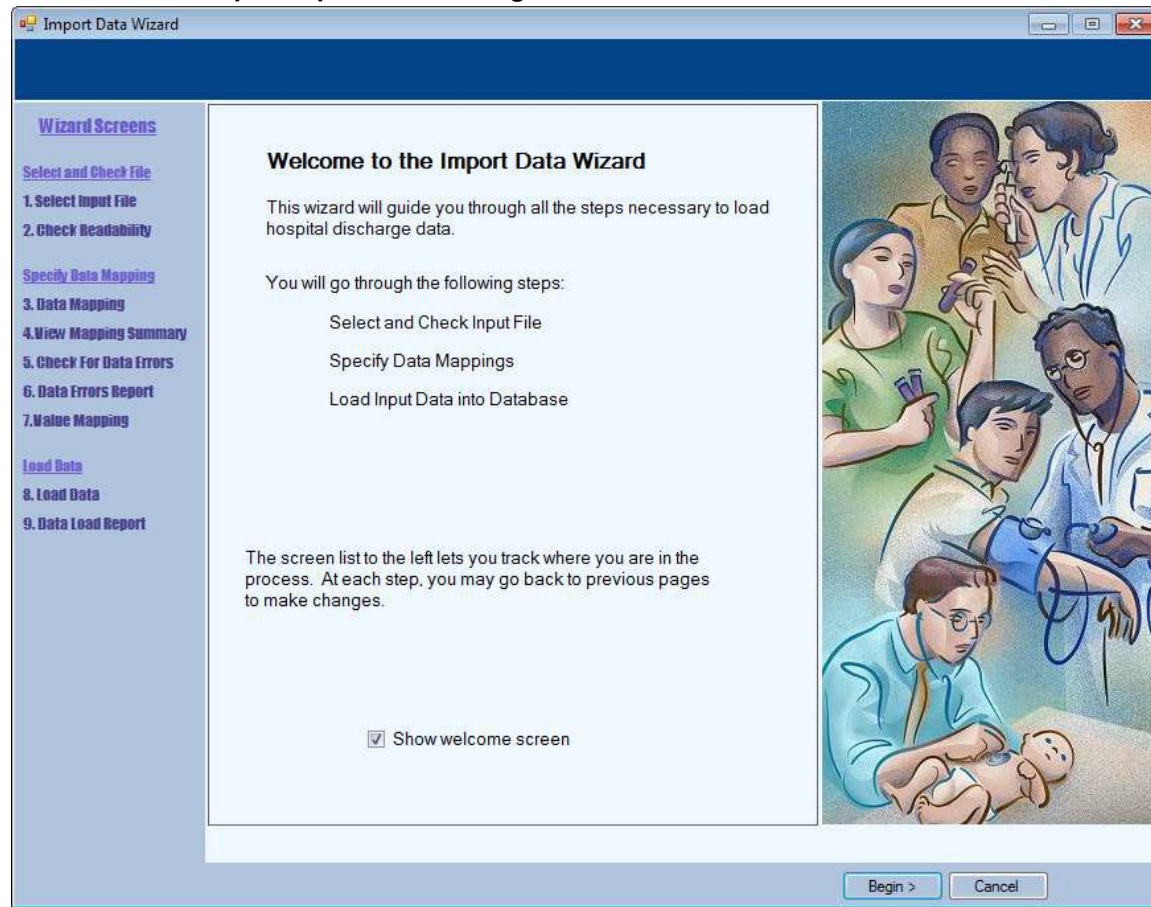
4.2 Load Inpatient Discharge Data

This section describes the steps to load and analyze a local inpatient discharge dataset. Local inpatient discharge data populates the sections of a MONAHRQ-generated website called 'Utilization – Inpatient' and 'County Rates of Hospital Use'. From the Task Menu, choose **Import Discharge Data** to launch this multi-screen wizard.

Screenshot 11. Task Menu



Screenshot 12. Import Inpatient Discharge Data Wizard



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

Step 1: Select Input File Screen - Inpatient Discharge Data

Select Discharge Data File

Use the Browse button to locate the data file you want to import. It may be a text file of comma separated values (.csv), a MS Excel file (.xls), or a MS Access Database file (.mdb). You may also directly enter in the specific path to your data file and press TAB.

(Example: C:\data\mydatafile.xls)

C:\Data\My_Discharge_Data.csv

☒ Dataset requires Emergency Discharge indicator

Import Data File Options (Specific to File Type)

☒ First row contains column headers

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

When importing data from an Excel file (XLS) or from a comma separated value text file (.CSV), please check that any leading zeros are not dropped.

Data Mapping and Crosswalk

☒ Data Layout Unknown

☐ Use Mapping File:

☐ Skip validation and mapping screens (jump to Data Load)

< Back Next > Cancel

To locate the discharge data file to be loaded, select the **Browse** button and navigate to the correct data file. When the appropriate file is selected, check the correct box under **Import Data File Options (Specific to File Type)**:

- 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. MONAHRQ only allows one calendar year of data to be analyzed at a time. If you have fiscal year data that span two calendar years and would like to include all records in your analysis, you will need to change the values in the source data for the element called **Year** before loading the data. Alter the fiscal year data to reflect either of the calendar years involved (e.g., 2010–2011 fiscal year data would need to be coded as either 2010 or 2011).

Please note that MONAHRQ can only load data with **fewer than 200** elements. Any data elements beyond column 200 in the input file will be ignored. To ensure that the data needed by MONAHRQ is included, sort the data to move the critical elements within the first 200 columns.

The types of file formats accepted by MONAHRQ are: CSV, XLSX or XLS (MS Excel® 2010 or earlier), and ACCDB or MDB (MS Access® 2010 or earlier). To avoid difficulty using Excel files, because of the way Excel handles character fields and leading zeroes, confirm that the Excel file has maintained the original data values before loading the file into the MONAHRQ database. A very good way to avoid this problem is to format the Excel cells as **Text** data.

Step 1 above also shows the **Dataset requires Emergency Discharge indicator** checkbox. To generate the optional ED utilization reports, you must select this checkbox and include the **ED Indicator** data element in the inpatient discharge data file. This field indicates ED visits that result in admission to the

hospital. (See [Chapter 3.1.2](#) for information on creating the ED Indicator.) By selecting this checkbox, it makes the ED Indicator data element mandatory. You will be able to map the input values to correct values using the Crosswalk screen, described below in Step 7.

Next, select one of the options listed under **Data Mapping and Crosswalk**:

- When loading the data for the first time (i.e., there is no previously created data mapping file from the AHRQ Quality Indicators software for Windows or from MONAHRQ), select **Data Layout Unknown**.
- If there is a data mapping file created by the AHRQ Quality Indicators software for Windows or MONAHRQ, select **Browse** to locate the .qim mapping file. Note, with MONAHRQ 4.1, if you chose to include **ED Indicator** on your Inpatient Discharge Data, the mapping file from AHRQ QI software or earlier versions of MONAHRQ will NOT fully map all of your data elements. It will automatically map all data elements except **ED Indicator**, which can be mapped manually by dragging and dropping the data elements. This process is explained in Step 3 below.
- If using a .qim file, check **Skip data validation and mapping screens** then select **Next**.
- From this point on, you can return to the previous page by using the Back button, which appears on the bottom of each step going forward.

Step 2: Check File Readability Screen - Inpatient Discharge Data

Check File Readability

Reads through the input file to make sure that every row can be read and that every row has the same number of columns. Press Start to begin this process; you may stop it at any time although you will need to start it from the beginning to continue.

Start

Progress

File Size: 4,129 KB KB Read: 0

Status: Scan has been performed. Records: 0

File: C:\Data\My_Discharge_Data.csv

View Scan Results on Next Screen.

Stats and Warnings

Variables Per Record (Row)

First Row:

Min / Max:

Most Frequent:

< Back Next > Cancel

MONAHRQ will check to ensure that the data are legible and each row has the same number of columns. On the **Check File Readability** screen (see Step 2 screenshot above), review the file attributes and if they appear correct, select **Start**. You may select **Stop** to terminate the process at any time. Note that 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- Inpatient Discharge Data

Data Mapping - Discharge Data
Map as many MONAHRQ variables to input file variables as possible to optimize results.

Input File Variables < Drag and Drop Variables **MONAHRQ Variables**

Input Variable (Column Number: Name)	Maps To MONAHRQ Variable
32: PR4	Procedure Code 4
33: PR5	Procedure Code 5
34: PR6	Procedure Code 6
35: PRDAY1	Days to Procedure 1
36: PROCTYPE	
37: PointOfOriginUB04	
38: PSTCO2	
39: RACE	Race
40: TOTCHG	Total Charge
41: YEAR	Discharge Year
42: ID	
43: ED_INDICATOR	

Required
ED Services
Optional
Key
Patient State/County Code
Hospital ID
Discharge Disposition
Point of Origin
Days on Mech Ventilator
Birth Weight Grams
Diagnosis Code 10
Diagnosis Code 11
Diagnosis Code 12

Sample View of Input File Data

Age	Age in Da	Admissio	Admissio	- 5 -	- 6 -	- 7 -	- 8 -	Discharge - 10 -	Princi	
AGE	AGEDAY	ASOURC	ATYPE	AWEEKE	BWT	DIED	DISPUNI	DQTR	DSHOSP	DX1
34			3	0		0	1	1	123502	3440
58			1	1		0	1	1	123502	486
30			1	0		0	1	1	123502	7802
47			3	0		0	1	1	123502	34691

< Back Next > Cancel

Once the data have been loaded, the next step is to map the dataset to MONAHRQ data element names (see Step 3 screenshot above). MONAHRQ's **Data Mapping** screen provides the opportunity to map the dataset elements to the elements used in the software. Although a sample of your dataset is provided on the **Sample View of Input File Data** screen, it is useful to either know your data element names or have access to your data dictionary for reference. The **Sample View of Input File Data** box on the bottom of this screen allows you to see if the data were loaded properly in the appropriate columns. If not, make sure the data are formatted correctly (see [Chapter 3](#)).

Some of data elements will automatically be mapped. To map the unmapped data elements, drag and drop the data elements 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). To calculate rates and utilization data, MONAHRQ requires the following data elements: Age, Sex, Discharge Year, Discharge Quarter, and Principal Diagnosis. All of these data elements are required and must be linked to an input file data element. MONAHRQ will not run without all the required data elements. If a data element 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.

To generate the optional 'Utilization-ED' sub path, the **ED Indicator** data element is also a required field

and must be mapped. Otherwise, this data element is optional.

All other fields are optional; however, as many data elements as possible should be mapped to optimize the output.

If you wish to report *cost in the Inpatient Hospital Utilization subpath, County Rates path, and cost savings associated with reducing the level of potentially avoidable hospitalization*, it is **very important that you include “total charges” in your discharge data.**

MONAHRQ 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 provides the ability to import customized Major Diagnostic Category (MDC) and MS-Diagnosis-Related Group (DRG) assignments. The next screen provides more information about this feature.

Please refer to [Appendix E, Table 9](#) for the Present-on-Admission Coding. It is one section of the complete listing of data element names, descriptions, and coding. Note that Present on Admission (POA) coding is automatically mapped by MONAHRQ.

Step 3, continued: Data Mapping Screen Showing MDC and MS-DRG Import Assignments - Inpatient Discharge Data

Data Mapping
Map as many MONAHRQ variables to input file variables as possible to optimize results.

Input File Variables <- Drag and Drop Variables **MONAHRQ Variables**

Input Variable (Column Number: Name)	Maps To MONAHRQ Variable
35 : dx13	Diagnosis Code 13
36 : dx14	Diagnosis Code 14
37 : dx15	Diagnosis Code 15
38 : Age	Age
39 : Age in Days	Age in Days
40 : Birth Weight Gram...	Birth Weight Grams
41 : Hospital ID	Hospital ID
42 : Patient State/Cou...	Patient State/County Code
43 : Sex	Sex
44 : Key	Key
45 : DRG Code	DRG Import
46 : MDC Code	MDC Import

MONAHRQ Variables

- Present on Admission 27
- Present on Admission 28
- Present on Admission 29
- Present on Admission 30
- Present on Admission 31
- Present on Admission 32
- Present on Admission 33
- Present on Admission 34
- Present on Admission 35
- Patient ID
- Birth Date
- Admission Date
- Discharge Date

Sample View of Input File Data

Discharge	Point of O	Discharge	Admissio	Admissio	Total Cha	Length of	Race	Primary P	Discharge	DX1
1	5	2008	4	2	14615.68	3	3	3	3	V3000
1	5	2008	5	1	14949.22	3	2	3	1	V3000
1	7	2008	1	2	34770	2	4	6	1	1623
1	5	2008	5	2	15055.87	0	3	1	3	V3000

< Back Next > Cancel

MONAHRQ embeds an MS-DRG and MDC grouper produced by the National Technical Information Service (www.ntis.gov/products/grouper.aspx). It is optional to use this embedded grouper, as MONAHRQ now allows you as a Host User to choose to load your own MDC-DRG assignments.

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

After mapping all of the data elements, select **Next**.

Step 4: View Mapping Summary Screen - Inpatient Discharge Data

View Mapping Summary

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 review the number of unmapped required **MONAHRQ Variables**. **Unmapped Required MONAHRQ Variables** should have a value of zero. If this number is greater than zero, there was a data load error or all of the required variables were not mapped.

In this case, examine the input file to determine if the required **MONAHRQ 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 data elements in the input file matches the number of **input variables** mapped to **MONAHRQ variables**, select **Save Report** to create an .rtf file of information on the screen.

Select **Next** to continue.

Step 5: Check Data for Errors Screen - Inpatient Discharge Data

Check for Data Errors

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

Checking for Data Errors

Scanning the entire file for all distinct values in mapped variables. Also searching for invalid data and warnings. Press Start to begin this process; you may stop it at any time although you will need to start it from the beginning to continue.

Start

Progress

File Size: 4,129 KB	KB Read: 4,129
Status: Finished	Records: 34,999
File: C:\Data\My_Discharge_Data.csv	

View Error Report on Next Screen.

Stats and Warnings

Severe Errors:	0
Invalid Values:	0
Warnings:	0
Count of Values for	0

< Back Next > Cancel

To check for errors within the mapped dataset, select the **Start** button on the **Check Data for Errors** screen. Select **Stop** to terminate the process at any time. Note that the **Start** button will change to **Stop** once the checking process begins.

When the check is complete, the **Status** will change 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. Once the error in the input file has been identified and corrected, load the file again.

Select **Next** to continue.

Step 6: Data Errors Report Screen - Inpatient Discharge Data

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

Data Errors Report

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

Column	Records Affected	Message
Birth Weight Grams	778	Value less than 200. Value will be changed to 'Missing'
Total Charge	29,641	Numeric value is not a valid number - Value will be changed to 'Missing'
Principal Diagnosis	14	Required Field Empty - Record will not be loaded
	0	Invalid value. Valid codes must be at least 3 characters
Diagnosis Code 2	0	Invalid value. Valid codes must be at least 3 characters
	0	Invalid value. Valid codes must be at least 3 characters
Diagnosis Code 3	0	Invalid value. Valid codes must be at least 3 characters
	0	Invalid value. Valid codes must be at least 3 characters
Diagnosis Code 4	0	Invalid value. Valid codes must be at least 3 characters
	0	Invalid value. Valid codes must be at least 3 characters
Diagnosis Code 5	0	Invalid value. Valid codes must be at least 3 characters
	0	Invalid value. Valid codes must be at least 3 characters
Diagnosis Code 6	0	Invalid value. Valid codes must be at least 3 characters
	0	Invalid value. Valid codes must be at least 3 characters
Diagnosis Code 7	0	Invalid value. Valid codes must be at least 3 characters
	0	Invalid value. Valid codes must be at least 3 characters
Diagnosis Code 8	0	Invalid value. Valid codes must be at least 3 characters
	0	Invalid value. Valid codes must be at least 3 characters
Diagnosis Code 9	0	Invalid value. Valid codes must be at least 3 characters
	0	Invalid value. Valid codes must be at least 3 characters
Diagnosis Code 10	0	Invalid value. Valid codes must be at least 3 characters
	0	Invalid value. Valid codes must be at least 3 characters
Diagnosis Code 11	0	Invalid value. Valid codes must be at least 3 characters

Save Report < Back Next > Cancel

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 data element as missing. For other elements, the acceptability of an error is based on the Host User’s discretion, such as if the error only affects a small number of records or if it occurs in a data element that is not required. Resolving some errors may require research and/or manipulation of the input data file. If manipulation of the input data file is needed, the data load process must be completed again from the beginning.

Below are common errors and suggestions for checking them:

- Diagnosis Codes/Procedure Codes: Invalid value. Valid codes must be at least three (3) characters (shown above in green).
- Required Field Empty: Record will not be loaded (shown above in red). Verify that the count (indicated in the Records Affected column) is a small percentage of the total discharges in the dataset and investigate the input data values. For example, note how many Principal Diagnosis might be missing. If the error affects a large number of records, make sure that the data element mapping was correct. Use the Back button to return to the Data Mapping screen.
- Diagnosis Codes: Invalid value. Valid codes must be at least three (3) characters (shown above in

green). Verify that the count (indicated in the Records Affected column) is a small percentage of your input data file records. A high percentage of warnings may not stop you from importing data, but may impact the analytics.

- **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 when the Age is less than one (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 the **Input Variables** to the **MONAHRQ variables**. Once the results are acceptable, select **Save Report** to create an .rtf file of the information presented on the screen.

Select **Next** to continue.

Step 7: Crosswalk Values Screen - Inpatient Discharge Data

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

Input: "ATYPE" → Dataset: "Admission Type"

Input Value	Count	Value Meaning
	793	0 : Missing
A	1	0 : Missing
1	368454	1 : Emergency
2	128887	2 : Urgent
3	155745	3 : Elective
4	97274	4 : Newborn
5	8254	5 : Trauma Center

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

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

Input: "DISPUNIFORM" → Dataset: "Discharge Disposition"

Input Value	Count	Value Meaning
A	49	0 : Missing
	453	0 : Missing
1	583675	1 : Routine
5	110104	5 : Another type of facility
6	42354	6 : Home health care
7	8673	7 : Against medical advice
20	14100	20 : Died

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

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

Input: "ED_INDICATOR" → Dataset: "ED Services"

Input Value	Count	Value Meaning
0	572710	1 : No ED Services Reported
1	186698	2 : ED Services Reported

Input: "PointOfOrigin" → Dataset: "Point of Origin"

< Back Next > Cancel

Once the data elements are loaded, the values for each element need to be identified. MONAHRQ makes assumptions about the meaning of certain variable values. Use local data documentation to verify the assumed values. Review each input value to ensure that the correct value meaning was assigned to your data.

If the local data elements are formatted consistent with the HCUP standard or the data have been modified

according to [Table 9](#) (see [Appendix E](#)), the software will automatically crosswalk values and meanings. Be sure to check the values and meanings for accuracy. If the **Input Values** and **Value Mapping** items are not correctly matched, then it is possible that the **MONAHRQ variables** were mapped to wrong data element sin your input file. Click **Back** to go to Step 3 to ensure that the data elements were correctly.

Please note that Present on Admission data element is automatically mapped by MONAHRQ. Refer to [Table 9](#) (see [Appendix E](#)) for detailed coding information on the ED Indicator.

Step 7 continued: Crosswalk Values Screen-ED Indicator - Inpatient Discharge Data

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

Input: "ED_INDICATOR" -> Dataset: "ED Services"

Input Value	Count	Value Meaning
0	394	1 : No ED Services Reported
1	106	2 : ED Services Reported

Input: "PointOfOriginUB04" -> Dataset: "Point of Origin"

Input Value	Count	Value Meaning
	394	0 : Missing
1	28	1 : Non-health care facility po
2	2	2 : Clinic
4	5	4 : Transfer from a hospital (c
5	14	5 : Transfer from nursing faci
6	1	6 : Transfer from another hea
7	55	7 : Emergency room
8	1	8 : Court/law enforcement

Indicators that rely on this field may not include these cases.

Input: "PAY1" -> Dataset: "Primary Payer"

Input Value	Count	Value Meaning
1	190	1 : Medicare
2	90	2 : Medicaid
3	187	3 : Private including HMO
4	16	4 : Self-pay
5	4	5 : No Charge
6	13	6 : Other

< Back Next > Cancel

Once all values for the data elements have been successfully mapped continue by selecting **Next**.

Step 8: Loading Discharge Data Screenshot - Inpatient Discharge Data

Load Data

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

Loading Discharge Data

Loading discharge data for analysis. Any previous data will be deleted. Press Start to begin this process; you may stop it at any time although you will need to start it from the beginning to continue.

Start

Progress

File Size: 4,129 KB	KB Read: 4,129
Status: Finished	Records: 34,999
File: C:\Data\My_Discharge_Data.csv	

Stats and Warnings

Records Loaded:	-
Records Not Loaded:	-
Percent Loaded:	-
Database Error Messages:	-

(See Session Log)

< Back Next > Cancel

The next step is to load inpatient discharge data. To begin, select the **Start** button. Select **Stop** to terminate the process. Note that the Start button changes to Stop once the load process begins.

Depending on the number of records, the data load process may take a while. For example, an inpatient discharge file with 750,000 records may take about an hour. When the loading process is complete, the **Status** changes to **Finished**.

Select **Next** to continue.

Step 9: Data Load Summary Screen - Inpatient Discharge Data

Data Load Report

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**

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

Save Report < Back Next > Cancel

Once the local data file has finished loading, a **Data Load Summary** page will appear. Warning messages are shown above in red and green font to indicate inconsistencies with the loaded data that may affect the quality indicator calculations. To address this, adjust any inconsistencies in the local data file then reload the data.

In addition, the number of records with **Required field empty—Rows not loaded** should be small. If there is a substantial amount of missing data for any given data element (or combination of data element), the overall number of discharges that appear in the MONAHRQ-generated reports will decrease accordingly. For analyses based on 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 - Inpatient Discharge Data

Data Load Completed

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

Data Load Completed

You have completed the data importation process. Your discharge data are now ready to generate the rates and utilization pages of a website. You may exit this program now without any loss of data. Data will remain in the database until the next Import Data task is performed.

You may run the Generate Website task if you wish to create a website to display the information contained in the data you have loaded.

Save Data Mapping

You may save your data mapping and crosswalk information. This may be used to load other discharge data files in the same format.

☐ Recognize Columns By Position

☒ Recognize Columns By Column Name

Save Mapping

Done

After reviewing the data load summary, a **Data Load Completed** page will appear. On this page, select **Save Mapping** to save the data mapping and crosswalk information. You will be prompted to provide a file name and choose where to save the file. If there are other data files with the same data element names and structure, you can load this mapping file to save time.

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

4.3 Load Emergency Department (ED) Data

This section describes the step-by-step process for loading and mapping a local ED treat-and-release dataset. Local ED data populates the Utilization paths of a MONAHRQ-generated website. Once the inpatient discharge data have been uploaded and it includes the required ED Indicator field, the **Import ED Data** selection is enabled in the Task Menu.

From the Task Menu, choose **Import ED Data** to launch this wizard.

Screenshot 13. Task Menu

Task Menu

Inpatient Discharge Data
Import Discharge Data
Discharge Data Load Report
Discharge Summary by FIPS

ED Treat-and-Release Data
Import ED Data
ED Data Load Report
ED Visits Summary by FIPS

Hospital Compare Data

Import AHRQ QI Data

Define Regions & Hospitals

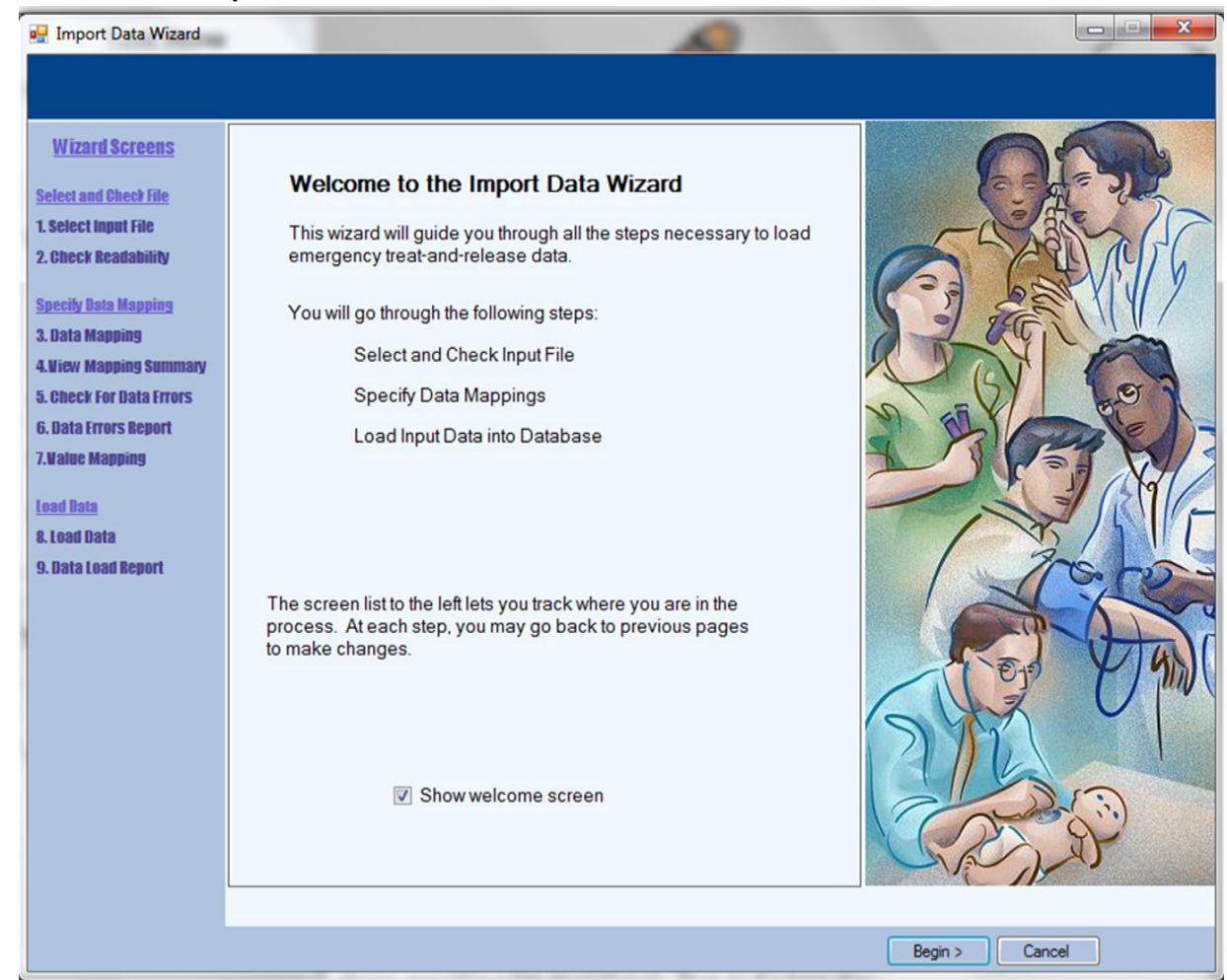
Database Manager

Website Creation
Generate Website
Browse Latest Website

Tools
Program Options
Support Website and Email

Exit

Screenshot 14. Import ED Treat-and-Release Data Wizard



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

Step 1: Select Input File Screen - ED Treat-and-Release Data

Select Emergency Data File

Use the Browse button to locate the data file you want to import. It may be a text file of comma separated values (.csv), a MS Excel file (.xls), or a MS Access Database file (.mdb). You may also directly enter in the specific path to your data file and press TAB.

(Example: C:\data\mydatafile.xls)

C:\Data\My_ED_Data.csv Browse...

Import Data File Options (Specific to File Type)

☒ First row contains column headers

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

When importing data from an Excel file (.XLS) or from a comma separated value text file (.CSV), please check that any leading zeros are not dropped.

Data Mapping and Crosswalk

☒ Data Layout Unknown Edit Mapper Shortcuts

☐ Use Mapping File: Browse...

☐ Skip validation and mapping screens (jump to Data Load)

< Back Next > Cancel

Select the **Browse** button to locate the ED treat-and-release (also called the ED outpatient file) data file to be loaded. After finding the appropriate file, check one of the two boxes under **Import Data File Options (Specific to File Type)**:

- 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 the ED treat-and-release data. MONAHRQ only allows one calendar year of data to be analyzed at a time. If you have fiscal year data that span two calendar years and would like to include all records in your analysis, you will need to change the values in the source data for the element called **Year** before loading the data. Alter the fiscal year data to reflect either of the calendar years involved (e.g., 2010–2011 fiscal year data would need to be coded as either 2010 or 2011).

Please note that MONAHRQ can only load data with **fewer than 200** data elements. Any data beyond column **200** in the input file will be ignored. To ensure all of the necessary MONAHRQ data elements are imported, sort the order in the local data file so that the needed data elements appear within the first 200 columns.

The types of file formats accepted by MONAHRQ are: CSV, XLSX or XLS (MS Excel 2010 and earlier), and ACCDB or MDB (MS Access 2010 and earlier). To avoid difficulty using Excel files, because of the way Excel handles character fields and leading zeroes, confirm that the Excel file has maintained the original data values before loading the file into the MONAHRQ database. A very good way to avoid this

problem is to format the Excel cells as **Text** data

Next, select one of the options listed under **Data Mapping and Crosswalk**:

- When loading the data for the first time (i.e., there is no previously created data mapping file from the AHRQ Quality Indicators software for Windows or from MONAHRQ), select **Data Layout Unknown**.
- If there is a data mapping file created by the AHRQ Quality Indicators software for Windows or MONAHRQ, select **Browse** to locate the .qim mapping file.
- If using a .qim file, check **Skip data validation and mapping screens** then select **Next**.
- From this point on, you can return to the previous page by using the Back button, which appears on the bottom of each step going forward.

Step 2: Check File Readability Screen - ED Treat-and-Release Data

Check File Readability

Reads through the input file to make sure that every row can be read and that every row has the same number of columns. Press Start to begin this process; you may stop it at any time although you will need to start it from the beginning to continue.

Start

Progress

File Size: 23,945 KB	KB Read: 23,945
Status: Finished	Records: 300,001
File: C:\Data\My_ED_Data.csv	

View Scan Results on Next Screen.

Stats and Warnings

Variables Per Record (Row)

First Row:	31
Min / Max:	
Most Frequent:	

< Back Next > Cancel

MONAHRQ checks to ensure that the data are legible and that each row has the same number of columns. On the Check File Readability screen, review the file attributes. If they appear correct, select the **Start** button. You may select **Stop** to terminate the process. Note that 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 - ED Treat-and-Release Data

Data Mapping - Emergency Data
Map as many MONAHRQ variables to input file variables as possible to optimize results.

Input File Variables <- Drag and Drop Variables **MONAHRQ Variables**

Input Variable (Column Number: Name)	Maps To MONAHRQ Variable
20: HOSPITAL_ID	Hospital ID
21: HOSP_REGION	
22: KEY_ED	Key
23: NDX	
24: PAY1	Primary Payer
25: PL_NCHS2006	
26: ZIPINC_QRTL	
27: RACE	Race
28: ZIP_CODE	
29: COUNTY	Patient State/County Code
30: HOSP_TRAUMA	Hospital Trauma Level
31: YEAR	Discharge Year

MONAHRQ Variables

- Diagnosis Code 16
- Diagnosis Code 17
- Diagnosis Code 18
- Diagnosis Code 19
- Diagnosis Code 20
- Number of Diagnoses**

Select QI variable
To remove a map

Sample View of Input File Data

Age	- 2 -	Discharge	Principal	Diagnosis	Diagnosis	Diagnosis	Diagnosis	Diagnosis	Diagnosis	Diagnosis
AGE	DIED_VI	DISP_ED	DX1	DX2	DX3	DX4	DX5	DX6	DX7	DX8
3	0	1	34690							
14	0	1	486	78060	7840					
51	0	1	8472	7248	V4364					
9	0	5	2767	40391	5856	25000				

< Back Next > Cancel

Once the data have been loaded, the next step is to map the dataset to MONAHRQ data element names. MONAHRQ's **Data Mapping** screen provides the opportunity to map the dataset elements to the elements used in the software. Although a sample of your dataset is provided on the **Sample View of Input File Data** screen, it is useful to either know your data element names or have access to your data dictionary for reference. The **Sample View of Input File Data** box on the bottom of this screen allows you to see if the data were loaded properly in the appropriate columns. If not, make sure the data are formatted correctly (see [Chapter 3](#)).

