A COmputerized Needs-oriented
QUality measurement Evaluation SysTem

CONQUEST 2.0

User's Guide

March 1999

SUPPORT FOR CONQUEST 2.0

GENERAL/TECHNICAL/CLINICAL ASSISTANCE

IMPLEMENTATION AND METHODOLOGICAL SUPPORT

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CONQUEST 2.0

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The following developers of measure sets gave countless hours of their time and effort to ensure that the material in the CONQUEST Database was accurate.

CONQUEST 2.0

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	JCAHO IMSystem: Infection Control
	JCAHO IMSystem: Medication Use
	JCAHO IMSystem: Oncology
	JCAHO IMSystem: Perioperative Care
	JCAHO IMSystem: Prenatal Care
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	JCAHO - Trauma
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Chapter 1 - Quick Start Summary

OVERVIEW

This chapter provides a summary of the features in CONQUEST 2.0, designed to get you up and running with CONQUEST 2.0 in about 15 minutes.

INSTALLING

CONQUEST 2.0 can be installed from diskettes. It will run under Windows 3.x, Windows 95, or Windows NT 4. These instructions assume that your computer's A: drive is a 3.5" diskette, and if a CD-ROM drive is present it appears as drive D. If this is not the case, refer to the installation instructions in Chapter 2.

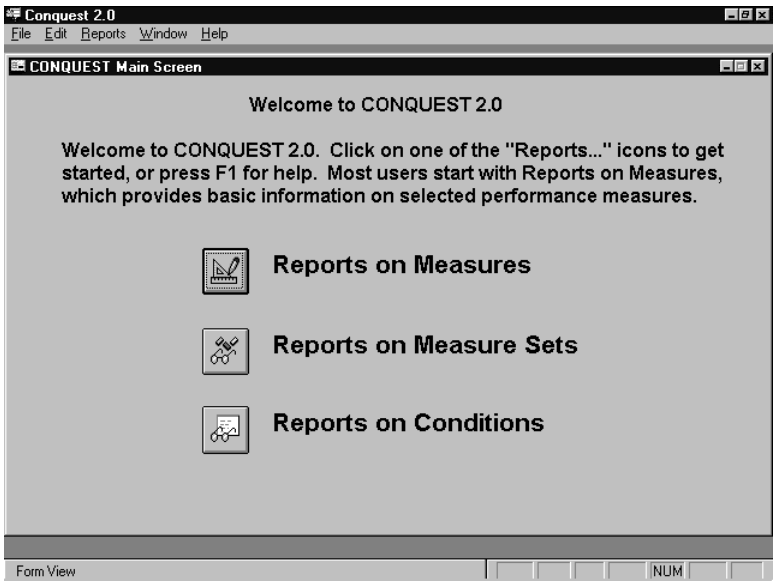
Insert disk 1 of the diskettes into the appropriate drive.

If you are using Windows 3.x, choose Run from the File menu and type A:\Setup.exe in the Command Line box. Follow the directions in the installation program and insert subsequent disks (if applicable) when prompted. Select Typical Installation from the type of installation screen.

If you are using Windows 95 or Windows NT 4, choose Run from the Start menu and type A:\Setup.exe in the Command Line box. Follow the directions in the installation program and insert subsequent disks (if applicable) when prompted. Select Typical Installation from the type of installation screen.

STARTING

Once CONQUEST 2.0 is installed, you can start by clicking on the CONQUEST 2.0 icon in the CONQUEST 2.0 program group (in Windows 3.x), or by selecting the CONQUEST item from the CONQUEST 2.0 folder in the Start : Programs menu (in Windows 95 and Windows NT 4). Launching CONQUEST 2.0 will display the following screen, which will appear every time you start CONQUEST and present you with three options for creating reports. You can exit CONQUEST 2.0 by selecting Exit from the File menu.



USING CONQUEST 2.0

CONQUEST 2.0 guides you through the process of searching, selecting, and reporting. CONQUEST allows you to follow one of three Apaths@ to create reports on 1) performance measures, 2) measure sets, or 3) conditions. You can select a path either by clicking on one of the three buttons on the Main Screen, or by selecting Measures, Measure Sets, or Conditions from the Reports menu at the top of the Main Screen.

Step 1 - Select a Path

Each of the three paths involve similar steps. The main difference between the paths is the type of information available in each path.

Reports on Measures

The measure path contains information about performance measures, especially as they relate to conditions, diseases, and surgical procedures. This is the most commonly used function in CONQUEST 2.0. It is a good place to begin exploring CONQUEST if you are not sure where to start. A detailed description of how to work with measures can be found in Chapter 5.

Reports on Measure Sets

A second path includes information on groups or sets of measures that are usually used together. These include Health Plan Employer Data Information Set (HEDIS), Healthcare Cost and Utilization Project (HCUP), and Joint Commission for Accreditation of Health Organizations (JCAHO) measures and other measures that are collections of performance measures with a common purpose and developer. Working with measure sets is described in more detail in Chapter 6.

Reports on Conditions

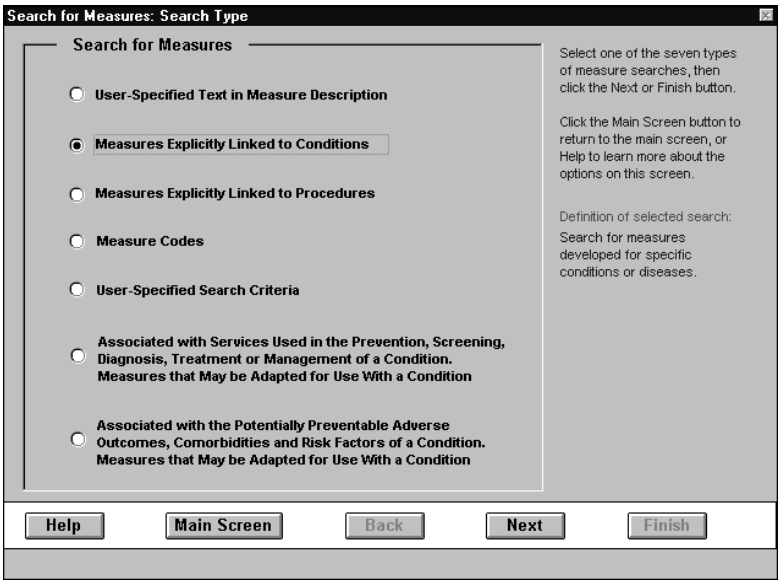
The condition path is geared to users who need detailed epidemiological information about diseases or conditions. Types of information include cost of care, type of utilization, incidence rates, and prevalence in specific age ranges. A summary of how to use the condition path can be found in Chapter 7.

Regardless of the path you select, CONQUEST 2.0 will guide you through a similar set of steps that ultimately will display a printable report on the screen. These reports describe the content of the measures, conditions, and measure sets included in CONQUEST 2.0. Whether you are creating a report for measures, measure sets, or conditions, the process of creating reports is similar, and begins with selecting measures, measure sets, or conditions.

Step 2 - Select Measures, Measure Sets, or Conditions

This step involves selecting the specific measures, measure sets, or conditions that should be included in the report. The method for doing this varies depending on whether you are working with measures, measure sets, or conditions.

Working with Measures



When working with measures, creating measure reports involves searching for measures. Select the icon for Reports on Measures. The screen on page 3 will appear. CONQUEST 2.0 provides seven methods for selecting measures.

Each of the seven methods are described in detail in Chapter 5, but the general search options enable you to locate measures based on the measure code, the conditions related to a measure, the services related to a measure, potentially preventable adverse outcomes, or user specified criteria. Brief descriptions of the search types appear when you click on the name of the search method, and more detailed help is available by clicking the Help button. The list below gives brief descriptions of each of the search types, and typical uses for each search:

1. **User-Specified Text in Measure Description** - Scans the contents of the measure database for words that match the text you enter. Recommended for all users.

2. **Measures Explicitly Linked to Conditions** - Searches for measures that were developed for use with a particular disease or condition. Recommended for all users.

3. **Measures Explicitly Linked to Procedures** - Looks for measures that were designed for use with a specific medical or surgical procedure. Recommended for all users.

4. **Measure Codes** - Displays the list of all measures in the database, allowing you to choose which measures should be included in a report. Recommended for all users.

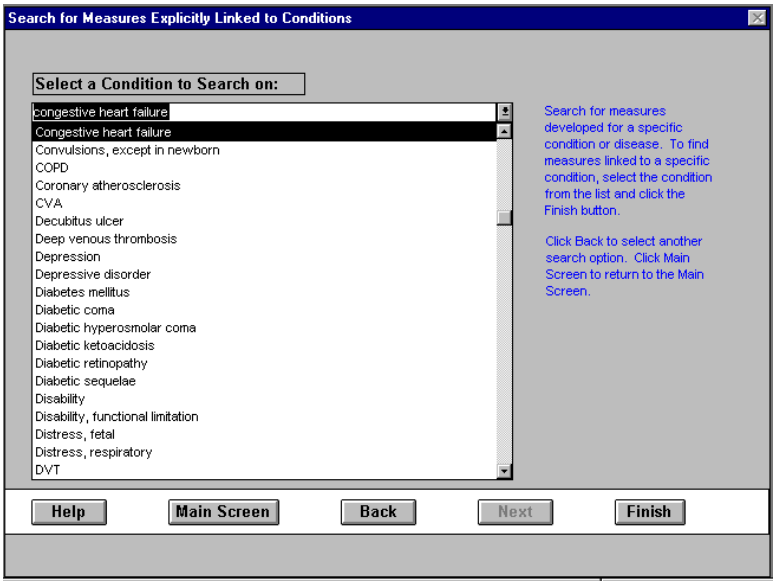
5. **User-Specified Search Criteria** - Allows you to design your own search criteria from a venue of approximately 32 categories of information. This is the most complex search method. It is recommended for advanced users only.

6. **Associated with Services Used in the Prevention, Screening, Diagnosis, Treatment or Management of a Selected Condition. Measures That May be Adapted for Use With A Condition** - Finds measures that share common services with a condition you select. Recommended for advanced users only.

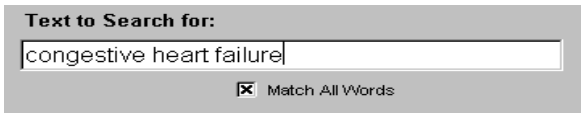
7. **Associated with Potentially Preventable Adverse Outcomes, Comorbidities, and Risk Factors of a Selected Condition**. **Measures That May be Adapted for Use With a Condition** - Finds measures that share common outcomes with a condition you select. Recommended for advanced users only.

Select a search type and click either the Next button (or the Finish button, if you selected Measure Code).

Depending on which search type you select, you will be prompted to enter search criteria on another screen. In most cases this will involve selecting an item from a list, as shown below.

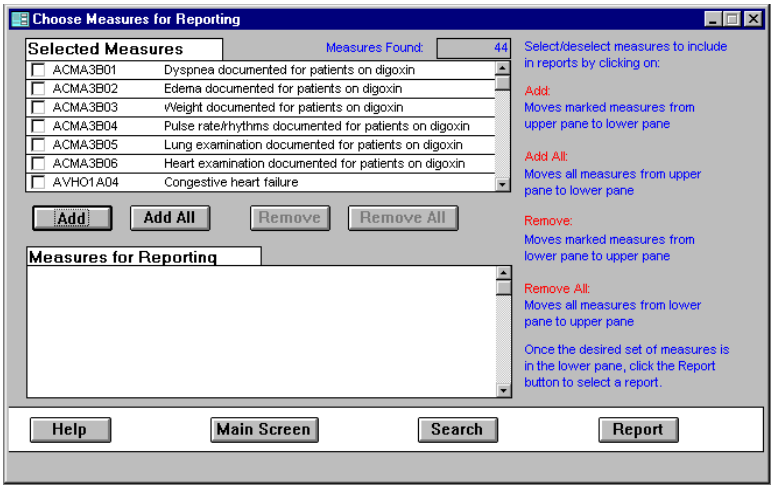


Screens similar to that shown above appear when you select any of the condition-related searches (option 2, 6, or 7) or search for measures related to a procedure (option 3). Selecting the first option allows you to enter text as shown below.



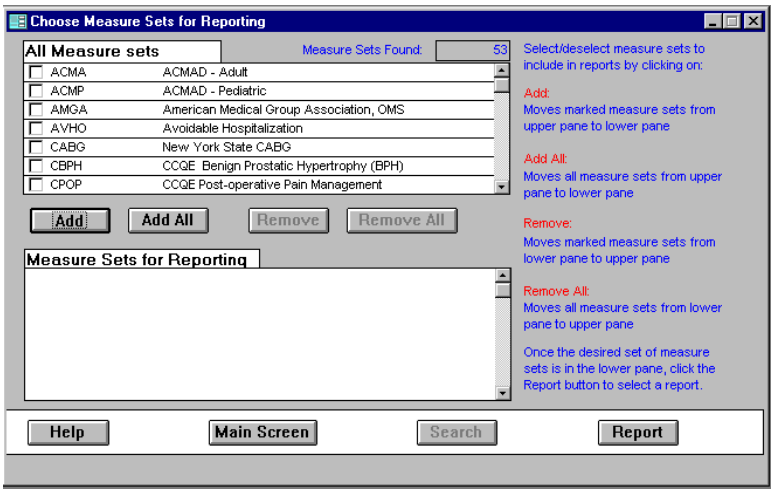
Other options present you with the entire list of measures or allow for creation of complex queries. These search methods are relatively advanced, and are described in more detail in Chapter 5.

Regardless of which search method you select, a Finish button will appear in the lower right corner of the screen once you have made a selection. If CONQUEST needs more information to carry out the search, a message will be displayed once you click the Finish button. Clicking the Finish button executes the search, and the measures that match the search criteria will be displayed in the Choose Measures for Reporting screen as shown below:



Working with Measure Sets and Conditions

If you are working with conditions or measure sets, CONQUEST will display a list of measure sets or conditions when you click on either the Reports on Measure Sets or Reports on Conditions buttons on the Main Screen. These screens are similar to the Choose Measures for Reporting screen, and examples of each are shown below.



For more information on working with measure sets, consult Chapter 6. See Chapter 7 for more information on working with conditions.

Step 3 - Select the List of Measures, Measure Sets, or Conditions for Reporting

At this point, you have selected a search path, and if you are working with measures you have selected a search method and the results of the search are displayed in the Choose Measures for Reporting screen. Depending on which path you selected, either the Choose Measures for Reporting, Choose Measure Sets for Reporting, or Choose Conditions for Reporting should be displayed.

This step allows you to select the list of measures, measure sets, or conditions to include in the report. By default, no items appear in the lower pane, so you will have to add to the lower pane any items you wish to include in a report. Whether you are working with measures, measure sets, or conditions, there are essentially two options: (a) include all items in a report or (b) include some items in a report. Items (measures, measure sets, or conditions) can be included in a report using either the Add or Add All buttons.

Add All

To include all items in a report, click the Add All button near the center of the screen.

Add

If you only want to move a few of the items to the lower pane, first click on the box next to each item you wish to move, and then click the Add button. In the example below, one measure is selected in the upper pane.

The Add button is clicked, and the selected measure is moved to the lower pane as shown below. The process is similar for selecting and moving measure sets or conditions.

Remove and Remove All

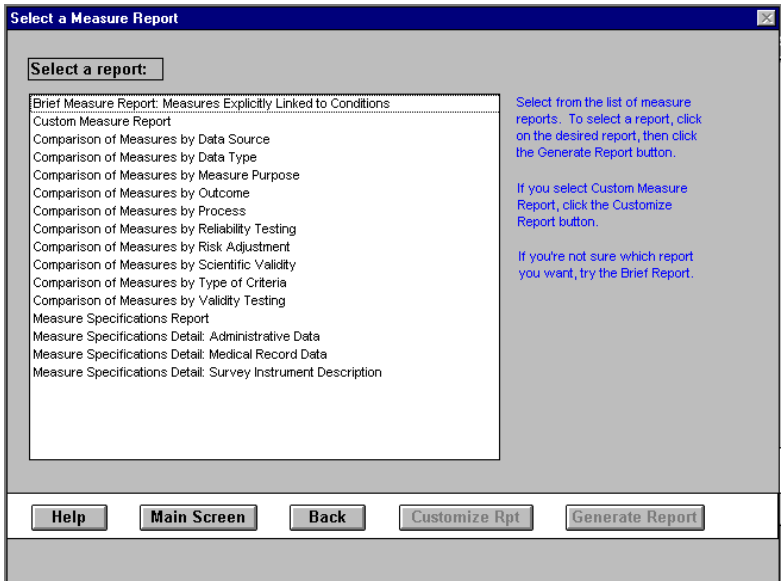
The Remove and Remove All buttons work opposite the Add and Add All buttons, moving items from the lower pane to the upper pane. Clicking the Remove All button moves all items from the lower pane to the upper pane, whereas the Remove button moves only selected items from the lower pane to the upper pane. To select an item in the lower pane, click in the box next to the item.

Once the desired items have been moved to the lower pane, you can click on the Report button to view a list of available reports.

Step 4 - Select a Report

The fourth step involves selecting which type of report best meets your needs. As with searching, there are more options when working with measures compared to working with measure sets or conditions. Each path allows you to create at least two different types of reports, and both the measure and condition paths allow you to create detailed, flexible custom reports. General information on working with reports can be found in Chapter 8, and information specific to each search path can be found in Chapters 5, 6, and 7.

To select a report, click on the report name in the list of available reports to highlight it as shown below.



Step 5 - Create the Report

Step five is creating the report. CONQUEST 2.0 allows you to preview reports on-screen without having to print them. You can also have more than one report open at any given time, allowing you to compare information from multiple reports simultaneously.

For most reports, once a report is selected you can create the report by clicking the Generate Report button. In some cases (when a Custom Measure Report or Custom Condition Report is selected), the Generate Report button will be disabled and the Customize Report button will be enabled instead. For these reports, click on the Customize Report button and select the components of the report that you would like to include, then click the Generate Report button within that screen.

While there is no single type of report that is best in all cases, the following reports are recommended starting points for each of the search paths:

Path	**Report**
Reports on measures	Brief measure report
Reports on measure sets	Measure set description report
Reports on conditions	Condition description report

To close a report, choose Close from the File menu when a report is displayed on the screen. You can also print a report by selecting Print from the File menu.

OTHER CONQUEST 2.0 FEATURES

Most screens have a Help button that displays information about the options in that screen. Also, almost every screen has a Main Screen button that allows you to cancel the current search and return to the Main Screen. This will also erase any search results, so CONQUEST 2.0 will display a message before any results are deleted.

In many cases, you may find yourself switching between reports and the Choose measures/measure sets/conditions for reporting screen. The items listed in the menu represent all screens or reports currently open in CONQUEST 2.0, and you can switch between open reports/screens by selecting the name of the report or screen from Window menu. This is useful for creating reports, refining the list of measures/measure sets/conditions, and creating other, more detailed reports.

SEARCHING AND REPORTING STRATEGIES

CONQUEST 2.0 is most useful when applied to a specific question or problem. These can take many forms, and can involve questions such as, AWhat measures have been developed for use with congestive heart failure (CHF) populations?@ AWhat measure sets have been developed for use with hospital discharge data?@ or AAmong what age groups is acute low back pain applicable?@ Examining the question will usually tell you which search option is best. For instance, the first question asks about measures developed for a particular condition. In this case, select the measure path, and choose Measures explicitly linked to conditions. Select Congestive heart failure from the list and click Finish. This is an example of a fairly common question, and also an example of a common use of CONQUEST. As your questions become more complex, you can start to explore more advanced search options.

In some cases, it is possible that your search will not return any results. This does not mean that you have done anything wrong, only that there are no matching items in CONQUEST 2.0. When this occurs try asking your question in a different or more general way. For instance, you may be interested in measuring outcomes of patients who have had a PTCA (a form of heart surgery). You search under Measures explicitly linked to procedures and there is no APTCA@ in the list. Alternatively, you search for User-specified text in the measure description and enter APTCA,@ which returns 19 measures.

Some searches can generate too many results. Suppose you want to find all measures that relate to the heart. If you search for all measures that contain the word Aheart@ you will find over

100 measures, and chances are that not all measures will be of interest. Since the Choose Measures for Reporting screen only lists the measure code and description, it may be difficult to tell which measures will be useful. The best option is to Add All the measure to the lower pane, then create and print a Brief Report that displays the set name, measure name, measure code, denominator description, and numerator description for all Aheart@ measures. You can then review the printed list and decide which measures are useful.

For more information on working with reports, see Chapter 8 - Working with and Printing Reports.

Chapter 2 - Installing the Software

REQUIREMENTS

To use CONQUEST 2.0 you need the following:

- **$** A personal computer capable of running Windows 3.x, Windows 95 or Windows NT 4. A Pentium-class processor with 8 megabytes (MB) of memory (RAM) is the minimum recommended configuration.
- **$** Windows 3.x, Windows 95, or Windows NT 4.
- **$** Hard disk drive with a minimum of 20 MB of free space.
- **$** A mouse or other pointing device.
- **$** A diskette drive or CD-ROM drive.

CONQUEST 2.0 is available on diskettes, and the installation instructions are slightly different depending on whether you are running Windows 3.x or Windows 95/Windows NT4.

Regardless of the distribution media or operating system, CONQUEST allows for three different types of installations: Typical, Compact, and Custom. The Typical installation installs the Access 2.0 runtime environment and the CONQUEST 2.0 database, along with CONQUEST 2.0 help and other related files. This is the recommended installation for all users. The Compact installation installs the CONQUEST database, and does not install the Access 2.0 runtime environment. To use the database without the runtime environment, you must have Microsoft Access 2.0 installed on your PC. This option should be considered only by advanced users. The Custom option allows you to selectively install combinations of the (a) Access 2.0 runtime environment, and/or (b) the CONQUEST 2.0 database.

