MONAHRQ® 6.0

Host User Guide

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CHAPTER 1.   MONAHRQ® OVERVIEW

MONAHRQ—My Own Network, powered by AHRQ, is innovative and free website-generating software from the Agency for Healthcare Research and Quality (AHRQ). This desktop software enables any organization to quickly and easily create and host a health care reporting website quickly and easily with understandable, evidence-based health care performance reports for providers, consumers, and others for use in improving health care quality.

Using MONAHRQ for public or private reporting supports AHRQ's mission to improve the quality, accessibility, safety, efficiency, and cost transparency of health care for all Americans. Along with an organization's own patient discharge data, MONAHRQ draws from local hospital inpatient and emergency department (ED) discharge data, evidence-based measures from the Centers for Medicare & Medicaid Services (CMS) Hospital Compare and Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey measures, CMS Nursing Home Compare data, as well as precalculated AHRQ Quality Indicator™ (QI) results to produce health care reports.

AHRQ first conceived MONAHRQ in 2008 as a reporting tool for health care quality improvement. The project was born of two popular and widely used AHRQ data tools and products: the Healthcare Cost and Utilization Project (HCUP), the largest all-payer database in the United States with hospital discharge data; and the AHRQ QIs, a set of standardized, evidence-based health care quality measures that can be used with inpatient hospital discharge data. MONAHRQ has also been shaped by AHRQ's extensive expertise in quality measurement and public reporting. Additional information on HCUP, AHRQ QIs, and the history of MONAHRQ can be found in Appendix A.

1.1   Reports Available From MONAHRQ®

MONAHRQ-generated websites include reports that provide important information on a variety of topics and under various reporting paths. There are two categories of reports: those intended for "Consumers," and those intended for "All Audiences" (e.g., providers, policy leaders, and others). (Refer to Section 1.3 for additional information about the relationship between report types and audiences and to assist in the decisionmaking process of defining your website.) Topics and reporting paths include—

- Quality of hospital care—Provides comparison ratings by hospital and health topic (e.g., heart failure) and more detailed quality statistics for a wide range of measures
- Inpatient hospital and ED utilization—Provides detailed information about discharges, estimated costs by hospital, and rates for conditions and procedures
- Potentially avoidable hospital stays and cost savings—Provides data on hospital stays and cost savings by county and health topic
- Discharge and cost rates—Provides hospital discharges, discharge rates, and estimated costs by county and region
- Hospital profile—Provides an overview of each hospital (e.g., location, number of beds, website address), affiliated physicians, quality ratings, and utilization data for each hospital
- Quality of nursing home care—A new report that provides a comparison rating for each nursing home based on an overall summary rating and individual quality scores for each of three domains: quality measures, health inspections, and staffing
- Nursing home profile—A new report that provides an overview of each nursing home (e.g., name, location, county, ZIP code), overall ratings, and individual measure scores by domain
- Physician profile—A new report that provides an overview for each physician (e.g., name, gender, specialty, medical practice name and address, hospital affiliation, medical school name, and group practice or physician's current location)

- Trending—A new report added to the Utilization reports that includes inpatient hospital discharge, ED utilization, county rates, and population region rates

These reporting options or paths are described in detail in Chapter 11.

1.2 Who Should Use MONAHRQ?®

MONAHRQ can be used by any organization that wants to create and host a website for public or private reporting on health care quality and cost performance. Organizations that download MONAHRQ and generate reports to help improve health care are referred to in this Guide as "Host Users."

Examples of Host Users include—

- State and local health agencies and public health departments
- Hospital associations, individual hospitals, and hospital systems
- Accountable Care Organizations (ACOs)
- Community alliances and coalitions, such as Chartered Value Exchanges (CVEs)
- Smaller, regionally focused health plans
- Data organizations such as Regional Health Improvement Organizations (RHIOs) and Quality Improvement Organizations (QIOs)

MONAHRQ-generated reports and websites are intended for a range of individuals. These "End Users" are generally interested in information about quality of care, cost, the affordability of health care, and how hospitals compare to each other.

Examples of End Users include—

- Consumers and patients
- Researchers and analysts
- Providers (hospitals, physician groups, nursing homes)
- Policymakers

The general public has a growing interest in information about available health care options as well as information about patient experiences with different health care providers. Having access to information about the quality and cost of care offered by different health care providers and feedback from patients about their experiences with specific health care providers or facilities may help consumers make informed health care decisions.

1.3 Deciding What Type of Website to Create

This section will help Host Users or organizations that download MONAHRQ and generate reports decide what type of reporting website to create. Further, it will guide Host Users to select, configure, and customize the measures and reports necessary to build a website most suited to their target audience or End User. The two types of End User audiences for MONAHRQ are—

1. "Consumers" of health care, which includes the general public, patients, and caretakers; and
2. "All Audiences," which includes the general public; providers (e.g., hospitals, physician groups, nursing homes); researchers and analysts; health plan purchasers and employers; and policymakers.

MONAHRQ-generated websites can serve a multitude of needs. One of the primary aims of the MONAHRQ project is to facilitate consumers' access to local information about providers and allow them to compare the quality and cost of providers to make more informed health care decisions. Providers can

compare their own performance on quality measures to that of their competition or validate the data they submitted to reporting organizations. Researchers and policymakers might use reports to inform program initiatives and health care policies.

Because each End User's needs are unique, they will require different measures and reports to meet those needs. Evidence-based research shows that consumers understand and use reports differently than other audiences. As such, the reports displayed and made available for End Users through MONAHRQ websites are audience-specific. Table 1 shows which reports are recommended and available by audience.

Table 1: Report Type by Audience

Report Type	Consumers	Providers, Health Plan Purchasers & Employers	Researchers and Analysts	Policymakers
Hospital Quality[a]				
Ratings	●	●	●	●
Ratings—Detailed tabular view		●	●	
Comparison	●	●	●	
Hospital profile—Overview and quality ratings (no utilization data)	●			
Hospital profile—Overview, quality ratings, and utilization data		●	●	
Avoidable Stays[b]				
Maps	●	●	●	●
By county		●	●	●
By county profile		●	●	●
Utilization[c]				
By county		●	●	●
By county—Stratified report		●	●	●
By custom region		●	●	●
By custom region—Stratified report		●	●	●
Inpatient hospital discharge		●	●	●
Inpatient hospital discharge—Detail		●	●	●
Emergency Department Treat-and-Release		●	●	●
Emergency Department Treat-and-Release—Stratified		●	●	●
Nursing Home[d]				
Ratings	●	●	●	●
Nursing Home profile	●	●	●	●
Nursing Home comparison	●	●	●	●
Physician[e]	●	●	●	●
Physician profile	●	●	●	●

[a] Comparison ratings by hospital and health topic (e.g., heart failure) and more detailed quality statistics for a wide range of measures
[b] Avoidable hospital stays and cost savings
[c] Discharges, estimated costs, rates for conditions and procedures, and trending reports
[d] Overall comparison and domain-level ratings by nursing home
[e] Physician report to include general descriptive information

1.3.1　Audience-Driven Decisions

Host Users must decide for which End User audience(s) to develop a website before using MONAHRQ. This decision will provide a pathway for selecting what quality, cost, and profile data to display to End Users, and how to display such data. There are five key questions that will help Host Users make audience-driven decisions when building their website(s):

1. Who is the intended audience or End User for the website?
2. Will the website be available publicly through the Internet or limited to those with a user name and password?
3. What data are available or obtainable for reporting?
4. What type(s) of reports are most useful for the End User?
5. What features can the website include to help End Users accomplish their goals on the website?

The following sections provide guidance based on your answers to these questions for each of four audiences: consumers; providers, health plan purchasers, and employers; researchers and analysts; and policymakers.

1.3.1.1　Consumers

The consumer audience includes patients and the general public. Consumers will want to compare the quality and cost of providers, see how a particular provider performs, assess the quality of care provided for a specific condition, and access profile data for specific hospitals and nursing homes in their area.

1. **Will the website be available publicly through the Internet or limited to those with a user name and password?**
   Consider making the website public so that all potential users may access information that they can use to make decisions about and engage in their health care. A private site (that is, one that requires logging in with a user name and password) may be appropriate for certain applications, but this limits the site's accessibility to the general public.

2. **What data do you have available or could you obtain for reporting?**
   MONAHRQ provides Host Users with AHRQ Quality Indicator results, CMS Hospital Compare data, Medicare Provider Charge Data–Inpatient, CMS Nursing Home Compare data, and CMS Physician data. Table 2 shows the types of data available and the measures that are relevant to consumers.

Table 2: Data and Measures Relevant to Consumers for Use Within MONAHRQ

Data	Types of Measures
AHRQ Quality Indicator Results	• Prevention Quality Indicators (PQIs)—Hospital admission rates for the conditions that could be prevented through good outpatient care • Inpatient Quality Indicators (IQIs)—Mortality rates for conditions and procedures; hospital- and area-level procedure rates; procedure volume • Patient Safety Indicators (PSIs)—Potential complications and errors resulting from a hospital admission for adults • Pediatric Quality Indicators (PDIs)—Potential complications and errors resulting from a hospital admission for children and adolescents
CMS Hospital Compare Data*	• Timely and effective care • Patient experience • Use of medical imaging • Readmissions, complications, and deaths

Data	Types of Measures
CMS Nursing Home Compare Data*	• Overall Ratings—Scores based on the results of the three ratings below: the most recent overall health inspection surveys; the most recent quality measures; and the most recent staffing measures • Overall Health Inspections—Results of the most recent health and safety inspections • Overall Quality Measures—Potential complications and errors resulting from Nursing Home Stay, including pain management, pressure ulcers, administering proper vaccinations and medications, urinary tract infection (UTI) incidence, weight monitoring, and more • Overall Staffing Measures—Number of staffing hours per resident per day for various providers
CMS Physician Data*	• Physician Data—General information such as: name, gender, specialty, medical practice name and address, hospital affiliation, medical school name, and group practice or individual's current location
Medicare Provider Charge Data–Inpatient*	• Costs, charges, and payments for the top 25 Diagnosis-Related Groups (DRGs) by volume

* Some data are publicly available and provided on the MONAHRQ website:
http://www.ahrq.gov/professionals/systems/monahrq/data/index.html

3. **What type(s) of reports are most useful for consumers?**
   The following reports are likely to be the most useful and understandable for consumers:

   • Hospital Quality Ratings
   • Hospital Comparison Report
   • Hospital Profile Report (without utilization data)
   • Avoidable Stays Maps
   • Nursing Home Comparison and Quality Ratings
   • Nursing Home Profile Report
   • Physician Listing Report
   • Physician Profile Report

Reports that are less appropriate for consumers include: Hospital Quality Ratings—Detailed tabular view, Hospital Profile Report (with utilization data), Inpatient Hospital Discharge (IP) Utilization Report, IP Utilization Detail Report, Emergency Department Treat-and Release (ED) Utilization Report, ED Utilization—Stratified Report, Avoidable Stays by County Report, Avoidable Stays by County Profile Report, Utilization by County Report, and the Utilization by County—Stratified Report.

4. **What features can the website include to help consumers accomplish their goals on the website?**

   • Limit the amount of detail in comparative reports that appears on the page, and provide or link to details elsewhere on the website.
   • Highlight the differences in comparative scores. Sort scores and use word icons and graphics as visual cues to indicate which providers are scoring better or worse than others.
   • Provide context on why quality data in general and each measure in particular are important.
   • Explain how a consumer can use the information.

1.3.1.2 Providers, Health Plan Purchasers and Employers

The provider audience includes administrative and clinical staff at hospitals and ambulatory care settings such as medical groups, physician offices, and nursing homes. Providers often want to compare their performance against other providers and to verify the accuracy of their internal data with that submitted for national public reporting. As payers, health plan purchasers and employers may want to compare the performance of providers to one another to aid their decisions for selecting health plans and coverage levels.

1. **Will the website be available publicly through the Internet or limited to those with a user name and password?**
   Providers would benefit from a report that allows them to easily compare how well their hospital is doing compared to other hospitals, but they may not want this information to be publicly available. Health plan purchasers and employers may not want to publicly share the performance of providers included in health plans they purchased or are considering purchasing. Host Users serving an audience with these purposes can make the website private so that they can control who accesses their site. The Host User makes a website private by supporting user names and passwords or other mechanisms that limit access to the website.

2. **What data do you have available or could you obtain for reporting?**
   MONAHRQ provides Host Users with AHRQ Quality Indicator results, CMS Hospital Compare data, Medicare Provider Charge Data–Inpatient, Inpatient Hospital Discharge data, Emergency Department Treat-and-Release data, CMS Nursing Home Compare data, and CMS Physician data. You may also have other data that would be relevant. Table 3 shows the available types of data and the measures relevant to providers, health plan purchasers, and employers.

Table 3: Data and Measures Relevant to Providers, Health Plan Purchasers, and Employers for Use Within MONAHRQ

Data	Types of Measures
AHRQ Quality Indicator Results*	• Prevention Quality Indicators (PQIs)—Hospital admission rates for the conditions that could be prevented through good outpatient care • Inpatient Quality Indicators (IQIs)—Mortality rates for conditions and procedures; hospital- and area-level procedure rates; procedure volume • Patient Safety Indicators (PSIs)—Potential complications and errors resulting from a hospital admission for adults • Pediatric Quality Indicators (PDIs)—Potential complications and errors resulting from a hospital admission for children and adolescents
CMS Hospital Compare Data*	• Timely and effective care • Patient experience • Use of medical imaging • Readmissions, complications and deaths
Medicare Provider Charge Data–Inpatient*	• Data include costs, charges, and payments for the top 25 Diagnosis Related Groups by volume
Inpatient Hospital Discharge Data	• Organizations using MONAHRQ must supply these data. Data may include number and rate of specific conditions, procedures, or diagnoses
Emergency Department Treat-and-Release Data	• Organizations using MONAHRQ must supply these data. Data may include number and rate of discharges, admissions, and diagnoses of patients seen in the Emergency Department

Data	Types of Measures
CMS Nursing Home Compare Data*	• Overall Ratings—Scores based on the results of the three ratings below: the most recent overall health inspection surveys; the most recent quality measures; and the most recent staffing measures • Overall Health Inspections—Results of the most recent health and safety inspections • Overall Quality Measures—Potential complications and errors resulting from Nursing Home Stay, including pain management, pressure ulcers, administering proper vaccinations and medications, UTI incidence, weight monitoring, and more • Overall Staffing Measures—Number of staffing hours per resident per day for various providers
CMS Physician Data*	• Physician Data—General information such as: name, gender, specialty, medical practice name and address, hospital affiliation, medical school name, and group practice or individual's current location

* Some data are publicly available and provided on the MONAHRQ website:
http://www.ahrq.gov/professionals/systems/monahrq/data/index.html

3. **What type(s) of reports are most useful for providers, health plan purchasers, and employers?**

- Hospital Quality Ratings
- Hospital Quality Ratings—Detailed tabular view
- Hospital Comparison Report (supports comparisons of up to five hospitals)
- Hospital Profile Report (with utilization data)
- Inpatient Hospital Discharge (IP) Utilization Report and Trending
- IP Utilization Detail Report and Trending
- Emergency Department Treat-and-Release (ED) Utilization Report and Trending
- ED Utilization—Stratified Report and Trending
- Avoidable Stays Maps
- Avoidable Stays by County Report
- Avoidable Stays by County Profile Report
- Utilization by County Report and Trending
- Utilization by County—Stratified Report and Trending
- Utilization by Custom Region and Trending
- Utilization by Custom Region—Stratified Report and Trending
- Nursing Home Comparison and Quality Ratings
- Nursing Home Profile Report
- Physician Listing Report
- Physician Profile Report

4. **What features can the website include to help providers, health plan purchasers, and employers accomplish their goals on the website?**

- Show differences among providers' scores. Sort scores, compare the score(s) to a benchmark or average and use word icons and graphics as visual cues to indicate which providers are scoring better or worse than others.

- Provide a means to access detailed statistics and scores for an individual provider; this is often done through a "drill-down"—a more detailed report derived from the comparative provider report.
- Link to information about the methodology and source of the data from the display of the data to instill trust in the report and the website.
- Provide context on why quality data in general and each measure in particular are important.
- Explain how a provider can use the information.

1.3.1.3 Researchers and Analysts

Researchers and analysts from many different types of organizations may want to review detailed statistical data for academic research, citations, program planning, or quality improvement purposes.

1. **Will the website be available publicly through the Internet or limited to those with a user name and password?**
   The website could be either public or private, but should clearly indicate the audience for whom this information is targeted. Note: A private site allows better tracking of who is accessing your site, but it requires greater logistical management of the mechanism used to limit access to the website.

2. **What data do you have available or could you obtain for reporting?**
   MONAHRQ provides Host Users with AHRQ Quality Indicator results, CMS Hospital Compare data, Medicare Provider Charge Data–Inpatient, Inpatient Hospital Discharge Data, Emergency Department Treat-and-Release data, CMS Nursing Home Compare data, and CMS Physician data. Table 4 shows the available types of data and measures relevant to researchers and analysts.

Table 4: Data and Measures Relevant to Researchers and Analysts for Use Within MONAHRQ

Data	Types of Measures
AHRQ Quality Indicator Results	• Prevention Quality Indicators (PQIs)—Hospital admission rates for the conditions that could be prevented through good outpatient care • Inpatient Quality Indicators (PQIs)—Mortality rates for conditions and procedures; hospital- and area-level procedure rates; procedure volume • Patient Safety Indicators (PSIs)—Potential complications and errors resulting from a hospital admission for adults • Pediatric Quality Indicators (PDIs)—Potential complications and errors resulting from a hospital admission for children and adolescents
CMS Hospital Compare Data*	• Timely and effective care • Patient experience • Use of medical imaging • Readmissions, complications, and deaths
Medicare Provider Charge Data–Inpatient*	• Data include costs, charges, and payments for the top 25 Diagnosis Related Groups by volume
Inpatient Hospital Discharge Data	• Organizations using MONAHRQ must supply these data. Data may include number and rate of specific conditions, procedures, or diagnoses

Data	Types of Measures
Emergency Department Treat-and--Release Data	• Organizations using MONAHRQ must supply these data. Data may include number and rate of discharges, admissions, and diagnoses of patients seen in the Emergency Department
CMS Nursing Home Compare Data*	• Overall Ratings—Scores based on the results of the three ratings below: the most recent overall health inspection surveys; the most recent quality measures; and the most recent staffing measures • Overall Health Inspections—Results of the most recent health and safety inspections • Overall Quality Measures—Potential complications and errors resulting from Nursing Home Stay, including pain management, pressure ulcers, administering proper vaccinations and medications, UTI incidence, weight monitoring, and more • Overall Staffing Measures—Number of staffing hours per resident per day for various providers
CMS Physician Data*	• Physician Data—General information such as: name, gender, specialty, medical practice name and address, hospital affiliation, medical school name, and group practice or individual's current location

* Some data are publicly available and provided on the MONAHRQ website: http://www.ahrq.gov/professionals/systems/monahrq/data/index.html

3. **What type(s) of reports are most useful for researchers and analysts?**

- Hospital Quality Ratings
- Hospital Quality Ratings—Detailed tabular view
- Hospital Comparison Report (supports comparisons of up to five hospitals)
- Hospital Profile Report (with utilization data)
- Inpatient Hospital Discharge (IP) Utilization Report and Trending
- IP Utilization Detail Report and Trending
- Emergency Department (ED) Treat-and-Release Utilization Report and Trending
- ED Utilization—Stratified Report and Trending
- Avoidable Stays Maps
- Avoidable Stays by County Report
- Avoidable Stays by County Profile Report
- Utilization by County Report and Trending
- Utilization by County—Stratified Report and Trending
- Nursing Home Comparison and Quality Ratings
- Nursing Home Profile Report
- Physician Listing Report
- Physician Profile Report

4. **What can you do to help researchers and analysts accomplish their goals by using your website?**

- Provide a clear pathway to detailed statistics at the individual organization level as well as across multiple organizations for comparison.
- Provide detailed data that informs the word icons. Researchers and analysts may want to look at the numerical scores for each organization or provider, so allowing access to these data is key. You can provide a link to more data on each provider or access to an entire dataset.

- Link to detailed information about the data source, measure, data collection timeframe, and any statistical adjustments made to the data to instill trust in the report and the website.
- Provide Trending Report(s) within the existing Utilization Reports for multiple periods.

1.3.1.4 Policymakers

Policymakers at the local, regional, and State level will benefit from population-level data that will likely be less relevant to consumers or providers. In addition, utilization data may be particularly useful for planning and budgeting of health care and community resources.

1. **Will the website be available publicly through the Internet or limited to those with a user name and password?**
   The website could be either public or private but should clearly indicate the audience for whom this information is targeted. Although population-level data that policymakers seek may not be actionable for other audiences, making it publicly available increases transparency. Note: A private site allows better tracking of who is accessing your site, but it requires greater logistical management of the mechanism used to limit access to the website, and may limit the number of visitors using the site.

2. **What data do you have available or could you obtain for reporting?**
   MONAHRQ provides Host Users with AHRQ Quality Indicator results, CMS Hospital Compare data, Medicare Provider Charge Data–Inpatient, Inpatient Hospital Discharge data, Emergency Department Treat-and-Release data, CMS Nursing Home Compare data, and CMS Physician data. Table 5 shows the available types of data and measures relevant to policymakers.

Table 5: Data and Measures Relevant to Policymakers for Use Within MONAHRQ

Data	Types of Measures
AHRQ Quality Indicator Results	• Prevention Quality Indicators (PQIs)—Hospital admission rates for the conditions that could be prevented through good outpatient care • Inpatient Quality Indicators (IQIs)—Mortality rates for conditions and procedures; hospital- and area-level procedure rates; procedure volume • Patient Safety Indicators (PSIs)—Potential complications and errors resulting from a hospital admission for adults • Pediatric Quality Indicators (PDIs)—Potential complications and errors resulting from a hospital admission for children and adolescents
CMS Hospital Compare Data*	• Timely and effective care • Patient experience • Use of medical imaging • Readmissions, complications, and deaths
Medicare Provider Charge Data–Inpatient*	• Data include costs, charges, and payments for the top 25 Diagnosis Related Groups by volume
Inpatient Hospital Discharge Data	• Organizations using MONAHRQ must supply these data. Data may include number and rate of specific conditions, procedures, or diagnoses
Emergency Department Treat-and-Release Data	• Organizations using MONAHRQ must supply these data. Data may include number and rate of discharges, admissions, and diagnoses of patients seen in the Emergency Department

Data	Types of Measures
CMS Nursing Home Compare Data*	• Overall Ratings—Scores based on the results of the three ratings below: the most recent overall health inspection surveys; the most recent quality measures; and the most recent staffing measures • Overall Health inspections—Results of the most recent health and safety inspections • Overall Quality Measures—Potential complications and errors resulting from Nursing Home Stay, including pain management, pressure ulcers, administering proper vaccinations and medications, UTI incidence, weight monitoring, and more • Overall Staffing Measures—Number of staffing hours per resident per day for various providers
CMS Physician Data*	• Physician Data—General information such as: name, gender, specialty, medical practice name and address, hospital affiliation, medical school name, and group practice or individual's current location

* Some data are publicly available and provided on the MONAHRQ website: http://www.ahrq.gov/professionals/systems/monahrq/data/index.html

3. **What type(s) of reports are most useful for policymakers?**

- Hospital Quality Ratings
- Hospital Profile Report (with utilization data)
- Inpatient Hospital Discharge (IP) Utilization Report
- IP Utilization Detail Report and Trending
- Emergency Department (ED) Treat-and-Release Utilization Report and Trending
- ED Utilization—Stratified Report and Trending
- Avoidable Stays Maps
- Avoidable Stays by County Report
- Avoidable Stays by County Profile Report
- Utilization by County Report and Trending
- Utilization by County—Stratified Report and Trending
- Nursing Home Comparison and Quality Ratings
- Nursing Home Profile Report
- Physician Listing Report
- Physician Profile Report

4. **What features can the website include to help policymakers accomplish their goals on the website?**

- Show overall regional or State-level scores and trends by geographic areas.
- Highlight differences in comparative scores. Sort scores and use word icons and graphics as visual cues to indicate which providers are scoring better or worse than others.
- Provide a means to access detailed statistics and scores; this is often done through a "drill-down"—a more detailed report deriving from the main report.
- Provide contextual information written for policymakers that provides an explanation of the importance of the measures and what they mean at the population level.
- Provide Trending Report within the existing Utilization Reports for multiple periods.

1.3.2 Summary

The information presented in this section is intended to help you make decisions as you build your MONAHRQ-generated website. Once you have considered your responses to these questions, you will be ready to create your MONAHRQ website by following the instructions in this *Host User Guide*.

1.4 Using the Host User Guide and MONAHRQ®

The *Host User Guide* provides step-by-step instructions for Host Users about how to best publish a MONAHRQ website. It includes an overview of the software requirements, installation processes and the datasets needed for various reporting paths. It also provides information about how to prepare and load local hospital data, CMS Hospital Compare data, CMS Nursing Home Compare data, Physician data, and AHRQ Quality Indicator results (into MONAHRQ) and explains how to create and host a website with health care reports.

The *Host User Guide* includes screenshots to illustrate key steps in the process. Links to other MONAHRQ materials such as the *Quick Start Guide* are available in Appendix B.

1.4.1 Overview of Step-by-Step Instructions

MONAHRQ provides a step-by-step process to guide organizations through loading their data and creating their website. The process to generate a MONAHRQ website is depicted in Figure 1 and described below. Use this section to get started on preparing your computing environment in order to generate your website.

Figure 1: Process for Generating a MONAHRQ Website
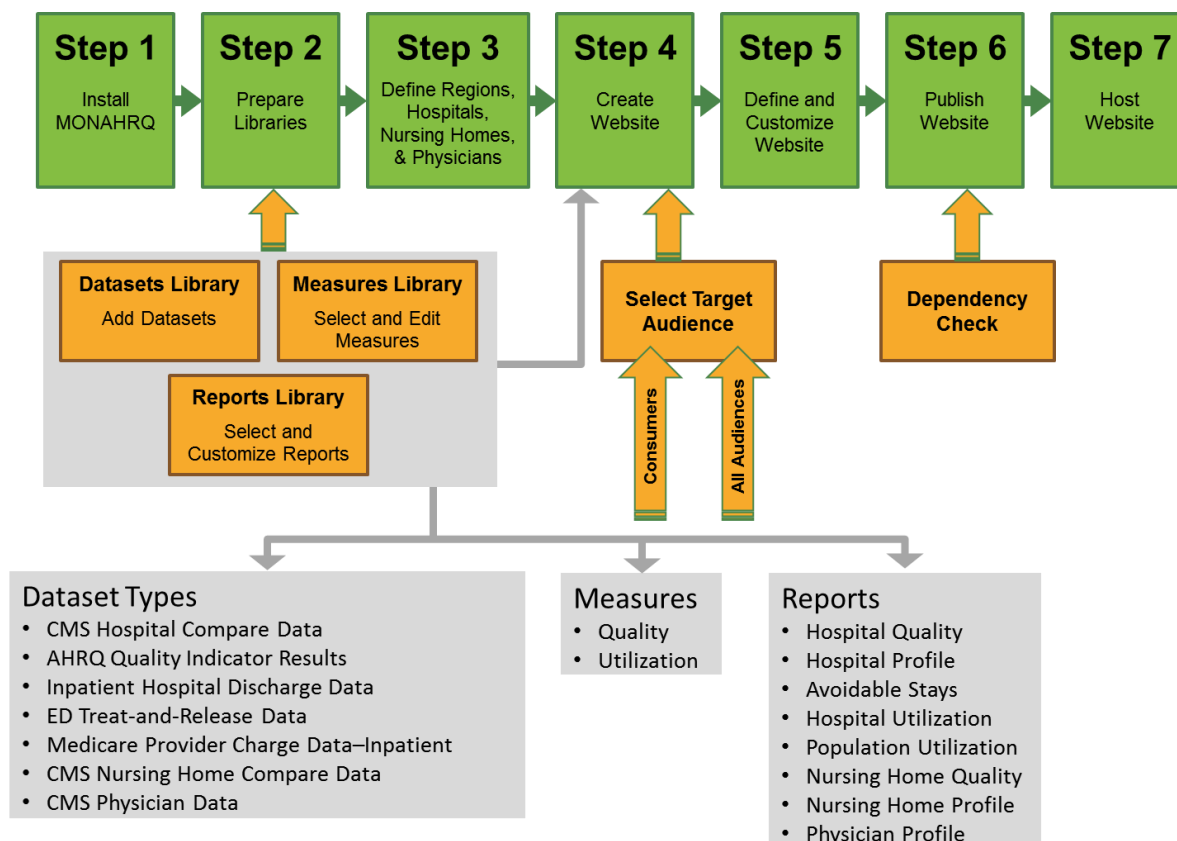
Step 1: Prepare the computing environment and install MONAHRQ (See Chapter 2 and Appendix C, Appendix D and Appendix E for more information.). To install MONAHRQ, you will need the following:

i. A MONAHRQ-compatible Windows® operating system

ii. The free Microsoft® .NET Framework 4.5

iii. Microsoft SQL Server® or the free SQL Server 2008 R2 Express

iv. Once the computing environment is ready download and run the MONAHRQ installation package.

v. Create a new MONAHRQ database or connect to an existing one using the Settings > Database Connection screen (in MONAHRQ).

Step 2: Prepare the libraries. In this step, you will prepare the following libraries:

i. **Datasets Library**—Load input data files into MONAHRQ (See Chapter 3 and Appendix F). Refer to Section 1.3 to determine which health care data file and/or quality measure results are needed (in order to include the corresponding reports in your MONAHRQ-generated website). Prepare the files with health care data and/or quality measure results to be imported into the MONAHRQ database. These may include one or more of the following:

   - **Inpatient Hospital Discharge data**—MONAHRQ allows Host Users to supply their own Inpatient Hospital Discharge data. MONAHRQ helps map these data to the appropriate format to support a MONAHRQ website. (For more information about format requirements, see Chapter 3 and Appendix F.)

   - **ED Treat-and-Release data**—MONAHRQ allows Host Users to supply their own ED Treat-and-Release data. MONAHRQ helps map these data to the appropriate format to support a MONAHRQ website. (For more information about format requirements, see Chapter 3 and Appendix I.)

   - **CMS Hospital Compare data**—These include the HCAHPS patient satisfaction survey measures, which can be obtained from the MONAHRQ website. CMS calculates the Hospital Compare data and makes the results publicly available in downloadable format on the CMS Hospital Compare website. The MONAHRQ project team obtains these downloadable data files, reformats them for import into MONAHRQ and posts them on the MONAHRQ website. You can download these files from the MONAHRQ website at http://monahrq.ahrq.gov/monahrq_data.shtml.

   - **AHRQ Quality Indicators**—MONAHRQ allows Host Users to calculate the AHRQ QI results using Inpatient Hospital Discharge data obtained locally. AHRQ provides two tools to calculate the AHRQ QI results: the QI Windows® software (WinQI) and the QI SAS® software. (More information about calculating AHRQ QIs can be found at http://qualityindicators.ahrq.gov.) After calculating the AHRQ QI results, follow the instructions in this Guide to save the results in a format that can be loaded into MONAHRQ. This format is discussed in Appendix J.

   - **Medicare Provider Charge data (Inpatient)**—These include hospital-specific charges for the more than 3,000 U.S. hospitals that receive Medicare Inpatient Prospective Payment System (IPPS) payments for the top 100 most frequently billed discharges. The latest data file can be downloaded from the MONAHRQ website under the "Resources" section. It is available in CSV format at http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Medicare-Provider-Charge-Data/Inpatient.html. The downloaded file can be uploaded directly into MONAHRQ without making any adjustments.

   - **CMS Nursing Home Compare data**—MONAHRQ enables you to upload CMS Nursing Home Compare data to MONAHRQ, configure measures and customize reports to include a Nursing Home reporting path in your MONAHRQ-generated website. The CMS

Nursing Home Compare data are available to download from the CMS website at: https://data.medicare.gov/data/nursing-home-compare.

- **CMS Physician data—**MONAHRQ supports reports with physicians' general information such as: name, gender, specialty, medical practice name and address, hospital affiliation, medical school name, and group practice and physician's current location. MONAHRQ can pull CMS Physician data from Application Programming Interface (API) services provided by the CMS Website (http://data.medicare.gov website).

ii. **Measures Library**—This library contains the measures supported by MONAHRQ and used for reporting. You can use out-of-the-box measure attributes provided by MONAHRQ or customize them to meet your local priorities for displaying measures. Chapter 6 provides specific details on the Measures Library.

iii. **Reports Library**—This library contains the reports supported by MONAHRQ. You can use out-of-the-box report attributes such as display name, columns to be included in the reports, and others, or customize them to meet your local priorities for displaying reports. Chapter 7 has more details.

Step 3: Define regions and hospitals—Define the geographic location used by your website by choosing Dartmouth Atlas Hospital Referral Regions (HRRs) or Hospital Service Area (HSA) or use a custom region. MONAHRQ comes preloaded with the hospitals extracted from the CMS Provider of Services (POS) file. You can use an intuitive, easy-to-use interface to enter a region and map your local hospitals manually or upload the configuration files. This removes the burden of entering data manually. The formats for these files are provided in Appendix F and Section 5.14.5. Configuration files include—

i. **Region definitions**

ii. **Hospital definitions**

Section 5.16 provides details on hospital definitions, including hospital categories. Section 5.10 provides details on creating and organizing hospital geographic regions for datasets.

Step 4: Create a website—MONAHRQ 6.0 allows you to create and store multiple websites. Start creating a website by defining your website name, your target audience, and a reporting time period. Depending on the target audience selected, MONAHRQ will suggest which reports to include for the website according to evidence-based best practices in public reporting. More details are provided in Section 1.3. Next—

i. **Select datasets**—Select the health care datasets or quality measure results from the Datasets Library. These will be included in the website for reporting.

ii. **Choose and customize measure attributes**—MONAHRQ shows all measures as selected by default. Measures can be unselected and not reported in the website based on your preferences.

iii. **Select reports**—MONAHRQ makes suggestions regarding the reports to be included for a website based on the target audience selected. Choose out-of-the-box reports or customize reports based on your local priorities for reporting.

Step 5: Define and customize website—Define attributes such as website title, geographic description, logos, banners, and the website folder. In addition, customize your website by either selecting a different website theme or changing the branding color, including fonts. Preview your website design before you publish it.

Step 6: Publish website—This is the final step in producing your website. Before publishing your website, run the "dependency check" (see Appendix N). This function checks and reports on any missing pieces or inconsistencies that need to be fixed before the website is generated. Once the dependency check is done MONAHRQ writes the website files to a directory specified by you.

Step 7: Host website—Host your website by uploading the generated website to a web server.

   i. Transfer the MONAHRQ-generated website to a web server/hosting environment: Compress the website files, transfer them, and extract them, preserving the directory structure. To host a MONAHRQ-generated website, only a web server is needed. No database connection, application server, or other special hosting environment is required.

   ii. Customize the generated website further, as needed. As noted above, MONAHRQ allows the customization of logos, fonts, and colors used throughout the website. Please refer to Chapter 8 for a description of the directory structure and files in the MONAHRQ-generated website and information about how to customize the site after it is generated.

You can update your MONAHRQ-generated websites as new data versions become available. You may opt to generate a new website for each data year available. Or you may use an existing website to create a new website and retain all of the prior settings.

1.5 Technical Support

MONAHRQ brings with it a full range of technical assistance and advice. For questions or comments about using MONAHRQ, contact MONAHRQ Technical Assistance at MONAHRQ@ahrq.gov.

CHAPTER 2.   INSTALLING MONAHRQ®

This chapter provides instructions for preparing the computing environment and installing MONAHRQ. Please note that the *Quick Start Guide* provides a distilled set of instructions for installing MONAHRQ and can be a great resource for those who do not need detailed instructions. If you have MONAHRQ 5.0 installed, you can skip to Section 2.3 to upgrade to MONAHRQ 6.0. You are not required to uninstall the prior version of MONAHRQ to install MONAHRQ 6.0.

2.1   Preparing the Computing Environment

2.1.1   Permissions

Before beginning the MONAHRQ installation process, make sure your computer has the appropriate operating system and database permissions required to run the software. If a system administrator downloads the software on behalf of another user, the appropriate access privileges must be granted to the other user. However, administrator privileges or rights are required only during installation.

Please refer to Appendix C 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 the operating system on your computer, right-click on the **My Computer** icon on the desktop and select **Properties**. A window will appear that lists the version of the operating system in use (see Appendix D.)

The approximate disk space requirements for MONAHRQ and associated components are as follows:

- Microsoft® .NET Framework 4.5—850 MB for 32-bit systems, 2 GB for 64-bit systems (http://msdn.microsoft.com/en-us/library/8z6watww(v=vs.110).aspx)
- Microsoft SQL Server® 2008 R2 Express—2 GB for 32-bit and 64-bit systems (http://technet.microsoft.com/en-us/library/ms143506(v=sql.100).aspx#HardDiskSpace)
- MONAHRQ application—166 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 up to 4 GB may be required.
- MONAHRQ-generated web pages—Typically 500 MB but up to 4 GB may be required

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

- 2 GHz processor speed or higher
- 2 or more GB of memory

2.1.3 <u>Required Supporting Software</u>

To install MONAHRQ, the following software must be on your system:

- Microsoft .NET Framework 4.5.
- 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 depending upon the need.

This software can be downloaded from the MONAHRQ website (http://monahrq.ahrq.gov/monahrq_software.shtml).

Before installing these tools, it is important to verify whether you have a 32-bit or 64-bit system. Please refer to Appendix D 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 6.0 requires Microsoft .NET Framework 4.5.

Please refer to Appendix E for instructions about how to determine whether Microsoft .NET Framework 4.0 is already installed on your system and for 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 paid Enterprise Editions. Microsoft SQL Server can be installed on a PC or accessed over a network. Microsoft SQL Server Express Edition (the free edition) is the preferred version among many users. However, for SQL Server 2008 Express, the limit for the database size is 4 GB; for SQL Server 2008 R2 Express and SQL Server 2012 Express, the limit is10 GB. If you expect your database size to be larger than or close to 10 GB, the paid Enterprise Edition of Microsoft SQL is recommended.

To create and use an SQL Server database on a desktop, download and install the software from the MONAHRQ website at http://monahrq.ahrq.gov/monahrq_software.shtml. To use an existing SQL Server database, the connection host name, login and password are 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 PowerShell. These tools need to be installed before SQL Server can be installed.

Accept the default configuration settings provided by Microsoft, in addition to accepting the following options:

- **Feature Selection** (Screenshot 1). Install the Database Engine Services. The **Management Tools—Basic** feature 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 1: Feature Selection
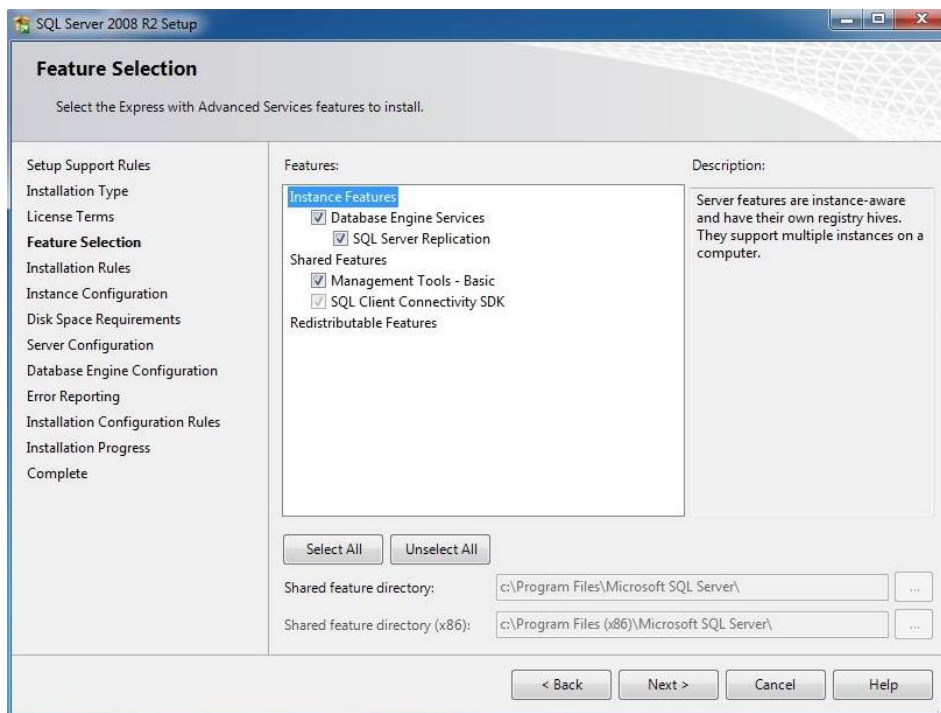
- **Instance Configuration** ([Screenshot 2](#)). As part of the installation for SQL Server 2008 R2, the wizard will ask you to choose between a default or a named instance. Select **Default Instance.** For example, for SQL Server Express, the default instance name is "SQLExpress" and for SQL Server Enterprise, the default instance name is "MSSQLServer."

Screenshot 2: Instance Configuration
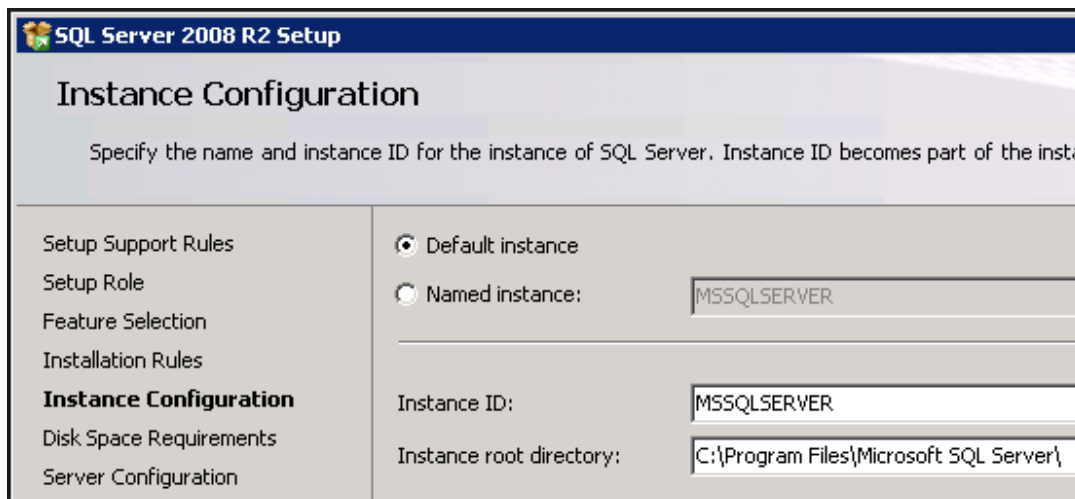
- **Server Configuration** ([Screenshot 3](#)). Under Service Accounts, go to SQL Server Database Engine, then Account Name and select the Account Name with "System" in it.

Screenshot 3: Server Configuration
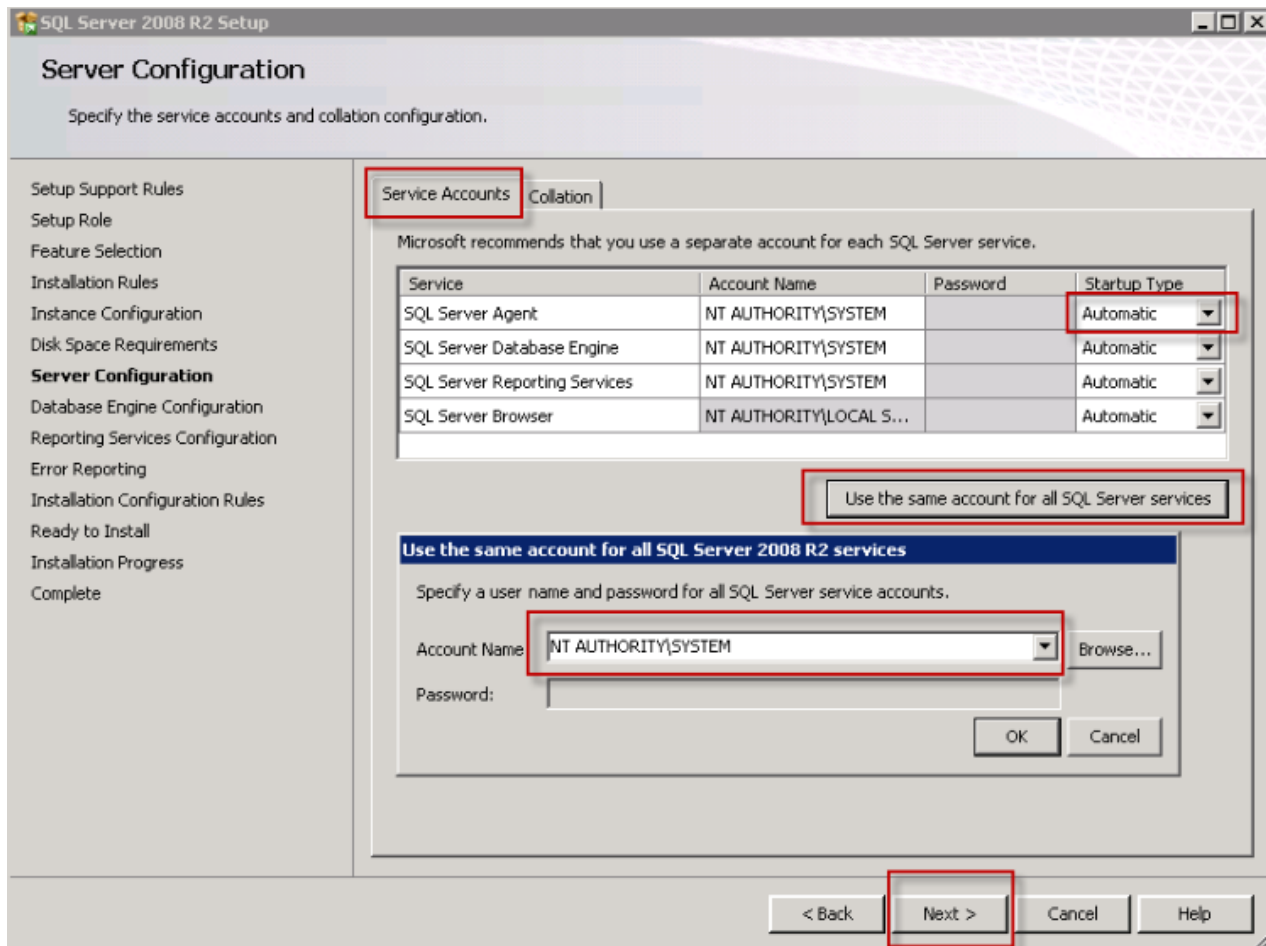
Select the default settings for the following steps:

- **Database Engine Configuration**—Use Windows authentication mode if the user's administrative privilege is enabled on the computer. Click on "Next" to continue to the Reporting Services Configuration.
- **Reporting Services Configuration**—Accept the default setting, which will set up Reporting Services. Click on "Next" to continue on to the Error Reporting.
- **Error Reporting**—No action is needed here. Click on "Next" to complete the wizard and begin the installation.