Data elements in your ED dataset that have the same name as MONAHRQ data elements will automatically be mapped. Data element names used in MONAHRQ are the same as those that appear in the HCUP Nationwide Emergency Department Sample (NEDS).

To map data elements, drag and drop the data elements 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). To run the Emergency Department report, MONAHRQ requires the following: Discharge Disposition, Principal or First-Listed Diagnosis, Hospital ID, Age, Gender, Payer and Race. All of these data elements are required and must be linked to an input file data element. MONAHRQ will not run without all required data elements properly mapped. If a data element is mapped incorrectly, simply drag the mapped data element to the correct position in the **Maps to MONAHRQ Variable** column or drag it back to the **MONAHRQ Variables** column on the right side of the screen.

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

Please refer to [Table 10](#) (see [Appendix F](#)) for a complete listing of data element names, descriptions, and coding.

When finished mapping data elements, select **Next**.

Step 4: View Mapping Summary Screen - ED Treat-and-Release Data

View Mapping Summary

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.

See the MONAHRQ User Guide for details.

Variables in Input File: 31
 Input Variables Mapped to MONAHRQ Variables: 26
 Unused Input Variables: 5
 Unmapped Required MONAHRQ Variables: 0
 Unmapped MONAHRQ Variable Warnings: 0

Variables

MONAHRQ Variable	Input Variable(column #)
Key	KEY_ED (22)
Age	AGE (1)
Race	RACE (27)
Sex	SEX (19)
Primary Payer	PAY1 (24)
Patient State/County Code	COUNTY (29)
Hospital ID	HOSPITAL_ID (20)
Discharge Disposition	DISP_ED (3)
Discharge Year	YEAR (31)
Primary Diagnosis	DX1 (4)
Diagnosis Code 2	DX2 (5)
Diagnosis Code 3	DX3 (6)
Diagnosis Code 4	DX4 (7)
Diagnosis Code 5	DX5 (8)
Diagnosis Code 6	DX6 (9)
Diagnosis Code 7	DX7 (10)
Diagnosis Code 8	DX8 (11)
Diagnosis Code 9	DX9 (12)

Save Report < Back Next > Cancel

On the *Mapping Summary* screen, it is important to focus on the number of unmapped required data elements. **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 all of the required data elements were not cross-walked. In this case, examine the input file to determine if the required data elements were mapped correctly and the input file format matches the specified mapping.

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

Select **Next** to continue.

Step 5: Check Data for Errors Screen - ED Treat-and-Release Data

Check for Data Errors

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

Checking for Data Errors

Scanning the entire file for all distinct values in mapped variables. Also searching for invalid data and warnings. Press Start to begin this process; you may stop it at any time although you will need to start it from the beginning to continue.

Start

Progress

File Size: 23,945 KB	KB Read: 23,945
Status: Finished	Records: 300,001
File: C:\Data\My_ED_Data.csv	

View Error Report on Next Screen.

Stats and Warnings

Severe Errors:	0
Invalid Values:	0
Warnings:	0
Count of Values for	0

< Back Next > Cancel

To check for errors within the mapped dataset, select the **Start** button on the *Check Data for Errors* screen. Select **Stop** to terminate the process. Note that the Start button changes to Stop once the checking process begins.

When the check is complete, the **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 corrected, load the file again.

Select **Next** to continue.

Step 6: Data Errors Report Screen - ED Treat-and-Release Data

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

Data Errors Report

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

Column	Records Affected	Message
Primary Diagnosis	0	Invalid value. Valid codes must be at least 3 characters
Diagnosis Code 2	column	Column of ICD-9-CM codes does not have any leading zeros (warning)
Diagnosis Code 3	column	Column of ICD-9-CM codes does not have any leading zeros (warning)
Diagnosis Code 4	column	Column of ICD-9-CM codes does not have any leading zeros (warning)
Diagnosis Code 5	column	Column of ICD-9-CM codes does not have any leading zeros (warning)
Diagnosis Code 6	column	Column of ICD-9-CM codes does not have any leading zeros (warning)
Diagnosis Code 7	column	Column of ICD-9-CM codes does not have any leading zeros (warning)
Diagnosis Code 8	column	Column of ICD-9-CM codes does not have any leading zeros (warning)
Diagnosis Code 9	column	Column of ICD-9-CM codes does not have any leading zeros (warning)

Variables

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

Column	Number Missing	% Missing
Key	0	0%
Age	0	0%
Race	0	0%
Sex	0	0%
Primary Payer	0	0%
Patient State/County Code	0	0%
Hospital ID	0	0%

Save Report < Back Next > Cancel

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. The acceptability of an error is based on the Host User's discretion, such as if the error only affects a small number of records or if it occurs in a data element that is not required for the analysis. Finally, some errors may require research and/or changes in the input data file. If the input data file is modified, the data load must be started again from the beginning.

Below are three common errors and guidelines for checking them:

- **Required Field Empty: Record will not be loaded.** Verify that the count (indicated in the *Records Affected* column) is a small percentage of the total discharges. If the error affects a large number of records, make sure that the data element mapping was correct, Use the Back button to return to the Data Mapping screen.
- **Diagnosis Codes: Invalid value. Valid codes must be at least three (3) characters (shown above in green).** Verify that the count (indicated in the *Records Affected* column) is a small percentage of your input data file records. A high percentage of warnings may not stop you from importing data, but may impact the analytics.
- **Age in Days: Age is greater than zero.** Age in Days only applies for Ages less than one (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 the **Input variable** to the **MONAHRQ variables**. Once the results are acceptable, 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 - ED Treat-and-Release Data

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

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.

See the Mapping Summary screen or the MONAHRQ User Guide for details.

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

Input Value	Count	Value Meaning
1	203599	1 : Routine
2	41990	2 : Transfer to short-term hos
5	52920	5 : Transfer other
20	1491	20 : Died in ED

Input: "HOSP_TRAUMA" -> Dataset: "Hospital Trauma Level"

Input Value	Count	Value Meaning
0	17461	0 : Not a trauma center
1	35341	1 : Trauma center level I
2	50568	2 : Trauma center level II
3	146129	3 : Trauma center level III
8	32214	8 : Trauma center level I or II
9	18287	9 : Trauma center level I, II, o

Input: "PAY1" -> Dataset: "Primary Payer"

Input Value	Count	Value Meaning
1	58128	1 : Medicare
2	75586	2 : Medicaid

< Back Next > Cancel

Once the data elements are loaded, the values for each element need to be identified. MONAHRQ makes some assumptions about the meaning of the data element values. Use the local data documentation to verify the assumed values. Review each input value to ensure that the correct value meaning was assigned to the local data.

If the local data is formatted in the HCUP standard or the treat-and-release data have been altered according to [Table 10](#) (see [Appendix F](#)), MONAHRQ will automatically crosswalk values and meanings. Be sure to review the values and meanings for accuracy. If the **Input Values** and **Value Mapping** items do not align, then it is possible that the **MONAHRQ variables** were mapped to wrong data elements in the local input file. Click **Back** to go to Step 3 and map the data elements correctly.

Once all values for the data elements have been mapped, continue by selecting **Next**.

Step 8: Loading Emergency Data Screenshot - ED Treat-and-Release Data

The screenshot shows a web-based wizard titled 'Load Data'. On the left is a sidebar with 'Wizard Screens' including: 'Select and Check File' (with sub-items 1. Select Input File, 2. Check Readability), 'Specify Data Mapping' (with sub-items 3. Data Mapping, 4. View Mapping Summary, 5. Check For Data Errors, 6. Data Errors Report, 7. Value Mapping), 'Load Data' (with sub-items 8. Load Data, 9. Data Load Report), and 'Data Load Report'. The main area is titled 'Loading Emergency Data' and contains the following text: 'Loading emergency treat-and-release data for analysis. Any previous data will be deleted. Press Start to begin this process; you may stop it at any time although you will need to start it from the beginning to continue.' Below this text is a 'Start' button. A 'Progress' section displays: 'File Size: 23,945 KB', 'KB Read: 23,945', 'Status: Finished in 00:01:27 (0 seconds in test section)', 'Records: 300,001', and 'File: C:\Data\My_ED_Data.csv'. A 'Stats and Warnings' section shows: 'Records Loaded: -', 'Records Not Loaded: -', 'Percent Loaded: -', 'Database Error Messages: -', and '(See Session Log)'. At the bottom are '< Back', 'Next >', and 'Cancel' buttons.

Load Data

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

Loading Emergency Data

Loading emergency treat-and-release data for analysis. Any previous data will be deleted. Press Start to begin this process; you may stop it at any time although you will need to start it from the beginning to continue.

Start

Progress

File Size: 23,945 KB **KB Read:** 23,945
Status: Finished in 00:01:27 (0 seconds in test section) **Records:** 300,001
File: C:\Data\My_ED_Data.csv

Stats and Warnings

Records Loaded: -
Records Not Loaded: -
Percent Loaded: -
Database Error Messages: -
(See Session Log)

< Back Next > Cancel

To begin loading local ED data, select the **Start** button. Select **Stop** to terminate the process. Note that the Start button changes to Stop once the load process begins.

Depending on the number of records, the data load process may take a while. For example, an ED file with 300,000 records may take thirty minutes. When the loading process is complete, the **Status** changes to **Finished**.

Select **Next** to continue.

Step 9: Data Load Summary Screen - ED Treat-and-Release Data

Data Load Report

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**

Data Load Summary

Emergency treat-and-release 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.

Rows excluded due to non-matching treat-and-release hospital	42
Total Rows Loaded	458
Total Rows Excluded	42
Number of variables per record	31
Records with extra values (more than 31)	500

Record Warnings

Column	Records Affected	Message
Primary Diagnosis	2	String value less than 3 characters
Hospital Trauma Level	34	Value mapped to null based on crosswalk (info)

File Warnings

Column	Message
Primary Diagnosis	Column of ICD-9-CM codes does not have any leading zeros (warning)
Diagnosis Code 2	Column of ICD-9-CM codes does not have any leading zeros (warning)
Diagnosis Code 3	Column of ICD-9-CM codes does not have any leading zeros (warning)
Diagnosis Code 4	Column of ICD-9-CM codes does not have any leading zeros (warning)
Diagnosis Code 5	Column of ICD-9-CM codes does not have any leading zeros (warning)
Diagnosis Code 6	Column of ICD-9-CM codes does not have any leading zeros (warning)
Diagnosis Code 7	Column of ICD-9-CM codes does not have any leading zeros (warning)
Diagnosis Code 8	Column of ICD-9-CM codes does not have any leading zeros (warning)
Diagnosis Code 9	Column of ICD-9-CM codes does not have any leading zeros (warning)

Variables

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

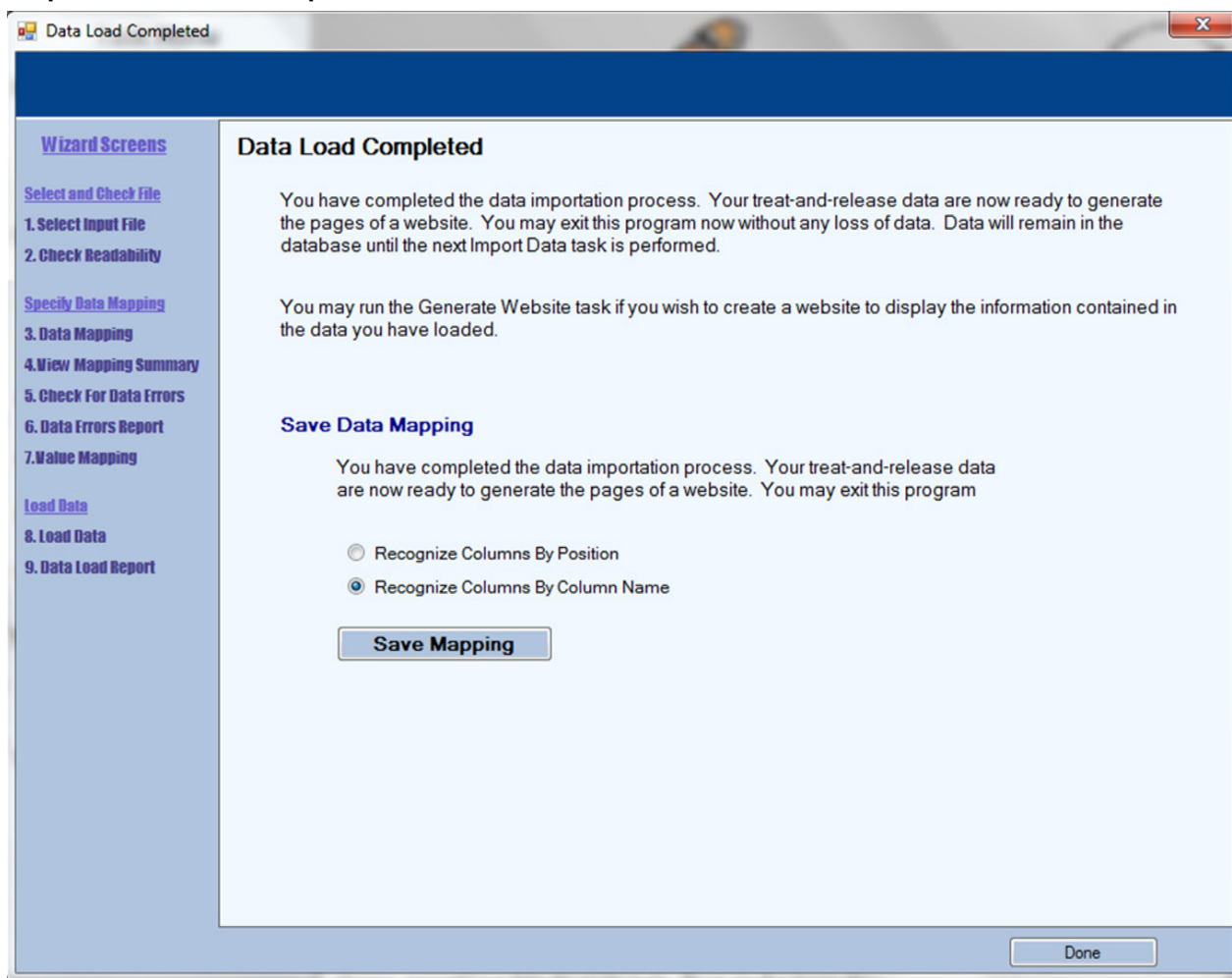
Save Report < Back Next > Cancel

Once the ED dataset is loaded, a **Data Load Summary** page will appear. Warning messages are shown in red and green to indicate inconsistencies with the loaded data that may affect the quality indicator calculations. Adjust any inconsistencies in the raw data file then reload the data.

In addition, the number of records with **Required field empty—Rows not loaded** should be small. If there are substantial amounts of missing data for any given data element (or combination of data elements), the overall number of ED discharges shown in the MONAHRQ-generated reports will decrease accordingly. For analyses based on 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 - ED Treat-and-Release



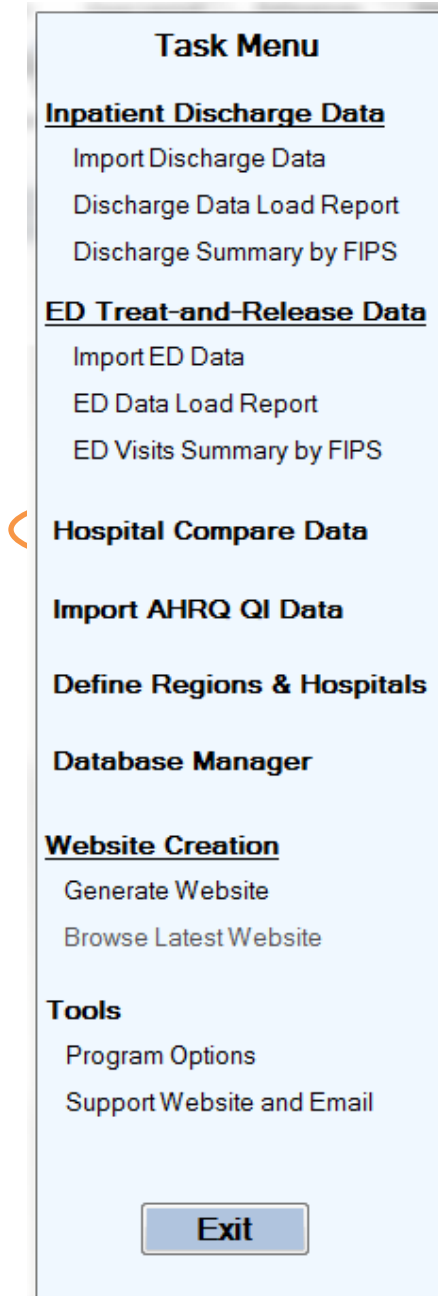
After reviewing the data load summary and selecting **Next**, the **Data Load Completed** page will appear. This is where to save the data mapping and crosswalk information. When saving, provide a file name and choose where to save the file. If there are other data files with the same data element names and structure, you can load this mapping file to save time.

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

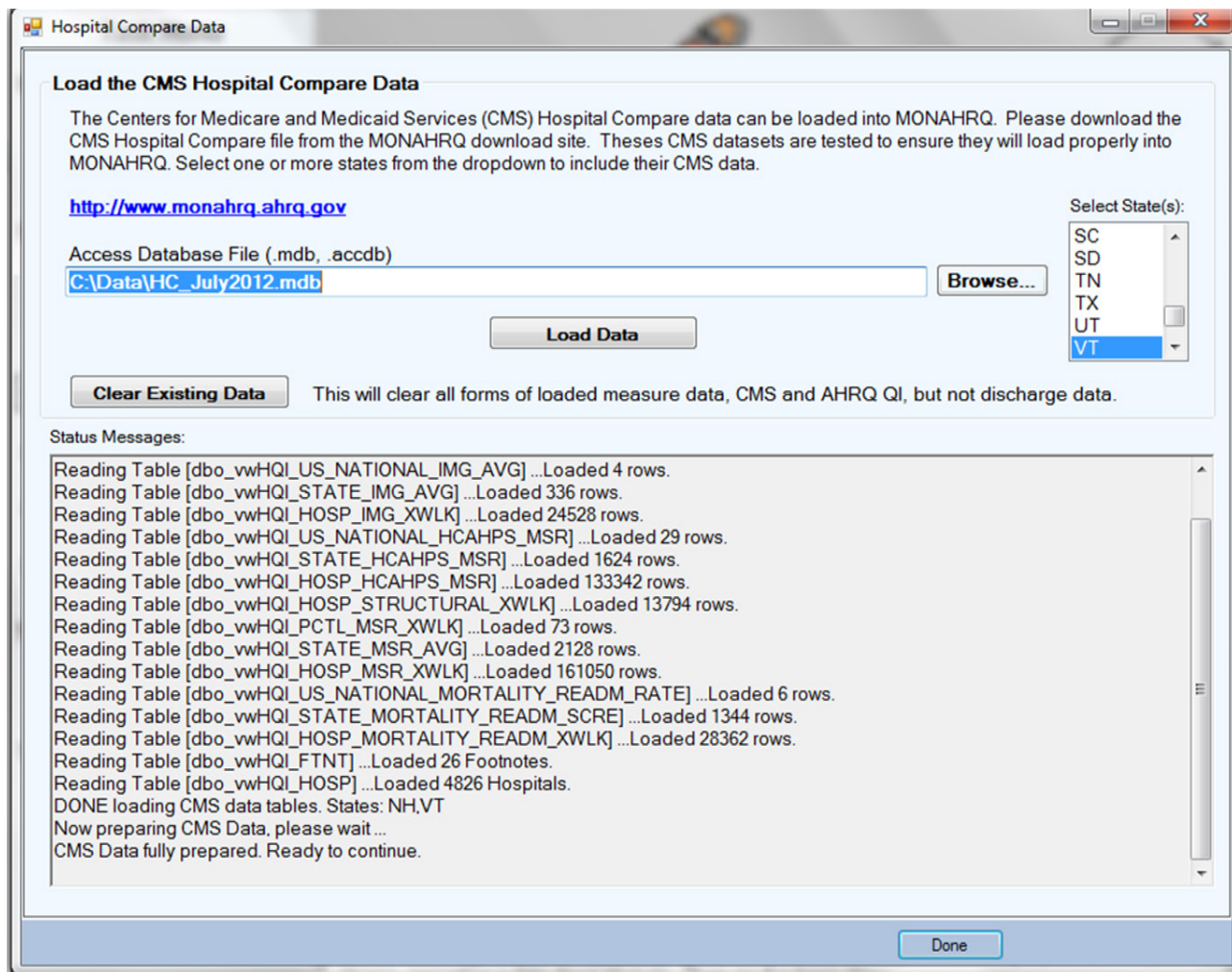
4.4 Load CMS Hospital Compare Measures

This section will describe the process of loading the CMS Hospital Compare measures (Screenshot 15). These measures populate the Hospital Quality path of a MONAHRQ-generated website. To load the CMS Hospital Compare dataset, select **Hospital Compare Data** on the left *Task Menu*. Please note that a CMS Hospital Compare database file is needed. It can be found on the MONAHRQ download website. The MONAHRQ project team has altered the CMS Hospital Compare database so that it will load properly in MONAHRQ (http://monahrq.ahrq.gov/monahrq_data.shtml).

Screenshot 15. Hospital Compare Data Option in Task Menu



Screenshot 16. Hospital Compare Data



Use the **Browse** button to locate the CMS Hospital Compare file to be loaded. From the **Select State(s)** menu, choose the State(s) to be included in the MONAHRQ-generated reports. Select **Load Data**. When the process is completed, the message "DONE with load process, now preparing CMS Data" will appear at the bottom of the Status Messages box (Screenshot 16).

To reload data, select **Clear Existing Data**. Previously imported measure data will be cleared from the database.

After completing the data load, select **Done**. The Task Menu screen will appear.

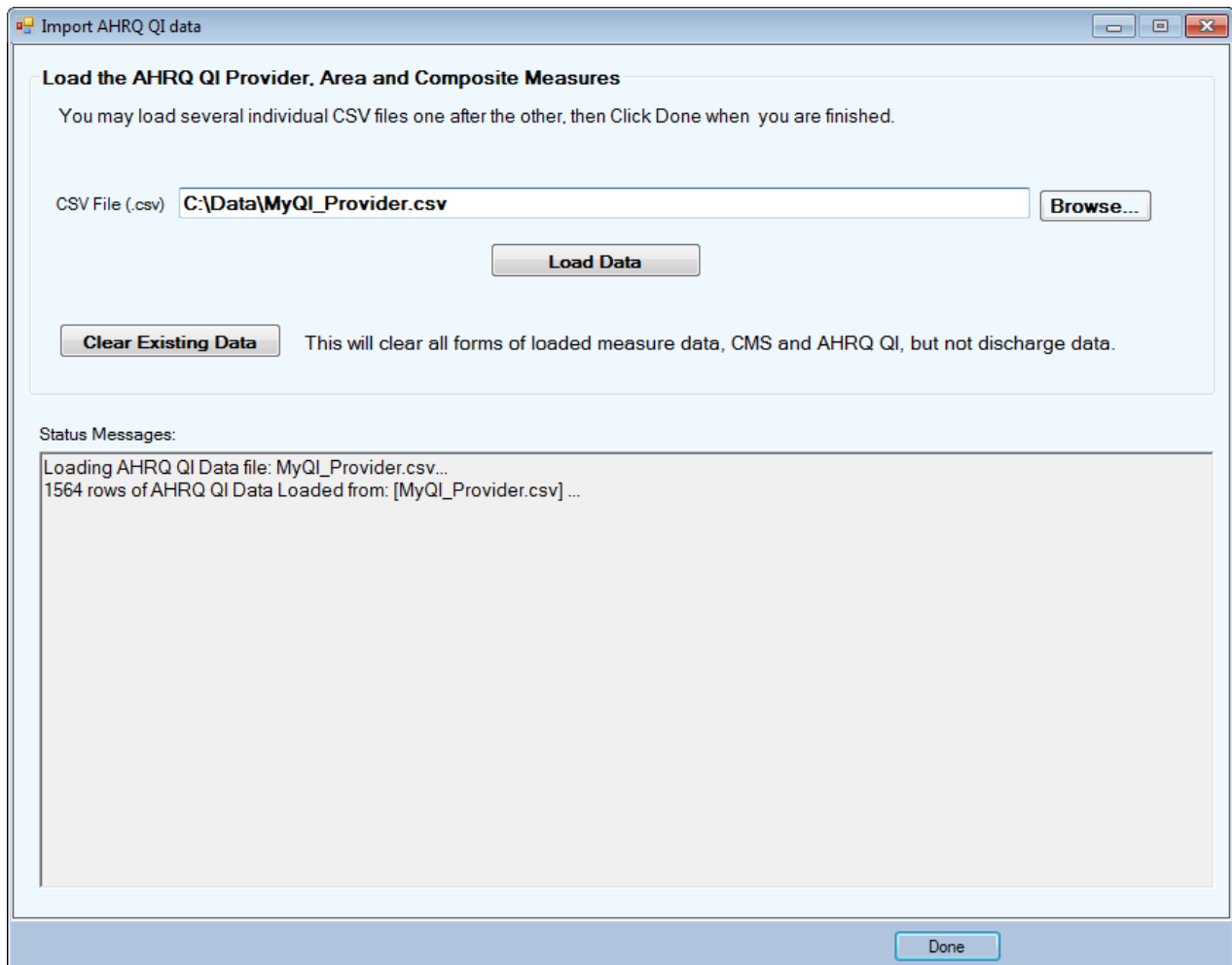
4.5 Load the AHRQ Quality Indicators™

This section describes the process of loading measure results exported from the AHRQ Quality Indicators (QI) software (Screenshot 17). The AHRQ QIs populate two paths of a MONAHRQ-generated website: the Hospital Quality path and the Avoidable Hospital Stays path. Select **Import AHRQ QI Data** from the Task Menu to open the screen for this task (Screenshot 18).

Screenshot 17. Import AHRQ QI Data Option in Task Menu



Screenshot 18. Import AHRQ QI Data



Select the **Browse** button to locate the AHRQ QI measure results files to be loaded. After selecting the appropriate file, click on the **Load Data** button. Load one file at a time. A status message will appear after each file has been successfully loaded. The status message will denote the number of records loaded into the MONAHRQ database.

The AHRQ QI software gives the results of three types of indicators in separate files:

- Provider (hospital)
- Composite
- Area

To see the listing of indicators by type, please refer to http://monahrq.ahrq.gov/MONAHRQ_41_Measure_List.xlsx

To reload the AHRQ QI results, select **Clear Existing Data** to remove existing measure data from the database.

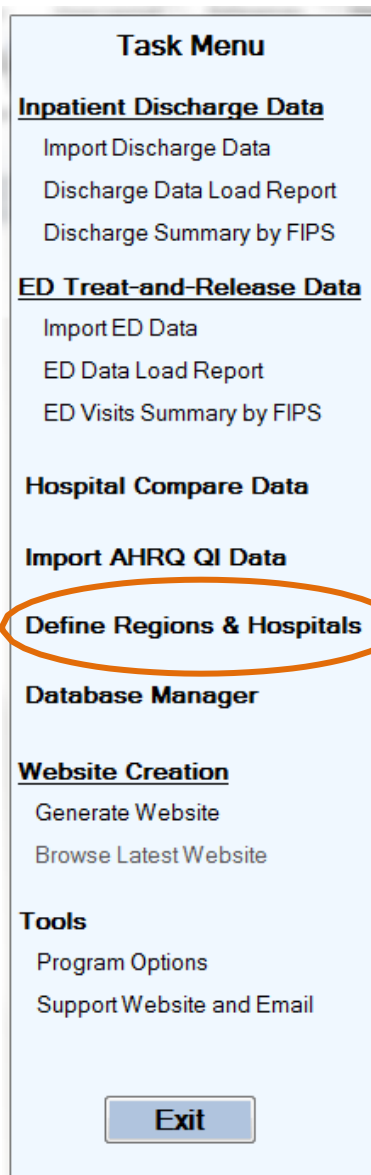
When the data load is complete, select **Done**. Then return to the *Task Menu* screen.

4.6 Define Regions and Hospitals

MONAHRQ provides the ability to view hospital quality data, hospital utilization data, and county rates of hospital use at a regional level. Regions can be based on default information available in MONAHRQ, or custom defined by the Host User. Regional views can be enabled in MONAHRQ-generated websites by defining the region groupings (see Section 4.6.1) and the hospitals contained within those custom regions. This section provides step-by-step instructions for defining regions and hospital groupings, using either pre-determined or custom definitions.

If loading only **area-level** AHRQ QIs, there is no need to define regions and hospitals—simply proceed to website generation and generate a website with county-based data only. The process for defining hospital regions will vary slightly based on the types of data that have been loaded. If CMS Hospital Compare measures as well as **provider-level** AHRQ QIs, and/or inpatient discharge data, were loaded, the two hospital lists must be linked by mapping the discharge hospitals to the appropriate CMS Provider ID. To do this, start by selecting **Define Regions & Hospitals** from the Task Menu (Screenshot 19).

Screenshot 19. Define Regions & Hospitals Option in Task Menu



Screenshot 20. Define Regions and Hospitals Wizard

Define Regions and Hospitals Wizard

Welcome to the Define Regions and Hospitals Wizard

This wizard will guide you through all the steps necessary to define your reporting regions and the hospitals in these regions. The steps of this wizard vary depending on what data you have loaded, inpatient discharge data, AHRQ QI data, or CMS Hospital Compare data.

You will go through the following steps:

- Specify the reporting year on this page
- Specify state and regions for grouping hospitals
- Edit discharge hospital names and assign regions if these data were loaded
- Link discharge hospitals and CMS hospitals if both were loaded
- Assign CMS hospitals to regions if the CMS Hospital Compare data were loaded
- Select hospitals to appear on the generated web pages

Reporting Year: To be used for census populations and cost-to-charge ratios.

Data Load Status

You have loaded inpatient discharge data.

The screen list to the left lets you track where you are in the process. At each step, you may go back to previous pages to make changes.

The first screen of this wizard is the same regardless of the types of data loaded (Screenshot 20). It explains each step, the **Data Load Status** section indicates the types of data that were loaded. It is important to specify the reporting year of the data. If inpatient discharge data were imported, MONAHRQ will determine the year and provide the default information, which may be overridden if needed. After making this selection, press the **Begin** button to continue to the next screen, *Edit Regions*.

4.6.1 Define Regions for Hospital Groupings

Screenshot 21. Define Regions for Hospital Groupings

Define Regions for Hospital Groupings

Hospitals can be grouped into regions by using the Dartmouth Atlas predefined Hospital Service Areas (HSAs) or the Health Referral Regions (HRRs), by grouping all into one region, or by custom regions you create manually. You may alter the list of Dartmouth HSAs or HRRs after you have chosen the grouping. Select your state and region method to begin.

Choose your state

- Montana
- Nebraska
- Nevada
- New Hampshire
- New Jersey
- New Mexico**
- New York
- North Carolina

Choose your region method

- ☐ Use Dartmouth Atlas HRRs as Regions
- ☐ Use Dartmouth Atlas HSAs as Regions
- ☐ Group All Hospitals into One Region
- ☒ Manually Define Regions

Choosing a region method above will populate the right hand column below. If you choose to use HSAs or HRRs you can then exclude or select areas with the arrow buttons. If you choose to group all hospitals together you will get one region named All and all hospitals will be grouped into this region. If you choose manually defined regions you will get one region named Unknown (that will not be included in reports) and all hospitals will be grouped into this region. Use the text field to add regions to your desired list. You will use the next screen to assign hospitals into regions.

NOTE: Changing your state or region method will delete any previously defined regions!

Excluded Regions

Selected Regions

- Unknown, XX

Select All Excluded Regions **Region Name:** **State:**

Load Regions From File **Add Named Region**

Press the Control or Shift key and click to make multiple selections.

< Back **Next >** **Cancel**

Regions can be defined in several ways, including Dartmouth Atlas Hospital Service Area (HSA), Dartmouth Atlas Hospital Referral Region (HRR), a single region, or custom regions (Screenshot 21). Custom regions can be manually entered or loaded 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.