INSTALLING CONQUEST 2.0 ON COMPUTERS USING WINDOWS 3.1 OR WINDOWS 3.11

From Diskettes:

1) Insert Disk 1 of the CONQUEST 2.0 disks into the disk drive.
2) In Program Manager, choose Run from the File menu and type A:\Setup.exe in the Command Line box. If your 3.5" drive is not drive A:, you will need to change the entry in the command line box to match the drive letter associated with your 3.5" disk drive.
3) Click the Next button in the installation dialog box to begin installing CONQUEST 2.0. Review the License Agreement and click the Yes button to accept the terms of the agreement and continue. The next screen allows you to enter your name and organizational affiliation. Enter your name and affiliation and click the Next button. This will display a screen allowing you to select the directory where CONQUEST 2.0 will be installed. In most cases, the default location of C:\CONQUEST is appropriate, although you may select another drive and/or directory if you have multiple hard drives or wish to use more than one copy of CONQUEST. Click Next to move to the setup type screen.

This screen allows you to select from three installation types, described below. In general, you should select Typical and move to the next screen by clicking the Next button.

Installation type	**Description**
Typical	Installs the Microsoft Access 2 runtime environment and the CONQUEST 2.0 database. This is the best option for almost all users.
Compact	Selecting this option installs the CONQUEST 2.0 database, help file, and readme file. Choose this option only if you have Access 2.0 or higher and have significant experience using Access.
Custom	This option allows to install the database files, the runtime files, or both. This option is not useful for most users.

Once you have selected a setup type, you can select which program group CONQUEST 2.0 is displayed in. You may select the default program group or enter another group. Once selected, click Next to review the setup, and Next again to install CONQUEST 2.0. Follow the directions in the installation program and insert subsequent diskettes when prompted.

INSTALLING CONQUEST 2.0 ON COMPUTERS USING WINDOWS 95 OR WINDOWS NT 4.0

From Diskettes:

1) Insert Disk 1 of the CONQUEST 2.0 disks into the disk drive.
2) From the Start menu, choose Run and type A:\Setup.exe in the Run dialog box. If your 3.5" disk drive is not drive A:, you will need to change the entry in the dialog box to match the disk drive letter associated with your 3.5" disk drive.
3) Click the Next button in the installation dialog box to begin installing CONQUEST 2.0. Review the License Agreement and click the Yes button to accept the terms of the agreement and continue. The following screen allows you to enter your name and organizational affiliation. Enter your name and affiliation and click the Next button. This will display a screen allowing you to select the directory where CONQUEST 2.0 will be installed. In most cases, the default location of C:\CONQUEST is appropriate, although you may select another drive and/or directory if you have multiple hard drives or wish to use more than one copy of CONQUEST. Click Next to move to the setup type screen.

This screen allows you to select from three installation types, described above. In general, you should select Typical and move to the next screen by clicking the Next button.

Once you have selected a setup type, you can select which program group CONQUEST 2.0 is displayed in. You may select the default program group or enter another group. Once selected, click Next to review the setup, and Next again to install CONQUEST 2.0. Follow the directions in the installation program and insert subsequent diskettes when prompted.

CONFIGURING CONQUEST 2.0

This section highlights some of the issues involved in setting up and using CONQUEST 2.0. Depending on the hardware and software installed on your computer, you may wish to adjust the video resolution, or use the standalone version of Access.

Video Modes

CONQUEST 2.0 will operate on any machine running Windows 3.1, Windows 3.11, Windows 95, or Windows NT 4.0. The minimum video resolution required by CONQUEST is true VGA (640 x 480, 16 colors). CONQUEST 2.0 will work well in SVGA (800 x 600, 256 colors) mode, and this is the recommended display setting for most computers.

Using Access 2.0

CONQUEST 2.0 is designed to be used with the Access 2.0 runtime environment, which is included with the distribution media, and automatically installed as part of the Typical setup option. Unlike previous versions of CONQUEST, users now have the ability to add and edit the database without having to use the full version of Access 2.0. Additionally, functions such as keyword searching have now been built in to the CONQUEST 2.0 database, eliminating the need to use the standalone version of Access 2.0. Generally speaking, there is no benefit to using the full version of Access 2.0. However, it is still possible to use CONQUEST 2.0 without the runtime version of Access 2.0. To use CONQUEST 2.0 in this way, first start Access 2.0, and then open the CONQUEST.MDB file. By default, the Main Screen will be displayed, and other aspects of the user interface will be implemented. To bypass these features, hold down the Shift key when opening the CONQUEST.MDB file.

See Chapter 3 for an overview of CONQUEST 2.0, or Chapter 1 for a quick start guide.

Chapter 3 - Getting Started

This chapter includes basic information about the CONQUEST 2.0 software - the COmputerized Needs-Oriented QUality Measurement Evaluation SysTem. CONQUEST 2.0 was designed to help users find the measures they need to monitor clinical performance for populations experiencing specific clinical conditions.

This chapter contains information on getting started with the software and includes:

$ A description of the basics regarding CONQUEST 2.0.
$ An overview of CONQUEST 2.0 features.
$ Instructions on using CONQUEST 2.0.

CONQUEST 2.0 BASICS

CONQUEST stands for COmputerized Needs-oriented QUality measurement Evaluation SysTem. CONQUEST 2.0 is a structure for collecting and evaluating clinical performance measures. It has interlocking databases**C**a Measure Database, a Condition Database, and a Measure Specifications Database**C**with a user-friendly interface to help you find clinical performance measures suited to your needs.

The Measure Database. Performance measures are developed by a wide variety of groups and organizations for many different purposes. The Measure Database contains 1,197 measures belonging to 53 measure sets.

The Condition Database. The health care needs of a population drive the choice of performance measures. For example, a health plan that has a mostly elderly population with many who have diabetes will be interested in performance measures focused on diabetes care for elderly patients. The Condition Database contains information on 57 conditions.

The Specifications Database. CONQUEST 2.0 includes a new class of information known as measure specifications. This is more detailed information than that available in the measure database. It can be especially useful for users who wish to implement or modify a measure.

OVERVIEW OF CONQUEST 2.0 FEATURES

The most important set of functions in CONQUEST 2.0 are related to creating, viewing, and printing reports. These reports describe the content of the measures, conditions, and measure sets included in CONQUEST 2.0. The reports in CONQUEST 2.0 are designed to answer some of the more common questions you are likely to have about a measure, measure set, or condition, including, "How reliable is this measure?", "Among what age groups is this disease prevalent?", and "What procedures/conditions are related to this measure?"

Creating reports in CONQUEST 2.0 follows one of three "paths," depending on the goals and objectives of the reporting process. These three paths are creating reports for (1) measures, (2) measure sets, and (3) conditions. The most common use of the CONQUEST database is to

create reports based on measures, although your specific needs might require the other report paths.

Whether you are creating a report for measures, measure sets, or conditions, there are some common steps involved in creating reports. The first step is to select the measures, measure sets, or conditions that should be included in the report. When working with measures, creating measure reports involves searching for measures. CONQUEST 2.0 provides seven methods for selecting measures. These are described in detail in Chapter 5, but the general search options enable you to locate measures based on the measure code, the conditions related to a measure, the services related to a measure, potentially preventable adverse outcomes, or user specified criteria. If you are working with conditions or measure sets, CONQUEST will display a list of measure sets or conditions and you can select those to include in the report. For more information on working with measure sets and conditions, consult Chapters 6 and 7, respectively.

A second step allows you to select measures, measure sets, or conditions to include in any reports. This is especially useful when working with measure reports, where you can selectively add or remove measures from the list of measures CONQUEST uses when creating reports.

The third step involves selecting which type of report best meets your needs. As with searching, there are more options when working with measures than with measure sets or conditions. Both the measure and the condition paths allow you to create at least two different types of reports in addition to creating the detailed, flexible custom reports. General information on working with reports can be found in Chapter 8, and information specific to each search path can be found in Chapters 5, 6, and 7.

Step four is creating the report. CONQUEST 2.0 allows you to preview reports on-screen without having to print the report. You can also have more than one report open at any given time, allowing you to compare information from multiple reports simultaneously.

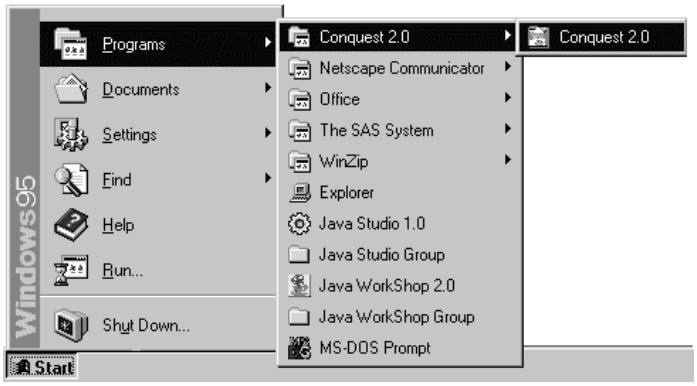
This is just a brief overview of some of the features in CONQUEST 2.0. Chapters 5 though 8 provide more detailed descriptions of specific features such as searching for measures, creating reports, and so forth. The next section guides you through a typical CONQUEST 2.0 session from start to finish.

USING CONQUEST 2.0

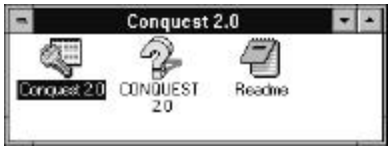
This section is designed to provide you with an introduction to CONQUEST 2.0 using one of the most common uses of CONQUEST as an example. In this sequence, we will search for all measures that were developed specifically for persons with congestive heart failure (CHF), print a summary-level report for all the measures, and then print a more detailed report for just a few of the measures. For now, we'll assume CONQUEST 2.0 is already installed on your PC, but if you need help on installing CONQUEST you can refer to Chapter 2.

Starting CONQUEST 2.0

The first step is to start CONQUEST. If you have Windows 95 or Windows NT 4.0, you can start CONQUEST by choosing the CONQUEST 2.0 icon from the CONQUEST 2.0 group in the Start menu as shown below:

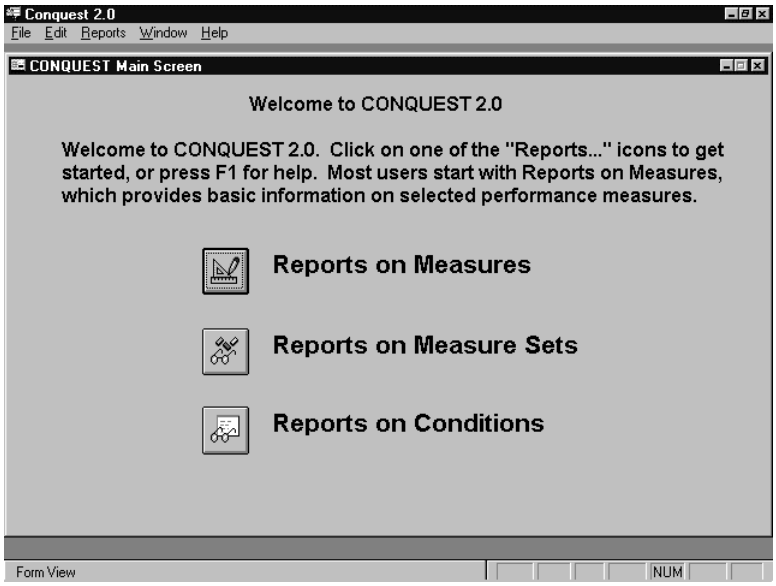


Windows 3.x users can start CONQUEST by double-clicking on the CONQUEST 2.0 icon in the CONQUEST 2.0 program group.



CONQUEST 2.0 Main Screen

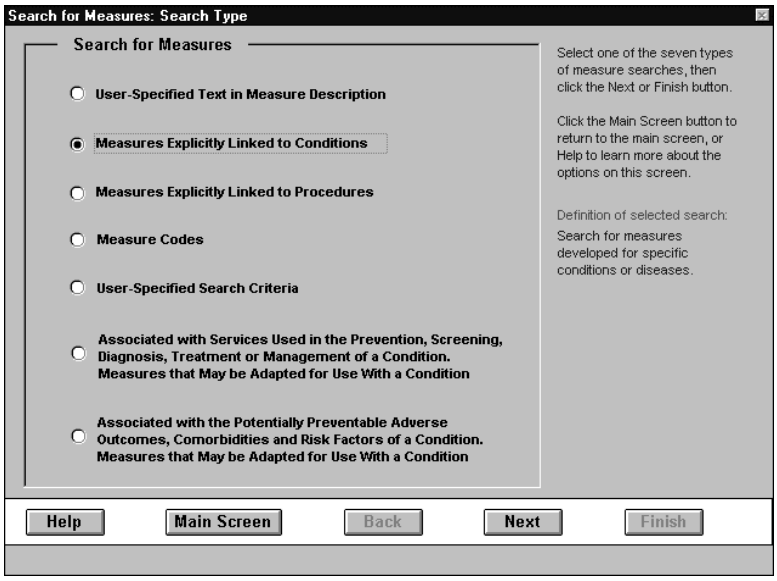
Once you launch CONQUEST 2.0, you will see the "home" screen for CONQUEST 2.0 that appears every time CONQUEST is started. This is referred to as the Main Screen and is always open, although sometimes it may be hidden or minimized. From this screen, you can initiate searches for measures, conditions, or measure sets, and other functions such as exiting CONQUEST 2.0. The three buttons on the Main Screen provide one-click access to the three most common functions in CONQUEST 2.0. A menu at the top of the screen provides access to all of CONQUEST's functions. Some of these features (such as editing and entering information in the database) are designed for experienced users, whereas other operations are more commonly used (exiting CONQUEST and searching for help).



The three buttons on the Main Screen allow you to create reports on measures, measure sets, or conditions. Even though we are interested in a particular condition, what we are most interested in is obtaining *measures* related to that condition. Accordingly, we'll start the search by clicking on the Reports on Measures button.

Selecting a Search Type

The next screen presents us with a list of the seven different types of measure searches



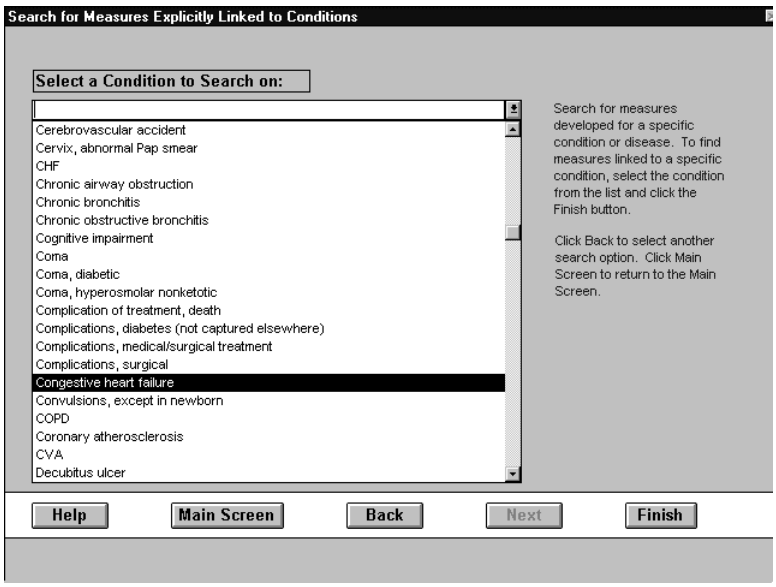
CONQUEST 2.0 can perform. Some are more complicated than others, and a complete description of all measure searches can be found in Chapter 5. Since we know we are interested in a particular condition, we can search for measures that were developed explicitly for use with

that condition. To do this, select the Measures Explicitly Linked to Conditions option as shown below.

Once you have selected this search option, click on the Next button at the bottom of the screen.

Selecting a Condition

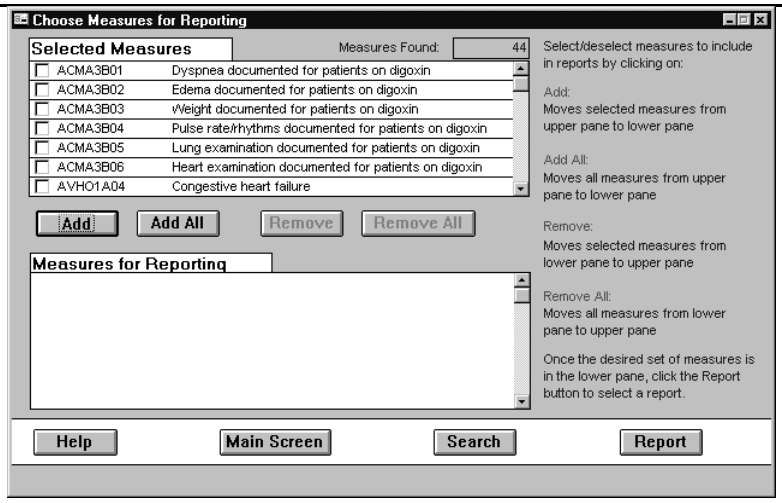
This screen allows you to select a condition to be used as the search criterion. Select "Congestive heart failure" (CHF) by clicking on it in the list of conditions as shown below.



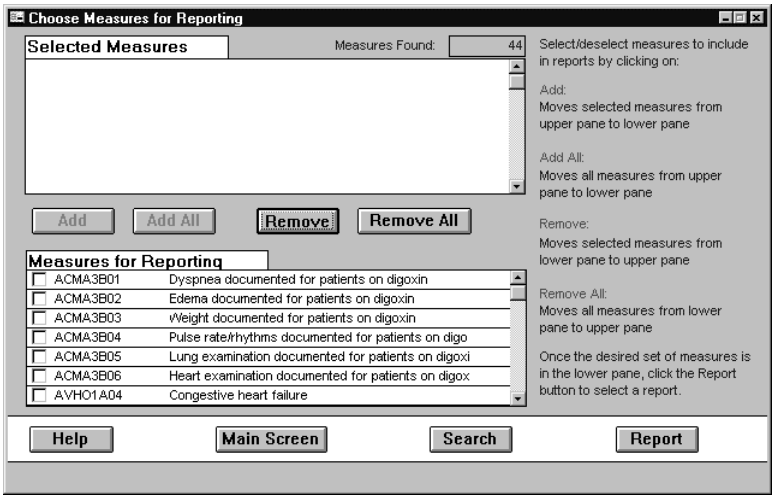
Once you have made a selection, click on the Finish button at the bottom of the screen to execute the search. Measures developed for this condition will be selected. This may take a few seconds, after which the results of the search will be displayed.

Viewing Search Results

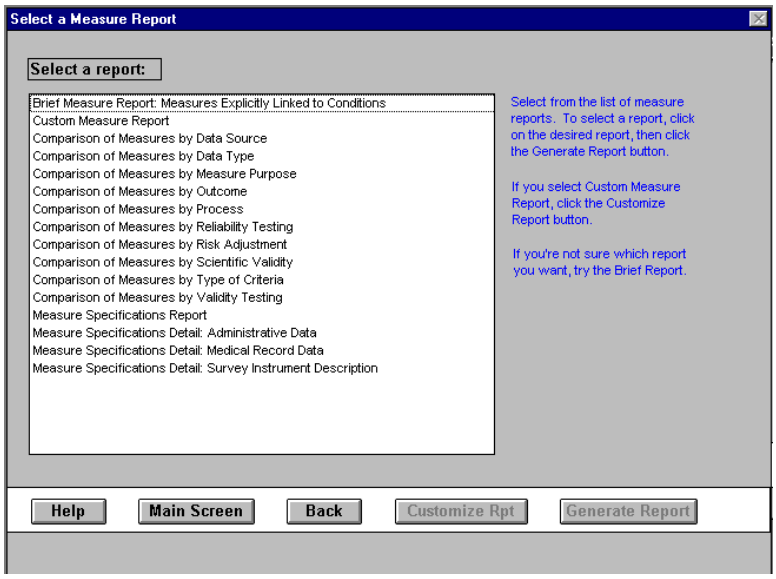
The screen below shows the results of the search for measures linked to CHF. In the upper center section of the screen there is a counter that displays the number of measures found. In this case, CONQUEST 2.0 located 44 measures directly related to CHF. All 44 of these measure are listed in the upper pane of this screen as shown below.



The lower pane of this screen contains the list of measures that will be included in the report. Initially, the lower pane is empty, which means that none of the 44 measures will be included in any reports that we create. Since there aren't that many measures, we can include all of them in a report and then later sort out which ones should be included in a more detailed report. To include measures in a report, we need to move them from the upper pane to the lower pane. The easiest way to move all of the selected measures from the upper pane to the lower pane is to click the Add All button in the left center section of the screen. After you click the Add All button, the screen should look like the one shown below.



Once all of the selected measures have been moved to the lower pane, the next step is to create a report by clicking the Report button in the lower right corner of the screen. This brings up the report selection screen as shown below.



CONQUEST 2.0 allows you to create any of 16 different measure reports. Most of these are fairly specific, and display detailed information about each of the measures. This can be overwhelming at first, so a good first step in any search is to print out a brief report. The exact contents of a brief report may vary somewhat depending on the type of search performed, but will include the measure set name, measure name, measure code, denominator description, and numerator description. To display a brief report, select Brief Measure Report from the list and click the Generate Report button in the lower right corner of the screen.

Viewing Reports

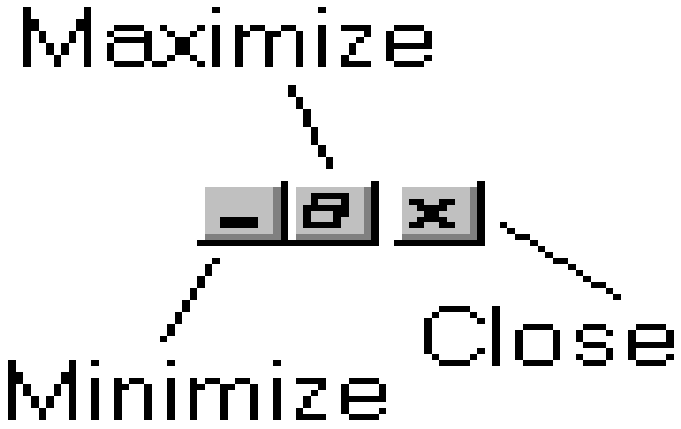
Once you click the Generate Report button, CONQUEST 2.0 will build the report and display the report on a new screen. If you position the cursor over the report, you will see the cursor changes to a magnifying glass, and if you click the left mouse button while the mouse cursor is positioned over the report CONQUEST 2.0 will zoom in on that section of the report. You can move around within a page using the scroll bars at the bottom of the screen and on the right edge of the screen, and you can move to different pages of the report using the navigation box in

the lower left corner of the screen.