Once SQL Server is installed, which includes Management Tools, test the installation to determine whether you can connect to the database. To test the installation—

Step 1: Go to the "Start" menu on your computer.

Step 2: Select "All Programs."

Step 3: Select 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 4.

Screenshot 4: SQL Server Management Login Window

Verify that authentication is set to Windows Authentication. Click on "Connect." The login window will disappear. The connection is successful if there are no error messages and the window as seen in Screenshot 5 appears.

Screenshot 5: Verify Database Connection
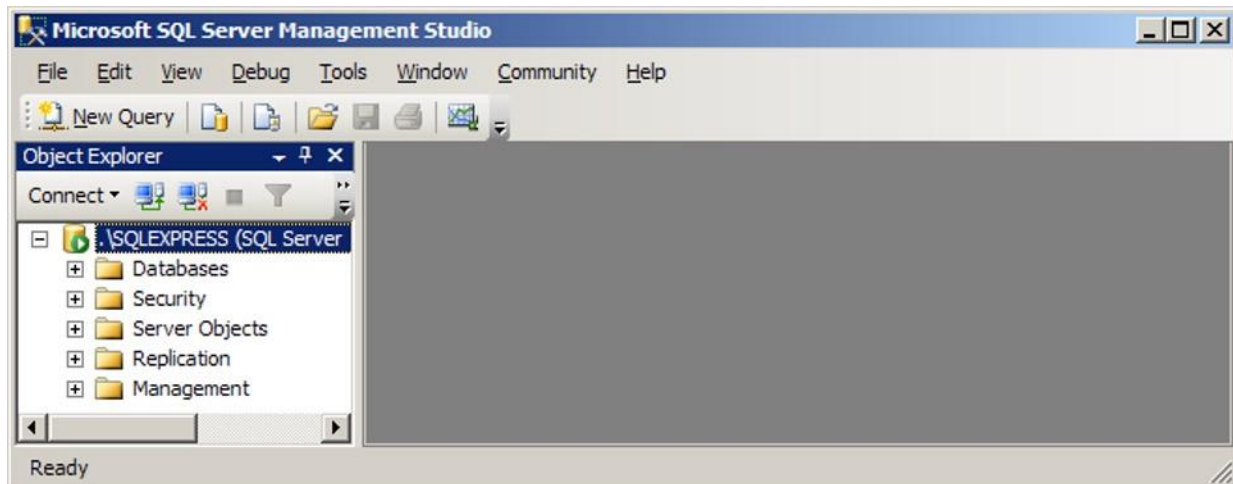
2.1.4   Optional Supporting Software

The following software is not required to run MONAHRQ but it may be necessary to calculate specific measures. (For more information on AHRQ Quality Indicator results, refer to Appendix F.)

2.1.4.1   AHRQ Quality Indicators™ Software

Use AHRQ QI software to load precalculated measure results for the AHRQ Quality Indicators (QIs) into MONAHRQ. **Starting with MONAHRQ 4.0, MONAHRQ is separated from AHRQ QI and AHRQ QI**

software must be used separately. AHRQ provides two software tools to calculate AHRQ QIs and each will generate precalculated measures for use in MONAHRQ 6.0:

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

You can choose to use either software to calculate AHRQ Quality Indicator results. However, WinQI provides an intuitive, easy-to-use interface for calculating AHRQ Quality Indicator results. In addition to using AHRQ software for calculating AHRQ 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 QI SAS software does not work for this feature. MONAHRQ uses information from the AHRQ QI database to calculate the cost savings. For all other purposes, MONAHRQ 6.0 runs separately from the AHRQ QI software.

The QI SAS software uses SAS (http://www.sas.com) to calculate AHRQ Quality Indicator results. To load precalculated measure results using the QI SAS software, use SAS formatting utilities for the AHRQ QIs. Access and download these utilities from the MONAHRQ website: http://monahrq.ahrq.gov/monahrq_software.shtml.

Refer to the AHRQ QI website for software and download information: http://qualityindicators.ahrq.gov/software/default.aspx.

The following list shows AHRQ QI software compatibility with MONAHRQ:

- MONAHRQ 6.0 is compatible with AHRQ QI 4.6, AHRQ QI 4.5, AHRQ QI 4.4, or AHRQ QI 4.3a
- MONAHRQ 5.0 is compatible with AHRQ QI 4.6, AHRQ QI 4.5, AHRQ QI 4.4, or AHRQ QI 4.3a
- MONAHRQ 4.1 is compatible with AHRQ QI 4.5, 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

Appendix J includes instructions for installing and running the AHRQ QI software.

2.2 Uninstalling Previous Versions of MONAHRQ®

It is recommended that you uninstall previous versions of MONAHRQ before installing MONAHRQ 6.0; however, this is not required. To uninstall previous versions of MONAHRQ—

Step 1: From the Windows Start menu, select **Control Panel**.

Step 2: Select **Add or Remove Programs**.

Step 3: In the list of applications that appears select **MONAHRQ**.

Step 4: Select **Uninstall**.

Step 5: Close the window when the removal process is complete.

2.3   Installing MONAHRQ®

To install MONAHRQ, run the installation package from the MONAHRQ website (http://monahrq.ahrq.gov/monahrq_software.shtml). When running the file, an install wizard will appear, as shown in Screenshot 6.

The install wizard will prompt you to **specify the directory** in which you would like MONAHRQ installed. The default installation directory is C:\Program Files\AHRQ\MONAHRQ\. Progress meters will show the progress of the setup process. A window will appear to indicate that the installation has completed successfully.

Screenshot 6: New Installation Wizard Screen
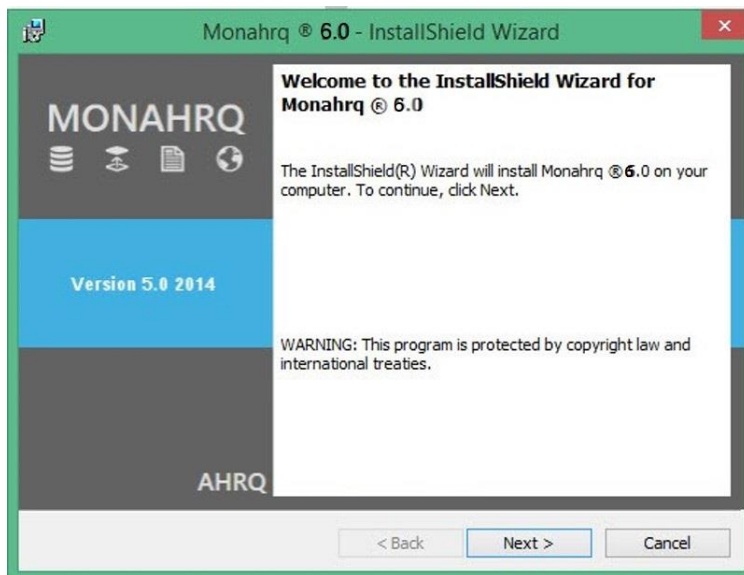
If you are new to MONAHRQ 6.0, you will be prompted to complete the initial installation process as a first time Host User. Once MONAHRQ has been installed you will be prompted to upgrade to the latest version in future installation processes. If you are an existing MONAHRQ 5.0 Host User, you will be prompted to upgrade to the latest version of MONAHRQ 6.0 (Screenshot 7). You do not need to uninstall your current version of MONAHRQ when upgrading to a newer version.

Screenshot 7: Application Upgrade Screen
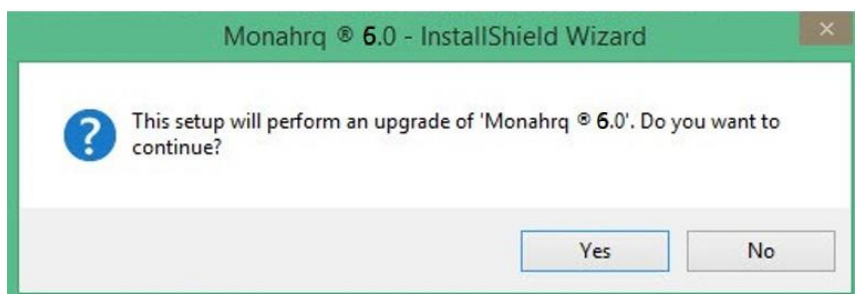
To upgrade to MONAHRQ 6.0, complete the following steps:

Step 1: Click on "MONAHRQ 6.0 Install.exe." The Application Upgrade screen will open.

Step 2: Click on the "Yes" button.

Step 3: From the MONAHRQ application Database Connection screen (Screenshot 8), click on the "Upgrade Database" button.

Screenshot 8: Database Upgrade Screen
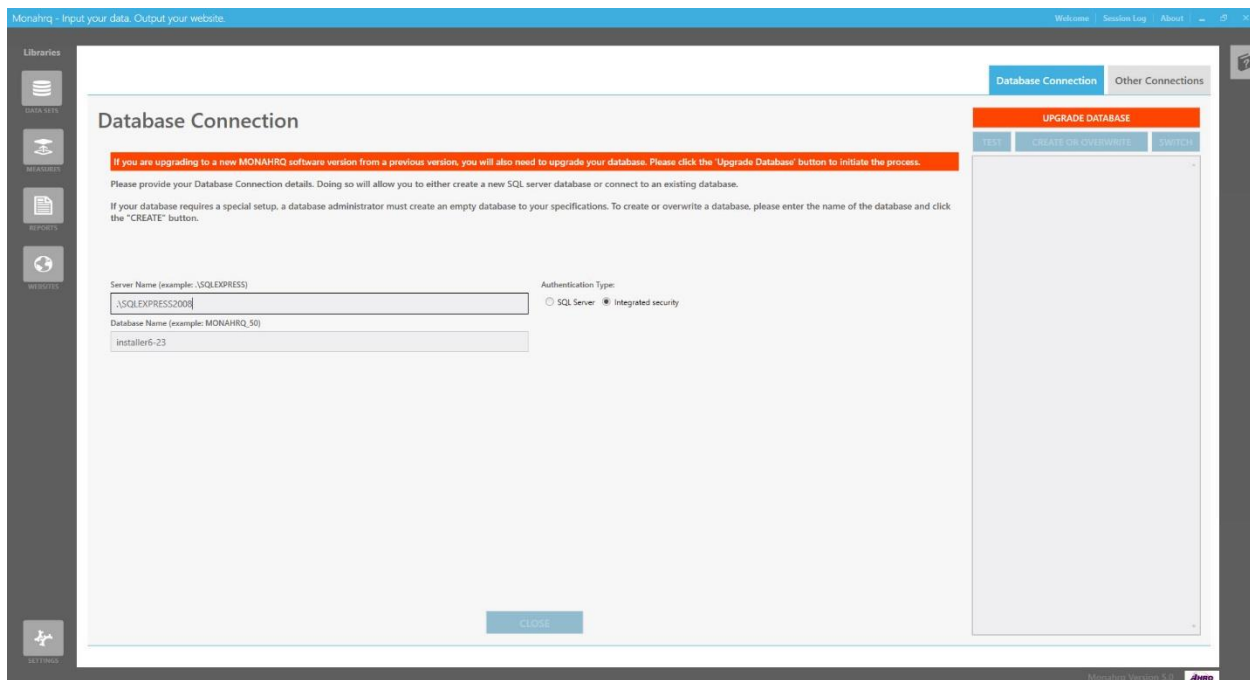
CHAPTER 3.   OVERVIEW OF STANDARD DATA FILES

To generate health care reports, you must first load your data files into MONAHRQ. This chapter will provide information about which data and measures are needed for each reporting path. Refer to Appendix F which provides an overview of each type of data as well as detailed instructions surrounding how to prepare the data and measures to be loaded into MONAHRQ.

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. You only need to load data that will be used in the report of interest. Generating a website only requires one dataset but it is possible to add multiple datasets as you build your website. Data used in MONAHRQ include—

- Inpatient Hospital Discharge data
- Emergency Department (ED) Treat-and-Release data
- CMS Hospital Compare data
- AHRQ Quality Indicator™ results
- Medicare Provider Charge Data: Inpatient
- CMS Nursing Home Compare data
- CMS Physician data
- Region Information file
- Hospital Information file

Table 6 lists the MONAHRQ reporting paths and their required data. MONAHRQ allows you to import datasets to source the reporting paths and measures referenced in Table 1. The Provider of Service (POS), Hospital Information and Region Information files are embedded within MONAHRQ; therefore, you do not need to upload these base files.

Table 6: MONAHRQ Reporting Paths for Generated Websites

MONAHRQ Tab	Reporting Path (MONAHRQ-Generated Website)	Data and Measures (Host User-provided and MONAHRQ Data Types)	Source Data & Software Used to Generate Data
Home	Home > Physician Profile Report	• CMS Physician data	• Automatically downloaded using API service calls: http://data.medicare.gov/resource/s63f-csi6.json
Home	Home > Hospital Profile Report	• Medicare Provider Charge data—Inpatient	Downloaded from MONAHRQ website
Hospitals	Quality Ratings	• CMS Hospital Compare data • Composite-level AHRQ QI results • Provider-level AHRQ QI results	• AHRQ QI software (Using data from the Host User's organization) • Downloaded from MONAHRQ website
Hospitals	Service Use Rates > Avoidable Hospital Stays	• Area-level AHRQ QI results	• AHRQ QI software • Using data from the Host User
Hospitals	Service Use Rates > Health Care Service Use > Utilization > Hospital > Inpatient	• Inpatient Hospital Discharge data	• Host User's organization
Hospitals	Service Use Rates > Health Care Service Use > Hospital > Emergency Department	Combination of: • Inpatient Hospital Discharge data • ED Treat-and-Release data	• Host User's organization
Hospitals	Service Use Rates > Health Care Service Use > Population > County Rates of Hospital Use	• Inpatient Hospital Discharge data	• Host User's organization
Hospitals	Service Use Rates > Health Care Service Use > Population > Region Rate of Hospital Use	• Inpatient Hospital Discharge data • Population Region data	• Host User's organization
Nursing Homes	Nursing Home Quality	• CMS Nursing Home Compare data	• Downloaded from the CMS Nursing Home Compare website: https://data.medicare.gov/data/nursing-home-compare
Nursing Homes	Nursing Home Profile Report	• CMS Nursing Home Compare data	• Downloaded from the CMS Nursing Home Compare website: https://data.medicare.gov/data/nursing-home-compare

CHAPTER 4.   LAUNCHING MONAHRQ®

Prepared data and measures can now be loaded into the MONAHRQ database to create a website. This chapter describes the process of configuring a new MONAHRQ website using the Create a New Website wizard. It also includes information about the key features of the MONAHRQ Welcome screen, as well as choosing and defining datasets, importing and mapping data and measures, validating data, and managing hospital-level data.

4.1   Opening the MONAHRQ Application®

Below Screenshot 9 are the steps required to provide SQL connection information if opening the MONAHRQ application for the first time. Opening MONAHRQ afterwards will not open the SQL server connection information window as it uses the saved information to directly display the Welcome screen (Section 4.2).

Screenshot 9: SQL Server Connection Window

Step 1: Open MONAHRQ. First time users will see the SQL Server Connection window.

Step 2: Enter the Server Name. This is the name of the SQL server instance that is installed on your machine. If you used the default named instance during setup on SQL Express then specify the Server Name as **.\SQLExpress** (see Screenshot 9).

Step 3: Enter the Database Name. This will be the name of the MONAHRQ database. Please note: When an existing MONAHRQ database name is provided MONAHRQ will connect to that; if a new database name is specified MONAHRQ will create a new database.

Step 4: Click on the "Create" button if you are creating your MONAHRQ database for the first time. If you want to connect to the existing database click on the "Test" button to confirm it has connected successfully and then click on the "OK" button.

Step 5: Select the "Use Integrated Security" checkbox (used to access the SQL Server database) or provide the SQL Server database User Name and Password.

Step 6: Click on the "OK" button.

4.2 Navigating the MONAHRQ® Welcome Screen

The Welcome screen is displayed the first time you use MONAHRQ to build a website (Screenshot 10). (Note: If you have already created a website, you will be automatically directed to the current website screen). The easy-to-navigate Welcome screen allows you to import new data, define measures, preview reports, and generate your new MONAHRQ website through the Create a New Website Wizard.

Screenshot 10: MONAHRQ Welcome Screen
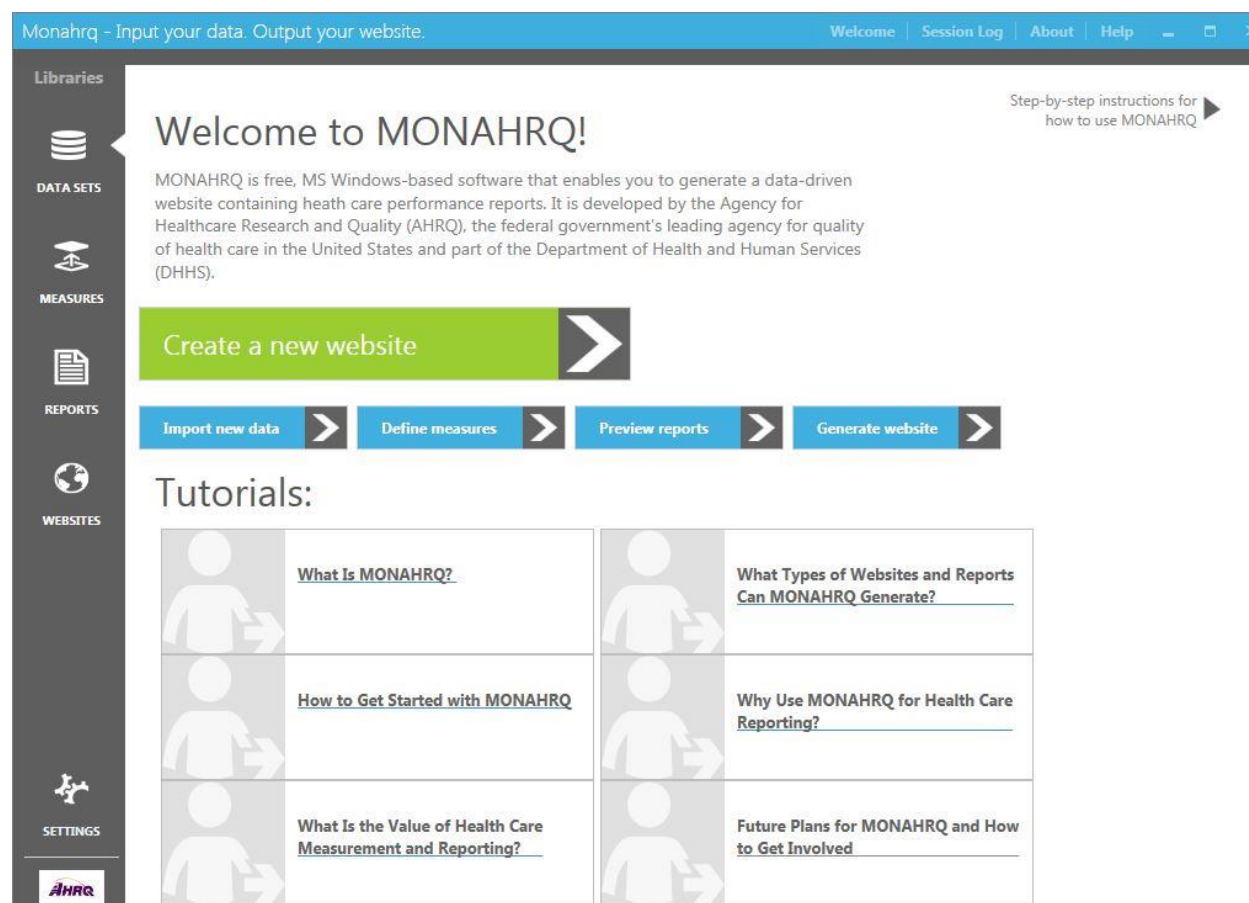
The Welcome Screen includes the following components:

- **Global Library Panel—**The Global Library located on the left side panel of the Welcome screen enables you to update and configure datasets, measures, reports, and websites at any time in the website creation and maintenance process. The library panel is composed of the following five core elements, which are required to generate health care performance reports:

  1. **Datasets**—The Datasets Library contains and displays all of the input files that you upload. MONAHRQ allows you to upload multiple input files for each dataset type.

  2. **Measures**—The Measures Library displays all of the available measures, grouped by topic and subtopic. You can select a measure to edit its attributes, such as friendly display name, benchmark data, and so forth.

  3. **Reports**—The Reports Library displays all of the available reports within MONAHRQ.

  4. **Websites**—The Websites Library displays all of the existing websites you have created. This screen is outlined in Chapter 8. The Website Wizard guides you through the five steps to create a MONAHRQ website.

  5. **Settings**—The settings feature includes the functional components that can be configured, including database settings (See Chapter 9.)

- **Tutorials—**The Tutorial section contains learning materials and information related to the MONAHRQ website's capabilities and practical uses of datasets, measures, and reporting.

CHAPTER 5.   MANAGING YOUR DATASETS LIBRARY

The Datasets Library contains all of the input files that were uploaded to MONAHRQ®. Host Users can upload multiple input files for each dataset type. Clicking on the Datasets icon in the Libraries menu will load the Measures Data screen (Screenshot 11) which lists all of the existing dataset types supported in MONAHRQ.

Screenshot 11: Datasets Library
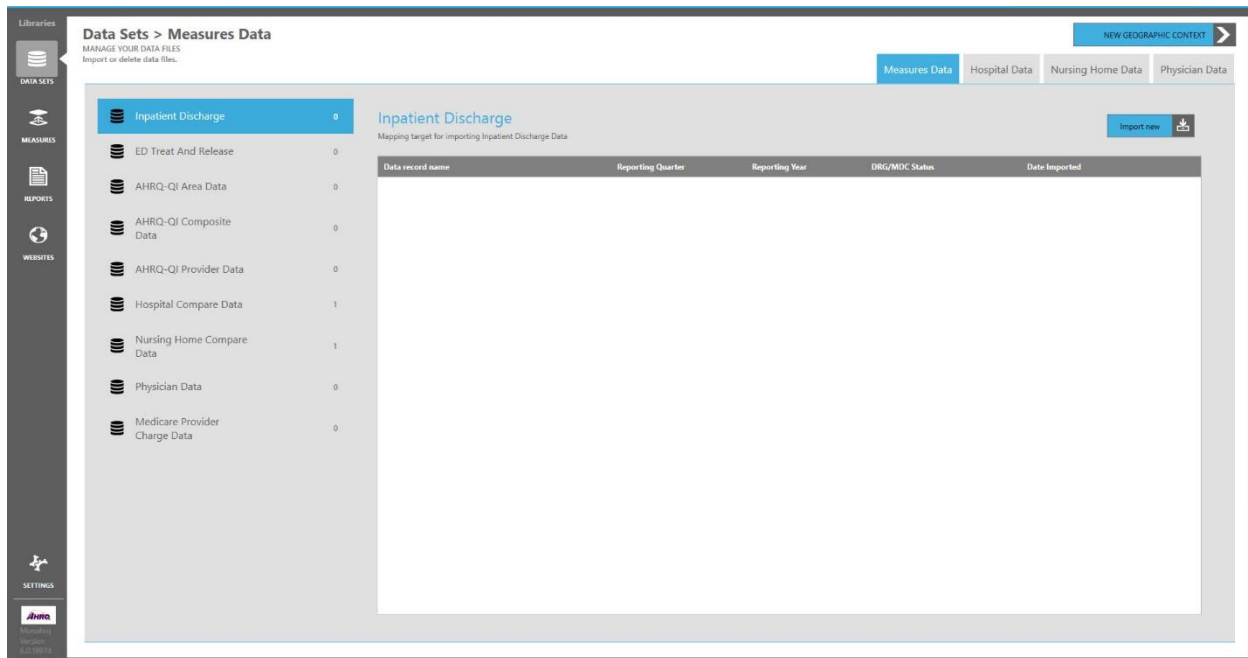
The dataset files that were added to the Datasets Library can then be selected to create one or more websites. Once these dataset files are added to the library, any combination of datasets can be used to create a new website. This chapter describes the process of adding dataset files to the Datasets Library.

MONAHRQ 6.0 supports the following datasets:

- Inpatient Hospital Discharge data (See Appendix H for details on file structure)
- Emergency Department Treat-and-Release data (See Appendix I for details on file structure)
- Area QI—AHRQ Quality Indicator™ Results (See Appendix J for details on file structure)
- Provider QI—AHRQ Quality Indicator Results (See Appendix J for details on file structure)
- Composite QI—AHRQ Quality Indicator Results (See Appendix J for details on file structure)
- CMS Hospital Compare data (See CMS website https://data.medicare.gov/data/hospital-compare)
- CMS Nursing Home Compare data (See CMS website https://data.medicare.gov/data/nursing-home-compare)
- CMS Physician data (See CMS website https://data.medicare.gov/data/physician-compare)

5.1 Importing a New Inpatient Hospital Discharge Dataset

To import a new Inpatient Hospital Discharge dataset, select the "Inpatient Discharge" icon on the left side of the Inpatient Discharge data screen (Screenshot 11) and click on the "Import New" button. You will be required to enter basic information for the dataset being imported, such as title, report quarter, and report year before you can select the appropriate data file to upload (Screenshot 12).

Screenshot 12: Importing Inpatient Hospital Discharge Dataset

Step 1: Click on the "Import New" button for the Inpatient Hospital Discharge data.

Step 2: Create a title for the dataset that identifies the data source and type. Enter the title in the "Enter Title" text box (Screenshot 12).

Step 3: Define the reporting period to match the reporting period of the source datasets. To define the reporting period for a specific quarter in a year, select the correct quarter in the "Reported Quarter" dropdown box (Screenshot 12). If reporting annually and not quarterly, change the dropdown value to "blank."

Step 4: Further define the reporting period by selecting the reporting year. To do this, select a value in the single-select "Reported Year" dropdown box (Screenshot 12). The dropdown box is populated with a range of 10 years before and 5 years after the current year.

Step 5: Click on the "Browse" button to locate and then select the input data file. The file path will be displayed in the input data file field (Screenshot 12). The dataset file must comply with the file type and layout specifications defined in Appendix F.

Step 6: Complete the input file selection process by clicking on the "Continue to the Next Step" button (Screenshot 12).

Step 7: MONAHRQ will scan the dataset to check file readability and validate the size and attributes of the file (Screenshot 13). The file size, number of records read, file name, and location path will be displayed on the Check File Readability screen. An accepted file will result in a progress indicator of 100 percent.

Step 8: Click on the "Continue to the Next Step" button.

Screenshot 13: Check File Readability Display

Checking File Readability

Progress: 100 %

File size:	102,952,444 bytes
Records read:	759,408 of 759,408
File name:	C:\Data\Test_files\Inpatient_Discharge.csv
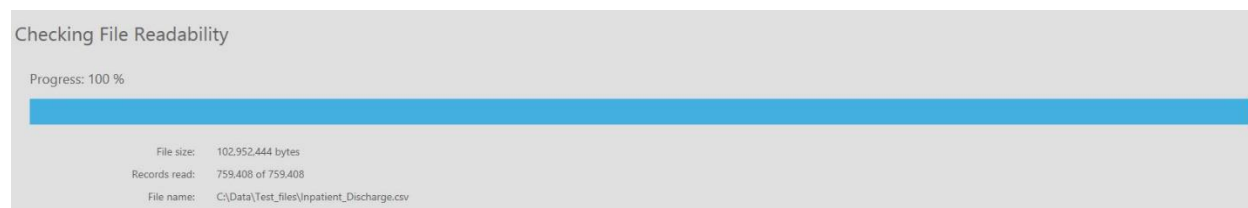
5.1.1   Mapping the Datasets

Dataset mapping is the next phase of the file import process (Screenshot 14). MONAHRQ will automatically match as many of the data fields in the input file to the MONAHRQ data elements as possible. Additional information on the AHRQ QI results and the datasets prepared by your organization can be found in Appendix H, Appendix I, and Appendix J. These appendices provide helpful information including the recommended file header names (data elements), a description of the purpose of each field, and definitions of the data values to include in your files. Applying the recommended data element names as the field names in your files will result in more fields to be mapped by MONAHRQ's auto-mapper service. The auto-mapper attempts to conservatively map fields between the MONAHRQ software and your imported datasets to reduce the number of incorrectly mapped fields during the mapping process. Unmatched data fields will be identified by the system as "unmapped" and will need to be manually mapped. If the file structure of dataset types is standardized to MONAHRQ specifications, there will be no need to map the data fields and this step will be skipped.

Screenshot 14: Map Data Mapping
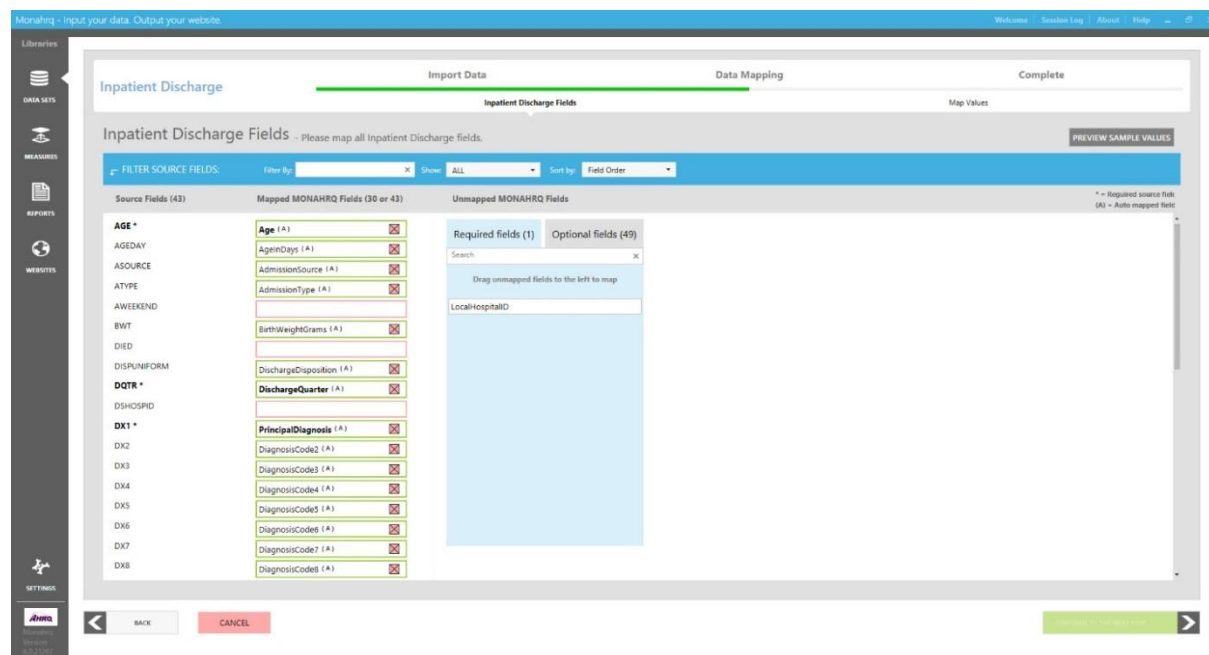
The Dataset Mapping Element screen includes a mapping widget with three components:

1. **Source Fields**—This component lists the field names in your input file or imported dataset. If an input field was automatically mapped by the system then this component will contain a text value (e.g., Age). However, if the source field is a blank red box, this indicates that the field has not been mapped and needs to be manually mapped.

2. **Mapped MONAHRQ Fields**—This component displays the mapped MONAHRQ field names as defined in the system. The field name in your input file must be mapped to the required MONAHRQ field. Note: The MONAHRQ field names cannot be edited.

3. **Unmapped MONAHRQ Fields**—This component displays the unmapped MONAHRQ field names defined in the system. The input dataset was either missing these data elements, or they are optional fields that were not mapped.

   The Unmapped MONAHRQ Fields component includes two tabs: Required Fields and Optional Fields. Each list the required and optional MONAHRQ fields to be mapped to your input files. You will need to map all of the required fields listed in order to proceed to the next step in the import process. You are not required to map the optional fields.

Preview Sample Values—In order to confirm your element mapping, a sample value from the input dataset can be viewed by clicking on the "Preview Sample Values" button located on the right side of this screen.

The auto-mapping results should then be verified. Any required fields that were not mapped automatically will need to be identified and mapped manually in order to proceed. You can filter what is displayed on the page so that it shows either mapped fields, or unmapped fields. Follow the steps below Screenshot 15 to verify the auto-mapping results.

Screenshot 15: Defining Field Values Screen

Step 1: Compare the values in the "Source Fields" and the "Mapped MONAHRQ Fields" row by row. Correlation between the two field values should be present. Sample data can be viewed in the "Preview Sample Values" screen to compare the values in Source and MONAHRQ Fields.

Step 2: If you determine that a different MONAHRQ field should be mapped to your input field, click on the trash can action icon (X) in the Mapped MONAHRQ Field box. This will result in the field

being unmapped and the unmapped MONAHRQ value will be displayed in the right panel, either under the Required Field or Optional Field tabs. Once you have identified the correct data element value to map, click on the value and drag it to the corresponding "Mapped MONAHRQ field" to map the values.

Step 3: Continue to map "Required" and any desired "Optional" MONAHRQ fields to unmapped fields in your input dataset. Use the drag and drop process to complete the mapping process.

Step 4: Compare, verify, and map optional MONAHRQ fields and dataset fields by following the preceding steps.

Step 5: Click on the "Continue to the Next Step" button after all MONAHRQ fields and input dataset fields are mapped.

Step 6: Auto-mapping assigns a definition to field values (Screenshot 15). Review the look-up value and value definition for correctness. To assign a new value definition, click on the dropdown box in the field and select the appropriate value. The fields that are not completely assigned a valid crosswalk value appear in red and will change to green once they are assigned a value.

Step 7: Click on the "Continue to the Next Step" button after all field value definitions are verified.

5.1.2 Data Mapping Summary Report

MONAHRQ generates a Data Mapping Summary Report that displays results from the data mapping process. The report summarizes the data mapping between the input dataset files and the MONAHRQ dataset files (Screenshot 16).

Screenshot 16: Mapping Summary Report
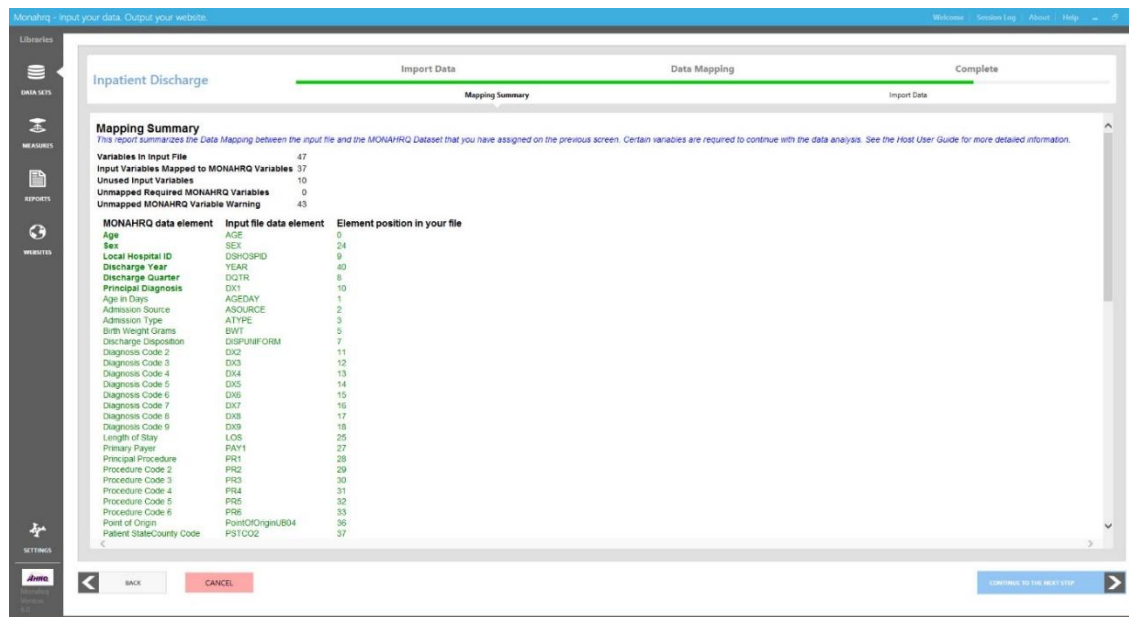
The Mapping Summary Report includes statistics on the number of variables in the input file, the number of input variables mapped to MONAHRQ variables, the number of unused input variables, and the number of unmapped MONAHRQ variables (both required and optional). The results are used to determine whether there are any unused or unmapped variables; if there are, this issue will need to be

resolved by correcting or completing the field mappings. Sample Mapping Summary Report statistics from Screenshot 16 are as follows:

- Variables in Input File: 47
- Input Variables Mapped to MONAHRQ Variables: 37
- Unused Input Variables: 10
- Unmapped Required MONAHRQ Variables: 0
- Unmapped MONAHRQ Variable Warnings: 43

After you have reviewed the Mapping Summary Report, follow the steps below to proceed with the data import process:

Step 1: Click on the "Continue to the Next Step" button.

Step 2: Click on the "Import Data" button to load the input data file into MONAHRQ.

Step 3: Review the Data Validation Summary report and then click on the "Done" button (Screenshot 17).

5.1.3   Data Validation and Data Errors Report

MONAHRQ includes a data validation step that identifies invalid records in the input dataset file (Screenshot 17). These invalid records contain data errors. The report includes the record number, MONAHRQ variable (or field name), record status (i.e., "Validation Error" or "Warning"), and an error description/message. The information in this report can be used to correct the records in the input dataset file or to update mapping.

Screenshot 17: Data Validation Report Summary

5.2   Diagnosis Related Groups and Major Diagnostic Category Data Import Process

MONAHRQ is embedded with Medicare Severity Diagnosis Related Groups (MS-DRGs) and Major Diagnostic Category (MDC) grouper software, produced by the National Technical Information Service (http://www.ntis.gov/products/grouper). MONAHRQ also allows you to override the built-in DRG grouper computation and load your own DRG and MDC assignments. The DRG and MDC data are used in the Inpatient Utilization reports.

The Datasets Library will display the status of the DRG grouper background process (Screenshot 18).

Screenshot 18: Inpatient Hospital Discharge Dataset DRG/MDC in Progress Status

After the Inpatient Hospital Discharge data file has been imported—

- If DRG and MDC values have been included and correctly mapped MONAHRQ will display "User Provided" in the DRG/MDC Status column.
- If you do not map the DRG and MDC values, MONAHRQ calculates them automatically and runs in the background. Initially, this will be displayed in your taskbar on your desktop with a MONAHRQ icon; however, until finished, the DRG/MDC Mapping Status column will display "Assignment in progress."

5.3 CMS Nursing Home Compare Data Import Process

Starting with MONAHRQ 6.0, you have the ability to import and report on CMS Nursing Home Compare data. The Nursing Home Compare data import screen (Screenshot 19) will allow you to enter basic information about the dataset and upload the Microsoft Access version of the CMS Nursing Home Compare data downloaded from the CMS website (https://data.medicare.gov/data/nursing-home-compare). Follow the steps below Screenshot 19 to import your CMS Nursing Home Compare data.

Screenshot 19: Measures Data Tab: Nursing Home Compare Data View

Step 1: Select "Nursing Home Compare Data" on the Measures Data tab.

Step 2: Click on the "Import New" button located under the Nursing Home Compare Data and Physician Data tabs.

Step 3: Click on the "Browse" button to locate and select the CMS Nursing Home Compare input dataset that you downloaded directly from the CMS website (https://data.medicare.gov/data/nursing-home-compare).

Note: Although there are two file formats available to download from the CMS website (CSV and Microsoft Access), MONAHRQ will only accept the Microsoft Access database format. Once the file is selected, the file path will be displayed in the Input Data File field.

Step 4: Complete the input file selection process by clicking on the "Continue to Next Step" button.

Step 5: MONAHRQ will scan the dataset(s) and validate the version, size, and attributes of the file (Screenshot 20). When the import process is completed, you will see an "Import completed successfully" message.

Step 6: Click on the "Done" button to complete the CMS Nursing Home Compare data import process (Screenshot 20).

Screenshot 20: CMS Nursing Home Compare Data Import Screen
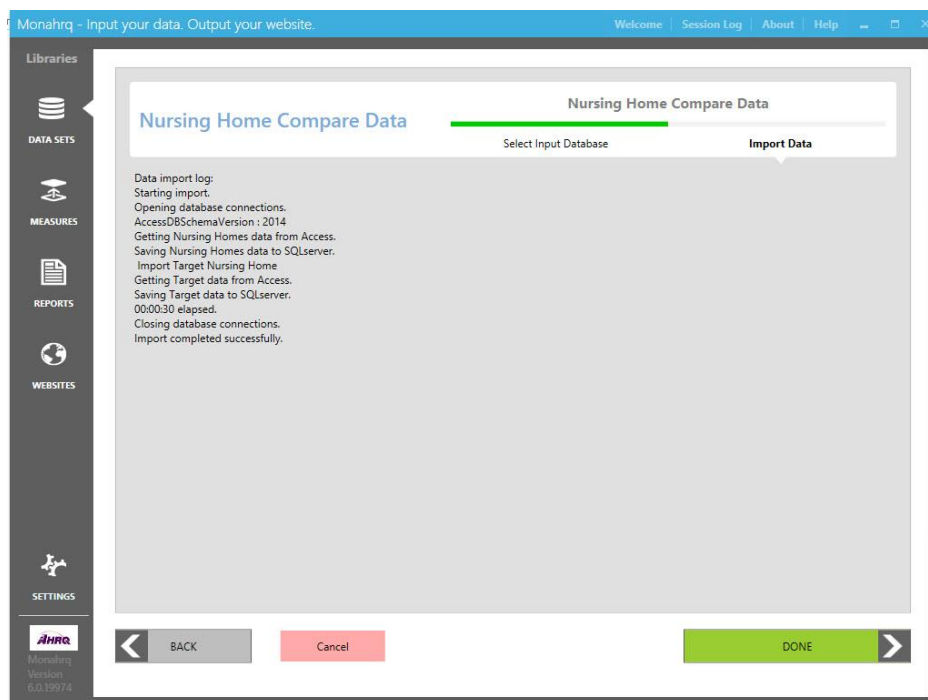
5.4 CMS Physician Data Import Process

The CMS Physician data import process (Screenshot 21) is similar to the import process for the other datasets in MONAHRQ; however, you will not upload data files for physicians. Instead, MONAHRQ pulls CMS Physician data from Application Programming Interface (API) services provided by the CMS Website (http://data.medicare.gov). Follow the steps below Screenshot 21 to import CMS Physician data into MONAHRQ.

Screenshot 21: Measures Data Tab
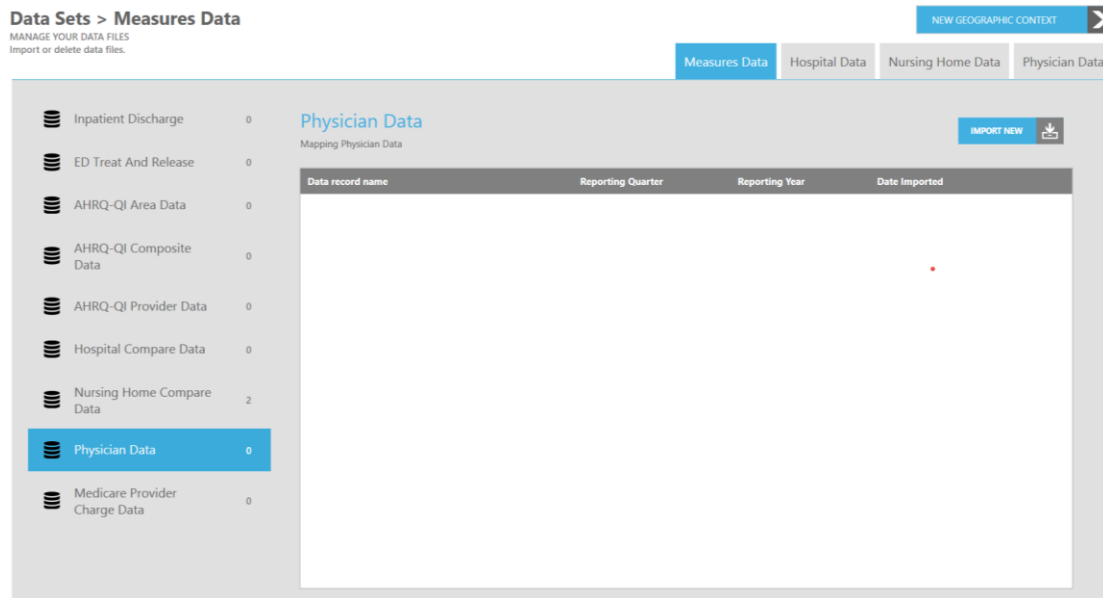
Step 1: On the Measures Data tab, select "Physician Data" (Screenshot 21).

Step 2: Click on the "Import New" button (Screenshot 21).

Step 3: From the "Enter State(s)" dropdown menu, select the appropriate State(s) and enter a title for the Physician data in the "Enter title" text box (Screenshot 22).

Step 4: Depending on your requirements, select either Radio Button 1 ("I want to include descriptive data about physicians in MONAHRQ"), or Radio Button 2 ("I want my generated website to get the most current version of CMS Physician data").

- Radio Button 1 will enable MONAHRQ to download CMS Physician data for the States selected in Step 3 using API service calls available at https://data.medicare.gov. Before MONAHRQ connects with the API service, it will "ping" the service to determine whether MONAHRQ can actually connect to the API services over the Internet. If the Internet connection is not available or the API service URL is not functional you will receive an error message. It is important that your machine remains connected to the Internet to complete the import process successfully.

  Note: If CMS Physician data are re-imported, the information will be updated when it is determined that it is newer than the previously uploaded data.

- Selecting Radio Button 2 will prevent MONAHQ from downloading any CMS Physician data. The MONAHRQ-generated website will pull the most current CMS Physician data using the API calls. In this mode, you will not be able to view or edit CMS Physician data in MONAHRQ.

Step 5: Complete the file selection process by clicking on the "Continue to the Next Step" button (Screenshot 22).