To learn more about Dartmouth Atlas HSAs or HRRs, go to <http://www.dartmouthatlas.org/>.

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. To remove a region after adding it, select the region and click on the left arrow. If you chose **Load Regions from File**, refer to the instructions below.

When the regions definition is complete, select **Next** to continue.

Loading Regions from File

The **Load Regions From File** button will open the dialog-box seen in Screenshot 22.

Screenshot 22. 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 the desired region definitions. Additional information on the required format for the Region Information file can be found in [Chapter 3](#). Use the **Load File** button to have MONAHRQ open the file and import the custom region definitions. A notification will appear if there are any errors. When finished, click **Close** and the Edit Regions screen will appear. The regions from the uploaded file will appear on screen in the Selected Regions box.

4.6.2 Provide Hospital Information

The process for defining hospitals varies by the type of data loaded. If inpatient discharge data, provider-level AHRQ QIs and/or CMS Hospital Compare measures were loaded, three screens will appear: (1) Edit Discharge Hospital Information; (2) Link Local Inpatient Discharge and Hospital Compare Hospitals; and (3) Edit CMS Hospital Names and Assign Regions. If only provider-level AHRQ QIs and/or inpatient discharge data were loaded, only the Edit Discharge Hospital Information screen will appear. If only CMS Hospital Compare measures were loaded, only the Edit CMS Hospital Names and Assign Regions screen will appear. 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 because it is presumed that they cover the same hospitals and have the same hospital identifiers. If either type of data were loaded, the hospital identifiers were picked up during the import process and will be loaded (Screenshot 23). If only CMS Hospital Compare measures were loaded, this screen will not appear.

Screenshot 23. Edit Discharge Hospital Information

ID	Name	ZIP	County Name	Region	Discharges	Cost to Charge Ratio	CMS Provider ID
123456	Facility 10	05458		Chestnut, MY	8569	0.5240	300012
123459	Facility 11	05031		Chestnut, MY	2524	0.8043	301308
123499	Facility 12	03802		Mid-Central, MY	3410	0.7424	301301
123463	Facility 13	03041		Chestnut, MY	443	0.0000	301300
123490	Facility 14	05734		Pine, MY	29412	0.9220	470024
123501	Facility 15	05766		Mid-Central, MY	19653	0.6876	470012
123497	Facility 16	03049		Pine, MY	3069	0.0000	301306
123491	Facility 17	05761		Pine, MY	4034	0.6507	471304
123481	Facility 18	05143		Oak, MY	7284	0.4362	300034
123488	Facility 19	03774		Pine, MY	15017	0.6353	300019
123494	Facility 2	05640		Pine, MY	28235	0.5012	300005
123474	Facility 20	03257		Maple, MY	6933	0.5264	470003
123504	Facility 21	03036		Mid-Central, MY	111	0.5758	300014
123469	Facility 22	03222		Maple, MY	36093	0.8003	471306
123472	Facility 23	05761		Maple, MY	3921	0.0000	470005
123493	Facility 24	05862		Pine, MY	444	0.7288	301310
123482	Facility 25	05472		Oak, MY	536	0.9215	471305
123460	Facility 26	03257		Chestnut, MY	970	0.0000	47001F
123478	Facility 27	05038		Oak, MY	12613	0.7842	470001
123506	Facility 28	05855		Mid-Central, MY	131	0.5415	300023
123498	Facility 29	03812		Mid-Central, MY	10464	0.8606	471303
123495	Facility 30	05855		Pine, MY	8635	0.3427	300029

Load From File Export This Data Mask Hospital Names Display Hospital List Assign Cost to Charge Ratio < Back Next > Cancel

If Dartmouth HSAs or HRRs are used to define regions, each hospital will already be assigned to a region; however, they may be reassigned to different regions if needed. If custom regions were loaded (manually or with a file), the **Region** dropdown box can be used to assign each hospital to a region. The **County Name** and **Region** dropdown boxes are prefilled; simply select the correct mapping choice. This is where hospital **Name** and **ZIP Code** may be edited as well.

To load the hospitals from a file, select the **Load from File** button at the bottom of the screen. The **Load Hospital Table** dialog-box will open.

Screenshot 24. 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 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.

Under **Options**, select the preferred approach for loading the file. We recommend checking the **Overwrite existing hospital table entries** box. Overwriting is important if loading a hospital table for a different inpatient discharge dataset in which the hospitals may be different.

To only include hospitals with discharges, choose **Cleanup hospital table**. To use all hospitals in the dataset, do not select this option.

Once this step is complete, select **Load File**. A message will appear listing the number of records loaded. Choose **Close** to return to the previous screen, where data will be loaded automatically (Screenshot 24).

Screenshot 25. Edit Discharge Hospital Information

ID	Name	ZIP	County Name	Region	Discharges	Cost to Charge Ratio	CMS Provider ID
123456	Facility 10	05458		Chestnut, MY	8569	0.5240	300012
123459	Facility 11	05031		Chestnut, MY	2524	0.8043	301308
123499	Facility 12	03802		Mid-Central, MY	3410	0.7424	301301
123463	Facility 13	03041		Chestnut, MY	443	0.0000	301300
123490	Facility 14	05734		Pine, MY	29412	0.9220	470024
123501	Facility 15	05766		Mid-Central, MY	19653	0.6876	470012
123497	Facility 16	03049		Pine, MY	3069	0.0000	301306
123491	Facility 17	05761		Pine, MY	4034	0.6507	471304
123481	Facility 18	05143		Oak, MY	7284	0.4362	300034
123488	Facility 19	03774		Pine, MY	15017	0.6353	300019
123494	Facility 2	05640		Pine, MY	28235	0.5012	300005
123474	Facility 20	03257		Maple, MY	6933	0.5264	470003
123504	Facility 21	03036		Mid-Central, MY	111	0.5758	300014
123469	Facility 22	03222		Maple, MY	36093	0.8003	471306
123472	Facility 23	05761		Maple, MY	3921	0.0000	470005
123493	Facility 24	05862		Pine, MY	444	0.7288	301310
123482	Facility 25	05472		Oak, MY	536	0.9215	471305
123460	Facility 26	03257		Chestnut, MY	970	0.0000	47001F
123478	Facility 27	05038		Oak, MY	12613	0.7842	470001
123506	Facility 28	05855		Mid-Central, MY	131	0.5415	300023
123498	Facility 29	03812		Mid-Central, MY	10464	0.8606	471303
123495	Facility 30	05855		Pine, MY	8635	0.3427	300029

The hospital name, ZIP Code, cost-to-charge ratios, and CMS Provider ID may be edited. We recommend reviewing the county and region assignments to check for accuracy.

CMS Provider ID can be assigned manually. Once the CMS provider ID is given, select the **Assign Cost to Charge Ratio** button. We strongly suggest reviewing the assigned cost-to-charge ratios make any needed adjustments; these ratios do not limit the range of acceptable values. **A ratio of zero (0) will appear on the website as missing data.** Charges will be displayed in the Utilization path, but costs will not be displayed (a dash will indicate that the data are missing). Alternatively, custom cost-to-charge ratios may be assigned either manually or by loading from a hospital file. Using the **Website- generating Wizard**, you will select to display costs or charges as available in the web pages.

To de-identify or suppress hospital names, select **Mask Hospital Names**. This will reassign all hospitals to a blinded or masked name in the form of *Hospital 1*, *Hospital 2*, etc. To unmask the names, select **Unmask Hospital Names** which will appear only after the hospital names are suppressed. Select **Display Hospital List** for a crosswalk of the original hospital names and the masked hospital names.

To save this information to the Hospital Information File, select **Export This Data**. This file can be used to load hospitals again when a new MONAHRQ-generated website is created.

Once any alterations to this page are complete, select **Next** to continue.

Link Local Inpatient Discharge and Hospital Compare Hospitals (optional)

If local inpatient discharge data, provider-level AHRQ QIs and/or CMS Hospital Compare measures were loaded, the hospitals need to be linked, using the steps described below. This screen will only appear if both types of provider-level quality data were loaded.

Screenshot 26. 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		
▶	123462	Facility 39	03802		▶	300001
	123484	Facility 38	05862			300003
	123486	Facility 5	05862			300005
	123487	Facility 54	03257			300011
	123492	Facility 53	03802			300012

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

Link and Refresh List

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.

< Back Next > Cancel

This screen allows you to manually link local inpatient discharge hospitals with available CMS Hospital Compare measure data (Screenshot 26). The available CMS Hospital Compare data are based on the specific state selections made earlier in the process.

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. After locating the correct hospital in the CMS data, either copy and paste (double click the field first) the CMS Provider ID into the 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 any changes made.

Once any alterations to this page are complete, select **Next** to continue.

Edit CMS Hospital Names and Assign Regions (optional)

When the CMS Hospital Compare Data were loaded, MONAHRQ read the CMS names for hospitals from the input data. To edit those name and region assignments, follow the steps below. This screen only appears when CMS Hospital Compare measures have been loaded.

Screenshot 27. Edit CMS Hospital Names and Assign Regions

CMS Hospital Editor

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

Unknown, XX
Chestnut, MY
Maple, MY
Pine, MY
Oak, MY
Redwood, 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 the State and region selections made earlier. Use this screen to edit hospital names. Verify that the hospitals were assigned to the correct region.

Once any alterations to this page are complete, select **Next**.

Screenshot 28. 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	Report Hospital
▶	301307	MEMORIAL HOSPITAL THE	<input type="checkbox"/>

< Back Done Cancel

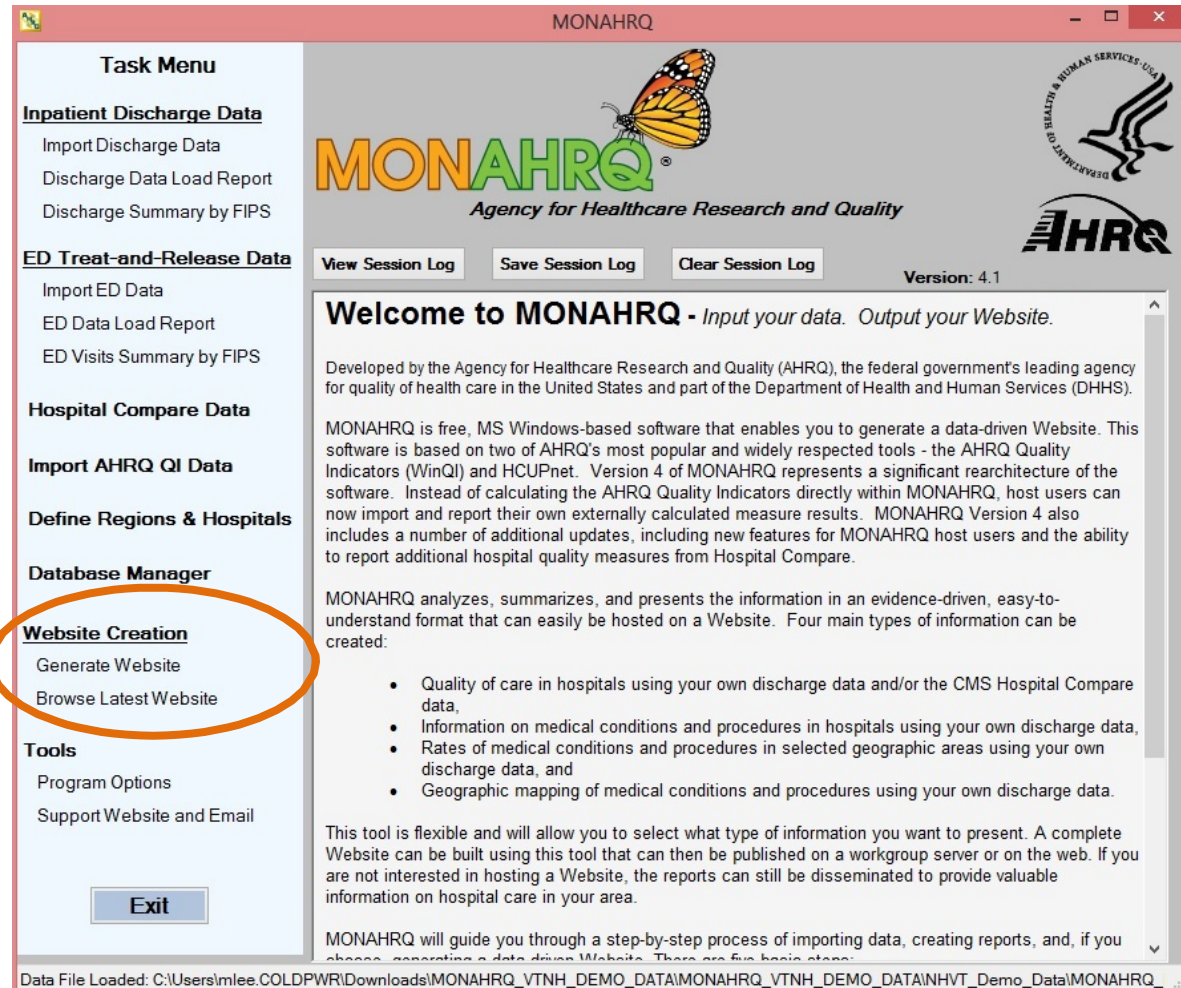
Use the **Edit and Select Hospitals for Reporting** screen to select which hospitals should appear in reports on your MONAHRQ-generated website. Only one list of hospitals will appear if only one type of provider-level quality data (AHRQ QIs or CMS Hospital Compare) was loaded. If both sources of data are loaded, three lists (Screenshot 28) will appear. Use this screen to edit hospital names by double-clicking the appropriate box. If you want the hospital to appear in the reports, check the **Report Hospital** box.

When finished, select **Done**. The Task Menu screen will appear.

4.7 Generate a Website

Now that the data are loaded and regions and hospitals defined, it is time to generate the website. This section describes step-by-step instructions for building and customizing a MONAHRQ-generated website. The website options will vary slightly depending upon the type of data loaded.

Screenshot 29. MONAHRQ Main Screen with Generate Website Task Highlighted



Choose the **Generate Website** item in the Task Menu to open the Generate Website screen.

Screenshot 30. Generate Web Pages

Set Options

Numerator Suppression Threshold: 10
Denominator Suppression Threshold: 500
Enter zero to disable either suppression mode
☒ Perform Margin Suppression

Map Font Size: 8 (points)
Height: 696 (pixels)
Width: 928 (pixels)

Select ZIP Code Radii: 1, 5, 10, 15, 20, 25
All Radii
None

Include MyQI links in generated web pages? ☒ 1

Browser Title: Kumar demo - 4-3
Name in Site Header: Kumar demo - 4-3

Logo Image - Height: 112 Width: 127 File: Browse...

Reporting Year: Timeframe Description: In the year 2010 for example "in the year 2006"
Area Description: In NV& VT for example: "in My State"

2 Edit Feedback Settings Edit Keywords SEO 3

Generate Pages

Target Folder: C:\Users\vkumar.COLDPWR\Documents Browse...

☒ Menu Pages, Images and Styles
Customize Colors and Fonts

☒ Hospital Quality Pages
Select Provider Measures

☒ Avoidable Stays
Select Area Measures

☒ County Rates Pages
Select the denominator to use for rates:
☒ 1,000 ☐ 10,000 ☐ 100,000

☒ Inpatient Utilization
☐ Compute Medians (Very Time Consuming)
☒ Show Costs (Requires Valid Cost Ratios)
☒ Show Charges
☒ Emergency Treat and Release

Done

Progress: Create Pages Show Site

The Generate Website screen will be used to generate all of the web pages that constitute a MONAHRQ-generated website. This capability allows you to regenerate portions of the website, as needed. You must complete the mandatory information about your website 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 website will be saved. On this screen, you will also be able to change the settings for the links to the MyQI guides, set up feedback topics for your generated website, and configure the Search Engine Optimization (SEO) settings. These options are explained in detail below.

4.7.1 Generate Web Pages: Set Options

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

Cell Size Suppression. 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 I](#) 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.

Modify Maps. 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 be legible on maps for States with very small counties. You may wish to enlarge the size of the maps if you have counties that are geographically small.

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.

Naming. 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**.

Logo. Next, use the **Browse** button to choose an image 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. Files that are not compatible will not show in the banner/header.

Year Used. You must enter a phrase to describe the year of data analyzed by MONAHRQ in the field **Timeframe Description** (e.g., in 2010, from June 2010 to May 2011). This phrase will appear throughout the generated website. 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 website.

MyQI Guides. You can show, hide, or modify links to quality improvement materials. (For more information on MyQI Guides visit: <http://monahrq.ahrq.gov/myqi/myqihome.shtml>.) Use the check box for “**Include MyQI links in generated web pages?**” to show or hide the MyQI link on the generated website. Screenshot 30, Item 1 above shows this option in the MONAHRQ-generated web pages view.

4.7.1.1 Feedback Settings

MONAHRQ 4.1 allows you to include feedback forms in the MONAHRQ-generated website. This function allows you to specify the feedback subjects/topics.

To set up this functionality, follow the instructions below. Select **Edit Feedback Settings** from the Generate Web Pages screen (Screenshot 30, Item 2).

Screenshot 31. Edit Feedback Settings

The screenshot displays the 'Generate Website' application window. In the foreground, the 'Feedback Settings' dialog box is open, featuring a red title bar. The dialog contains the following elements:

- Feedback Subject:** A text input field labeled 'New Feedback Subject' with an 'Add Feedback Subject' button to its right.
- Selected Excluded Feedback Subject:** A list box with a 'Remove Selected Subjects' button below it.
- Selected Included Feedback Subject:** A list box with a 'Remove Selected Subjects' button below it.
- Navigation:** Two arrow buttons, '->' and '<-', positioned between the two list boxes.
- Recipient Feedback:** A text input field labeled 'Feedback Recipient E-Mail Address' with 'Cancel' and 'Done' buttons at the bottom.

The background window, 'Generate Web Pages', includes sections for 'Set Options' (with checkboxes for suppression thresholds and margin suppression), 'Map Font Size' (with input fields for points, pixels, and width), 'Select ZIP Code Radii' (with a list box and 'All Radii'/'None' buttons), and 'Avoidable Stays' (with a 'Select Area Measures' button). At the bottom of the background window are 'Create Pages', 'Show Site', and 'Done' buttons.

Enter the **New Feedback Subject** you would like to appear in the generated website feedback selection list (Screenshot 31). Then, click the **Add Feedback Subject** button to save your feedback selection in the **Selected Excluded Feedback Subject** list box. You may enter any number of feedback subjects in the **New Feedback Subject** field and save it to the **Selected Excluded Feedback Subject** list box.

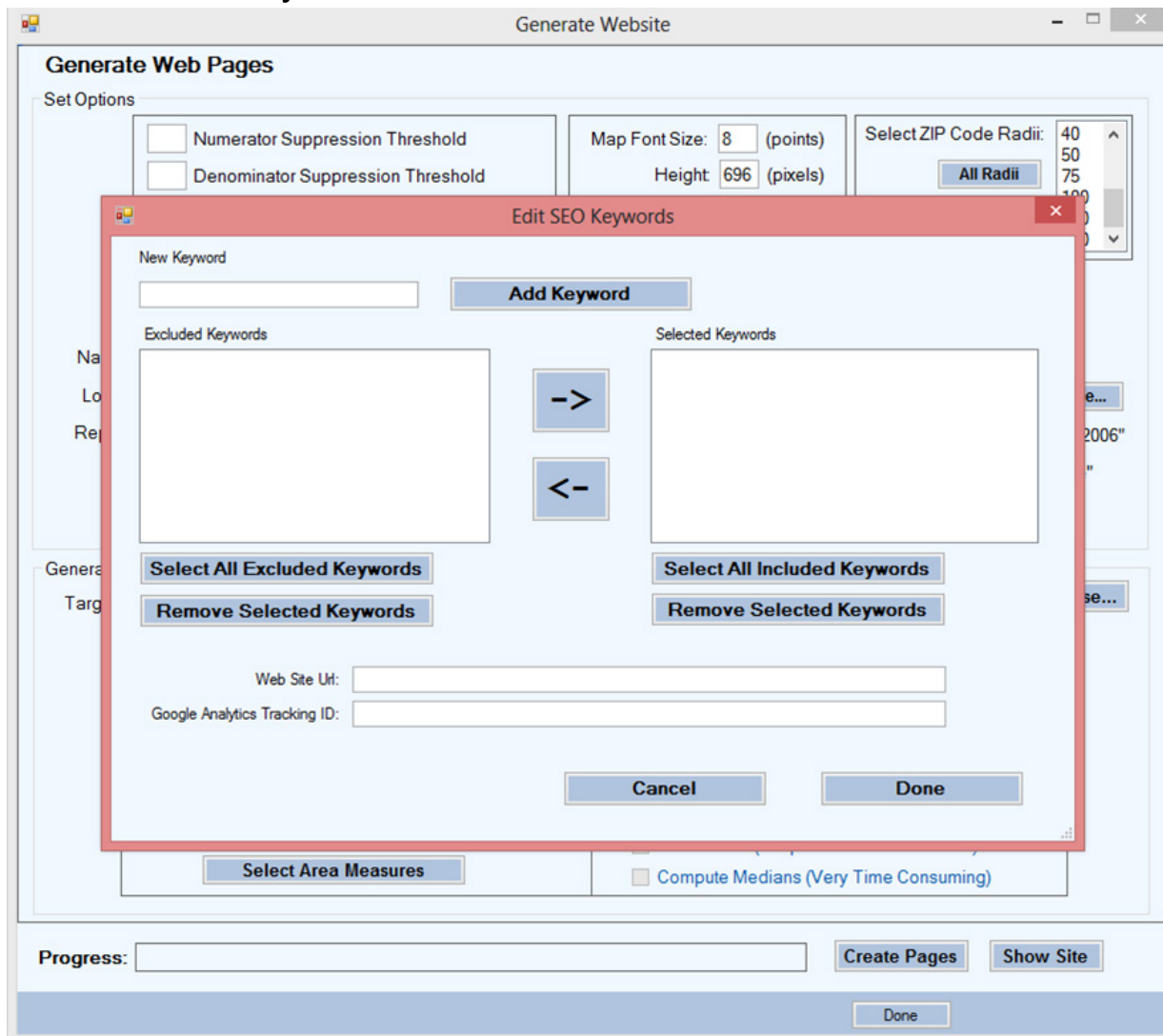
Next, select the right arrow button to move the feedback selection to the **Selected Included Feedback Subject** list box. The left arrow button will remove feedback subjects from being used. However, these will be saved for later use. You can remove selected subjects from either the excluded or included feedback list box. Clicking the **Remove Selected Subjects** button will permanently remove the feedback subjects.

You can specify a **Feedback Recipient E-Mail Address**. This email address will receive the feedback submitted by End Users from the generated site. Once the feedback settings are complete, click the **'Done'** button to save your settings or click the **'Cancel'** button if you do not wish to save the settings. Both the feedback subjects and the recipient e-mail address fields need to be defined in order to have the feedback form appear in the MONAHRQ-generated website.

4.7.1.2 Search Engine Optimization (SEO)

SEO can be set up for MONAHRQ-generated websites. MONAHRQ 4.1 allows you to create “meta” keyword description content that gets embedded into the MONAHRQ-generated website. Meta-tagging enables search engines to index public sites, which makes MONAHRQ-generated websites retrievable based on relevance to keywords that entered by an End User into a public search engine.

Screenshot 32. Edit Keywords SEO



You have an option on the **Generate Web Pages** screen under **Edit Keyword SEO** to define the meta-tag description data for selected data paths and pages, as shown in Screenshot 30, Item 3. On the **Edit SEO Keywords** screen, enter the **New Keyword** and click the **Add Keyword** button. You may enter any number of keywords and save it to the **Excluded Keywords** list box for future use.

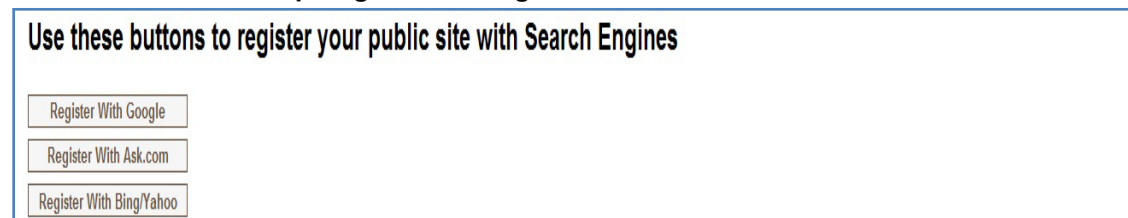
Next, select the **right arrow** button to move the keywords to the **Selected Keywords** list box. The **left arrow** button is used to remove keywords. You can **Select All Excluded Keywords** or **Select All Included Keywords** from the list boxes, which allows you to use the right or the left arrow buttons to exclude or include all keywords for the generated website. **Remove Selected Keywords** buttons delete the keywords from either the Exclude Keywords or Selected Keywords lists.

Entering the **website URL** for your MONAHRQ-generated website will register your site with major web

search providers such as Google, Ask, and Bing and enables these search engines to find the MONAHRQ-generated website pages.

Furthermore, you will be able to analyze the usage of your MONAHRQ-generated website. If you opt to include Google Analytics, you will have the ability to collect the MONAHRQ-generated website's usage report. Details on how to sign up for a free Google Analytics account are described in [Appendix K](#). Enter the **Google Analytics Tracking ID** to track the usage statistics for your site. This is an optional field and only needs to be entered if you wish to gather analytics about your site. Once the **Edit SEO** settings are complete, click the **Done** button to save your settings or click the **Cancel** button if you do not wish to save the settings.

Screenshot 33. Sitemap Registration Page



Once the website is successfully generated with the SEO settings, a **RegisterSitemap.htm** file will be created in the generated output Target Folder. Double-click the RegisterSitemap.htm file to open the sitemap registration screen. Screenshot 33 illustrates the registration options that you can select. When completed, you will receive a message indicating that the sitemap has been registered. Sitemap registering enables the search engines to find your MONAHRQ-generated websites. A Sitemap.xml file will also be created in the generated output Target Folder. If you decide to submit the XML file on your own, you can use the sitemap.xml and submit it to the search engines.

4.7.2 Generate Web Pages

The Generate Pages portion (Screenshot 34) allows you to specify a Target Folder on your computer that will hold the generated website files that you need to create the web pages. You may customize the look and feel of your MONAHRQ-generated website and select what content to include. Please see [Chapter 5](#) for more information on how to configure your website and folder structure.

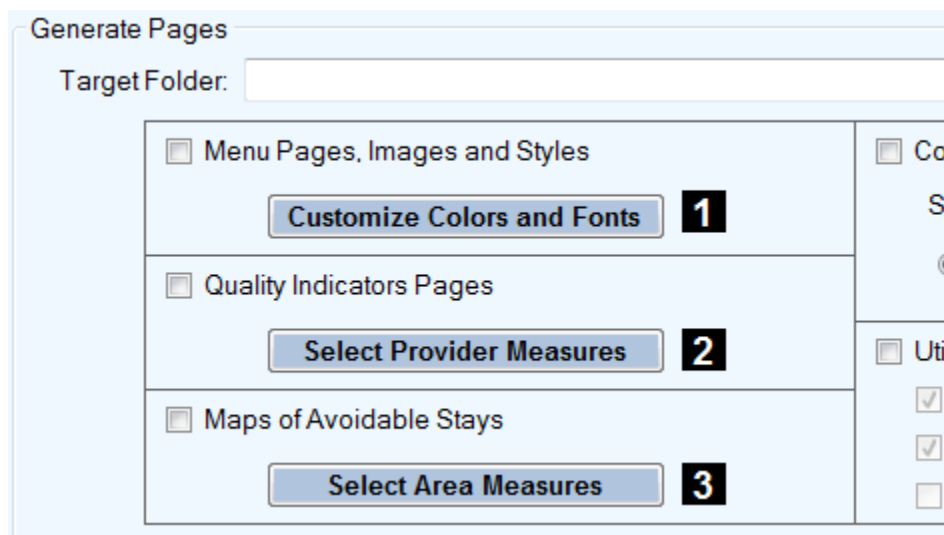
To specify a Target Folder, select the **Browse** button to identify the folder where you would like to store the web pages as they are produced by MONAHRQ. We highly recommend creating a new folder in which to store the web pages, as opposed to saving them on your Windows Desktop. In addition, because a large number of web pages will be created, saving this many files to a remote network folder will significantly slow the process. To save the MONAHRQ-generated website files to a network folder, first save the generated web pages in a local folder, then compress those files into a zip-file that can be moved to a folder on the network server. Once the zip file is moved to the appropriate folder on your network server, extract the files within that folder.

To choose the pages you wish to generate, select the appropriate check boxes. If data have not been loaded to create a particular set of pages, the check box will be disabled. Utilization (Inpatient and ED subpaths) and County Rates of Hospital Use pages require inpatient discharge and ED data. Hospital Quality pages require results data from CMS Hospital Compare measure or AHRQ Quality Indicators™ (provider-level). Avoidable Stays pages require area-level data from the AHRQ QIs.

4.7.2.1 Customizing the Appearance and Content of the Website

There are three buttons in the Generate Pages section (Screenshot 34) that allow you to change the appearance and content of the MONAHRQ-generated website: (1) Customize Colors and Fonts; (2) Select Provider Measures; and (3) Select Area Measures. These three actions are described in the following section.

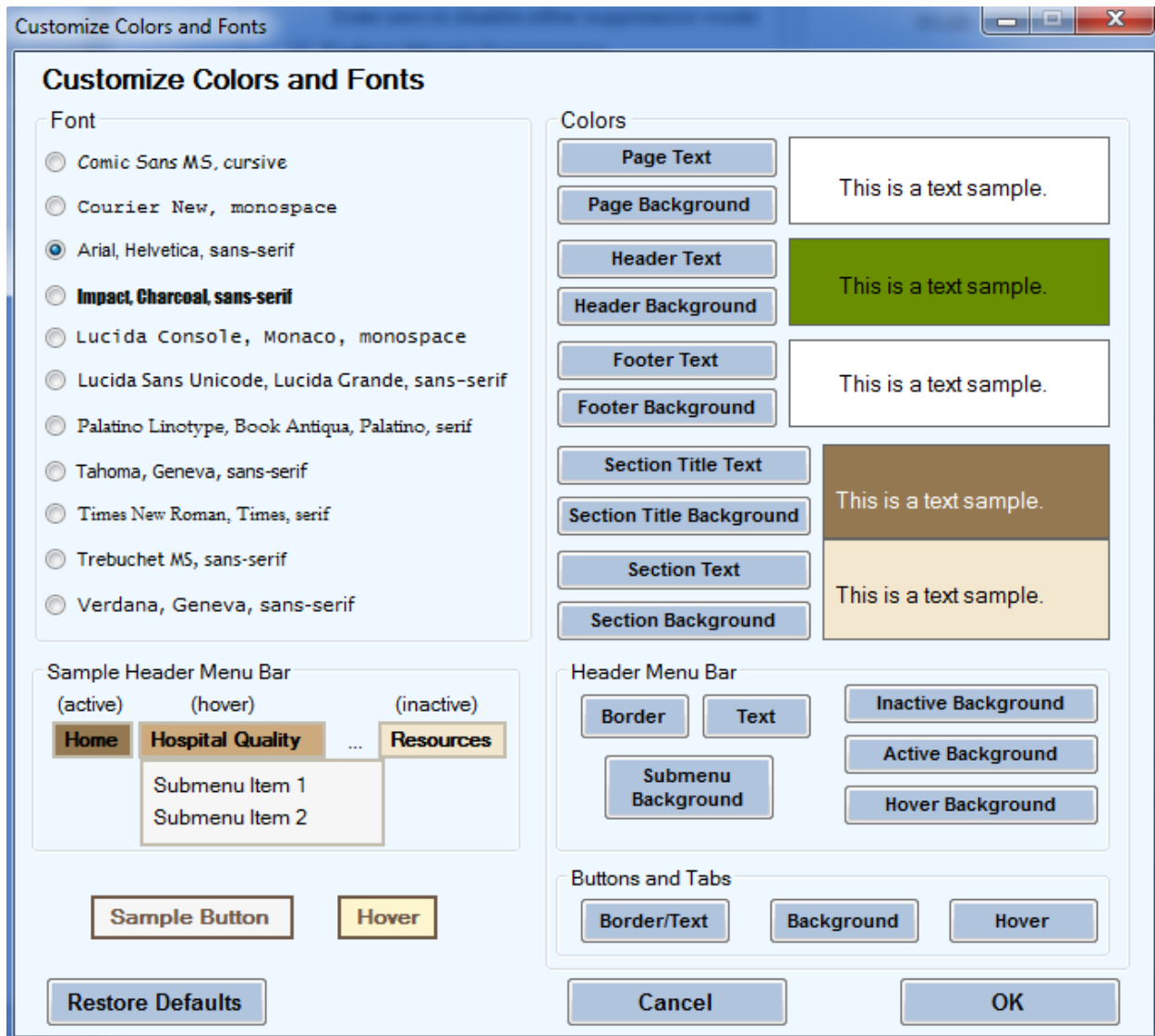
Screenshot 34. Generate Pages



Customize Colors and Fonts

Select the **Customize Colors and Fonts** button if you want to change the font and color settings for your generated web pages (Screenshot 35). When selecting the buttons to change the colors of the background, foreground (text), or borders, the standard Microsoft Windows Color Selection dialog box will open. The on-screen samples will show the effects of your changes. MONAHRQ provides basic customization for colors, fonts, and other stylistic aspects of the website. [Chapter 5](#) provides additional information on customizing a MONAHRQ-generated website. These changes will only take effect if you make them *before* generating your website.