The two outermost buttons allow you to move to the first and last page of the report. If you just want to move a single page, use the two inner buttons. The current page number is displayed in the center of this group of controls. If you would like to close a report without printing it, choose Close from the File menu.

Printing Reports

To print a report, choose Print from the File menu and a standard Windows print dialog will be displayed. In most cases, you will want to print the entire report and you can do this by clicking the OK button. Other options in this dialog allow you to print a range of pages and change the number of copies printed. For more information on printing reports see Chapter 8. After you have printed a report, you can either close it by choosing Close from the File menu or you can minimize the report by clicking the minimize icon in the upper right corner of the screen. In Windows 95, the Maximize, Minimize, and Close buttons will appear as follows:

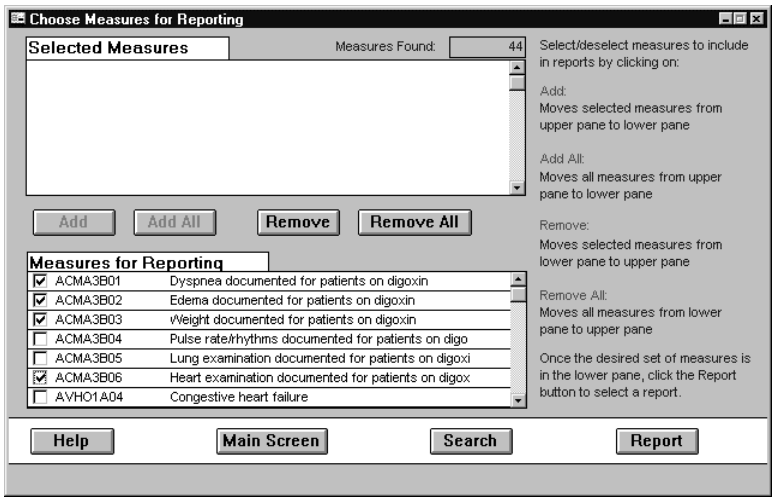


Reviewing Measures

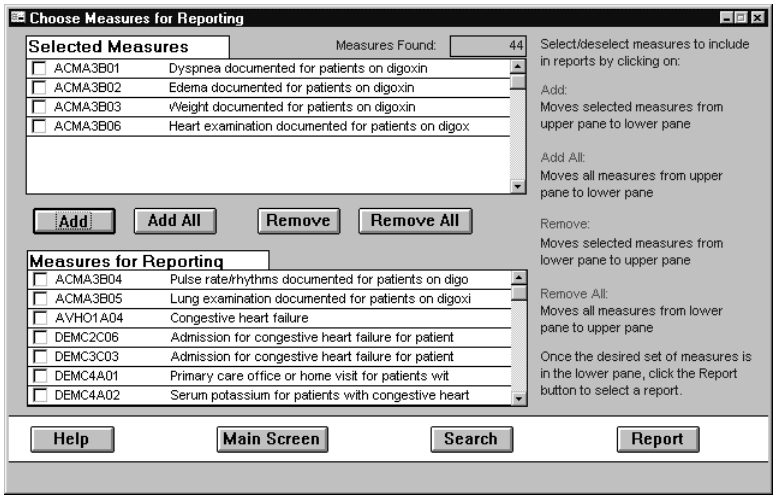
It is important to keep in mind that CONQUEST returns a list of ALL measures that were developed specifically to be used with CHF populations. This could include measures developed to track outcomes of patients admitted with CHF, measures that were designed to track management of HMO enrollees with a history of CHF, and so on. Once you have printed or viewed a brief report, you can probably identify some measure which will be more useful than others. At this point, you can create more detailed report on a subset of the measures that appeared in the brief report. For example, we may want to compare measures based on the extent and type of scientific testing each measure has undergone, but we only want a few of the measures to be included in the report. To do this, close or minimize the report and CONQUEST will display the ASelect a Measure Report@ screen. This is the same screen that displayed the original list of measures used to create the brief report. Then click on Back in order to get to the AChoose Measures for Reporting@ screen.

In the lower pane of this screen, you can scroll through the list of measures using the scroll bars on the left side of the pane. Each measure in the list includes a measure name and measure code that describe the measure. These are printed on the report and can be used to refer back to the measures in the upper or lower pane. Since all of the CHF measures are already in the lower pane, we can selectively remove measures from the list using one of two methods. Both work just as well, although one can be faster depending on how many measures were initially located compared to how many should be retained.

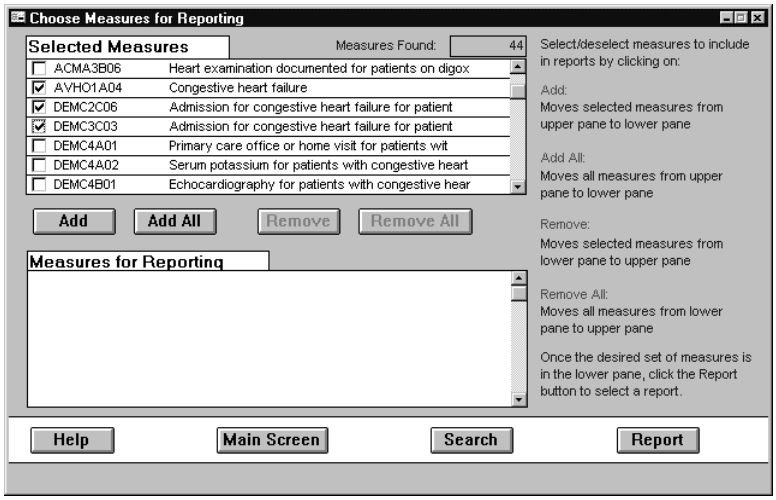
If you would like to remove only a few measures from the lower pane, click on the box to the left of each measure you would like to remove from the lower pane and click the Remove button.



This will move all of the selected measures (the checked ones) to the upper pane.



Alternatively, you can move all the measures from the lower pane to the upper pane by clicking the Remove All button and then move items back into the lower pane by selecting them and clicking the Add button. For example, suppose we only want to include three measures in the detailed report. It is actually faster to click the Remove All button and then select the three measures you would like to include in the detailed report. To do this, select the measures in the upper pane as shown below and click the Add button.



With the desired measures in the lower pane, click the Report button. In the next screen, choose Comparison of Measures by Reliability Testing. Click the Generate Report button and CONQUEST will generate the report using only the three measures you have selected. You can repeat this process by adding and removing measures and also by selecting different report options.

NEW FEATURES IN CONQUEST 2.0

CONQUEST 2.0 includes several changes compared to previous versions of CONQUEST. Many of these changes were made in response to user feedback, and reflect the ongoing development of CONQUEST.

Most obviously, the graphical interface has been completely revised to be more consistent throughout and intuitive. CONQUEST 2.0. is easier to use than CONQUEST 1.0, and there are a number of other improvements. For instance, it is now possible to go directly from the selection procedure to include a measure in a report simply by clicking on a list of elements on the screen. Previous versions required you to perform a search and write down a list of measure codes in one part of CONQUEST, then re-enter those codes in another part of CONQUEST.
Second, new reports have been added and existing reports have been modified to be more informative and easier to interpret. Previous versions of CONQUEST printed reports with blank spaces for certain fields, and in some cases this made it difficult to know if a section was not relevant or if the underlying data was missing. In CONQUEST 2.0, something is printed in every section of every report, eliminating potential concerns about the completeness of the data.

Another improvement is the ability to search for measures using the text search and the search for measures explicitly linked to procedures. These features represent two useful new methods for locating measures and are described in more detail in Chapter 5.

The underlying database was also revised, which resulted in the addition of new measures, measure sets, and conditions (see Appendix J, Measure Set Comparisons, CONQUEST 1.1 and 2.0). There are now 53 measure sets in the CONQUEST database, consisting of almost 1,200 measures. CONQUEST 2.0 also includes information on 57 conditions. Some measures, measure sets, and conditions that appeared in previous versions of CONQUEST are not included in CONQUEST 2.0.

CONQUEST 2.0 also includes measure specifications, which are detailed descriptions that can be useful in understanding and implementing clinical performance measures.

Where Do I Go from Here?

This chapter provided an overview of the basic CONQUEST 2.0 functions. CONQUEST 2.0 has been designed so that common operations (selecting items, creating reports) are similar whether you are working with measures, measure sets, or conditions. Chapter 5 contains a more detailed description of working with measures, and Chapters 6 and 7 describe how to work with measure sets and conditions, respectively. An overview of working with and printing reports can be found in Chapter 8. Four guided tours are described in Chapter 9. Chapter 10 discusses how to enter new data into the database.

Chapter 4 - Using Performance Measures

CHAPTER TOPICS

This chapter has several objectives:

- Describe some uses of CONQUEST 2.0.
- Review some uses of clinical performance measures.
- Discuss assessment of the worth of measures.
- Outline the concept of adapting measures.

USES OF CONQUEST 2.0

Three major uses of CONQUEST 2.0 are described here: (1) as a source of information about performance measures in the database, (2) as a source of information on specific conditions and the populations that experience them, as well as measures developed for or adaptable to performance measurement for the condition, and (3) as a tool for comparing and evaluating the worth of measures.

Source of Information About Measures in the Database

The first use of CONQUEST 2.0 is as a source of information about measures to suit users' specific performance measurement needs. For example, a corporate purchaser of health care may wish to locate outcome measures explicitly designed for managed care settings. Or a State Medicaid director may be interested in the administrative data found in measures of process of care for children. With CONQUEST 2.0, users can search for measures for:

- Specific conditions.
- Specific procedures.
- Specific age groups.
- Primary prevention.
- Secondary prevention, i.e., early detection.
- Managed care.
- Particular health care settings.
- Process measurement.
- Outcome measurement.
- Proxy outcome measurement.
- Administrative data.
- Medical records data.
- Patient survey data.

Users can limit their search to measures with reliability and validity testing or to measures currently in use.

This application of CONQUEST 2.0 is limited only by the number and diversity of measures in the Measure and Condition Databases. If additional measures are known to exist but are not yet entered into CONQUEST 2.0, the user can code and enter these measures and compare them to those already entered.

Source of Information on Specific Conditions and Populations

The second use of CONQUEST 2.0 is as a source of information on how clinical conditions affect populations in terms of their prevalence, burden of illness, costs of care, and other characteristics. For each condition, information can be displayed concerning recommended services and the complications that may occur. The user can then search for performance measures related to a condition or to its services and complications and ask for reports on the attributes of these measures.

The section on services in the condition database provides a method for quick and approximate summary and comparison of recommendations from clinical practice guidelines. This section also links to the Measure Database and allows searches for measures related to these guideline recommendations.

If interested in conditions not yet entered into CONQUEST 2.0, the user can code and enter these conditions, then search for related performance measures that may already have been entered into the measure database.

Tool for Evaluating Measures

A third use of CONQUEST 2.0 is as a tool to compare, contrast, and evaluate whether the construction of a performance measure is suitable for its purpose. This application builds on the common framework and language established by the earlier version of CONQUEST, CONQUEST 1.1.

Users may add their own measures into CONQUEST 2.0 in order to compare them to those currently in the database. By selecting from a menu of options, users can then produce reports that compare groups of measures on a single attribute, e.g., data sources required to construct the measures or aspects of process or outcome captured by the measures. Users may choose to view measure specification reports for details about specific measures. The most versatile use of the database would be in Access 2.0, the current platform for the database, where users have the freedom to design their own queries and reports.

SOME USES FOR CLINICAL PERFORMANCE MEASURES

Clinical performance measures are especially useful for strategies designed to promote quality of clinical care. These strategies include accreditation programs, internal quality improvement programs, purchaser choice among providers using "report cards," standardized reports of performance measurement, and external quality improvement programs.

Accreditation Programs

Professional groups offer programs of voluntary accreditation based on requirements for organizational structure assessed by means of site visits. For instance, accreditation is offered by the Joint Commission on Accreditation of Health Care Organizations (JCAHO) for hospitals, ambulatory surgery centers, long-term care facilities, home-care programs, and health care networks and by the National Committee on Quality Assurance (NCQA) for managed care organizations. Both programs require an internal quality improvement component within each accredited organization, and both have developed sets of clinical performance measures.

Internal Quality Improvement Programs

Health care providers operate internal quality improvement programs often stimulated by requirements of accreditation organizations. Internal quality improvement programs use repeated measurements of clinical performance to identify areas needing improvement, and then check whether performance is better after actions aimed at improving care are implemented.

Purchaser Choice on the Basis of Quality

Increasingly, corporate purchasers in the private sector of health care require that health care plans provide measurements of clinical performance to guide the choices of employees among health care providers. As part of their marketing strategy for individual consumers, some plans provide their own "report cards" displaying clinical performance measurements. Both the NCQA and the Foundation for Accountability (FACCT) are developing performance measurement sets to guide purchaser choices.

External Quality Improvement Programs

External quality improvement programs operated by State or regional consortia and by quality improvement organizations (QIOs) coordinate cycles of clinical performance measurement, and feed back comparisons of performance to encourage internal quality improvement efforts. The external agency collects the performance measurements, verifies their accuracy, and presents comparisons among similar providers of care.

ASSESSING THE WORTH OF CLINICAL PERFORMANCE MEASURES

For any of the uses described above, the user may want to know, "How good is this measure?" CONQUEST 2.0 does not classify measures as "good" or "bad" because this oversimplifies the issues. The worth of a measure to the user depends upon the purpose for which it will be used, and the time, personnel, data, and other resources available for measurement.

CONQUEST 2.0 codes whether a measure has been tested for reliability and validity and what type of test was used. A valid clinical performance measure is one that measures what it is supposed to measure; for measures included in CONQUEST 2.0, the construct being measured is an aspect of clinical performance. For a measure to be valid, it must be low in both random and systematic error. Validity includes reliability, which is the extent to which the measure is low in random error; an unreliable measure, therefore, cannot have high validity. Reliability of a measure captures how consistently it performs when applied.

Whether a measure is suitable for a particular use depends in large part upon the purpose of the user. Since more reliable and valid measures tend to be more expensive to construct, users may settle for a less valid measure if that is acceptable for the given purpose. For instance, a high degree of validity in measurement is required if an external agent intends to use the measure to sanction, or deny, payment to a provider. Toward the other extreme, less validity is required when a provider organization intends to use repeated measurement, with subjective interpretation of the trend in results, to manage progress over time toward an internal target for improved performance. CONQUEST 2.0 provides the user with information on the purpose for which a measure was originally developed.

Suitability for a given purpose also depends upon the resources available for measurement. CONQUEST 2.0 permits the user to review the data sources required for a measure and to find out whether an analysis of the costs of measurement was done. If funds and data are limited, a crude measurement may be better than no measurement, as long as the user remains aware of the limitations of the measure. Serious problems can arise, however, if a user deploys a crude measurement tool and then acts upon it as though it means precisely what it seems to mean. For instance, problems arise when users interpret a change in a performance measurement as a true change, and plan to act upon it, when the amount of change observed falls within the range of acceptable measurement error in the instrument.

In summary, a "good" measure is one that has sufficient validity for its intended use. Because the notions of validity and reliability are critical to judgments about measures, the CONQUEST 2.0 classification assesses measures for several different types of validity and reliability. If reliability and validity testing have been done, the results can be obtained along with the detailed measure specifications from the measure developer.

ADAPTING MEASURES

The CONQUEST 2.0 database allows users to locate measures that may be adapted for different uses than those their developer intended.

For example, a measure developed for managed care settings may be adapted for use in fee-for-service practices if the adapter finds a way around an obvious difficulty: measures used for managed care settings usually sample cases from the enrollee population; however, there are no enrollees for fee-for-service clinicians. The adapter therefore redefines the denominator of the measure, for example, to include individuals who have seen each physician of interest for regularly scheduled visits at least twice in the prior year. Additional adaptation may be required because data sources are likely to differ between the two settings. Administrative data in the fee-for-service setting is likely to be different from administrative data in managed care.

A measure developed for one condition may be adapted to another condition. For instance, a measure of communication to patients about self-care for diabetes may be adapted to measure communication concerning self-care for asthma. In this example, the adapter recognizes a similarity in the processes of care recommended for two different conditions.

CONQUEST 2.0 currently contains a wide variety of types of measures. Even measures with outdated clinical content are included if their structure is sophisticated. A user might choose to update the clinical content of the measure, or adapt the measure to a different condition altogether.

Once adapted, a measure usually does not produce results that can be directly compared with those of the original measure. An adapted measure must be tested again for reliability and validity.

Chapter 5 - Reports on Measures

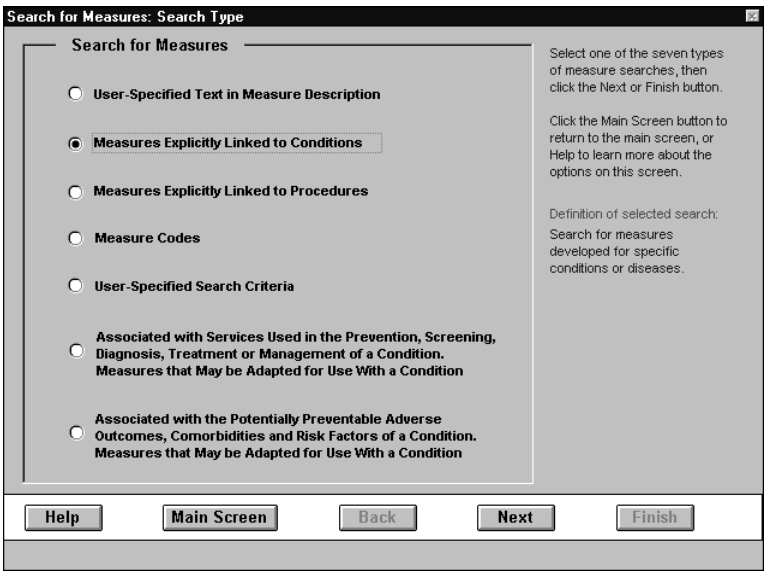
OVERVIEW

The Reports on Measures path is one of three search paths in CONQUEST 2.0. This chapter provides a detailed description of how to create measure-based reports in CONQUEST 2.0. Creating reports for various measures is one of the most commonly performed functions in CONQUEST 2.0. While there are a number of options for creating measure reports, there are five basic steps to creating any measure report. These are listed here and described in more detail in this chapter.

- Selecting a search type.
- Executing a search.
- Reviewing the search results.
- Selecting a report.
- Generating reports.

SELECTING A SEARCH TYPE

To select a search type, click on the Reports on Measures button on the Main Screen or choose the Measures item from the Reports menu. This will display the Search for Measures: Search Type screen. This is the first step in creating a measure report. The goal of this step is to select a search method that is most appropriate for your needs. There is no one "best" method, since this will generally depend on the amount of information you have about the measures you would like to find. The most common scenario is one where you are searching for measures that were designed for use with a particular disease, diagnosis, or condition. For example, you may be interested in measures that are designed for use with persons who have acute myocardial infarction (AMI). This could include patients admitted with an AMI, members of a health plan who have a history of AMI, or persons who were prescribed certain drugs after being diagnosed with an AMI. This search option is referred to as Search for Measures Explicitly Linked to Conditions and is the second option in the Search Type screen.



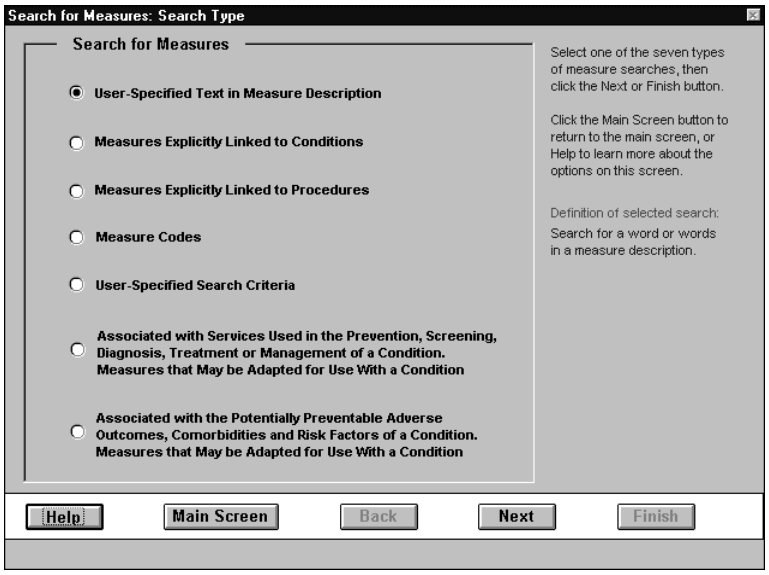
CONQUEST 2.0 allows you to search for measures using any of seven different search methods displayed on the Search Type screen. Seven types of measure searches are available in CONQUEST:

User-Specified Text:	This option allows you to search for words or numbers in the measure name, numerator description, or denominator description.
Measures Explicitly Linked to Conditions:	Locates measures that were developed explicitly for use with a particular disease, diagnosis, or condition.
Measures Explicitly Linked to Procedures:	Finds measures that were developed explicitly for use with a specific medical or surgical procedure.
Measure Codes:	Displays a list of all measures in CONQUEST 2.0, allowing you to select individual measures.
User-Specified Search Criteria:	Allows you to search for measures using up to 33 different criteria.
Associated with with Services....:	Searches for measures that share services with a selected condition.
Associated with with Potentially Preventable...:	Finds measures that have common, potentially preventable adverse outcomes, comorbidities, or risk factors with the selected condition.

From this screen, you can make a selection and click the Next or Finish button (depending on which search method you select) or return to the Main Screen to search for measure sets or conditions.

User-Specified Text in Measure Description

The User-Specified Text search option enables you to search for measures based on words or numbers that appear in the measure name, numerator description, or denominator description. This is a useful option whenever you are looking for measures that cut across many conditions or describe general groups of persons or conditions.



As an example, suppose you are interested in finding measures that relate to cancer and women. You could conduct separate searches for breast cancer, cervical cancer, and so forth, but this would require separate searches and the various measures could not be printed together on a single report.