Step 6: Click on the "Done" button to complete the CMS Physician data import process (Screenshot 23).

Screenshot 22: CMS Physician Data Import Screen

Screenshot 23: CMS Physician Data Import Progress

5.5 Managing CMS Nursing Home Compare Data

The Nursing Home Compare Data tab displays a list of all nursing homes included in your Datasets Library. This screen allows you to add, edit, and delete CMS Nursing Home Compare data based on your needs for reporting. This tab will only be available to you if you imported the CMS Nursing Home Compare data. See Section 5.3 for a step-by-step guide to importing the CMS Nursing Home Compare data.

5.5.1 Editing and Managing Nursing Home Attributes

Nursing Home-specific attributes can be customized to determine how your CMS Nursing Home Compare data appear on your MONAHRQ website. Follow the steps below to update your nursing home attributes.

Step 1: In the "Name" category on the Edit Nursing Home screen, click on the edit action icon (the pencil) to update nursing home attributes (Screenshot 24).

Step 2: Navigate through the screen and update nursing home attributes by adding or editing information in the appropriate fields (e.g., City, State, Phone Number, and CMS Provider ID).

Screenshot 24: Selecting a Nursing Home to Edit

		Name	City	State	Phone Number	CMS Provider ID
✏	🗑	AMIE HOLT CARE CENTER	BUFFALO	WY	3076845521	53A002
✏	🗑	BONNIE BLUEJACKET MEMORIAL NURSING HOME	BASIN	WY	3075683311	535019
✏	🗑	CHEYENNE HEALTH CARE CENTER	CHEYENNE	WY	3076347986	535025
✏	🗑	CHEYENNE REG MEDICAL CTR TRANSITIONAL CARE UNIT	CHEYENNE	WY	3076337365	535044
✏	🗑	CROOK CO MEDICAL SERVICE DISTRICT LONG TERM CARE	SUNDANCE	WY	3072832725	535029

5.5.2 Adding a New Nursing Home

You can manually add a new Nursing Home to your Datasets Library by accessing the Add New Nursing Home screen (Screenshot 25). You will need to enter the Nursing Home attributes that would otherwise be provided by a dataset file.

Screenshot 25: Adding a Nursing Home

5.6   Managing CMS Physician Data

The Managing Physician Data screen displays a list of all physicians included in your Datasets Library within your Geographical Context (area). From here, you can add, edit, delete, and import CMS Physician data based on your reporting needs.

To manage the CMS Physician data in MONAHRQ go to Datasets and click on the "Physician Data" tab.

Note: This tab will not be available when either of the following two conditions is present:

- The CMS Physician data have not been imported and therefore are not available. (For information about the CMS Physician data import process, see Section 5.4.)
- Radio Button 2 ("I want my generated website to get the most current Physician data available.") was selected when importing CMS Physician data.

5.6.1   Editing and Managing Physician Attributes

Physician-specific attributes can be edited (Screenshot 26) and End Users may customize how their Physician data are displayed in their MONAHRQ–generated websites. Follow the steps below Screenshot 26 to customize your Physician attributes.

Screenshot 26: Selecting a Physician to Edit on the Edit Physician Screen

		Name	NPI	City	State	Primary Speciality
✏	🗑	SANDRA HOPPE	1811149867	CASPER	WY	OCCUPATIONAL THERAPIST
✏	🗑	JENNIFER DAVIS	1447572136			NURSE PRACTITIONER
✏	🗑	BENJAMIN JACKSON	1972830313	TORRINGTON	WY	CHIROPRACTIC
✏	🗑	NANCY THOMPSON	1235458977	GILLETTE	WY	CERTIFIED REGISTERED NURSE ANESTHETIST
✏	🗑	TODD SHOLEY	1770570970	ROCK SPRINGS	WY	OPTOMETRY

Step 1: To the left of the "Name" column, click on the edit icon (pencil symbol) to launch the "Edit Physician" screen (Screenshot 26).

Step 2: Navigate through the screen and, where applicable, update physician attributes by adding or editing text in the appropriate attribute fields (e.g., NPI, City, State, and Primary Specialty).

5.7   Medical Practices Screen

The Medical Practices screen displays a list of all medical practices associated with the physicians within your Geographical Context (area) (Screenshot 27). This screen allows you to add, edit, and delete medical practices based on your reporting needs. This screen shows data elements attributed to a Physician's medical practice such as Group Practice Pac ID, organization legal name, and number of group practice members. You can see the list of addresses for a medical practice by switching to the Details View (Screenshot 27). In addition, these medical practices' locations are assigned to any Physicians associated with each location (see Section 5.8.1).

Screenshot 27: Medical Practices Screen

5.7.1 Adding a Medical Practice

You can add a medical practice by clicking on the "Add Medical Practice" button. You will be required to enter the medical practice attributes, such as Organization Legal Name, Group Practice PAC Id, Practice locations, and so forth. Follow the steps below (Screenshot 28) to add a medical practice.

Screenshot 28: Adding a Medical Practice

Step 1: Type in text and values in the medical practice attribute fields. Note: Organization Legal Name and Group Practice Pac ID are required and must be entered in order to successfully add a medical practice. You can add one or more addresses for a medical practice by clicking on the "Add address" button (Screenshot 29).

Step 2: Click on the "Save Changes" button to save any text that has been entered. The medical practice will be added to the list of medical practices displayed on your MONAHRQ-generated website.

Screenshot 29: Adding Addresses to a Medical Practice

5.8 Adding a New Physician

You can add Physicians to your Datasets Library via the Add New Physician screen (Screenshot 30) to your library. Follow the steps below to add a new Physician.

Step 1: On the Add New Physician screen, enter information in the attribute fields listed under the following headings: Physician Identification, Hospital Affiliation, Medical Credentials, and Medicare Assignment/Participation. Ensure all required fields are populated.

Step 2: Click on the "Save Changes" button to save any data you entered. Once saved, the Physician will be added to the list of Physicians displayed on your MONAHRQ-generated website.

Screenshot 30: Adding a Physician

5.8.1 Adding Hospital Affiliations and Locations

You can add one or more hospital affiliations for a Physician (Screenshot 31). Once added, the MONAHRQ-generated website will display these affiliations in the Physician Profile Report.

Screenshot 31: Adding Hospital Affiliations and Locations

In addition to adding hospital affiliations, you can also edit and add medical practice locations for Physicians. Follow the steps below to update hospital affiliations and medical practice locations.

Step 1: To add a hospital affiliation, type the first few letters of the hospital's name in the Hospitals search box. This will pull up any matching hospitals that are stored in MONAHRQ. Select the hospital you would like to add and click on the "Add Hospital" button. Add additional hospitals by repeating these steps.

Step 2: To remove a Physician's affiliation with an existing location, simply click on the "Delete" icon (X) and the affiliation will be removed.

Step 3: To edit an existing location for any Physician, deselect the location and click on "Save Changes."

Step 4: To add a new location, click on the "Add Location" button. This will open a popup window where you can add locations (Screenshot 32).

Step 5: Once all changes have been made, click on the "Save Changes" button.

5.8.2 Adding and Editing Medical Practice's and Individual Locations for Physicians

There are two options available for adding new locations for physicians:

1. Search on an existing medical practice and add one or more locations for the practice. Select the first radio button, "Search Medical Practice," type the name of the medical practice, and click on the "Search" button. This will search the medical practices in your geographic context and display the results (Screenshot 32). Select one or more addresses to add these locations to a physician's profile and click on "OK."

2. Add a new location without a medical practice (Screenshot 33). Select the second radio button, "Add New Address," enter the address details, and click on "OK." This will enter a new address for the physician.

Screenshot 32: Adding and Editing Locations—Search Medical Practice

Screenshot 33: Adding and Editing Locations—Add New Address

5.9 Importing CMS Physician Data Input File

Custom CMS Physician data files can be imported into MONAHRQ to update or overwrite specific physician attributes that were originally provided by CMS Physician data. The CSV file layout (see Table 7) contains data field names and types. It is crucial that Host Users use the structure and naming conventions provided in Table 7 when preparing their CMS Physician data file(s) for upload. Failure to do so will cause the data import to fail. Once successfully imported, MONAHRQ will add or override the existing CMS Physician data in the Datasets Library.

Click on the "Import Data" button to browse and select a file to import. A warning message will appear, indicating that the imported file will overwrite the existing values in the CMS Physician data in the Datasets Library for any physician that already exists in MONAHRQ.

When importing customized CMS Physician data through the "Import Physician" function, physicians are automatically added as new records if no record is found in MONAHRQ (when cross-checked with the physician's NPI ID). Otherwise, physician information is updated with the information contained in the file being imported.

Table 7: CMS Physician Data File Layout

Field Name	Data Type	Required?
NPI	Digits	Yes
PAC_ID	String	No
Professional Enrollment ID	String	No
Last Name	String	Yes
First Name	String	Yes
Middle Name	String	No

Field Name	Data Type	Required?
Suffix	String	No
Gender	M/F	No
Credential	String	No
Medical school name	String	No
Graduation year	Digits	No
Primary specialty	String	No
Secondary specialty 1	String	No
Secondary specialty 2	String	No
Secondary specialty 3	String	No
Secondary specialty 4	String	No
All secondary specialties	String	No
Organization legal name	String	No
Organization DBA name	String	No
Group Practice PAC ID	String	No
Number of Group Practice members	Digits	No
Line 1 Street Address	String	No
Line 2 Street Address	String	No
Marker of address line 2 suppression	Y/Blank	No
City	String	No
State	String	Yes
ZIP Code	Digits	No
Claims based hospital affiliation CCN 1	Digits	No
Claims based hospital affiliation LBN 1	String	No
Claims based hospital affiliation CCN 2	Digits	No
Claims based hospital affiliation LBN 2	String	No
Claims based hospital affiliation CCN 3	Digits	No
Claims based hospital affiliation LBN 3	String	No
Claims based hospital affiliation CCN 4	Digits	No
Claims based hospital affiliation LBN 4	String	No
Claims based hospital affiliation CCN 5	Digits	No
Claims based hospital affiliation LBN 5	String	No
Professional accepts Medicare Assignment	Y/N	No
Participating in eRx	Y/Blank	No
Participating in PQRS	Y/Blank	No
Participating in EHR	Y/Blank	No
Received PQRS Maintenance of Certification Program Incentive	String	No
Participated in Million Hearts	String	No
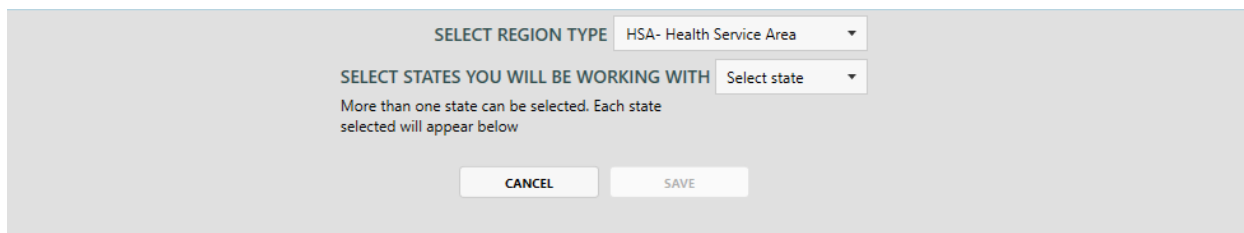
5.10 Defining Geographic Context: Creating and Organizing Regions for Your MONAHRQ®-Generated Website

MONAHRQ allows you to globally manage hospitals', nursing homes', and physicians' geographic context. One or more States can be selected to define your geographic context. Once defined, hospitals, nursing homes, and physicians share the same geographic context in your generated website. From the Datasets Library, click on the "New Geographic Context" button to load the screen to define the geographic context. Follow the steps below (Screenshot 34) to define your region types and select the States with which you will be working.

Step 1: Select the region type (e.g., Health Referral Region, Health Service Area, or Custom).

Step 2: Select the States with whom you will be working. Click on the "Save" button to save your selections.

Screenshot 34: Defining Region Type and State(s)

5.11 Customizing Regions

The Geographic Regions tab on the Hospital Data screen displays the regions you may assign to your hospitals (Screenshot 35). The regions displayed on the screen are based on the Region Type (e.g., HSA, HRR) you selected; however, you can edit the region name or create new custom regions.

To edit a geographic region, click on the edit icon (the pencil) and change the text in the appropriate field. To add a region, enter the Region ID, Region Name, State, and Region Type and then click on the "Add New Custom Region" button and upload your file (Screenshot 35).

Screenshot 35: Geographic Regions Tab

MONAHRQ allows you to import a custom geographic region which can be assigned to any hospitals designated by you. The CSV file layout contains three required fields, which are shown in Table 8. To import your custom region file, click on the "Import Regions" button (Screenshot 35), which will launch a popup window where you can browse and select the file you want to import. Once the import process has completed a confirmation message will be displayed. A sample region template can be downloaded by clicking on the "View Sample" button next to the "Import Regions" button (Screenshot 35).

Table 8: Custom Geographic Region File Layout

Field Name	Data Type	Required?
REGION_ID	Numeric	Yes
REGION_NAME	Alphanumeric	Yes
STATE	Alphanumeric	Yes

5.12 Custom Region Population Reports

Three new MONAHRQ data elements have been added to the Inpatient Hospital Discharge (IP) dataset: "HRRRegionID," "HSARegionID," and "CustomRegionID." In addition, it is possible to add additional column(s) in your IP dataset and map to one or more new MONAHRQ data elements depending on the "Region Type" you select in the "Geographic Context" section. For example, when using the HSA region, you can include the "HSARegionID" column in your IP file. If you map the "CustomRegionID" in addition to HRRRegionID" or "HSARegionID" data elements then the custom region will take precedence and will ignore the Region Type selected in the Geographic Context. Please refer to the data dictionary found in Appendix H for additional information about Inpatient Hospital Discharge data.

5.13 Importing Custom Region Population

Upload your custom region population data to MONAHRQ under the "Geographic Regions" tab. The population data in the imported file is then used to calculate the "Rate of Discharges" displayed in the Region Population Reports. The data dictionary for Custom Region Populations can be found in Table 9. Each data element is also explained below. All the fields must contain a numerical value. **Null values are not accepted**. A sample region population template can be downloaded by clicking on the "View Sample" button next to the "Import Population" button (Screenshot 35).

1. **REGIONID—**The region ID you assign to your custom regions.
2. **SEX—**Acceptable values for this element are shown in Appendix O, Table 27. For rows where both males and females are included, insert zero (0). For example, when reviewing a dataset that consists of all males and females (of all races) and the <18 age group population, the row should look like the following:

    RegionID, Sex, AgeGroup, Race, Year, Population
    234, 0, 1, 0, 2013, 8000

3. **AGEGROUP—**The acceptable values for this element are shown in Appendix O, Table 28. For rows where all age groups are included, insert zero (0). For example, when reviewing a dataset that consists of all males (of all races) and all age group populations the row should look like the following:

    RegionID, Sex, AgeGroup, Race, Year, Population
    234, 1, 0, 0, 2013, 2345

4. **RACE—**The acceptable values for this element are shown in Appendix O, Table 29 . For rows where all races are considered, insert zero (0). For example, for all white male and female population, the row should look like the following:

    RegionID, Sex, AgeGroup, Race, Year, Population
    234, 0, 0, 1, 2013, 1234

5. **YEAR—**The year for the population collection.
6. **POPULATION—**The total number of people represented in a given dataset.

The (stratified) MONAHRQ detailed reports are grouped by one dimension at a time and do not support granular stratification. For example, records such as "White males <18 years population" are not supported. Records like these in the custom region population data file will be rejected and will display an error.

Table 9: Custom Region Population File Layout

Field Name	Data Type	Required?
RegionID	Numeric	Yes
Sex	Numeric	Yes
AgeGroup	Numeric	Yes
Race	Numeric	Yes
Year	Numeric	Yes
Population	Numeric	Yes

Example:
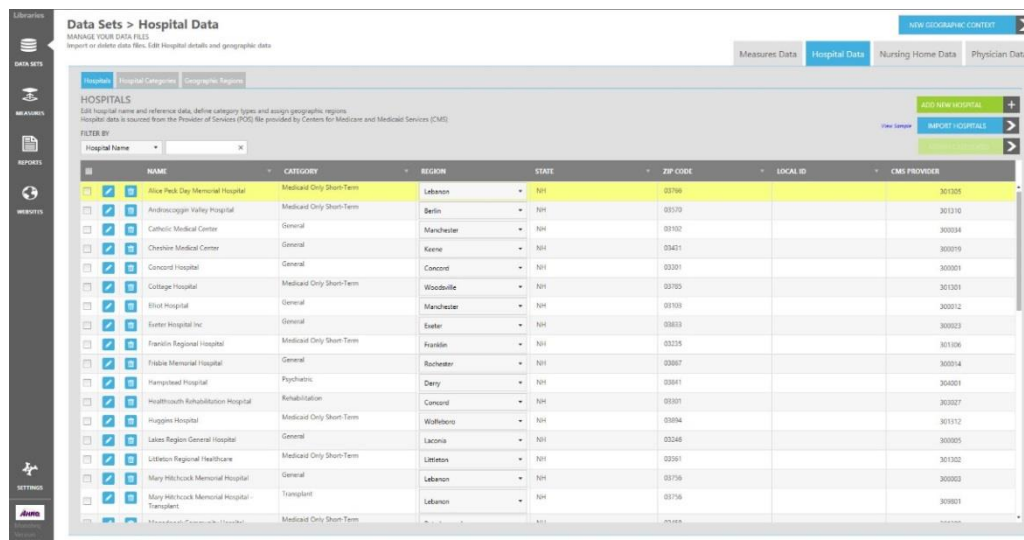
Data not supported: RegionID, Sex, AgeGroup, Race, Year, Population
234, 1, 1, 1, 2013, 532

A detailed example for this file is in Appendix O, Table 26.

5.14 Managing and Importing Hospital-Level Data

MONAHRQ allows you to manage the hospital-level data available in your websites. From the Hospital Data tab (Screenshot 36), you can edit hospital names and reference data, define category types, and assign geographic regions.

Screenshot 36: Hospital Data Tab

5.14.1 Hospital Data Tab

The Hospital Data tab displays a list of all hospitals included in your Datasets Library. The list is comprised of hospitals that were sourced from the CMS Provider of Services (POS) file. As mentioned above, the features on this tab allow you to edit and manage the hospitals in your Datasets Library, add or import new hospitals, assign categories, and assign geographic context to your MONAHRQ websites.

5.14.2 Mapping CMS Hospital Compare and Inpatient Hospital Discharge (IP) Datasets

The hospital-level data in your MONAHRQ websites and reports are sourced from the CMS Hospital Compare and Inpatient Hospital Discharge (IP) datasets. The hospital data records will need to be mapped across datasets accordingly. This mapping identifies the hospitals as unique entities for which there are two different data sources. The mapping can be completed by selecting a CMS Provider ID in the single-select dropdown box in the CMS Provider ID field for the given hospital record (Screenshot 37).

The measures contained in the CMS Hospital Compare data use "CMS Provider ID" as the hospital identifier, while measures contained in the AHRQ Quality Indicator (QI) results use the local "Hospital ID" number. Note: it is necessary to map your local Hospital ID with the CMS Provider ID because the local Hospital ID number (contained in the IP file) is not the same as the CMS Provider ID (contained in the CMS Hospital Compare data).

In addition, MONAHRQ uses cost-to-charge ratios (CCRs) for cost calculation. In order to use the built-in CCR values, the local Hospital ID number must be mapped to the CMS Provider ID number. Once you map the local Hospital ID with the CMS Provider ID, the CCR is automatically assigned to hospitals.

5.14.3 Editing and Managing Hospital Attributes

Hospital-specific attributes can be edited to customize how hospitals are displayed in your MONAHRQ websites. Follow the steps below Screenshot 37 for editing and managing hospital attributes.

Screenshot 37: Selecting Hospitals to Edit

			NAME	CATEGORY	REGION	STATE	ZIP CODE	LOCAL ID	CMS PROVIDER
☐	✎	🗑	Central Vermont Medical Center	General, Long Stay, Religious Non-Medical Care Facility	Berlin	VT	05602	0	470001
☐	✎	🗑	Fletcher Allen Hospital Of Vermont	General, Long Stay, Religious Non-Medical Care Facility	Burlington	VT	05408	0	470003

Step 1: Click on the edit action icon (pencil icon) to launch the "Edit Hospitals" screen.

Step 2: Navigate through the Edit Hospitals screen and update the hospital attributes by adding and editing text in the attribute fields.

5.14.4 Adding a New Hospital

You can manually add hospitals to your Datasets Library by accessing the Add Hospital screen. You will be required to enter the hospital attributes that would otherwise be sourced by a dataset file (Screenshot 38). Follow the steps below Screenshot 38 for adding hospitals to your Datasets Library.

Screenshot 38: Adding Hospital Attributes

Step 1: Click on the "Add New Hospital" button (Screenshot 36).

Step 2: Type in text and values in the hospital attribute fields (Screenshot 38).

Step 3: Click on the "Save Changes" button to save the text entered. The hospital will be added to the list of hospitals displayed on your websites.

5.14.5 Importing Updated Hospital Datasets

A Hospital data file can be imported into MONAHRQ to batch update and overwrite specific hospital attributes sourced by the CMS Hospital Compare or IP datasets. Table 10 shows the fields included in the CSV file layout which are necessary to overwrite the existing values in the Datasets Library.

Note: A sample hospital template can be downloaded by clicking on the "View Sample" button next to the "Import Hospitals" button.

Table 10: Hospital Data File Layout

Field Name	Data Type	Supported in Version(s)	Required?
DSHOSPID	Numeric	5.0 and 6.0	Yes
FIPS	Alphanumeric	5.0 and 6.0	No
NAME	Alphanumeric	5.0 and 6.0	Yes
ZIP	Numeric	5.0 and 6.0	Yes
CCR	Numeric	5.0 and 6.0	No
REGION	Numeric	5.0 and 6.0	No
CMS Provider ID	Numeric	5.0 and 6.0	No
ADDRESS	Alphanumeric	6.0	No
CITY	Alphanumeric	6.0	No
DESCRIPTION	Alphanumeric	6.0	No
EMPLOYEES	Numeric	6.0	No
TOTALBEDS	Numeric	6.0	No
HOSPITALOWNERSHIP	Numeric	6.0	No
PHONENUMBER	Numeric	6.0	No
FAXNUMBER	Numeric	6.0	No
MEDICAREMEDICAIDPROVIDER	Numeric	6.0	No
EMERGENCYSERVICE	Numeric	6.0	No
TRAUMASERVICE	Numeric	6.0	No
URGENTCARESERVICE	Numeric	6.0	No
PEDIATRICSERVICE	Numeric	6.0	No
PEDIATRICICUSERVICE	Numeric	6.0	No
CARDIACCATHERIZATIONSERVICE	Numeric	6.0	No
PHARMACYSERVICE	Numeric	6.0	No
DIAGNOSTICXRAYSERVICE	Numeric	6.0	No

Please note that in order to generate the reports listed in Table 11, it is necessary to provide the values for the hospital IDs field (Table 11 – last column) on the Hospital screen or import via your custom hospital file (Table 10). Hospital IDs are entered in the Hospital Edit screen (Screenshot 38).

Table 11: CMS Provider ID and Local Hospital ID Required for Reports

Datasets	Reports	Hospital ID that Must be Populated for Reports To Be Generated
Inpatient Hospital Discharge	Inpatient Hospital Discharge and County Rates	Local Hospital ID
ED Treat-and-Release	Emergency Department (ED) Treat-and-Release	Local Hospital ID
Provider QI	Quality Ratings	Local Hospital ID
Composite QI	Quality Ratings	Local Hospital ID
CMS Hospital Compare	Quality Ratings	CMS Provider ID

5.15 Selecting Hospitals for Reporting

By default, all hospitals in the database will be included in your generated website reports. However, you have the ability to refine and define the list of hospitals included in your generated website reports. A description of the process to define your hospital list specific to your website can be found in Section 8.5.1.

5.16 Hospital Categories Tab

All hospitals can be designated with a preset or custom category type. MONAHRQ includes a preset list of category types to which your hospitals can be assigned. You can edit the name of a preset category or add your own custom category.

The category list includes the number of hospitals with the assigned category type. A hospital can be assigned more than one category type. Follow the steps below Screenshot 39 to edit a hospital category type or add a custom category.

Screenshot 39: Hospital Categories Screen
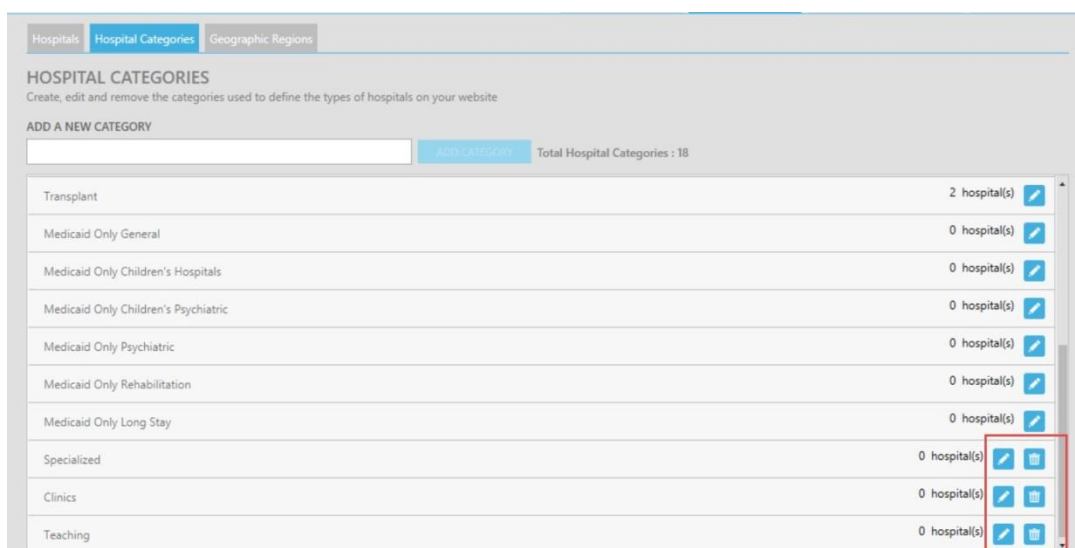
Step 1: To edit a category name, click on the edit action icon (pencil icon) for the given category you want to edit. The row will convert into an editable field.

Step 2: Edit the category name and then click on the save action icon when finished.

Step 3: To add a new category, enter a new category title into the "Add a New Category" input field.

Step 4: Click on the "Add Category" button. The category will now be added to the list of categories. To edit the custom category, select the edit action icon and edit the name. You can remove your custom category by selecting the delete action icon.

CHAPTER 6.   MANAGING YOUR MEASURES LIBRARY

6.1   Managing and Customizing Measures

The Measures Library allows you to manage the measures reported on your MONAHRQ® websites. The MONAHRQ 6.0 library contains a base set of standard, preassigned topics and measures for—

- CMS Hospital Compare data
- AHRQ Quality Indicator™ (QI) results (Area, Provider, and Composite measures)
- Inpatient Hospital Discharge data
- Emergency Department (ED) Treat-and-Release dataset
- CMS Nursing Home Compare data
- Medicare Provider Charge data

As the Host User, you can customize your websites by updating existing measures to better meet your needs. The Manage Measures screen and the Manage Topics screen allow you to navigate, search, and filter the list of measures and topics. A link to the current MONAHRQ 6.0 list of measures can be found in Appendix B.

The Manage Measures screen allows you to view all measures in the library that are available for use on your MONAHRQ websites (Screenshot 40). Attributes associated with each measure, such as the website name, topics and subtopics, and datasets are displayed for each measure in the list. If you need to edit measures or assign measures to topics, you can make those changes by using the features on this screen.

Screenshot 40: Manage Measures Screen

6.1.1   Filtering Measures

The "Filter by" feature allows you to view a refined list of targeted measures by filtering on the following criteria: Measure Code, Measure Name, Website Name, Topic and Subtopic Name, and All Datasets (Screenshot 41). Follow the steps below to filter your measures.

Step 1: Select a filter value in the single-select "Filter by" dropdown box.

Step 2: Enter a keyword or phrase in the search input box next to the dropdown box containing your "filter by" criteria. The measures list will filter the measures to match your search criteria.

Screenshot 41: Measure Filter by Attribute and Datasets
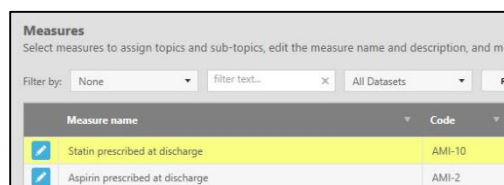
Measure details, attributes and assigned topics can be updated to meet the specific objectives of your MONAHRQ website.

6.1.2   Updating Measure Details and Attributes

MONAHRQ contains standard predefined properties (metadata) for the new and existing data sources stored in the Datasets Library.

From the Measures Library, you can update the properties for a specific measure. This is accomplished by clicking on the "Edit" action icon as seen in Screenshot 42, which will launch the Edit Measure screens, as seen in Screenshot 43 and Screenshot 44. Updating the measure properties is optional. However, if you choose to edit the measure properties, instructions to do so are provided below.

Screenshot 42: Measures Edit Button

6.1.3   Measure Name and Description Screen

Measure descriptions can be edited in the "Measure Description" free-text box. This is a rich text editor used to store the description for each measure. The measure description will be displayed to the End User on the generated website.

By default, the measure name and header come from the measure's clinical title field, which can be found in the "Alternate Measure Names" block). For longer titles, the header will display two lines followed by "…" Hovering over the shortened title will show you the full title. Follow the steps below Screenshot 43 to edit measure names and descriptions.

Screenshot 43: Edit Measure Details and Attributes Screen

Step 1: Click inside the "Measure Description" text box and enter in an appropriate description for the measure in question.

Step 2: Select the "Clinical" name field with the appropriate measure name.

Step 3: After entering the desired text, click on the "Save Changes" button. A confirmation window will appear, confirming that your changes to the content were saved.

6.1.4   Measure Attributes Tab

The Measure Attributes tab (Screenshot 44) is divided into three main components: "Measure Description," where you can assign multiple topics and subtopics to the specific measure you are editing; "Display," where you can configure the attributes to be displayed on your website; and "Calculations," where you can modify the measure calculations—for example, you can choose to report and display State benchmark data based on the median rather than the mean value.

Screenshot 44: Measure Attributes Tab

Measure Description: The topics and subtopics list contains all of the standard preassigned topics in MONAHRQ. MONAHRQ allows you to update the standard base set of measures by assigning different topics and subtopics to each measure. If needed, new topics and subtopics can be added to MONAHRQ. You can assign more than one topic or subtopic to a measure by selecting the checkboxes for the topics and subtopics that are appropriate for the specific measure you are editing.

Display: The following display attributes can be configured:

- **Score direction—**Select the radio button that is appropriate based on the structure of the measure. The two options are: (1) Higher scores are better, or (2) Lower scores are better (i.e., 10 is best and 1 is worst, or vice versa).

- **URL Title—**You can create a name for the external measure URL. Enter a title name that is descriptive and associated with the measure URL.

- **URL—**You can also create a custom external URL to link to the reported measure. Create a custom URL to define the reported measure by entering text into the text box.

- **Footnotes—**Reports provide space for footnotes that are defined in this field. Footnotes are numbered and are displayed at the bottom of reports. Enter descriptive text in the footnotes box related to the specific measure.

Calculations: This block contains calculation input fields you can update in the system for measures you upload in the future. Note that the measure calculations in the CMS Hospital Compare and AHRQ QI Provider, Area, and Composite files cannot be edited. For other measures, MONAHRQ allows you to update the following fields:

- **Scale By—**You can customize the scale size of the analytic values displayed in the measures. The default scale size is 100 and indicates how the measure is represented. Enter a numeric value into the "Scale By" text box.

- **National Benchmark Sources—**This is a multiline text box where you can input the source of the benchmark. Enter alphanumeric text into the text box. (Example: *Agency for Healthcare Research and Quality (AHRQ)*)

- **National Benchmark—**You can override the system by assigning a custom numeric National Benchmark value that is more in-line with your reporting needs. This value will be prepopulated, but it can be updated. Enter a numeric value into the National Benchmark box. (*Example: 0.8384)*

- **Upper and Lower Bounds—**Specific measures, including OP-9 (Mammography Follow-up Rates), require an upper and lower boundary to demine the caliber of the result. These values will be used in the methodology for comparing hospitals. Enter a numeric value for the upper and lower bounds in the associated text boxes (a numeric value only, up to 15 characters).

- **Peer, State and Provided Benchmarks—**MONAHRQ allows you to define a method for using State benchmark values by using either a calculated value or a precalculated value. Select the radio button for the correct Peer or State benchmarking method: "calculated mean" or "calculated median." If you are using a precalculated value, enter the value in the "Provided" text box.

- **Suppression Threshold—**You can define the numerator and denominator threshold values by measure. Enter a numerator and/or denominator suppression value in the associated text boxes.

Once you have finished updating the fields, save your changes by selecting the "Save Changes" button.

6.1.5 Reference Tab

The Reference Tab displays a description of the attributes for the measure you edited (Screenshot 45). The information displayed allows you to verify the edited measure configurations and settings. The Reference Tab identifies the following attributes:

- Clinical Title (e.g., Hospital 30-Day Death (Mortality) Rates for Heart Attack Compared to U.S. Rate)
- Measure Type (e.g., Process, Structure, Outcome)
- Source (e.g., CMS, AHRQ QI)
- NQF Endorsed (e.g., Yes, No)
- NQF ID (e.g., 0359)
- Better High/Low (e.g., Higher rates are better, Lower rates are better)

Screenshot 45: Reference Tab

6.2 Add, Edit, or Remove Topics and Subtopics

The Manage Topics tab allows you to add, edit, or remove the topics and subtopics used to organize the measures in your website.

The "Filter By" feature allows you to filter the information displayed on the screen by entering a keyword or phrase from the topic or subtopic options from the dropdown menu in the "Filter by" text box (Screenshot 46). This feature uses an autocomplete filtering mechanism and will start filtering the topic and subtopic list once you start typing.

Screenshot 46: Manage Topics Tab
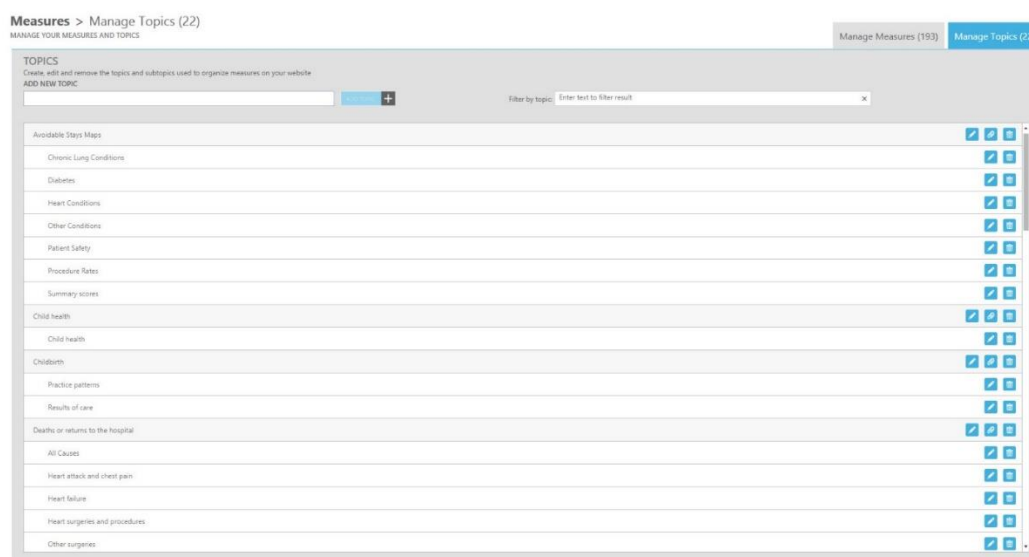
6.2.1 Adding a New Topic or Subtopic

MONAHRQ requires that all measures are assigned a topic or subtopic. You can add a new topic if a predefined topic does not sufficiently classify your measure. After you have created a new topic, it will be added to the list of topics and subtopics.

Step 1: In the "Add New Topic" text box, enter a topic name that best classifies your measure.

Step 2: Click on the "Add Topic" button.

6.2.2 Editing a Topic Name, Assigning Subtopics to Parent Topics, and Deleting Topics

You may also edit topic attributes, attach or assign a subtopic to a parent topic and delete topics available for your website's measures. These actions can be performed by using the action icons and steps below (Screenshot 47).

Step 1: Click on the edit action icon to begin editing the topic name. You will notice the original name is removed and you can enter a new name in the free-text box. When finished, click on the save action icon.

Screenshot 47: Manage Topics Screen—Editing Topic Name Detail
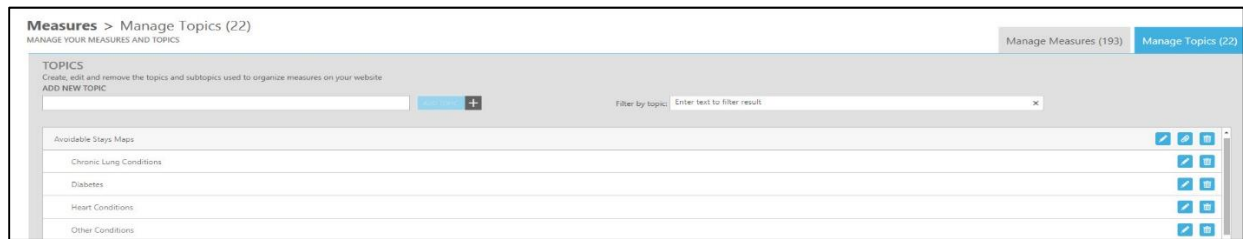
Step 2: To add a subtopic and link it to a parent topic, click on the attachment action icon. You will notice that a text box will appear to the left of the action items where you can enter a subtopic name (Screenshot 48). After entering the name, click on the save action icon. To delete the subtopic record, click on the delete action icon.

Screenshot 48: Detail of the Manage Topics Screen—Adding a Subtopic
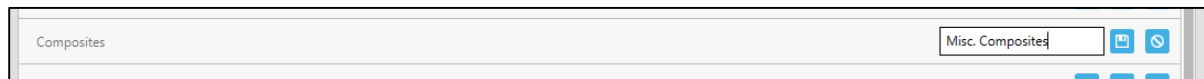
CHAPTER 7. BUILDING AND USING YOUR REPORTS LIBRARY
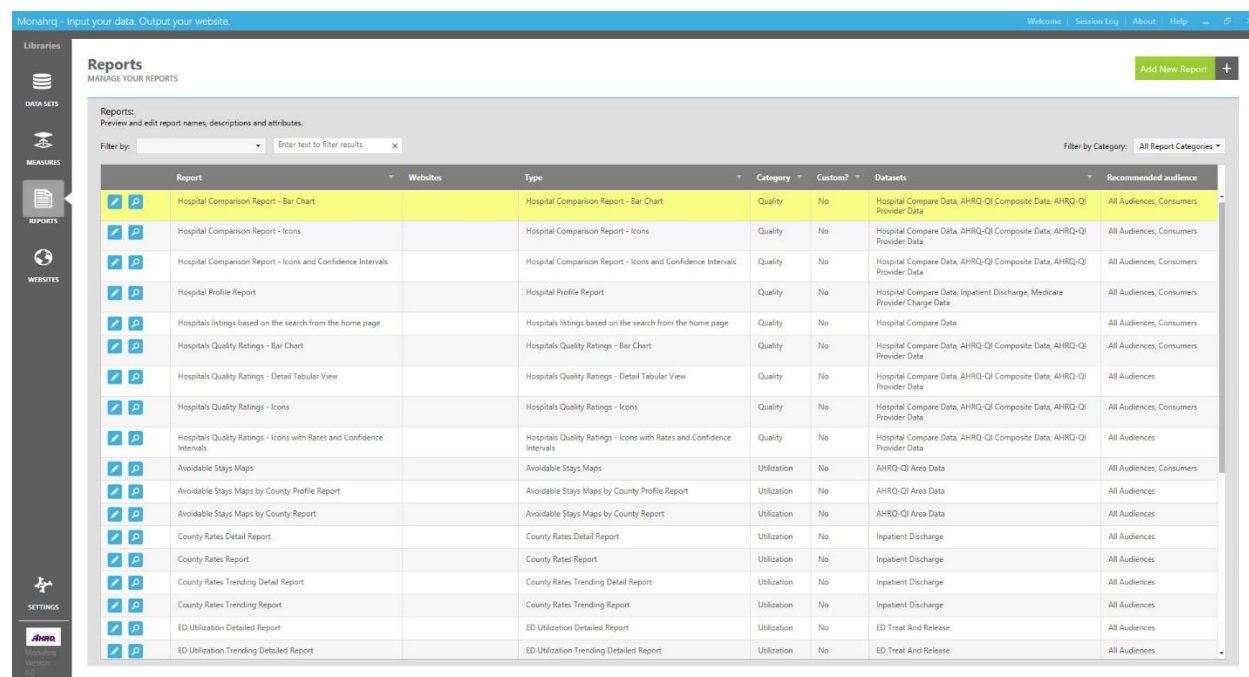
The Reports Library allows you to manage the report templates used on your MONAHRQ® websites. The MONAHRQ 6.0 library contains a base set of standard preconfigured reports that are generated using the following datasets:

- CMS Hospital Compare data
- AHRQ Quality Indicator™ (QI) results (Area, Provider, and Composite results)
- Inpatient Hospital Discharge data
- Emergency Department (ED) Treat-and-Release data
- CMS Nursing Home Compare data
- CMS Physician data
- Medicare Provider Charge data–Inpatient

You can further customize your website by creating new report descriptions and footnotes to better meet your website needs. A link to the MONAHRQ 6.0 list of measures can be found in Appendix B.

The Reports screen displays standard and custom report attributes. You can access the Reports screen at any time while creating your new MONAHRQ website or while maintaining an existing website by clicking on the "Reports" icon on the left-side panel (Screenshot 49).

Screenshot 49: Manage Reports Screen

Reports can be used for one website or across all of your MONAHRQ sites. The reports are identified in the "Report column" and the associated website can be found in the "Websites" column. On the Reports screen, sort by attribute by clicking on the appropriate column header. The standard report templates are defined by report types–listed in the "Type" column–which are not editable. Multiple copies of any report template for a specific report type can be created and customized. The standard MONAHRQ report types can be found in Table 14 in Chapter 11.

The "Category" column indicates whether a particular report is categorized as a "Quality" report or a "Utilization" report. Reports are grouped under these two categories to determine where they appear on your MONAHRQ-generated website.

7.1 Managing and Customizing Reports

This section describes the process for customizing report templates for your MONAHRQ website. You can select a standard report template and use its predefined settings to create your customized report, or you can select a report template and modify it with your own settings.

7.1.1 Using the "Add New Report" Feature

You can generate a new report by selecting a report template that does not include predefined settings.

Step 1: Click on the "Add New Report" button on the Reports screen to launch the "Add New Report" popup window, as shown in Screenshot 50.

Screenshot 50: Add New Report Detail

Step 2: Select the appropriate report type on the single-select "Report Type" dropdown menu. You will see a list of all available report templates.

Step 3: Select the "Recommended Audience" by selecting the associated checkbox: consumers, or all audiences. "All Audiences" is selected by default. The audience options are "Consumers," which is defined as the general public, consumers, and patients; and "All Audiences," which is defined as the general public, clinical users, policymakers, and researchers and analysts. Because the reports available for End Users on your MONAHRQ-generated website are audience-specific, the selection you make here will determine which reports will be available to your End Users. When selecting the audience type, refer to the audience-to-reports matrix in Table 14 in Chapter 11.

Step 4: Enter a report name containing alphanumeric text in the "Report Name" text box. The report name should be descriptive of the report to be created.

Step 5: Click on the "Add Report" button. Your new report will be added to the list of available reports in the Reports screen, highlighted in yellow.
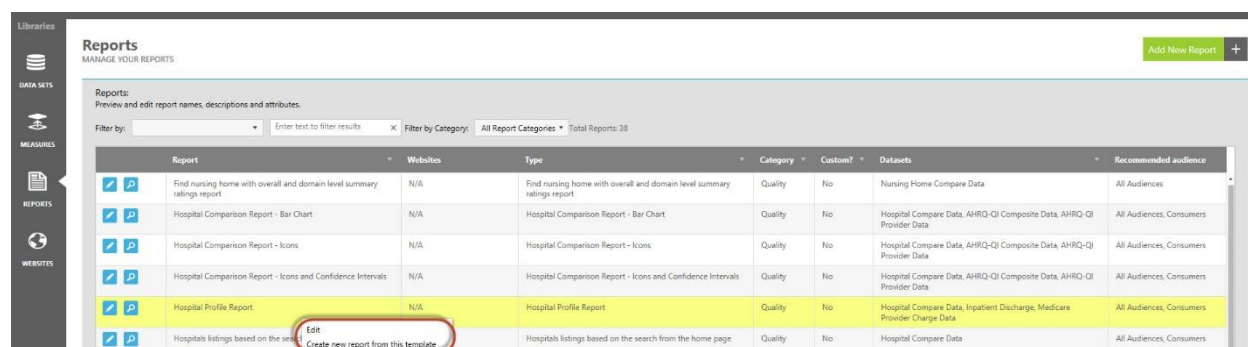
Step 6: Verify that your new report contains the attributes you assigned by reviewing the report record in the reports list. The "Custom?" field will contain a value of "Yes" for your new report. Standard reports will display a custom value of "No."

7.2   Cloning and Editing a Standard Report

A simple way to create a custom report based on a standard report template is to clone an existing report and update the "Name and Description" content and configure the "Report Attributes." Follow the steps below to clone and edit a standard report.

Step 1: Click on the standard report record you want to use as a base for your cloned report. The record will be highlighted in yellow and the edit action icons will be enabled (Screenshot 51).

Screenshot 51: Edit Standard Report Record Detail

Step 2: Click on the edit action icon, which will launch the Report Template screen. The Report Template screen consists of three tabs that contain editable fields and attributes as well as a report preview feature (Screenshot 52). The report name, description, and attributes cannot be edited until you choose to create a new report template as described in Step 3 below.

Screenshot 52: Edit Standard Report Screen

Step 3: Right click on any report in the Report Library screen (Screenshot 49) and select on the "Create new report based on this template" option to activate the report template for cloning and editing. The report title label will update to read "User Created Report." After completing this step you can begin customizing your report.

Step 4: Select the "Name and Description" tab to edit these fields, select an audience type, and add a footnote. You must enter a report title in the given field.

Step 5: You can provide a description of the report to be used for your reference. This description will not be displayed on your MONAHRQ website.