Screenshot 35. Customize Colors and Fonts



Select Provider Measures

The **Select Provider Measures Screen** (Screenshot 36 and 37) provides the ability to select 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.

Screenshot 36. 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

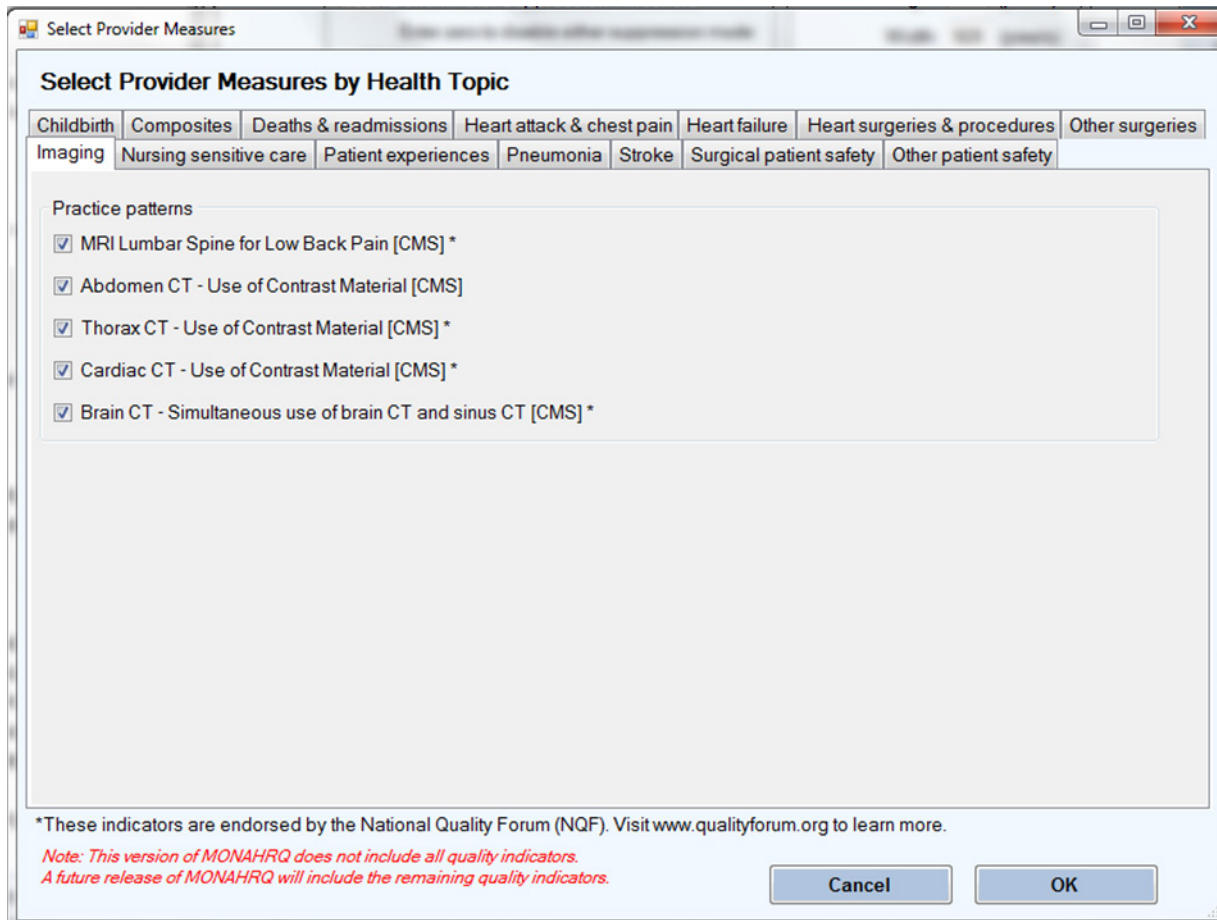
This screen lists all provider-level quality measures in individual tabs by topic and subtopic. These groupings are used in the MONAHRQ-generated website. The available measures will vary by the type of data loaded. The topics and subtopics and the measures associated with each can be customized. Please read the “**Assigning Measures to Subtopics**” section 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 website.

All measures endorsed by the National Quality Forum (NQF) are marked (*). This information is correct at the time of the release of this version of MONAHRQ. For the most current information about NQF-endorsed measures, please visit the National Quality Forum’s Quality Positioning System website at <http://www.qualityforum.org/QPS>.

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>.

Screenshot 37. Measures for Imaging



Select Provider Measures

Select Provider Measures by Health Topic

Childbirth Composites Deaths & readmissions Heart attack & chest pain Heart failure Heart surgeries & procedures Other surgeries

Imaging Nursing sensitive care Patient experiences Pneumonia Stroke Surgical patient safety Other patient safety

Practice patterns

- ☒ MRI Lumbar Spine for Low Back Pain [CMS] *
- ☒ Abdomen CT - Use of Contrast Material [CMS]
- ☒ Thorax CT - Use of Contrast Material [CMS] *
- ☒ Cardiac CT - Use of Contrast Material [CMS] *
- ☒ Brain CT - Simultaneous use of brain CT and sinus CT [CMS] *

*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

Select Area Measures

The **Select Area Measures Screen** (Screen 38) provides the ability to select area-level measures for reporting on the Avoidable Stays pages. If you have not loaded area-level data from the AHRQ QIs, this option will be disabled.

Screenshot 38. 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]

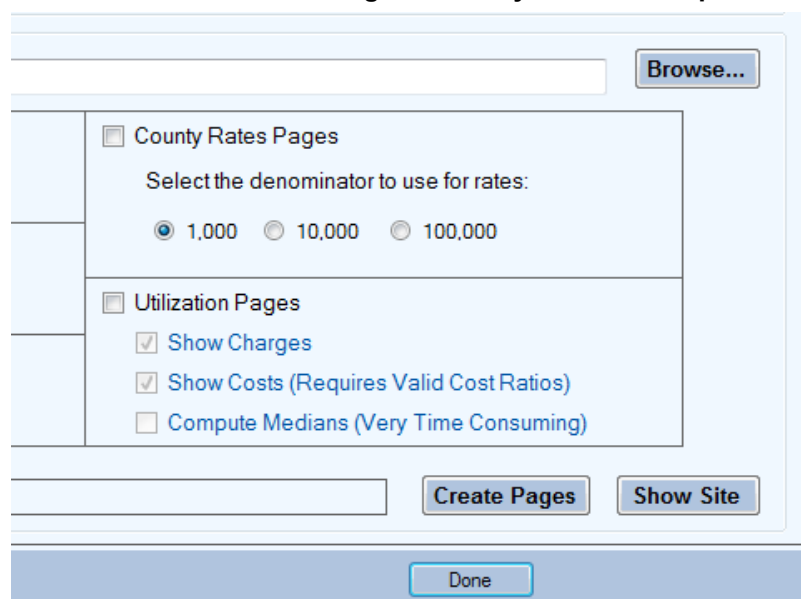
*These indicators are endorsed by the National Quality Forum (NQF). Visit www.qualityforum.org to learn more.

Cancel OK

All area-level quality measures are listed by topic in tabs. These groupings are used in the MONAHRQ-generated website. 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-generated website.

Screenshot 39. Generate Pages—County Rates of Hospital Use and Hospital Utilization Options



Following the order as seen on Screenshot 39 above, if you wish to generate the County Rates of Hospital Use path, select the **County Rates Pages checkbox**. 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. Note that the AHRQ QI project uses a per population denominator of 100,000.

If you wish to generate the Utilization path, select the **Utilization Pages checkbox**. 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 checkbox**. If this option is not selected, means will be provided. **Note that the median computing process may increase processing time by 50 percent.**

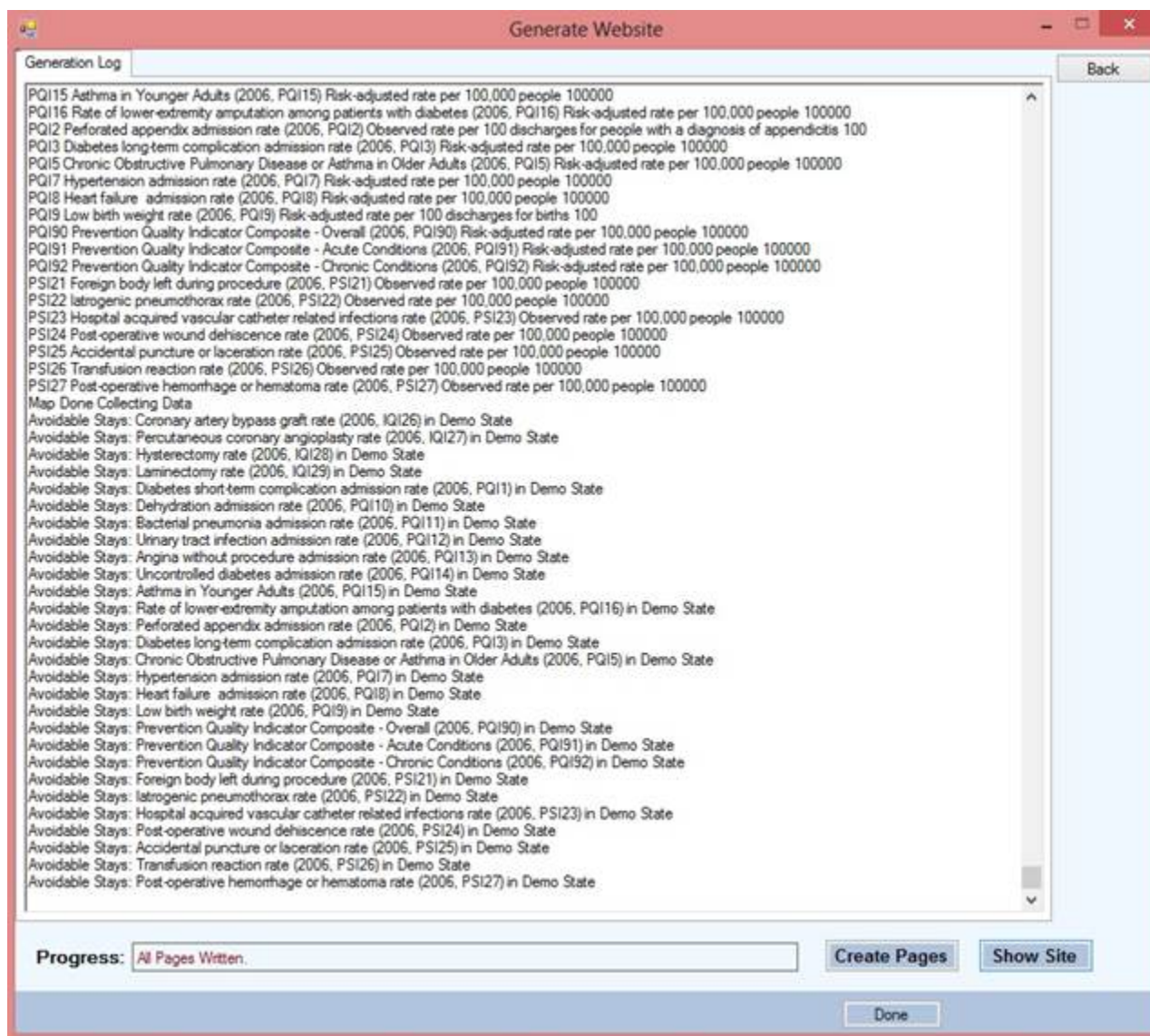
If you wish to generate the Utilization path to display the Emergency Department subpath, select the **Show ED checkbox**. By default, this checkbox is checked if the Inpatient Discharge Data, including the ED Indicator and the treat-and-release ED files, have been imported successfully. You may opt to not display the ED subpath in the generated pages by un-checking this checkbox.

Create Pages

Once you have specified how and where your page should be created, select **Create Pages**. The generation log is displayed with the progress status message (Screenshot 40). The generation process may take a considerable amount of time, depending on the size of the dataset and the page sets you have chosen. The Utilization path takes longer to generate than other paths. For example, if the Utilization path is included with the inpatient discharge data file containing 750,000 records and an ED treat-and-release file containing 300,000 records, it may take two to three hours to generate the website.

You can monitor your status in the Progress Status window. When completed, the progress status of **All Pages Written** will appear.

Screenshot 40. Generation Log



Select **Show Site** to view your MONAHRQ-generated website 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 by MONAHRQ can be found in [Appendix J](#).

If you would like to customize your MONAHRQ-generated website further, please see the customization options in [Chapter 5](#). That chapter will also provide information on the website architecture that enables you to perform customizations.

Your MONAHRQ-generated website 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 website.

5 UNDERSTANDING YOUR MONAHRQ®-GENERATED WEBSITE

5.1 Customization

Many Host Users may want to customize their MONAHRQ®-generated website more than is possible using MONAHRQ alone. This section explains the architecture of the MONAHRQ-generated website and provides helpful hints for organizations that want to customize their website. It should be noted that the fonts and colors of the MONAHRQ-generated website can easily be changed within MONAHRQ, as described in [Chapter 4](#).

5.1.1 Understanding MONAHRQ Website Architecture

There are two basic types of pages: *navigation* and *content*. The *navigation* pages allow the End User of the MONAHRQ-generated website 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 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 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 MONAHRQ does not require a web server and the pages are dynamic, Javascript is often used to control page formatting.

The following folders are found under the *Website 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 *Website Root*, so that they can all use a common path up to the website 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 may want to become familiar with the **SiteTemplate** folder under the MONAHRQ program installation folder C:\Program Files\AHRQ\MONAHRQ (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 website. If you edit the HTML in your generated website's target folder and you use MONAHRQ 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 website.

5.1.2 Folder Structure of the Website

Website Root = the target folder from the MONAHRQ Website Wizard

- **Navigation** = other static high-level web pages (created from templates)
- **json** = folder containing various data structures
- **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:

- AboutHospitalQuality.html – a page with an overview of the complete website
- AboutQualityRatings.html – a page explaining each of the quality measures
- AvoidableStays.html – the navigation page of the Avoidable Stays path
- Charts.html – a driver page that displays bar charts from JavaScript data¹
- ChartsText.html – a driver page that displays tabular charts from JavaScript data¹
- Definitions.html – the common definitions page referenced by other pages
- HelpMaster.html – list of screen help links to pop up help
- index.html – the home page for the website with links to main paths
- Methods.html – a page explaining methodology used to produce the website
- Methodology.html – a page explaining each of the MONAHRQ reporting paths
- Quality.html – the navigation page of the Quality path
- RatesMaps.html – the navigation page of the Rates of Conditions path
- SiteMap.html – a page showing the architecture of the website
- Utilization.html – the navigation page of the Utilization path
- RegisterSitemap.htm – optional sitemap registration page

¹The 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.

5.1.3 Navigation and Content Page Structure

The building blocks for a MONAHRQ-generated website 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.

5.1.3.1 The *img* folder

This folder contains the large images that appear throughout your MONAHRQ-generated website, such as a copy of your selected logo image—the main menu images for the four basic paths. These images are referenced directly in the HTML pages.

5.1.3.2 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* 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.

5.1.3.3 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 insert common headers and footers into your MONAHRQ-generated 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 you do not choose to 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 a 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 you select 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 website.

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 in your MONAHRQ®-generated website.

5.2.1 Modifying the Common Web Page Headers and Footers

To customize the headers and footers on the pages in your MONAHRQ-generated website, you will need to make changes in the following files. First, make the changes in the *SiteTemplate* folder before generating a website. The navigation pages get their header and footer sections from HTML snippets that are processed to undergo tag replacement. They are then inserted 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:

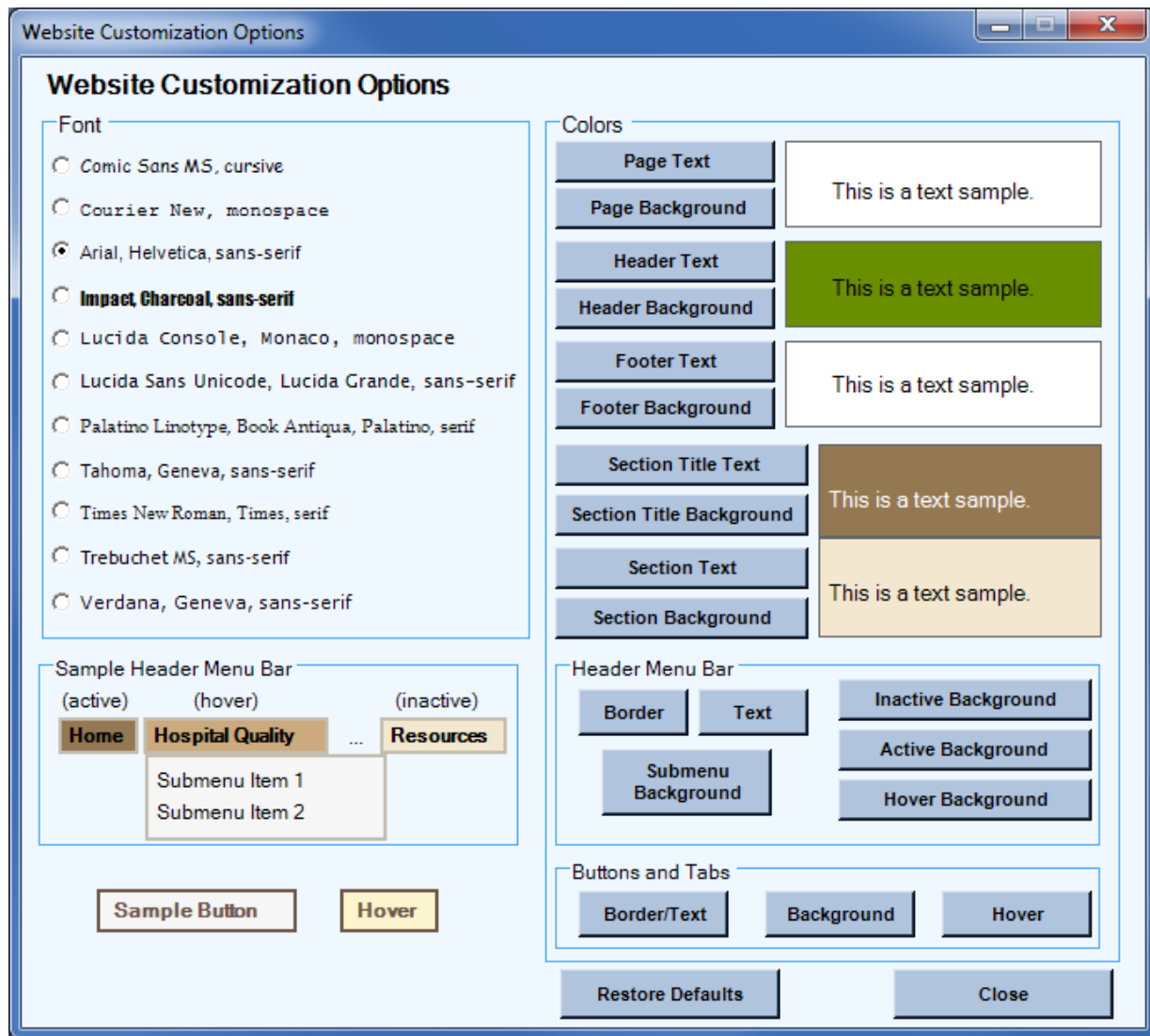
- SiteTemplate\Site_Header.html – partial html content injected at the top of navigation pages
- SiteTemplate\Site_Footer.html – partial html content injected at bottom of navigation pages
- SiteTemplate\js\header.js – JavaScript file included in all content pages to create the header
- SiteTemplate\js\footer.js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

You may want to test changes in your actual MONAHRQ-generated website and then move the changes to the templates. This allows you to see the results before generating a website. 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 you regenerate your MONAHRQ-generated website.

5.2.2 Changing Font and Colors in a MONAHRQ-Generated Website

You can change the color scheme of your MONAHRQ-generated website without editing the Cascading Style Sheets by hand from the *Customize Colors and Fonts* screen (Screenshot 41). 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 is discussed below.

Screenshot 41. Website Customization Options



A screenshot of a sample navigation page in a MONAHRQ-generated website (Screenshot 42) explains where these options apply. Content pages follow the same rules.

Screenshot 42. Sample Navigation Page

Screenshot 42 shows the following options were selected, based on the content from Screenshot 41:

- The “Page Text” on “Page Background” option is exemplified by the title “Hospital Utilization” and the “Select to Open Report in New Browser Window/Tab” text.
- The “Header Text” on the “Header Background” option is exemplified by the title “MONAHRQ Demo Website” on the green background.
- The “Footer Text” on the “Footer Background” is exemplified by the text “2006 Data in Demo 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.
- The “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 Colors section on Screenshot 41. 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 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 changes to 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-over background color. This color is not shown in this screenshot, 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 Website

MONAHRQ® generates a website consisting of a set of static web pages and places the pages in the directory that you specified during website generation. The website can be hosted using any web server and does not require an application server. MONAHRQ relies on client-side Cascading Style Sheets and JavaScript for its dynamic features. Although MONAHRQ requires a database to generate the website, it does not require a database to host the website.

To deploy your MONAHRQ-generated site, you can compress (or zip) the directory containing the generated website and copy it to the web server. Be sure to maintain the directory structure as you compress and extract 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 website varies based on the amount of data you have imported.

5.4 Security Issues

MONAHRQ®-generated websites have been tested using Veracode software to ensure that there are no security vulnerabilities, such as Cross Site Scripting. Because a MONAHRQ-generated website 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 website is related to the configuration and management of the hosting environment.

A MONAHRQ-generated website 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 website, but is not retained as part of the site itself. Hosting the website 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 website does not connect to the MONAHRQ database into which your data and measures were loaded. To ensure that patient-level data cannot be compromised, it is strongly recommended that the server used to host the website 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.

To restrict access to the website to only a specific group of people, Host Users must use a web server that has this capability. Web servers used to deploy MONAHRQ-generated websites usually can be configured to require users to login with a username and password when a web visitor attempts to access web pages below a specified folder of a website. Please contact your website administrator to configure advanced security, if needed.

5.5 Accessibility Issues

MONAHRQ®-generated websites 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.

While MONAHRQ-generated websites have been tested to meet Federal requirements for accessibility, local accessibility requirements may differ. To support additional local requirements, Host Users can customize their generated website. The MONAHRQ team has worked with organizations to understand and respond to their specific local accessibility requirements, and in some cases, the changes have been incorporated into MONAHRQ.

Host Users with specific accessibility requirements can contact monahrq@ahrq.gov for further assistance.

6 UPDATING MONAHRQ AND A MONAHRQ®-GENERATED WEBSITE

This section describes the process for upgrading the version of MONAHRQ® that you use and for refreshing your data and related MONAHRQ-generated websites.

6.1 Upgrading MONAHRQ®

The MONAHRQ 4.1 installer requires that all previous version of MONAHRQ are uninstalled before installing MONAHRQ 4.1. For help uninstalling MONAHRQ, please refer to [Chapter 2](#).

6.1.1 Migrating Your MONAHRQ Database

When refreshing data in the MONAHRQ database, you may need to overwrite your existing MONAHRQ database. Overwriting the database will delete all data and you will need to upload all the required data from the start. MONAHRQ 4.1 uses different data structures than prior versions. So, when upgrading to MONAHRQ 4.1, you must create a new database. Please refer to [Chapter 3](#) “Preparing Standard Data Files” for more instructions.

6.1.2 Migrating Your Stored Preferences

MONAHRQ provides the ability to store the Host User’s preferences and configuration information in a file. Please see the **Program Options** in [Chapter 3](#) and **Host User Configuration** sections to see how to store and retrieve your preferences.

6.2 Refreshing Your MONAHRQ®-Generated Website

6.2.1 Refreshing the Inpatient Discharge Data in Your MONAHRQ-Generated Website

The inpatient discharge data can be reloaded into an existing MONAHRQ database by simply re-running the Import Discharge Data wizard. Select the comma-separated value (CSV) file 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, use the Generate Website screen to recreate the Utilization and County Rates pages.

6.2.2 Refreshing the Emergency Department Data in Your MONAHRQ-Generated Website

Similar to inpatient discharge data, the ED data can be reloaded into an existing MONAHRQ database by simply running the Import ED Data wizard. Select the CSV file that contains the ED data, and run through the process of loading the data. Once the load is complete, use the Generate Website screen to recreate the Utilization pages.

6.2.3 Refreshing the Quality Measures in Your MONAHRQ-Generated Website

It is recommended that CMS Hospital Compare measures and AHRQ QIs be updated at the same time. The import screens for these data contain a **Clear Data** button. Clicking the **Clear Data** button will delete all quality measure results while leaving your inpatient discharge data intact. If you need to update just one of the two sources (AHRQ QIs or CMS Hospital Compare measures), reload the data for either source, as described in [Chapter 4](#).

6.2.4 Refreshing Hospital Compare Measures and AHRQ QIs in Your MONAHRQ-Generated Website

You may wish to update your MONAHRQ-generated website as new data become available. To update your MONAHRQ website, perform the following steps:

1. Obtain the latest Hospital Compare database from the MONAHRQ Website at http://monahrq.ahrq.gov/monahrq_data.shtml. Please note that you cannot use the data supplied directly from the CMS website. The Hospital Compare database provided on the MONAHRQ website has been reformatted for use with MONAHRQ. If only updating AHRQ QIs, reload your previously loaded Hospital Compare database.
2. Run the Load Hospital Compare Data process in MONAHRQ as directed in the **Load CMS Hospital Compare Measures** section. Be sure to select the **Clear Data** button before loading the new measures.
3. Load your updated AHRQ QIs. If you do not have updated AHRQ QI measure results, reload your AHRQ QIs from the original files.
4. If new hospitals have been added, 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 website by following **the instructions in the Generate a Website** section in [Chapter 4](#). The Generate Website screen maintains the previously selected options. You should not modify any previously selected measures unless you no longer wish to use them in your MONAHRQ-generated website. The target folder for the updated pages should remain the same. Select the checkboxes for Menu Pages, Images and Styles, Hospital Quality Pages, and 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 MONAHRQ-generated website will be overwritten. Pages for the other paths will remain the same.

APPENDICES

APPENDIX A. MONAHRQ® PERMISSIONS GUIDE

To run MONAHRQ, it is important to set the proper permissions for your Windows® Operating System and Microsoft® SQL Server™. This process often requires working closely with a system administrator or other technical personnel in your organization.

Verifying and Setting Folder Permissions in the Windows® Operating System

You must have **full control** permissions for the MONAHRQ® installed folder in order to run MONAHRQ. Beginning with MONAHRQ 4.1, the software installer automatically assigns permissions to the relevant Host Users at the time of MONAHRQ installation, so there is no need to manually set **full control permissions**. Depending upon the system settings, it is possible that the automatic permissions assignment may not complete properly. If you receive a system error when running MONAHRQ, make sure that the permissions are assigned properly. If they are not properly assigned, certain directory permissions must be granted to you or other Host Users who will be running MONAHRQ. These permissions apply only to the files and directories used by MONAHRQ.

The following instructions explain how to verify and, if needed, set the appropriate permissions in your Windows Operating System.

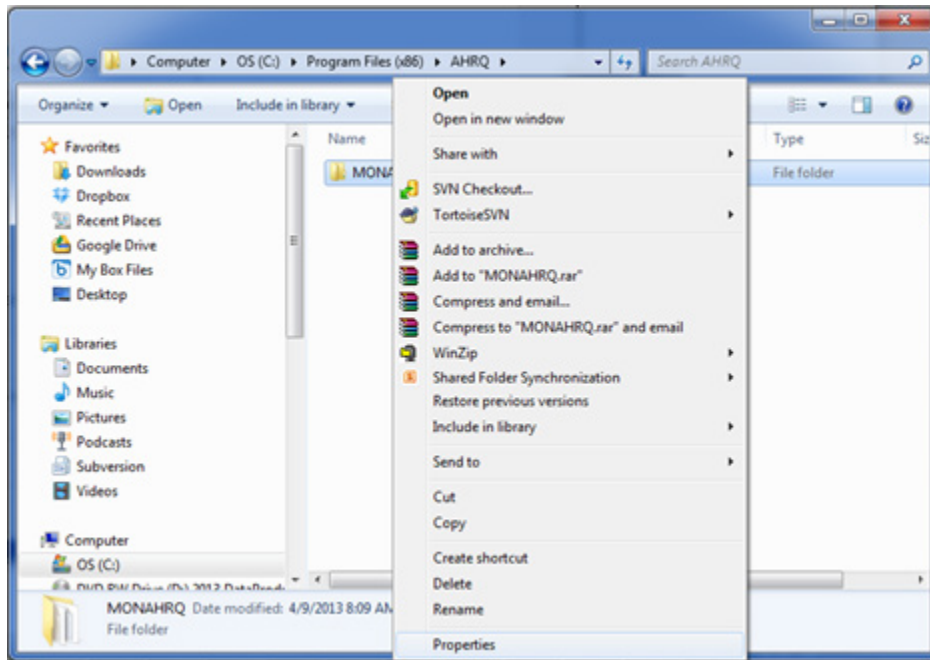
Step 1: Find the Installation Directory

A standard MONAHRQ installation places the software in the directory “C:\Program Files\AHRQ\MONAHRQ”. To use an alternative installation directory location, you will need to modify the permissions for that directory. The following instructions apply in either case; however, you will need to substitute the name of the alternative installation directory location where the name “MONAHRQ” appears.

Step 2: Open the Security Tab

Right click on the MONAHRQ directory to open the context menu (Screenshot 43).

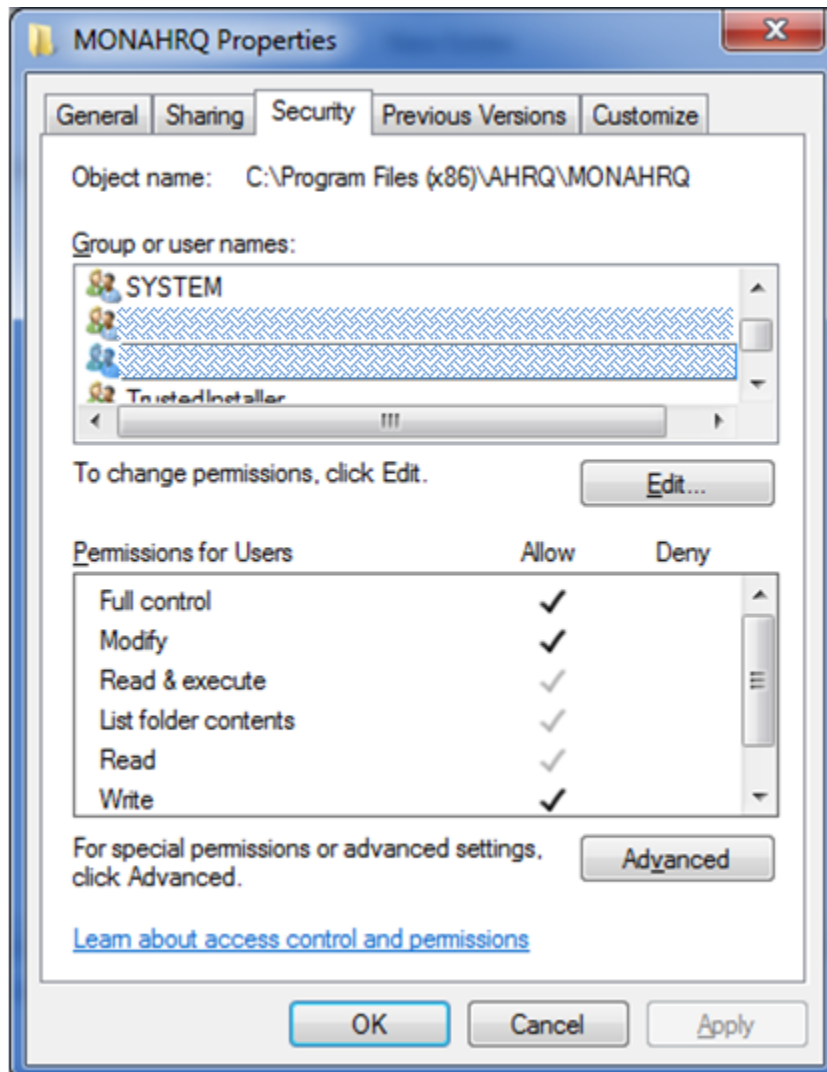
Screenshot 43. Context Menu



Select **Properties**.