Alternatively, you could perform a text search using "female" and "cancer" as search criteria as shown below.

As implemented here, this search will find all measures that contain the words "female" and "cancer" in the measure name, numerator description, or denominator description. You can enter words in any order, and the search is not case sensitive so it doesn't matter if you enter upper- or lower-case words.

Once you have entered the desired search terms click the Finish button to view the list of measures that match the search criteria.

Match All Words

In the example above, the Match All Words dialog was checked, which instructs CONQUEST to find only measures that contain all of the search terms. In the CONQUEST database, there are a number of measures that contain the terms female and cancer. Checking this box results in measures that contain both "female" and "cancer."

Search Considerations

CONQUEST 2.0 will find some variations on words, but not all. For instance, if you search for "female" (without the quotes), CONQUEST will return measures that have "female" or "females" as part of the measure name, numerator description, or denominator description. Conversely, if you search for "females" (in quotes), CONQUEST will return all measures with "females" in any of the three fields listed above but it will not find measures that have only the singular, "female," listed in the measure name, numerator description, or denominator description.

In some cases, you may want to truncate the word to find as many measures as possible. For example, searching for "cardiac" will find some measures and searching for "cardiology" may find other measures, but searching for "cardi" will find both "cardiac" and "cardiology" in the specified fields. Similarly, entering "append" as the search criteria will find measures related to appendicitis, appendectomy, perforated appendix, and so forth.

The above examples discussed searching for words or parts of words. It is also possible to search for numbers or combinations of words and numbers. For instance, you may wish to search for "65" to find measures for use with elderly populations. You could also search for "cancer" and "65" to locate measures relating to cancer among elderly populations.

The table below, which is not created by the software but is shown only for illustrative purposes, lists the measure name, numerator description, and denominator description for several measures and describes under what conditions (if any) the measure would be "found" if the search criteria were "female" and "cancer" as shown above.

Measure code	Measure name	Numerator description	Denominator description	Reason found	Match all words
JCH41B02	Estrogen receptor test for breast **cancer**	The subset of patients in the denominator who have estrogen receptor diagnostic analysis results in the medical record.	**Female** patients with Stage 1 or greater primary breast cancer undergoing biopsy or resection.	Measure name contains cancer, denominator description includes female.	Either checked or not checked
CUIN1A01	History for medications for patients with	A history for medications was taken	**Females** with urinary incontinence age 65 and older,	Denominator description contains	Not checked

Measure code	Measure name	Numerator description	Denominator description	Reason found	Match all words
	urinary incontinence		who are not terminally ill.	females.	
EPRM2A01	Validity of colon **cancer** diagnosis	Patients with tissue pathology diagnostic of colon **cancer**.	Patients diagnosed with colon **cancer**.	Cancer appears in the measure name, numerator and denominator	Not checked
CABG1A01	Hospital deaths after CABG	Patients experiencing in-hospital death.	Patients undergoing CABG	Neither cancer nor female appears in any field. This measure would not be found.	N/A
HEDA0701	Checkups after delivery	The subset of the denominator who had a post partum visit by the 42nd day after delivery.	All enrolled women who delivered resulting in a live birth(s) from January 1 to November 18 of the reporting year and who were continuously enrolled for 42 days after delivery.	Although the denominator contains women, the search was for female. This measure would not be found.	N/A

You may find that a given search returns too many or too few measures. If you find the search results in too many measures, you may modify the search criteria by adding terms and repeating the search. Also, you may want to check the Match All Words box if it is not already checked. Checking the Match All Words box will never result in more measures being found, and will usually result in fewer measures being included in the result set.

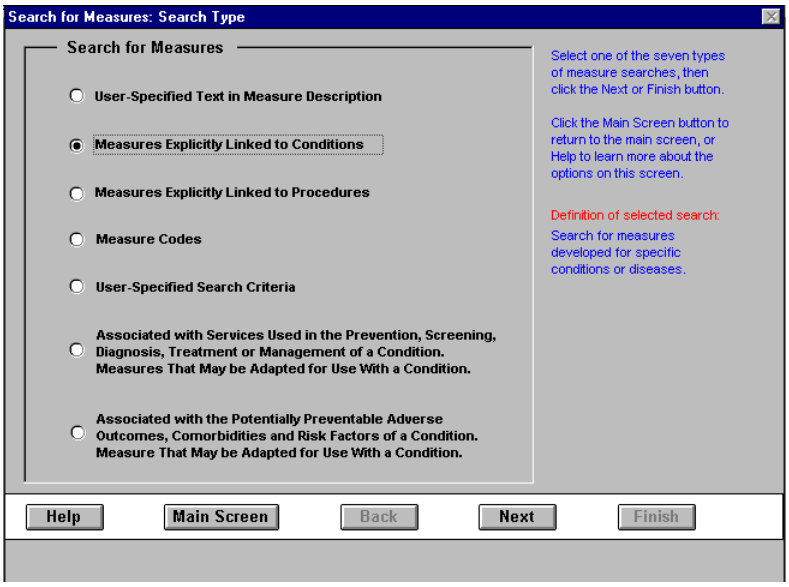
If too few measures are returned and there are several terms entered as search criteria, you may want to use fewer terms. As a rule, two or three terms often results in the most manageable number of measures.

Finally, it is important to keep in mind that this search looks for terms within the database, rather than keywords. While it will find measures with "females" when searching for "female," the search routine will not find "women" if you search for "female."

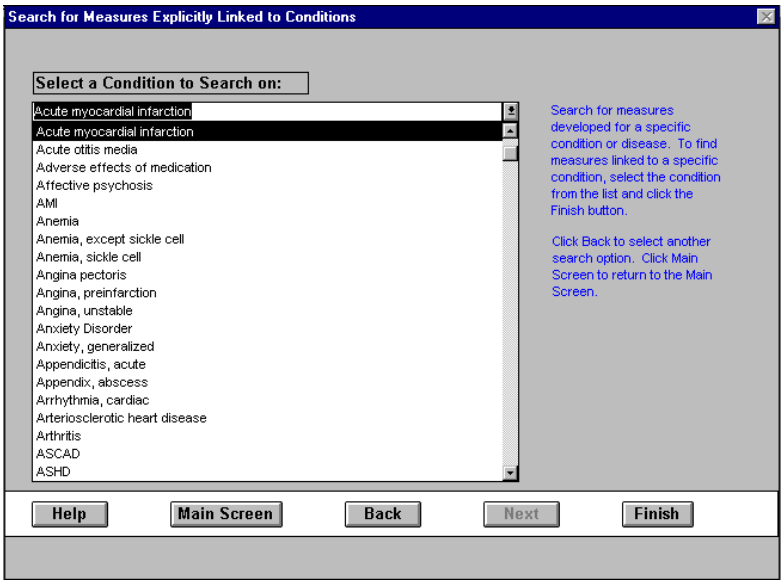
Measures Explicitly Linked to Conditions

This search option allows you to locate measures that were developed for use with a specific condition, disease, or diagnosis. Measures found using this method are designed to evaluate either the processes of care or the outcomes associated with the condition.

To choose this search option, select Measures Explicitly Linked to Conditions on the Search Type screen as shown below.



Click the Next button to move to the condition selection screen.

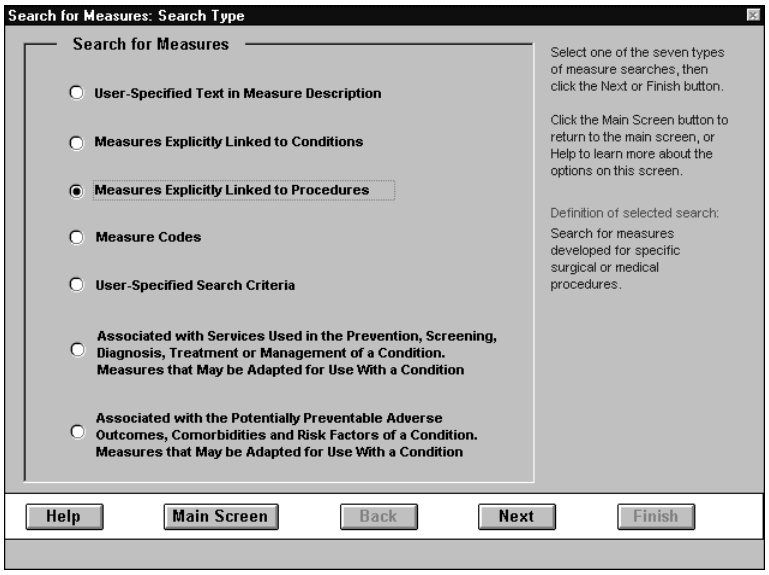


This screen allows you to select a condition from the list in the center of the screen. The name of a single condition may be worded in several ways. For example, "Acute myocardial infarction" appears as "Myocardial infarction" in addition to acute myocardial infarction. These "synonym" listings are designed to assist you in the search process and should not be interpreted as the definitive code for the condition.

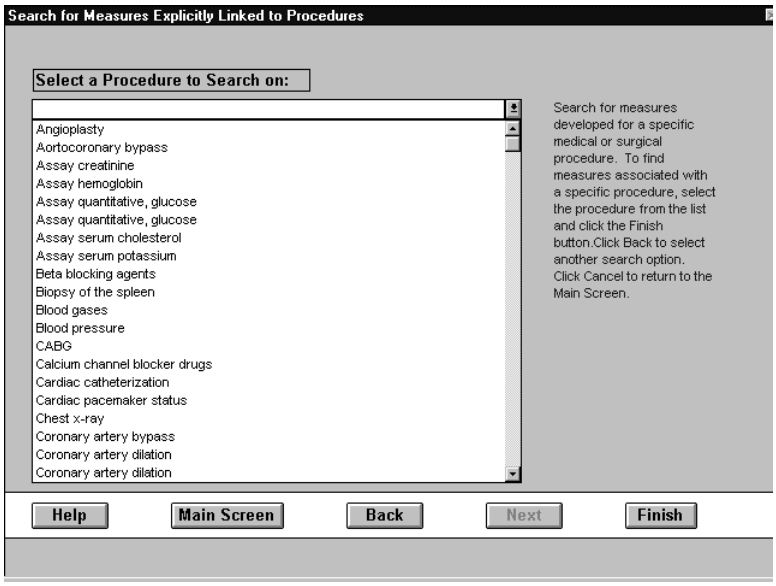
To select a condition, click on the list and highlight a condition using the cursor. Once you have selected a condition, click on the Finish button to view a list of measures related to that condition.

Measures Explicitly Linked to Procedures

This search option allows you to locate measures that were developed for use with a specific surgical or medical procedure. To choose this search option, select Measures Explicitly Linked to Procedures on the Search Type screen as shown below.



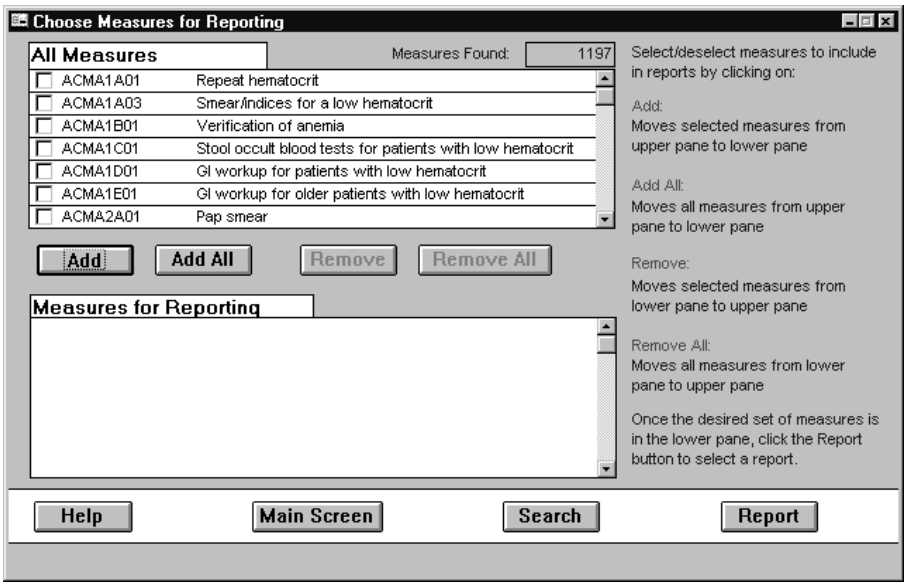
Click the Next button to move to the procedure selection screen.



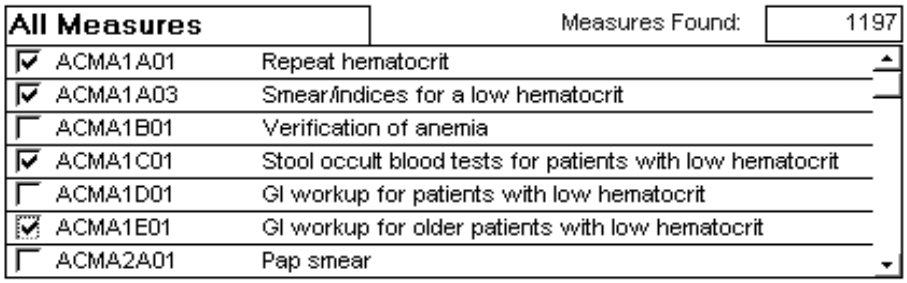
This screen allows you to select a procedure from the list in the center of the screen. To select a procedure, click on the list and highlight a procedure using the cursor. Once you have selected a procedure, click on the Finish button to view a list of measures related to that procedure.

Measure Codes

Each measure in the CONQUEST 2.0 database is uniquely identified by an alphanumeric "code." While these codes do not necessarily have meaning outside of CONQUEST, measure codes can be useful in referring to a specific measure as it appears in the CONQUEST 2.0 database. If you know the name or measure code associated with a specific measure, you can select it from the full list of CONQUEST 2.0 measures. In general, it is rare that you would know the name or measure code associated with a measure, and this function is provided mainly for advanced users who are familiar with the CONQUEST 2.0 database. To do this, select the measure codes option from the search type window and click Finish. This displays the Choose Measures for Reporting screen as shown below.



This screen contains two lists of measures that appear as separate panes on the screen. Measures in the upper pane are all measures in CONQUEST 2.0, whereas measures in the lower pane are those that will be included in a report. Initially, no measures appear in the lower pane. To include a measure in a report, the measure must be moved to the lower pane by selecting the measure and clicking the Add button. The measures are sorted by measure code, so if you know the code for a given measure you can scroll to that point using the scroll bars on the right side of the box. Once you locate a measure to include in a report, click on the box to the left of the measure and a check mark will appear next to it, as shown below.



Any time you click the Add button, all selected measures (those measures with a check mark next to them) will be moved from the upper pane to the lower pane. Whenever you click the Report button, a report will be created for all measures in the lower pane.

It is possible to move all measures from the upper pane to the lower pane, although reports on all measures can be anywhere between 200 and 10,000 pages long.

Finding Measures in Long List

Although you can use the scroll bars and the scroll box to move around within the list of measures, it can take some time to scroll through the list of measures. If you want to search for the measure code or measure name associated with a particular measure, you can click on either the measure code or measure name part of the screen and press Ctrl-F (press the AF@ key while holding down the ACtrl@ key). This will display the following dialog:

There are four key fields in this dialog box. The first is the AFind What@ box where you can enter a text term to search for. This can include letters, whole words, numbers, or combinations of the three. The second key option is the AWhere@ field, which has three options that allow you to research the whole field, any part of the field, or the beginning of the field only. As a rule, you probably want to set this option to AAny Part of Field@ since this is the least restrictive option. Another option prompts you to select whether CONQUEST 2.0 should search towards the top of the list (up) or towards the end of the list (down). Finally, once you enter text and select a AWhere@ option, you can select either Find First or Find Next. Clicking on the Find First will take you to the first measure in the list that matches the search criteria. To find other measures, click the Find Next and CONQUEST 2.0 will search either up or down for measures depending on which option is selected in the direction box.

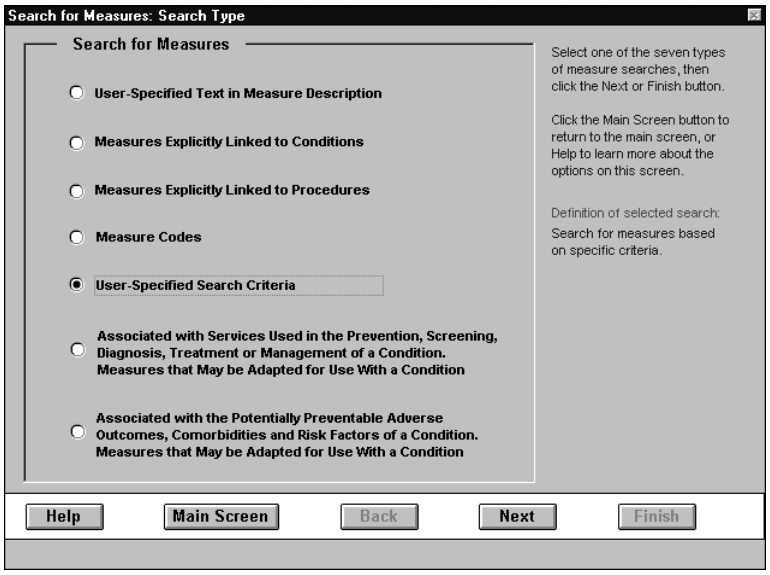
For instance, suppose you want to create a report on the HCUP1C01 measure. You can do this by clicking in the measure codes area of the upper pane and pressing Ctrl and F at the same time. Enter HCUP1C01 in the Find what box and choose Match Whole Field from the Where option. Click on the Find First button and CONQUEST 2.0 will move to the APneumonia after major surgery/invasive vascular procedure@ measure. Close the search dialog, click on the box next to the measure, and then click the Add button to move the measure into the lower pane. Clicking the Report button will then allow you to select a report that will include this measure.

User-Specified Search Criteria

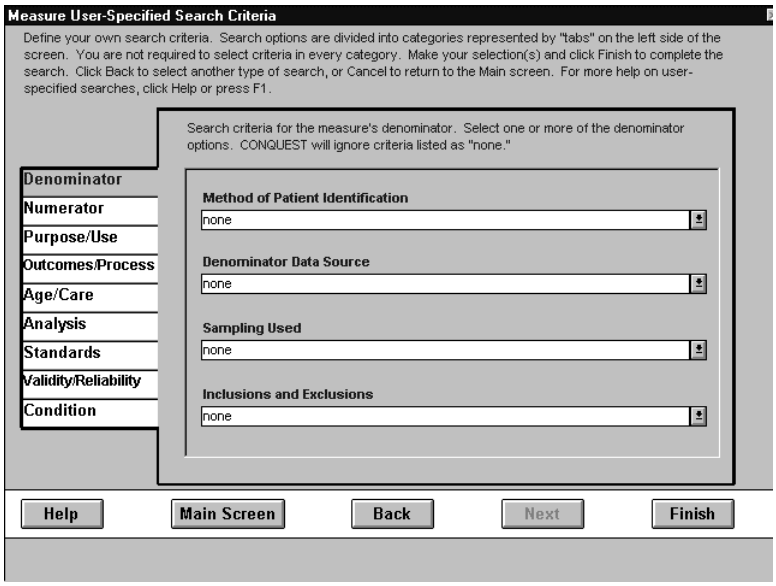
This is the most powerful (and also the most complex) search option in CONQUEST 2.0. Whereas other search options allow you to select from predefined lists or search for specific terms, this method allows you to search for measures based on the characteristics and combination of characteristics of measures in the database. Many of the characteristics associated with a measure are not obvious based on the name or description of a measure. You should use this type of search when you wish to find all measures that deal with a particular population of persons or measures that meet certain criteria. As an example, you might want to

find all measures that were developed for managed care populations, measures that use administrative data, or measures that make use of published guidelines.

To choose this search option, select User-Specified Search Criteria on the Search Type screen as shown below.



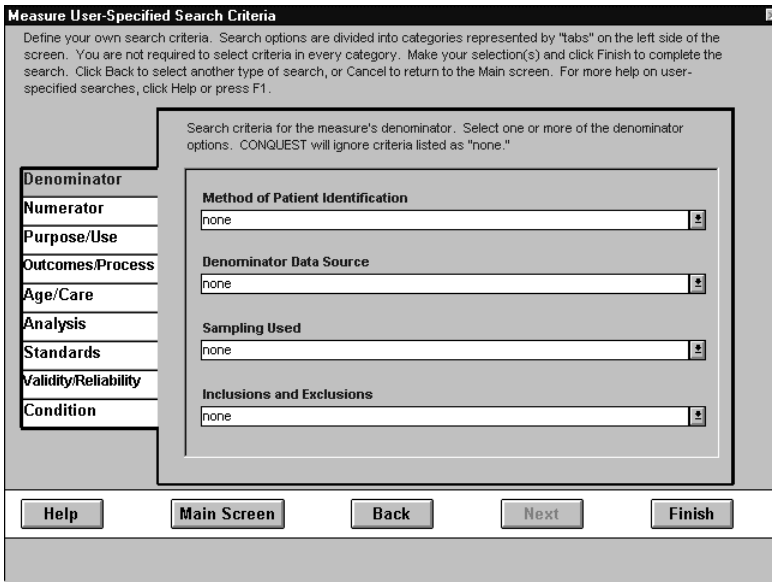
Click the Next button to move to the criteria selection screen.



All of the available options are grouped into nine categories. You can select options within a category by clicking on the Atabs@ along the left side of the screen. It is important to note that the search criteria you select are additive, meaning that if you select one criteria and then select another, CONQUEST 2.0 will locate only those measures that match both criteria. For this reason, we recommend that you start with as few criteria as possible and add additional criteria if you need to further narrow the search.

Once you have selected the desired search criteria, click the Finish button to view the search results.

Denominator Tab



All of the options in this category relate to how the denominator is defined. This includes how patients are defined, the source of data used to create the denominator, the method of sampling used to limit the number of observations in the denominator, and the rules for including and excluding cases. You can specify criteria for none, one, or more than one criteria.

Method of Patient Identification. This attribute identifies the universe or population from which the patients (denominator) are drawn, either enrollees or users.