Step 6: As the administrator and creator of your MONAHRQ website, you must also select an audience type. This will identify the main users of your website. The audience options are "consumers," which is defined as the general public, consumers, and patients; and "All Audiences," which is defined as the general public, clinical users, policymakers, and researchers and analysts.

Step 7: The footnote text area is used to store the footnotes for each report. You can edit the default footnotes, which will be displayed on your MONAHRQ-generated website. After entering in the required report name and audience and optional description and footnotes, click on the "Save Changes" button to complete this step.

Next, you will need to review and configure your report settings. The "Report Attributes" tab is divided into subtabs that allow you to perform these configuration changes (Screenshot 53). Depending on the report type, the tabs and checkbox values may be hidden on the screen. For example, the hospital profile report will show just one subtab, "Display," because other subtabs are not relevant to the hospital profile report.

Screenshot 53: Report Attributes Tab

Step 8: You can configure Hospital, DRG, and Discharge along with Conditions and Diagnosis filters by clicking on the "Filters" subtab. Here you will see three filtering groups, where you will need to select the checkbox for the associated attribute you would like included in your report:

1. **Hospital Filters:** Hospital Name, Category, ZIP Code, Region, All Hospitals

2. **DRGs and Discharges Filters:** Major Diagnostic Category (MDC), Diagnosis Related Group (DRG), Condition, Procedure, All Discharges Combined

3. **Conditions and Diagnosis:** Condition, All Diagnoses Combined

Step 9: Report columns can be configured for specific reports. Click on the checkbox associated with the columns you would like to be included in your reports. Examples of columns include "Number of Discharges" and "Mean Cost in Dollars." Once you have finished configuring your report, select the Preview Sample Template tab as shown in Screenshot 54.

Screenshot 54: Preview Sample Template Tab

7.3   Using IP Dataset for Top 25 DRG Reports

By default, the Top 25 DRGs Utilization report in the Hospital Profile page uses the Medicare Provider Charge dataset. If you would like to use the IP dataset to generate the top 25 DRGs report on the Hospital Profile page (Screenshot 101), follow the steps below. This will generate the utilization tab with "All Patients" charge and cost data in the Hospital Profile Report. Table 13 shows the measures that will be included in the report if you use the IP dataset.

Step 1: In MONAHRQ, go to the Reports Library.

Step 2: Create a new report template from the Hospital Profile Report.

Step 3: In the Report Attributes tab, select "Cost and Charge Data (All Patients)" and unselect "Cost and Charge Data (Medicare)."

Step 4: During the website creation process, select the new report and unselect the "Hospital Profile Report." For more information refer to Chapter 7, "Building and Using your Reports Library."

Step 5: Generate your website.

CHAPTER 8.   CREATING AND PUBLISHING YOUR WEBSITE
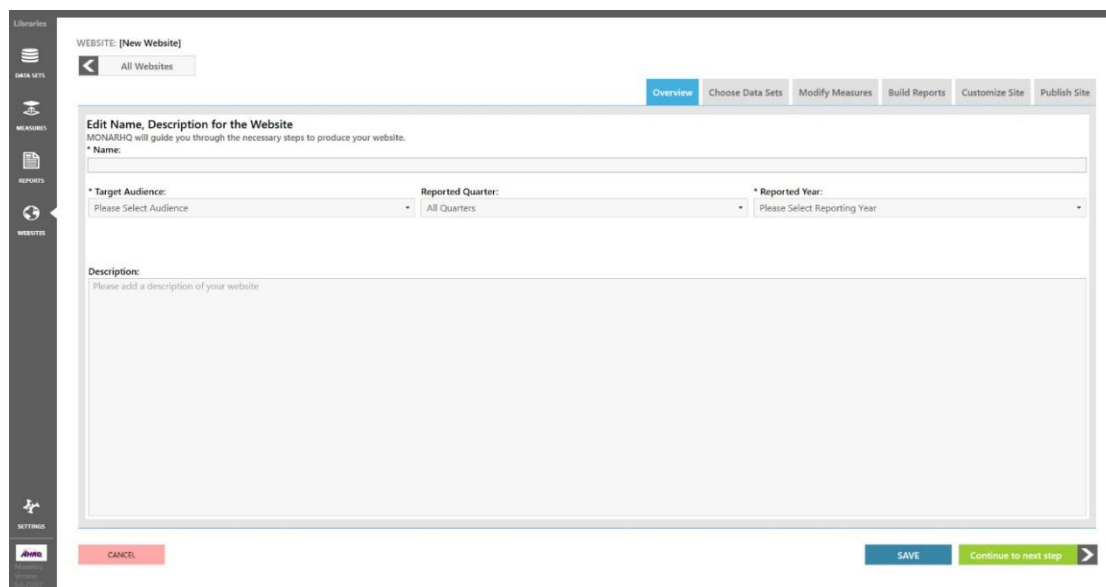
The process of creating, customizing, and publishing a MONAHRQ® website is managed through the "Website Creation" component of the software.

8.1   Using the Website Wizard

The Website wizard will walk you through the five steps to create a MONAHRQ website after you have uploaded your datasets into the Datasets Library.

Step 1: Click on the "Start a new website" button to launch the website definition page (Screenshot 55). The definition page will allow you to name your website project, select the target audience, define the reporting quarter and reporting year, and add a brief description of the website (Screenshot 55).

Screenshot 55: Website Wizard

Step 2: Establish a name for the website project and enter the selection in the "Name" field (Screenshot 55). The name entered will define the website project. It is not the name of your MONAHRQ-generated website. The name is limited to a maximum length of 200 characters.

Step 3: Select the target audience for your website.

Step 4: Define the website reporting period for the datasets used. The website reporting period reflects the reporting period of the source datasets. To define the reporting period for a specific quarter, select the period value in the "Reported Quarter" dropdown box. If reporting annually and not quarterly, change the dropdown value to "Blank."

Step 5: Further define the reporting period by selecting a value in the single-select "Reported Year" dropdown box. The dropdown box is populated with a range of ten (10) years before and five (5) years after the current year.

Step 6: Add optional details about your website in the "Description" field. The description will be a reference for you only and will not be displayed on the final website for the End User. This optional field allows up to 500 characters.

Step 7: Click on the "Continue" button to proceed to the "Choose Datasets" tab.

8.1.1 **Choosing Website Datasets**

After defining your website, use the Choose Datasets tab to select datasets for your website (Screenshot 56). If you are unable to import a dataset file from this screen, click on the Datasets Library action icon to access the Datasets Library. You can import your files from the Datasets Library and return to the Websites.

Screenshot 56: Choose Datasets Screen
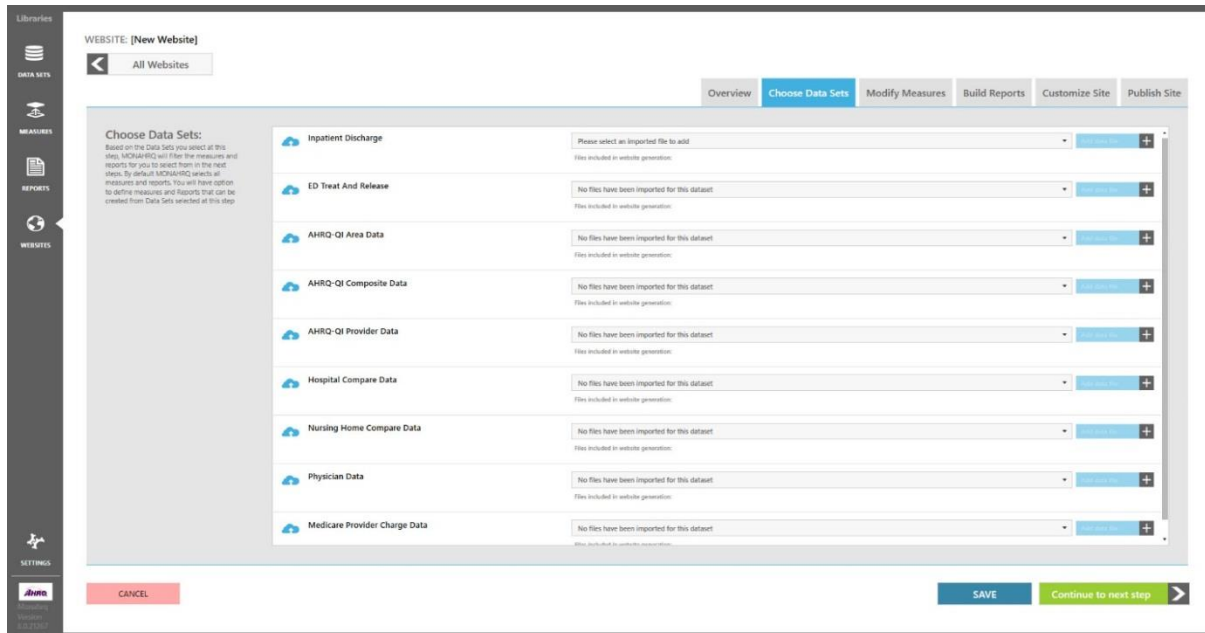
You can add, manage, or delete datasets at any time throughout the life of the website. Datasets may be added to source a specific reporting path or add a newer version of the dataset for the specific website you are generating.

Step 1: On the "Choose Datasets" screen, select the dataset file type source from your Dataset Library (e.g., AHRQ QI Provider-Level results data, CMS Hospital Compare data). Once you have selected the dataset from the drop down list, click on the "Add data file" button.

Step 2: If you have not imported any datasets, access the Datasets Library to import your files.

Step 3: Click on the "Save" button to save your changes or "Continue to next step" to proceed to the Modify Measures screen.

8.2 **Modify Measures Screen**

After choosing datasets, measures for those datasets will be automatically selected in the Modify Measures screen (Screenshot 57). The Host User will be allowed to include or exclude measures for their website. In addition to selecting measures for the website, Host Users will be allowed to update measure attributes within a website project.

Updating measure attributes within the website will make a copy of the measure for that website and saves the changes for that website only. Meanwhile, making changes in the Measures Library will make changes to those measures across multiple websites that are pulling them from the Measures Library.

Since customizing the measures at the website level makes a copy of the measures for the website it does not impact changes made in the Measures Library.

Screenshot 57: Modify Measures Screen

8.3 Build Reports Screen

Once the Host User finishes selecting measures for the website they will select which reports to include in their website using the Build Reports screen (Screenshot 58). The reports will be grouped in two categories: Quality and Utilization.

Reports that are standard out-of-the box reports within MONAHRQ will be categorized by the recommended target audience. These audiences include two categories: Consumers and All Audiences. Based on the audience type selected and the datasets added, various reports will be automatically selected on this screen. For example, if the Host User selects "Consumers" as the target audience in the Website Overview tab and adds the CMS Hospital Compare and Inpatient Hospital Discharge datasets, the reports screen will only show the quality reports recommended for the "Consumers" audience. By default, other reports associated with the CMS Hospital Compare and Inpatient Hospital Discharge datasets will be shown as unselected. The Host User can select to have all the reports in the Build Reports tab or they can update the audience type to "All Audiences" and then clicking on the "Save" button in the Overview tab.

Screenshot 58: Build Reports Screen

8.4 Customize Site Screen

The Customize Site screen (Screenshot 59) allows you to modify various aspects of your website, including the theme, color options, logos and images, fonts, and banners.

Screenshot 59: Customize Website Screen

8.5 Customizing Your Website—Website Content Section

Using the tools on the Customize Site screen, you can input and tailor content for your MONAHRQ-generated website. The screen is divided into two main sections: "Website Content" and "Website Theme." When accessing the screen, all subsections are collapsed by default. To begin the website customization process, select the "Expand All" icon in the upper right corner of the screen to expand all subsections at once, or scroll down the pane, and expand the specific subsections to edit.

At any time, you can select the "All Websites" button to load the listing screen of all of the websites you have generated. You can also choose datasets, define measures, and build reports by selecting the appropriate tab at the top of the screen.

8.5.1 Assigning States, ZIP Code Radii, Hospitals, and Geographic Descriptions

In this subsection, you will assign one or more of the States for which you are generating your website and reports. The State value selected when defining the region in the Hospitals tab will be displayed as a default value. However, you can add additional States for your generated website. MONAHRQ requires that you select at least one State from the multi-select dropdown menu ().

Screenshot 60: State, Radii, Hospital Selection, and Geographic Description Detail

You must also identify a ZIP Code radius filter available for use by the End User when searching for hospitals. The "Select State" search allows the user to identify hospitals within a specific distance (1 to 200 miles) from the ZIP Code searched.

Within this stage of defining your generated website, you can select the hospitals to appear in your website and reports. By default, all hospitals in your MONAHRQ database will be included in your website and reports. To view and change the hospitals that will be included in your reports, in the Website Content section, first click on the arrow to the left of "Included Hospitals" to expand the section for editing.

Then, click on the "Click to View and Change" button to launch a popup window ([Screenshot 61](#)) containing a list of all hospitals in your database that will be included in your reports by default.

To customize the list of hospitals to include in your website, unselect the hospitals you do not want to include to suppress them in the generated output and then select the hospitals you want to include. You can use the "Filter by" dropdown box to filter the hospitals by various conditions. You should also be able to override a hospital's CCR values for the website on this screen.

Screenshot 61: Hospital Selection Popup Window Detail

8.5.2   Included Nursing Homes

This function allows you to select the nursing home(s) to appear in your website and reports. By default, all nursing homes stored in MONAHRQ are automatically included in your website and reports. To view or change which nursing homes are included in your reports go to the Website Content section of MONARQ. Once here, click on the arrow to the left of "Included Nursing Home" to expand the section for editing. Then select the "Click to View and Change" button to open a popup window ([Screenshot 62](#)). This screen will display a list of all nursing homes in your database that will (by default) be included in your website and reports.

To customize the list of nursing homes included in your website you must manually deselect the nursing homes you do not want to include to suppress them in your generated site and reports. The nursing homes that are selected will be displayed upon creating your site. You can use the "Filter by" dropdown box to allow you to filter the Nursing Homes by various conditions, such as—

- Selected for reporting
- Unselected for reporting

Screenshot 62: Included Nursing Homes Window

Included Nursing Homes:

Select Nursing Homes to include in each reports.

FILTER BY:	▼	# of Nurinsg Homes: 113

☑	NURSING NAME ▼	CITY ▼	STATE ▼	PHONE ▼	CMS PROVIDER ID ▼
☑	KINDRED TRANSITIONAL CARE & REHABILITATION-GREENBR	NASHUA	NH	6038881573	305005
☑	HANOVER HILL HEALTH CARE CENTER	MANCHESTER	NH	6036273826	305009
☑	HAVENWOOD-HERITAGE HEIGHTS	CONCORD	NH	6032245363	305016
☑	DOVER CENTER FOR HEALTH & REHABILITATION	DOVER	NH	6037422676	305018
☑	HANOVER TERRACE HEALTH & REHABILITATION CENTER	HANOVER	NH	6036432854	305020
☑	WILLIAM P CLOUGH EXTENDED CARE CENTER	NEW LONDON	NH	6035265312	305021
☑	EDGEWOOD CENTRE (THE)	PORTSMOUTH	NH	6034360099	305022
☑	ROCHESTER MANOR	ROCHESTER	NH	6033327711	305024

[CANCEL]   [DONE]

8.5.3 Adding Geographic Description Content

A geographic description must also be added for all generated websites such as the State(s) for which the website is reporting health measures. For example, default text may read: "In [My State]." The text entered will be used to populate the "Compare To" dropdown menu for Hospital Quality and Nursing Home reports. The screenshot below is an example of how it will show up on the generated websites' Quality Reports screen (Screenshot 63).

Screenshot 63: "Compare To" Screen

Childbirth
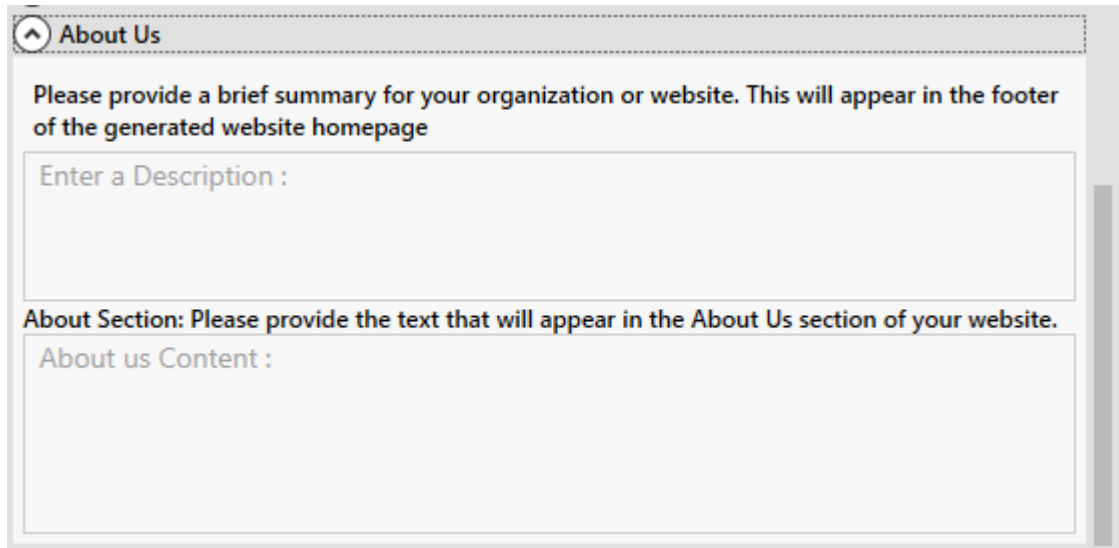
Practice patterns

Sort by:	Compared To:	Display Type:		Help
Hospital Name... ▼	National Average ▲	Symbols ▼	Select Report to Copy ➕	

National Average (search)

National Average
In My State Average

Select hospitals to compare [Compare]	Hospital N...	...age of births ...es) that are C-...ctions	Uncomplicated vaginal births performed after C-section	First birth deliveries performed as C-section	Vaginal birth after a previous C-section
☐	Facility 46	▲ Better than average	▲ Better than average	▲ Better than average	▲ Better than average
☐	Facility 34	▲ Better	▲ Better	▲ Better	▲ Better

8.5.4 Adding "About Us" Content

The "About Us" subsection allows you to provide content describing your organization in two sections of your generated website (Screenshot 64) where summary detail content is displayed at the bottom of your generated website's home page, while a more detailed version of the content can be displayed in the "About Us" section of your generated website.

Screenshot 64: Create "About Us" Footer and "About Us" Section Content Detail

The "About Us" footer content can be entered in the top text box, which allows up to 500 characters. This content will appear as the footer of your MONAHRQ website's home page. You are not required to provide any content in this field. If the field is left blank, the "About Us" footer section on the home page will not be displayed. During the dependency check of the website generation process, a warning message will alert you that the field is blank and you will have the option to update the field (Screenshot 65).

Screenshot 65: Generated Website "About Us" Footer Detail

Similar to the "About Us" footer content, you can enter text that will appear in the "About Us" section of your website. You can enter up to 4,000 characters in this text box to best describe your organization and website-related objectives (Screenshot 66). If this field is left blank, the "About Us" page and corresponding tab in the generated website will not be produced.

Screenshot 66: "About Us" Page
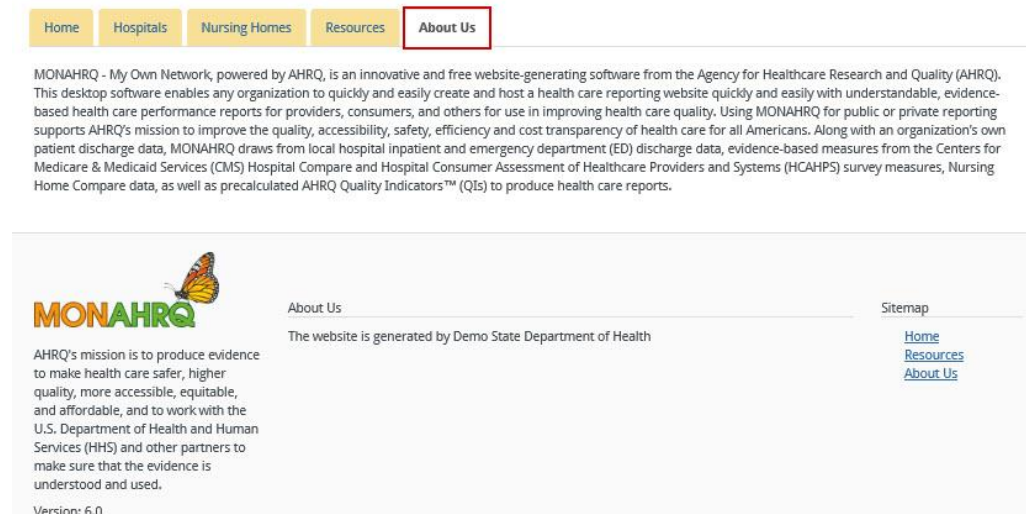
8.5.5 Setting up Feedback Topics

Within the generated website End Users will be able to provide feedback on reporting topics and general website usability issues. End Users may either download a feedback survey (which you enable), or access an online survey created by your organization. The feedback topics and survey features can be found under the Feedback section of the website (Screenshot 67). MONAHRQ 6.0 includes out-of-the box feedback topics related to specific reports as well as general website usability issues, including—

- Quality Reports and Measure Details
- Utilization Reports
- Avoidable Stays Reports
- Data Accuracy
- Page Not Found Issue
- Other Website Issue
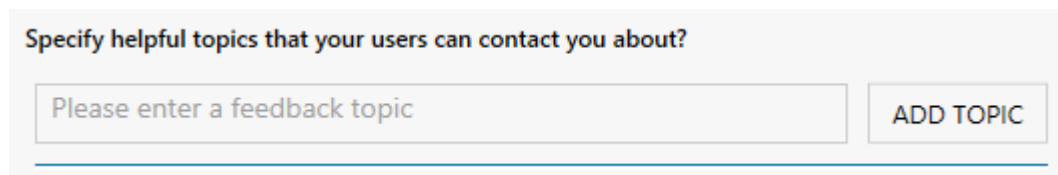
Screenshot 67: MONAHRQ-Generated Website Feedback Button Detail
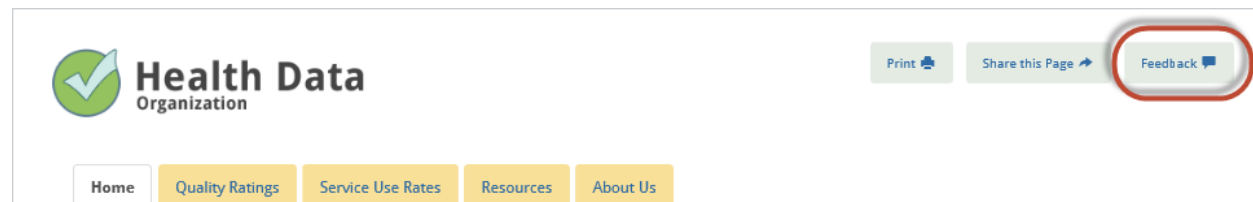
It is also possible to add a help topic to the dropdown menu of feedback topics that are displayed on your MONAHRQ-generated website. If you choose not to enter any feedback topics or delete all of the topics, the generated website will not show the dropdown box. When an End User clicks on the feedback button in the generated website (Screenshot 67), a list of feedback topics will be provided. If you choose not to enter any feedback topics in MONAHRQ, when your End User clicks Feedback button, the email client will provide a default subject line of "*MONAHRQ Website Help*" instead of providing feedback topic options.

You have the ability to add multiple feedback topics. To add topics, enter the feedback topic in the text box and click on the "Add Topic" button (Screenshot 68). This will add the feedback topic below the text.

Screenshot 68: Feedback Topics Detail

Specify helpful topics that your users can contact you about?

| Please enter a feedback topic | ADD TOPIC |

You can add the email address of the person (or mailbox) that will be receiving the feedback in the "Feedback Recipient Email Address" input box (Screenshot 69). If this field is left blank the "Feedback" button on the generated website will not appear.

To launch the email client, End Users can choose a topic from the Feedback dropdown menu and click on the "Submit" button. The subject line in the email will include the selected topic. For example, it may read "*[Geographic Description Text] MONAHRQ Website Help: Utilization Report."*

If you would like to include a feedback form on your website click on the checkbox next to "Include feedback form in your website" (Screenshot 69). There are two options available for providing a feedback from to your End Users: a standard downloadable feedback form and an online survey. The first step is to determine which option to offer to End Users.

The downloadable form will be in Microsoft® Word format. The End User will complete and submit the feedback form via the contact information you provide on the form. The standard feedback form document file will be included in the MONAHRQ 6.0 software package and can be edited and customized based on your organization's needs.

Alternatively, if you would like End Users to submit feedback via an online feedback form created by your organization, select "Link to your online feedback form" (Screenshot 69) and enter the URL for the online form in the text box to the right. A link to the online feedback form will be displayed in the Feedback section of your generated website.
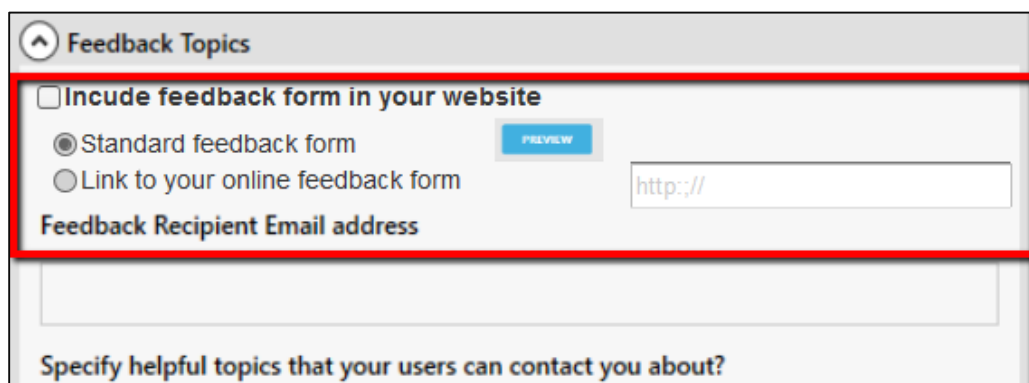
To customize the standard feedback form, follow the steps below:

Step1: Click "Preview," which will open the survey in Microsoft Word format.

Step 2: Edit the survey and save it with the name "endusersurvey.doc" on your local machine. It is important to name this file as suggested here or else it will not be linked properly in your generated website.

Step 3: Once you have generated your website, replace this file by going to "%websiteRoot%\Data\Feedback\" folder on the generated website.

Screenshot 69: Feedback Survey Configuration

8.5.6 Entering Keywords, Analytics, and Mapping Accounts

In an effort to help search engines find your MONAHRQ-generated site, MONAHRQ requires you to create a browser title (Screenshot 70). You have the option of entering keywords (to help search engines find your site) as well as including Google Analytics (see Appendix M) and Google Maps API keys.

Screenshot 70: Search Engine Optimization, Analytics, and Mapping Detail

The "Browser Title" is a required field. Text entered here will be displayed in the browser's title bar. The default value of "MONAHRQ Website" will be displayed in the box until you update this field with your own text.

The "Keywords" text box allows you to add specific keywords to help search engine users find your generated website. When entering keywords into the text box, you will need to separate the keywords by commas.

MONAHRQ allows you to use Google Analytics and Mapping appliances. If you have a Google Analytics account, you can enter your tracking ID into the "Analytics'' text box. Your website will then be included in your Google Analytics reporting dashboard.

A Google Maps API key can be entered into the "Google Maps APIs" text box if you have access to an API account and key. Integrating MONAHRQ with your API will result in your website displaying Google Maps. An example API key is 345YTZ984GHDET.

8.5.7   Output Folder

This section provides information about where your generated website files will be written and stored (Screenshot 71).

Screenshot 71: Output Folder Detail
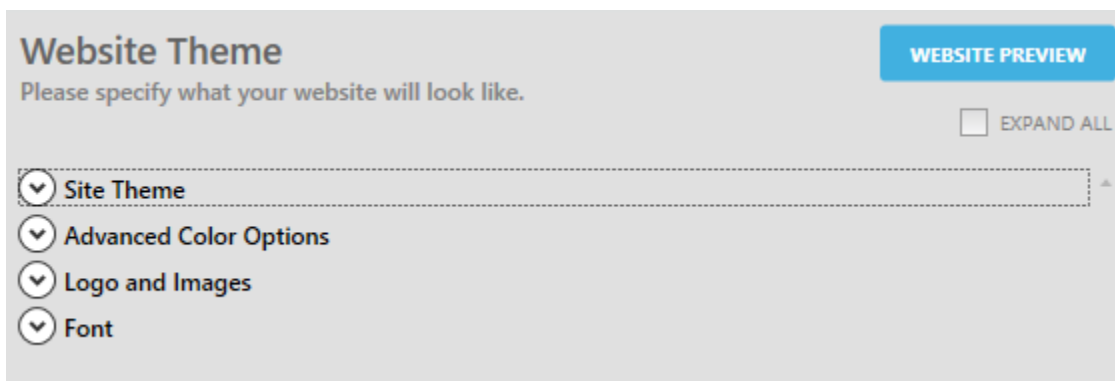
Output Folder:

| C:\Users\johndoe\Documents\Monahrqv5\Websites | × | BROWSE |

The default folder location will be your "Documents" folder (for example: *C:\Users\[logged in User Name]\Documents*)*.* You can select an alternate folder by clicking on the "Browse" button next to the Output Folder textbox and selecting the folder you wish to use. Note: You will not be able to type directly into this text box.

8.6   Customizing Your Website—Website Theme Section
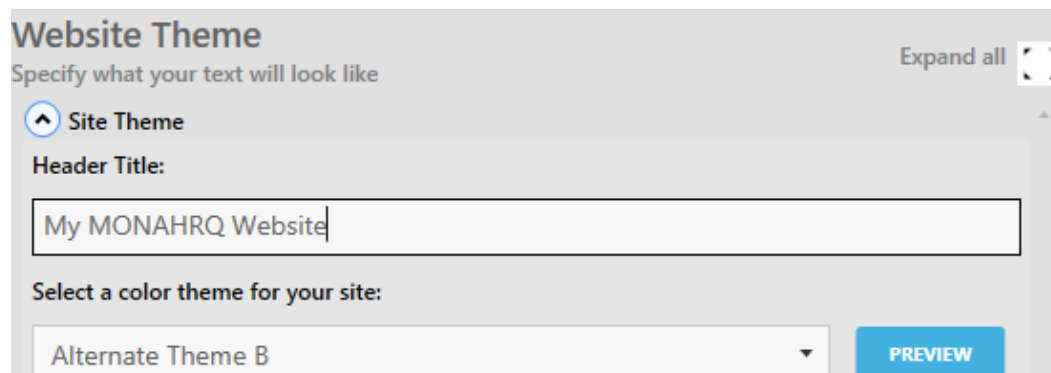
You can use the "Website Theme" section of the Customize Site screen to customize the look and feel of your generated website. Similar to the "Website Content" section, click on the "Expand all" checkbox at the top of the screen to expand the subsections and configure your website's theme, color schemes, fonts, logos, and home page images (Screenshot 72).

Screenshot 72: Customize Website Theme Detail

Website Theme
Please specify what your website will look like.

WEBSITE PREVIEW

☐ EXPAND ALL

⌄ Site Theme
⌄ Advanced Color Options
⌄ Logo and Images
⌄ Font

8.6.1 Entering Home Page Website Themes

Screenshot 73: Selecting Website Theme Detail

MONAHRQ offers four website themes from which to choose. After selecting your website theme, you can click on the "Preview" button to launch a popup screen showing a sample home page with the color scheme of the theme you selected (Screenshot 73). You may choose to preview all four themes to determine the best fit for your website.

MONAHRQ requires you to enter a header title that will be displayed on the home page of your generated website, as shown in Screenshot 74. You can enter up to 100 characters in the text box provided.
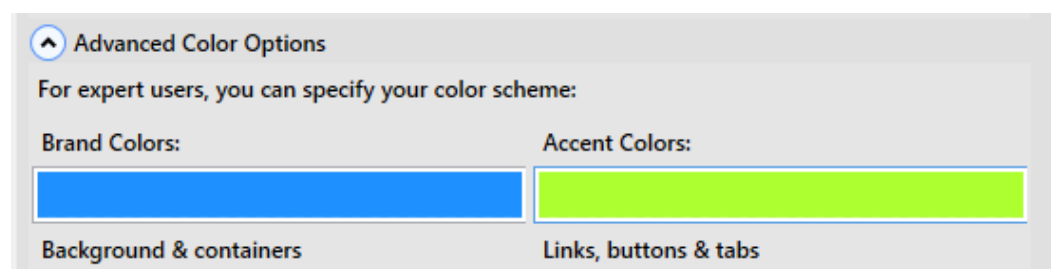
Screenshot 74: Generated Website Header Title Detail
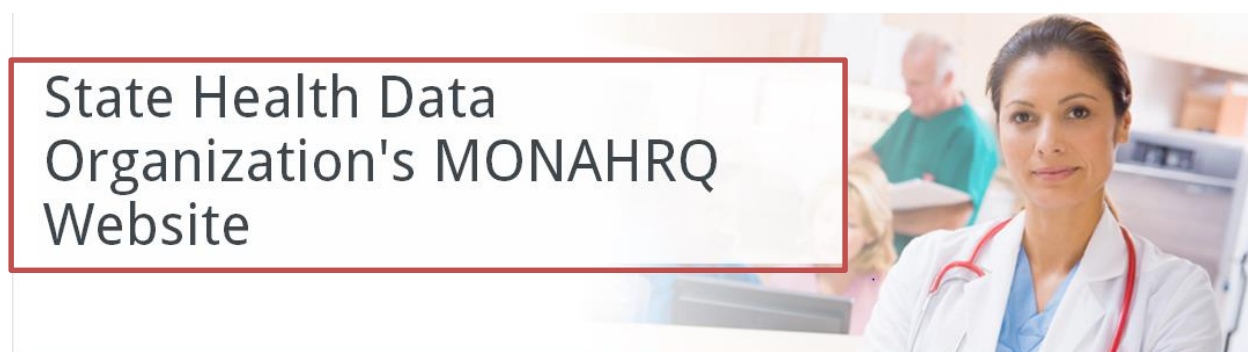
8.6.2 Selecting Advanced Color Options

If you do not wish to use the standard colors provided in MONAHRQ you may choose a custom color scheme for your website (Screenshot 75). (Note: The standard color schemes are Section 508 compliant.)

Screenshot 75: Advanced Color Options Detail

MONAHRQ will provide default Brand and Accent color schemes. The "Brand Colors" button displays the background color of the site theme you selected. The links, buttons, and tabs on your website are represented by the "Accent Colors." You have the option to change the "Brand Color" or "Accent Color," which will override any color theme previously selected. When you click on either button, a color selection box will appear. Click on the desired color box, which will update the "Brand Color" or "Accent Color" box.

8.6.3   Displaying Logos and Images

You can display a logo and up to two images on the home page of your organization's website (Screenshot 76). MONAHRQ provides a default logo and two home page images.

Screenshot 76: Logo and Images Detail

The default website logo image, as shown in Screenshot 77, can be overridden with a logo file provided by your organization. The recommended image size is 450px wide and 200px tall. To upload your custom logo, click on the "Browse" button to select an image from your local hard drive or network. This will replace the default logo with the newly selected image.

Screenshot 77: Website Logo Detail

The website banner image is the main image displayed below the reporting tabs and header title (Screenshot 78). You can override the standard image with a custom image that represents your organization or audience. Similar to uploading a logo, click on the "Browse" button to select an image from your local hard drive or network. The recommended image size is 900px wide and 350px tall.

Screenshot 78: Website Banner Image Detail

The home page content image is smaller than the website banner image and can depict subject matter related to information you are displaying on your website (Screenshot 79). Similar to the website banner image, MONAHRQ includes a standard home page image that can be overridden. Use the "Browse" feature to locate the preferred image file on your local hard drive or network. The recommended image size is 450px wide and 350px tall.

Screenshot 79: Home Page Image Detail

8.6.4   Selecting Fonts

MONAHRQ uses the Droid Sans, Arial, and Sans-Serif font family as the default font for generated websites. However, you may choose between 11 standard font families. To select a new font, click on the single-select "Select a font family for your site" dropdown menu to review the available fonts. After you select a font, click on the "Preview" button to launch a popup window displaying sample content in the selected font (Screenshot 80).

Screenshot 80: Website Font Selection Detail

8.7 Publishing Your Website

Once you are finished customizing and configuring your website content and color theme you can complete the website generation process through the "Publish Site" wizard (Screenshot 81). During this process, you will complete three steps, which include running a dependency check, publishing your site, and reviewing the site.

Screenshot 81: Publish Website Screen
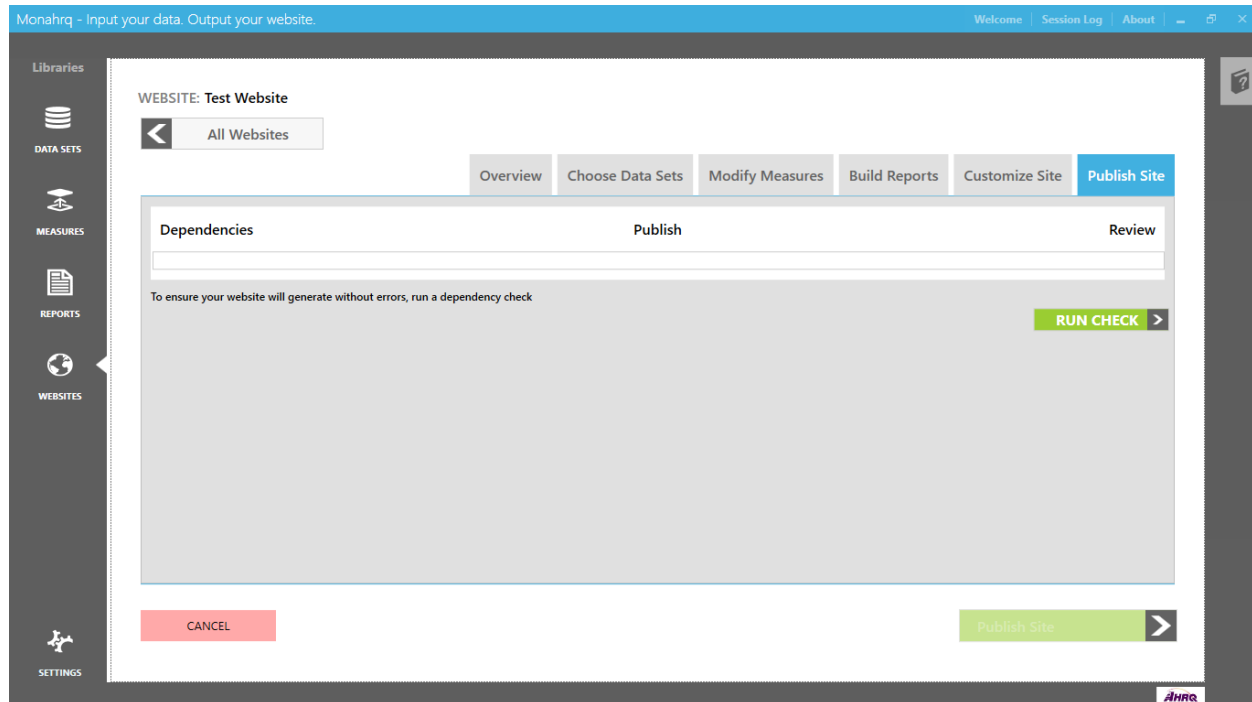
The first step in publishing a new website or regenerating an existing website is the dependency check. Dependency checks identify errors or warnings that may affect how your website has been configured. At this point in the process, the progress bar will be highlighted green. To begin the dependency check, click on the "Run Check" button.

A Dependency Check Results Log will be displayed, identifying any errors and notifying Host Users of any warnings that were detected, as shown in Screenshot 82. Warnings are shown with an orange icon that includes an "X." Errors are shown with a "!" yellow icon. The "Publish Site" button will be disabled until all "Error" items are resolved. A full list of errors and warnings can be found in Appendix N. After you have resolved all of the errors, click on the "Re-Run Check" button to run the dependency check again.

Screenshot 82: Dependency Check and Log Detail Screen
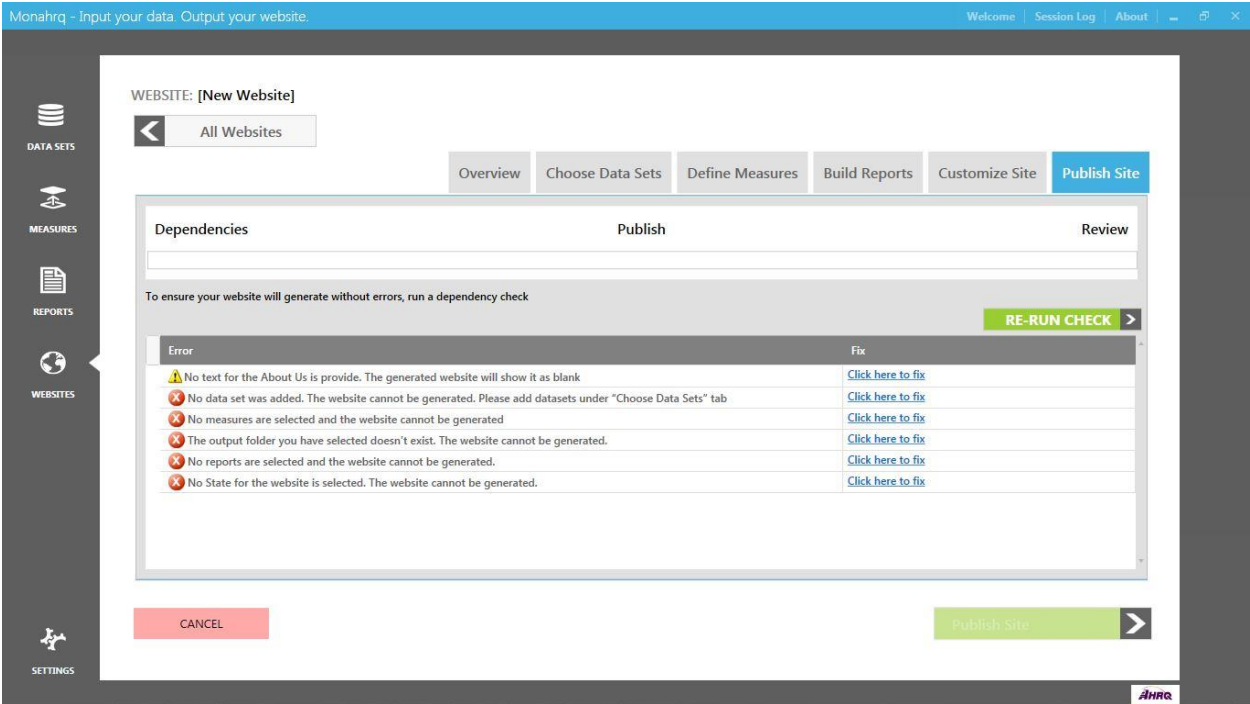
Once all errors identified in the dependency check log have been resolved, the "Publish Site" button will be enabled. The progress bar will reflect that the dependency step is complete and you are now in the "Publish" stage, as shown in Screenshot 83.

Screenshot 83: Dependency Check Progress Bar Detail
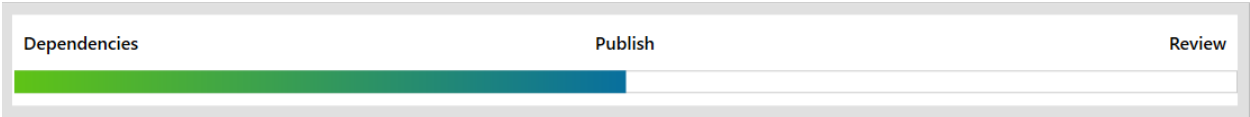
You can now move on to publishing your website. This process will write your website files to the output folder you selected earlier in the "Website Content" section of the Customize Site screen. If the output folder already contains existing content, the software will display a warning message. If you choose to continue to publish your site in the output folder, all existing content files will be overwritten.

8.8 Publish Site Screen

The final step in the process for publishing your website involves reviewing any publishing errors and then reviewing the website you published (Screenshot 84). The progress bar in the Publish Site screen indicates that you are in the final step in the process. The Publish Site screen is divided into two sections: "Review Publishing Warnings" and "Review and Deploy."

Screenshot 84: Review Published Site Screen
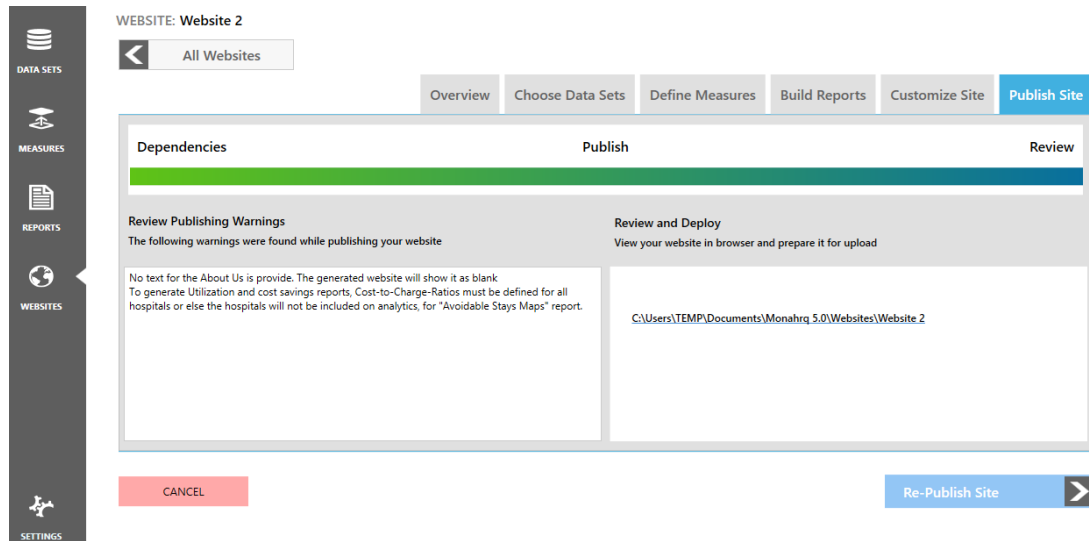
MONAHRQ generates a list of unresolved warnings for your review. They are displayed in the "Review Publishing Warnings" section. You must resolve all identified errors prior to publishing your website. However, resolving warnings is not mandatory; depending on the nature of the warnings, you may or may not choose to resolve them. MONAHRQ will generate warning messages related to library- and website-level updates, including the following:

- Library-Level Updates
    - Any update to any of the datasets (that are included for the website) in the Datasets Library
    - Any update to any of the measure attributes (that are included for the website) in the Measures Library
    - Any update to any of the report attributes (that are included for the website) in the Reports Library

- Website-Level Updates
    - Any updates to the dataset selections for the website
    - Any updates to the measure selections for the website
    - Any updates to the measure attributes within the context of the website
    - Any updates to the reports selections
    - Any updates to any single website attribute under the "Customize Site" tab

The "Review and Deploy" section of the Publish Site screen allows you to preview your website in a browser prior to publishing it. A link will be displayed in the "Review and Deploy" section with the path to your current website folder. If you make any changes to an existing published website, a warning message will appear, notifying you that your data, configurations, or file path has changed since you last published your website.