A new window will pop up, titled **MONAHRQ Properties** (Screenshot 44).

Screenshot 44. MONAHRQ Properties Popup Window



Select the **Security** tab, find the entry that lists your user name in the “Permission entries” window, and single click to select and highlight the user. The **Permissions for User** window should have the **Full Control Allow checkbox** checked. If it is not checked, it means the installer failed to assign the **full control** privileges to you in the MONAHRQ folder. In this case, you will need to set up the permissions manually. Click the **Advanced** button to set up those permissions.

NOTE:

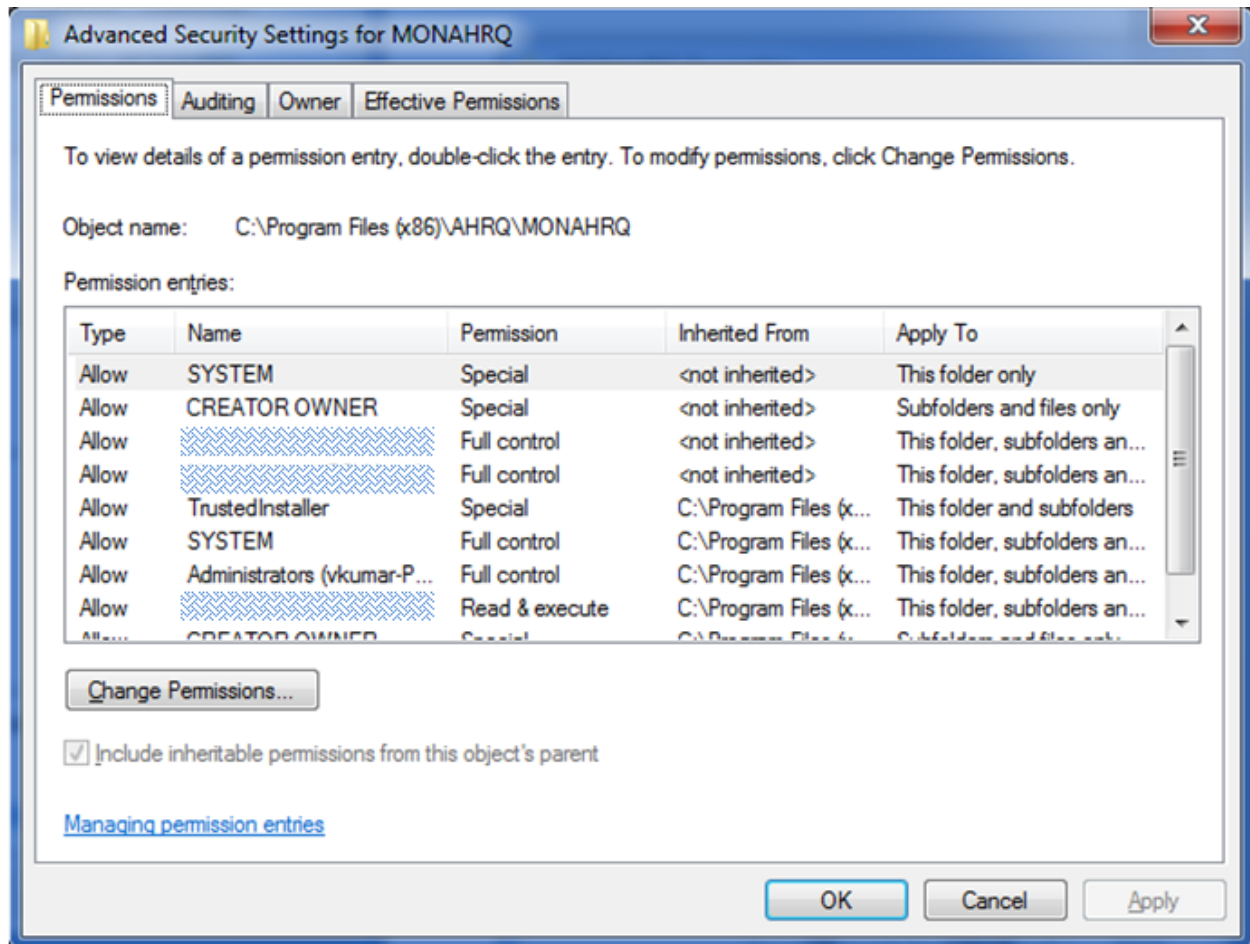
If the security tab is not present, you will need to contact your information technology (IT) administrator for further assistance.

The following Step 3 is required only if you need to manually set up the folder permissions, if the automatic permissions were not correctly by the MONAHRQ installer.

Step 3 – Provide the Proper Permissions

A new popup window titled **Advanced Security Settings for MONAHRQ** will appear (Screenshot 45).

Screenshot 45. Security Settings Popup Window



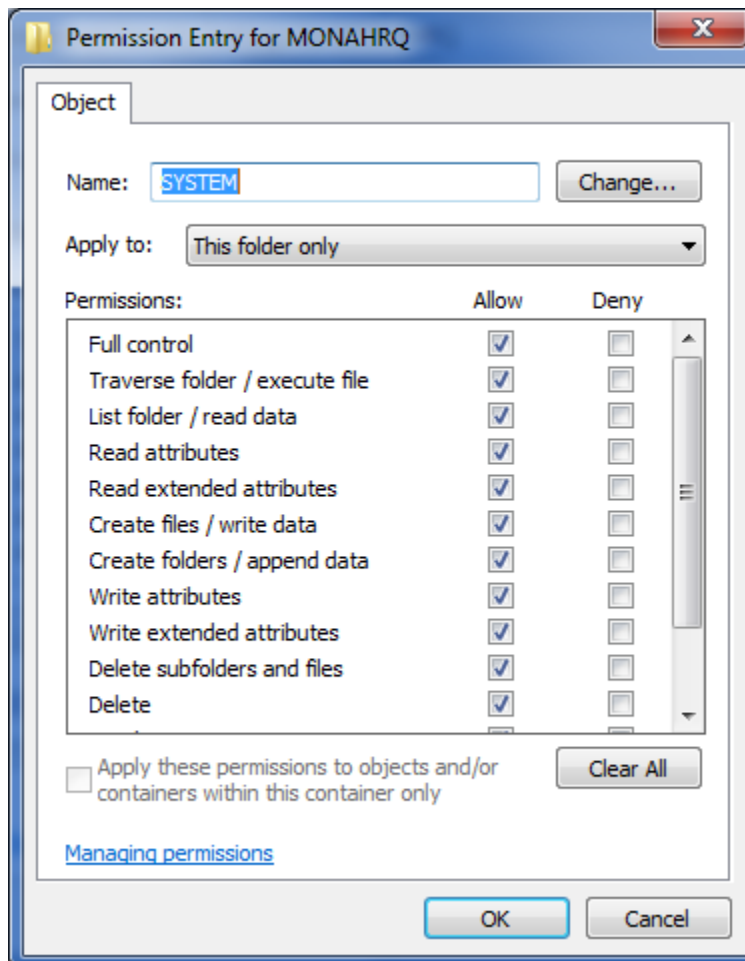
Select the **Permissions** tab.

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

Single click to highlight the entry. Click the **Edit** button.

A new popup window titled **Permission Entry for MONAHRQ** will appear (Screenshot 46).

Screenshot 46. Permission Entry Popup Window



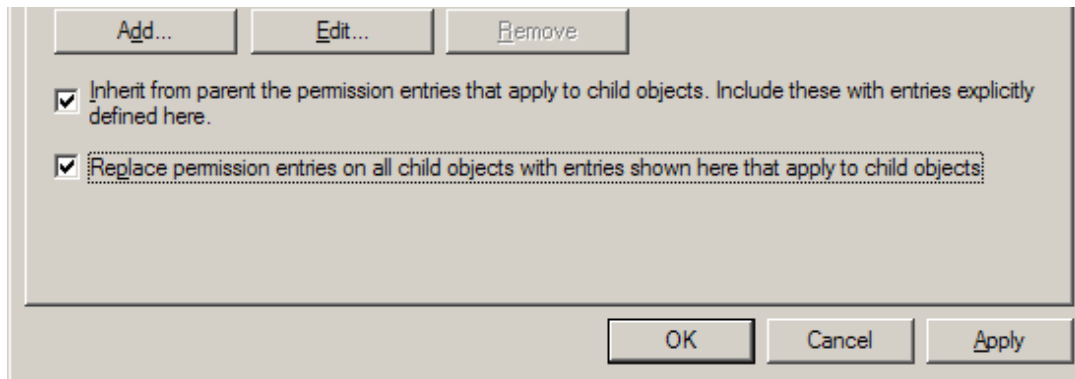
Find the row entry “Full Control.”

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”, your IT administrator will need to provide the necessary permissions.

Return to the popup window titled **Advanced Security Setting for MONAHRQ** (Screenshot 47).

Screenshot 47. Advanced Security Setting Popup Window



Select the checkbox labeled “**Replace permission entries on all child objects...**” and click the **Apply** button. 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.*

- SQL Server 2008
- SQL Server 2008 Express
- SQL Server 2008 R2 Express

Proper installation of MONAHRQ 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 delete databases.

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

Step 1: Connect to the SQL Server Instance Using SSMS

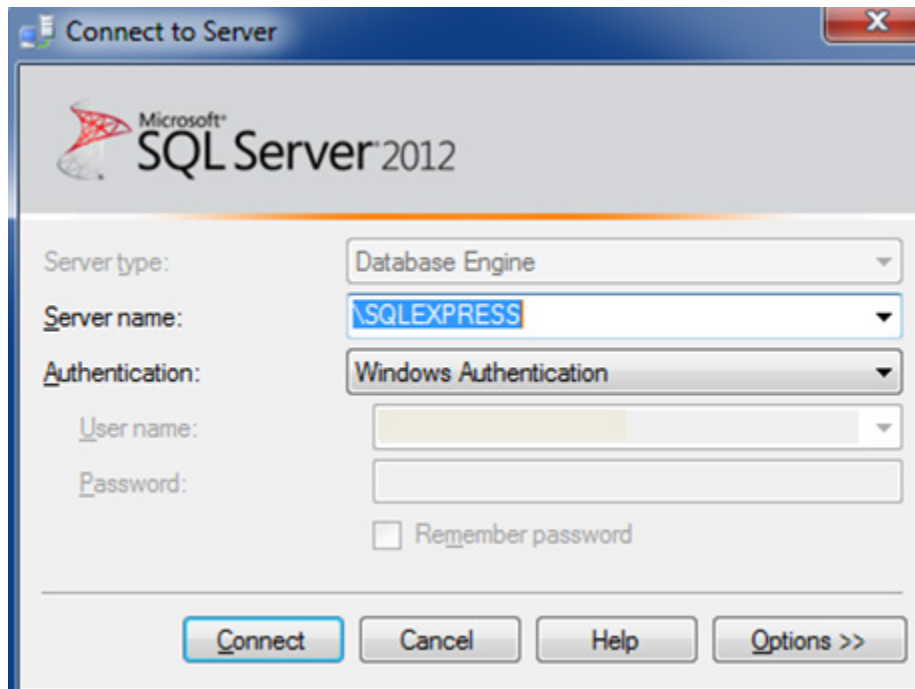
Microsoft SQL Server Management Studio (SSMS) is the primary tool for interfacing with the SQL Server. It may be downloaded from Microsoft at the following URL:

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

The assistance of your IT administrator may be needed 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” (Screenshot 48). If you specified a server different from the default, use the server name that you specified.

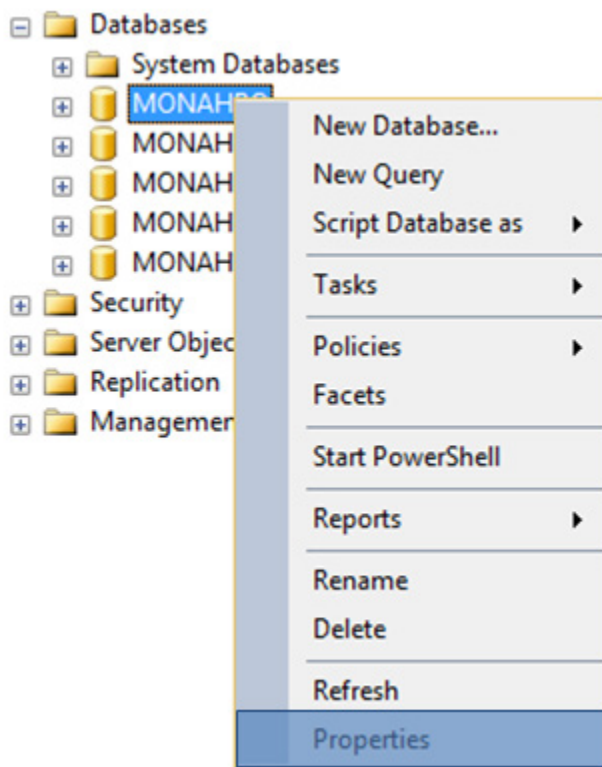
Screenshot 48. SQL EXPRESS Default



Step 2: Set Database Creation Permissions

You will see a popup window titled **Microsoft Server Management Studio** (Screenshot 49).

Screenshot 49. Microsoft Server Management Studio Popup Window



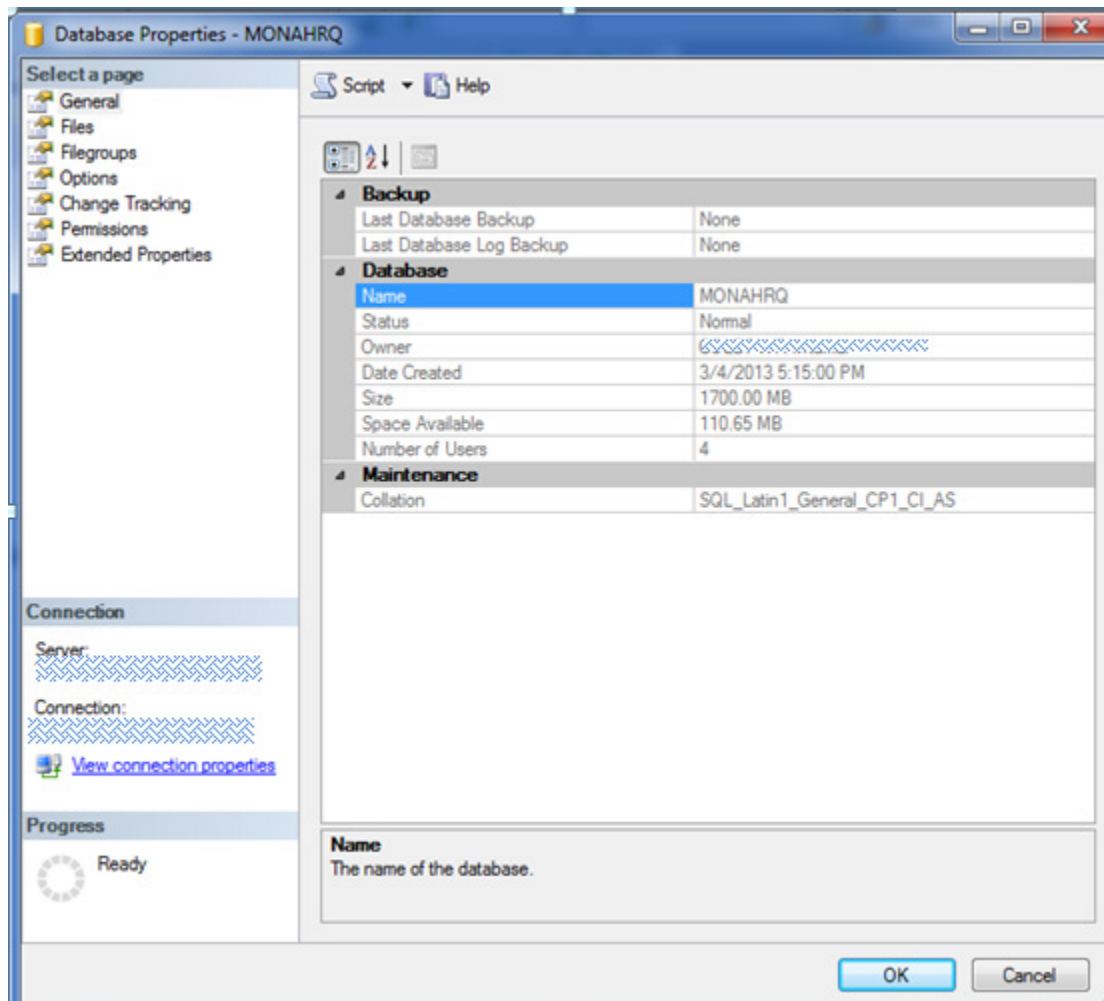
Right click on the name of the database server to which you are connected in order to open the context

menu.

Select **Properties**.

You will see a new popup window titled **Server Properties**, plus the name of your database server (Screenshot 50).

Screenshot 50. Server Properties Popup Window



Locate the “Select a page” list on the left side of the popup window. Select **Permissions**, then find 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 that entry.

Locate the “Permissions” list in the lower right portion of the popup window. Select the **Explicit** tab. Then 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 save the 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 MONAHRQ.

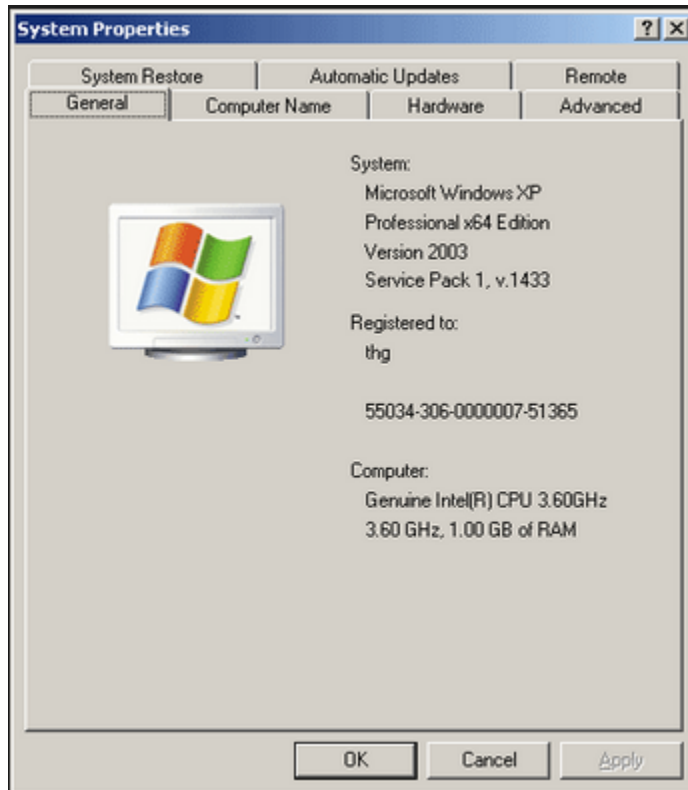
Additional Information

If the person installing MONAHRQ is *not* the person who will be using MONAHRQ, or if there will be more than one person using MONAHRQ on a single 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 B. DETERMINING YOUR SYSTEM TYPE

To determine if you have a 32-bit or 64-bit operating system in your personal computer (PC), go to **My Computer** from the Start Menu, right click and select Properties. A pop-up box displaying your version of Windows® will appear. Under “System” or “System type,” if it says 64-bit or x64, then your system is 64-bit. Screenshot 51 shows an example of the Properties dialog box for a system that uses the 64-bit version.

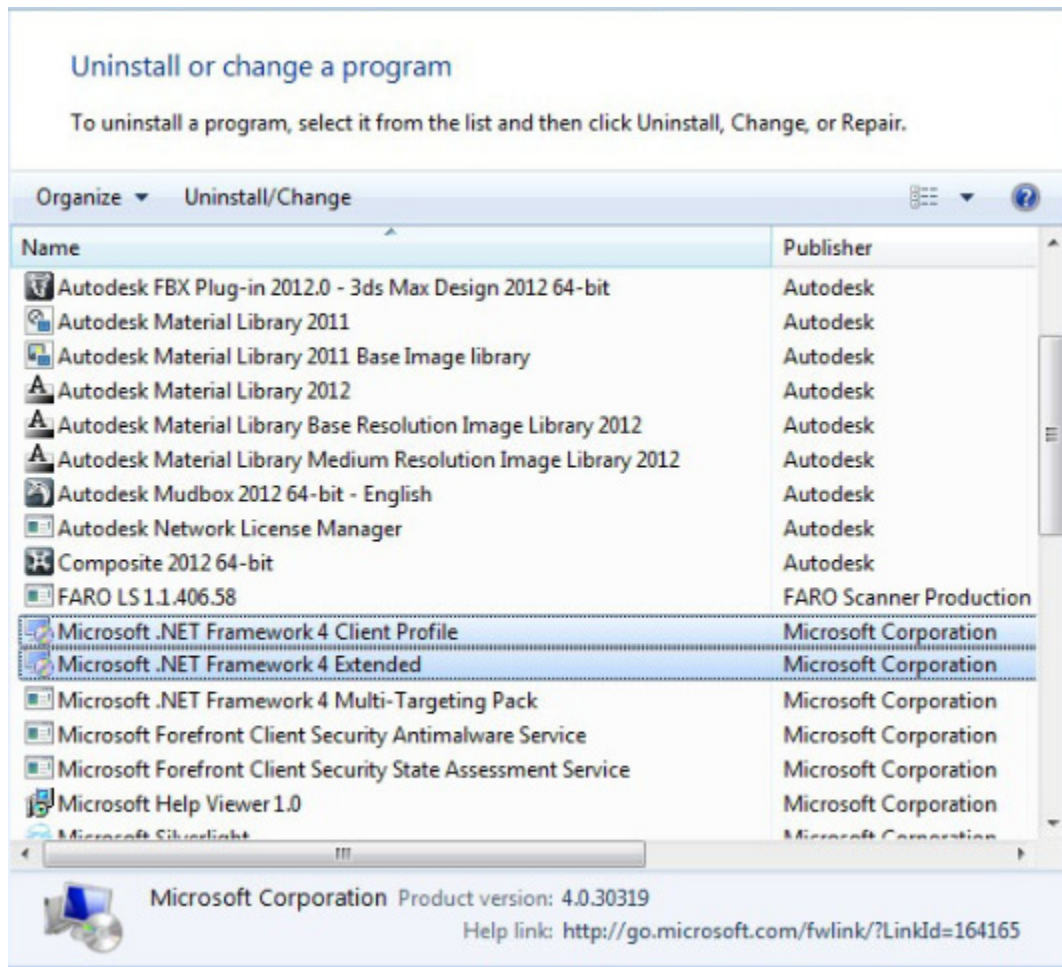
Screenshot 51. Properties Dialog Box for 64-Bit Version



APPENDIX C. MICROSOFT®.NET INSTALLATION

To check that Microsoft.NET 4.0 Framework is installed on your personal computer (PC), open the **Windows® Control Panel** and use the Programs utility to view a list of software programs installed on your PC. You can access the Control Panel by going to the Windows Start Button and then selecting the “Settings” option. Scroll down the alphabetical list of programs until you reach Microsoft .NET Framework 4 Client Profile and Microsoft .NET Framework 4 Extended. (Screenshot 52). There may be several entries for the Microsoft.NET Framework. For MONAHRQ® to work properly, you will need the full installation of .NET 4.0 Framework that includes .NET Framework 4 Client Profile and .NET Framework 4 Extended. MONAHRQ 4.1 is also compatible with the later versions of Microsoft .NET Framework, such as 4.5.

Screenshot 52. .Net Framework



If you do not have the Microsoft .NET 4.0 Framework installed, download the installation package from the MONAHRQ website (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, then run the file. Restart your computer after installing the .NET framework.

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

APPENDIX D. MONAHRQ SUPPLEMENTAL FILES

MONAHRQ SUPPLEMENTAL FILES

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

Table 8. MONAHRQ Supplemental Files

File	Where Used in MONAHRQ-Generated Website	Purpose	Source
Cost-to-charge ratio files	Hospital Utilization -- Avoidable Stays	Estimate hospital costs based on charges.	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 QI 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 QIs	Hospital Quality Ratings	Provide two types of pre-calculated benchmarks for the AHRQ QIs: <ul style="list-style-type: none"> Nationwide US Census regions (Northeast, Midwest, South, West) 	Included in the AHRQ QI software for Windows; originally calculated by AHRQ using 2009 Agency for Healthcare Research and Quality Healthcare Cost and Utilization Project (HCUP) HCUP Nationwide Inpatient Sample (NIS)) (http://www.hcup-us.ahrq.gov/). For more information refer - http://www.qualityindicators.ahrq.gov/FAQs_Support/FAQ_QI_Overview.aspx#benchmarkdata

File	Where Used in MONAHRQ-Generated Website	Purpose	Source
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 Agency for Healthcare Research and Quality Healthcare Cost and Utilization Project (HCUP) Nationwide Inpatient Sample (NIS), and Nationwide Emergency Department Sample (NEDS) data (http://www.hcup-us.ahrq.gov/).
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.	Dartmouth Atlas HRR and HSA files (accessed 2010; http://www.dartmouthatlas.org/).
MS-DRG, Clinical Classifications Software (CCS) Label and MDC 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.	HCUP (http://hcup-us.ahrq.gov/)

APPENDIX E. MONAHRQ DATA ELEMENT MAPPING FOR INPATIENT DISCHARGE DATA

Table 9. Preparing Your Local Inpatient Discharge Data: Data Element Mapping

MONAHRQ Data element Name	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	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 and the data import process will not complete.	Source value	Numeric. Convert to years; if age <365 days, set value to 0. If data element 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 and the data import process will not complete.	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 reporting at the hospital-level. If this data element is missing, the discharge record will be not be loaded and the data import process will not complete.	Source value	No data preparation needed. Source values, alpha or numeric, accepted.

MONAHRQ Data element Name	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	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 MS-DRG Grouper version used.</p> <p>If this data element is missing, the discharge record will be not be loaded and the data import process will not complete.</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 MS-DRG Grouper version used.</p> <p>If this data element is missing, the discharge record will be not be loaded and the data import process will not complete.</p>	<p>1: January–March</p> <p>2: April–June</p> <p>3: July–September</p> <p>4: October–December</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.
Principal/Primary Diagnosis	ICD-9-CM diagnosis codes, without decimal points	Required	If this data element is missing, the discharge record will be not be loaded and the data import process will not complete.	<p>Source value.</p> <p>String value more than five characters will be shortened.</p>	<p>Diagnosis Code 1 is the principal/primary 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 Data element Name	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	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. Only a primary diagnosis is required at a minimum. Tertiary diagnoses are optional.	Source value. String value more than five 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 four 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. Only a principal procedure is required. Tertiary procedures are optional.	Source value. String value more than four 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 Data element Name	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
REQUIRED FOR GENERATING ED UTILIZATION SUBPATH					
ED Services (see Appendix F)	Hospital admission or Treat and Release	Required- if ED utilization sub-path is being generated	None	0: Records that do not include evidence of ED services 1: ED visits that result in admission to the hospital 9: Missing	This element needs to be created in the data file (see the paragraph below for details). Source values, alpha or numeric, will be mapped to accepted numeric value or excluded during data load. This field may be derived from revenue codes on the admission claim. Stays with evidence of admission through the ED will carry a revenue code 45x.
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). If this field is missing, the embedded DRG grouper will complete this data.		No error checking will be performed on the imported DRG values. If a DRG is assigned, an MDC must also be assigned. MS-DRGs are assigned using the principal diagnosis and additional diagnoses, the principal procedure and additional procedures, sex and discharge status.

MONAHRQ Data element Name	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
MDC Import	User-defined Major Diagnostic Category (MDC)	Optional	<p>This field is optional. If not populated, the embedded MDC grouper will complete this data.</p> <p>The embedded IRP Grouper will assign MDC value in effect on discharge date (year and quarter).</p>		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.

MONAHRQ Data element Name	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	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 Web site Wizard cannot create maps by showing rates of preventable hospitalization by area. 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.</p> <p>The Federal Information Processing Standard (FIPS) codes may be obtained at http://www.census.gov/popest/about/geo/codes.html.</p>

MONAHRQ Data element Name	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
Race	Race/ethnicity of patient	Optional	<p>Records with this data element missing will be retained and the value set to Other.</p> <p>The rates and utilization paths will not be stratified by race/ethnicity if the data element is completely missing.</p>	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	This data element is optional, but if missing it will not include any cost column in the any of the analysis. This results into incomplete reports in the generated website. If this data element is not available, costs and charges will be excluded from the utilization path/ Inpatient Hospital Utilization subpath, cost will be excluded from the County Rates path, and , cost savings associated with reducing the level of potentially avoidable hospitalizations will not be included in summary report.	<p>Source value.</p> <p>Must be an integer (i.e., whole numbers only).</p>	Must be an integer: remove dollar signs and decimals (i.e., whole numbers only).

MONAHRQ Data element Name	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
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 (PDI 16 and PDI 18). If this data element is missing (and age is 0), generally, an alternative specification applies.	Age in days only applies for age <1 year. 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 Data element Name	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
Admission Source	Admission source	Optional	<p>Used in the inclusion and exclusion criteria for several PQIs, PDIs, PSIs, and IQIs.</p> <p>These indicators include:</p> <p>PQI: 1, 2, 3, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16</p> <p>IQI: 32</p> <p>PSI: 3</p> <p>PDI: 2, 14, 15, 16, 17, 18</p> <p>For indicators that rely on this field, records with this data element missing will be excluded from the denominator.</p>	<p>1: Emergency room</p> <p>2: Another hospital</p> <p>3: Another health facility, including long-term care</p> <p>4: Court/law enforcement</p> <p>5: Routine / birth / other</p> <p>0: Missing</p>	<p>No data preparation needed.</p> <p>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.</p> <p>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.</p> <p>This field is also used to establish the ED Services flag.</p>

MONAHRQ Data element Name	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
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.	<p><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 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 15: Transfer from Hospice</p> <p><i>When Admission Type is “newborn”:</i> 5: Born inside this Hospital 6: Born outside of this Hospital</p>	<p>No data preparation needed.</p> <p>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.</p> <p>Note: Point of Origin coding matches the UB-04 specifications, effective beginning October 2007.</p>

MONAHRQ Data element Name	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	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	<p>If the data element does not exist, it should be calculated from the admission date and the procedure date(s).</p> <p>The number of Days to Procedure data elements should agree with the number of procedure codes present.</p>

MONAHRQ Data element Name	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	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.
Present on Admission, 1–35	Flag indicating whether diagnosis was present on admission (POA)	Optional	Present on Admission (POA) data elements may eliminate false positives from PSI results. 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.	1: Present at the time of inpatient admission; undetermined; exempt 0: Not present at the time of inpatient admission	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.