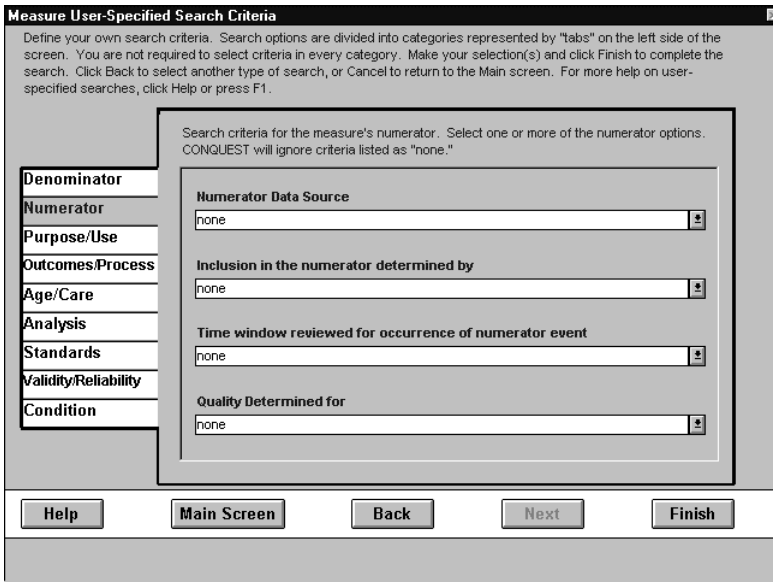
Denominator Data Source. Data source refers to the method or source used in collecting data (e.g., medical record, administrative data).

Sampling Used. Sampling is conducted to reduce the number of cases to whom the measure is applied. This section captures general information about sampling.

Inclusions and Exclusions. Inclusion and exclusion rules are applied to make the denominator as homogeneous as possible prior to the application of the performance measure.

To select criteria from another category, click on the appropriate tab on the left side of the screen.

Numerator Tab



The options in this section relate to how the numerator is defined. You can specify criteria for none, one, or more than one criteria.

<u>*Numerator Data Source*</u>. This option refers to the data source used to include cases in the numerator. Typical sources include administrative databases and medical record data.

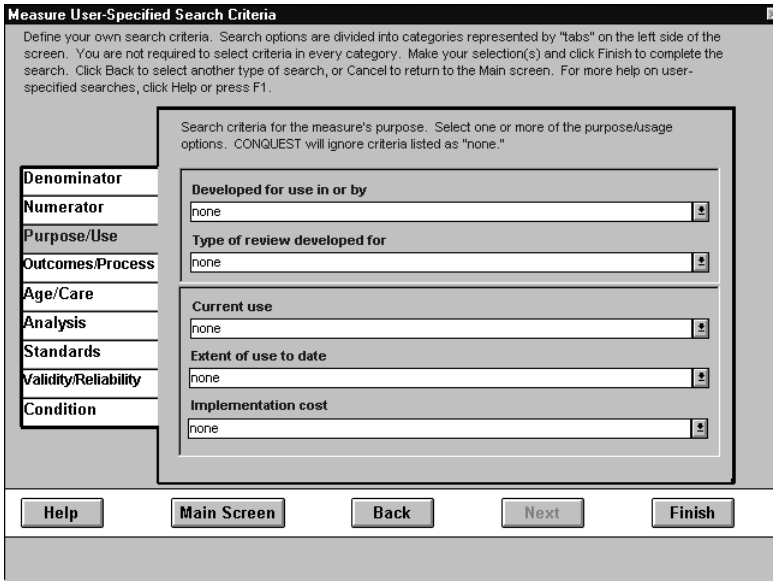
<u>*Inclusion in the Numerator Determined by*</u>. The decision about whether to include a case in the numerator may be made either implicitly or explicitly. Implicit reviews are those where the criteria for inclusion or exclusion are carried in the head of the reviewer. Explicit reviews are those where the criteria are specified in advance and written down.

<u>*Time Window Reviewed for Occurrence of Numerator Event*</u>. The time window reviewed for occurrence of numerator event is the time period during which the denominator population is examined for the numerator event.

<u>*Quality Determined for.*</u> For process measures, the determination of whether good quality care has occurred typically is made at the level of the individual case. For outcome measures, the decision is usually made at the level of the overall rate or level of performance.

To select criteria from another category, click on the appropriate tab on the left side of the screen.

Purpose/Use



Options in this section pertain to the purpose for which a measure was developed and/or how the measure is currently being used. You can specify criteria for none, one, or more than one criteria.

Developed for Use In or By. Measure sets can usually be classified by the service delivery model for which they were originally designed, e.g., managed care, fee for service, government provider. Since existing data sources vary among service delivery models, it is difficult to collect truly comparable data from different organizational types, even from apparently similar data sources.

Type of Review Developed for. Clinical performance measure sets may be developed for many different purposes: internal quality improvement, external quality improvement (government or accreditation), decisionmaking by businesses, consumers, health plans, or Government agency review. Measures developed to manage the outcomes of a single patient or to assess the efficacy of treatment are not clinical performance measures but are included because they may be adapted for clinical performance measurement.

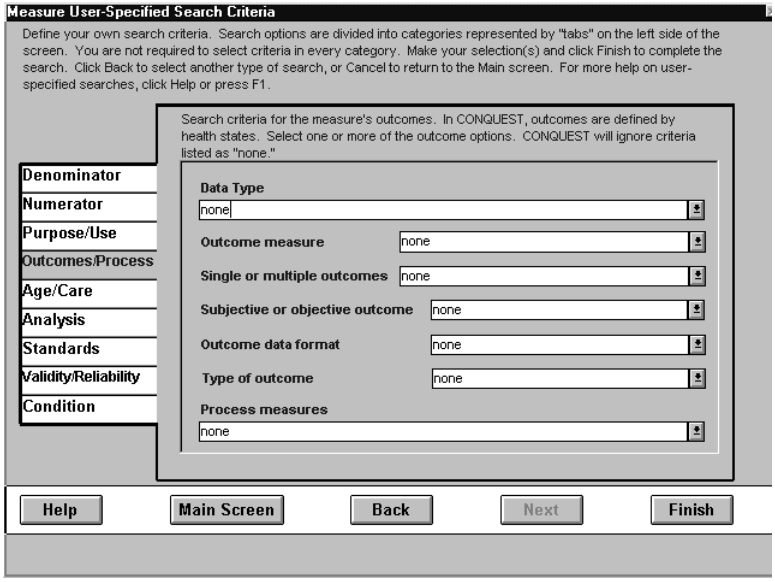
Current Use. A measure is considered currently in use if data are being collected, performance rates calculated, and measurement results analyzed at the time of coding into CONQUEST.

Extent of Use to Date. Wide use provides evidence of the value of a measure, at least by its users. This attribute does not require that the measure be currently in use.

Implementation Cost. Information on the cost of conducting performance measurement is useful to potential users of the measure set. Such information is rarely available. Note that costs of a research project in which measure development was incorporated should not be included. This

attribute is designed to provide information about operating costs. To select criteria from another group, click on the appropriate tab on the left side of the screen.

Outcomes/Process Tab



These options relate to outcomes associated with measures in the database. You can specify criteria for none, one, or more than one criteria.

<u>*Data Type*</u>. Three different types of data may be used for clinical performance measurement: outcome, proxy outcome, and process.

<u>*Outcome Measure*</u>. Outcome measures may apply to any condition or may be condition specific.

<u>*Single or Multiple Outcomes*</u>. Outcomes may be classified by whether they capture one or many outcomes. An example of a measure that captures multiple outcomes is the SF-36, which measures several dimensions of functioning.

<u>*Subjective or Objective Outcome*</u>. Outcome data may be reported subjectively by the patient, or objectively by the clinician.

<u>*Outcome Data Format*</u>. Data format refers to how the data are reported for a single patient.

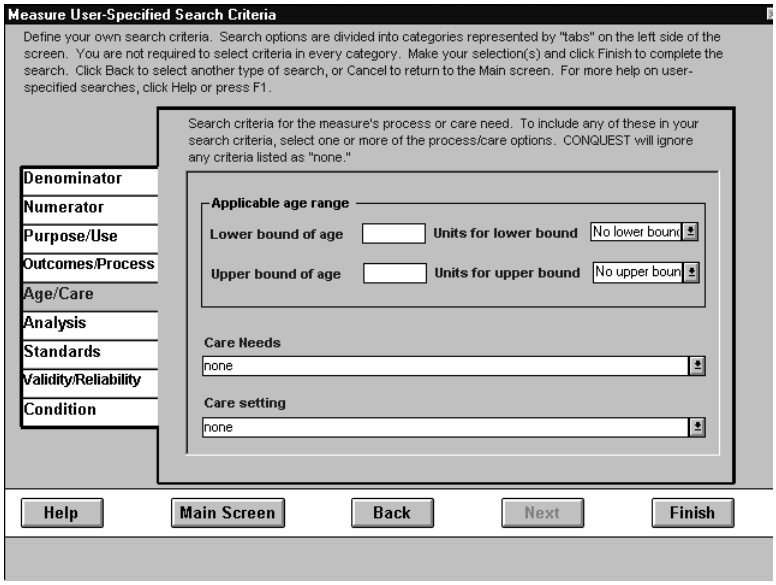
> <u>Categorical data</u> are groupings that describe mutually exclusive categories, e.g., blood pressure levels grouped into Anormal,@ Amild,@ Amoderate,@ Aseverely high@ blood pressure.
>
> <u>Continuous data</u>, such as numeric data, are measured on a continuum, e.g., blood pressure readings or creatinine level. Multi-level item health status indices calculated at the patient level are considered continuous data, even if the items that comprise the scale are categorical.

Type of Outcome. There are three types of outcome measures: functional outcomes, clinical outcomes and health risk states, and behavior outcomes.

Process Measures. Process measures may be grouped into three broad categories: decisionmaking, implementation, and communication. In addition, sometimes developers use outcome measures as proxies for specific processes. In these cases, the outcome measures are intended to measure the quality of processes of care.

To select criteria from another group, click on the appropriate tab on the left side of the screen.

Age/Care Tab



These options relate to criteria for which the measure was originally designed. You can specify criteria for none, one, or more than one criteria.

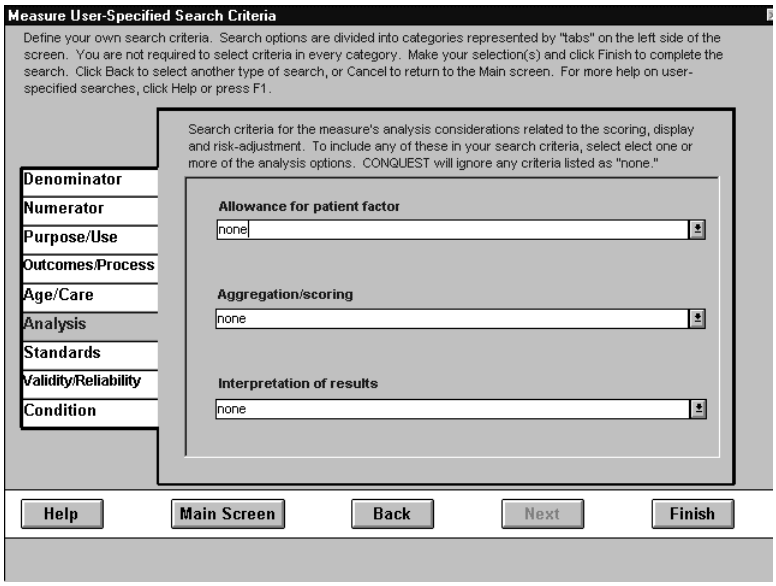
Applicable Age Range. The age range for which the measure was designed and tested can be used as a search criterion. Specify a lower bound and/or an upper bound and whether age is measured in weeks, months, years, or unknown.

Care Needs. Care needs may be defined in terms of health promotion/disease prevention, early detection, and treatment/management of established disease condition. Sets evaluating the continuum of care may have measures concerned with more than one type of care need. Some measures cover both early detection and treatment.

Care Setting. Measures are classified by the setting(s) for which they are designed, even though they might apply to other settings. Knowing the care setting for which measures are designed is important, because data sources vary among settings. It can be difficult to collect truly comparable data in different care settings, even from apparently similar data sources.

To select criteria from another category, click on the appropriate tab on the left side of the screen.

Analysis Tab



The analysis options pertain to the analysis considerations associated with measures. You can specify criteria for none, one, or more than one criteria.

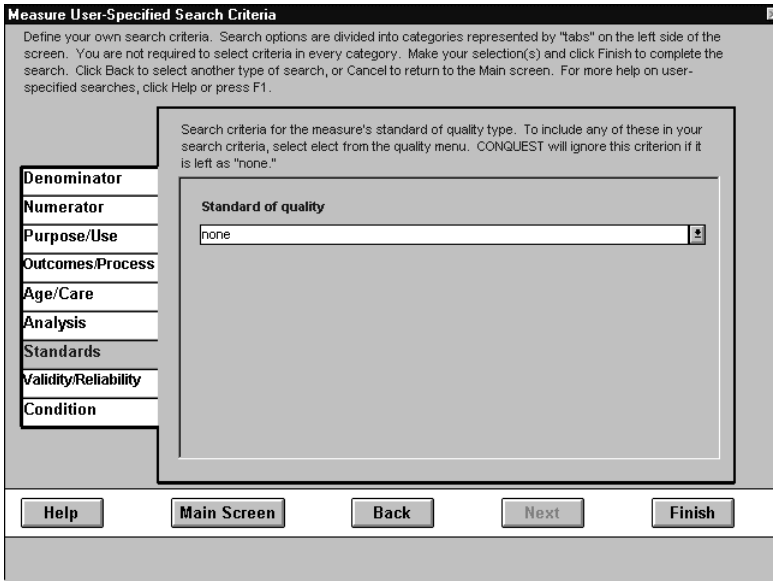
Allowance for Patient Factors. Measures based on process data usually allow for patient factors by specific inclusions and exclusions from the denominator and numerator of a measure, including the specification of acceptable alternatives. In addition to specific inclusions and exclusions applied during measure specification to create more homogeneous denominator populations, other methods may be used to adjust the results of process-based measures for patient factors. One or more of these methods is almost always needed if outcome data are to be used to measure clinical performance.

Aggregation/Scoring. Performance measures may be reported in many ways. While most measures are reported as a single statistic, such as a rate, some measures lend themselves to several aggregation techniques.

Interpretation of Results. Results of performance measurement may be reported via descriptive statistics or the application of statistical testing.

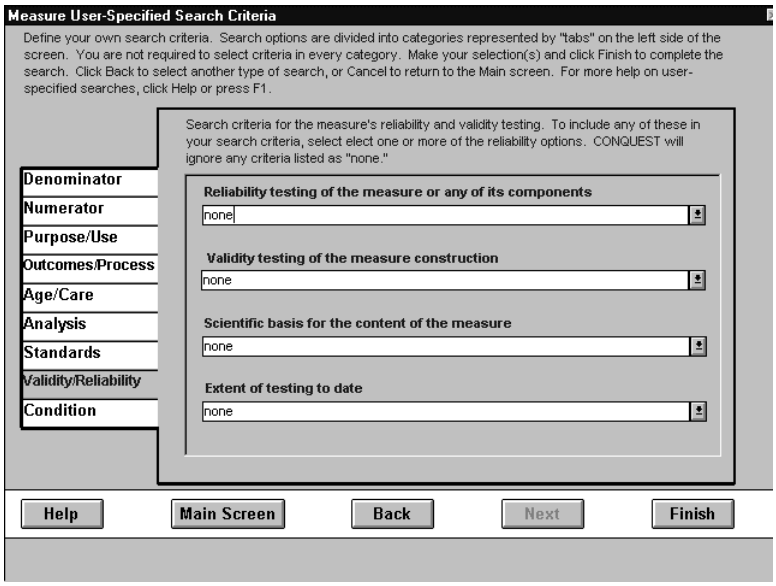
To select criteria from another group, click on the appropriate tab on the left side of the screen.

Standards Tab



There is only one option in this tab, which allows you to select the source of comparison for the standards of quality. For outcome measures, the decision is usually made at the level of the overall rate or level of performance. That is, although each individual outcome is determined to be good or bad for a patient, the occurrence of a bad outcome does not necessarily mean that the patient received bad care. If the overall rate of bad outcomes is higher than expected, this is considered an indication that the quality of care was poor.

Validity/Reliability Tab



The options in this tab describe the reliability and validity associated with a measure. You can specify criteria for none, one, or more than one criteria.

Reliability Testing of the Measure or Any of its Components. Reliability is the degree to which a measure is low in random error. Different types of measures relate to different concepts of reliability. For administrative data, reliability requires consistency in coding of items in the database. For medical records data, reliability requires the same review results for a case using different reviewers or the same reviewer at another time. For multi-item measures, reliability requires a high degree of correlation among the items (a high Cronbach's alpha).

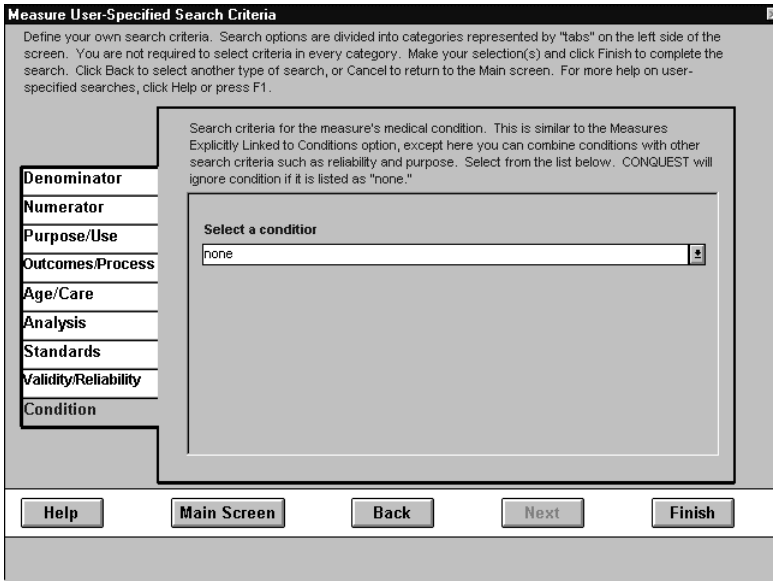
Validity Testing of the Measure Construction. Validity describes how well a performance measure assesses what it is supposed to measure, i.e., a particular aspect of clinical performance. To be valid, a measure must be low in both random and systematic error. The language describing types of validity testing often varies by discipline, e.g., psychology, decision analysis. The coding for this category assumes that all measures have at least face validity testing.

Scientific Basis for the Content of the Measure. The process used to identify the content of a measure affects its validity. The categories in the drop-down list may be used to identify the clinical content of the criterion or indicator.

Extent of Testing to Date. Performance measures are usually tested and revised in stages. This item reflects the stage the performance measure has reached in terms of development.

To select criteria from another group, click on the appropriate tab on the left side of the screen.

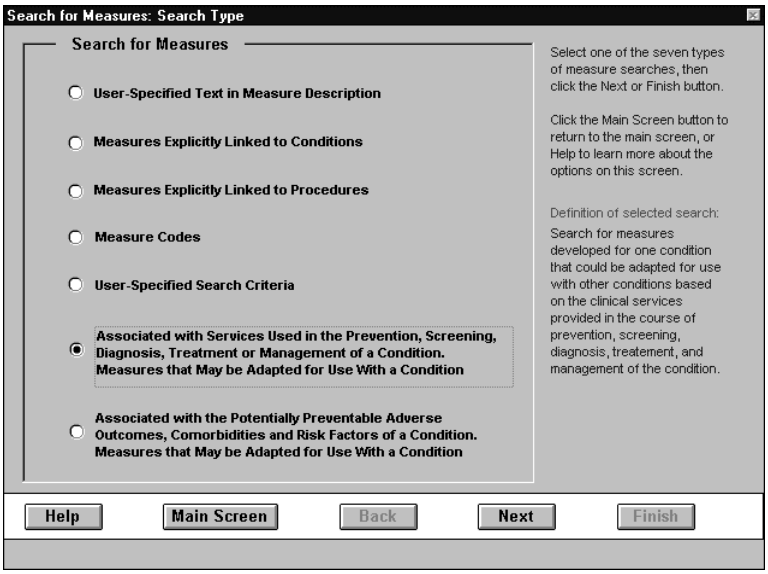
Condition Tab



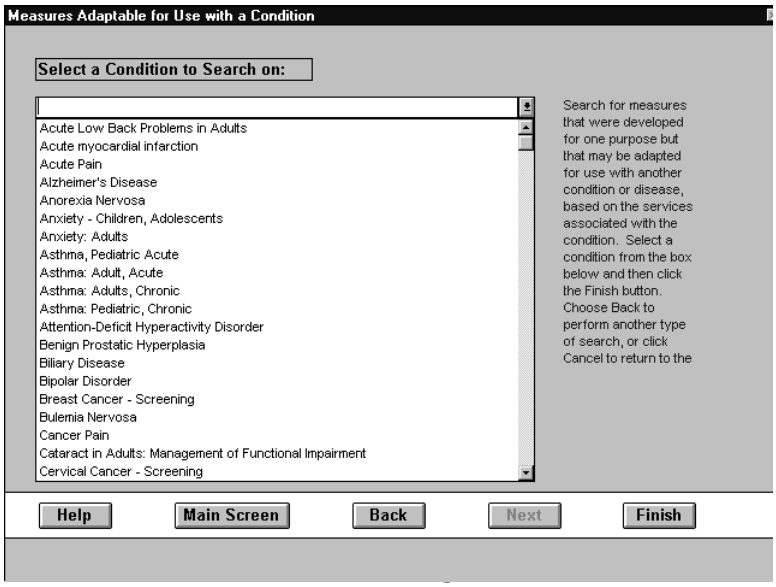
This is similar to the search method for Measures Explicitly Linked to Conditions, except results of this search can be combined with other search criteria to narrow the resulting set of measures. For example, you could find all measures associated with congestive heart failure (CHF) that are also designed for members of a managed care organization.

Associated with Services Used in the Prevention, Screening, Diagnosis, Treatment or Management of a Condition. Measures That May be Adapted for Use With a Condition.

To choose this search option, select Associated with Services Used in the Prevention, Screening, Diagnosis, Treatment or Management of a Condition on the search type screen as shown below.