Your newly created or existing website can be re-published after any dataset, measure, reporting, or site customization changes are made. To re-publish your website and produce a new set of content files in your output folder, click on the "Re-Publish Site" button. A warning message will appear and you will need to confirm whether to re-publish the site. If you decide to re-publish the website and click "Yes," the dependency check process will be initiated. At this point, the dependency check window will be loaded and you will be required to complete the three steps in the "Publish Site" process, as discussed above.

CHAPTER 9.   MONAHRQ® SETTINGS

9.1   Database Manager Settings

To change the database manager settings in MONAHRQ®, access the "Database Connection" input screen (Screenshot 85) by clicking on the "Settings" button. Within this input screen, enter valid database information to complete the connection setup process and launch the application. If valid database information is not entered, the MONAHRQ application will not launch. Once your database connection inputs are saved, the fields on the screen will be prepopulated when accessing the "Database Connection" screen in the future.

If the database connection has already been established, the "Process Log" text area will show the recent database creation logs. If no database has been created, the section on the right side of the screen will be blank. This section will also display the process log in real time when you create your database.

Screenshot 85: Database Connection Screen

The "Server Name" field captures the name of the server to which you are connecting the application. If connecting to a network server, input \\[Server Name]. This is a required field and you will receive a validation message if the field is blank.

The "Database Name" field captures the name of the database being created or updated. Again, this is a required field and you will receive a validation message if the field is blank.

Next, select one of the two "Authentication Type" radio button options: "SQL Server" or "Integrated Security" (Screenshot 85). If "SQL Server" is selected, the "User Name" and "Password" input boxes will be enabled and these credentials must be established. If "Integrated Security" is selected, you will not be required to create a user name and password and these fields will remain disabled.

Screenshot 86: Test, Create or Overwrite, and Switch Function Button Details
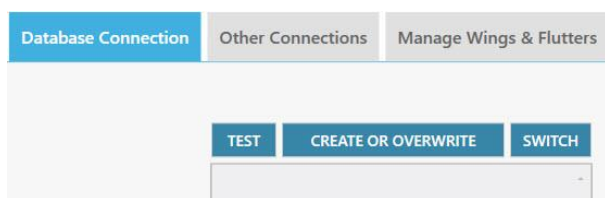
Once the required information has been entered into the text input boxes shown in Screenshot 86, the next step is to test the database connection. This will confirm that the SQL Server instance name, the name of your database and the authentication type is valid and there is a connection between MONAHRQ and the database. To execute this test, click on the "Test" button (Screenshot 86). If the connection fails, an error message will be displayed, identifying what input needs to be corrected.

When creating a new database, MONAHRQ validates whether there is an existing database with the same name. To execute this step, click on the "Create or Overwrite" button (Screenshot 86). If a database with the same name is identified, you will receive a message prompting you to either click on "OK" to overwrite the existing database or to click on "Cancel" and not overwrite the database.

If all required conditions are met, you will receive a message notifying you that the database can be created. Clicking on the "Yes" button will initiate the database creation process. Once the database creation process is completed, click "Done" to save the input information to the database.

You can switch to an existing database, which will connect MONAHRQ to that database. To switch to an existing database, click on the "Switch" button.

To establish a connection to the AHRQ QI database, click on the "Other Connections" tab to launch the database connection screen (Screenshot 86). Input the appropriate information in the required server and database name fields and then save and close the screen to establish the connection.

9.2   Wings & Flutters

The Wings and Flutters framework allows you to add one or more new dataset types, define measures and report types, and customize report layouts in your MONAHRQ-generated websites. The framework is divided into two main components: Wings and Flutters. A Wing is a MONAHRQ-compatible data structure template to be used when integrating new datasets. A Flutter is the mechanism for defining and customizing reports for your new dataset within the MONAHRQ-generated website. You can install (add) new Wings and Flutters by going to "Settings > Manage Wings and Flutters" screen. This function assumes that developers have already developed the Wings and Flutters files outside of MONAHRQ using framework information that is available at https://github.com/AHRQ/MONAHRQ-Framework. The section below explains the functionality of wings and flutters in more detail.

9.2.1   Manage Wings

The Manage Wings & Flutters Screen (Screenshot 87) allows you to install (add) your open source Wing to MONAHRQ. Once added, it will start showing up in the Datasets Library for you to import your input file.

Step 1: Click on the "Wings" subtab.

Step 2: Click on the "Install New Wing" button. This opens a popup screen.

Step 3: On the popup screen, click on the "Browse" button to select the Wing file. The file can be either in ".XML" or ".ZIP" format only.

Step 4: Click on the "Install" button. This will start the upload process and show the process log. Once completed, the "Installation Successful" message will be displayed. Click on "Ok" to close the popup screen.

Step 5: Your new Wing will be added and listed in the Open Source Wing Library screen.

Step 6: To uninstall a Wing, click on one of the installed Wings and then click on the "Uninstall" button. You will be asked for confirmation before uninstalling. Once uninstalled, the Wing will be removed from the Open Source Wing Library as well as the Datasets Library. Along with the Wing in the Dataset Library, associated measures and reports will also be removed from their respective libraries.

Screenshot 87: Manage Wings & Flutters: Wings Tab
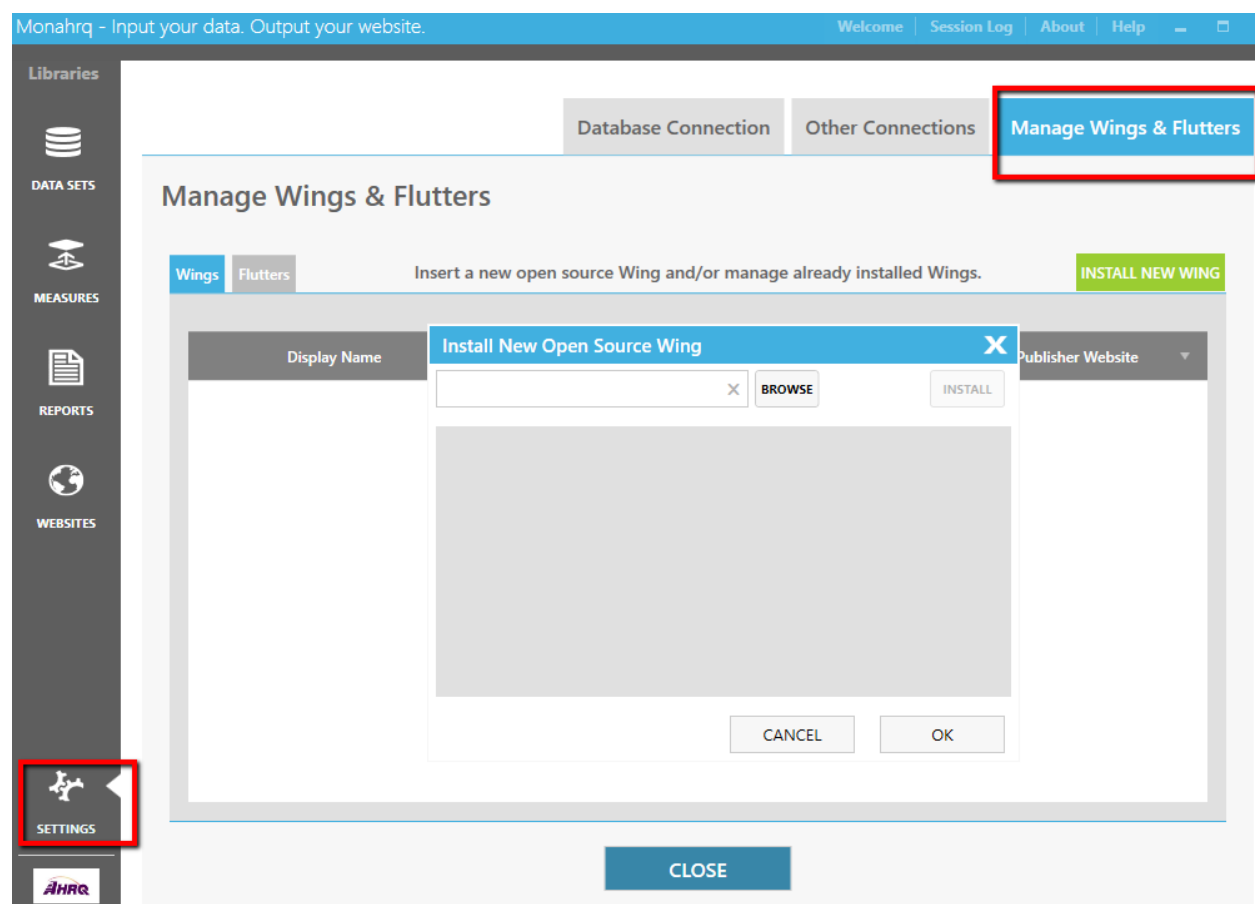
9.2.2 Manage Flutters

The Manage Flutters screen (Screenshot 88) allows you to install (add) your open source Flutter to MONAHRQ. This is one of the methods to install Flutters in MONAHRQ. Another option is to upload a Flutter to an existing MONAHRQ-generated website under a predesignated folder. Further documentations is available at https://github.com/AHRQ/MONAHRQ-Framework. If the Flutter is installed in MONAHRQ prior to producing the website, the new reports will be included in the generated website.

Step 1: Click on the "Flutters" subtab.

Step 2: Click on the "Install New Flutter" button. This will open a popup screen.

Step 3: On the popup screen, click on the "Browse" button to select the Flutter file. The file must be in ".ZIP" format.

Step 4: Click on the "Install" button. This will start the upload process and show the process log. Once completed, the "Installation Successful" message will be displayed. Click on "Ok" to close the popup screen.

Step 5: Your new Flutter is now added and listed in the Open Source Wing Library screen.

Step 6: To uninstall a Flutter, click on one of the installed Flutters and click on the "Uninstall" button. You will be asked for confirmation before uninstalling. Once uninstalled, the Flutter will be removed from the Open Source Flutter Library.

Screenshot 88: Manage Wings & Flutters: Flutters Tab
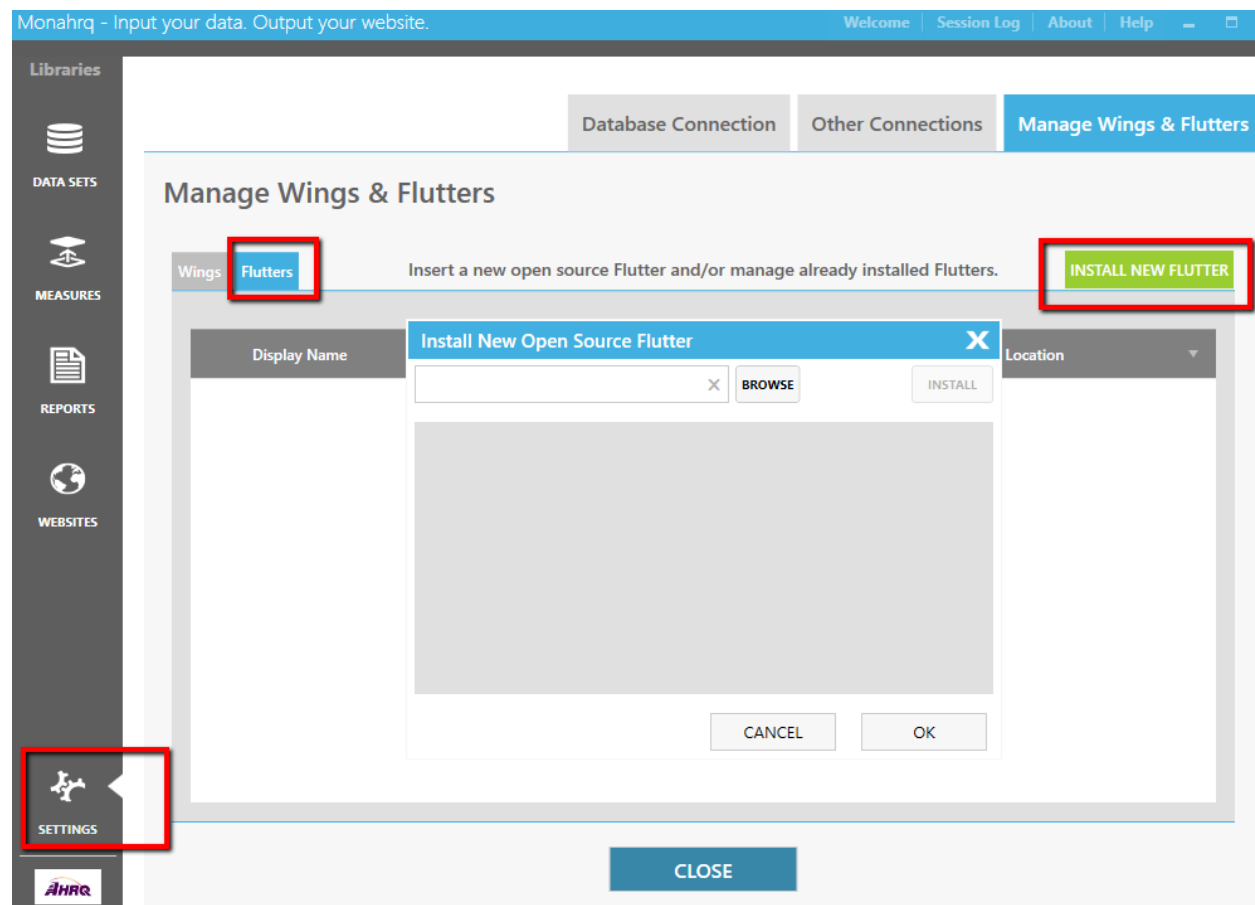
9.3 Database Creation Process Log

Within the Database Manager screen, you can access the database creation log, which provides information for each base data file, including the number of rows loaded and processing times.

9.4   Session Logs

In order to troubleshoot technical issues effectively, you can review session logs that capture errors related to general operations and publishing. The individual session logs can be stored by date on your machine in the Documents folder or in another repository within your organization. The session log can be accessed by clicking on the "Session Log" menu item on the top right corner from within MONAHRQ. The Session Log menu does not maintain a history of logs; it only reports on the last day for which there was activity. The recommended number of logs for you to maintain in your local directory is ten (10) days of logs. The following session logs are generated by MONAHRQ:

- Environment, such as permission or network related issues
- Website and website publishing

CHAPTER 10.   WEBSITE ORGANIZATION

All MONAHRQ®-generated websites share a similar structure, where the End Users can view high-level information on quality and health measures and select reporting paths to generate their desired reports on the home page. Your generated websites can vary based on the data, measure, report, and website attributes selected during the website creation and publishing processes. The general structure of the generated websites is shown in Figure 2.

Figure 2: MONAHRQ-Generated Website Site Map
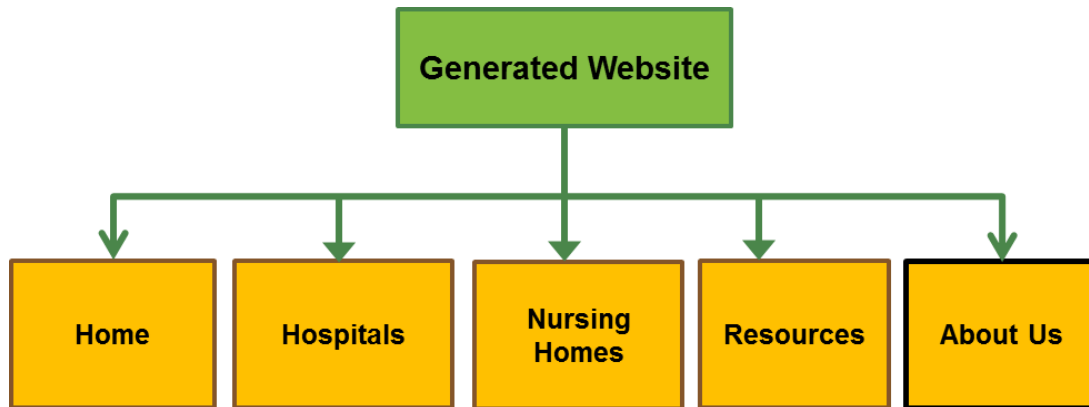
The first page End Users will see when accessing a MONAHRQ-generated website is the home page (Screenshot 89). In addition to searching for hospitals, health conditions, or topics, End Users can learn what quality is and why it is important and navigate to additional pages of the website.

Screenshot 89: MONAHRQ-Generated Website Home Page

The generated website will reflect the settings, theme, font styles, image, and text content selected on the Customize Site screen in MONAHRQ before publishing your site. The website theme, color selections, and fonts are used consistently across all pages of the generated website.

The home page layout contains four main areas: (1) a navigation menu to access reporting paths; (2) a feature to browse and search hospitals, nursing homes, and physicians; (3) a section with links to educational content and a new infographics report; and (4) a section to display content related to health measures, quality, or a topic supporting your objectives.

10.1 Website Header and Footer Sections

As a part of the website theme, the header and footer sections will be the same on all pages of the website and will reflect the configurations and content added when completing the "Customize Site" step of the website generation process in MONAHRQ.

10.1.1 Website Header

The header contains a logo and the navigation menu tabs, which are Home, Quality Ratings, Service Use Rates, Resources, and About Us. The End User can use these tabs to view reports or learn more about your organization or topics related to quality and measures.

Screenshot 90: MONAHRQ-Generated Website Header

The top right corner of the home page includes "Share this page" and "Feedback" buttons (Screenshot 90). When an End User clicks on the "Share this Page" button, the End User's email program will open, allowing them to easily send a link to the content they were viewing on a given page. The email recipient will receive a direct link to the specific content the sender was viewing.

The "Feedback" feature allows End Users to submit feedback to the website's hosting organization. When an End User clicks on the "Feedback" button, a dropdown menu with various feedback topics will appear. These topics reflect the selections you made on the Customize Site screen in MONAHRQ when completing the website generation process. Upon selecting a feedback topic from the dropdown menu and clicking on "Continue," the End User's default email application will be launched. The subject line of the email will be the topic selected from the dropdown menu. After an email is drafted, it can be sent to the appropriate contact configured on the Customize Site screen in MONAHRQ. If an End User does not have a default email application on his or her computer, he or she can send feedback directly to the Host User's organization. It is recommended that Host Users include contact information in the "About Us" section content to allow End Users to contact your organization.

10.1.2 Website Footer

The footer is a global feature that appears at the bottom of all website pages and includes the MONAHRQ logo, an "About AHRQ" section, an "About Us" section with a brief description of your organization, and a site map (Screenshot 91). The site map provides End Users with another means of navigating to the primary web pages by clicking on the provided links. Although the content for "About AHRQ" will be static, the "About Us" content will be specific to your organization and will reflect the text entered on the "Customize Site" screen in MONAHRQ.

Screenshot 91: MONAHRQ-Generated Website Footer

10.2 Hospital Quality Ratings

From the Hospital > Quality Ratings tab in the primary navigation menu, End Users are directed to the Quality Ratings landing page (Figure 3). From here End Users can search for hospitals, read about what hospital quality ratings are, or choose a health condition or topic to view hospital quality ratings.

Figure 3: MONAHRQ-Generated Website Hospital Quality Reporting Site Map
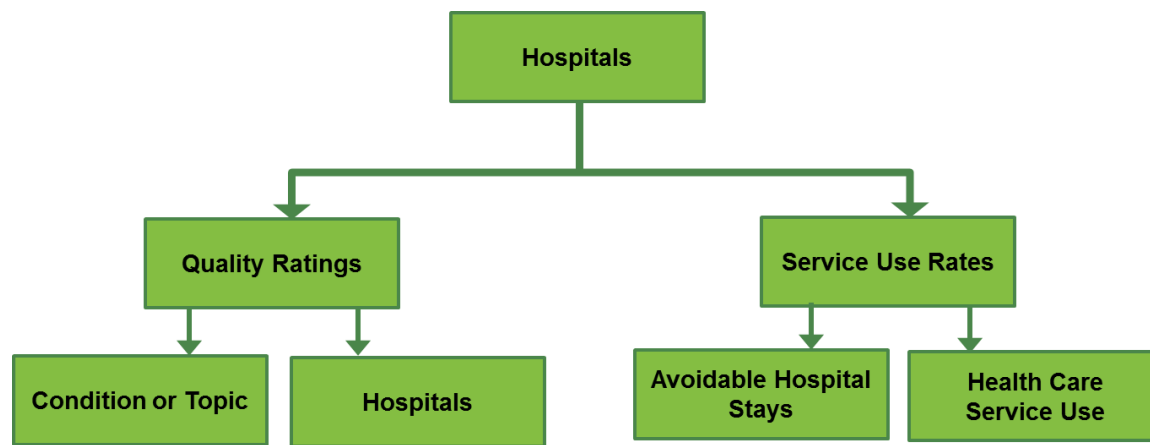
Screenshot 92: MONAHRQ-Generated Website Hospital Quality Ratings Landing Page

10.2.1 Hospital Condition or Topic Reporting Path

Clicking on the "View Ratings" button under "Condition or Topic" (Screenshot 92) will direct End Users to the Quality Ratings by Condition or Topic page. End Users can build their report by selecting a topic and subtopic from the dropdown menus or refine the report results by selecting the hospital type and geographic parameters by ZIP Code or region (Screenshot 93).

Screenshot 93: MONAHRQ-Generated Website Choosing a Topic or Condition Landing Page

Selecting Topics and Subtopics will display a set of quality rating results comparing hospitals within a defined geographic location and comparing hospital type by defined topic ().

Screenshot 94: MONAHRQ-Generated Website Choosing a Hospital Topic or Condition Landing Page: Filter Detail

1 Select Topic	2 Select Sub Topic	3 Refine Results
Childbirth ▾	Practice patterns ▾	Search Type ▾

Childbirth ⊙

Practice patterns ⊙

Sort by:	Compared To: ⊙	Display Type:		Help ⊙
Hospital Name ▾	National Averag ▾	Symbols ▾	Select Report to Copy ⬈	

Select hospitals to compare [Compare]	Hospital Name	Percentage of births (deliveries) that are C-sections	How often there are no complications for mothers who gave birth vaginally when the mother has had a C-section in the past	Percent of women having their first time C-section	How often babies are born vaginally when the mother has had a C-section in the past
☐	Facility 1	▲ Better than average	▼ Below average	▲ Better than average	▼ Below average
☐	Facility 10	▲ Better than average	▲ Better than average	▲ Better than average	▲ Better than average

On the right side of the screen, an End User can review patient experience results and all other quality ratings available for the hospital. By clicking on a health condition or topic, the End User will be directed to a report page displaying quality rating symbols for the hospital. There are four quality rating score types: (1) The hospital scored better than average. (2) The hospital scored average. (3) The hospital scored below average. (4) The hospital did not have enough data to report. The quality rating scores are defined below:

- **Better than average**—This quality rating score category uses a yellow upright triangle symbol to indicate that the hospital scored better than average. The symbols will automatically update if the default in the compare dropdown menu is changed from statewide average to national average.

- **Average**—This quality rating score category uses a gray circle symbol to indicate that a hospital scored average. The symbols will automatically update if the default in the compare dropdown is changed from statewide average to national average.

- **Below average**—This quality rating score category uses a purple downright triangle symbol to indicate that a hospital scored below average. The symbols will automatically update if the default in the compare dropdown menu is changed from statewide average to national average.

- **Not enough data to report**—This quality rating score category uses a text symbol to indicate that a hospital did not have enough information to report. The symbols will automatically update if the default in the compare dropdown menu is changed from statewide average to national average.

From this page, the End User can select a specific hospital to review by selecting the institution name in the "Find a Specific Hospital" dropdown menu or clicking on the name of the institution. Selecting a specific hospital will display the Hospital Profile page, as described in Section 10.2.2.2.

The End User can also generate a report containing a side-by-side comparison of hospitals by condition type by clicking on the checkboxes for the hospitals listed in the report.

10.2.2 Hospital Reporting Path

Similar to the Condition or Topic reporting path the End User can choose a different path to search hospitals based on criteria, including the hospital type and geographic location, using a ZIP Code and region filter (Screenshot 95).

Screenshot 95: MONAHRQ-Generated Website Finding a Hospital Landing Page: Filter Detail

The quality ratings report can be further refined by choosing a health topic. After selecting the search and reporting criteria, clicking on the "Search" button will create a hospital profile page.

10.2.2.1 Hospital Quality Reports Views

Within the report results table, the End User can sort the report by hospital name, patient ratings, and measure type (Screenshot 96).

Screenshot 96: MONAHRQ-Generated Website Hospital Quality Ratings Results Detail

The "Hospital Name" column identifies all of the hospitals found within the ZIP Code or region filter applied. The "How patients rate this hospital overall" column is a composite measure to indicate which hospital performed the best. The "Measures" columns list the names of measures available from the selected condition or topic and within a Subtopic. An End User may click on the measure name, which will open a popup window, define the measure, and detail the methodology.

The End User can choose to view the quality ratings in the form of a bar chart or in raw data format (Screenshot 97). If the End User selects another data display the legend text will automatically refresh to reflect the type of data display selected.

Screenshot 97: MONAHRQ-Generated Website Hospital Quality Ratings Raw Data Results Detail

Select hospitals to compare Compare	Hospital Name	Numerator	Denominator	Observed Rate	Observed Lower-bound CI	Observed Upper-bound CI	Expected Rate	Risk-Adjusted Rate	Risk-Adjusted Lower-bound CI	Risk-Adjusted Upper-bound CI
☐	Hospital Name	9	1,415	8.5	2.6	13.3	10.6	6.6	2.6	10.7
☐	Hospital Name	9	1,415	8.5	2.6	13.3	10.6	6.6	2.6	10.7
☐	Hospital Name	9	1,415	8.5	2.6	13.3	10.6	6.6	2.6	10.7

The "raw data" report contains fields of generated results for each hospital, including the numerator and denominator, observed rate, observed lower- and upper-bound confidence interval (CI) values, expected rate, risk-adjusted rate, and risk-adjusted lower- and upper-bound CI rates for each measure (Screenshot 97).

The reports can also be refined so that End Users can compare the results for up to five hospitals. End Users can also compare hospital results against statewide and national average levels by selecting the hospital checkbox in the "Compare to" dropdown menu (Screenshot 98).

Screenshot 98: MONAHRQ-Generated Website Hospital Quality Ratings Hospital Comparison

The Hospital Comparison report will display the selected topic and measure values as compared against all hospitals selected. The End User can also view the quality ratings in the form of bar charts or raw data.

10.2.2.2 Hospital Profile Report

The hospital profile report is available for all hospitals in your datasets. The report contains key attributes for each hospital, including the institution name, address, hospital description, and a location map using Google maps (Screenshot 99).

Screenshot 99: MONAHRQ-Generated Website Hospital Profile Report

From the right pane, the End User can view the overall Patient Experience quality ratings for the hospital and a comprehensive list of ratings for health conditions and topics for the specific hospitals under the Quality Ratings tab. A detailed ratings report will be generated when a link for a specific health condition or topic is selected, as shown in Screenshot 100.

Screenshot 100: MONAHRQ Hospital Quality Ratings Hospital Profile Report–Ratings for Health Conditions and Topics

Quality Ratings	Utilization	Physicians with Admitting Privileges

Ratings for Health Conditions and Topics

Childbirth	▶
Deaths or returns to the hospital	▶
Emergency department (ED)	▶
Heart attack and chest pain	▶
Heart failure	▶
Heart surgeries and procedures	▶
Imaging	▶
Infections	▶
Nursing care	▶
Other surgeries	▶
Patient safety	▶
Patient survey results	▶
Pneumonia	▶
Prevention and Treatment	▶
Stroke	▶
Summary Scores	▶
Surgical patient safety	▶

The ratings report lists the measures available for the hospital for all conditions and topic areas. The hospital is scored by measure, using the appropriate Quality Ratings symbol. The risk-adjusted rate appears to the right of the quality rating symbol.

The End User can view the Top 25 Diagnosis Related Group (DRG) discharge rates by clicking on the Service Use Rates tab within the right pane of the Hospital Profile Report (Screenshot 101). The DRG results are sourced by the Medicare Provider Charge Data dataset by default. Table 12 shows the measures included in the report if you use the Medicare Provider Charge dataset.

Table 12: Measures Sourced by Medicare Provider Charge Data

Measures	Hospital Rate
Number of Discharges	
Mean Charges in Dollars	
Mean Cost in Dollars	
Mean Total Payments	

Screenshot 101: Medicare Charge Data in Hospital Profile Report

Alternatively, you can choose to use IP dataset to generate the top 25 DRGs report on the Hospital Profile page (Screenshot 102). See Section 7.3 for details on how to use your IP dataset.

Table 13: Report Results Sourced by IP Dataset

Measures	Hospital Rate
Number of Discharges	
Mean Charges in Dollars	
Mean Cost in Dollars	
Mean Length of Stay in Days	

Screenshot 102: All Patients Charge Data in Hospital Profile Report
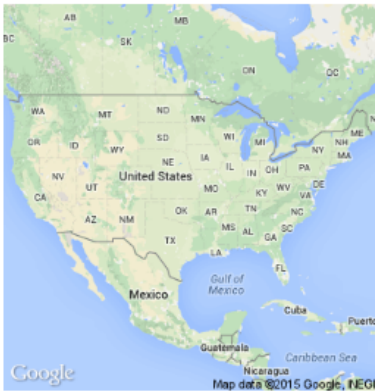
Utilization

Charge Data for the Top 25 Diagnosis Related Groups (DRGs) ❓

Cesarean section w CC/MCC

Measure	Hospital Rates
Number of discharges	1
Mean charges in dollars	$14,846
Mean costs in dollars	$0
Mean length of stay in days	1

Chest pain ▶

Complicated peptic ulcer w/o CC/MCC ▶

Laparoscopic cholecystectomy w/o c.d.e. w/o CC/MCC ▶

Neonates, died or transferred to another acute care facility ▶

Normal newborn ▶

Other ear, nose, mouth & throat O.R. procedures w/o CC/MCC ▶

Prematurity w/o major problems ▶

Simple pneumonia & pleurisy w/o CC/MCC ▶

Physicians with Admitting Privileges tab: With the addition of CMS Physician data in MONAHRQ 6.0, the Hospital Profile Report now includes another tab, **"Physicians with Admitting Privileges."** This tab will list physician names by specialties.

10.2.3 Hospital Service Use Rates

When an End User clicks on the Hospital > Service Use Rates tab in the primary navigation pane, they will be taken to a landing page where they can learn what usage data are, why usage data are important, and how to use usage data (Screenshot 103). End Users can also choose to view usage data by searching for information about Avoidable Hospital Stays or Service Use Rates. The Service Use Rates reporting pathways are defined in Figure 4.

Figure 4: MONAHRQ-Generated Website Hospital Service Use Rates Reporting Path
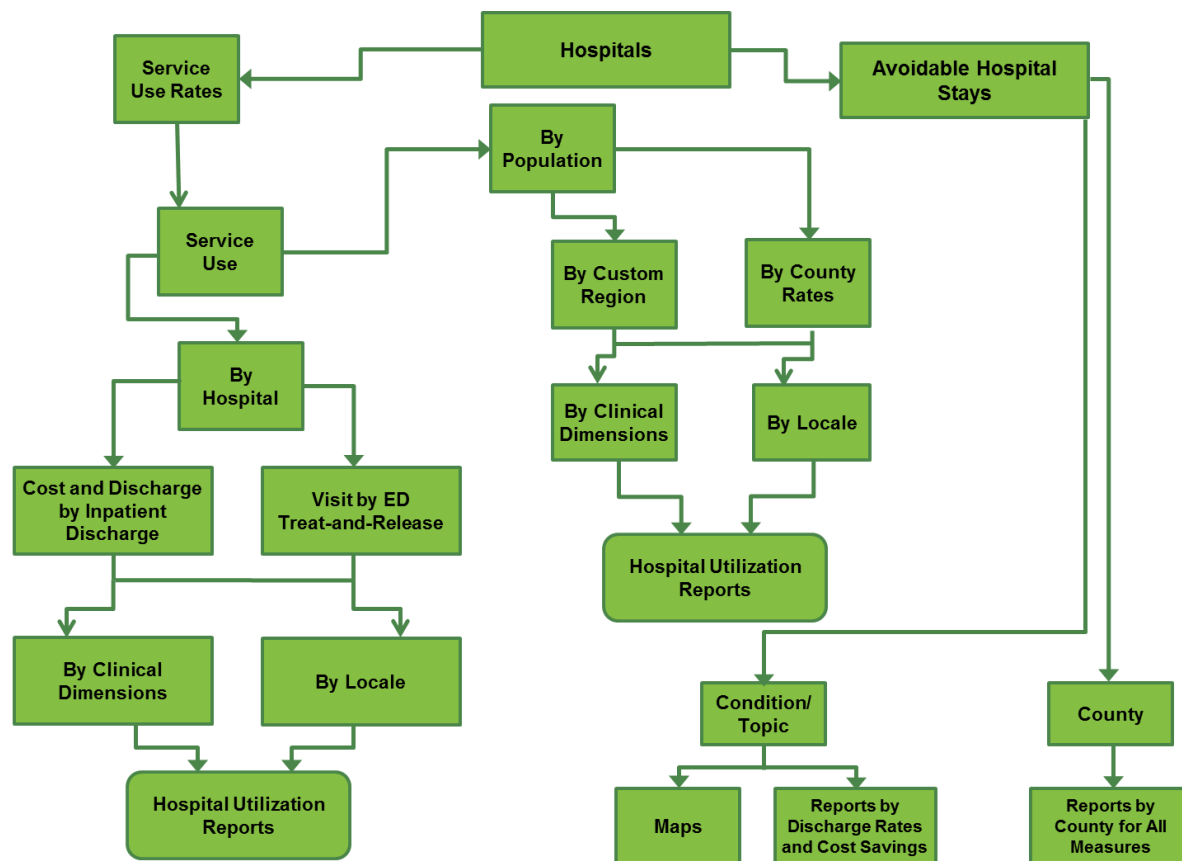
Screenshot 103: MONAHRQ-Generated Website Hospital Usage Data Landing Page

10.2.3.1 Avoidable Hospital Stays Tab

From the Avoidable Hospital Stays landing page, the End User can search by a specific condition/topic or by a specific county or region (Figure 5). If the End User selects the topic option, a dropdown menu allows the End User to review a list of health conditions or topics (Screenshot 104). Once a condition or topic has been selected, the End User must also use the radio buttons to select the measure for which they would

like to view data. After the End User clicks on the "Search" button, the data display will populate with the appropriate results.

Figure 5: Flowchart of MONAHRQ-Generated Website Avoidable Hospital Stays Reporting Path

Screenshot 104: MONAHRQ-Generated Website Avoidable Hospital Stays Landing Page

To search for a specific county, an End User must select a county from the County Name dropdown menu; they may also select the conditions for which they would like to view ratings. If no conditions are

selected and an End User clicks the "Search" button, all conditions for the specific county will appear in the data display.

Within the report table, the End User can view the rates for the specified county (i.e., the observed rate and the risk-adjusted rate), as well as the total cost savings on a percentage basis. The report table provides a set of preset calculated percentage values of 10, 20, 30, 40, and 50 percent. The End User can also enter a custom percentage value to calculate the total cost savings (Screenshot 104).

Screenshot 105: MONAHRQ-Generated Website Avoidable Stays Report Map View
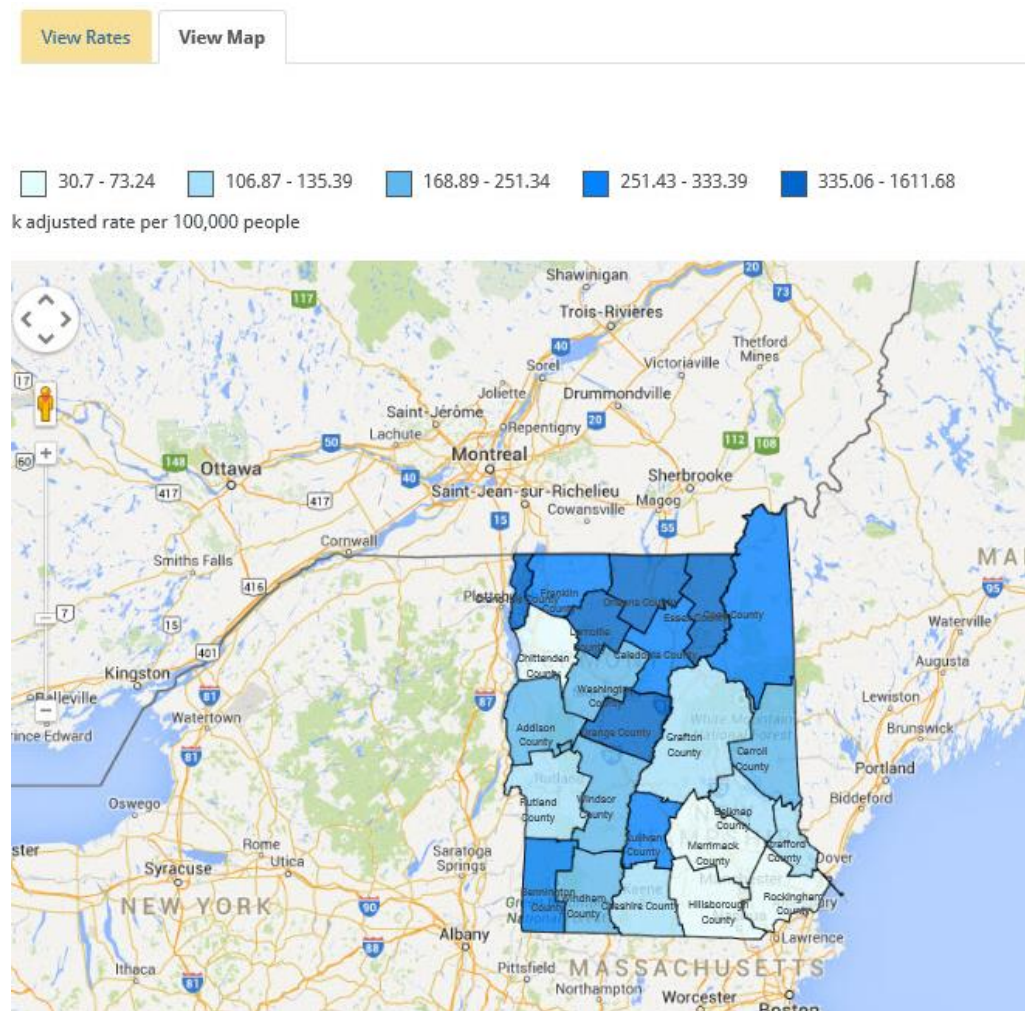
The default Usage Data Report view displays rates and cost savings by county. The End User can view results in a map of the geographic region, where the selected counties are shaded in blue hues. Lighter shades of blue represent lower rates (Screenshot 105).

10.2.3.2 Service Use Rates Tab

The Service Use reporting path allows the End User to generate reports displaying utilization data on a hospital or population level (Figure 6 and Screenshot 106).

Figure 6: MONAHRQ-Generated Website Hospital Service Use Reporting Path

```
                    ┌──────────────┐
                    │  Hospitals   │
                    └──────┬───────┘
                           │
                    ┌──────▼───────┐
                    │   Service    │
                    │  Use Rates   │
                    └──────┬───────┘
                           │
                    ┌──────▼───────┐
                    │   Service    │
                    │     Use      │
                    └──┬────────┬──┘
             ┌─────────┘        └─────────┐
        ┌────▼────┐                  ┌────▼─────┐
        │   By    │                  │    By    │
        │ Hospital│                  │Population│
        └─┬─────┬─┘                  └─┬──────┬─┘
     ┌────┘     └────┐           ┌─────┘      └─────┐
┌────▼─────┐  ┌──────▼──────┐ ┌──▼───────┐  ┌───────▼──────┐
│Cost and  │  │  Visit by ED│ │By County │  │  By Custom   │
│Discharge │  │Treat-and-   │ │  Rates   │  │   Region     │
│by Inpatient│ │  Release    │ │          │  │              │
│Discharge │  │             │ │          │  │              │
└──────────┘  └─────────────┘ └──────────┘  └──────────────┘
```
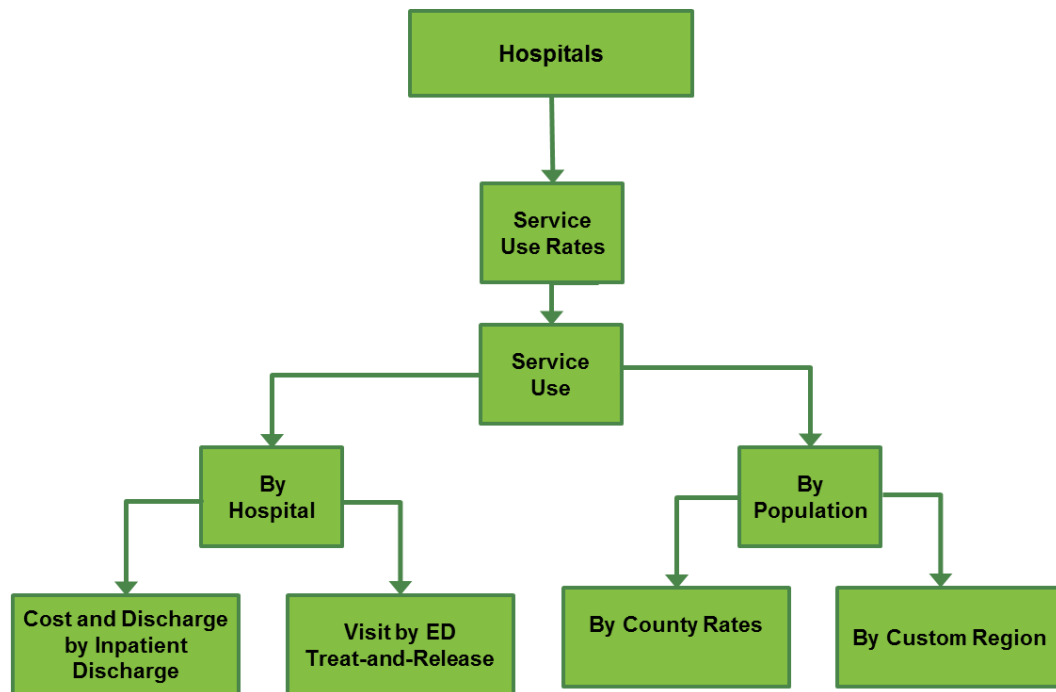
Screenshot 106: MONAHRQ-Generated Website Service Use Report

| Home | Hospitals | Nursing Homes | Resources | About Us |

| Quality Ratings | Service Use Rates |
| Avoidable Hospital Stays | Service Use |

| 1 | Hospital ⦿ Population ◯ | 2 | Inpatient ⦿ Emergency Dept. ◯ | 3 | Locale ◯ Clinical ⦿ | 4 | Major Diagnosis Categor ▾ | 5 | 1 Diseases & Disorders Of T |

Inpatient Hospital Utilization Data

Hospital utilization means use of hospital services, such as the number and length of hospital stays for different health conditions or procedures.

Narrowing display results by one of the categories listed below will show fewer hospitals. For instance, narrowing by County will show use of hospital services by the county selected.

Clicking 'View Trends' will display changes in data over time for the selected category, such as a utilization measure or hospital.

View Rates

View All

Narrow by:

Hospital County

Geographic Region

ZIP Code

Hospital Name

Select a Hospital

Type of Hospital

Sort by: Hospital (A to Z) ▾   View by: Hospital ▾   Select Report to Copy 📋   Help ⓘ

Diseases & Disorders Of The Nervous System (MDC 1)   **2012**

Hospital	Number of discharges	Mean charges in dollars	Mean costs in dollars	Mean length of stay in days
TOTAL U.S. in 2012	2,192,941	$46,282		4.835
TOTAL View combined report	22	$31,882	$26,779	3.045
Facility 17	1	$15,458	$14,060	1

To generate a Service Use Report, the End User will follow the multistep process described below to define the specific attributes for the data results.

Step 1: Select the hospital.

Step 2: Select the data type: "Inpatient" or "Emergency Department." If the End User selects "Inpatient" data, utilization rates will be displayed by Inpatient Hospital Discharge data. If the End User selects "Emergency Department" data, utilization rates will be displayed by ED data.

Step 3: Select "Clinical Dimensions" or "Locale." If the End User selects "Clinical Dimensions," Steps 4 and 5 will not appear. Selecting Clinical Dimensions allows the End User to search by all diagnoses or health conditions or topics. For more information about the report generation steps, see Table 15 in Section 11.5.1.

Step 4: Select from Hospital Name, Hospital Type, Region, or County.

For additional information on report dimensions, see Table 15 in Section 11.5.1.

10.2.4 Nursing Home Quality Ratings

From the Nursing Home > Quality Ratings tab in the primary navigation menu, the End User can navigate to the Find Nursing Home page (Figure 7) where they can search for nursing homes to view overall Quality and Health Inspection ratings and Staff locations (Screenshot 107).