MONAHRQ Data element Name	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
Custom Stratifier, 1–3	Custom stratification values	Optional	Custom stratifiers can be used in the reports section of the software (e.g., stratify by type of hospital—teaching or non-teaching). This data element has no effect on the generated HTML pages.		May be used with the AHRQ QI software for Windows.
OPTIONAL: NOT RECOMMENDED FOR USE (FOR PATIENT IDENTIFICATION WITH EXTERNAL ANALYSIS)					
Key	Unique case identifier	Optional	If this data element is not available, you 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
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

MONAHRQ Data element Name	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
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
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.	

APPENDIX F. MONAHRQ DATA ELEMENT MAPPING FOR EMERGENCY DEPARTMENT TREAT-AND-RELEASE DATA

Table 10. Preparing Your Local Emergency Department Treat-and-Release Data: Data Element Mapping

MONAHRQ Data Element Name	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
REQUIRED FOR MONAHRQ BASIC FUNCTIONS					
AGE	Patient age at time of service	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.
DISP_ED	Disposition Code	Required	If this data element is missing, the discharge record will not be loaded.	1: Routine 2: Transfer to short-term hospital 5: Transfer other: includes Skilled Nursing Facility (SNF), Intermediate Care Facility (ICF), and another type of facility 6: Home Health Care (HHC) 7: Against medical advice (AMA) 20: Died in ED 21: Discharged/transferred to court/law enforcement 98: Not admitted to this hospital, destination unknown 99: Not admitted to this hospital, discharged alive, destination unknown, Missing	No data preparation needed. Source values, alpha or numeric, will be mapped to accepted numeric value or excluded during data load. The standard UB-04 claim record contains a "Disposition Code" field which may be used to perform this mapping.

MONAHRQ Data Element Name	Description	Required/Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
DX1	Primary ICD-9 Diagnosis	Required	If this data element is missing, the discharge record will not be loaded.	Source value; string value more than five characters will be shortened.	Diagnosis Code 1 is the first-listed diagnosis. 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.
SEX	Indicator of sex	Required	If this data element is missing, the discharge record will not be loaded.	1: Male 2: Female	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	Hospital identifier	Required	If this data element is missing, the discharge record will not be loaded.	Source value	No data preparation needed. Source values, alpha or numeric, accepted.

MONAHRQ Data Element Name	Description	Required/Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
OPTIONAL FOR MONAHRQ BASIC FUNCTIONS					
DX2-DXn	2nd ICD-9 Diagnosis	Optional	None	Source value; string value more than five characters will be shortened.	Diagnosis Codes 2–35 are secondary diagnoses, and would include any External Cause of Injury codes (E-codes). While up to 35 diagnosis codes are available, in practice only 18 including the primary diagnosis would be coded. 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).
KEY_ED	Visit level record identifier (primary key)	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	No data preparation needed.
NDX	Number of diagnoses on this discharge	Optional	None	Calculated value	No data preparation needed. This element will be used for future reporting flexibility.

MONAHRQ Data Element Name	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
PAY1	Expected primary payer, uniform	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	Source values, alpha or numeric, can be mapped to accepted numeric value (0–6, 99) or excluded during data value mapping.
RACE	Race	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	Source values, alpha or numeric, can be mapped to accepted numeric value (0–6, 99) or excluded during data value mapping.

MONAHRQ Data Element Name	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
COUNTY	Hospital modified FIPS state/county code	Optional	If this data element is missing, the discharge record will be excluded from area rate calculations and the Web site Wizard cannot create maps by showing rates of preventable hospitalization by area. We recommend analyzing the area rates at the State or metro-area level. 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. If patient codes are not available, the hospital's codes can be loaded. If the hospital FIPS codes are used instead of the patient FIPS codes, the area rates must be interpreted with caution.	Source value	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 .

MONAHRQ Data Element Name	Description	Required/Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
HOSP_TRAUMA	Hospital trauma level designation	Optional	None. This data element is not currently utilized, but added here to be used in the future version of MONAHRQ.	0: Not a trauma center 1: Level 1 2: Level 2 3: Level 3 8: Level 1 or 2 9: Level 1,2, or 3	No data preparation needed. Source values, alpha or numeric, will be mapped to accepted numeric value or excluded during data load. This element will be used for future reporting flexibility.
YEAR	Admission year	Required	Data element used to apply the proper fiscal year coding (e.g., ICD-9-CM, CPT). Discharge year should be within the range of 1997 to present year. If this data element is missing, the discharge record will be not be loaded.	Source value, YYYY	Numeric: YYYY. Discharge year should be within the range of 1997 to present year.

APPENDIX G. PREPARING DATA USING THE AHRQ QUALITY INDICATORS™ SOFTWARE FOR WINDOWS® AND SAS®

MONAHRQ® can import externally calculated AHRQ Quality Indicator (QI) measure results. The results must be calculated using AHRQ QI software and supplied using a specific file format (see specified file formats in [Table 11](#), [Table 12](#), and [Table 13](#)). The AHRQ 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 (see more information under Part 1) and SAS versions (see more information under Part 2). Each version calculates the AHRQ QI rates.

Part 1: Using the AHRQ QI Software for Windows®

When running the AHRQ QI software for Windows (WinQI), the following reports provide measure results in the correct format:

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

When running the AHRQ QI software for Windows, the following set of reports is provided for each separate module: Inpatient Quality Indicators (IQIs), Patient Safety Indicators (PSIs), Prevention Quality Indicators (PQIs), and Pediatric Quality Indicators Overview (PDIs). 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 provider-level and composite measure reports provide data for the *Hospital Quality* path of MONAHRQ. The area-level report provides data for the *Avoidable Hospital Stays* path of MONAHRQ. 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 *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, MONAHRQ reports results for the following AHRQ QI modules: Inpatient Quality Indicators (IQIs), Patient Safety Indicators (PSIs), and Prevention Quality Indicators (PQIs). For more information, see the Measure List (http://monahrq.ahrq.gov/MONAHRQ_41_Measure_List.xlsx), an easy-to-reference spreadsheet listing all of the measures available in MONAHRQ 4.1.

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 indicators to use. As mentioned, MONAHRQ supports the IQIs and PSIs for provider-level reporting. After selecting your desired measures, on subsequent screens select the hospitals to include, along with the date range for reporting. On the screen titled **Select Stratifiers for Use with Provider Indicators**, drag the 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. *MONAHRQ supports only stratification by Hospital ID for provider-level measures.*

The next screen (Screenshot 53) will provide the option to select composite measures and update their weighting. The final screen titled **Additional Options for Data Analysis** allows for the selection of more 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.

Screenshot 53 indicates the appropriate options to select.

Screenshot 53. AHRQ QI Software Analysis Options for Provider-Level Reports

The screenshot shows the 'Additional Options' window for AHRQ Quality Indicators. The window has a title bar 'Additional Options' and a logo 'AHRQ Quality Indicators'. On the left is a sidebar with a 'Wizard Screens' section containing links: 'Select Content', '1. Select Indicators', 'Record Selection', '2. Select Hospitals', '3. Select Date Range', 'Rates and Totals', '4. Select Provider Stratifiers', '5. Select Composite', '6. Additional Options' (highlighted in red), 'Generate Report', '7. Generate Report', 'View Reports', and '8. View Report'. The main area is titled 'Additional Options For Data Analysis' and contains several sections: 'Rates' with checkboxes for 'Observed Rates', 'Expected Rates', 'Observed/Expected (OE) Ratio', 'Reference Population Rate', 'Risk Adjusted Rates', 'Smoothed Rates' (with radio buttons for 90% and 95%), 'Report confidence intervals' (with radio buttons for 90% and 95%), 'Include Indicator Totals', and 'Use POA in rate calculation'; 'Scaling' with radio buttons for 'Display Raw Rates' and 'Scale To Outcomes Per:' (set to 100) and a 'Number of Decimals' dropdown (set to 6); 'Report Layout' with radio buttons for 'Show Indicators In Rows' and 'Show Indicators In Columns', and checkboxes for 'Include Title in Exported Files' and 'Show Names of Indicators'; 'Cell Suppression' with a checkbox 'Exclude results that are based on too few patients?' and a 'Minimum patients per cell' dropdown (set to 20); 'Geography Stratifiers' with radio buttons for 'Show Numeric FIPS Codes' and 'Show the names of each county, state or metro area'; 'Area Report Options' with radio buttons for 'Include only the population of counties with discharge records' and 'Use the total population of each state or metro area', and a checkbox for 'Risk adjust for SES poverty decile'; and a 'Report Title' text box containing 'Report from 5/15/2012 11:10:15 AM'. At the bottom are buttons for '< Back', 'Next >', 'Cancel', and 'Help'.

Selecting **Next** on the screen will run the report (Screenshot 54). MONAHRQ relies on the file format from the AHRQ QIs to import calculated measure results. The file format is documented below in [Table 11](#).

Screenshot 54. AHRQ QI Software Provider-Level Report

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 **Export All** button, as seen in the screenshot above, and save the results to a file.

Table 11. 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 (Screenshot 55).

Screenshot 55. AHRQ QI Software Composite Report

Reports

AHRQ Quality Indicators

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

Screenshot 56. 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

Select the **Save Report** button to generate the composite provider-level report (Screenshot 56).

MONAHRQ accepts the file format generated by the AHRQ QI Software. The file format is documented in [Table 12](#).

Table 12. Composite Indicator Input File Format

Field Name	Description	Sequence
composite_name	Measure name	1
Hospital ID	Provider identifier	2
COMP1	Composite rate/ratio	4
COMP1SE	Standard error	5
COMP1WHT	Weight	6
COMP1LIB	Lower bound of the rate/ratio confidence interval	7
COMP1UB	Upper bound of the rate/ratio 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 (Screenshot 57).

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. MONAHRQ® supports only stratification by county for area-level measures.

The final screen titled **Additional Options for Data Analysis** allows for the selection of more 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.

Beginning with MONAHRQ 4.1, the total cost saving data calculation is now embedded within MONAHRQ and there is no need to run the Cost Calculator to calculate total cost saving. Area-level QI files can be directly uploaded into MONAHRQ. Although the cost calculation is now embedded within MONAHRQ, MONAHRQ still requires reading information from the AHRQ QI database in order to calculate cost. More information about this is provided in [Appendix H: Embedded Area QI Cost Calculation](#).

Screenshot 57. AHRQ QI Software Analysis Options for Area-Level Reports

Additional Options

AHRQquality Indicators

Wizard Screens

- Select Content
 - 1. Select Indicators
- Record Selection
 - 2. Select Report Period
- Rates and Totals
 - 3. Select Area Stratifiers
 - 4. Additional Options**
- Generate Report
 - 5. Generate Report
- View Reports
 - 6. View Report

Additional Options For Data Analysis

Rates

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

Scaling

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

Report Layout

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

Cell Suppression

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

Geography Stratifiers

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

Area Report Options

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

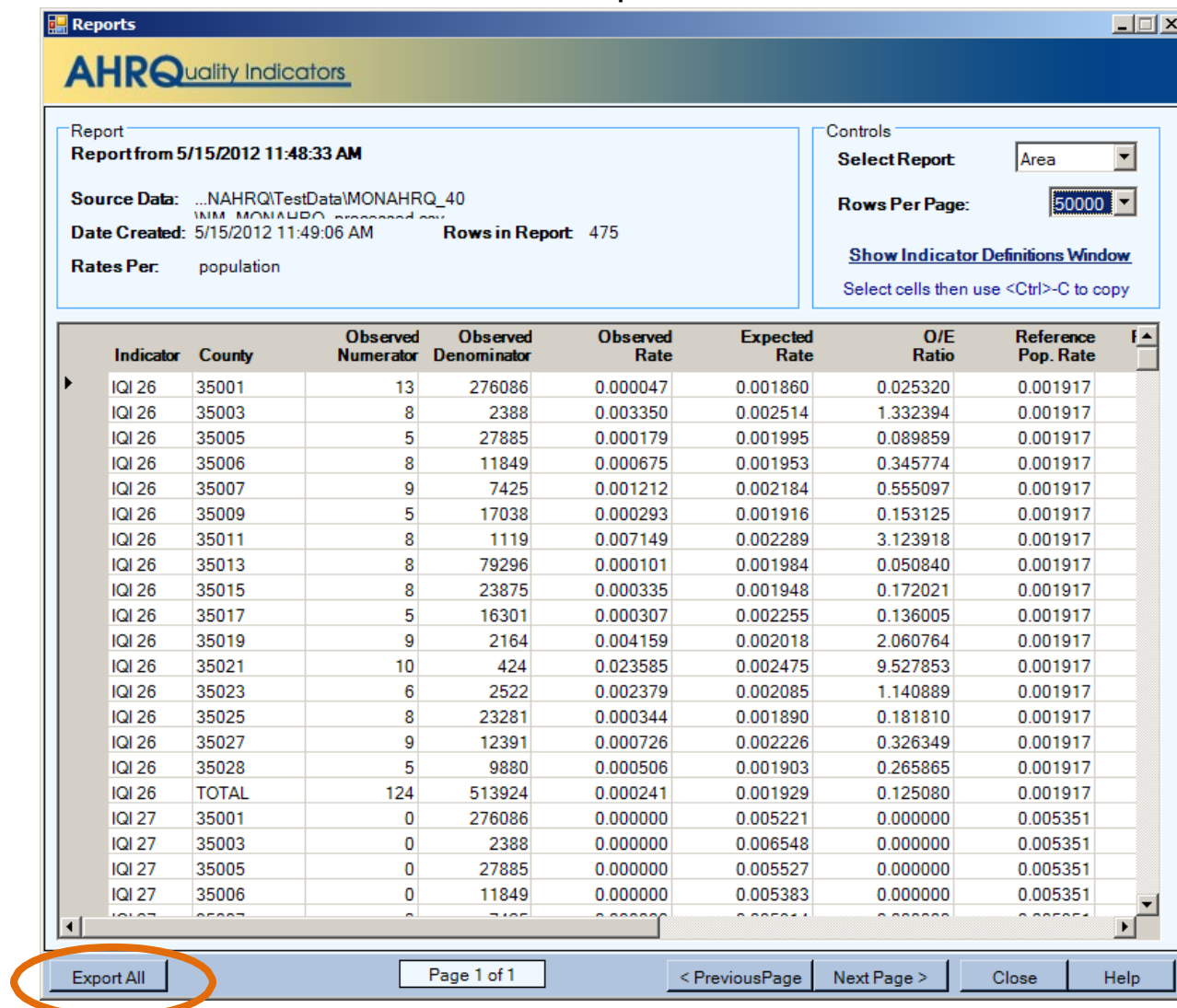
Report Title

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

< Back
Next >
Cancel
Help

Selecting **Next** as shown in Screenshot 57, will run the report (Screenshot 58). MONAHRQ relies on the file format from the AHRQ QIs to import calculated measure results. The file format is documented below in [Table 13](#).

Screenshot 58. 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.csv

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

Select the **Export All** button to save the results in a comma-separated values (CSV) file (Screenshot 58).

MONAHRQ accepts the file format generated by the AHRQ QI Software. The file format is documented in [Table 13](#).

Table 13. 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

Part 2: Preparing data using the AHRQ QI software for SAS®

MONAHRQ 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 11](#), [Table 12](#), and [Table 13](#).

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) (standalone SAS programs for PSI-17 and PQI-09 are available beginning in AHRQ QI version 4.5)

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 MONAHRQ.

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 available sets of reports and each SAS formatting utility is QI module-specific. For input, each requires 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 MONAHRQ. The final CSV file is identical to those used to import data from the AHRQ QI software.

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

The following information describes 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 QIs from the **Resources** page of the MONAHRQ download Web site. The provider, composite, and area-level utility files for the IQIs are:

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. You 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;
```

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 QIs from the **Resources** page of the MONAHRQ download Web site. The provider, composite, and area-level utility files for the PSIs are:

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 AHRQ PSIs depend on the PSI Module control file. You 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;
```

Once the pathway has been assigned, run the three SAS formatting utilities for the AHRQ PSIs. That process 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 QIs from the **Resources** page of the MONAHRQ download Web site. The area-level utility file for the PQIs is:

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. You 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, you 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 QIs from the **Resources** page of the MONAHRQ download website. 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. You 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, you 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. This process 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.

APPENDIX H. EMBEDDED AREA QI COST CALCULATION

To report the estimated cost savings for potentially avoidable hospital stays, MONAHRQ® needs to calculate the cost. This calculation occurs during the website generation process only if the “Avoidable Stays” checkbox is selected.

Area-Level QI Report

The cost calculation process appends a total cost to the **AHRQ QI Area-Level Report** generated by the AHRQ QI software for Windows® and uploaded to MONAHRQ. Costs reflect the estimated 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 CMS (AHRQ Healthcare Cost and Utilization project (HCUP) (<http://www.hcup-us.ahrq.gov/db/state/costtocharge.jsp>). The total cost is computed for each QI by aggregating Area-Level QI rates and summing costs by county.

If you choose to report Cost Savings in your MONAHRQ-generated website, you must have the AHRQ QI software for Windows installed. In order for MONAHRQ to calculate the total cost, you must have imported the total charge 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 G](#).

QI 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.” In order for MONAHRQ 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.

Hospital Information File

MONAHRQ requires the 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 defined via “Define Region & Hospital” function. 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. 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.”

Prepare Cost Estimates

The cost is calculated in the background when you click “Create Pages” on the “Generate Website” screen.

The session log provides a record of all logs that are related to the calculation run.

Select Database

MONAHRQ will try to read AHRQ QI database information from your computer. If it does not find the information, it will ask you to provide the correct database information, as shown in Screenshot 59. Enter the SQL Server database connection information for the QI database (server name, authentication type,

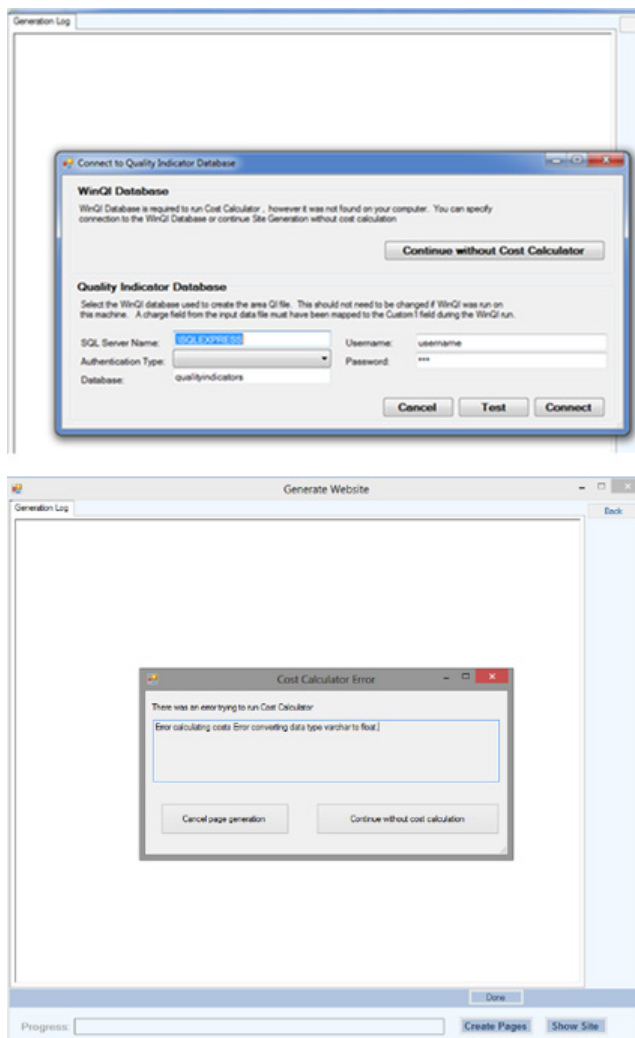
database name). If the AHRQ QI software for Windows® was run on the same machine, no changes are required to the default information.

Click the **Test** 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.

Once you have entered the file information, select Connect to continue. This will complete the calculation process. If the calculation process encounters errors, it will prompt you to either cancel the page generation process or continue without calculating the cost (Screenshot 59). If you choose to continue upon receiving the error, the cost savings reports will not be generated. Any errors encountered by the cost calculation process will also be available in the session log. This will help you or your IT support personnel identify any errors or problems with cost calculation.

Screenshot 59. Enter Location of QI Database (SQL format)



Technical Notes about Calculation of Total Costs by MONAHRQ®

The resulting 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 QI input file is read, cost is calculated and added to the record.

For *discharge-level* rows, if the observed numerator is missing, the cost is missing. If the observed numerator is zero, the 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 the 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, the cost is missing. If the observed numerator is zero, the 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 the cost could not be calculated for any record on the file or if lines are too short to contain the observed numerator. You will receive a warning if there are records for which cost is missing.

APPENDIX I. CELL SIZE SUPPRESSION IN MONAHRQ®

'Cell size suppression' refers to how MONAHRQ® 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-based suppression is generally used to ensure a sufficient number of cases for reliability. Numerator-based 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 cell size suppression logic for MONAHRQ is as follows:

Denominator-based suppression

If the denominator is below the specified denominator threshold, denominator-based suppression applies.

- Rates will be suppressed and displayed as dashes ('-')
- Numerator values will be suppressed and displayed as dashes ('-')
- Denominator values will be suppressed and displayed as dashes ('-')

Note: If denominator-based suppression applies, numerator-based suppression logic (described below) is not checked.

Numerator-based suppression

If the numerator is below the specified numerator threshold AND denominator-based suppression does not apply, numerator-based suppression applies.

- Rates will be suppressed and displayed as 'c'
- Numerator value will be suppressed and displayed as 'c'
- Denominator values will be shown

Note: For measures that do not have a denominator (blank), only numerator-based suppression applies.

Margin suppression

MONAHRQ supports margin suppression as an optional 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.

- Rates will be suppressed and displayed as 'c'
- Numerator values will be suppressed and displayed as 'c'
- Denominator values will be shown

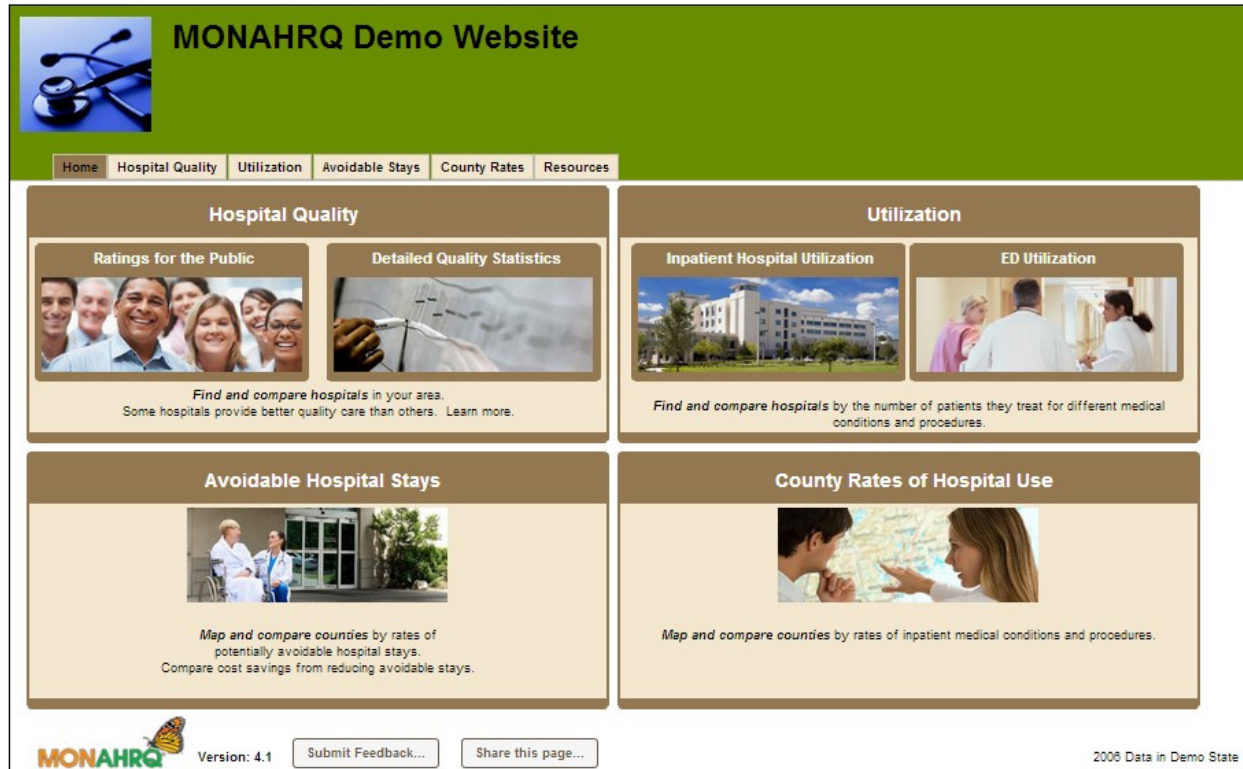
APPENDIX J. MONAHRQ®-GENERATED WEB PAGES

Web Pages Provided in a MONAHRQ-Generated Website

During the generation process, MONAHRQ Host Users can select which paths or reporting areas to display and also customize the design of the generated web pages in MONAHRQ. This appendix describes all of the default web pages that Host Users can deploy in their MONAHRQ-generated website.

Home Page

Screenshot 60: Home Page

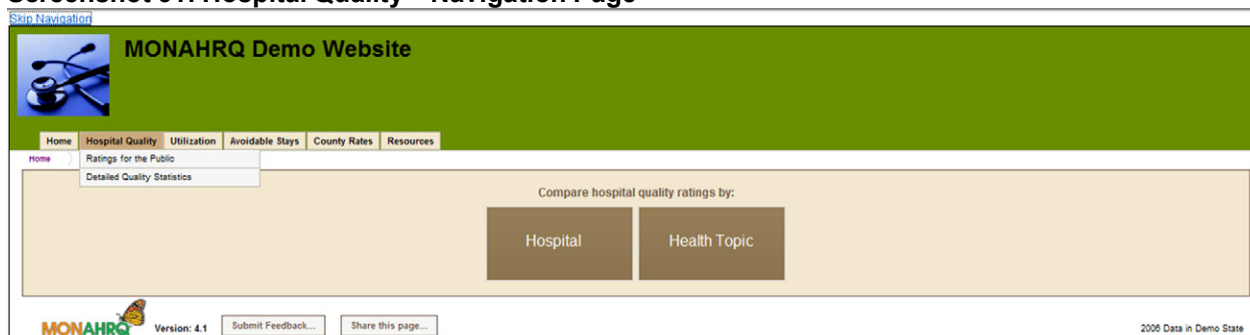


The MONAHRQ home page (Screenshot 60) displays four distinct pathways to follow:

1. The **Hospital Quality** path provides hospital ratings for the public and other detailed statistics.
2. The **Utilization** path allows End Users to compare hospitals, either by the number of patients they treat inpatient or those they treat in the Emergency Department (ED) for different medical conditions and procedures.
3. The **Avoidable Hospital Stays** path allows End 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 End Users to compare counties by rates on inpatient medical conditions and procedures.

Hospital Quality

Screenshot 61: Hospital Quality—Navigation Page



In the Hospital Quality path (Screenshot 61), the End User of a MONAHRQ-generated website can select by “Ratings for the Public” or by “Detailed Quality Statistics.” The Ratings for the Public path provides information in a simplified format that is easier to understand. The Detailed Statistics path provides additional statistical results such as confidence intervals with a drill-down to statistics in a tabular format.

Within each of these paths, End Users can compare the Hospital Quality Ratings by “Hospital” or by “Health Topic.” The “Hospital” path allows End Users to select multiple providers for each health topic, such as “Child Birth.” This will graphically show quality ratings for each indicator and hospital selected and provides a drill down to view the information as a bar chart, a detailed table view, or as detailed statistics in a tabular form.

MONAHRQ 4.1 also allows End Users to create hospital summary pages by selecting the **Health Topic** path. The “Health Topic” path allows for comparison of up to five providers on all or select topics. This path provides a summary page where all or a selected subset of measures are displayed in columns (Y-axis) and Hospital(s) in rows (X-axis). [Table 14](#) lists the reports included in the Hospital Quality Ratings path.

Table 14. List of Reports for the Hospital Quality Paths

Hospital Quality Ratings Path	Subpath	Report Type
Ratings for the Public	By Hospital	Graph report
Ratings for the Public	By Hospital	Bar chart
Ratings for the Public	By Hospital	Table view
Ratings for the Public	By Hospital	Detailed table view
Ratings for the Public	By Health Topic	Summary report
Detailed Quality Statistics	By Hospital	Graph report
Detailed Quality Statistics	By Hospital	Bar chart
Detailed Quality Statistics	By Hospital	Detailed table view
Detailed Quality Statistics	By Health Topic	Summary report

Screenshot 62: Hospital Quality—By Hospital—Navigation Page

The screenshot shows the MONAHRQ Demo Website interface. At the top, there is a green header with the text "MONAHRQ Demo Website" and a stethoscope icon. Below the header is a navigation bar with tabs: Home, Hospital Quality (selected), Utilization, Avoidable Stays, County Rates, and Resources. Under the "Hospital Quality" tab, there is a sub-navigation bar with "Home" and "Hospital Quality Detailed Quality Statistics". The main content area is titled "Hospital Quality" and contains two panels: "Choose Hospitals" and "Choose Health Topic". The "Choose Hospitals" panel has three tabs: "By Hospital" (selected), "By ZIP Code", and "By Region". Below the tabs, it says "Please select one or more hospitals:" and "Select all Hospitals". A list of hospitals is shown, including "EXETER HOSPITAL INC" and "Facility 10" through "Facility 16". The "Choose Health Topic" panel has a dropdown menu labeled "Please select a health topic:" with the option "- Select a Topic -". Below the panels, there is a checkbox labeled "Select to Open Report in New Browser Window / Tab". At the bottom, there are buttons for "< Back" and "Get Report". The footer includes the MONAHRQ logo, "Version: 4.1", "Submit Feedback...", "Share this page...", and "2008 Data in Demo State".

MONAHRQ Demo Website

Home Hospital Quality Utilization Avoidable Stays County Rates Resources

Home Hospital Quality Detailed Quality Statistics

Hospital Quality

Choose Hospitals

By Hospital By ZIP Code By Region

Please select one or more hospitals:
Select all Hospitals

EXETER HOSPITAL INC
Facility 10
Facility 11
Facility 12
Facility 13
Facility 14
Facility 15
Facility 16

Choose Health Topic

Please select a health topic:
- Select a Topic -

☐ Select to Open Report in New Browser Window / Tab

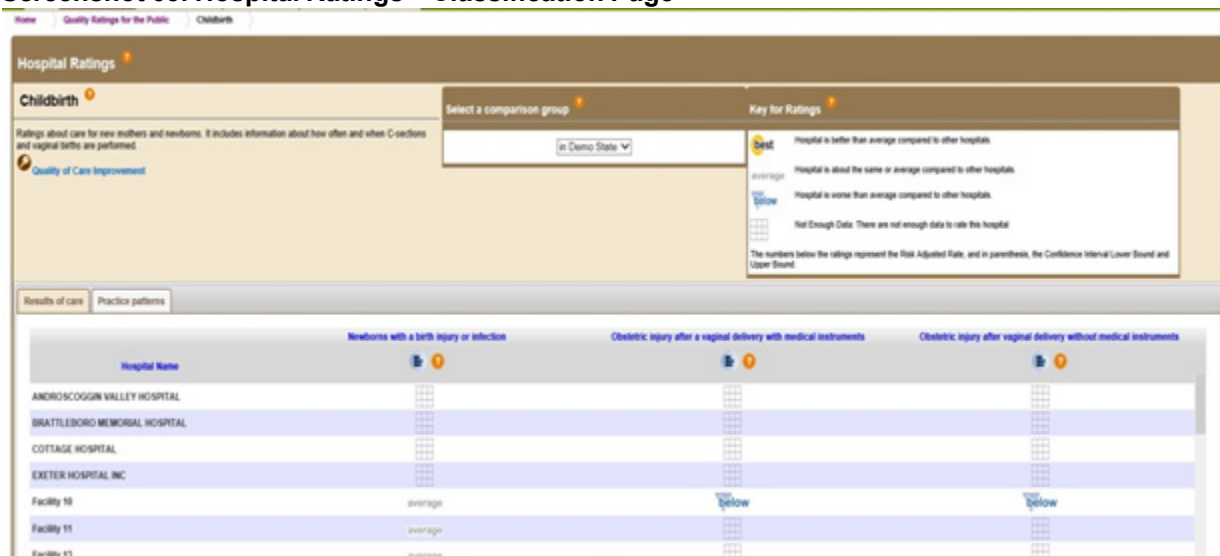
< Back Get Report

MONAHRQ Version: 4.1 Submit Feedback... Share this page... 2008 Data in Demo State

Following the “Hospital” path (Screenshot 62), End Users choose hospitals from a full list of hospitals or by ZIP Code or region. If no hospitals are selected, MONAHRQ will select all hospitals by default. The End User then chooses the health topic of interest for the given hospital or hospitals.