Click the Next button to move to the condition selection screen.



This screen allows you to select a condition from the list. To see the full list of conditions, scroll down the screen. The condition you select from this screen is the one used to generate the list of services, which are then associated with other measures.

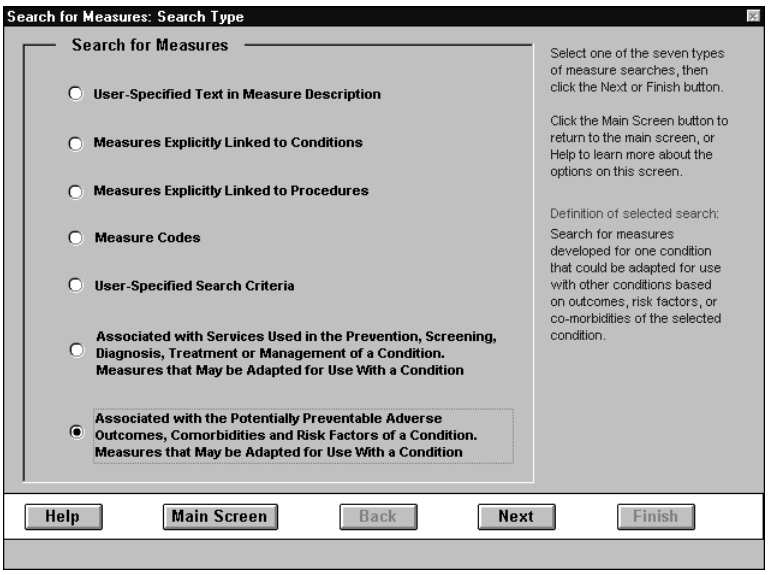
To select a condition, click on the list and highlight a condition using the cursor. Once you have selected a condition, click on the Finish button to view a list of measures that share services with the selected condition.

This search option allows you to search for measures based on the clinical services utilized by a given condition. Clinical service classification places each service into one of several broad categories. The categories describe whether services are recommended for use on patients with the condition of interest. Measures for each service are listed alphabetically within a service category. Sometimes measures found through this search do not appear to relate to the condition of interest. Keep in mind that the measures were designed for the service associated with the primary condition rather than for the primary condition itself.

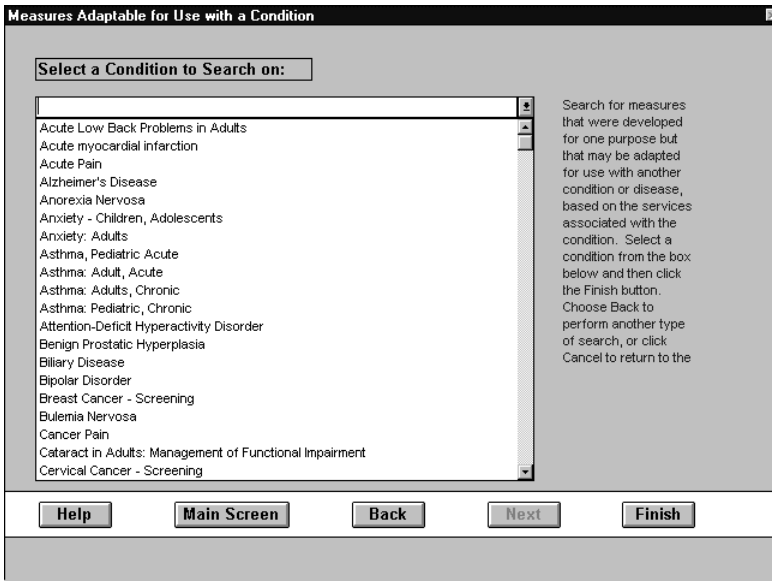
For example, prescription of beta-blockers, ACE inhibitors, calcium channel blockers, coronary bypass, assay serum potassium, chest x-ray, dietary surveillance/counsel, complete ECG, influenza immunization, CBC, patient exercise, salicylic acid, and urinalysis are all services utilized by persons with congestive heart failure (CHF). Although not all CHF patients will necessarily receive all services, these services do represent utilization patterns of persons with CHF as a group. Some of these services are also associated with conditions other than CHF. ACE inhibitors, for example, are also part of a clinical guideline for patients with ischemic heart disease. Since CHF and ischemic heart disease share a common service (ACE inhibitors), ischemic heart disease would appear in a report created using CHF as the primary condition.

Associated with the Potentially Preventable Adverse Outcomes, Comorbidities and Risk Factors of a Condition. Measures That May be Adapted for Use With a Condition.

To choose this search option, select Associated with the Potentially Preventable Adverse Outcomes, Comorbidities and Risk Factors of a Condition in the Search Type screen as shown.



Click the Next button to move to the condition selection screen.



This screen allows you to select a condition from the list in the center of the screen. The condition you select in this screen is the one used to generate the list of services, which are then associated with other measures. To select a condition, click on the list and highlight a procedure using the cursor. Once you have selected a procedure, click on the Finish button to view a list of measures that share services with the selected condition.

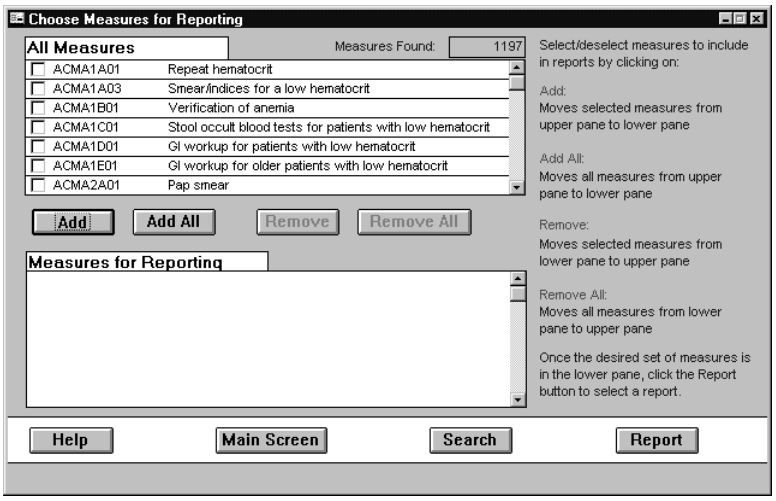
This search option allows you to search for measures based on the outcomes, risk factors, and/or comorbidities associated with a condition. Potentially preventable adverse outcomes are complications of the condition, which may be modified or prevented with appropriate treatment. Comorbidities are conditions that commonly exist at the same time in the same patient as the primary condition. Risk factors are environmental, chemical, psychological, physiological, or genetic states which predispose an individual to the development of a disease. Sometimes measures found through this search do not appear to relate to the condition of interest. Keep in mind that the measures were designed for the service associated with the primary condition rather than for the primary condition itself.

As an example, hypertension is a risk factor associated with several conditions, including unstable angina and acute myocardial infarction (AMI). Obviously, not all persons with hypertension have either an AMI or unstable angina, although hypertension is a risk factor common to both conditions. Since AMI and unstable angina share a common risk factor (hypertension), AMI would appear in a report created using unstable angina as the primary condition.

EXECUTING A SEARCH

Searches are always initiated when you click the Finish button. Depending on which type of search you select, this will either be displayed on the Search Type screen (in the case of the search by measure codes options) or on a search-specific screen. In most cases, CONQUEST 2.0 will only allow you to click the Next button or the Finish button, and you will usually be prompted to enter search criteria if any are missing.

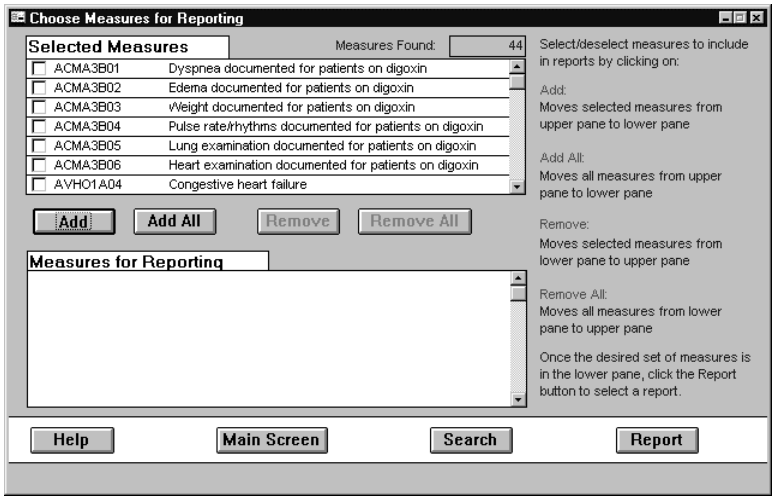
Once you execute a search, CONQUEST 2.0 will do one of two things, depending on the type of search you select and the search criteria you select. If there are any measures that match your search criteria, CONQUEST will display the Choose Measures for Reporting screen as shown below.



In some cases, you can execute a search that returns no measures. This can occur in the text search and user-specified search options, and CONQUEST 2.0 will display a message informing you that no measures were found. When this occurs, try altering the search criteria by selecting other search terms or using fewer terms or criteria.

REVIEWING THE SEARCH RESULTS

Once you execute a search, the resulting measures are displayed in the Choose Measures for Reporting window as shown below. This screen includes two Apanes@ which appear in the upper and lower portions of the screen. The upper pane lists all measures found by CONQUEST, whereas the lower pane lists all measures that are to be included in reports.



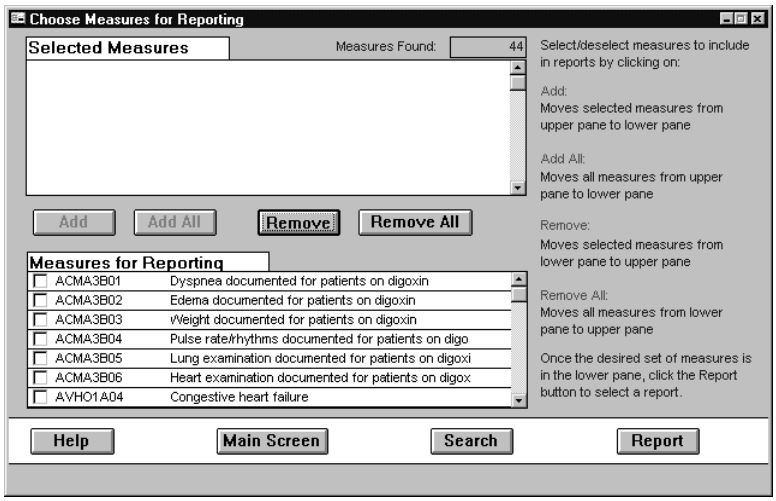
In this screen, you can review the resulting list of measures and select which (if any) measures to include in any reports that are to be produced. Depending on the number and type of measures returned, you may decide you do not want to create any reports and instead want to try a different search strategy. To do this, click on the Search button and you can select a different type of measure search or click the Main Screen button to return to the Main Screen.

Each pane is divided into three separate areas: the selection box, the measure code, and the measure name. You can use the selection box to add and remove measures from each pane. The measure code is a unique alphanumeric Acode@ that is used primarily by CONQUEST 2.0 to keep track of measures in the database. In many cases, you can use this code to refer back to a measure and search for particular measures. The measure name is a more descriptive way of referring to a particular measure.

Whenever you have a manageable number of measures (usually less than 50) returned, one useful strategy is to create a brief report on all of the measures. You can do this by clicking the Add All button and then clicking the Report button. Choose Brief Report in the following screen and click the Generate Report button.

Adding Measures

To include measures in a report, you need to move measures from the upper pane to the lower pane. If you want to include all measures in a report, click the Add All button. You can selectively add measures to the lower pane by clicking in the box next to each measure. This will place a check mark next to the measure, and all measures with a check mark next to them will automatically be moved to the lower pane when the Add button is checked. The Add All function will move measures to the lower pane whether or not they are checked.



Once you have selected the measures you would like to include in the report, click the Report button to view a list of available reports.

Removing Measures

Once you move measures to the lower pane, you can also move them back to the upper pane using the Remove and Remove All buttons. The Remove All button will move all measures from the lower pane to the upper pane, regardless of whether measures in the lower pane have a check mark next to them. Alternatively, you can select one or more measures in the lower pane by clicking the box next to each measure then clicking the Remove button.

Searching for Measures in a List

If CONQUEST returns a long list of measures, you can use the scroll bars to move through the list of measures. The measures are sorted (in an ascending order) by measure code, and you can search this field by clicking on the field and pressing the Ctrl key and the F key at the same time. This will display the following dialog box:

If you know the exact measure code you are searching for, you can enter that code in the AFind What@ field and set the Where option to Match Whole Field. Clicking either the Find First or Find Next field will move to the measure if it is in the list of measures. If you know some but not all of the measure code, you can enter the text or numbers you know and set the Where option to Any part of field. Since more than one measure code may match the search options, start by clicking the Find First and then click the Find Next to find other matches (if any).

As an alternative to searching the measure code field, you can click on the measure name field and search using the Ctrl and F keys. You can search for a word or part of a word by entering it in the Find What field and setting the Where option to Any part of field. Clicking Find First will move to the first occurrence that matches the search criteria, and Find Next will step through all subsequent matches, if any.

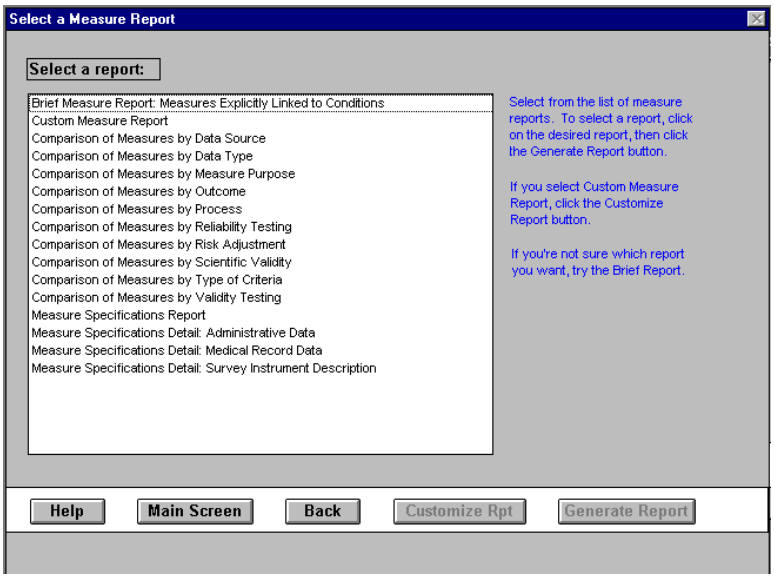
Once you have selected the desired measures, you can select a report by clicking the Report button in the lower right corner of the screen.

SELECTING A REPORT

Once you have selected a set of measures to be included in a report, the next step is to select a report. There are more than 16 different measure reports, although these reports fall into four major categories. The four Aclasses@ of reports are Brief reports, Comparison reports, Custom reports, and Measure Specification reports. Each type of report is designed to describe measures in a particular way, and the best report depends on the type of information you need.

If you are not sure which report is best, one useful strategy is to start with a brief report on all of the measures you have selected, and then print detailed reports on some or all of the measures you have selected. In many cases, you may create two or three sets of reports using a given result set. The first pass of reports could consist of a brief report, which you use to narrow down the list of measures. You might then create a Comparison of Measure Data Sources Report and further reduce the list of measures by removing any that do not match your criteria. The final step might be to print a Custom Measure Report for the remaining measures.

To select a report, click on the list of available reports in the Select a report screen as shown below.



Most reports can be created by clicking on the Generate Report button. This will display the report on screen, and you can print the report by selecting Print from the File menu once the report is visible. See Chapter 8 for more information on printing and working with reports.

Brief Reports

Brief reports provide a summary view of measures and include basic information about the numerator and denominator, in addition to measure name, measure set name, and measure code. These reports are useful for developing a synopsis for a measure or a group of measures.

Comparison Reports

Comparison reports present much more detailed information about measures. These are typically longer than brief reports. These reports are most useful when you have a group of similar measures and you are trying to rule out measures based on certain attributes.

For example, CONQUEST 2.0 might return a list of 40 or 50 measures for a particular search, and you may want to produce a report that describes the validity of each measure. You may wish to keep only those with demonstrated validity. A next step might be to print another report that lists the data sources used for each measure, and so on until you have all desired information about a particular measure.

The individual comparison reports are listed below, along with a summary of the contents of each report. All reports list the measure set name, measure name, and measure code.

Comparison of measures by data source:	Lists the data source for numerator and denominator. Data sources include medical records, administrative data, patient and clinician surveys, as well as pharmacy, lab, and provider data.
Comparison of measures by data type:	Describes whether the measure is an outcome, proxy outcome, or process measure.
Comparison of measures by measure purpose:	Lists whether the measure was intended for internal quality improvement; decisions by consumers, businesses, or plans; external quality improvement; or clinical management.
Comparison of measures by outcome:	Describes measures in terms of their outcome attributes. These include type of outcome, single vs. multiple outcomes, and health risk state.
Comparison of measures by process:	Includes information about the processes captured by each measure. This encompasses collecting information about the patient, treatments and immunizations, selecting site of care, making appropriate diagnoses, responding to information about the patient, timeliness, frequency and periodicity, technical proficiency, communication with patients, and communication with other physicians.
Comparison of measures by reliability testing:	Summarizes the type of reliability testing published for each measure. Types of testing include test-retest, inter-rater, data accuracy, and internal consistency.
Comparison of measures by risk adjustment:	Lists the risk adjustment methods employed by each measure. Methods include pairing data and analysis of subgroups. This report also describes whether the risk adjustment method was developed specifically for the measure/condition, and the availability of the method.

Comparison of measures by scientific validity:	Lists the means used to determine the scientific validity of the measure. These are described as consensus within user group, clinical panels, evidence searching, use of pre-existing measures, and published guidelines.
Comparison of measures by type of criteria:	Criteria refers to whether the measure has been implicitly or explicitly reviewed. This report describes the various types of implicit and explicit criteria.
Comparison of measures by validity testing:	Lists whether or not a measure has been compared to an existing or Agold@ standard.

Custom Measure Report

As the name implies, a custom measure report allows you to customize a report by including those elements that are relevant for a particular purpose. There are 10 options in this report, and the most detailed reports possible in CONQUEST 2.0 are those that use all 10 elements in a report. Custom reports can be long, even when relatively few measures are included. A custom measure report on all measures in CONQUEST 2.0, with all 10 elements included is about 10,000 pages long.

Unlike the other measure reports, which print a predefined report each time, the custom measure report allows you to pick and choose which elements you would like to include in a report. The possible elements include:

Basic description:	Includes general information about the measure, including the developer, rationale, and information about the numerator and denominator.
Constructing the denominator:	Lists information about the method of patient identification, data source, sampling used, and inclusion and exclusions that apply to the denominator.
Constructing the numerator:	Describes the numerator data source, inclusion rules, and time window review for occurrence of the numerator event.
Measure purpose:	Summarizes the purposes for which the measure was developed.
Measure content:	Prints information regarding the data type, outcome type, and process captured by each measure.
Analysis considerations:	Describes measures in terms of their allowance for patient factors, how data are aggregated and/or scored, and how results should be interpreted.

Standards of quality:	Lists the quality standard to which each measure is compared.
Reliability and validity testing:	Includes information on the reliability and validity of each measure. This also includes information on the scientific basis of the measure and the extent of testing to date.
Current use of measure:	Identifies the extent of use, implementation cost, and current use of each measure.
References:	Lists all books, journal articles, or other documentation used in the coding of the measures.

Measure Specifications Reports

In addition to the information recorded for all measures, some measures include more detailed descriptions of the attributes associated with each measure. Although not all measures have their specifications included in CONQUEST 2.0, these reports can be useful in creating detailed views describing the steps and procedures involved in creating each measure. These reports are useful if you are implementing or modifying measures and require detailed information about each measure. Since these are fairly lengthy, you may want to print these reports for only a few measures at a time.

Since not all measure have associated specifications, it is possible to select a collection of measures that have no specifications. CONQUEST 2.0 will display a dialog box notifying you of all selected measures (i.e., those in the lower pane of the Choose Measures for Reporting screen) that do not have associated specifications.

The Measure Specifications Report includes the measure description and measure developer, as well as detailed information regarding the sampling description, time window/case finding period, denominator data elements, denominator algorithm steps, numerator data elements, numerator algorithm steps, risk adjustment method and reliability and validity testing information.

Selecting the Measure Specifications Detail: Administrative Data produces a report that lists the element variable names, element descriptions, codes, code types, and code descriptions used in determining inclusion/exclusion in the numerator and denominator.

Choosing the Measure Specifications Detail: Medical Record Data report displays the data element variable name, data element description, review question, coding options, format, type of variable, location in record, record abstraction synonyms, and abstracting instructions/definitions for all data elements associated with the measure.

The final measure specification report is the Measure Specifications Detail: Survey Instrument Description. Selecting this will create a report with the element variable name, element description, survey name, survey question, question text, coding options, type of variable, and type of survey for all data elements associated with the measure.

GENERATING REPORTS

Most reports are created when you select a report type and click the Generate Report button. The exception to this is the Custom Measure Report. For this report, the Generate Report button is disabled and the Customize Rpt button is enabled. Click on the Customize Rpt button and select the report elements you would like to print. Once you have selected the desired report elements, click Generate Report to create the report.

Once you have generated a report, you can print the report or close the report. Closing the report returns you to the Select a Report screen. From here you must select the Back button to get to the Choose Measures for Reporting screen. For more information on printing and working with reports, see Chapter 8.

Chapter 6 - Reports on Measure Sets

OVERVIEW

Reports on measure sets is one of three search paths in CONQUEST 2.0. This chapter provides a detailed description of how to create reports on measure sets in CONQUEST 2.0. Creating reports for various measure sets is relatively straightforward in terms of both selection of measure sets and selection of report options. Although the reports available in the measure set allow for only a limited amount of detail on specific measures, it is possible to report more detail on measures that make up a measure set by selecting the Choose measure codes option in the Reports on measures path.

The three steps involved in creating a measure set report are:

- Select the measure set(s) of interest.
- Select a report.
- Generate the report.