Figure 7: MONAHRQ-Generated Website Nursing Home Quality Reporting Site Map
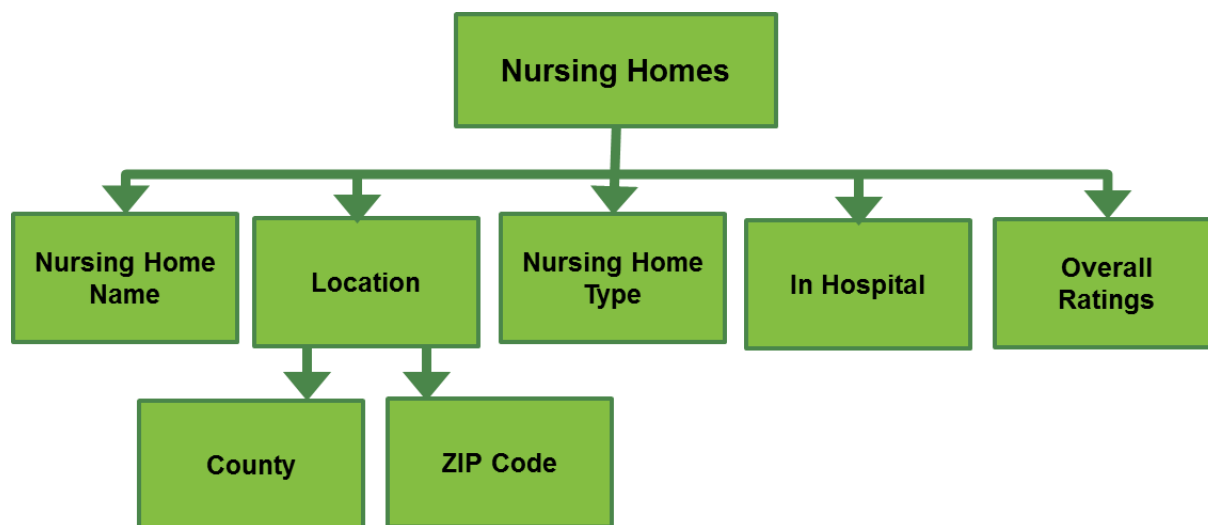
Screenshot 107: MONAHRQ-Generated Website: Nursing Home Quality Ratings Landing Page
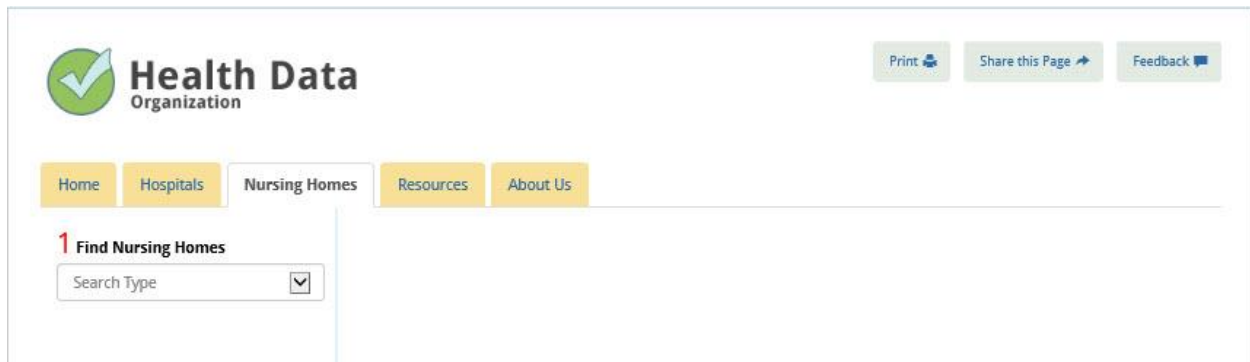
The search results are shown in a list and on a map. The End User can select up to five (5) nursing homes and compare them side by side nationally, by peer group, or at the county level.

10.2.5 Physician Reporting Path

The End User can access Physician Reports by following the physician reporting path. From the home page, the End User will click on the "Browse Physician" link. The End User will then be directed to the "Find Physician" page (), where they can search for physicians and view their profile reports.

Figure 8: MONAHRQ-Generated Website Physician Reporting Site Map
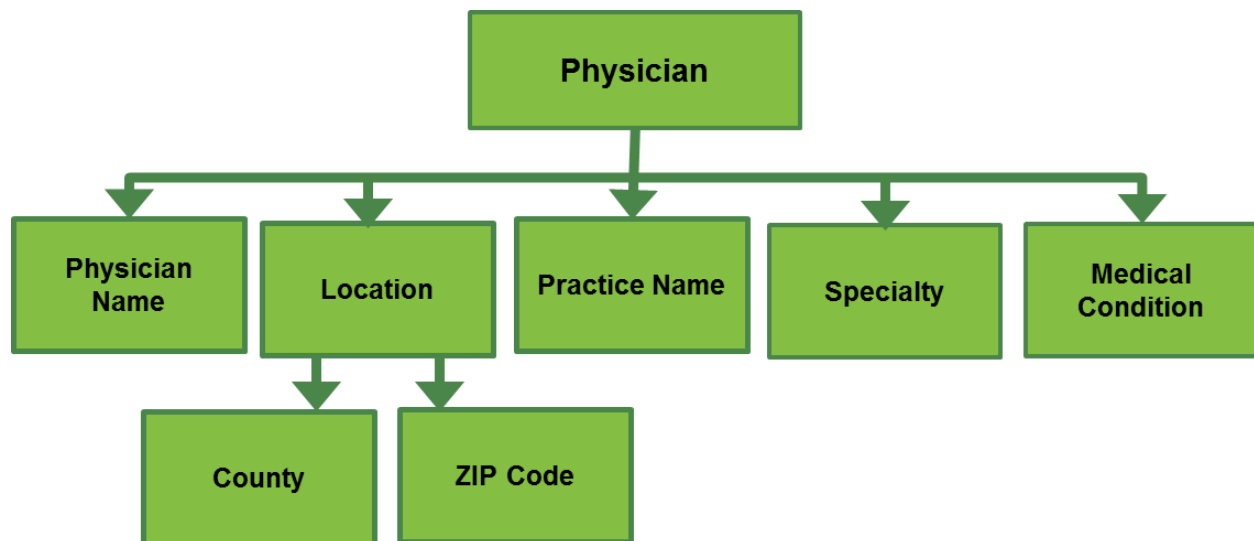
Screenshot 108: MONAHRQ-Generated Website: Find Physician

10.2.6 Resources Section

Selecting the Resources tab (<u>Screenshot 109</u>) takes the End User to the Hospital Quality landing page where they can access information about: hospital quality, utilization, avoidable hospital stays, county rates of hospital use, quality ratings, and other health conditions or topics.

Screenshot 109: MONAHRQ-Generated Website Resources Tab

The Resources landing page also contains a left-side navigation box where the End User can click on defined resource topics (e.g., About the Methodology, About the Quality Ratings, Definitions, etc.). Clicking on the link in the left-side navigation box will display the selected topic content in the pane on the right side of the page.

10.2.7 "About Us" Section

Clicking on the "About Us" tab (Screenshot 110) allows the End User to view content related to your organization. This content reflects the text you entered in the "About Us" section of the "Customize Site" screen prior to publishing your site. This section uses the same layout design as the Resources section, where the End User can select a topic in the left-side navigation box and view the topic content in the pane on the right side of the screen.

Screenshot 110: MONAHRQ-Generated Website "About Us" Tab
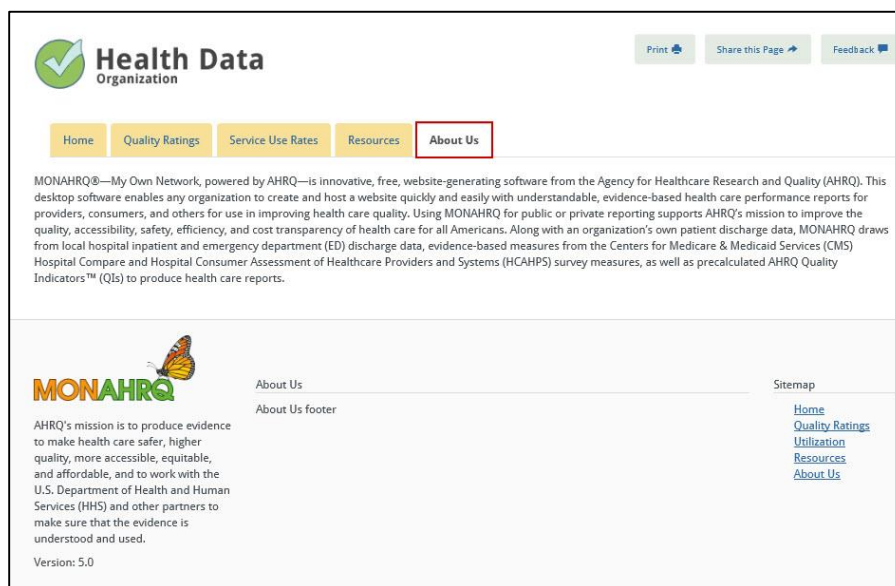
CHAPTER 11. MONAHRQ® Reporting Options

During the website generation process, you will select the reporting paths to display in your website; the paths will be sourced by the datasets you chose to generate your website in MONAHRQ®. Once your website is generated, the End User can follow three main paths for reporting data on the MONAHRQ-generated website: (1) Hospital > Quality Ratings, (2) Hospital > Utilization and (3) Nursing Home > Quality Ratings (Screenshot 111). Within the three main pathways, the End User can further refine and customize their hospital and nursing home quality reports by expanding into topic areas, selecting county-level and region-level reporting within geographic parameters and selecting usage rates on inpatient medical conditions and procedures for hospitals.

Screenshot 111: MONAHRQ-Generated Website Reporting Paths

11.1 Reporting Paths and Audience Selection

The reports displayed on your MONAHRQ-generated website will be managed within your Reports Library (Screenshot 112). Within the library, your selections will result in the design of the reporting pathways presented in your website. As you define the reports to be displayed on your MONAHRQ-generated website, you will also need to define the website audience. The audience type defines the type of End User who will use the report tools. Depending on the reports that will be displayed on the website, the appropriate audience must be selected to trigger the desired output. Once you have selected the audience, MONAHRQ will return audience-based, defined reports accordingly, as shown in Table 14.

Screenshot 112: MONAHRQ Reports Library

Table 14: Reporting Paths by Audience and Category

#	Report Type	Recommended Audience	Report Category
1	Hospital listings based on the search from the home page	Consumers, All Audiences	Quality
1	Hospital Quality Ratings—Symbols only	Consumers, All Audiences	Quality
2	Hospital Quality Ratings—Symbols with rates	All Audiences	Quality
3	Hospital Quality Ratings—Bar chart	Consumers, All Audiences	Quality
4	Hospital Quality Ratings—Detailed tabular view	All Audiences	Quality
5	Hospital Comparison Report (up to five (5) hospitals)	Consumers, All Audiences	Quality
6	Hospital Profile Report	Consumers, All Audiences	Quality
7	Inpatient Hospital Discharge (IP) Utilization Report	All Audiences	Utilization
8	IP Utilization—Stratified Report	All Audiences	Utilization
9	Emergency Department Treat-and-Release (ED) Utilization Report	All Audiences	Utilization
10	ED Utilization—Stratified Report	All Audiences	Utilization

#	Report Type	Recommended Audience	Report Category
11	Avoidable Hospital Stays Maps	Consumers, All Audiences	Utilization
12	Avoidable Hospital Stays by County Report	All Audiences	Utilization
13	Avoidable Hospital Stays by County Profile Report	All Audiences	Utilization
14	Utilization by County or Custom Region Report	All Audiences	Utilization
15	Utilization by County or Custom Region—Stratified Report	All Audiences	Utilization
20	Find nursing home with overall and domain-level summary ratings report	Consumers, All Audiences	Quality
21	Nursing home profile report with summary and individual measure score by domain	Consumers, All Audiences	Quality
22	Nursing home comparison report (compares up to five (5) nursing homes) with individual measure scores by domains	Consumers, All Audiences	Quality
23	Find Physician Report	Consumers, All Audiences	Quality
24	Physician Profile	Consumers, All Audiences	Quality
25	Inpatient Hospital Discharge (IP) Utilization report—Trends Report	All Audiences	Utilization
26	IP Utilization Detailed Report (Stratified Report)—Trends Report	All Audiences	Utilization
27	Emergency Department Treat-and-Release (ED) Utilization Report—Trends Report	All Audiences	Utilization
28	ED Utilization detailed report (stratified report)—Trends Report	All Audiences	Utilization
29	County Rates Report (Population)—Trends Report	All Audiences	Utilization
30	County Rates Detail Report (Population)—Trends Report	All Audiences	Utilization
31	Region Rates Report (Population)—Trends Report	All Audiences	Utilization
32	Region Rates Detail Report (Population)—Trends Report	All Audiences	Utilization

11.2 Hospital Quality Ratings Reporting

The Quality Ratings reporting path allows the End User to generate reports from two subpaths: (1) Conditions and Topics and (2) Hospitals. The reports made available to the End User will be dependent on the audience type you selected, as defined in Figure 9 and Table 14.

Figure 9: MONAHRQ Quality Report Audience Type Selection

Within each of these reporting paths, End Users can compare the Hospital Quality Ratings by "Hospital" or by "Condition or Topic." The "Hospital" path allows End Users to search for hospitals or providers based on geographic parameters such as ZIP Code or hospital type. The "Condition or Topic" path will graphically show quality ratings by topic and subtopic for each indicator and hospital selected. End users can opt to view the information as a bar chart, in a detailed table, or as detailed statistics in tabular form. Screenshot 113 shows the Quality Ratings reporting path. Information about generating a hospital Quality Ratings Report can be found in Section 11.2.1.1.

Screenshot 113: MONAHRQ Hospital Quality Ratings Reporting Path Navigation
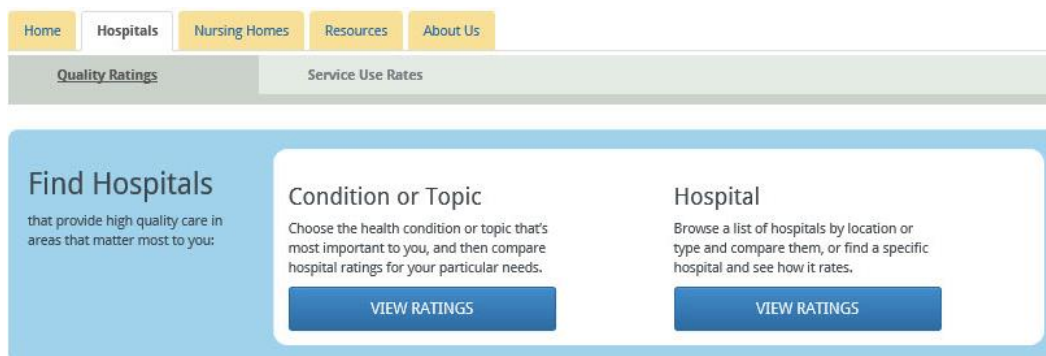
11.2.1 Find by Condition or Topic

When the End User selects the Condition or Topic path, the End User will be directed to a landing page to further filter and select criteria for their generated reports (Screenshot 114).

Screenshot 114: MONAHRQ Quality Ratings Condition or Topic Report Criteria Detail

11.2.1.1 Hospital Quality Report

The End User will first select the type of hospital from the Hospital Type dropdown box. Then, the End User will select either ZIP Code or Region for the geographic parameters and then will select a health condition or topic and subtopic. Clicking on the "Search" button will return a report containing all hospitals in the selected geographic region and the hospitals that match the end user's selection in the hospital type dropdown box. The report will contain quality rating symbols, identifying how patients rate the hospitals overall (Screenshot 115).

Screenshot 115: MONAHRQ-Generated Website Hospital Quality Ratings—Rating Symbols

Within the Quality Ratings screen, the End User can create variations of the report by comparing the results against the national or State average results, or change the display type from the default symbol to the following displays:

* Symbols and risk-adjusted rates (Screenshot 116)

Screenshot 116: MONAHRQ-Generated Website Hospital Quality Ratings—Symbols and Risk-Adjusted Rates

Select hospitals to compare Compare	Hospital Name	How patients rate this hospital overall	Aspirin prescribed before leaving the hospital	Heart Attack Patients Given a Prescription for a Statin at Discharge	Medicine to reduce blood clots given within 30 minutes of getting to the hospital	Procedure to open blood vessels done within 90 minutes of getting to the hospital
☐	facility 1	⬤ Average	⬤ Average 1 (1, 1)	🔺 Better than average 1 (1, 1)	Not enough data to report	Not enough data to report
☐	facility 2	⬤ Average	🔺 Better than average 1 (1, 1)	🔺 Better than average 1 (1, 1)	Not enough data to report	Not enough data to report

- Bar charts (Screenshot 117)

Screenshot 117: MONAHRQ-Generated Website Hospital Quality Ratings—Bar Charts

Select hospitals to compare Compare	Hospital Name	Catheter-associated urinary tract infections	Methicillin-resistant Staphylococcus Aureus (MRSA) infections	Clostridium difficile (C.diff.) infections	Patients in the hospital who got the pneumonia vaccine if they were likely to get pnuemonia	Patients in the hospital who got the flu vaccine if they were likely to get flu
		Nationwide Mean 1.0000	Nationwide Mean 1.0000	Nationwide Mean 1.0000	Nationwide Mean 91.0	Nationwide Mean 90.0
		◀ SHORTER BARS ARE BETTER	◀ SHORTER BARS ARE BETTER	◀ SHORTER BARS ARE BETTER	LONGER BARS ▶ ARE BETTER	LONGER BARS ▶ ARE BETTER
☐	Facility 1	1.8 (0.7 - 3.8)	0.8 (0.0 - 4.4)	0.6 (0.3 - 1.0)	93.0	94.0
☐	Facility 10	1.5 (0.3 - 4.3)	Not enough data to report	0.8 (0.4 - 1.5)	91.0	96.0
☐	Facility 11	1.6 (0.3 - 4.6)	Not enough data to report	3.1 (1.7 - 5.1)	92.0	88.0
☐	Facility 12	0.9 (0.2 - 2.3)	Not enough data to report	1.0 (0.5 - 1.8)	96.0	98.0
☐	Facility 13	2.5 (1.2 - 4.8)	Not enough data to report	1.2 (0.7 - 1.9)	100.0	99.0

- Raw data (Screenshot 118)

Screenshot 118: MONAHRQ-Generated Website Hospital Quality Ratings—Raw Data

Select hospitals to compare Compare	Hospital Name	Numerator	Denominator	Observed Rate	Observed Lower-bound CI	Observed Upper-bound CI	Expected Rate	Risk-Adjusted Rate	Risk-Adjusted Lower-bound CI	Risk-Adjusted Upper-bound CI
☐	facility 1	2	1	1	1	1	1	1	1	1
☐	facility 2	6	1	1	1	1	1	1	1	1

11.2.2 Find Hospital Report

The End User can generate a Hospital Comparison report by following the Hospital reporting path. Clicking on the Hospital "View Ratings" button will direct the End User to a Hospital landing page

([Screenshot 119](#)). Within this page, the End User will select a hospital type and a geographic parameter (either ZIP Code or region) to refine the hospital list.

Screenshot 119: MONAHRQ Quality Ratings Finding a Hospital Landing Page

Home	Hospitals	Nursing Homes	Resources	About Us

Quality Ratings	Service Use Rates

Condition or Topic	Hospital

1 Find Hospitals   2

Search Type ⌄

11.2.2.1 Hospital Comparison Report

After generating the Hospital Comparison Report, the End User can select up to five hospitals to compare side-by-side, by selecting the checkboxes in the column to the left of the hospital names. The Hospital Comparison Report will then be displayed, providing quality ratings symbols for all conditions and topics available for the hospitals being compared. The End User can change the results display from symbols to symbols and risk-adjusted rates or bar charts, as shown in [Screenshot 120](#).

Screenshot 120: MONAHRQ Quality Ratings Hospital Comparison Report

Compare Hospitals

Back to previous report

Compared To: ⓘ
National Average ▾

Display Type:
Symbols ▾

Select Report to Copy ↗

Help ⓘ

Childbirth

Practice patterns Measures	Facility 43	Facility 44	Facility 45	Facility 47	Facility 48
Percentage of births (deliveries) that are C-sections	▲ Better than average	Not enough data to report	Not enough data to report	▲ Better than average	Not enough data to report
How often there are no complications for mothers who gave birth vaginally when the mother has had a C-section in the past	▲ Better than average	Not enough data to report	Not enough data to report	● Average	Not enough data to report
Percent of women having their first time C-section	● Average	Not enough data to report	Not enough data to report	▲ Better than average	Not enough data to report
How often babies are born vaginally when the mother has had a C-section in the past	▲ Better than average	Not enough data to report	Not enough data to report	● Average	Not enough data to report

Results of care Measures	Facility 43	Facility 44	Facility 45	Facility 47	Facility 48
How often newborns babies have an injury or get an infection during delivery	● Average	● Average	Not enough data to report	● Average	● Average
How often women who give birth vaginally with forceps or vacuum have a serious vaginal tear	● Average	Not enough data to report	Not enough data to report	● Average	Not enough data to report
How often women who give birth vaginally without forceps or vacuum have a serious vaginal tear	▼ Below average	Not enough data to report	Not enough data to report	● Average	Not enough data to report

11.2.2.2 Hospital Profile Report

The End User can view a detailed Hospital Profile Report on any of the hospitals identified in the reports (Screenshot 121). From the Hospital search landing page, the End User can select all hospitals contained within the datasets imported into the Dataset Library from the "Find a Specific Hospital" dropdown menu. The End User can also click on the hospital name within any of the reports. The hospital name value links to the associated Hospital Profile Report.

The hospital profile report is available for all hospitals in your datasets. The report contains key attributes for each hospital, including the institution name and address, a map of the hospital location and descriptive statistics including the facility type and total number of beds (Screenshot 121).

Screenshot 121: MONAHRQ Quality Ratings Hospital Profile Report

Home	**Hospitals**	Nursing Homes	Resources	About Us

Quality Ratings	Service Use Rates
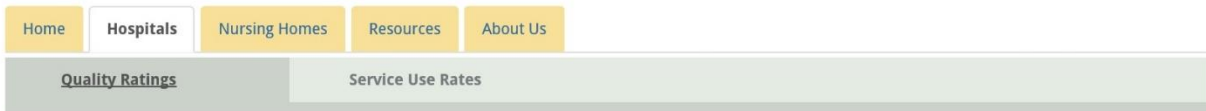
Summary of Hospital Information: Facility 1

1234 MAIN STREET
ANY TOWN, ST 00000

MEDICAL FACILITY 1

Total Beds: 0

Employees: 0

Phone Number: 555-555-5555

Fax Number: 666-666-6666

Hospital Type: General

Quality Ratings	Physicians with Admitting Privileges

Ratings for Health Conditions and Topics	
Childbirth ⓘ	▶
Deaths or returns to the hospital ⓘ	▶
Emergency department (ED) ⓘ	▶
Heart attack and chest pain ⓘ	▶
Heart failure ⓘ	▶
Heart surgeries and procedures ⓘ	▶
Imaging ⓘ	▶
Infections ⓘ	▶
Nursing care ⓘ	▶
Other surgeries ⓘ	▶
Patient safety ⓘ	▶
Patient survey results ⓘ	▶

From the right pane of the report, the End User can view a comprehensive list of ratings for health conditions and topics for specific hospitals. When the End User selects a specific health condition or topic link, a detailed Quality Ratings Report will be shown (Screenshot 122).

Screenshot 122: MONAHRQ Quality Ratings Hospital Profile Report—Ratings for Health Conditions and Topics

Quality Ratings	Utilization	Physicians with Admitting Privileges

Ratings for Health Conditions and Topics

Childbirth ☐ ►

Deaths or returns to the hospital ☐ ▼

All Causes ☐	Rating	Risk-Adjusted Rates
Returning to the hospital for any unplanned reason within 30 days after being discharged	● Average	15.1 (14.0 - 16.2)

Heart attack and chest pain ☐	Rating	Risk-Adjusted Rates
How often patients die in the hospital after heart attack	● Average	0.0000 (0.0000, 16.2584)
How often patients die in the hospital after heart attack (not including patients transferred to another hospital)	● Average	0.0000 (0.0000, 17.6646)
Dying within 30-days after getting care in the hospital for a heart attack	● Average	15.1 (12.1 - 19.1)

Heart failure ☐	Rating	Risk-Adjusted Rates
How often patients die in the hospital after heart failure	● Average	0.0000 (0.0000, 10.3786)
Dying within 30-days after getting care in the hospital for heart failure	● Average	11.3 (8.9 - 14.2)

Clicking on the Utilization tab on the Hospital Profile Report will show the discharge, charge or cost, and payment information for the top 25 DRGs by discharge volume. This report will be available to "All Audiences" but not to the "Consumer" target audience. The report is shown in .

Screenshot 123: MONAHRQ Quality Ratings Hospital Profile Report—Utilization Tab

11.3   Nursing Home Reports

From the MONAHRQ home page, the End User will click on the "Nursing Homes" tab to access nursing home reports. In addition to displaying national-level comparison reports (e.g., CMS ratings), MONAHRQ-generated websites display peer-level comparative reports for Nursing Homes. MONAHRQ uses the same underlying data that the CMS Nursing Home Compare site utilizes, but the principal difference between the CMS Nursing Home Compare site and MONAHRQ is that MONAHRQ-generated websites also compare nursing homes locally in peer groups, and the website content is customized and augmented by you to meet your local needs.

11.3.1   Find Nursing Homes Report

In order to find nursing homes, the End User will first select the search criteria from the Find Nursing Homes dropdown menu. The search criteria include: Nursing Home Name, Location (County, ZIP), Nursing Home Type (Medicare/Medicaid/Both), In Hospital (Yes/No), and Overall Ratings. Once the End User has selected the nursing home search criteria, they will click on the "Run Report" button to generate a report containing all matching nursing homes. The report will contain the following columns: Name, Address, Overall Ratings, Overall Health Inspection, Overall Quality, and Overall Staffing (Screenshot 124). Clicking on the Nursing Home names will load the Nursing Home Profile page (Section 11.3.3).

Screenshot 124: MONAHRQ-Generated Website Nursing Homes Reporting Path—Find Nursing Homes with Overall and Domain-Level Summary Ratings

11.3.2 Nursing Home Comparison Report

The End User can select up to five (5) nursing homes to compare side-by-side. By selecting the checkboxes in the column to the left of the nursing home names End Users can change their view and switch from the CMS Ratings to Peer/State and County Level Ratings. Clicking on the measure names will display a description of the measure in a popup window (Screenshot 125).

Screenshot 125: MONAHRQ-Generated Website Nursing Homes Tab—Nursing Home Comparison Report

11.3.3 Nursing Home Profile Report

The End User can view a nursing home profile by clicking on its name when viewing the nursing home search results or comparison report page. The End User can also find a specific nursing home by searching by "Nursing Home Name."

The Nursing Home Profile Report (Screenshot 126) contains useful information for each nursing home including the address, a description (if provided by you) and a map of its location. The End User will also be able to see the overall measures ratings and the scores for the individual measures in all three domains: Quality, Health Inspections, and Staffing.

Screenshot 126: MONAHRQ-Generated Website: Nursing Homes Tab—Nursing Home Profile Report

| Home | Hospitals | **Nursing Homes** | Resources | About Us |

Summary of Nursing Home Facility 1

1234 MAIN STREET
ANY TOWN, ST 00000

Compared To:

National Average ▼

Overall Rating ★★★★★
Much better than average

GENERAL INFORMATION

Phone Number: 555-555-5555

County Name: Any County

Ownership Type: For profit - Corporation

Number of Certified Beds: 72

Number of Residents in Certified Beds: 0

SERVICES

Provider Type:	000000
Is the nursing home located in Hospital:	No

Nursing Home Measures

Health Inspection ⊘ ▶

Quality Measures ⊘ ▼

	Rating	Rate
Overall Quality Measures	★★ ● ● ● Below average	-

Health Inspection ⊘	Rating	Rate	National Rate	Peer Rate
Measures used in summary scores ⊘				Hide Measures
Measures not used in summary scores ⊘				Show Measures

Quality Measures Long Stay ⊘	Rating	Rate	National Rate	Peer Rate
Measures used in summary scores ⊘				Hide Measures
Percent of Residents Experiencing One or More Falls with Major Injury (Long Stay)	-	3.1	3.2	3.9
Percent of Residents who Self Report		16.3	7.6	8.7

11.4   Physician Reports

From the MONAHRQ home page, the End User will click on the "Browse" button under "Physicians" tab to access reports.

11.4.1   Find Physician Report

End Users will be able to access the Physician search page from the MONAHRQ home page (Screenshot 127). End Users can search for physicians using various criteria such as physician name (example: Murphy, if you are searching for Dr. Ann Murphy), geographic location, practice or medical group name, ZIP Code, specialty, and medical condition, (e.g., childbirth, blood pressure, etc.). This will find the matching physicians and show the results in a list on the page.

End Users can access the Physician Profile Report by clicking on the physician name.

Screenshot 127: MONAHRQ-Generated Website Physicians Tab—Find Physician Report

Physician Name	Practice Name	City	ZIP Code	State	Primary Specialty
Jane Doe 1	FACILITY 1	ANY TOWN	00000-0000	ST	CARDIOVASCULAR DISEASE (CARDIOLOGY)
John Doe 1	FACILITY 3	ANY TOWN	00000-0000	ST	CARDIOVASCULAR DISEASE (CARDIOLOGY)
John Doe 2	FACILITY 4	ANY TOWN	00000-0000	ST	CARDIOVASCULAR DISEASE (CARDIOLOGY)
Jane Doe 2	FACILITY 5	ANY TOWN	00000-0000	ST	CARDIOVASCULAR DISEASE (CARDIOLOGY)

11.4.2 Physician Profile Report

The Physician Profile Report includes general information for each physician including: physician name, gender, language spoken, degrees and education, primary and secondary specialty, and Medicare assignment/participation. It also includes a map of the location of the physician's practice and a list of hospital affiliations (Screenshot 128).

Screenshot 128: MONAHRQ-Generated Website Physicians Tab—Physician Profile Report

11.5 Hospital Utilization Reporting Path

The "Utilization" path allows the End User to view reports under two subpaths: "Service Use" and "Avoidable Hospital Stays." Within these subpaths, an End User can generate reports with county- and region-level data and cost data based on clinical dimensions such as, CSS, MS-DRG, MDC, and Procedure Code. End Users can also group results by geographical dimensions (Screenshot 129 and Figure 10).

Figure 10: Utilization Reporting User Flowchart: Service Use Reports
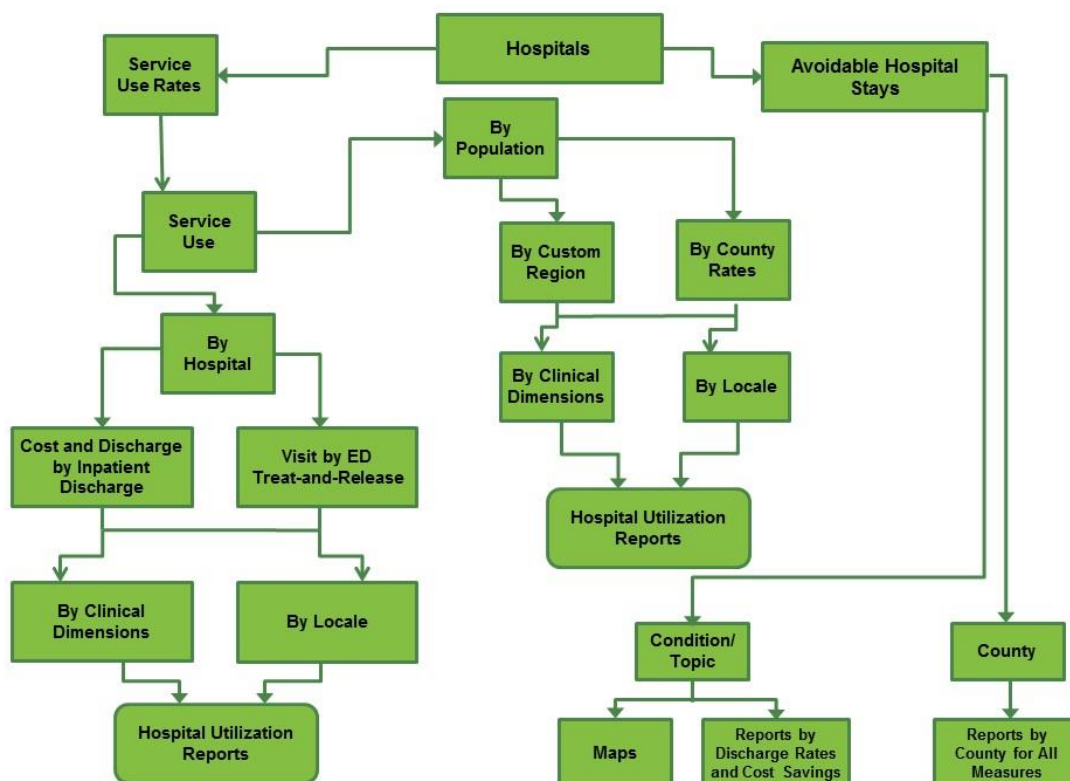
11.5.1 Service Use and Avoidable Hospital Stays Reporting Subpaths

An End User can generate utilization reports using Inpatient Hospital Discharge data or Emergency Department (ED) Treat-and-Release data. When stepping through the report generation process, the End User will have the option to select Hospital-, Population-, or Region-level report types.

To generate a report, the End User must complete all of the steps involved in the report building and filtering process. The selections made in this multistep process will result in a custom report based on the criteria selected.

Step one of the reporting building and filtering process for the Avoidable Hospital Stays and Service Use subpaths requires the End User to select a "Find By" or "View By" option, respectively. For the Avoidable Hospital Stays subpath, the "Find By" options are "Condition/Topic" or "County." For the Service Use subpath, the "View By" selections are "Hospital" or "Population." Depending on the "View" type selected, the filtering categories in the remaining steps will dynamically change. Table 15 identifies the possible report selection categories for each reporting path.

Table 15: Service Use and Avoidable Hospital Stays Multistep Report Selection Process

Reporting Path	Step 1	Step 2	Step 3	Step 4	Step 5
Avoidable Hospital Stays	Condition/Topic	Choose Condition	Choose a Measure		
	County	Choose County	Choose a Condition		
Service Use	Hospital	Inpatient	Geo Info Clinical	Select a Dimension	Specify Value
	Hospital	ED	Geo Info Clinical	Select a Dimension	Specify Value
	Population	County	Geo Info Clinical	Select a Dimension	Specify Value
	Population	Region	Geo Info Clinical	Select a Dimension	Specify Value

11.5.1.1 Inpatient Utilization Report

During the report generation process, the End User can select the "Hospital" dimension to generate the Inpatient Hospital Utilization Report, which will generate statistics using the clinical dimensions based on Major Diagnostic Category (MDC) and Diagnosis Related Group (DRG) for diagnoses, or Clinical Classifications Software (CCS) for procedures (for more information see: http://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp).

Screenshot 129: Service Use Inpatient Utilization Report

The "Inpatient Hospital Discharge" data path shows detailed information about hospital discharges, charges, estimated costs and length of stay (Screenshots 129 and Screenshot 130). The "Emergency Department" 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 130: Inpatient Utilization Report

By All Major Diagnostic Category

Hospital	Number of discharges	Mean charges in dollars	Mean costs in dollars	Mean length of stay in days	Median charges in dollars	Median costs in dollars	Median length of stay
TOTAL U.S. in 2012	36,484,850	$36,701		4.510	$19,660		3
TOTAL View combined report	620,265	$28,871	$24,115	4.16	$16,133	$12,466	3
Facility 1	35,921	$22,792	$10,327	5.45	$12,635	$5,725	3
Facility 10	22,073	$29,549	$23,196	3.946	$17,291	$13,573	3
Facility 12	444	$1,636	$671	7.311	$1,503	$616	4

The Inpatient Hospital Utilization Report displays the number of discharges, median charges, median cost and the median length of stay by selected clinical groups for each selected hospital (Screenshot 130). End Users can select a condition or procedure group to access the stratified utilization statistics by demographic groups (e.g., age group, gender, payer, and race/ethnicity) for the selected hospital.

A description of the columns listed in the Inpatient Hospital Utilization Report (Screenshot 130) is below:

- **Number of discharges:** 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 (doctor) 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 you choose not to show charge information. In addition to reports in the Inpatient Hospital Utilization subpath, your decision to not show charge information will suppress the cost information in other reports, such as the reports on Avoidable Hospital Stays—Cost Savings.

To generate the stratification version of the reports ([Screenshot 131](#)), select the ''View Combined Report'' link, as shown in [Screenshot 132](#).

Screenshot 131: Inpatient Utilization Stratification Report

Hospital	Number of discharges	Mean charges in dollars	Mean costs in dollars	Mean length of stay in days	Median charges in dollars	Median costs in dollars	Median length of stay
TOTAL U.S. in 2012	36,484,850	$36,701		4.510	$19,660		3
Age Group							
<18	118,132	$10,621	$8,385	4.227	$2,395	$1,946	3
18-44	170,076	$22,925	$19,392	4.213	$12,980	$10,329	3
45-64	131,826	$34,817	$29,222	4.133	$21,871	$17,399	3
65+	200,231	$40,774	$33,137	4.094	$26,797	$20,179	3
Gender							
Male	259,101	$33,947	$28,396	4.151	$19,061	$14,674	3
Female	361,164	$25,229	$21,049	4.167	$14,492	$11,218	3
Payer							
Missing	567	$21,773	$20,946	3.982	$12,528	$8,658	2
Medicare	223,928	$29,804	$25,587	5.071	$16,739	$13,505	3
Medicaid	124,599	$28,535	$24,623	4.165	$15,835	$12,724	3
Private including HMO	221,966	$28,296	$22,474	3.455	$15,738	$11,395	2
Self-pay	34,832	$27,993	$23,127	3.113	$15,929	$11,956	2
No Charge	2,448	$31,962	$31,489	3.133	$17,925	$16,420	3
Other	11,925	$27,802	$22,110	3.402	$15,530	$11,663	2
Race/Ethnicity							

By All Major Diagnostic Category for Hospital
Back to summary

11.5.1.2 Emergency Department Treat-and-Release Utilization Report

The Emergency Department (ED) Treat-and-Release Utilization Report allows End Users to select regions and choose conditions or diagnoses to further refine the reports ([Screenshot 132](#)). End Users can generate reports that show statistics using common clinical groupers based on the International Classification of Diseases, Clinical Modification (ICD-9-CM) codes, including Clinical Classifications Software (CCS) for diagnoses.

Screenshot 132: Emergency Department Treat-and-Release Utilization Report

Avoidable Hospital Stays	Service Use

| 1 | Hospital ◉
 Population ◯ | 2 | Inpatient ◯
 Emergency Dept. ◉ | 3 | Locale ◯
 Clinical ◉ | 4 | All |

Emergency Department Data

Hospital utilization means use of hospital services, such as the number and length of hospital stays for different health conditions or procedures.

County rates show use of hospital services by county, such as the number and length of hospital stays for different health conditions or procedures. These rates are based on where patients live, not where the hospitals they visit are located.

View Rates

View All

Narrow by:

Hospital County

Geographic Region

ZIP Code

Hospital Name

Select a Hospital

Type of Hospital

Sort by: Hospital (A to Z)   View by: Hospital   Select Report to Copy ◈   Help ❓

By All CCS Diagnosis

Hospital	Number of ED Visits	Number Admitted to Hospital Following ED Visit	Number of Deaths During ED Visit	Number of Deaths Post-Admission Following ED Visit
TOTAL U.S. in 2011	123,574,363	18,403,103	194,904	522,263
TOTAL View combined report	781,834	148,931	2,698	2,692
Facility 1	37,641	9,111	0	277
Facility 10	6,038	6,038	0	112
Facility 12	15	15	0	2

End Users can generate many different summary reports in the Utilization path using data that are a combination of ED Treat-and-Release data and ED visits that resulted in admission. The visits that resulted in admission are contained in the Inpatient Hospital Discharge data file.

If End Users select all hospitals and a single condition, the summary report will display statistics by the list of hospitals for the selected condition. For each selected hospital and condition, the report displays the hospital name, county, number of ED visits, number admitted to the hospital following the ED visit, number of deaths during the ED visit, and deaths post-admission following the ED visit. From the summary report, End Users can select a Provider to access statistics reported by various dimensions, much the same as selecting a single hospital and a condition from the ED Utilization main navigation screen. A description of the columns in the ED Treat-and-Release Utilization report is below:

- **Number of ED visits:** This is the total number of emergency department visits to the hospital.
- **Number 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 of deaths during ED visit:** This is the number of patients who died during an ED 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 patients who died after they were admitted following an emergency department visit (percent of all ED visits that resulted in patient's death post-admission).

To generate the stratification version of the report ([Screenshot 133](#)), select the "View Combined Report" link, as shown in [Screenshot 132](#).

Screenshot 133: ED Treat-and-Release Utilization Stratification Report

View Rates

View All

Narrow by:

Hospital County

Geographic Region

ZIP Code

Hospital Name

Select a Hospital

Type of Hospital

Select Report to Copy ✦   Help ?

By All CCS Diagnosis for Hospital
Back to summary

Hospital	Number of ED Visits	Number Admitted to Hospital Following ED Visit	Number of Deaths During ED Visit	Number of Deaths Post-Admission Following ED Visit
TOTAL U.S. in 2011	123,574,363	18,403,103	194,904	522,263
Age Group				
<18	150,525	29,660	0	527
18-44	306,435	41,116	0	766
45-64	165,989	30,983	0	527
65+	158,885	47,172	2,698	872
Gender				
Male	333,673	62,103	1,349	1,068
Female	448,161	86,828	1,349	1,624
Payer				
Missing	93	93	0	0
Medicare	174,253	53,756	2,698	1,773
Medicaid	192,923	26,975	0	214
Private including HMO	259,566	57,398	0	519
Self-pay	116,954	7,246	0	118
No Charge	1,976	627	0	1
Other	36,069	2,836	0	67
Race/Ethnicity				
Missing	1,332	1,332	0	16

11.5.1.3 Utilization by Population Report

Within the Utilization reporting path, the End User can run reports on utilization rates related to specific measures on a county- or region-level basis. From the multistep report generation process, the End User will select the "Population" report view to generate either a county- or region-level report, which will allow the End User to select from one of two dimension types: locale or clinical ([Screenshot 134](#)). The region-level report types will allow the End User to view the same metrics reported as the county-level reports ([Screenshot 135](#)).

Screenshot 134: Utilization Report by County: Multistep Report Generation Process

1	Hospital ○ Population ◉	2	County ◉ Region ○	3	Locale ○ Clinical ◉	4	Major Diagnosis Categor ▾	5	All

Screenshot 135: Utilization Report by Region: Multistep Report Generation Process

| 1 | Hospital ○
Population ◉ | 2 | County ○
Region ◉ | 3 | Locale ○
Clinical ◉ | 4 | Major Diagnosis Categor ▼ | 5 | All |

If the End User selects the locale dimension shown in Step 3 of Screenshot 136, they must also select a specific county or all counties as shown in Step 4. After completing all of the steps, a county report will be displayed (Screenshot 136).

Screenshot 136: Utilization Report by County

| 1 | Hospital ○
Population ◉ | 2 | County ◉
Region ○ | 3 | Locale ◉
Clinical ○ | 4 | All |

County Rates

County rates show use of hospital services by county, such as the number and length of hospital stays for different health conditions or procedures. These rates are based on where patients live, not where the hospitals they visit are located.

View Rates			

All Diagnoses

Narrow by:

Condition or Topic

Select a Condition or Topic

Sort by: Condition or Topic (A ▼)   View by: Condition or Topic ▼   Select Report to Copy ✚   Help ⓘ

By All Counties

Condition or Topic	County Number of discharges	County Mean costs in dollars	County Rate of Discharges (Per 1,000 Persons)
TOTAL U.S. in 2012	36,484,850		
TOTAL View combined report	612,029	$22,976	14.818
Abdominal hernia	3,098	$32,755	83.201
Abdominal pain	2,973	$13,788	9.852
Acquired foot deformities	c	c	c
Acute and chronic tonsillitis	674	$8,005	76.521
Acute and unspecified renal failure	7,600	$27,484	170.453
Acute bronchitis	3,510	$11,335	144.952
Acute cerebrovascular disease	6,881	$28,429	136.778
Acute myocardial infarction	8,134	$53,366	149.999
Acute posthemorrhagic anemia	176	$16,026	13.181

In the County and Region Rates reporting path, End Users can choose to see results by individual counties or combined counties or regions, 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 the "View Map" tab and select a specific condition or procedure.

The County and Region Rates reporting path is only available when local inpatient hospital discharge data are loaded. When setting up your MONAHRQ-generated website, you can select the denominator used in the county rates pathway as 1,000, 10,000, or 100,000 people or discharges. It may be more appropriate to use larger denominators for larger datasets. Note that the AHRQ QIs use a per population denominator of 100,000. To generate a report on a Major Diagnostic Category and diseases and disorders by all

counties (Screenshot 137), the End User should select the "Clinical" radio button in Step 3, with the option of selecting the Major Diagnostic Category and diseases and disorders.

Screenshot 137: Utilization County Report by Major Diagnostic Category

County Rates

County rates show use of hospital services by county, such as the number and length of hospital stays for different health conditions or procedures. These rates are based on where patients live, not where the hospitals they visit are located.

Patient County	County Number of discharges	County Mean costs in dollars	County Median cost in dollars	County Rate of Discharges (Per 1,000 Persons)
TOTAL U.S. in 2012	36,484,850			
TOTAL View combined report	623,051	$24,115	$12,466	315.119
Addison County	25,827	$24,563	$12,646	695.078
Belknap County	26,043	$23,647	$12,483	423.326
Bennington County	25,891	$24,253	$12,557	697.382

Sort by: Patient County (A to Z) · Select Report to Copy · Help
View All · Narrow by: · Hospital County · Select a County · ZIP Code · View Rates · **By All Major Diagnostic Category**

To generate the stratification version of the Major Diagnostic Category report (Screenshot 138), select the "View Combined Report" link, as shown in Screenshot 139.

Screenshot 138: Utilization County Report—Stratified

All Diagnoses · Narrow by: · Condition or Topic · Select a Condition or Topic · View Rates · Select Report to Copy · Help

By All Counties
Back to summary

Condition or Topic	County Number of discharges	County Mean costs in dollars	County Rate of Discharges (Per 1,000 Persons)
TOTAL U.S. in 2012	36,484,850		
Age Group			
<18	122,169	$9,957	8,604.057
18-44	167,181	$19,722	7,724.841
45-64	128,331	$28,026	8,369.049
65+	194,348	$31,484	27,185.34
Gender			
Male	255,831	$27,515	2,663.852
Female	356,198	$20,875	3,539.574
Race/Ethnicity			
Missing	5,304	$26,273	-
White	399,636	$25,421	22,696.28

11.6 Trending Reports

End Users can generate trending information with the current utilization reports if they add multiple data files from different periods to their website. This will allow trending for the following reports:

- Discharge Utilization Reports
- Emergency Department Reports Inpatient
- Utilization Rates by County
- Utilization Rates by Region

Please note the following facts regarding trending reports:

1. Trending reports display trend data for a single hospital for one clinical dimension (e.g., MDC, DRG, Procedure Code, or CSS). These clinical dimensions can represent all values combined (e.g., MDC) or can be narrowed down to a specific clinical dimension (e.g., Procedure Code). Trending is displayed at both the summary and stratification levels.