End Users can define regions, select ZIP Code radii for searching, and select which measures to view in a report.

Screenshot 63: Hospital Ratings—Classification Page

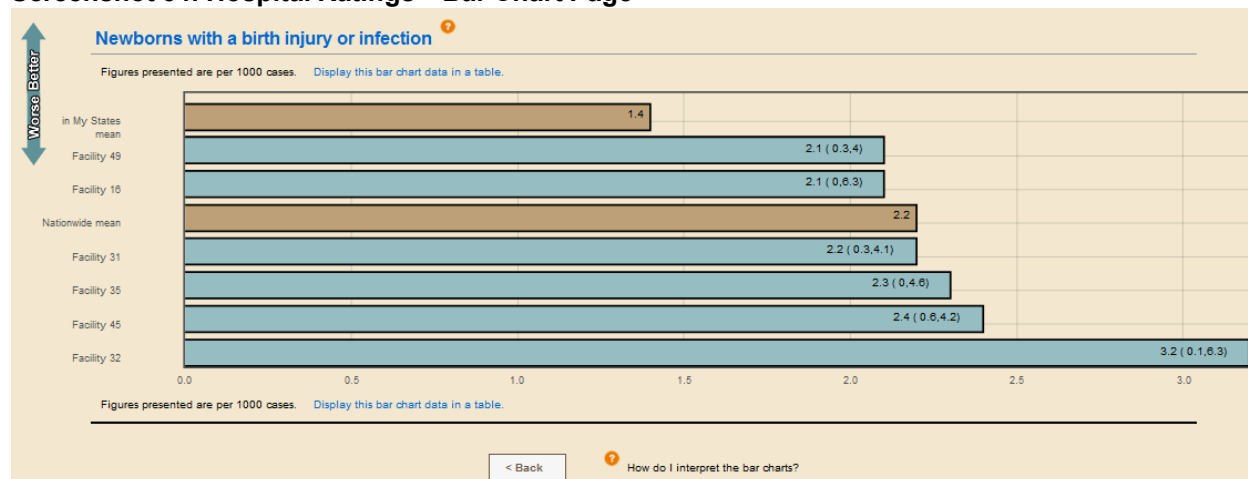


The Hospital Ratings table (Screenshot 63) classifies hospitals into one of three categories. The classification scheme varies by the measure type and the data available for each measure. End Users can access detailed statistics, bar charts, and help from this page. Hospitals can be compared to the nationwide average or to the average of reported hospitals in the website (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) appears in the Hospital Name header row.

Note: If the Host User has activated MyQI links, the links will appear in the Hospital Quality reports. Screenshot 63 also shows how the **Quality of Care Improvement** link will be displayed from Hospital Compare pages when MyQI links are active.

Screenshot 64: Hospital Ratings—Bar Chart Page



Hospital ratings and benchmark values are displayed in bar charts for each measure (Screenshot 64). Hospital scores are sorted in order so that better scores are at the top.

Screenshot 65: Hospital Ratings—Bar Chart Page as Text

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 32	3.2
Facility 45	2.4
Facility 35	2.3
Facility 31	2.2
Nationwide mean	2.2
Facility 16	2.1
Facility 49	2.1
in My States mean	1.4

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

Hospital ratings and benchmark values are displayed in text charts for each measure (Screenshot 65). Hospitals scores are sorted in order so that better scores are at the top. To view charts as text, select the “Display this bar chart data in a table” link on the previous page.

Screenshot 66: Hospital Ratings—Detailed Statistics Page

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 Print Friendly View

Hospital or Benchmark	Numerator	Denominator	Observed Rate	Observed Lower-bound CI	Observed Upper-bound CI
In Demo State mean	130	94694	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	1468	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 (Screenshot 66). All available statistics for the given measures are displayed; the available statistics vary by type of measure.

End Users have the option to view a print-friendly version of the detailed statistics report by selecting the **Print Friendly View** button (see Screenshot 66). The Print Friendly View is shown in Screenshot 67.

Screenshot 67. Hospital Ratings—Print Friendly View

Measure details for Newborns with a birth injury or infection					
Hospital or Benchmark	Numerator	Denominator	Observed Rate	Observed Lower-bound CI	Observed Upper-bound CI
ANDROSCOGGIN VALLEY HOSPITAL	-	-	-	-	-
BRATTLEBORO MEMORIAL HOSPITAL	-	-	-	-	-
COTTAGE HOSPITAL	-	-	-	-	-
EXETER HOSPITAL INC	-	-	-	-	-
Facility 10	1	759	0.0013	0.0000	0.0039
Facility 11	2	1873	0.0011	0.0000	0.0025
Facility 13	0	424	0.0000	0.0000	0.0000
Facility 18	1	2192	0.0005	0.0000	0.0014
Facility 19	5	1468	0.0034	0.0004	0.0064
Facility 20	2	998	0.0020	0.0000	0.0048
Facility 22	7	5102	0.0014	0.0004	0.0024
Facility 23	6	3437	0.0017	0.0004	0.0031
Facility 25	0	514	0.0000	0.0000	0.0000
Facility 26	-	-	-	-	-
Facility 27	3	1542	0.0019	0.0000	0.0041
Facility 31	5	2310	0.0022	0.0003	0.0041
Facility 32	4	1247	0.0032	0.0001	0.0063
Facility 34	2	1744	0.0011	0.0000	0.0027
Facility 36	5	2818	0.0018	0.0002	0.0033
Facility 37	5	3075	0.0016	0.0002	0.0031
Facility 38	1	1951	0.0005	0.0000	0.0015
Facility 39	1	2479	0.0004	0.0000	0.0012

Screenshot 68. Hospital Ratings—By Health Topic—Navigation Page



MONAHRQ Demo Website

[Home](#)
[Hospital Quality](#)
[Utilization](#)
[Avoidable Stays](#)
[County Rates](#)
[Resources](#)

[Home](#) > [Hospital Quality Ratings for the Public](#)

Hospital Quality

Choose Hospitals

By Hospital

Please select max 5 hospitals:

- ☐ EXETER HOSPITAL INC
- ☐ Facility 10
- ☐ Facility 11
- ☐ Facility 12
- ☐ Facility 13
- ☐ Facility 14
- ☐ Facility 15
- ☐ Facility 16

Choose Health Topic


Please select a health topic:

Select all Topics

- ☐ Childbirth
- ☐ Composites
- ☐ Deaths and readmissions
- ☐ Heart attack and chest pain
- ☐ Heart failure
- ☐ Heart surgeries and procedures
- ☐ Other surgeries

☐ Select to Open Report in New Browser Window / Tab

[< Back](#)
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In the “Health Topic” path (Screenshot 68), an End User can choose up to five hospitals. If no hospitals are selected, the report cannot be generated. After selecting at least one hospital, the End User then chooses any or all the health topics of interest.

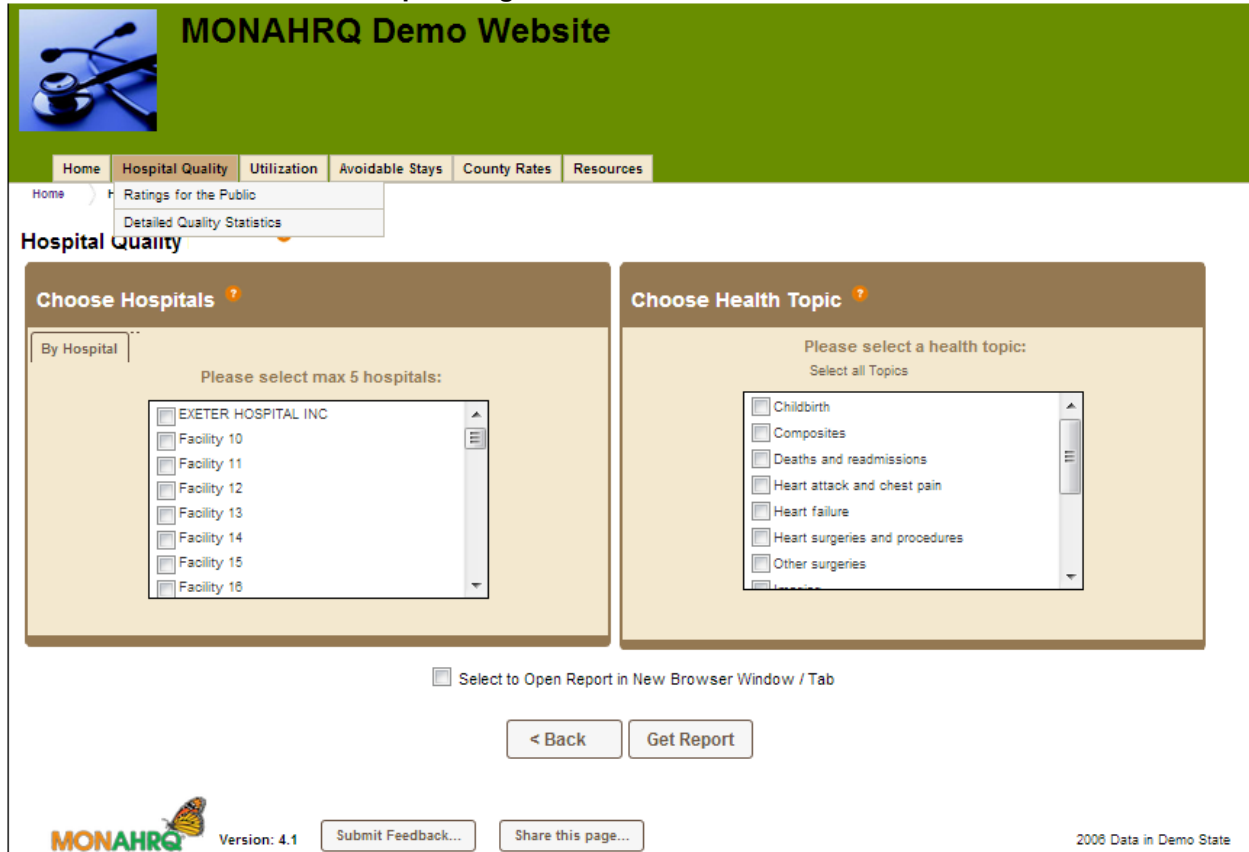
Screenshot 69. Hospital Ratings—Summary Page

Hospital Ratings ?				
Childbirth - Results of care ?				
Measure Name	Facility 10	Facility 11	Facility 12	Facility 13
Newborns with a birth injury or infection	average	average	best	best
Obstetric injury after a vaginal delivery with medical instruments	average		average	
Obstetric injury after vaginal delivery without medical instruments	average		average	
Childbirth - Practice patterns ?				
Measure Name	Facility 10	Facility 11	Facility 12	Facility 13
Percentage of births (deliveries) that are C-sections	best		best	
Uncomplicated vaginal births performed after C-section	best		best	
First birth deliveries performed as C-section	best		best	
Vaginal birth after a previous C-section	best		best	
Composites - Deaths ?				
Measure Name	Facility 10	Facility 11	Facility 12	Facility 13
Combined measure: Dying in the hospital following eight major surgeries	average	average	average	average
Combined measure: Dying in the hospital for six conditions	average	average	average	average

The hospital ratings summary report (Screenshot 69) will show how the selected hospital scores on all applicable measures supported in MONAHRQ. The summary page will list the hospital scores for all of the measures or a subset of one or more measures. This report will display measures in columns (Y-axis) and hospital(s) in the rows (X-axis).

Utilization

Screenshot 70: Utilization—Subpath Page



The screenshot shows the MONAHRQ Demo Website interface. At the top is a green header with the text "MONAHRQ Demo Website" and a stethoscope icon. Below the header is a navigation bar with tabs: Home, Hospital Quality, Utilization, Avoidable Stays, County Rates, and Resources. The "Utilization" tab is selected. Under the "Utilization" tab, there is a dropdown menu with options: Home, Ratings for the Public, and Detailed Quality Statistics. The "Hospital Quality" section is active, showing two main panels: "Choose Hospitals" and "Choose Health Topic". The "Choose Hospitals" panel has a tab "By Hospital" and a list of hospitals to select from, with a note "Please select max 5 hospitals:". The list includes EXETER HOSPITAL INC, Facility 10, Facility 11, Facility 12, Facility 13, Facility 14, Facility 15, and Facility 16. The "Choose Health Topic" panel has a note "Please select a health topic:" and a list of topics to select from, with a note "Select all Topics". The topics include Childbirth, Composites, Deaths and readmissions, Heart attack and chest pain, Heart failure, Heart surgeries and procedures, Other surgeries, and Trauma. Below these panels is a checkbox labeled "Select to Open Report in New Browser Window / Tab". At the bottom are buttons for "< Back" and "Get Report". The footer includes the MONAHRQ logo, Version: 4.1, Submit Feedback..., Share this page..., and 2006 Data in Demo State.

MONAHRQ Demo Website

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

Home Ratings for the Public Detailed Quality Statistics

Hospital Quality

Choose Hospitals ?

By Hospital

Please select max 5 hospitals:

- ☐ EXETER HOSPITAL INC
- ☐ Facility 10
- ☐ Facility 11
- ☐ Facility 12
- ☐ Facility 13
- ☐ Facility 14
- ☐ Facility 15
- ☐ Facility 16

Choose Health Topic ?

Please select a health topic:

Select all Topics

- ☐ Childbirth
- ☐ Composites
- ☐ Deaths and readmissions
- ☐ Heart attack and chest pain
- ☐ Heart failure
- ☐ Heart surgeries and procedures
- ☐ Other surgeries
- ☐ Trauma

☐ Select to Open Report in New Browser Window / Tab

< Back Get Report

MONAHRQ Version: 4.1 Submit Feedback... Share this page... 2006 Data in Demo State

There are two subpaths under the Utilization path. These are:

- Inpatient Hospital Utilization
- ED Utilization

MONAHRQ 4.1 allows Host Users to display reports for utilization by using Inpatient and Emergency Department (ED) data. The "Using Inpatient Discharge Data" path shows detailed information about hospital discharges, charges, estimated costs, and length of stay. The "Emergency Department Data" path shows detailed information about ED discharges such as: number of ED visits, percentage of patients admitted to the hospital from the ED, percentage of patients who died during the ED visit, and percentage of patients who died during the hospital stay following an ED visit.

Screenshot 71: Utilization—Inpatient Hospital Utilization—Navigation Page

The screenshot shows the MONAHRQ Demo Website interface. At the top is a green header with the MONAHRQ logo and the text "MONAHRQ Demo Website". Below the header is a navigation bar with tabs: Home, Hospital Quality, Utilization (selected), Avoidable Stays, County Rates, and Resources. Under the Utilization tab, there are sub-tabs: Home, Hospital Utilization, and Inpatient Hospital Utilization (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, showing a list of hospitals with a search bar and a "Find Next" button. The right panel, "Choose Conditions or Procedures", has tabs for "By MDC", "By DRG", "By Condition", "By Procedure", and "By All Discharges Combined". The "By MDC" tab is active, showing a list of Major Diagnostic Categories (MDC) with a search bar and a "Find Next" button. Below the panels is a checkbox labeled "Select to Open Report in New Browser Window / Tab". At the bottom are buttons for "< Back" and "Get Report". The footer includes the MONAHRQ logo, "Version: 4.1", "Submit Feedback...", "Share this page...", and "2008 Data in Demo State".

In the Utilization path (Screenshot 71), End Users can choose hospitals from a full list of hospitals, by ZIP Code, or by region. End Users may generate statistics using common clinical groupers based on *International Classification of Diseases, Clinical Modification, 9th revision* (ICD-9-CM) codes, including: Major Diagnostic Category (MDC), Diagnosis Related Group (DRG), Clinical Classifications Software (CCS) [for more information see: <http://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp>] for diagnoses, or CCS for procedures.

This path is only available when local inpatient discharge data are loaded. The Host User selects the regions and ZIP Code radii that appear in this report path.

Screenshot 72: Utilization— Inpatient Hospital Utilization - Results Page

Home Hospital Quality Utilization 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 Print Friendly View				
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)*	38,434,956 (828,908)	\$30,655 (\$738)	\$9,173 (\$126)	4.6 (0.04)
NORTHEAST U.S. in 2009 (standard error)*	7,663,438 (\$25,967)	\$31,887 (\$2,643)	\$9,340 (\$280)	5.0 (0.09)
All Conditions	428	\$31,787	\$22,741	4.0
15 Newborns & Other Neonates With Conditn Orig In Perinatal Period	59	\$10,572	\$7,981	3.7
5 Diseases & Disorders Of The Circulatory System	48	\$54,230	\$35,619	3.8
14 Pregnancy, Childbirth & The Puerperium	43	\$10,743	\$8,032	4.7
6 Diseases & Disorders Of The Digestive System	40	\$30,351	\$21,010	3.8
8 Diseases & Disorders Of The Musculoskeletal System & Conn Tissue	34	\$38,783	\$28,851	4.8
0 Principal Dx Can Not Be Assigned To Mdc (Invalid Or Pre Mdc)	31	\$42,307	\$37,878	3.4
4 Diseases & Disorders Of The Respiratory System	29	\$35,933	\$23,058	3.6
7 Diseases & Disorders Of The Hepatobiliary System & Pancreas	25	\$28,341	\$15,588	3.9
1 Diseases & Disorders Of The Nervous System	24	\$31,302	\$29,473	3.0
11 Diseases & Disorders Of The Kidney & Urinary Tract	22	\$32,014	\$13,178	4.5
10 Endocrine, Nutritional & Metabolic Diseases & Disorders	12	\$21,607	\$9,905	5.1
9 Diseases & Disorders Of The Skin, Subcutaneous Tissue & Breast	12	\$29,980	\$17,003	2.8
13 Diseases & Disorders Of The Female Reproductive System	9	\$30,534	\$32,082	5.8
23 Factors Influencing Hlth Stat & Othr Contacts With Hlth Servcs	8	\$43,498	\$18,523	4.8
19 Mental Diseases & Disorders	7	\$83,590	\$13,778	8.8
17 Myeloproliferative Diseases & Disorders, Poorly Differentiated Neoplasm	6	\$122,985	\$109,388	5.8
3 Diseases & Disorders Of The Ear, Nose, Mouth & Throat	4	\$15,701	\$8,495	2.5
21 Injuries, Poisonings & Toxic Effects Of Drugs	4	\$25,155	\$25,478	3.8
18 Infectious & Parasitic Diseases, Systemic Or Unspecified Sites	3	\$12,438	\$9,271	7.0
24 Multiple Significant Trauma	2	\$71,115	\$81,982	0.5
20 Alcohol/Drug Use & Alcohol/Drug Induced Organic Mental Disorders	2	\$19,031	\$8,337	2.5
12 Diseases & Disorders Of The Male Reproductive System	2	\$12,051	\$10,224	3.0
2 Diseases & Disorders Of The Eye	2	\$18,187	\$16,239	2.5
22 Burns	1	\$8,547	\$5,778	2.0

The Utilization Summary Statistics report displays number of discharges, charges, costs, and length of stay by selected clinical groups for each selected hospital (Screenshot 72). End Users can select a condition or procedure group to access the utilization statistics by demographic groups (age group, gender, payer, and race/ethnicity) for the selected hospital.

The description of the columns in the Inpatient Hospital Utilization report is below:

- **Number of discharges (all-listed):** The number of hospital stays (or discharges) for the selected condition or procedure is provided for each hospital. All listed diagnoses include the principal diagnosis (or reason for going to the hospital) as well as any other conditions that coexist during the hospital stay. All listed procedures include all procedures done for the patient.
- **Number of discharges (principal):** The number of hospital stays (or discharges) for the selected condition or procedure is provided for each hospital. Principal diagnosis means this is the condition chiefly responsible for admission to the hospital for care. The principal procedure is the procedure that was done to address the principal diagnosis.
- **Mean charges in dollars:** The mean or average charge is sometimes reported for each hospital. This is the amount the hospital asked to be paid for services. This does not include professional (MD) fees. Charges are not necessarily how much was paid.

- **Mean costs in dollars:** The mean or average cost is sometimes reported for each hospital. Costs are the actual value of services performed (while charges represent the amount the hospital asked to be paid for services). Total charges were converted to costs using cost-to-charge ratios based on hospital accounting reports from the Centers for Medicare and Medicaid Services (CMS). In general, costs are less than charges. AHRQ adjusts the cost-to-charge ratios to work with this type of hospital data.
- **Mean length of stay in days:** The average or mean length of stay (LOS) is reported for each hospital. This is the average number of nights the patient remained in the hospital. When a patient is admitted and discharged on the same day, it has a length of stay of zero. A longer length of stay does not necessarily mean better or more care is given to patients.

Note: cost is based on charges that have been adjusted to estimate costs, using hospital-specific cost-to-charge ratios. Cost will not be reported if the Host User chooses not to show charge information. In addition to reports in Inpatient Hospital Utilization subpath, a Host User decision to not show charge information will suppress the cost information in other reports, such as the reports on Avoidable Stays – Cost Savings (screenshot 79) and County Rates (screenshot 89).

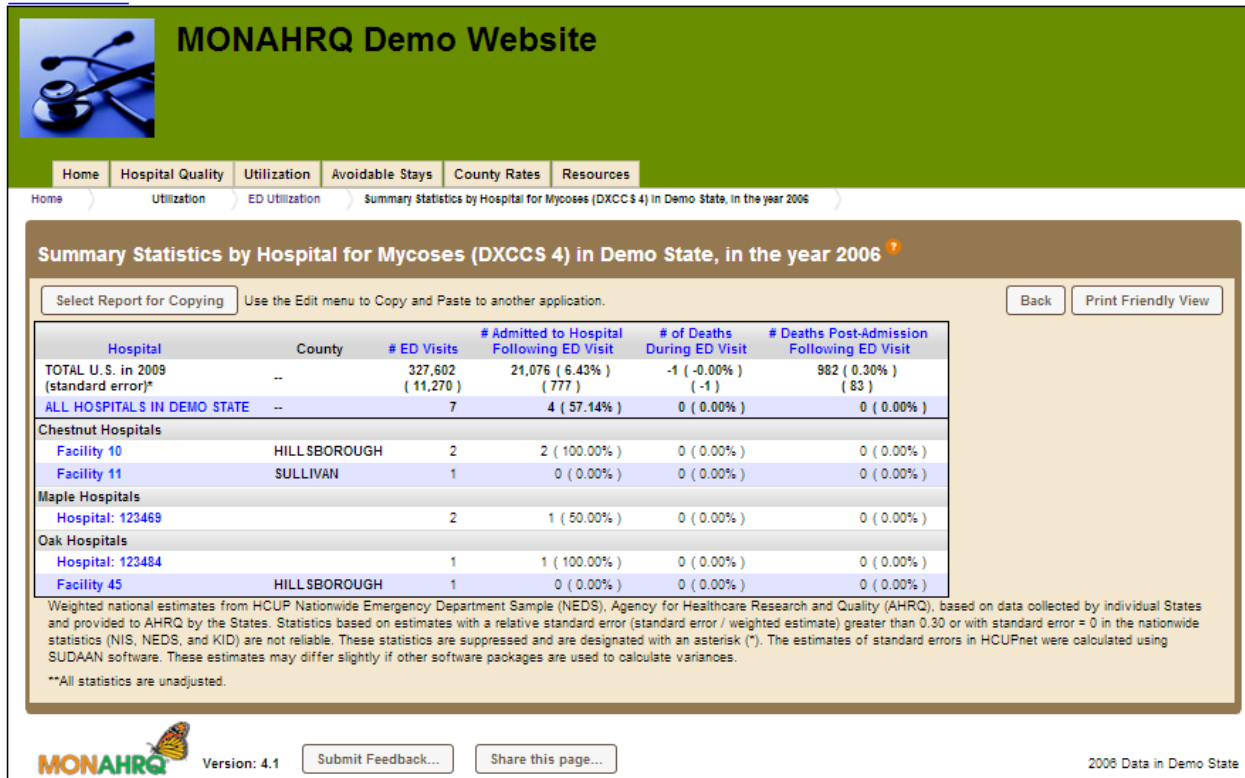
Screenshot 73: Utilization—ED Utilization —Navigation Page

The **ED Utilization path** (Screenshot 73), allows End Users to select hospitals from a list, by ZIP Code, or by region. The “Choose Conditions or Diagnosis” section has two tabs:

- By conditions
- By All Diagnosis combined

Users can generate reports that show statistics using common clinical groupers based on International Classification of Diseases, Clinical Modification (ICD-9-CM) codes, including: Clinical Classifications Software (CCS) for diagnoses.

Screenshot 74: Utilization—ED Utilization Results Page



MONAHRQ Demo Website

Home Hospital Quality Utilization Avoidable Stays County Rates Resources

Home Utilization ED Utilization Summary Statistics by Hospital for Mycoses (DXCCS 4) in Demo State, in the year 2006

Summary Statistics by Hospital for Mycoses (DXCCS 4) in Demo State, in the year 2006

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

Hospital	County	# ED Visits	# Admitted to Hospital Following ED Visit	# of Deaths During ED Visit	# Deaths Post-Admission Following ED Visit
TOTAL U.S. in 2009 (standard error)*	--	327,602 (11,270)	21,076 (6.43%) (777)	-1 (-0.00%) (-1)	982 (0.30%) (83)
ALL HOSPITALS IN DEMO STATE	--	7	4 (57.14%)	0 (0.00%)	0 (0.00%)
Chestnut Hospitals					
Facility 10	HILLSBOROUGH	2	2 (100.00%)	0 (0.00%)	0 (0.00%)
Facility 11	SULLIVAN	1	0 (0.00%)	0 (0.00%)	0 (0.00%)
Maple Hospitals					
Hospital: 123469		2	1 (50.00%)	0 (0.00%)	0 (0.00%)
Oak Hospitals					
Hospital: 123484		1	1 (100.00%)	0 (0.00%)	0 (0.00%)
Facility 45	HILLSBOROUGH	1	0 (0.00%)	0 (0.00%)	0 (0.00%)

Weighted national estimates from HCUP Nationwide Emergency Department Sample (NEDS), Agency for Healthcare Research and Quality (AHRQ), based on data collected by individual States and provided to AHRQ by the States. Statistics based on estimates with a relative standard error (standard error / weighted estimate) greater than 0.30 or with standard error = 0 in the nationwide statistics (NIS, NEDS, and KID) are not reliable. These statistics are suppressed and are designated with an asterisk (*). The estimates of standard errors in HCUPnet were calculated using SUDAAN software. These estimates may differ slightly if other software packages are used to calculate variances.

**All statistics are unadjusted.

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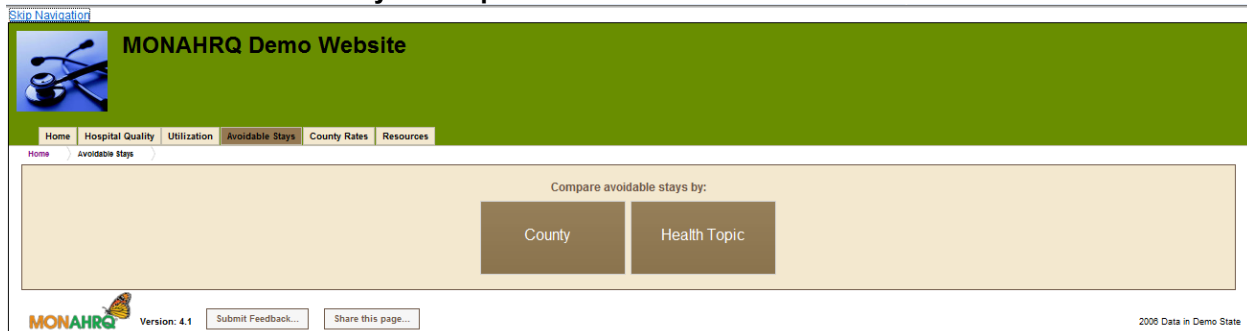
There are many different summary reports the End User can generate in the Utilization path using the data that is a combination of ED treat-and-release and the visits that resulted in admission. The visits that resulted in admission are contained in the inpatient discharge data file.

Single Condition: If End Users select all hospitals and a single condition, the summary report displaying statistics by list of hospitals for the selected condition will be displayed. For each selected hospital and condition, the report displays Hospital Name, County, Number of ED visits, Number Admitted to the Hospital from the ED, Number of Patients who Died during the ED visit and Number of Patients who Died during the Hospital Stay following an ED Visit. From the summary report, End Users can select a provider to access statistics report reported by various dimensions, much the same as selecting a single hospital and a condition from the ED Utilization main navigation screen. The description of the columns in the ED Utilizations report is below:

- **Number of ED Visits:** This is the total number of emergency department visits to the hospital.
- **Number and Percent Admitted to Hospital Following ED Visit:** This is the number of patients admitted to the hospital following an emergency department visit (percent of all ED visits).
- **Number and Percent of Deaths during ED visit:** This is the number of patient who died during an emergency department visit (percent of all ED visits that resulted in patient's death).
- **Number of Deaths Post-Admission Following ED Visit:** This is the number of patient who died after they were admitted following an emergency department visit (percent of all ED visits that resulted in patient's death post admission).

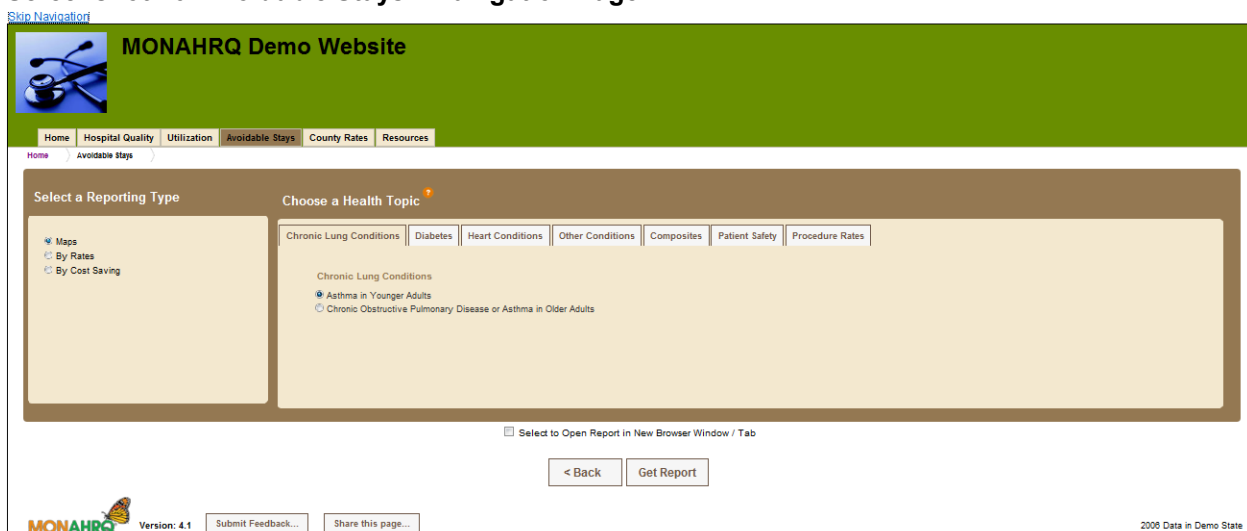
Avoidable Stays

Screenshot 75: Avoidable Stays—Subpath



There are two subpaths under **Avoidable Stays** (Screenshot 78). The **County** subpath reports the avoidable stays for selected conditions, for all counties. The **Health Topic** subpath shows the rates of avoidable stays across a selected county for each of the conditions included in MONAHRQ. End Users can also view summary reports by county.