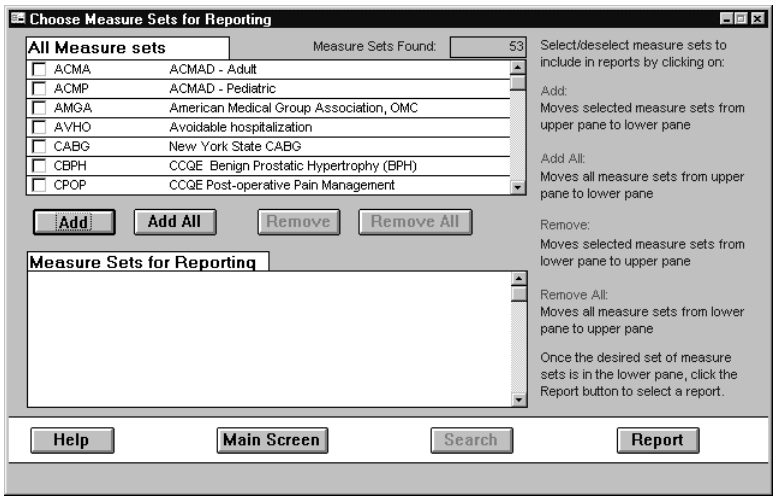
SELECTING THE MEASURE SETS OF INTEREST

Clicking the Reports on Measure Sets button on the Main Screen takes you directly to the Choose Measure Sets for Reporting screen, as shown below. You may also select Measure Set from the Reports menu at the top of the Main Screen.

Reports on Measure Sets

Since there are far fewer measure sets than measures (53 compared to 1,197), the list of measure sets is easier to work with and the various measure search options do not apply here. In this screen, you can select measure sets to include in a report by moving the measure set(s) from the upper pane to the lower pane.

Each measure set in the CONQUEST 2.0 database is uniquely identified by a four letter "code." While these codes do not necessarily have meaning outside of CONQUEST, measure set codes can be useful in referring to a specific measure sets as they appear in the CONQUEST 2.0 database. If you know the name and or measure set code associated with a specific measure set, you can select it from the list of CONQUEST 2.0 measure sets.



This screen contains two lists of measure sets that appear as separate panes on the screen. Initially, measure sets in the upper pane are all measure sets included in CONQUEST 2.0, whereas measure sets in the lower pane are those to include in a report. Any measure set to be included in a report should be moved to the lower pane by selecting the measure set and clicking the Add button. The measure sets are sorted alphabetically by measure set code. If you know the code for a given measure set you can scroll to that point using the scroll bars on the right side of the box. Once you locate a measure set you would like to include in a report, click on the box to the left of that measure set and a check mark will appear next to the measure set as shown below.

Any time you click the Add button, all selected measure sets (those measure sets with check marks next to them) will be moved from the upper pane to the lower pane. Whenever you click the Report button, a report will be created for all measure sets in the lower pane.

Finding Text in a List

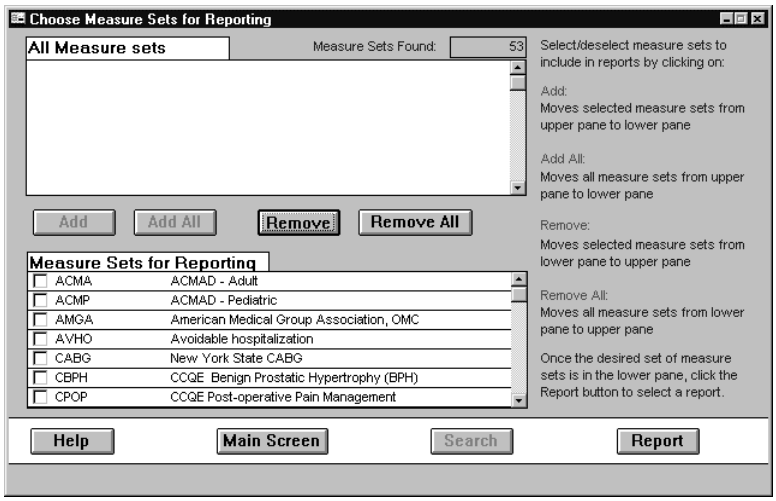
Although you can use the scroll bars and the scroll box to move around within the list of measure sets, you can also use the find function to locate specific text such as HEDIS, HCUP, or JCAHO. If you want to search the measure set code or measure set name associated with a particular measure set, you can click on either the measure set code or measure set name and press the AF@ key while holding down the ACtrl@ key. This will display the following dialog box:

There are four key fields in this dialog box. The first is the AFind What:@ box where you can enter a text term to search for. This can include letters, whole words, numbers, or combinations of the three. The second key option is the AWhere@ field, which has three options that allow you to search the whole field, any part of the field, or the beginning of the field only. As a rule, you probably want to set this option to AAny part of field@ since this is the least restrictive option. Another option prompts you to select whether CONQUEST 2.0 should search forwards or backwards through the list of measure sets. Finally, once you enter text and select a Where option, you can select either Find First or Find Next. Clicking on the Find First will take you to the first measure set in the list that matches the search criteria. To find other measure sets, click the Find Next and CONQUEST will search either up or down for measure sets depending on which option is selected in the Direction box.

For instance, suppose you want to create a report on the HCUP-3 measure set. You can do this by clicking in the measure set codes area of the upper pane and pressing Ctrl and F at the same time. Enter HCUP in the Find What box and choose Match Whole Field from the Where option. Click on the Find First button and CONQUEST 2.0 will move to the HCUP measure set. Click on the box next to the measure set and click the Add button to move the measure set into the lower pane. Clicking the Report button will then allow you to select a report that will include this measure set.

Adding Measure Sets

To include measure sets in a report, move them from the upper pane to the lower pane. If you want to include all measure sets in a report, click the Add All button. You can selectively add measure sets to the lower pane by clicking in the box next to each measure set. This will place a check mark next to the measure set, and all measure sets with a check mark next to them will automatically be moved to the lower pane when the Add button is clicked. The Add All function will move measure sets to the lower pane whether or not they are checked.



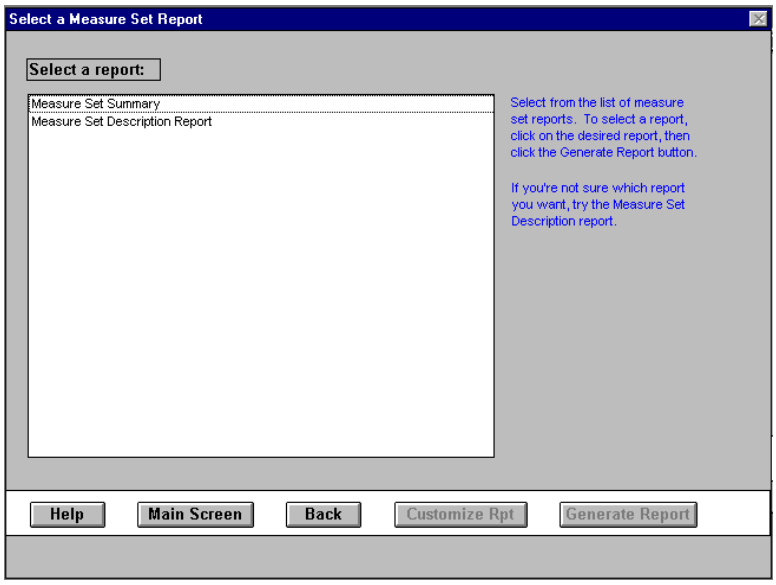
Once you have selected the measure sets you would like to include in the report, click the Report button to view a list of available reports.

Removing Measure Sets

Once you move measure sets to the lower pane, you can also move them back to the upper pane using the Remove and Remove All buttons. The Remove All button will move all measure sets from the lower pane to the upper pane, regardless of whether the measure sets in the lower pane are checked. Alternatively, you can select one or more measure sets in the lower pane by clicking the box next to each measure set and moving the measure set to the upper pane by clicking the Remove button.

SELECTING A REPORT

Once you have selected a set of measure sets to be included in a report, the next step is to select a report. There are only two reports, so the choices are fairly clear.



Measure Set Summary

This report contains the measure set description that also appears in the measure set description report, and more detailed information about the measures that make up a measure set. Specifically, the measure code and measure name appear, and are grouped by subset. A subset is a grouping of one or more measures according to clinical content, so measures within a subset will generally appear to be similar to each other, even though measures within a measure set may be varied.

Measure Set Description Report

The measure set description report lists the measure set code, measure set name, developer, the year the measure set was developed, the most recent year the measure set was updated, and a brief summary of the purpose or content of the measure set. This report is similar in nature to the Brief Reports that are produced in the measure path, and is useful for developing an overview of the measure set.

GENERATING REPORTS

A report is created when you select a report type and click the Generate Report button. Once you have generated a report, you can print the report or close the report. Closing the report returns you to the Select a Measure Set Report screen. From here you must select the Back button to get to the Choose Measures for Reporting screen. For more information on printing and working with reports, see Chapter 8.

Chapter 7 - Reports on Conditions

OVERVIEW

Reports on conditions is one of three search paths in CONQUEST 2.0. This chapter provides a detailed description of how to create reports on conditions in CONQUEST 2.0. Selecting conditions to be included in reports is similar to selecting either measures or measure sets. Selecting a report is relatively simple because there are only two options. The standard report (Condition Description Report) includes descriptive information about the condition and limited epidemiological information about the condition. More detailed reports can be created using the Custom Condition Report.

The three steps involved in creating a condition report are:

- Select the condition(s) of interest.
- Select a report.
- Generate the report.

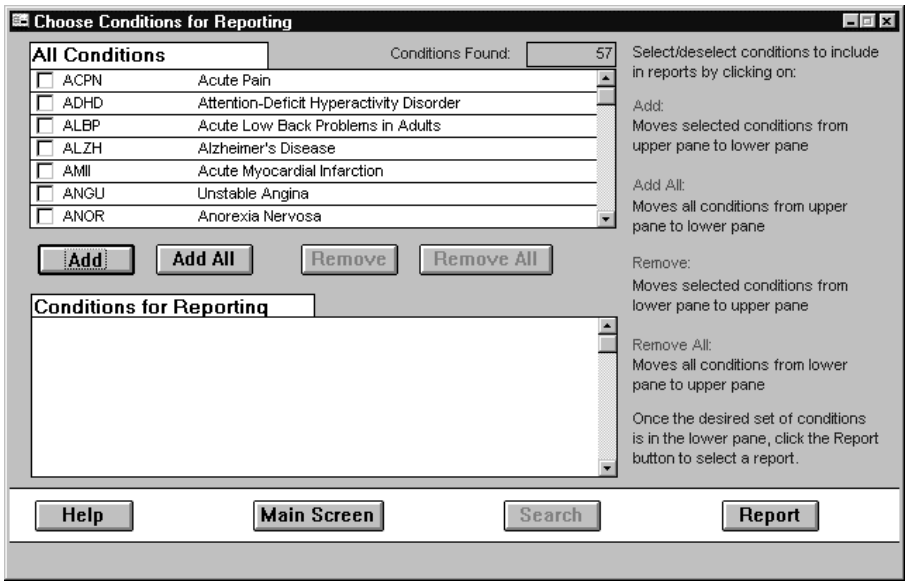
SELECTING THE CONDITIONS OF INTEREST

Clicking on the Reports on Conditions button on the Main Screen takes you directly to the Choose Conditions for Reporting screen, as shown below. You may also select Conditions from the Reports menu at the top of the Main Screen.

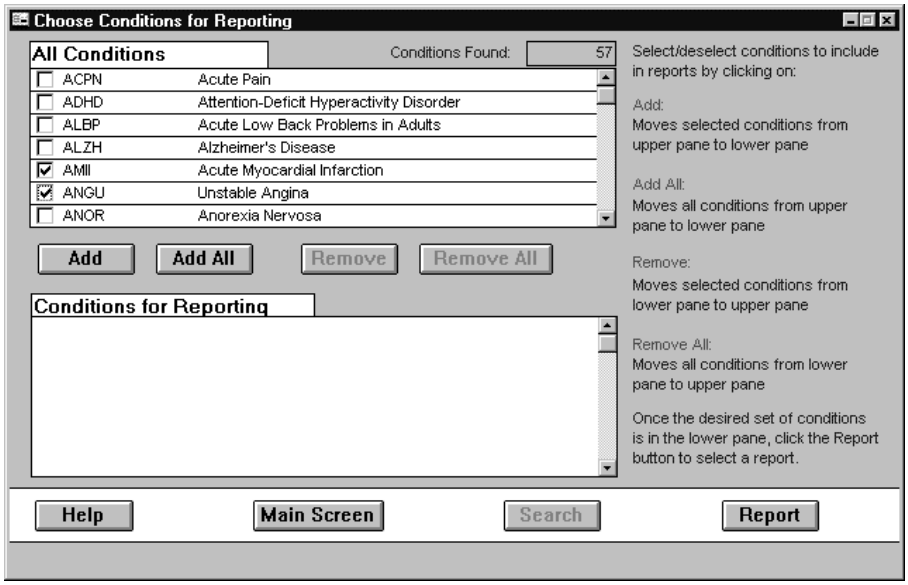
Reports on Conditions

Since there are far fewer conditions than measures (57 compared to 1,197), the list of conditions is easier to work with and the various measure search options do not apply here. In this screen, you can select conditions to include in a report by moving the condition(s) from the upper pane to the lower pane.

Each condition in the CONQUEST 2.0 database is uniquely identified by a four letter "code." While these codes do not necessarily have meaning outside of CONQUEST, condition codes can be useful in referring to specific conditions as they appear in the CONQUEST 2.0 database. If you know the name and/or condition code associated with a specific condition, you can select it from the list of conditions in the CONQUEST 2.0 database.



This screen contains two lists of conditions that appear as separate panes on the screen. Initially, conditions in the upper pane are all conditions in CONQUEST 2.0. Conditions in the lower pane are those to be included in a report. Initially, no conditions appear in the lower pane. Any condition that is to be included in a report can be moved to the lower pane by selecting the condition and then clicking the Add button. The conditions are sorted by condition code, so if you know code for a given condition you can scroll to that point using the scroll bars on the right side of the box. Once you locate a condition you would like to include in a report, click on the box to the left of that condition and a check mark will appear next to the condition as shown below.



Any time you click the Add button, all selected conditions (those conditions with check marks next to them) will be moved from the upper pane to the lower pane. Whenever you click the Report button, a report will be created for all conditions in the lower pane.

Finding Text in a List

Although you can use the scroll bars and the scroll box to move around within the list of conditions, you can also use the find function to locate specific text such as Aacute,@ Achronic,@ or Apain.@ If you want to search for the condition code or condition name associated with a particular condition, you can click on either the condition code or condition name and press the AF@ key while holding down the ACtrl@ key. This will display the following dialog box:

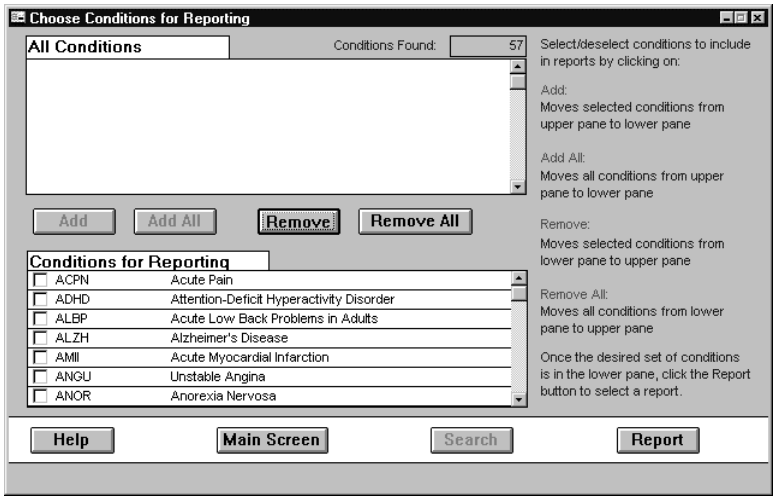
There are four key fields in this dialog box. The first is the AFind What:@ box where you can enter a text term to search for. This can include letters, whole words, numbers, or combinations of the three. The second key option is the AWhere@ field, which has three options that allow you to search the whole field, any part of the field, or the beginning of the field only. As a rule, you probably want to set this option to AAny part of field@ since this is the least restrictive option. Another option prompts you to select whether CONQUEST 2.0 should search forwards or backwards through the list of conditions. Finally, once you enter text and select a Where option, you can select either Find First or Find Next. Clicking on the Find First box will take you to the first condition in the list that matches the search criteria. To find other conditions, click the Find Next and CONQUEST will search either up or down for conditions depending on which option is selected in the Direction box.

For instance, suppose you want to create a report on all conditions related to asthma. You can do this by clicking in the condition name area of the upper pane and pressing Ctrl and F at the same time. Enter Aasthma@ in the Find What box and choose Any Part of Field from the Where option. Click on the Find First button and CONQUEST 2.0 will move to the first asthma-related condition. Close the search dialog and Click on the box next to the condition and click the Add button to move the condition into the lower pane. You can then find other asthma-related conditions by pressing Ctrl + F again and then clicking the Find Next button and selecting other conditions as appropriate.

Adding Conditions

To include a specific condition in a report, you need to move the condition from the upper pane to the lower pane. If you want to include all conditions in a report, click the Add All button. You can selectively add conditions to the lower pane by clicking in the box next to each condition. This will place a check mark next to the condition, and all conditions with checks next to them will

automatically be moved to the lower pane when the Add button is checked. The Add All function will move conditions to the lower pane whether or not they are selected.



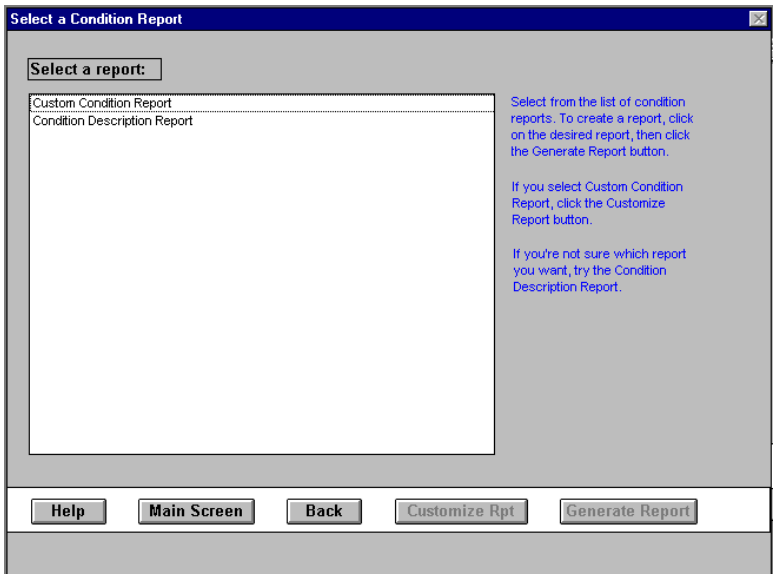
Once you have selected the conditions you would like to include in the report, click the Report button to view a list of available reports.

Removing Conditions

Once you move conditions to the lower pane, you can also move them back to the upper pane using the Remove and Remove All buttons. The Remove All button will move all conditions from the lower pane to the upper pane, regardless of whether the conditions in the lower pane have check marks next to them. Alternatively, you can select one or more conditions in the lower pane by clicking the box next to each condition and moving the condition to the upper pane by clicking the Remove button.

SELECTING A REPORT

Once you have selected a set of conditions to be included in a report, the next step is to select a report. There are only two different reports. The condition description report provides a high-level overview of each condition in the lower pane, whereas the custom condition description report allows you select the components you would like to include in the report.



Condition Description Report

The condition description report lists the condition name, condition code, applicable age range, as well as the form, frequency, and time course of the condition. This report is similar in nature to the Brief Reports that are produced in the measure path or the measure set description report. It is useful for developing an overview of the condition.

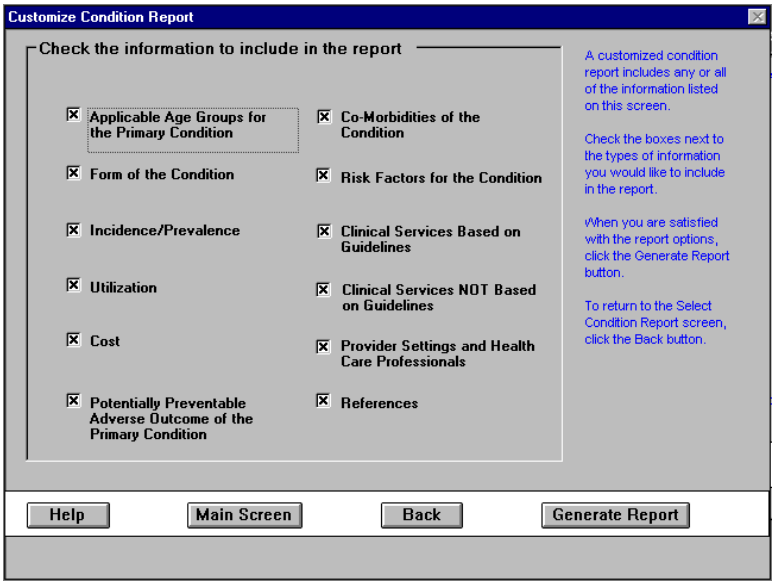
Custom Condition Report

Unlike the condition description report, which prints a predefined report each time, the custom condition report allows you to pick and choose the elements you would like to include in a report.

The possible elements include:

Applicable Age Groups for the Primary Condition:	Checking this box will print the age groups affected by the condition
Form of the Condition:	Selecting this option displays the form (e.g., acute, chronic) the condition can take.
Incidence/Prevalence:	Prints the number of cases present in the population at a given time.
Utilization:	Including this component in a report provides a broad overview of the burden of illness for each condition.
Cost:	Selecting this option includes cost estimates for the U.S.