2. Trending reports are not shown to compare multiple hospitals or clinical dimensions.

3. To consider inflation adjustments in cost reports, the CPI (Consumer Price Index) is used.

4. In MONAHRQ 6.0, trending reports support yearly trends. There is no limit to how many years of data you can trend.

5. The default year is the most current year of your datasets and provides a retrospective trend of your data.

End Users can click on the "View Trends" link (as shown in Screenshot 138) to access the Inpatient Hospital Discharge (IP) Utilization Report—Trends Report.

Screenshot 139: Inpatient Hospital Discharge (IP) Utilization Report—Trends Report

View Rates				
Sort by: Hospital (A to Z)	View by: Hospital	Select Report to Copy		Help

By All Major Diagnostic Category   2012

Hospital	Number of discharges	Mean charges in dollars	Mean costs in dollars	Mean length of stay in days
	View Trends	View Trends	View Trends	View Trends
TOTAL U.S. in 2012	36,484,850	$36,701		4.510
TOTAL View combined report View Trends	385	$31,281	$22,451	3.912
Facility 1 View Trends	19	$9,974	$4,519	3.895

End Users can select a specific hospital to access the stratified utilization statistics by demographic groups (e.g., sex, gender, and race) (See Screenshot 140).

Screenshot 140: IP Utilization Detailed Report (Stratified Report) – Trends Report

By All Major Diagnostic Category for Facility 1 Hospital   2012
Back to summary

Hospital	Number of discharges	Mean charges in dollars	Mean costs in dollars	Mean length of stay in days
TOTAL U.S. in 2012	36,484,850	$36,701		4.510
Age Group				
<18 View Trends	11	$2,084	$944	4.636
18-44 View Trends	3	$9,140	$4,141	3

11.6.1 Avoidable Hospital Stays Reporting Path

The End User can generate reports utilizing two subpaths under "Avoidable Hospital Stays:" the County subpath and the Condition/Topic subpath. The County subtopic reports on the avoidable hospital stays for selected conditions, for all counties (see Figure 11). The Health Topic subpath shows the rates of avoidable hospital stays across a selected county for each of the conditions included in MONAHRQ.

Figure 11: Avoidable Hospital Stays Reporting Path
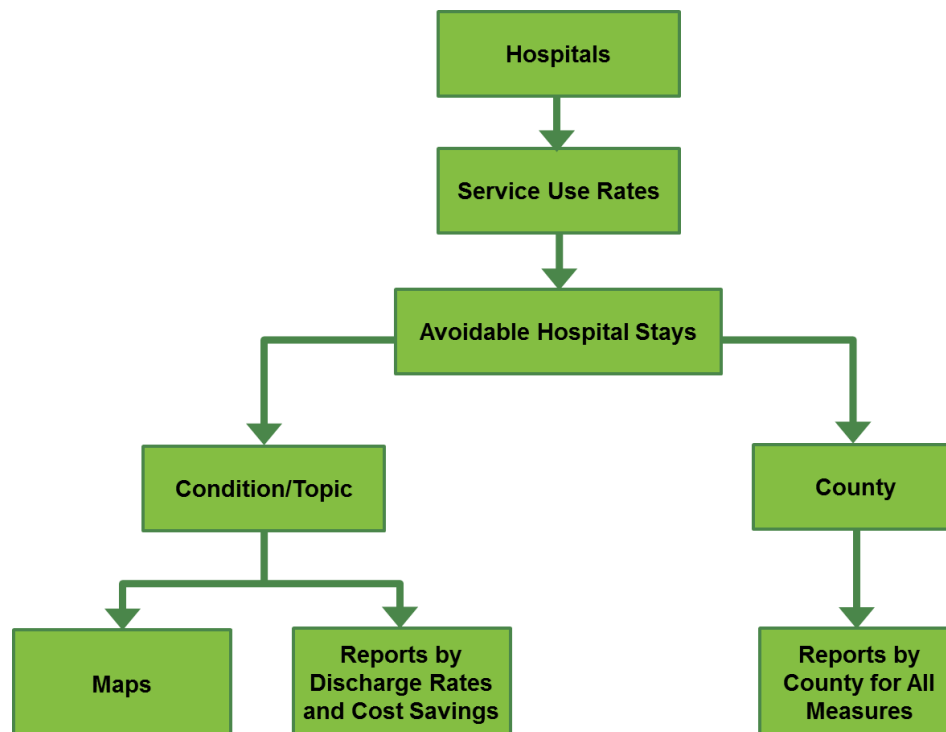
11.6.1.1 Avoidable Hospital Stays County Report

By default, the Avoidable Hospital Stays reporting path displays results for avoidable hospital stays by county (Screenshot 141).

The "Maps" and "By Rates" views are only available when AHRQ QI™ area-level data are loaded. The "By Cost Saving" view is only available when AHRQ QI area-level data include costs.

Screenshot 141: Avoidable Hospital Stays Reporting Subpaths: County or Condition

11.6.1.2 Avoidable Hospital Stays County Profile Report

The Avoidable Hospital Stays County Profile Report displays detailed statistics by county for any or all of the selected measures, including risk-adjusted rates and cost savings (Screenshot 142).

Screenshot 142: Avoidable Hospital Stays County Profile Report

Avoidable Hospital Stays

An avoidable hospital stay is one that might have been avoided with better medical care outside of the hospital. For example, a diabetes patient who receives good care from her primary care physician might not need a hospital stay for diabetes complications. Hospital stays like these are not always avoidable, but they are potentially avoidable with good quality health care.

Essex County

Help ⓘ

Select Report to Copy 📋

Summary scores

	Rates			Cost Savings						
Measure	Numerator	Denominator	Observed Rate	Risk-Adjusted Rate	10%	20%	30%	40%	50%	Custom Percentage — Go
How well providers prevent patients from having serious health problems	2,144	5,027	42,649.69	37,471.24	115,017.02	230,034.05	345,051.07	460,068.10	575,085.12	
How often patients are	994	5,027	19,773.22	18,120.32	58,522.74	117,045.49	175,568.23	234,090.98	292,613.72	

11.6.1.3 Avoidable Hospital Stays Map Report

End Users can view the Avoidable Hospital Stays Map Report by selecting the "View Map" tab. A map will display the geographic region, shading the selected counties in a blue hue. The map will show the rate of avoidable hospital stays per 100,000 or 1,000 people or discharges, depending on the measures for each county; lighter shades of blue indicate a lower rate (Screenshot 143).

Screenshot 143: Avoidable Hospital Stays Map Report
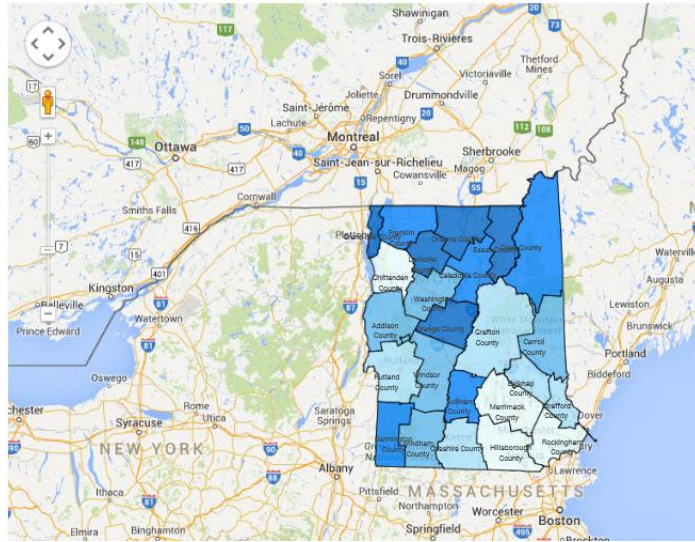
CHAPTER 12.   TROUBLESHOOTING

This chapter identifies common questions asked by both new and experienced MONAHRQ® Host Users. The questions and answers should be used as a reference while you are setting up and maintaining your MONHARQ desktop application and generated websites.

12.1 Software Installation and Database Creation

Question: How do I create a database?

Answer: When you launch the MONAHRQ application for the first time, you will be directed to the "Welcome" screen. At this time, you will need to establish a connection between the MONAHRQ application and your SQL Server® database. Click on the "Settings" action icon to access the Database Manager screen. Within this screen, you will need to input your server name, create a database name and select the authentication type to be used. After the required information is entered and selected, you can click on the "Create" button to establish the connection between your MONAHRQ application and database and create the database. A popup message will confirm the connection has been established. You can also change your database on the Database Manager screen. For additional information about creating your database, refer to Section 9.1, "Database Manager Settings."

Question: What are the system requirements for SQL Server and Microsoft® .NET?

Answer: To run MONAHRQ, your computing environment must have the proper SQL Server and .NET software versions installed. For additional information about the proper software versions, including links to download the software, refer to Section 2.1, "Preparing the Computing Environment."

12.2 Data and Datasets Library

Question: What types of data do I need to use MONAHRQ to generate my reports?

Answer: MONAHRQ provides several reporting paths that require different data sources. You will only need to load the data that will be used in the reporting paths of interest. Section 1.3 of this document provides useful information about how reports can be used based on the datasets you have available.

Question: Where can I access the latest CMS Hospital Compare and Medicare Provider Charge data files?

Answer: If you are planning to display the costs, charges and payments for the top 25 Diagnosis Related Groups by volume in the Hospital Profile Reports in your MONAHRQ-generated website, download the file containing the most recent data from: http://monahrq.ahrq.gov/monahrq_data.shtml.

If you are planning to display CMS Hospital Compare quality measures in your MONAHRQ-generated website, download the file containing the most recent data from: http://monahrq.ahrq.gov/monahrq_data.shtml. You should download these data here, not from the CMS Hospital Compare website. It is the same data; however, it is reformatted for use in MONAHRQ. Updated files are available quarterly.

Question: I am creating Inpatient Hospital Discharge and ED Treat-and-Release input files to import into MONAHRQ. Where can I find information about the file layout and variables to map to my MONAHRQ database?

Answer: Useful information about the file layout, required fields and other data preparation tips are provided in the Appendix section of this document. Specifically, Appendix H includes information about the Inpatient Hospital Discharge file and Appendix I includes information about the ED Treat-and-Release file.

During the dataset import process, MONAHRQ will execute an auto-mapping process that will map the field data element names in your input file to the expected values in your MONAHRQ database tables. Utilizing the recommended variable names in the "Supported Data Element Names" column in the tables found in Appendices H and I will reduce the number of fields that you will need to manually map during the dataset import process. Additional information about mapping datasets can be found in Section 5.1.1.

12.3 Measures and Measures Library

Question: What is the Measures Library and how does it work?

Answer: The Measures Library is a repository that includes a base set of standard, preassigned topics and measures for the CMS Hospital Compare data, AHRQ Quality Indicator™ (QI) results (Area, Provider, and Composite results), Inpatient Hospital Discharge data, and Emergency Department (ED) Treat-and-Release data. Within this library, you can manage the measures reported on your MONAHRQ websites. The library screen displays attributes associated with each measure, such as the website name to which you have assigned the measure, topics and subtopics, and the dataset source. If you need to edit measures or assign measures to topics, you can make those changes by using the features on this screen. For additional information about how to manage and use your Measures Library, refer to Section 6.1, "Managing and Customizing Measures."

Question: How do I select measures for my generated website and reports?

Answer: When you are creating your website using the "Create a Website" feature, you will be able to select the datasets, measures and reports to include in your website. The measures that will be available on your website are dependent on the datasets that you select to use and the reporting paths you select to display. MONAHRQ will automatically filter out any measures that are not associated with the datasets and reports that you have selected. Thus, your generated website will only contain the measures and reports that you have selected during the "Create a Website" process.

Question: Where can I find information on measures available in MONAHRQ?

Answer: A list of all measures available in MONAHRQ 6.0 can be found on the MONAHRQ website (http://monahrq.ahrq.gov/MONAHRQ_50_Measure_List.xlsx). The link can also be found in Appendix B of this document.

12.4 Reports and Reports Library

Question: What kind of reports will be displayed in my generated website?

Answer: As the administrator of the MONAHRQ application, you have the ability to select the types of reports to be displayed on your generated website. During the report selection process, you should consider the audience type, datasets available, and the overall goal of your website and organization. For additional information about this decisionmaking process, refer to Section 1.3. This section provides useful information about the report types available, the required datasets to source the reports, and recommendations on the types of reports your audience may be interested in seeing on your website. For additional information about establishing and managing your Reports Library, refer to Chapter 7, "Building and Using Your Reports Library."

Question: I do not see the expected measures in my reports. How can I figure out what measures will be included?

Answer: To confirm what measures will be included in your website, refer to the "Define Measures" tab in the website creation page for the associated website. Within the display, the "Websites" column will identify the website for which the measure will be displayed. If the website name is not displayed in this column for the desired measure, select the checkbox for the measure and click on the "Save" button. The website name will then be displayed in the "Website" column and the measure should be reflected in your website after you re-publish it.

Question: I would like to provide quality- and utilization-related information on my website to users for specific hospitals in their region. How do I create this report?

Answer: The Hospital Profile Report provides quality and utilization metrics, as well as useful information about the hospital's characteristics and a map of the hospital's location. This report is available for both "Consumer" and "All Audience" audience types. The Medicare Provider Charge data are required to produce this report. For additional information about the Hospital Profile Report, refer to Section 11.2.2.2.

12.5 Create and Customize Website

Question: What is the difference between a home page and a banner image?

Answer: Within the "Customize Website" screen, you have the option to customize the look and feel of your website theme by uploading a custom banner and home page image. The website banner image is the main image displayed below the reporting tabs and header title. The home page content image is smaller than the website banner image and the subject matter can be related to information you are displaying on your website. For additional information and examples of the placement of the image types on your website, refer to Section 8.6.3, "Displaying Logos and Images."

Question: Do I need to resolve all of the warnings and errors identified by the dependency check?

Answer: The dependency check reports any errors and warnings that may require resolution before your generated website can be published. The warnings are used to alert you to improvements that can be made to your website by resolving or updating your selections. Resolving *warnings* is not required to publish your website. However, all *errors* must be resolved before MONAHRQ will allow you to publish your website. Within the dependency check log, a link will be provided directing you to the screen where the error(s) will need to be resolved. After resolving the errors and any warnings, re-run the dependency check to confirm that you can proceed with publishing your website. For additional information about the dependency check process, refer to Section 8.7, "Publishing Your Website."

Question: Can I make changes to my generated website after I publish it?

Answer: Yes, as the administrator of your generated website, you have the ability to update, add, or remove reports, measures, and customizations selected for your website. Within the libraries, you can add or remove datasets and edit measures and report attributes. Within the "Create a Website" feature, you can further select and filter the datasets, reports, and measures on a site-by-site basis. After any updates and changes are made, you will need to re-run the dependency check and repeat the publishing steps. After completing all of the steps, your generated website will reflect the changes you made.

APPENDIX A: HISTORY OF THE MONAHRQ® PROJECT

The MONAHRQ project, first conceived in 2008, was based on two popular and widely used AHRQ data tools and products: the Healthcare Cost and Utilization Project (HCUP) and the AHRQ Quality Indicators™ (QIs). MONAHRQ was also shaped by 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 percent of all hospital discharges in the country (http://www.hcup-us.ahrq.gov). The HCUP project uses these data to create three nationwide datasets (Nationwide Inpatient Sample, Kids' Inpatient Database, and Nationwide Emergency Department Sample) and enriched State datasets (State Inpatient Databases, State Emergency Department Databases, and State Ambulatory Surgery Databases) that are used by researchers around the country. Parts of MONAHRQ-generated websites are modeled after HCUPnet, HCUP's online aggregate data query system. Although HCUP data were 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 HCUP database, go to http://www.hcup-us.ahrq.gov/databases.jsp.

AHRQ Quality Indicators™: AHRQ QIs are a set of standardized, evidence-based health care quality measures that can be used with Inpatient Hospital Discharge data (http://www.qualityindicators.ahrq.gov). Approximately half of the AHRQ QIs are endorsed by the National Quality Forum (NQF). To support the use of AHRQ QIs, AHRQ makes the technical specifications available, in addition to two software tools for calculating indicators directly from data. The first tool is the QI Windows® software (WinQI), which provides an intuitive, easy-to-use interface to calculate AHRQ Quality Indicator results. The second tool is the QI SAS® software, which consists of SAS statistical analysis programs (SAS Institute Inc., Cary, NC) to calculate AHRQ Quality Indicator results.

The first three releases of MONAHRQ included WinQI as an embedded function. Starting with MONAHRQ 4.0, WinQI was separated from MONAHRQ to allow more flexibility. Now organizations using MONAHRQ can import their own precalculated measure results, including those generated separately from any version of WinQI or the QI SAS software. If an organization does not have its own data, or chooses not to publish those data, it can use MONAHRQ to generate websites using only CMS Hospital Compare data.

The current release, MONAHRQ 6.0, is a major redesign of both the website-generating software and the resulting MONAHRQ websites and report options. The 6.0 redesign reflects the state of the art in the use of widely available data, website design, and public reporting.

The release history of MONAHRQ and the features of each release are summarized in Table 16.

Table 16: Versions of MONAHRQ

Version of MONAHRQ	Features/Enhancements
MONAHRQ 1.0	The ability to load local inpatient hospital discharge data to generate a website that— • Reports on utilization, costs, and rates • Can calculate and report on AHRQ Inpatient Quality Indicators (IQIs), Prevention Quality Indicators (PQIs), Pediatric Quality Indicators (PDIs), and Patient Safety Indicators (PSIs)
MONAHRQ 2.0	The preceding features, plus the following: • The ability to report CMS Hospital Compare data • Additional IQI, PQI, and PSI indicators • Streamlined web page design to facilitate use
MONAHRQ 3.0	The preceding features, plus the following • An updated, embedded version of WinQI • Updated cost-to-charge ratio data • AHRQ QI composite indicators • CMS Hospital Compare data for surgical patient safety, imaging, and outpatient measures • A health topic on nursing-sensitive care • Enhanced suppression logic, including the ability to suppress results based on denominator size • The ability for MONAHRQ Host Users to define their own Diagnosis Related Group (DRG) and Major Diagnostic Category groupings • The ability to save and reload hospital information • The ability for Host Users to save and reload the customization and configuration options they have selected
MONAHRQ 4.0	The preceding features, plus the following: • The ability for Host Users to employ multiple years of cost-to-charge ratio data to calculate and report costs • Additional CMS Hospital Compare data (see the complete list at http://monahrq.ahrq.gov/MONAHRQ_50_Measure_List.xlsx) • Redesigned software The following features were removed: • Embedded WinQI software (including estimated cost savings calculation tool), enabling organizations to determine which version of WinQI they want to use with MONAHRQ
MONAHRQ 4.0.1	The preceding features, plus the following: • The ability to report estimated cost savings by using a standalone software program • Updated ZIP Code data embedded into MONAHRQ • The ability to create customized footnotes in the Hospital Utilization and County Rates paths

Version of MONAHRQ	Features/Enhancements

MONAHRQ 4.1	The preceding features, plus the following:
	• Enhanced cost reporting that includes the following:
	  − Embedded cost savings calculator to facilitate reporting of cost savings estimates
	  − Elevated visibility of estimated cost savings reports
	• The ability to report on Emergency Department (ED) utilization if MONAHRQ Host Users import an ED Treat-and-Release data file
	• The use of an optional "ED Services" data element in Inpatient Hospital Discharge data to indicate which inpatient stays began in the ED
	• New CMS Hospital Compare data related to imaging
	• New reports showing the following:
	  − Summary pages by hospital
	  − Side-by-side comparisons of up to five hospitals
	  − A summary of hospital utilization by county or region
	• The ability to hide links to "MyQI" quality improvement materials
	• The ability to include search engine optimization elements in a MONAHRQ-generated website
	• The ability to include a feedback form in a MONAHRQ-generated website
	• The ability for End Users to save, print, share, and email reports from within a MONAHRQ-generated website
	• The ability for Host Users to modify the Section 508 compliance elements of their MONAHRQ-generated website
	• A refined data upload process enabling the use of the Medicare Severity Diagnosis Related Groups (MS-DRGs) Grouper from the National Technical Information Service

Version of MONAHRQ	Features/Enhancements

MONAHRQ 5.0	The preceding features, plus the following:
	• A new architecture and a redesigned application interface
	• New layout and design for the application with four new libraries to manage datasets, measures, reports, and libraries
	• Datasets Library
	  — Allows users to import multiple datasets
	  — Allow users to delete datasets
	• Measures Library
	  — Allows users to edit measure attributes and manage topics and subtopics
	• Reports Library
	  — Allows users to add, edit, and delete custom reports
	• Websites Library
	  — Allows user to create and customize multiple websites and manage any existing websites
	• Geographic Context
	  — Allows user to define regions and hospitals, edit existing regions, and add and delete custom regions
	  — Allows users to add, edit, and delete hospitals
	  — Allow users to add, edit, and delete custom hospital categories
	• Allow users to create new MONAHRQ databases from within the application
	• New reports including the following:
	  — Population Region Rates Report
	  — Population Region Detailed Rates Report

APPENDIX B: RESOURCES

The following updated resources for MONAHRQ 6.0 are available on the Resources page on the MONAHRQ website at http://monahrq.ahrq.gov to complement the MONAHRQ 6.0 Host User Guide:

- **MONAHRQ 6.0 Fact Sheet**: (http://monahrq.ahrq.gov/MONAHRQ_v60_FactSheet.pdf) Provides an overview of the capabilities of MONAHRQ 6.0.

- **MONAHRQ 6.0 Quick Start Guide**: (http://monahrq.ahrq.gov/MONAHRQ_v60_Quick_Start_Guide.pdf) Highlights what is new in MONAHRQ 6.0 and guides experienced Host Users in quickly upgrading to the 6.0 release.

- **MONAHRQ 6.0 Decision Guide**: (http://monahrq.ahrq.gov/MONAHRQ_v60_DecisionGuide.pdf) Helps Host Users decide which type of MONAHRQ-generated website to produce.

- **MONAHRQ 6.0 ~~Build 2~~ Release Notes**: (http://www.ahrq.gov/professionals/systems/monahrq/resources/index.html) Documents the new features and changes in MONAHRQ 6.0 as compared to earlier versions.

- **MONAHRQ 6.0 Measure List**: (~~http://monahrq.ahrq.gov/MONAHRQ_60_build_2_Measure_List.xlsx~~http://monahrq.ahrq.gov/MONAHRQ_60_Measure_List.xlsx) Lists all of the measures available in MONAHRQ 6.0 in a spreadsheet format. The Measure List includes the default measure description information provided in MONAHRQ 6.0.

- **MONAHRQ 6.0 Informational Presentations**– (http://monahrq.ahrq.gov/monahrq_resources.shtml) These seven slide sets are related to the MONAHRQ 6.0 software and highlight its capabilities and provide helpful information related to health care measurement and reporting. The slide sets are as follows:

    – What Is the Value of Health Care Measurement and Reporting? http://monahrq.ahrq.gov/monahrq_resources.shtml#pres/Value_of_HealthCare_Measurement_Reporting.~~pdf~~pptx

    – What Is MONAHRQ? http://www.ahrq.gov/professionals/systems/monahrq/resources/What_is-MONAHRQ.pptx

    – Why Use MONAHRQ for Health Care Reporting? http://monahrq.ahrq.gov/monahrq_resources.shtml#pres/MONAHRQ_Health_Care_Reporting.~~pdf~~pptx

    – How ~~t~~To Get Started ~~w~~With MONAHRQ www.ahrq.gov/professionals/systems/monahrq/resources/MONAHRQ_Get_Started.pptx

    – What Types of Websites and Reports Can MONAHRQ Generate? http://monahrq.ahrq.gov/monahrq_resources.shtml#pres/MONAHRQ_Website_Report_Types. ~~pd~~pptx~~f~~

    – Who Can Use MONAHRQ? www.ahrq.gov/professionals/systems/monahrq/resources/Who_Can_Use_MONAHRQ.pptx

    – Using MONAHRQ's Open Source Framework

      www.ahrq.gov/professionals/systems/monahrq/resources/Open_Source_Framework.pptx

    – Future Plans for MONAHRQ and How ~~t~~To Get Involved. www.ahrq.gov/professionals/systems/monahrq/resources/MONAHRQ_Future_Releases.pptx

APPENDIX C: SETTING MONAHRQ® PERMISSIONS

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. With MONAHRQ 6.0, 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 144).

Screenshot 144: Context Menu
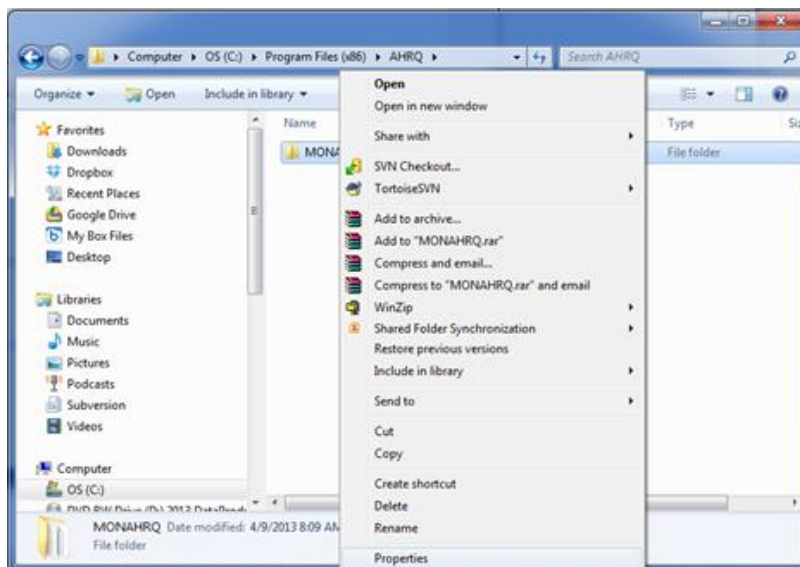
Select **Properties**.

A new window will pop up, titled **MONAHRQ Properties** ([Screenshot 145](#)).

Screenshot 145: MONAHRQ Properties Popup Window
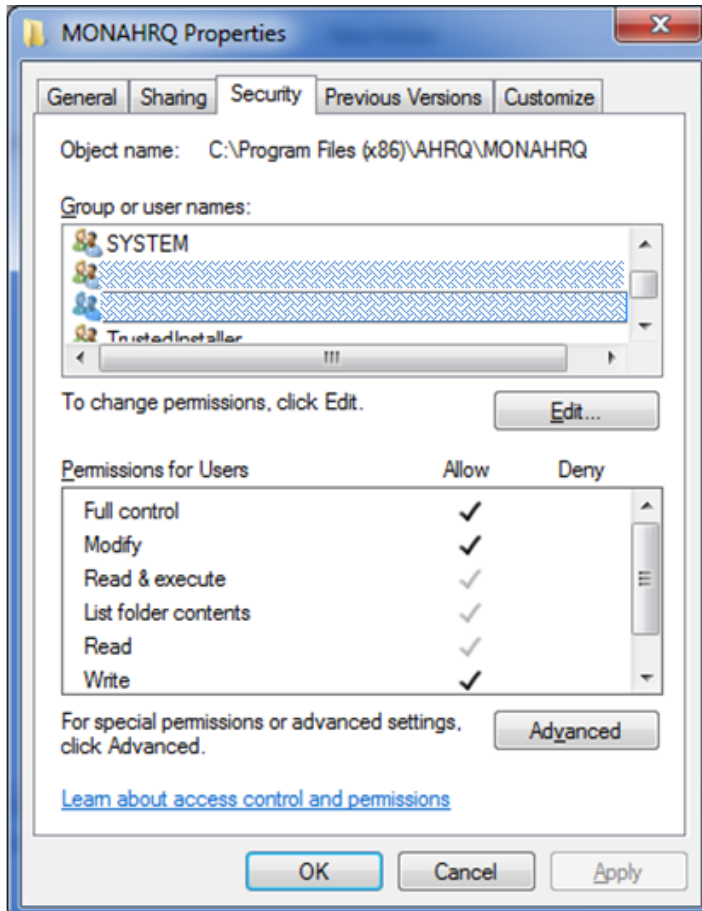
Select the **Security** tab, find the entry that lists your user name in the "Group or user names" window and single click to select and highlight the user. The **Permissions for Users** window should have a check mark in the "Allow" column. If there is no check mark in this column, it means the installer 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 on 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.

Step 3 is required only if you need to manually set up the folder permissions (This will occur if the automatic permissions were not correctly set up by the MONAHRQ installer).

Step 3: Manually configure security permissions ([Screenshot 146](#)).

Screenshot 146: Security Settings Popup Window
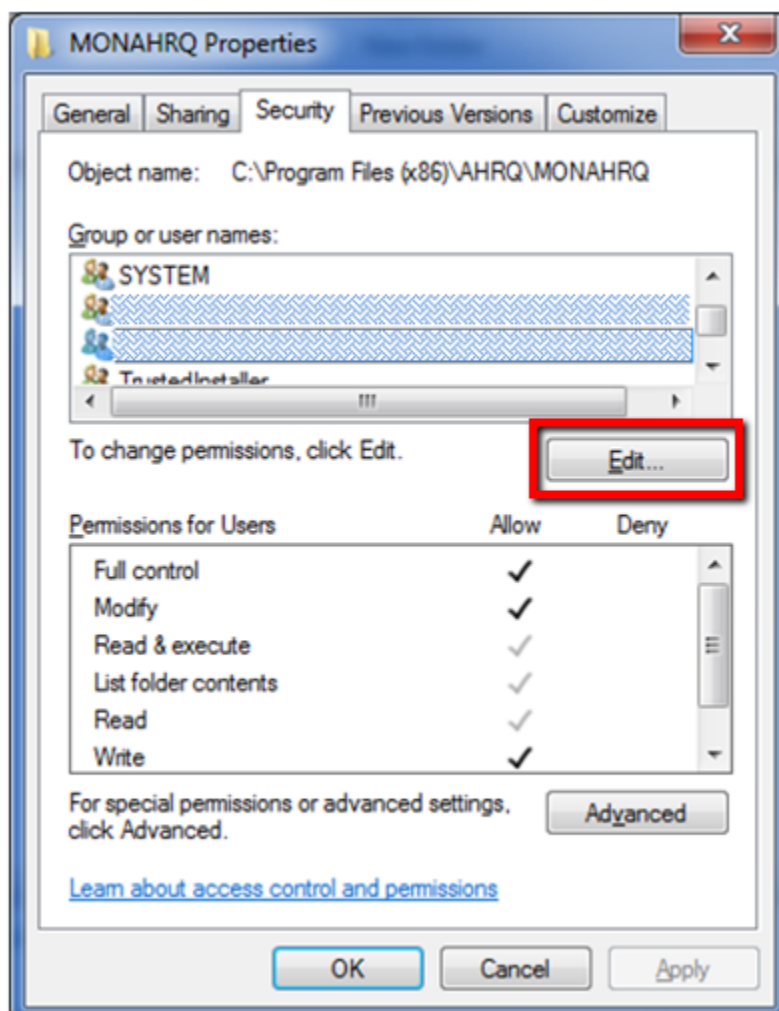
On [Screenshot 146](#), find the entry that lists your user name in the "MONAHRQ Properties" window.

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

A new popup window titled **Permission Entry for MONAHRQ** will appear ([Screenshot 147](#)).

Screenshot 147: Permission Entry Popup Window
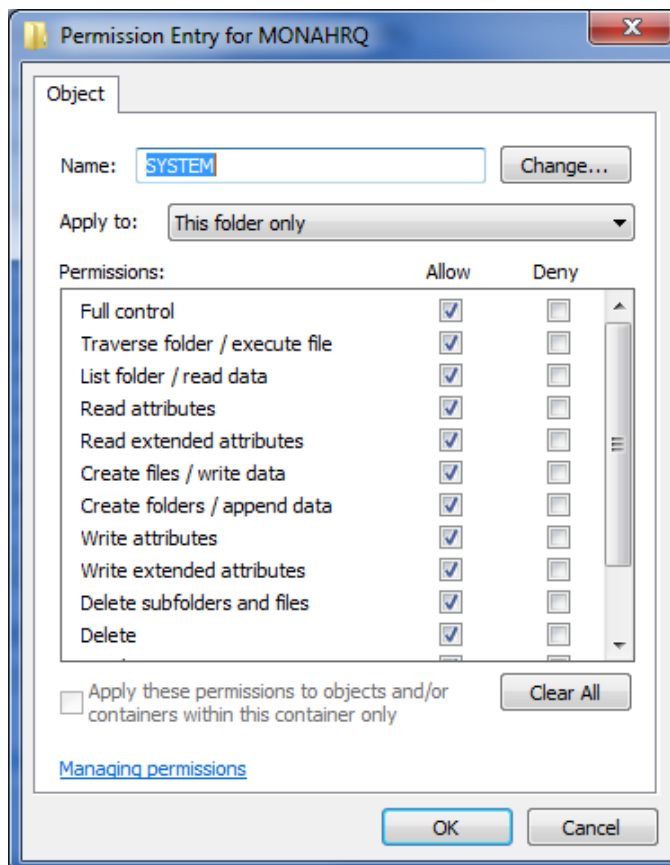
In the "Permissions" window, find the row entry called "Full Control."

Select the **checkbox** under the column labeled "Allow." Click on the **OK** button to close this popup window.

NOTE: If you are unable to select "Full Control," your IT administrator will need to provide the necessary permissions.

This will return you to the permission settings window (Screenshot 148).

Screenshot 148: Advanced Security Settings Popup Window
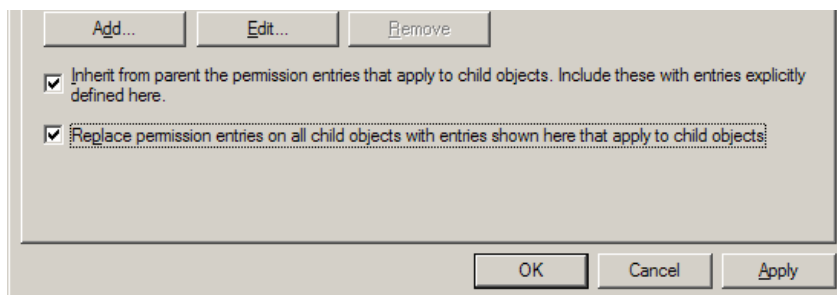
Select the checkbox labeled "**Replace permission entries on all child objects…**" and click on the **Apply** button. Click on the **OK** button to close this popup window.

You have now successfully set the permissions in your Microsoft Windows Operating System to run MONAHRQ.

Setting Permissions in Microsoft SQL Server

MONAHRQ has been tested with the following versions of Microsoft SQL Server (Note: *Other versions of SQL Server may not perform as expected*):

- SQL Server 2008
- SQL Server 2008 Express
- SQL Server 2008 R2 Express
- SQL Server 2012 Express
- SQL Server 2012 Standard

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 SQL Server Management Studio (SSMS).

Microsoft SQL Server Management Studio (SSMS) is the primary tool for interfacing with the SQL Server. You may download it from Microsoft at the following URL: http://download.microsoft.com/download/6/7/4/674A281B-84BF-4B49-848C-14873B22F977/SQLManagementStudio_x86_ENU.exe

You may need the assistance of your IT administrator 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 149). If you specified a server different from the default, use the server name that you specified.

Screenshot 149: SQL EXPRESS Default Server

Step 2: Set database creation permissions.

You will see a popup window titled **Microsoft Server Management Studio** (Screenshot 150).

Screenshot 150: Microsoft Server Management Studio Popup Window
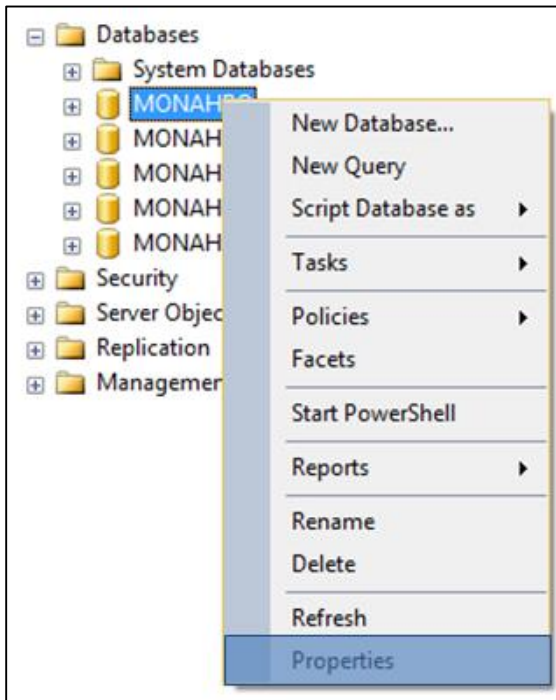
Right click on the name of the database server to which you are connected in order to open the context menu.

Select **Properties**.

You will see a new popup window titled **Server Properties**, plus the name of your database server (Screenshot 151).

Screenshot 151: Server Properties Popup Window
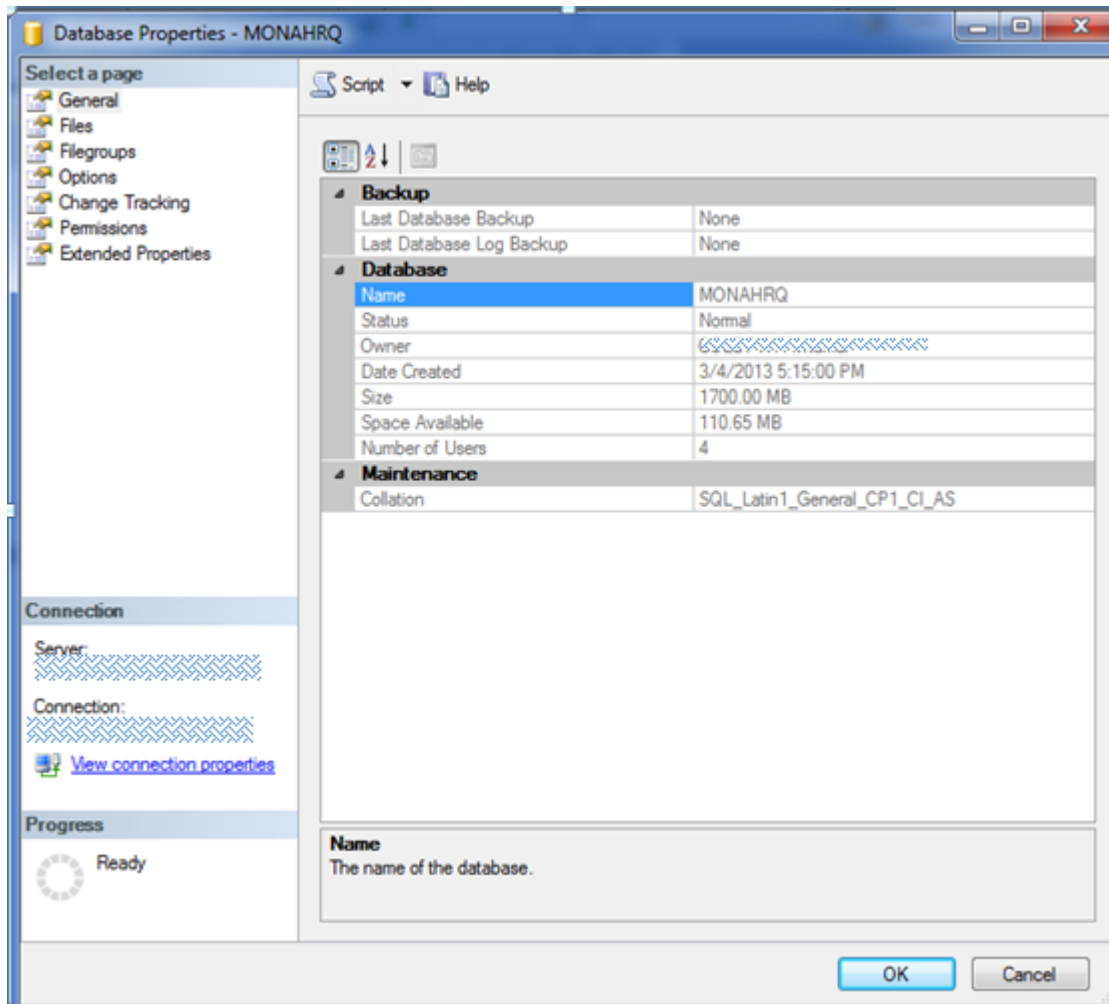
Locate the "Select a page" list on the left side of the popup window (Screenshot 152). Select **Permissions** and then find the "Logins or roles" list in the upper right portion of the popup window. Find the entry that lists the user name indicated during the initial MONAHRQ installation. **Single click** to highlight that entry.

Screenshot 152: Database Permissions Popup Window
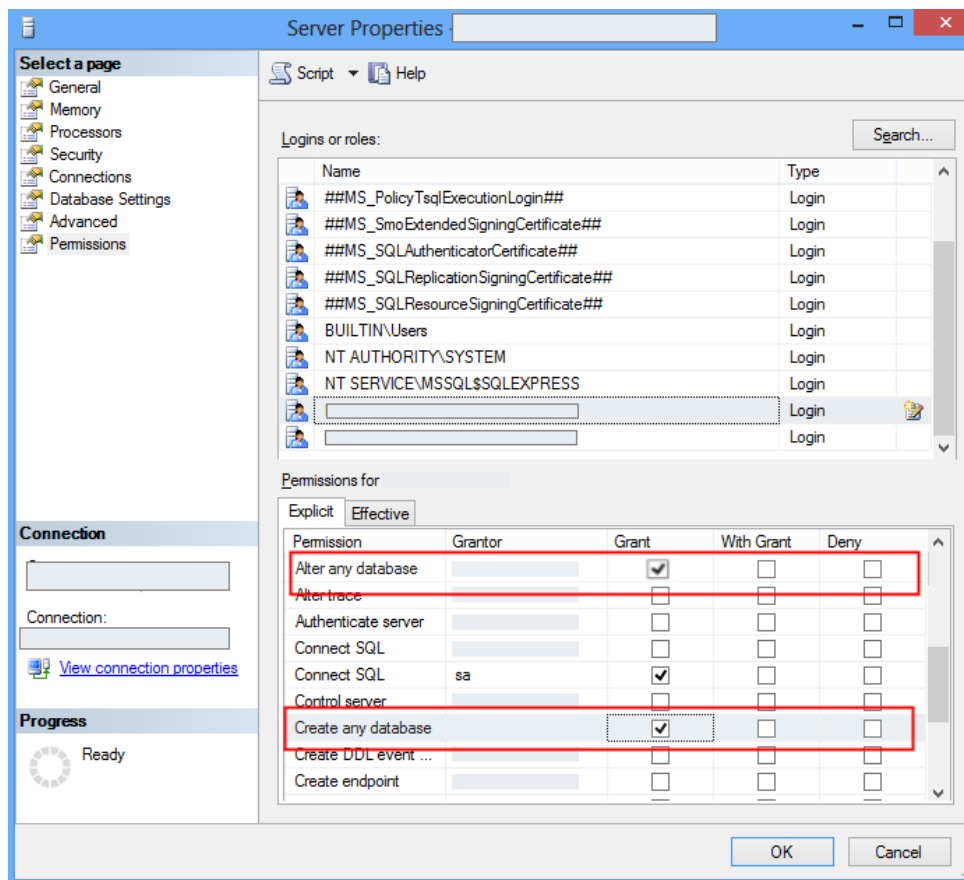
Locate the "Permissions" list in the lower right portion of the popup window shown in Screenshot 152. Select the **Explicit** tab. Then find the following two rows in the list:

1. "Alter any database"
2. "Create any database"

Select the **checkbox** under the column labeled "Grant" in each of these two rows. Click on 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 necessary permissions in your SQL Server database 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 D: 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 popup 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 153 shows an example of the Properties dialog box for a system that uses the 64-bit version.

Screenshot 153: Properties Dialog Box for 64-Bit Version

APPENDIX E: INSTALLING MICROSOFT® .NET

To check that Microsoft .NET Framework 4.5 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 clicking on the Windows "Start" Button and then selecting the "Settings" option. Scroll down the alphabetical list of programs until you reach Microsoft .NET Framework 4.5 Client Profile and Microsoft .NET Framework 4.5 Extended (Screenshot 154). There may be several entries for the Microsoft .NET Framework. For MONAHRQ® to work properly, you will need the full installation of .NET Framework 4.5 that includes .NET Framework 4 Client Profile and .NET Framework 4.5 Extended. MONAHRQ 6.0 is also compatible with the later versions of Microsoft .NET Framework, such as 4.5.

Screenshot 154: Microsoft .NET Framework
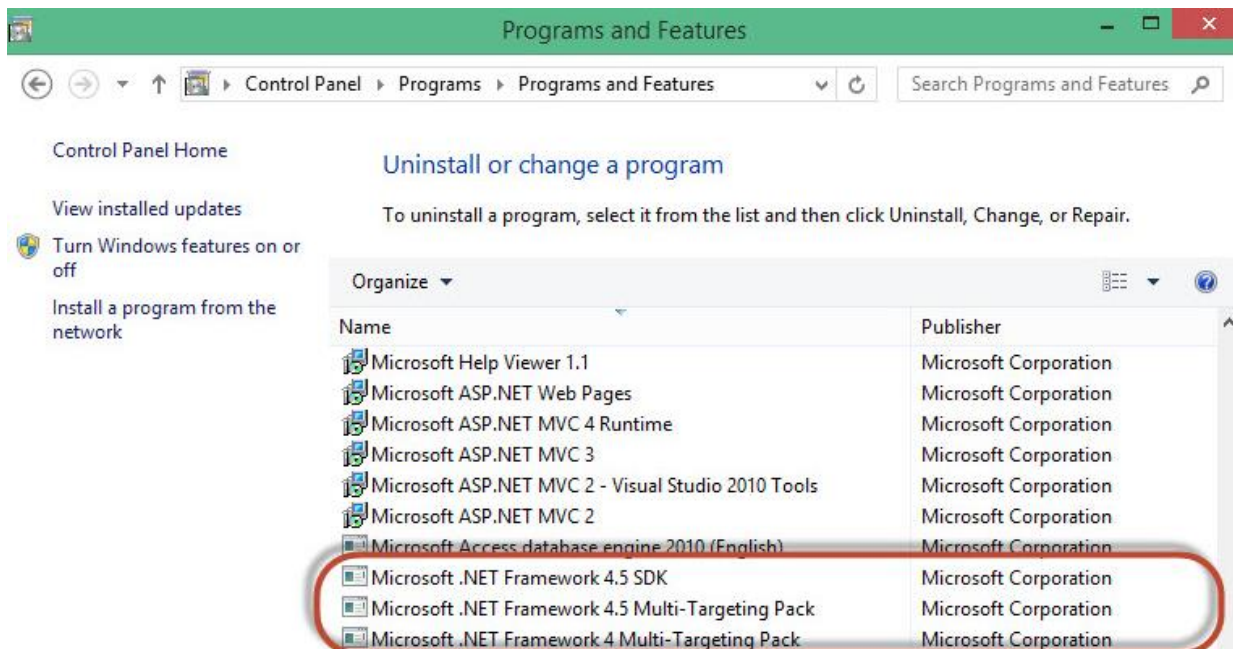
If you do not have the Microsoft .NET Framework 4.5 installed, you can download the installation package for the Microsoft .NET Framework from the MONAHRQ website (http://monahrq.ahrq.gov/monahrq_software.shtml) or the Microsoft website. Note that the same installation package works for 32-bit and 64-bit systems. Select and save the appropriate version of the .NET Framework, then run the file. Restart your computer after installing the .NET Framework.