Screenshot 76: Avoidable Stays—Navigation Page

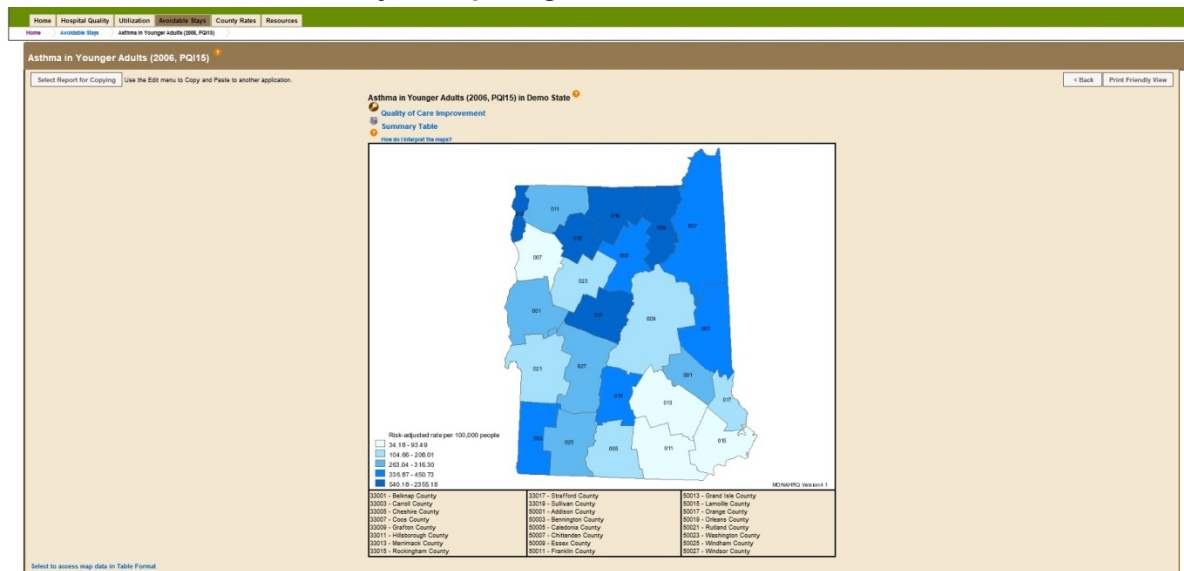


In the Avoidable Stays pathway, End Users can choose three reports from the **Select a Reporting Type** (Screenshot 76):

- **Maps** – view maps by health topic or by selecting all maps/summary tables (Screenshot 77).
- **By Rates** – view report by rates
- **By Cost Savings** – view by cost savings

The Maps and By Rates paths are only available when AHRQ QI™ area-level data are loaded. The By Cost Saving path is only available when AHRQ QI area-level data includes costs. After selecting the type of report, the End User can choose which measures to include.

Screenshot 77: Avoidable Stays—Maps Page



The map displays the rate per 100,000 people for each county; lighter colors indicate a lower rate. To view maps as text, select the “Select to access map data in Table Format” on the bottom left side of the page. Some maps include links to **Quality of Care Improvement** information.

Screenshot 78: Avoidable Stays—By Rates Page

Asthma in Younger Adults (2006, PQ15) in My States

Select Report for Copying Use the Edit menu to Copy and Paste to another [application](#). < Back Print Friendly View

[Guide to Quality of Care Improvement](#)

[Asthma](#) in Younger Adults (2006, PQ15) in My States

How do I interpret the tables?

County FIPS Code	County Name	Numerator	Denominator	Observed Rate	Risk Adjusted Rate
33001	MY - Adams	42	14704	285.64	279.39
33003	MY - Jefferson	40	10057	397.73	385.14
33005	MY - Madison	41	23147	177.13	182.21
33007	MY - Monroe	34	7303	465.56	450.73
33009	MY - Quincy	38	26612	142.79	149.64
33011	MY - Jackson	41	116892	35.08	34.18
33013	MY - Harrison	39	41362	94.29	93.49
33015	MY - Tyler	38	75762	50.16	47.57
33017	MY - Polk	42	41429	101.38	104.66
33019	MY - Fillmore	37	10681	346.41	336.87
50001	MY - Pierce	28	10624	263.55	267.16
50003	MY - Buchanan	37	8869	417.18	412.81
50005	MY - Lincoln	32	8156	392.35	401.63
50007	MY - Johnson	38	52821	71.94	74.41
50009	MY - Grant	35	1421	2463.05	2355.18
50011	MY - Hayes	36	13271	271.27	263.04
50013	MY - Garfield	37	1674	2210.27	2112.44

The **Avoidable Stays By Rates** report displays the rates per 100,000 people for each county (Screenshot 78).

Screenshot 79: Avoidable Stays—By Cost Savings Page

Asthma in Younger Adults (2006, PQI15) in My States ?

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

Guide to Quality of Care Improvement

Asthma in Younger Adults (2006, PQI15) in My States ?

How do I interpret the tables? ?

County FIPS Code	County Name	Numerator	Denominator	-- Cost savings* with reduction in the numerator of --					
				Risk Adjusted Rate	10%	20%	30%	40%	50%
33001	MY - Adams	42	14,704	279.39	26,631	53,262	79,893	106,525	133,156
33003	MY - Jefferson	40	10,057	385.14	30,079	60,158	90,237	120,316	150,396
33005	MY - Madison	41	23,147	182.21	23,123	46,247	69,370	92,494	115,617
33007	MY - Monroe	34	7,303	450.73	27,526	55,052	82,579	110,105	137,631
33009	MY - Quincy	38	26,612	149.64	28,852	57,703	86,554	115,406	144,258
33011	MY - Jackson	41	116,892	34.18	26,908	53,817	80,725	107,633	134,541
33013	MY - Harrison	39	41,362	93.49	34,134	68,268	102,402	136,537	170,671
33015	MY - Tyler	38	75,762	47.57	20,168	40,336	60,504	80,673	100,841
33017	MY - Polk	42	41,429	104.66	33,880	67,761	101,641	135,521	169,401
33019	MY - Fillmore	37	10,681	336.87	20,648	41,297	61,945	82,594	103,242
50001	MY - Pierce	28	10,624	267.16	16,289	32,579	48,868	65,157	81,447
50003	MY - Buchanan	37	8,869	412.81	26,471	52,942	79,412	105,883	132,354
50005	MY - Lincoln	32	8,156	401.63	23,419	46,837	70,256	93,675	117,093
50007	MY - Johnson	38	52,821	74.41	31,539	63,078	94,617	126,157	157,696
50009	MY - Grant	35	1,421	2355.18	26,202	52,404	78,606	104,808	131,010
50011	MY - Hayes	36	13,271	263.04	23,091	46,182	69,272	92,363	115,454
50013	MY - Garfield	37	1,674	2112.44	25,944	51,887	77,831	103,774	129,718

The **Avoidable Stays By Cost Savings** report (Screenshot 79) displays estimated cost savings based on charges that have been adjusted to estimate costs, using hospital-specific cost-to-charge ratios.

Screenshot 80: Avoidable Stays – Summary Page

Asthma in Younger Adults (2006, PQI15) in My States ?

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

Guide to Quality of Care Improvement

Asthma in Younger Adults (2006, PQI15) in My States ?

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	42	14704	285.64	279.39	26,631	53,262	79,893	106,525	133,156
33003	MY - Jefferson	40	10057	397.73	385.14	30,079	60,158	90,237	120,316	150,396
33005	MY - Madison	41	23147	177.13	182.21	23,123	46,247	69,370	92,494	115,617
33007	MY - Monroe	34	7303	465.56	450.73	27,526	55,052	82,579	110,105	137,631
33009	MY - Quincy	38	26612	142.79	149.64	28,852	57,703	86,554	115,406	144,258
33011	MY - Jackson	41	116892	35.08	34.18	26,908	53,817	80,725	107,633	134,541
33013	MY - Harrison	39	41362	94.29	93.49	34,134	68,268	102,402	136,537	170,671
33015	MY - Tyler	38	75762	50.16	47.57	20,168	40,336	60,504	80,673	100,841
33017	MY - Polk	42	41429	101.38	104.66	33,880	67,761	101,641	135,521	169,401
33019	MY - Fillmore	37	10681	346.41	336.87	20,648	41,297	61,945	82,594	103,242
50001	MY - Pierce	28	10624	263.55	267.16	16,289	32,579	48,868	65,157	81,447
50003	MY - Buchanan	37	8869	417.18	412.81	26,471	52,942	79,412	105,883	132,354
50005	MY - Lincoln	32	8156	392.35	401.63	23,419	46,837	70,256	93,675	117,093
50007	MY - Johnson	38	52821	71.94	74.41	31,539	63,078	94,617	126,157	157,696
50009	MY - Grant	35	1421	2463.05	2355.18	26,202	52,404	78,606	104,808	131,010
50011	MY - Hayes	36	13271	271.27	263.04	23,091	46,182	69,272	92,363	115,454
50013	MY - Garfield	37	1674	2210.27	2112.44	25,944	51,887	77,831	103,774	129,718
50015	MY - Arthur	43	7542	570.14	576.48	45,387	90,775	136,162	181,549	226,937

Selecting the **Summary Table** from the map page addressing Avoidable Stays will display detailed statistics by county for the selected measure (Screenshot 80). The Summary Table includes both the risk-adjusted rate and the estimated cost savings associated with reducing avoidable hospital stays.

Screenshot 81: Avoidable Stays—Print Friendly View

Asthma in Younger Adults (2006, PQI15) in My States					
County FIPS Code	County Name	-- Rates per 100,000 --			
		Numerator	Denominator	Observed Rate	Risk Adjusted Rate
33001	MY - Adams	42	14704	285.64	279.39
33003	MY - Jefferson	40	10057	397.73	385.14
33005	MY - Madison	41	23147	177.13	182.21
33007	MY - Monroe	34	7303	465.58	450.73
33009	MY - Quincy	38	26612	142.79	149.64
33011	MY - Jackson	41	118892	35.08	34.18
33013	MY - Harrison	39	41382	94.29	93.49
33015	MY - Tyler	38	75782	50.18	47.57
33017	MY - Polk	42	41429	101.38	104.66
33019	MY - Fillmore	37	10881	348.41	338.87
50001	MY - Pierce	28	10624	263.55	267.16
50003	MY - Buchanan	37	8869	417.18	412.81
50005	MY - Lincoln	32	8156	392.35	401.63
50007	MY - Johnson	38	52821	71.94	74.41
50009	MY - Grant	35	1421	2483.05	2355.18
50011	MY - Hayes	36	13271	271.27	283.04
50013	MY - Garfield	37	1674	2210.27	2112.44
50015	MY - Arthur	43	7542	570.14	576.48
50017	MY - McKinley	40	7400	540.54	540.18
50019	MY - Roosevelt	41	8756	606.87	605.87
50021	MY - Howard	33	16523	199.72	200.38
50023	MY - Wilson	34	16320	208.33	208.01
50025	MY - Coolidge	34	10819	314.26	310.04
50027	MY - Hoover	43	13357	321.93	316.30
Total	All	903	543502	168.14	164.80

MONAHRQ 4.1 provides the option to save, print, or e-mail reports in a printer-friendly format. The **Print Friendly View** option is available for the all of the reports in Avoidable Stays. Screenshot 81 illustrates the Print Friendly View version of a generated report.

When the End User clicks “save”, a new window that contains the printer-friendly version of the report is shown. Instructions specific to the browser are provided on how to save the report to the End User’s local system.


[Share this page](#)


Screenshot 82. Share this page...

Measure Name	Facility 10	Facility 11	Facility 12	Facility 13
Dying in the hospital while getting care for a condition that rarely results in death	average		average	
Dying in the hospital after bleeding from stomach or intestines				
Dying in the hospital after fractured hip	average			

Other patient safety - Results of care -- Complications ?

Measure Name	Facility 10	Facility 11	Facility 12	Facility 13
Developing a bed sore in the hospital	average		average	
Surgical tool accidentally left in body during surgery				
Accidental puncture of the lung	average		average	
Blood infection that patients with catheters developed while in the hospital	average		average	
Accidental cut or tear	average		average	
Blood transfusion reaction				
Central Line Associated Blood Stream Infections				

 [Detailed Statistics](#) [< Back](#) [Home](#) [How do I interpret this table?](#)

 Version: 4.1 [Share this page...](#) 2006 Data in My States

In order to share information, End Users can select the **Share this page...** button on bottom of the website. Clicking the “Share this page...” button will launch the End User’s local email client. An e-mail message will be pre-populated with a subject line and the URL linking to the shared page (Screenshot 83).

Screenshot 83: Share this page—E-Mail

Shared AHRQ page... - Message (HTML)

File Message Insert Options Format Text Review

Send To... CC... Subject: Shared AHRQ page...

<file:///C:/www/MONAHRQ/Target%20Folder/index.html>

When an End User selects the “Health Topic” path from the Avoidable Stays page (shown previously in Screenshot 75), they can then choose a county from the drop-down list (Screenshot 84).

Screenshot 84: Avoidable Stays—Health Topic—Navigation Page

[Skip Navigation](#)

MONAHRQ Demo Website

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

Home Avoidable Stays

Choose a County

-- Select a County --

Choose any Health Topic

Select all Topics

- ☐ Chronic Lung Conditions
- ☐ Composites
- ☐ Diabetes
- ☐ Heart Conditions
- ☐ Other Conditions
- ☐ Patient Safety
- ☐ Procedure Rates

☐ Select to Open Report in New Browser Window / Tab

< Back Get Report

MONAHRQ Version: 4.1 Submit Feedback... Share this page...

2006 Data in Demo State

The End User then chooses any or all the health topics of interest for the county. If no county is selected, they will not be able to continue.

The County Summary page displays detailed statistics by county for any or all of the selected measures (Screenshot 85).

Screenshot 85: Avoidable Stays—County Summary Page—by Rates

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

Home Avoidable Stays County: Grafton County

County: Grafton County

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

< Back Print Friendly View

Show Cost Saving

Procedure Rates

Measure	-- Rates per 100,000 --			
	Numerator	Denominator	Observed Rate	Risk Adjusted Rate
Coronary artery bypass graft rate	184	42088	437.20	431.89
Percutaneous coronary angioplasty rate	581	42088	1380.51	1366.81
Hysterectomy rate	297	35180	844.23	883.97
Laminectomy rate	309	68698	449.79	458.42

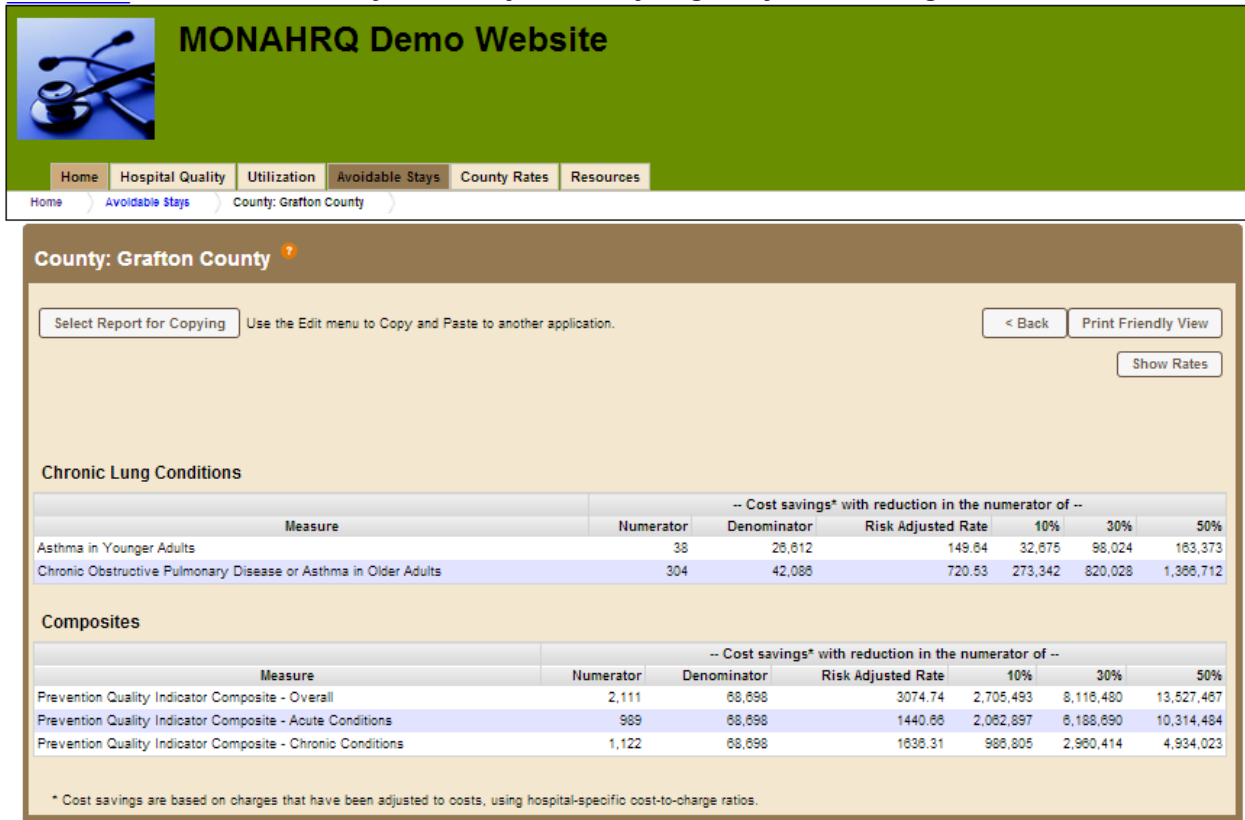
Diabetes

Measure	-- Rates per 100,000 --			
	Numerator	Denominator	Observed Rate	Risk Adjusted Rate
Diabetes short-term complication admission rate	94	68698	136.83	133.77
Uncontrolled diabetes admission rate	30	68698	43.67	44.25
Rate of lower-extremity amputation among patients with diabetes	16	68698	23.29	23.28
Diabetes long-term complication admission rate	175	68698	254.74	257.41

Other Conditions

The Summary page displays the risk-adjusted rate and includes the **Show Cost Savings** button to navigate to the county summary page with cost savings (Screenshot 86).

Screenshot 86: Avoidable Stays—County Summary Page—by Cost Savings



The screenshot shows the MONAHRQ Demo Website interface. The header includes a navigation bar with links: Home, Hospital Quality, Utilization, Avoidable Stays (selected), County Rates, and Resources. Below the header, the page title is "County: Grafton County". A sub-header section contains a "Select Report for Copying" button, a text instruction "Use the Edit menu to Copy and Paste to another application.", and buttons for "< Back", "Print Friendly View", and "Show Rates".

The main content area displays two tables. The first table is titled "Chronic Lung Conditions" and the second is titled "Composites". Both tables show cost savings with reduction in the numerator of --.

Measure	Numerator	Denominator	Risk Adjusted Rate	-- Cost savings* with reduction in the numerator of --		
				10%	30%	50%
Asthma in Younger Adults	38	26,612	149.64	32,675	98,024	163,373
Chronic Obstructive Pulmonary Disease or Asthma in Older Adults	304	42,088	720.53	273,342	820,028	1,366,712

Measure	Numerator	Denominator	Risk Adjusted Rate	-- Cost savings* with reduction in the numerator of --		
				10%	30%	50%
Prevention Quality Indicator Composite - Overall	2,111	68,698	3074.74	2,705,493	8,116,490	13,527,467
Prevention Quality Indicator Composite - Acute Conditions	989	68,698	1440.66	2,082,697	6,188,690	10,314,484
Prevention Quality Indicator Composite - Chronic Conditions	1,122	68,698	1636.31	966,805	2,960,414	4,934,023

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

End Users can select the **Show Rates** button to go back to the county summary page with the risk-adjusted rates (Screenshot 85).

The **Print Friendly View** option is available for the county summary reports (Screenshot 86).

Screenshot 87: Avoidable Stays—County Summary Page—Print Friendly View

County: Belknap County Procedure Rates

Measure	-- Rates per 100,000 --			
	Numerator	Denominator	Observed Rate	Risk Adjusted Rate
Coronary artery bypass graft rate	166	33000	503.03	503.36
Percutaneous coronary angioplasty rate	649	33000	1966.87	1965.43
Hysterectomy rate	294	24405	1204.67	1124.44
Laminectomy rate	321	47704	672.90	619.46

County: Belknap County Diabetes

Measure	-- Rates per 100,000 --			
	Numerator	Denominator	Observed Rate	Risk Adjusted Rate
Diabetes short-term complication admission rate	76	47704	159.32	164.09
Uncontrolled diabetes admission rate	24	47704	50.31	47.06
Rate of lower-extremity amputation among patients with diabetes	20	47704	41.93	37.71
Diabetes long-term complication admission rate	190	47704	415.06	382.11

County: Belknap County Other Conditions

Measure	-- Rates per 100,000 --			
	Numerator	Denominator	Observed Rate	Risk Adjusted Rate
Dehydration admission rate	263	47704	549.22	524.80
Bacterial pneumonia admission rate	472	47704	989.43	937.68
Urinary tract infection admission rate	240	47704	503.10	493.38
Perforated appendix admission rate	59	214	27570.09	-
Low birth weight rate	225	4101	5486.47	5483.50

County: Belknap County Heart Conditions

Measure	-- Rates per 100,000 --			
	Numerator	Denominator	Observed Rate	Risk Adjusted Rate
Angina without procedure admission rate	13	47704	27.26	24.69
Hypertension admission rate	65	47704	136.26	126.38
Heart failure admission rate	412	47704	863.66	814.99

County: Belknap County Chronic Lung Conditions

Measure	-- Rates per 100,000 --			
	Numerator	Denominator	Observed Rate	Risk Adjusted Rate

When an End User clicks the **Print Friendly View** button, a new window that contains the printer-friendly version of the report will appear (Screenshot 87).

County Rates

Screenshot 88: County Rates—Navigation Page

[Skip Navigation](#)

MONAHRQ Demo Website

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

Home > County Rates

County Rates

Choose Counties

By County All Combined

Please select a county:

- All Counties
- Belknap County
- Benning County
- Cherokee County
- Cobb County
- Crawford County
- Hillsborough County
- Hartmann County
- Rockingham County
- Stafford County
- Sullivan County

For county maps, select "All Counties" and a condition or procedure.

Choose Conditions or Procedures


By MDC By DRG By Condition By Procedure All Outcomes Combined

Please select a MDC (Major Diagnosis Category):

Search:

- All 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
- 10 Endocrine, Nutritional & Metabolic Diseases & Disorders

☐ Select to Open Report in New Browser Window / Tab


 Version: 4.1

2008 Data in Demo State

In the County Rates path (Screenshot 88), End Users can choose counties individually or combined, with common groupings provided for ICD-9-CM codes (MDC, DRG, CCS for conditions, or CCS for procedures). To access maps of the data, End Users can select “All Counties” and a specific condition or procedure.

This path is only available when local inpatient discharge data are loaded. When setting up their MONAHRQ-generated site, Host Users select the denominator used in the county rates pathway as 1,000, 10,000, or 100,000.

Screenshot 89: County Rates—Results Page




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](#)

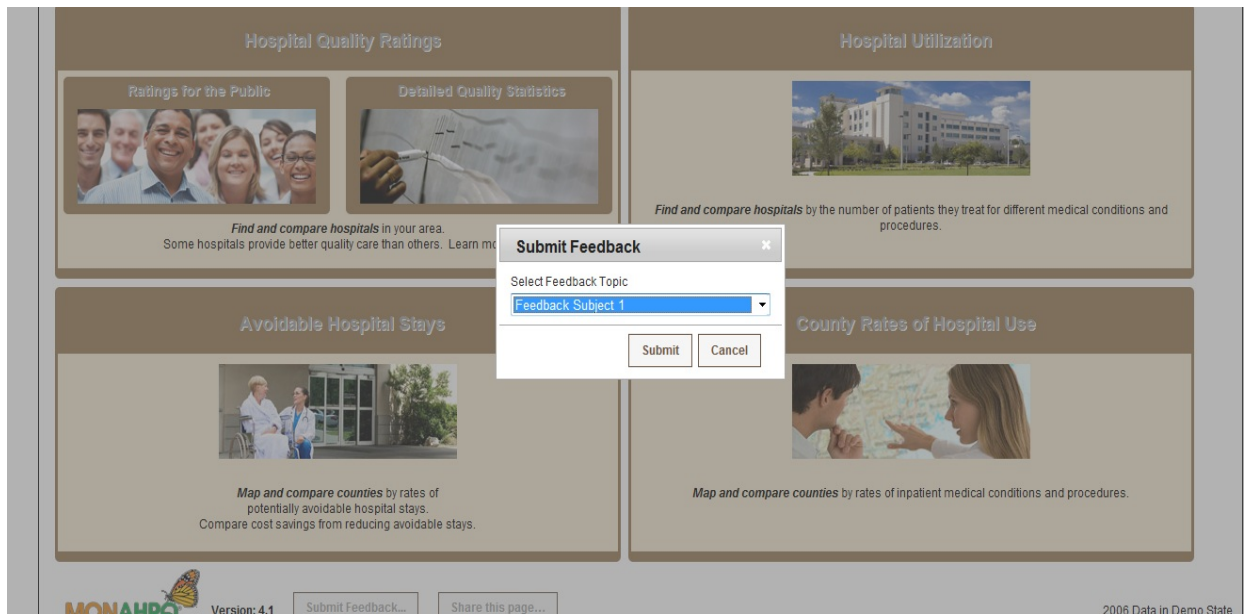
County	Number of discharges	Rate** of discharges (per 1,000 persons)	Mean costs in dollars***
TOTAL U.S. in 2009 (standard error)*	51,350 (2,552)	0.2	\$6,881 (\$211)
ALL COUNTIES IN DEMO STATE	897	0.5	\$15,391
33001 MY - Adams	45	0.7	\$11,814
50015 MY - Arthur	31	1.2	\$15,038
50003 MY - Buchanan	35	1.0	\$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 (Screenshot 89) are reported by county (based on patient residence if this data element was loaded), and includes the number of discharges and rates of discharges. Rates are based on the number of hospital discharges and county population data obtained from the U.S. Census Bureau. End Users can select the county code to access statistics by patient demographics (age group, race/ethnicity, sex) and may also choose maps of counties to see the information displayed in a map format.

Submit Feedback

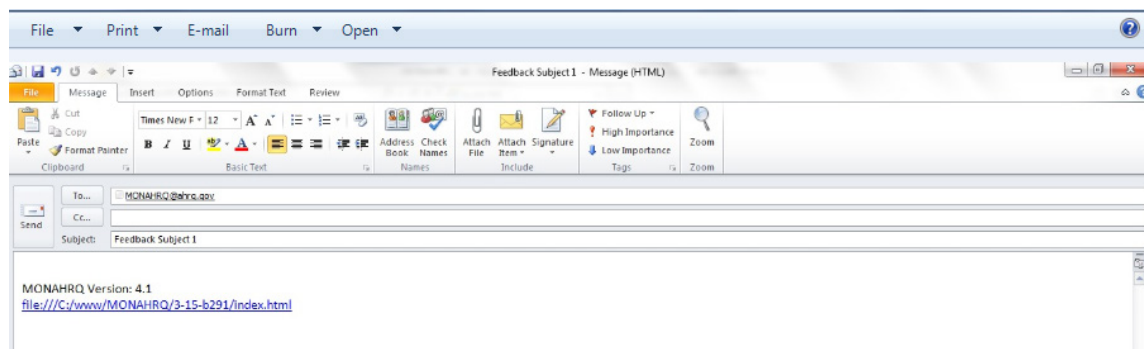
Screenshot 90: Submit Feedback—Selection Page



If the Host User has activated the feedback settings, the website will include a **Submit Feedback...** button at the bottom of the page (Screenshot 90). This allows the End User to select a feedback subject from a drop-down list that was preconfigured by the Host User during MONAHRQ set up.

When the End User clicks on the **Submit** button, an e-mail is opened in the End User's local email client (Screenshot 91).

Screenshot 91: Submit Feedback—E-Mail

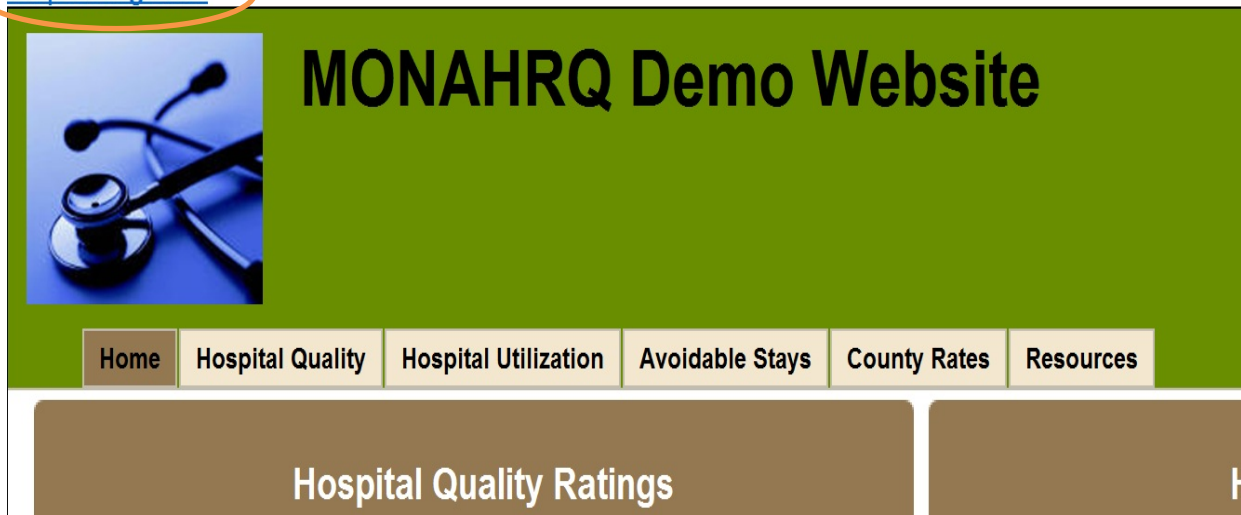


The e-mail is pre-populated with the appropriate 'To' address, Subject line, MONAHRQ release version, database version and the URL link of the feedback page. The End User then writes the e-mail content and hits "Send". See [Chapter 4, section 4.7](#) for more information on how Host Users can configure these feedback settings.

508 Compliance for MONAHRQ-Generated Websites

Screenshot 92: Skip Navigation

[Skip Navigation](#)



Websites generated using MONAHRQ 4.1 are 508 compliant, consistent with the Web Content Accessibility Guidelines (WCAG) 2.0 (see <http://www.w3.org/TR/WCAG20/>).

Specifically, the following items are included in MONAHRQ 4.1:

- All sub-tables are related to their parent row/column
- All row/column headers are defined using <TH> elements
- Generated web pages have been made accessible without stylesheets for screen reader technologies
- The forms are navigable via the keyboard, with or without assistive technology. For example, clicking keyboard shortcuts: TAB, SHIFT+TAB, UP, DOWN, LEFT, RIGHT, etc...
- Generated web pages have information discernible in several ways (not just by color)
- All text elements have "title", "alt", "caption", or "description" where applicable

Skip Navigation allows people who use screen readers to skip over a block of navigational links. For example, selecting the Skip Navigation link will jump to a point located below the website navigation menus as well as the hyperlinked navigation path to the current page. How "Skip Navigation" works will vary depending on the browser.

APPENDIX K. SIGN UP FOR GOOGLE ANALYTICS

To use the free resources available from Google Analytics, follow these steps:

Step 1: Sign up for an account.

Visit the Google Analytics website (<http://www.google.com/analytics/>) to sign up for a new account. Click the *Create an Account* button and follow the on-screen instructions.

Step 2: Set up account properties.

Google Analytics is flexible and can support different account configurations. Your setup affects how data appears in your reports from Google Analytics. To help plan your setup, refer to the articles in Google's overview of accounts, users, properties, and profiles (<http://support.google.com/analytics/bin/topic.py?topic=1102143>)

Step 3: Set up your tracking code.

Create a tracking ID in your Google Analytics account by following the process outlined in the Google Analytics support documents (<http://support.google.com/analytics/bin/answer.py?answer=1008080>). Include the Google Analytics tracking ID and code in your MONAHRQ-generated web site in order to collect and send usage data to your Google Analytics account. You can track multiple websites in the same account, but every website must have its own tracking ID and be set up individually in Google Analytics. The web tracking can be set up by following this link: <http://support.google.com/analytics/bin/answer.py?answer=1008080>.