APPENDIX F: PREPARING STANDARD DATA FILES

This appendix provides detailed instructions about how to prepare the inpatient hospital discharge data, emergency department (ED) Treat-and-Release data, Centers for Medicare & Medical Services (CMS) Hospital Compare data, AHRQ Quality Indicator™ results, and Medicare Provider Charge data–Inpatient to be loaded into MONAHRQ®. It also includes an overview of each type of data.

Inpatient Hospital Discharge Data

MONAHRQ uses inpatient hospital 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 three MONAHRQ paths: (1) Inpatient Utilization, (2) County-Level Rates of Hospital Use, and (3) Region-Level Rates for Hospital Use. The software is designed for processing one *calendar year* of data at a time. The software enables you to load local data through a simple "point and click" process for mapping your local data elements and value codes to MONAHRQ formats.

The local inpatient hospital discharge data file should be in the following format for use within MONAHRQ:

- Text (comma-separated values [CSV])

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"), you will need to insert double quotes around each data element. An exception is the data element "Total Charge." Many data elements in inpatient hospital 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 hospital 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 Defining Field Values Screen provides the opportunity to map local data element values to the values used in MONAHRQ.

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 Hospital 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 Hospital 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 (NUBC) 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. You may also use additional fields, such as line item detailed charges, revenue codes, and procedure codes to verify the value for the **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 hospital 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 Tables 20a and 20b (located in Appendix H) to ensure that the local inpatient hospital discharge data are mapped correctly. If possible, you may 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 hospital discharge data, you will not need 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 hospital 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 hospital discharge data file so that the needed data elements appear within the first 200 columns.

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 ED reports under the Utilization path. The reports under the ED Utilization path use data from both the local inpatient hospital discharge file and the ED Treat-and-Release file. These data files are connected by a common identifier, **Hospital_ID**.

The local ED Treat-and-Release data file should be in the following format for use within MONAHRQ:

- Text (comma-separated values [CSV])

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 Tables 20a and 20b (located in Appendix H) to ensure that the local data are coded correctly. You may 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, you will not need 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, you may sort the order of data elements in the local inpatient hospital 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.

Medicare Provider Charge Data: Inpatient

MONAHRQ supports reporting capabilities using the Medicare Provider Charge data: Inpatient file. This file is publically available in CSV format and includes hospital-specific charges for more than 3,000 U.S. hospitals. The hospitals provided in the Medicare Provider Charge (Inpatient) data may only represent a subset of the total number of hospitals in your database.

A recent copy of the Medicare Provider Charge data: Inpatient file formatted to be compatible with MONAHRQ is available on the MONAHRQ website (http://monahrq.ahrq.gov/monahrq_ data.shtml). It is important to use the version posted on the MONAHRQ website specific to the MONAHRQ version of interest because structural alterations have been made to the original Medicare Provider Charge data: Inpatient files to ensure compatibility with MONAHRQ. The downloaded file can be uploaded directly to MONAHRQ without making any adjustments.

CMS Nursing Home Compare Data

MONAHRQ supports reporting capabilities using the CMS Nursing Home Compare dataset. The Nursing Home Compare data is available to download in Microsoft Access and CSV file formats from the CMS website (https://data.medicare.gov/data/nursing-home-compare). The downloaded file can be uploaded directly to MONAHRQ without making any adjustments. Although there are two file formats available for download from the CMS website, MONAHRQ accepts only the Microsoft Access database format. The data contained in this database come from two sources[1]:

- CMS's Health Inspection database—This includes data on nursing home characteristics and health deficiencies issued during the three most recent State inspections as well as recent complaint investigations. Data about staffing and penalties levied against nursing homes also come from this database.
- Minimum Data Set (MDS)—Data for quality measures come from the Minimum Data Set Repository. The MDS is an assessment conducted by nursing homes at regular intervals for every resident in a Medicare- or Medicaid-certified nursing home. Information is collected about each resident's health, physical functioning, mental status, and general well-being. These data are used by the nursing home to assess each resident's needs and develop a plan of care.

CMS Physician Data

MONAHRQ uses CMS Physician data that includes general information such as: name, gender, specialty, medical practice name and address, hospital affiliation, medical school name, and group practice or individual's current location. These data are used to populate two MONAHRQ paths: (1) Physician Profile

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[1] http://www.medicare.gov/nursinghomecompare/Data/Data-Sources.html

and (2) Find Physician Report. The Physician reports will include: Provider/Physician search, Physician Profile Report, and their hospital affiliations.

PECOS (Provider Enrollment, Chain, and Ownership System) is the primary data source for the CMS Physician Compare Database. CMS now uses Medicare claims data to verify the information in PECOS. This helps ensure the information on Physician data is as accurate and up-to-date as possible. Including Medicare claims data limits the results so that only active physicians and other health care professionals are included. This also ensures that only addresses where a professional is currently billing (within the last 12 months) are included on the website[2].

Because the physician data in the CMS Physician Compare Database is based on Medicare only, MONAHRQ physician data will be limited to those physicians who participate in the Medicare program.

MONAHRQ pulls physician information using free and open Application Programming Interface (API) services provided by http://data.medicare.gov. The CMS API service URL is: http://data.medicare.gov/resource/s63f-csi6.json.

CMS Hospital Compare Data

MONAHRQ supports reporting capabilities using the CMS Hospital Compare data. CMS currently reports these data on the CMS Hospital Compare website (http://www.hospitalcompare.hhs.gov/) and makes them publicly available. The CMS Hospital Compare data provide information on performance ratings for hospitals.

You can find recent copies of the CMS Hospital Compare data formatted to be compatible with MONAHRQ on MONAHRQ's Data webpage (http://monahrq.ahrq.gov/monahrq_data.shtml). It is important to use the version posted on the MONAHRQ Data webpage as it contains structural modifications that have been made to ensure compatibility with MONAHRQ.

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

AHRQ Quality Indicators™

The AHRQ Quality Indicators (QIs) use inpatient hospital 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 6.0, 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 QI Windows software (WinQI) can be loaded directly into MONAHRQ. Reports generated from the QI SAS software require additional formatting for use with MONAHRQ. Information and instructions for preparing data using the AHRQ QI software for Windows or SAS can be found in Appendix J.

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[2] http://www.medicare.gov/physiciancompare/staticpages/data/pqrs.html

Other Files

Region Information File

MONAHRQ supports searching and reporting data at the intrastate regional level. The Host User may define regions, 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 three fields on each line (see Table 17) 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 region name, which must be enclosed in double quotes if commas appear in this field; and (3) the two-letter State code.

Table 17: 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

An example region file is shown below:

RegionID,RegionName,State

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

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 18). 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) State-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 18: 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

APPENDIX G: MONAHRQ® SUPPLEMENTAL FILES

There are several supplemental data files embedded in MONAHRQ. Table 19 provides a summary of these files, explains how the files are used in the software and includes links for additional information.

Table 19: MONAHRQ Supplemental Files

File	Where Used in MONAHRQ-Generated Website	Purpose	Source
Cost-to-Charge Ratio files	Hospital Utilization—Avoidable Hospital Stays	Estimates hospital costs based on charges.	AHRQ Healthcare Cost and Utilization project (HCUP) (http://www.hcup-us.ahrq.gov/db/state/costtocharge.jsp)
Provider of Services (POS) file	Hospitals Database	Pre-loads hospitals for your State(s) in MONAHRQ and used for constructing the Hospital Profile page.	http://www.cms.gov/Research-Statistics-Data-and-Systems/Files-for-Order/NonIdentifiableDataFiles/ProviderofServicesFile.html
Diagnosis Related Groups (DRGs)	Hospital Utilization, County Rates	Assigns 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 Fiscal Year 2011)
Census population data	Avoidable Hospital Stays, County Rates	Provides denominators for area-level calculations.	Included in the AHRQ QI software for Windows; originally obtained by AHRQ from the U.S. 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 U.S. Census Bureau (2010 files used; http://www.census.gov/geo/maps-data/)
Benchmarks for AHRQ QIs	Hospital Quality Ratings	Provides two types of precalculated benchmarks for the AHRQ QIs: • Nationwide • U.S. Census regions (Northeast, Midwest, South, West)	Included in the AHRQ QI software for Windows; originally calculated by AHRQ using 2009 AHRQ Healthcare Cost and Utilization Project (HCUP) Nationwide Inpatient Sample (NIS) (http://www.hcup-us.ahrq.gov/). For more information refer to: 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	Provides two types of precalculated regional and national benchmarks for hospital and county rates and utilization: • Nationwide • U.S. Census regions (Northeast, Midwest, South, West)	Calculated by AHRQ using AHRQ 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	Maps hospitals to HRR or HSA regions. These are optionally used in the website to select hospitals by region.	Dartmouth Atlas HRR and HSA files (http://www.dartmouthatlas.org/).
MS-DRG, Clinical Classifications Software (CCS) Label, and MDC Label files	Hospital Utilization, County Rates	Groups ICD–9–CM diagnosis and procedure codes into meaningful clinical categories. These are used in the website to select conditions or procedures.	HCUP (http://hcup-us.ahrq.gov/)

APPENDIX H: MONAHRQ® DATA ELEMENT MAPPING FOR INPATIENT HOSPITAL DISCHARGE DATA

Tables 20a through 20g comprise the data dictionary for Inpatient Hospital Discharge data.

Table 20a: Preparing Your Local Inpatient Hospital Discharge Data: Data Element Mapping—Required for MONAHRQ Basic Functions

MONAHRQ Data Element Name	Supported Data Element Names	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
Age	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	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	HOSPID	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.
Discharge Year	YEAR	Calendar year of patient's discharge	Required	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. If this data element is missing, the discharge record will be not be loaded and the data import process will not complete.	Source value, YYYY	Numeric: YYYY Discharge year should be within the range of 1997 to present year.

MONAHRQ Data Element Name	Supported Data Element Names	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
Discharge Quarter	DQTR	Calendar quarter of the patient's discharge	Required	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. If this data element is missing, the discharge record will be not be loaded and the data import process will not complete.	1: January–March 2: April–June 3: July–September 4: October–December	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	DX1	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.	Source value. String value more than five characters will be shortened.	Diagnosis Code 1 is the principal/primary 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.

Table 20b: Preparing Your Local Inpatient Hospital Discharge Data: Data Element Mapping—Required for MONAHRQ-Embedded MDC, DRG, and CCS Assignment

MONAHRQ Data Element Name	Supported Data Element Names	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
Diagnosis Code, 2–35	DX2–DX31	ICD–9–CM diagnosis codes, without decimal points	Required— if available	Used in assigning MDC, DRG, and Clinical Classifications Software (CCS). Required for preparing precalculated AHRQ QI 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	PR1	ICD–9–CM procedure codes without decimals	Required	Used in assigning MDC, DRG and CCS. Required for preparing precalculated 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	PR2–PR30	ICD–9–CM procedure codes without decimals	Required— if available	Used in assigning MDC, DRG, and CCS. Required for preparing precalculated AHRQ QI 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.

Table 20c: Preparing Your Local Inpatient Hospital Discharge Data: Data Element Mapping—Required for Generating ED Utilization Subpath

MONAHRQ Data Element Name	Supported Data Element Names	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
*ED Services	N/A	Hospital admission or ED treat-and-release	Required if ED utilization subpath 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.

Table 20d: Preparing Your Local Inpatient Hospital Discharge Data: Data Element Mapping—Optional: Allows Host User to Import Own DRG and MDC

MONAHRQ Data Element Name	Supported Data Element Names	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
DRG Import	DRG	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 these 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.
MDC Import	MDC	User-defined Major Diagnostic Category (MDC)	Optional	This field is optional. If not populated, the embedded MDC grouper will complete these data. The embedded IRP Grouper will assign MDC value in effect on discharge date (year and quarter).		No error checking will be performed on the imported MDC values. If an MDC is assigned, a DRG must also be assigned.

Table 20e: Preparing Your Local Inpatient Hospital Discharge Data: Data Element Mapping—Optional: Supports Additional MONAHRQ Functions

MONAHRQ Data Element Name	Supported Data Element Names	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
Length of Stay	LOS	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.
Patient State/ County Code	HOSPSTCO/ PSTCO	FIPS State/county code of patient's residence	Optional	If this data element is missing, the discharge record will be excluded from area rate calculations and the Website wizard cannot create maps by showing rates of preventable hospitalization by area. 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	Supported Data Element Names	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
Race	RACE	Race/ ethnicity of patient	Optional	Records with this data element missing will be retained and the value set to "Other." The rates and utilization paths will not be stratified by race/ethnicity if the data element is completely missing.	1: White 2: Black 3: Hispanic 4: Asian or Pacific Islander 5: Native American 6: Other 0: Missing 99: Retain value <Exclude from dataset >	Source values, alpha or numeric, can be mapped to accepted numeric value (0– 6, 99) or excluded during data value mapping.
Total Charge	TOTCHG	Total charge associated with hospital stay	Optional	This data element is optional, but if missing it will not include any cost column in any of the analysis. This results in 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.	Source value. Must be an integer (i.e., whole numbers only).	Must be an integer: remove dollar signs and decimals (i.e., whole numbers only).

MONAHRQ Data Element Name	Supported Data Element Names	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
Age in Days	AGEDAY	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	ATYPE	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	Supported Data Element Names	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
Admission Source	ASOURCE	Admission source	Optional	Used in the inclusion and exclusion criteria for several PQIs, PDIs, PSIs, and IQIs. These indicators include: PQI: 1, 2, 3, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 IQI: 32 PSI: 3 PDI: 2, 14, 15, 16, 17, 18 For indicators that rely on this field, records with this data element missing will be excluded from the denominator.	1: Emergency room 2: Another hospital 3: Another health facility, including long-term care 4: Court/law enforcement 5: Routine/birth/ other 0: Missing	No data preparation needed. If loading discharge data into MONAHRQ, source values, alpha or numeric, will be mapped to accepted numeric values (0–5) or excluded during data load. Note: Admission Source uses HCUP uniform coding, which is a collapsed version of the UB-92 specifications, effective through September 2007. The UB-92 Admission Source codes must be mapped to HCUP uniform categories. This field is also used to establish the ED Services flag.

MONAHRQ Data Element Name	Supported Data Element Names	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
Point of Origin	POINTOFOR IGIN04	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.	When Admission Type is not "newborn": 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 When Admission Type is "newborn": 5: Born inside this hospital 6: Born outside of this hospital	No data preparation needed. If loading discharge data into MONAHRQ, source values, alpha or numeric, will be mapped to accepted numeric values (0–8, 11–15) or excluded during data load. Note: Point of Origin coding matches the UB-04 specifications, effective beginning October 2007.

MONAHRQ Data Element Name	Supported Data Element Names	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
Birth weight in Grams	BIRTHWEIG HT	Birth weight 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 birth weight.	Source value	If value greater is than 7,000, value will be changed to "Missing" because higher values are considered invalid birth weights.
Days on Mechanical Ventilator	DMV	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	No data preparation needed.
Discharge Disposition	DISP	Disposition of patient	Optional	Used in the inclusion and exclusion criteria for several PQIs, PDIs, PSIs, and IQIs. For indicators that rely on this field, records with this data element missing will be excluded from the denominator.	1: Routine 2: Short-term hospital 3: Skilled nursing facility 4: Intermediate care 5: Another type of facility 6: Home health care 7: Against medical advice 20: Died in the hospital 0: Missing 99: Discharged alive, destination unknown <Exclude from dataset>	No data preparation needed. If loading discharge data into MONAHRQ, source values, alpha or numeric, will be mapped to accepted numeric values (0–7, 20, 99) or excluded during data load. Note: Discharge Disposition uses HCUP uniform coding, which is a collapsed version of the UB-04 (or UB-92) specifications. The UB Discharge Disposition codes must be mapped to HCUP uniform categories.

MONAHRQ Data Element Name	Supported Data Element Names	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
Custom Stratifier, 1–3	CUSTOM1–3	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.

Table 20f: Preparing Your Local Inpatient Hospital Discharge Data: Data Element Mapping—Optional: Not Recommended For Use (For Patient Identification With External Analysis)

MONAHRQ Data Element Name	Supported Data Element Names	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
Key	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	ADMIT_ 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	BIRTH_ DATE	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
Discharge Date	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

MONAHRQ Data Element Name	Supported Data Element Names	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
Patient ID	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.	No data preparation needed.
PAY1	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.

Table 20g: Preparing Your Local Inpatient Hospital Discharge Data: Data Element Mapping—Optional: Not Recommended For Use (For Custom Region Reports)

MONAHRQ Data Element Name	Supported Data Element Names	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
HRR	HRR	HRR Region ID	Optional, required for HRR region reporting	If this data element is missing, the HRR reports cannot be completed	It is recommended that you DO NOT USE this field unless you are generating HRR region reports	Numeric, 6 characters
HSA	HSA	HSA Region ID	Optional, required for HSA region reporting	If this data element is missing, the HSA reports cannot be completed	It is recommended that you DO NOT USE this field unless you are generating HSA region reports	Numeric, 6 characters
Patient Region ID	PATIENT_RE GION_ID	Patient Region identifier	Required for Custom Regions reporting	If this data element is missing, the custom region reports cannot be completed	It is recommended that you DO NOT USE this field unless you are generating custom region reports	Numeric, 6 characters
ZIP	ZIP	ZIP Code value in Region	Required for custom regions reporting	If this data element is missing, the custom regions report cannot be generated	It is recommended that you DO NOT USE this field unless generating custom region reports	Numeric, 5 characters

APPENDIX I: MONAHRQ® DATA ELEMENT MAPPING FOR EMERGENCY DEPARTMENT TREAT-AND-RELEASE DATA

Table 21a: Preparing Your Local Emergency Department Treat-and-Release Data: Data Element Mapping—Required for MONAHRQ Basic Functions

MONAHRQ Data Element Name	Supported Data Element Names	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
AGE	AGE	Patient age at time of service	Required	If this data element is missing, the discharge record will not be loaded.	Source value	Numeric. Converts 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	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	Supported Data Element Names	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
DX1	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	GENDER	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_ 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.

Table 21b: Preparing Your Local Emergency Department Treat-and-Release Data: Data Element Mapping—Optional for MONAHRQ Basic Functions

MONAHRQ Data Element Name	Supported Data Elements Names	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
DX2-DXn	DX2-DX20 or, DXCSS2-20	Secondary 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 they are not required. Diagnosis codes are always 3, 4, or 5 characters long.
KEY_ED	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	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	Supported Data Elements Names	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
PAY1	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	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	Supported Data Elements Names	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
COUNTY	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 Website 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	Supported Data Elements Names	Description	Required/ Optional	Impact of Exclusion on Data Import and Generated Website	Default Element Coding	Data Preparation
HOSP_ TRAUMA	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	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 J: PREPARING DATA USING THE AHRQ QUALITY INDICATORS™ SOFTWARE FOR WINDOWS® AND SAS®

MONAHRQ® can import externally calculated results for the AHRQ Quality Indicators (QIs). The results must be calculated using AHRQ QI software and supplied using a specific file format (see specified file formats in Table 22, Table 23, and Table 24). The AHRQ QI software runs statistical analysis on local inpatient hospital 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 Windows® Software (WinQI)

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

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

When running WinQI, 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 as follows:

- 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 are 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 WinQI. 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 WinQI. Thus, when preparing your discharge data, you must represent the total charges for each discharge as a 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_50_Measure_List.xlsx), an easy-to-reference spreadsheet listing all of the measures available in MONAHRQ 6.0.

Provider-Level and Composite Measures

You may obtain data for provider-level measures through the AHRQ QI Provider Reports. To generate the appropriate report, follow the steps below:

Step 1: Select the Provider Report wizard within the AHRQ QI application.

Step 2: Select the indicators to use. As mentioned, MONAHRQ supports the IQIs and PSIs for provider-level reporting.

Step 3: After selecting your desired measures, on subsequent screens select the hospitals to include, along with the date range for reporting.

Step 4: 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.

Step 5: The next screen (Screenshot 155) will provide you with the option to select composite measures and update their weighting.

Step 6: 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 155 shows the appropriate options to select.

Screenshot 155: AHRQ QI Software Analysis Options for Provider-Level Reports

Selecting **Next** on the screen will run the report (Screenshot 155). MONAHRQ relies on the file format from the AHRQ QIs to import calculated measure results. The file format is documented below in Table 22.

Screenshot 156: AHRQ QI Software Provider-Level Report

Select the **Export All** button, as seen in Screenshot 156 and save the results to a file.

Table 22: Provider-Level Indicator Input File Format

Field Name	Description	Sequence
Module	Measure module such as IQI, PSI	1
Indicator Number	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 157).

Screenshot 157: AHRQ QI Software Provider-Level Report—Composite Selection

Screenshot 158: AHRQ QI Software Provider-Level Composite Report

Select the **Save Report** button to generate the composite provider-level report (Screenshot 158).

MONAHRQ accepts the file format generated by WinQI. The file format is documented in Table 23.

Table 23: 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 are obtained through the AHRQ QI area-level reports. To generate the appropriate reports, follow the steps below:

Step 1: Select the Area Report wizard within the AHRQ QI application (Screenshot 159).

Step 2: After choosing the desired measures, select the desired hospitals and date range for reporting on the subsequent screen.

Step 3: 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.

Step 4: 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.

With MONAHRQ 6.0, the total cost saving data calculation is embedded within MONAHRQ and you will not need to run the Cost Calculator to calculate total cost saving. Area-level QI files can be directly uploaded into MONAHRQ. However, MONAHRQ still requires reading information from the AHRQ QI database in order to calculate cost. More information about this is provided in Appendix K: Area QI Cost Savings Calculation for Avoidable Hospital Stays Reports.

Screenshot 159: AHRQ QI Software Analysis Options for Area-Level Reports

Screenshot 159 displays the default export setting for the AHRQ QI Area-Level Reports. Selecting **Next** as shown in Screenshot 159 will run the report. MONAHRQ relies on the file format from the AHRQ QIs to import calculated measure results. The file format is documented below in Table 24.

Screenshot 160: AHRQ QI Software for Area-Level Reports
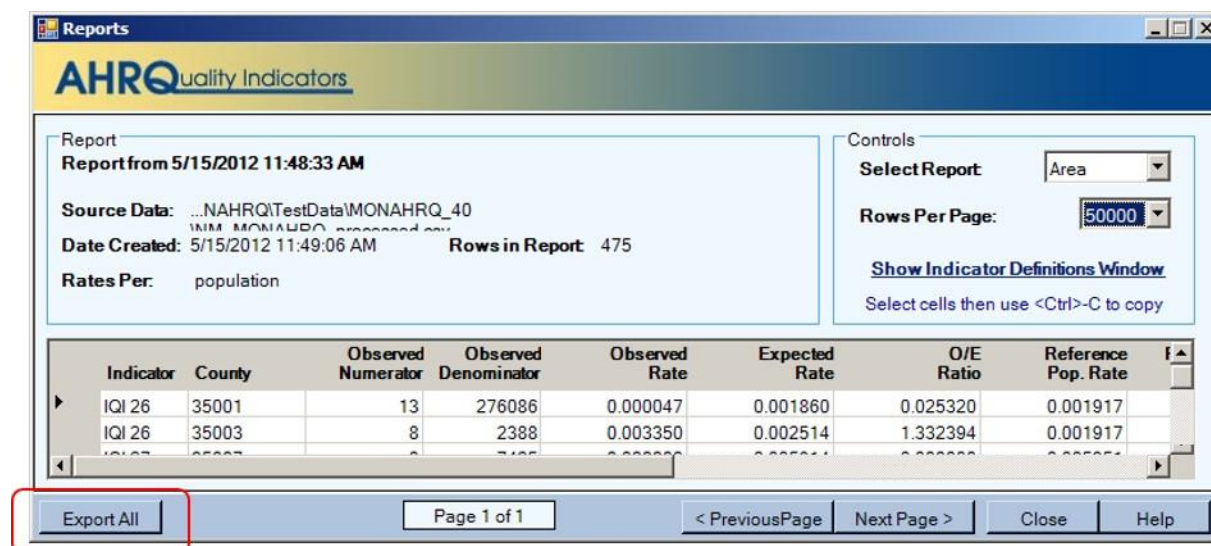
Select the **Export All** button to save the results in a comma-separated values (CSV) file (Screenshot 160).

Table 24: Area-Level Indicator Input File Format

| Field Name	Description	Sequence
Module	Measure module such as IQI, PSI	1
Indicator Number	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 SAS® Software

MONAHRQ can display externally calculated quality measures from the AHRQ QI SAS® software. The AHRQ Quality Indicator results must be exported from the QI SAS software using a specific file format. These file formats are described in detail in Table 22, Table 23, and Table 24.

The QI 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 QI SAS software through the PDI module. The available sets of reports for each module are as follows:

- 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 AHRQ QI SAS software and documentation 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, you will need to reformat the data for use with MONAHRQ.

Several SAS utilities have been developed to convert the output from the QI SAS software to a format suitable for MONAHRQ. There is an 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 datasets— as opposed to temporary "work" datasets—including output from the composite runs for the IQI and PSI modules. The utilities will format the SAS files into a 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 on the MONAHRQ website. The Provider-, Composite-, and Area-level utility files for the IQIs are as follows:

1. IQI_Prov_V1_1.SAS
2. IQI_Comp_V1_1.SAS
3. IQI_Area_v1_1.SAS

You must copy these utility files 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 on the MONAHRQ website. The Provider-, Composite-, and Area-level utility files for the PSIs are as follows:

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

The utility files must be copied to the same production directory containing the AHRQ PSI module SAS jobs. The SAS formatting utilities for the 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 on the MONAHRQ website. The Area-level utility file for the PQIs is

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 K) 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:

1. 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 on the MONAHRQ 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 K) 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

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 K: AREA QI COST SAVINGS CALCULATION FOR AVOIDABLE HOSPITAL STAYS REPORTS

To report the estimated cost savings for potentially avoidable hospital stays, MONAHRQ® needs to calculate the cost. This calculation occurs during the website publishing process only if the "Avoidable Hospital Stays" report 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 hospital discharge data and mapped it to the "Custom Stratifier 1" field, as described in Appendix J.

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 the 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 hospital discharge data include charges rather than costs, MONAHRQ will use the out-of-the-box cost-to-charge ratios, or you can define custom values for your hospitals under the Datasets>Hospital Data tab. Instructions can be found in Section 5.14.3, "Editing and Managing Hospital Attributes."

Cost Estimates Calculation

The cost is calculated in the background during the website publishing process. The session log provides a record of all logs that are related to the cost 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 160. To do so, follow the steps below:

1. 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.

2. Click on 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 C*ustom1* 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.

3. 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 (<u>Screenshot 161</u>). 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 161: 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 or 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 L: 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 per measure.

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. If the margin suppression option is checked, the system will apply margin suppression instead of 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 M: SIGNING 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 on 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 appear 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 website 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 in your Google Analytics account.

APPENDIX N: DEPENDENCY CHECKS–ERRORS AND WARNINGS

Table 25 lists errors and warnings generated in MONANHRQ and recommends a resolution path.

Table 25: Dependency Checks—Errors and Warnings

Area	Check Type	Dependencies Check Message	Error Type	How to Fix
Data	No geographic regions are defined for the Hospitals	No regions are defined for your website. The region-based grouping and filters will not be available to your website.	Warning	Provide regions data via the Hospital Data>Geographic Regions tab.
Data	Check dataset mapping	To generate the Utilization County Rates Report, Patient State/County Code must be mapped during the Inpatient Hospital Discharge data import.	Warning	Map the "Patient State/County Code" data element during the Inpatient Hospital Discharge dataset import.
Data	Inpatient Hospital Discharge dataset	The data element "ED Services" flag in your Inpatient Hospital Discharge data file is not found or set to null. Please add or populate the ED Services data element or the Emergency Department Report will be generated with inaccurate or incomplete data.	Error	Map the "ED Services" data element during the Inpatient Hospital Discharge dataset import.
Data	Regions	Custom regions and/or population data files have not been imported. Population Region Rates Report will not be generated.	Error	Import both custom region and population region files in the Hospital Data>Geographic Regions tab.
Data	Regions	No population data files have been imported. The Rate of Discharge column will not be generated.	Warning	Import the custom population region file in the Hospital Data>Geographic Regions tab.

Area	Check Type	Dependencies Check Message	Error Type	How to Fix
Data	Regions	Population region file has been imported but the custom region is missing. All the reports aggregated by the custom regions will not be generated.	Warning	Import the custom region file in the Hospital Data>Geographic Regions tab.
Data	Regions	You have selected Population Region Rates Report that requires you to define regions in your Inpatient Hospital Discharge (IP) file. You need to define your regions in the IP data file and map these regions in the Hospital Data section. The Population Region Rates Report will not be generated.	Warning	Include the Region ID columns (HRR, HSA, and Custom) in the Inpatient Hospital Discharge dataset and map them accordingly during data mapping. To bypass this warning, unselect the Region Rates Reports from the website.
Reports	Cost-to-Charge ratio not defined	To generate Utilization and Cost Savings Reports, Cost-to-Charge Ratios must be defined for all hospitals or else the costs for the hospitals will not be included in the Avoidable Stays Maps by County Profile Report.	Warning	Provide CCR data for all the hospitals to be included in the website. CCR values can be entered in the Hospital Data>Hospitals tab or Website>Customized Site tab>Included Hospitals popup screen.
Reports	Cost-to-Charge ratio not defined	To generate Utilization and Cost Savings Reports, Cost-to-Charge Ratios must be defined for all hospitals or else the costs for the hospitals will not be included in the Avoidable Stays Maps by County Report.	Warning	Provide CCR data for all the hospitals to be included in the website. CCR values can be entered in the Hospital Data>Hospitals tab or the Website>Customized Site tab>Included Hospitals popup screen.

Area	Check Type	Dependencies Check Message	Error Type	How to Fix
Reports	Cost-to-Charge ratio not defined	To generate Utilization and Cost Savings Reports, Cost-to-Charge Ratios must be defined for all hospitals or else the cost for the hospitals will not be included in the Avoidable Stays Maps Report.	Warning	Provide CCR data for all the hospitals included in the website. CCR values can be entered in the Hospital Data>Hospitals tab or the Website>Customized Site tab>Included Hospitals pop up screen.
Reports	Cost-to-Charge ratio not defined	To generate Utilization and Cost Savings Reports, Cost-to-Charge Ratios must be defined for all hospitals or else the cost for the hospitals will not be included in the County Rates Detail Report.	Warning	Provide CCR data for all the hospitals included in the website. CCR values can be entered in the Hospital Data>Hospitals tab or the Website>Customized Site tab>Included Hospitals popup screen.
Reports	Cost-to-Charge ratio not defined	To generate Utilization and Cost Savings Reports, Cost-to-Charge Ratios must be defined for all hospitals or else the cost for the hospitals will not be included in County Rates Report.	Warning	Provide CCR data for all the hospitals included in the website. CCR values can be entered in the Hospital Data>Hospitals tab or the Website>Customized Site tab>Included Hospitals popup screen.
Reports	Cost-to-Charge ratio not defined	To generate Utilization and Cost Savings Reports, Cost-to-Charge Ratios must be defined for all hospitals or else the cost for the hospitals will not be included in Inpatient Hospital Discharge Utilization Report.	Warning	Provide CCR data for all the hospitals included in the website. CCR values can be entered in Hospital Data>Hospitals tab or Website>Customized Site tab>Included Hospitals popup screen.

Area	Check Type	Dependencies Check Message	Error Type	How to Fix
Reports	Cost-to-Charge ratio not defined	To generate Utilization and Cost Savings Reports, Cost-to-Charge Ratios must be defined for all hospitals or else the cost for the hospitals will not be included in the Inpatient Utilization Detail Report.	Warning	Provide CCR data for all the hospitals included in the website. CCR values can be entered in the Hospital Data>Hospitals tab or the Website>Customized Site tab>Included Hospitals popup screen.
Reports	Cost-to-Charge ratio not defined	To generate Utilization and Cost Savings Reports, Cost-to-Charge Ratios must be defined for all hospitals or else the cost for the hospitals will not be included in the Region Rates Detail Report.	Warning	Provide CCR data for all the hospitals included in the website. CCR values can be entered in the Hospital Data->Hospitals tab or the Website->Customized Site tab->Included Hospitals popup screen.
Reports	Cost-to-Charge ratio not defined	To generate Utilization and Cost Savings Reports, Cost-to-Charge Ratios must be defined for all hospitals or else the cost for the hospitals will not be included in the Region Rates Report.	Warning	Provide CCR data for all the hospitals included in the website. CCR values can be entered in the Hospital Data>Hospitals tab or the Website>Customized Site tab>Included Hospitals popup screen.
Reports	Cost-to-Charge ratio not defined	To generate Utilization and Cost Savings Reports, Cost-to-Charge Ratios must be defined for all hospitals or else the cost for the hospitals will not be included in the County Rates Report.	Warning	Provide CCR data for all the hospitals included in the website. CCR values can be entered in the Hospital Data>Hospitals tab or the Website>Customized Site tab>Included Hospitals popup screen.

Area	Check Type	Dependencies Check Message	Error Type	How to Fix
Reports	Cost-to-Charge ratio not defined	To generate Utilization and Cost Savings Reports, Cost-to-Charge Ratios must be defined for all hospitals or else the cost for the hospitals will not be included in the Population Region Rates Report.	Warning	Provide CCR data for all the hospitals included in the website. CCR values can be entered in the Hospital Data>Hospitals tab or the Website>Customized Site tab>Included Hospitals popup screen.
Reports	Cost-to-Charge ratio not defined	To generate Utilization and Cost Savings Reports, Cost-to-Charge Ratios must be defined for all hospitals or else the cost for the hospitals will not be included in Inpatient Utilization Detail Report.	Warning	Provide CCR data for all the hospitals included in the website. CCR values can be entered in the Hospital Data>Hospitals tab or the Website>Customized Site tab>Included Hospitals popup screen.
Reports	Cost-to-Charge ratio not defined	To generate Utilization and Cost Savings Reports, Cost-to-Charge Ratios must be defined for all hospitals or else the cost for the hospitals will not be included in the Inpatient Hospital Discharge Utilization Report.	Warning	Provide CCR data for all the hospitals included in the website. CCR values can be entered in the Hospital Data>Hospitals tab or the Website>Customized Site tab>Included Hospitals popup screen.
Reports	CMS Provider ID	You have selected AHRQ QI Provider-Level report that requires you to map all hospitals in your QI files with the correct CMS Provider ID. If you leave it unmapped, the QI measures will not appear in the generated reports.	Warning	Provide Local Hospital ID for all the hospitals included in the website. This provides the crosswalk between CMS Provider ID and your Local Hospital ID. Local Hospital ID can be entered in the Hospital Data>Hospitals tab.

Area	Check Type	Dependencies Check Message	Error Type	How to Fix
Reports	CMS Provider ID	You have selected AHRQ QI Composite-Level Report that requires you to map all hospitals in your QI files with the correct CMS Provider ID. If you leave it unmapped, the QI measures will not appear in the generated reports.	Warning	Provide Local Hospital ID for all the hospitals included in the website. This provides the crosswalk between CMS Provider ID and your Local Hospital ID. Local Hospital ID can be entered in the Hospital Data>Hospitals tab.
Reports	CMS Provider ID	You have selected County Rates Detail Report that requires you to map all hospitals in your inpatient hospital discharge data file with correct CMS Provider IDs. If you leave it unmapped, these hospitals will not appear in the Utilization report.	Warning	Provide Local Hospital ID for all the hospitals included in the website. This provides the crosswalk between CMS Provider ID and your Local Hospital ID. Local Hospital ID can be entered in Hospital Data>Hospitals tab.
Reports	CMS Provider ID	You have selected County Rates Report that requires you to map all hospitals in your inpatient hospital discharge data file with correct CMS Provider IDs. If you leave it unmapped, these hospitals will not appear in the Utilization report.	Warning	Provide Local Hospital ID for all the hospitals included in the website. This provides the crosswalk between CMS Provider ID and your Local Hospital ID. Local Hospital ID can be entered in the Hospital Data>Hospitals tab.
Reports	CMS Provider ID	You have selected Region Rates Report that requires you to map all hospitals in your inpatient hospital discharge data file with correct CMS Provider IDs. If you leave it unmapped, these hospitals will not appear in the Utilization report.	Warning	Provide Local Hospital ID for all the hospitals included in the website. This provides the crosswalk between CMS Provider ID and your Local Hospital ID. Local Hospital ID can be entered in the Hospital Data>Hospitals tab.

Area	Check Type	Dependencies Check Message	Error Type	How to Fix
Reports	CMS Provider ID	You have selected Region Rates Detail Report that requires you to map all hospitals in your inpatient hospital discharge data file with correct CMS Provider IDs. If you leave it unmapped, these hospitals will not appear in the Utilization report.	Warning	Provide Local Hospital ID for all the hospitals included in the website. This provides the crosswalk between CMS Provider ID and your Local Hospital ID. Local Hospital ID can be entered in the Hospital Data>Hospitals tab.
Reports	CMS Provider ID	You have selected Inpatient Hospital Discharge Utilization Report that requires you to map all hospitals in your inpatient hospital discharge data file with correct CMS Provider IDs. If you leave it unmapped, these hospitals will not appear in the Utilization report.	Warning	Provide Local Hospital ID for all the hospitals included in the website. This provides the crosswalk between CMS Provider ID and your Local Hospital ID. Local Hospital ID can be entered in the Hospital Data>Hospitals tab.
Reports	CMS Provider ID	You have selected Inpatient Utilization Detail Report that requires you to map all hospitals in your inpatient hospital discharge data file with correct CMS Provider IDs. If you leave it unmapped, these hospitals will not appear in the Utilization report.	Warning	Provide Local Hospital ID for all the hospitals included in the website. This provides the crosswalk between CMS Provider ID and your Local Hospital ID. Local Hospital ID can be entered in the Hospital Data>Hospitals tab.
Reports	CMS Provider ID	You have selected Emergency Department Treat-and-Release Utilization Report that requires you to map all hospitals in your inpatient hospital discharge data file with correct CMS Provider IDs. If you leave it unmapped, these hospitals will not appear in the Utilization report.	Warning	Provide Local Hospital ID for all the hospitals included in the website. This provides the crosswalk between CMS Provider ID and your Local Hospital ID. Local Hospital ID can be entered in the Hospital Data>Hospitals tab.

Area	Check Type	Dependencies Check Message	Error Type	How to Fix
Reports	CMS Provider ID	You have selected ED Utilization Detailed Report that requires you to map all hospitals in your inpatient hospital discharge data file with correct CMS Provider IDs. If you leave it unmapped, these hospitals will not appear in the Utilization report.	Warning	Provide Local Hospital ID for all the hospitals included in the website. This provides the crosswalk between CMS Provider ID and your Local Hospital ID. Local Hospital ID can be entered in the Hospital Data>Hospitals tab.
Report	Settings	To generate cost saving for the Avoidable Stays Report, verify you are connected to the AHRQ QI database in the Settings\Other Connection screen.	Warning	Connect to the WinQI database in the Settings>Other Connection screen.
Website	State is not selected	No State for the website is selected. The website cannot be generated.	Error	Select the State(s) in the Websites>Customize Site tab.
Website	Output Folder	The output folder you have selected doesn't exist. The website cannot be generated.	Error	Provide the output folder in the Websites>Customize Site tab.
Website	About Us content	No text for the About Us section is provided. The generated website will show it as blank.	Warning	Provide the contents in the About Us section in the Websites>Customize Site tab.
Website	Choose Datasets	No dataset added. The website cannot be generated. Please add datasets under the "Choose Datasets" tab and click on the "Save" button.	Error	Select the datasets in the Websites>Choose Datasets tab.
Website	Choose Datasets	No Inpatient Hospital Discharge data file is selected, which is needed to generate Emergency Department Treat-and-Release Reports. This will not create the Emergency Department reports.	Error	Select the Inpatient Hospital Discharge dataset in the Websites>Choose Datasets tab.

Area	Check Type	Dependencies Check Message	Error Type	How to Fix
Website	Modify Measures	No measures for the Dataset,"{Dataset name}" is selected. The corresponding report(s) will not be generated.	Warning	Select the measures in the Websites>Modify Measures tab for the reports you have selected in the Build Reports tab.
Website	Modify Measures	No measures are selected and the website cannot be generated.	Error	Select the measures in the Websites>Modify Measures tab.
Website	Build Reports	No reports are selected and the website cannot be generated.	Error	Select the reports in the Websites>Build Reports tab.
Website	Build Reports	The collection year for your Inpatient Hospital Discharge data file does not match the website's year. You may prefer to continue with publishing the website, but check your Inpatient Hospital Discharge (IP) Utilization Report for accuracy.	Warning	Select the same website year as your selected Inpatient Hospital Discharge dataset in the Websites>Overview tab.
Website	Build Reports	The collection year for your Emergency Department Treat-and-Release data file does not match the website's year. You may prefer to continue with publishing the website, but check your Emergency Department Utilization Reports for accuracy.	Warning	Select the same website year as your selected ED dataset in the Websites>Overview tab.
Website	Hospital Profile Report	You have selected Hospital Profile Report that requires you to import Medicare Provider Charge Data–Inpatient as an option. This is to include the Utilization tab. Please import Medicare Provider Charge data or uncheck "Hospital Profile Report" from the Build Reports tab.	Warning	Unselect the Hospital Profile Report in the Websites>Build Reports tab or import and select the Medicare Provider Charge Data Inpatient in the Websites->Choose Datasets tab.

Area	Check Type	Dependencies Check Message	Error Type	How to Fix
Website	Geographic Context	The heat map for Region Population Reports will not be generated in MONAHRQ as you have chosen the regional context as "Custom."	Warning	Please select HAS or HRR while clicking on Datasets > Hospital Data tab > New Geographic Context button.
Website	Nursing Home	No nursing homes are included in the website. Nursing home reports will not be generated.	Warning	Please check "Nursing home" in the Websites->Customize Site tab->Included Nursing Home popup screen.
Website	Modify Measures	No measures for the dataset, "{Nursing home}" have been selected. The corresponding report(s) will not be generated.	Warning	Please select the measures in the Websites > Modify Measures tab for the reports selected in the Build Reports tab.
Website	Modify Measures	No measures for the Dataset,"{CMS Physician Data}" have been selected. The corresponding report(s) will not be generated.	Warning	Please select the measures in the Websites > Modify Measures tab for the reports selected in the Build Reports tab.
Website	Publish Site	You have selected {Report name} Trending Report(s) but only one dataset has been selected. Please add multiple dataset(s) under the "Choose Datasets" tab and click on the "Save" button	Error	Please select the datasets in the Websites->Choose Datasets tab to add multiple years of datasets OR please uncheck the trending report(s) in the Websites->Build Reports tab.

APPENDIX O: CUSTOM REGION POPULATION FILE—DATA DICTIONARY

Table 26 provides an example for the Custom Region Population data file.

Table 26: Region Population File Example

REGIONID	SEX	AGEGROUP	RACE	YEAR	POPULATION
234	0	0	0	2013	80
234	1	0	0	2013	40
234	2	0	0	2013	40
234	0	1	0	2013	10
234	0	2	0	2013	20
234	0	3	0	2013	30
234	0	4	0	2013	20
234	0	0	1	2013	10
234	0	0	2	2013	10
234	0	0	3	2013	10
234	0	0	4	2013	10
234	0	0	5	2013	10
234	0	0	6	2013	30

Tables 27–29 contain the lookup values used in populating the Region Population File.

Table 27: Sex Lookup

CATVAL	Name
0	All
1	Male
2	Female

Table 28: Age Group Lookup

CATVAL	Name
0	All
1	<18
2	18–44
3	45–64
4	65+

Table 29: Race Lookup

CATVAL	Name
0	All
1	White
2	Black
3	Hispanic
4	Asian or Pacific Islander
5	Native American
6	Other

APPENDIX P: GLOSSARY

The following acronyms and terms are used throughout this guide.

ACO:	Accountable Care Organization
AMA:	Against medical advice
CCR:	Cost-to-Charge ratio
CCS:	Clinical Classifications Software
CMS:	Centers for Medicare & Medicaid Services
CSV:	Comma-separated value
CVEs:	Chartered Value Exchanges
Data file:	Input files containing health care data that are imported into MONAHRQ for generating reports.
DRG:	Diagnosis Related Group
E-codes:	External Cause of Injury codes
ED:	Emergency Department
End User:	A person who accesses a website report generated by MONAHRQ.
FIPS:	Federal Information Processing Standards
HCAHPS:	Hospital Consumer Assessment of Healthcare Providers and Systems
HCUP:	Healthcare Cost and Utilization Project
HHC:	Home health care
HMO:	Health maintenance organization
Host User:	An organization or individual that downloads MONAHRQ and uses it to generate a MONAHRQ website.
HRRs:	Dartmouth Atlas Hospital Referral Regions
HSA:	Dartmouth Atlas Hospital Service Area
ICF:	Intermediate care facility
IP:	Inpatient Hospital Discharge file
IPPS:	Inpatient Prospective Payment System
IQIs:	Inpatient Quality Indicators
IRP:	Innovative Resources for Payors
IT:	Information technology
MDC:	Major Diagnostic Category
Measure description information:	Information about quality measures included in MONAHRQ that can be included in MONAHRQ-generated reports or web pages.
MONAHRQ:	The desktop software that a Host User downloads and uses to generate a website and/or related reports.
MONAHRQ data elements:	Standard name used by MONAHRQ to represent columns for a data file.

MONAHRQ download website:	The website that provides access to MONAHRQ 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.
MS-DRG:	Medicare Severity Diagnosis Related Group
NEDS:	Nationwide Emergency Department Sample
NIS:	Nationwide Inpatient Sample
NQF:	National Quality Forum
NUBC:	National Uniform Billing Committee
PDIs:	Pediatric Quality Indicators
POA:	Present on admission
POS:	Provider of Services
PQIs:	Prevention Quality Indicators
PSIs:	Patient Safety Indicators
QI:	Quality Indicator
QIOs:	Quality Improvement Organizations
RHIOs:	Regional Health Improvement Organizations
SNF:	Skilled nursing facility