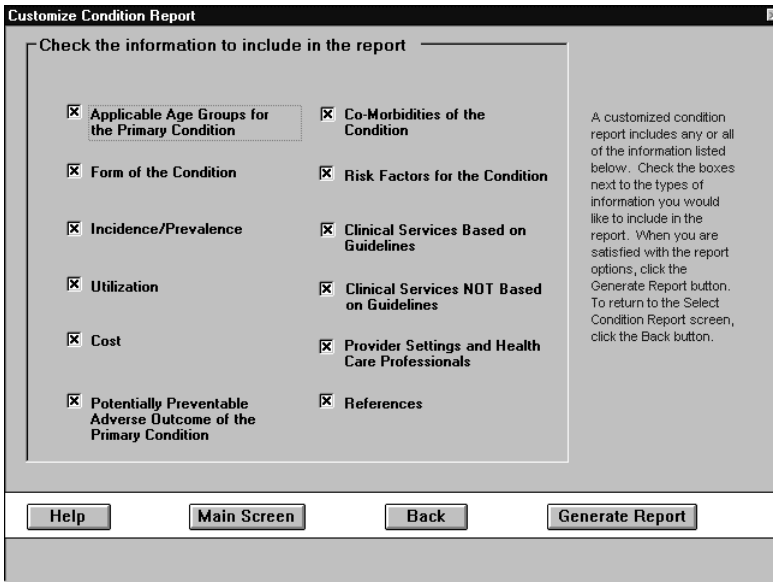
Potentially Preventable Adverse Outcomes of the Primary Condition:	Choosing this option lists the complications of the conditions that may be modified or prevented with appropriate treatment.
Comorbidities of the Condition:	Checking this option will print a list of conditions that may exist at the same time as the primary condition.
Risk Factors for the Condition:	Risk factors are environmental, chemical, psychological, physiological, or genetic factors that predispose an individual to the development of a disease. Checking the risk factors box will include these in the report.
Clinical Services Based on Guidelines:	Check this box to see a list of clinical services that are provided to the patient in the course of the prevention, screening, diagnosis, treatment and management of the condition. This will include only services for which a guideline or recommendation exists.
Clinical Services NOT Based on Guidelines:	Choosing this option lists clinical services as described above, except that services listed here are either explicitly not recommended or there is no guideline available for the condition
Provider Settings and Health Care Professionals:	Selecting this option includes information about the types of settings and health care providers typically associated with the condition.
References:	These list the books, journal articles, or other documentation used to code each condition.



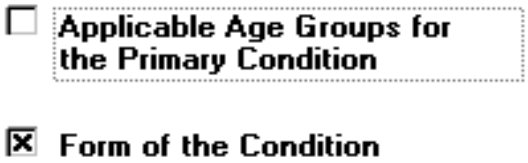
GENERATING REPORTS

To create a Condition Description Report, select Condition Description Report on the Report Selection screen and then click the Generate Report button.

To create a Custom Condition Report, first select Custom Condition Report from the Report selection screen. The Generate Report button at the bottom of the screen will be disabled, and the Customize Rpt button will be enabled. Click on the Customize Rpt button and the Custom Condition Report screen will be displayed. This lists all the possible components of a Custom Condition Report.



To include a component in a report, place an AX@ next to the item in the report. By default, all components are included in a report. You can exclude a component by clicking the box and clearing it, as shown below.



Once the desired components are selected, click the Generate Report button at the bottom of the screen.

Once you have generated a report, you can print the report or close the report. Closing the report returns you to the Select a Condition Report screen. From here you must select the Back

button to get to the Choose Conditions for Reporting screen. For more information on printing and working with reports, see Chapter 8.

Chapter 8 - Working with and Printing Reports

This chapter describes how to view, navigate, and print reports in CONQUEST 2.0. CONQUEST 2.0 provides a consistent interface for working with reports, so the same options are available whether you are working with reports on measures, measure sets, or conditions. Although the content of reports will vary depending on which options you have selected, the way you work with reports is the same for all reports in CONQUEST 2.0.

$ Viewing and navigating through reports
$ Printing reports
$ Report strategies

VIEWING AND NAVIGATING THROUGH REPORTS

Once you click the Generate Report button in either the measures, measure set, or condition search path, CONQUEST 2.0 will automatically display the selected report on the screen. A sample report is shown below.

Brief Measure Report: User-Specified Text in Measure Descriptions

Text Searched: congestive heart failure

Set Name	Measure Name	Measure Code	Denominator	Numerator
Avoidable hospitalization	Congestive heart failure	AVH01A04	The number of residents in a state under age 65 years during the reporting year.	Patients in a state under age 65 years who were admitted to the hospital during the reporting year with a primary diagnosis of congestive heart failure.

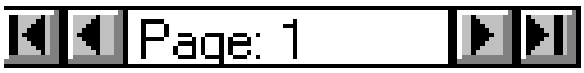
CONQUEST 2.0 provides three key sets of options for viewing and navigating through reports. These are the zoom function, the navigation bar, and the menu.

Zooming in on a Report

When a report is initially displayed on the screen, it is sized so that an entire page fits on the screen. Although this allows you to see a full page, on most monitors it does not allow you to view the report in detail. You can Azoom in@ on a section the report by positioning the cursor over the report and clicking the left mouse button. Scroll bars appear at the bottom and left of the screen, allowing you to adjust the view to see different sections of the report. Clicking the mouse button again will zoom out to display a full page.

Navigation Bar

Most reports are more than one page long, and CONQUEST 2.0 will always display the first page of the report. To view other pages of a report, use the navigation bar in the lower left corner of the screen.



CONQUEST 2.0's navigation bar is divided into three sections. The first section consists of the two buttons on the right and allows you to move towards the last page of the report. Clicking the button on the far right takes you to the last page of the report, whereas clicking on the innermost right button will display the next page of the report. If the report is only one page or if you are on the last page of a report, these button will not function.

In the center of the navigation bar is a page display/entry box. This area displays the current page, and also allows you to jump to another page of the report. For example, you can move to page 10 of a report by clicking on the page number area of this box, entering 10, and then pressing the enter key. If the number you enter is greater than the number of pages in the report, CONQUEST 2.0 will display the last page of the report. This can be considerably faster than clicking the Anext page@ button nine times.

Finally, the two buttons on the left allow you to move to the first page (far left) of the report and the previous page (innermost left) of the report. If you are already on the first page of the report, these buttons will not function.

Using the Menu

When a report is open and being viewed, the menu at the top of the screen changes to reflect options available for working with reports.

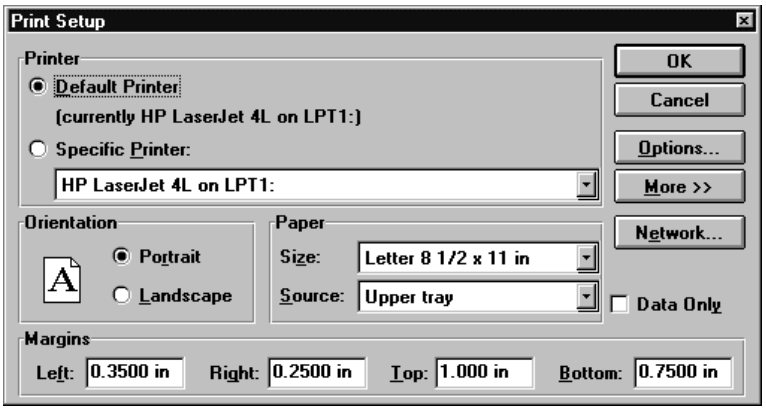
File Menu Options

Close. Selecting close from the file menu closes the active report. Once you close a report, you may not reopen it, although you can recreate the report by selecting the same measure, conditions, or measure sets, and choosing the same report from the report selection screen.

When you close a report, CONQUEST 2.0 will display either the Select a Measure Report, Select a Measure Set Report, or the Select a Condition Report screen, depending on whether you are creating reports on measures, measure sets, or conditions.

Print. To print a report, choose the Print option from the File menu. This will display a standard windows Print dialog box. The reports in CONQUEST 2.0 are designed so that they are printed

correctly on a wide range of printers. By default, CONQUEST 2.0 will send the entire report to the default printer, and print the report using the appropriate orientation (landscape vs. portrait). In general, it is recommended that you accept the default settings for the report to print correctly.



To print some but not all of the pages in the reports, use the Print range option. This can be useful when working with long reports. By default, CONQUEST 2.0 will print the entire report, although you can change this by entering page numbers in the From and To boxes.

Print setup. In some cases, you may want to change the default printer or other print settings. As mentioned previously, the reports in CONQUEST 2.0 are pre-formatted to print correctly on a wide range of printers, and it is not recommended that you adjust print settings such as paper size, margins, printer resolution or other similar settings that may affect the layout of the report. If you have access to more than one printer, you can select which printer should print the reports. Normally, CONQUEST 2.0 will send reports to the default printer. You can select another printer by choosing one from the list of printers in the Specific Printer option in the upper portion of the dialog box. For other options and setting, consult your Windows manual or the documentation associated with the printer.

Exit. Selecting Exit from the File menu quits CONQUEST 2.0. Any information collected during the search and report creation process will be lost. **You should only choose this option if you are finished using CONQUEST 2.0.**

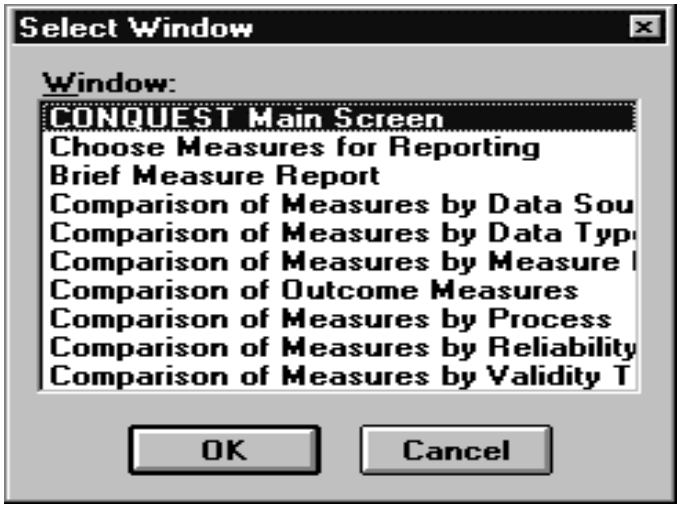
WORKING WITH MULTIPLE SCREENS

CONQUEST 2.0 normally displays one report on the screen at a time. In most cases, you will want to print the report and then close it, or simply close the report. However, CONQUEST 2.0 also allows you to switch between multiple screens, and compare the results for two or more reports. The key to working with multiple screens is the Window menu.

Window Menu Options

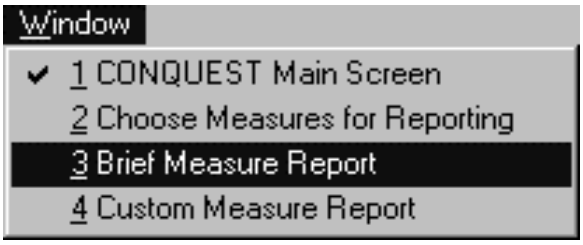
Windows. The lower portion of the Window menu lists all screens Aopen@ in your CONQUEST 2.0 session. In most cases, this will consist of the Main Screen, the measure/measure set/condition selection screen, and one or more reports. Any screen listed in this window is open, even though it may not be visible. To switch to one of the screens or reports in the Window menu, select the name of the report or screen from the menu and it will automatically be displayed.

If you have many open reports, the display will be similar to that shown below. In this case, select the desired screen from the list. (The screen displayed below is a Windows 95 screen.)



This feature can be useful for comparing the contents of two or more reports for the same group of measures, measure sets, or conditions. To do this, select the measure sets or conditions you are interested in, or choose a measure search method as you normally would and create a report. With the report open, select Choose Measures for Reporting from the Window menu. If you are working with measure sets or conditions, select the Choose Measure Sets for Reporting or Choose Conditions for Reporting as appropriate.

Once you have returned to the Choose Measures for Reporting screen, click the Report button and select a different report than the one you initially created. Click the Generate Report button and the report will be displayed on the screen. You can then switch between the two reports by selecting the desired report from the Window menu. In the example below, a brief report was created followed by a custom measure report.



REPORT STRATEGIES

Reports differ in the amount and type of information displayed, depending on which type of report you select. Measure reports are the most commonly used feature of CONQUEST, and hence include the widest range of reports. Conditions and measure sets both have two report options, although the options are slightly different in the two paths.

Since there is such a range of report options, it can sometimes be difficult to decide which report best meets your needs. Since there is no single Abest@ report, it is often helpful to have a strategy for searching, selecting and reporting on measures. As with reports, the best strategy will depend on whether you are working with measures, measure sets, or conditions.

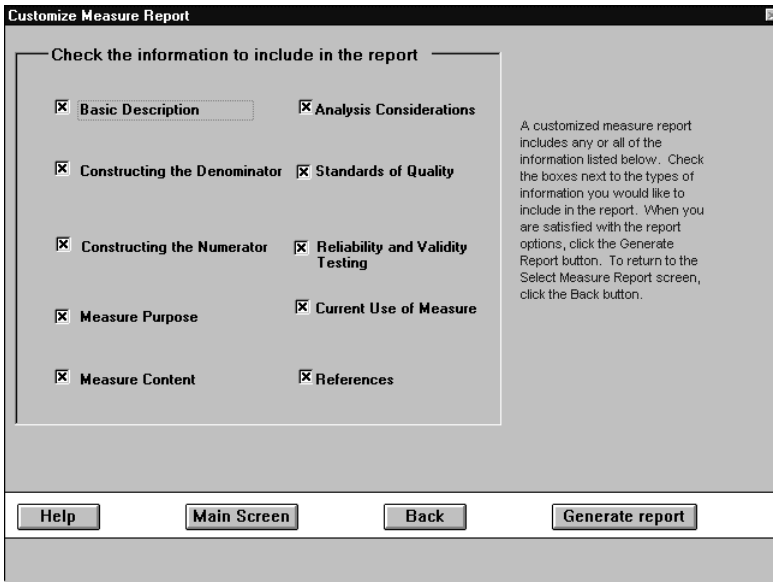
Measure Reports

A useful strategy for working with reports can best be described as a Asifting@ approach, which begins with brief reports on a relatively large collection of measures as a result of some search, and progressively narrows the list of measures until detailed reports are being printed for a subset of the measures. As you work through this process, it is helpful to prioritize those aspects of measures that are most important to you. In some instances, you may focus on the data sources and data types used by a measure. Other times you may be interested primarily in the reliability and validity components of a measure. It is a good idea to pick the two or three most important attributes of measures you may be interested in and use these to narrow the list of measures.

In most cases, you will start creating reports using the list of measures that CONQUEST returns as the result of a search. This could include a search by text, by measures linked to procedures, or any of the other seven search types. These are the measures that appear in the upper pane of the Choose Measures for Reporting screen, and if there are relatively few measures in the list then you can click the Add All button and begin creating reports using the criteria that are of interest to you. If the list of measures is somewhat longer, then a good first step is to create and print a Brief Report on all of the measures in the upper pane. By reviewing this report, it is usually possible to eliminate some of the measures based on the measure description, numerator description, and denominator. Make a note of which measures should be excluded from the second round and close the report. This will display the Choose Measures for Reporting screen, where you can select the measures you would like to remove from the next round of reporting by clicking in the box next to each measure to be removed from the lower pane and then clicking the Remove button.

With the edited list of measures in the lower pane, click the Report button again and choose a report that best matches one of your two or three most important attributes. For example, if the only data source you will be working with is administrative data, then you would probably want to print a AComparison of Measure Data Sources@ report and select only those measures that are listed as utilizing administrative data. You can either close this report or print and close the report, making sure to note which measures are not designed for use with administrative data. You can then narrow the list of measures even further by removing the measures from the lower pane that do not match your criteria. Depending on how many measures are remaining, you can either create another comparison report (e.g., Comparison of Measure Data Types) or select Custom Measure Report. In either case, the last step in this process is to create a custom measure report on the Afinal@ list of measures.

To create a Custom Measure Report on the final list of measures, click the Report button in the Choose Measure for Reporting screen, making sure only the desired measures are in the lower pane. Select Custom Measure Report from the Select a Measure Report screen and click the Customize Rpt button. Make sure all the boxes are checked as shown in the screen below.



Click on the Generate Report button at the bottom of the screen. This will produce a detailed report for your final list of measures. You might ask why not create a Custom Measure Report on all the measures? In addition to being detailed, these reports are fairly lengthy. A complete custom measure report on every measure in CONQUEST 2.0 is about 10,000 pages long. Even on the fastest printers, this would take over 10 hours to print, and would produce a stack of paper over 3 feet high.

Measure Set Reports

Creating reports on measures sets is somewhat more straightforward than creating measure reports, since there are only two measure set reports that can be created. The Measure Set Description Report provides a high-level overview of the measure set without describing the

individual measures that make up a measure set. This is similar in function (although not format) to a Brief Report in a Measure Report.

Once you have a sense of the measure set as a whole, you can print a Measure Set Summary Report. This report lists each of the measures in a measure set, and these are grouped by subset. The length of these reports will vary depending on the number of measures in a measure set. Within each subset, the measure code (the unique alphanumeric code that CONQUEST uses to keep track of measures in the database) and the measure name are included in the report. Although not technically a part of the Measure Set Reports, you may to print or make a note of the measure codes, and use the Search for Measures by Measure Code to include these measure codes in a measure report, allowing you to create much more detailed reports than otherwise available in the Measure Set Reports.

Condition Reports

Creating Condition Reports is relatively simple since there are only two types of reports to choose from, and there are far fewer conditions than measures in CONQUEST 2.0. In many cases you will only be interested in one or two conditions at a time, and thus will not need to Afilter@ the list of conditions as you would if you were working with measures.

The two classes of condition reports are the Condition Description Report and the Custom Condition Report. A Condition Description Report produces a condition summary that lists key pieces of information about each condition listed in the lower pane of the Condition Selection screen. For a more detailed report, you may select the Custom Condition Report and choose the components that should be included in the report. As with Custom Measure Reports, these are more detailed at the expense of being longer than the Condition Description Reports.

Chapter 9 - Four Guided Tours

INTRODUCTION

This chapter highlights several of the functions of the CONQUEST 2.0 database software. The chapter is organized into four tours, each of which demonstrates different aspects of the CONQUEST 2.0 database and interface.

- **$** Tour A: Director of a Managed Care Organization
- **$** Tour B: Hospital Quality Improvement Committee
- **$** Tour C: Director of a State Mental Health Agency
- **$** Tour D: State Task Force on Clinical Guidelines and Medical Technology Assessment

Note that the tours do not cover every aspect of CONQUEST=s search capabilities. See the appropriate section of this guide for details about specific items not covered here.
To follow along with the tour on your computer, load the CONQUEST 2.0 database as described in Chapter 1 of this guide.

TOUR A: DIRECTOR OF A MANAGED-CARE ORGANIZATION

In this tour, you=re the director of a managed-care organization (MCO). Your organization needs to identify appropriate measures to monitor the quality of care provided by the MCO=s individual practice association (IPA) models. You will use CONQUEST 2.0 to answer the question: AWhat measures should our organization use in our IPA sites?@

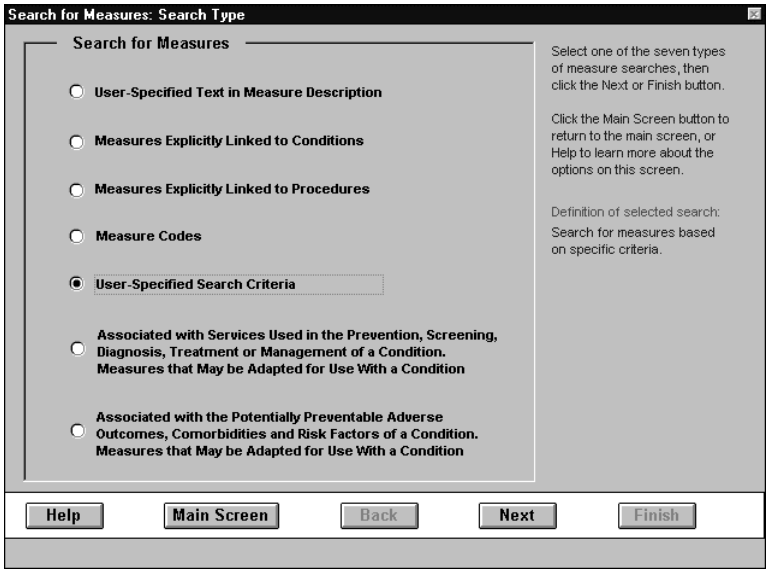
This scenario demonstrates selected aspects of the Measure Database. Specifically, you=ll use the Measure Database to search for measures by content, data source, numerator and denominator specifications, measure set name, and measure purpose.

A1. Searching for Information Using User-Specified Criteria

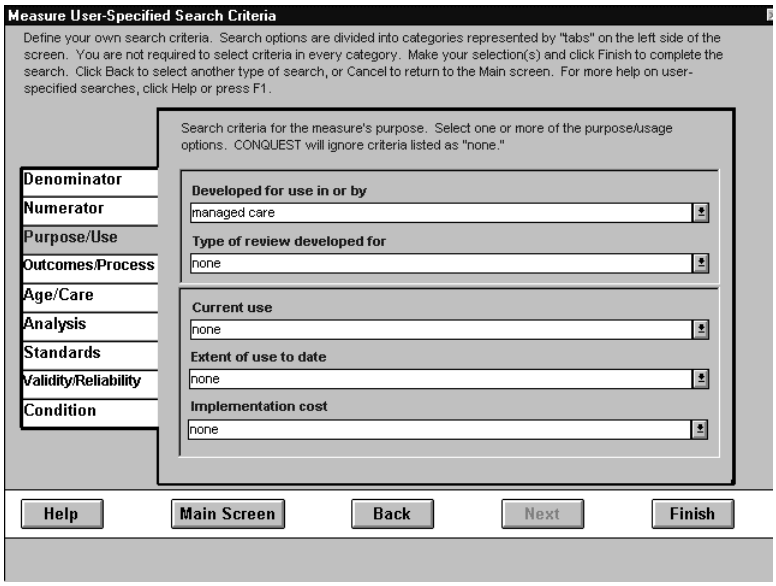
1. From the CONQUEST Database Main Screen, click the Reports on Measures icon.

Reports on Measures

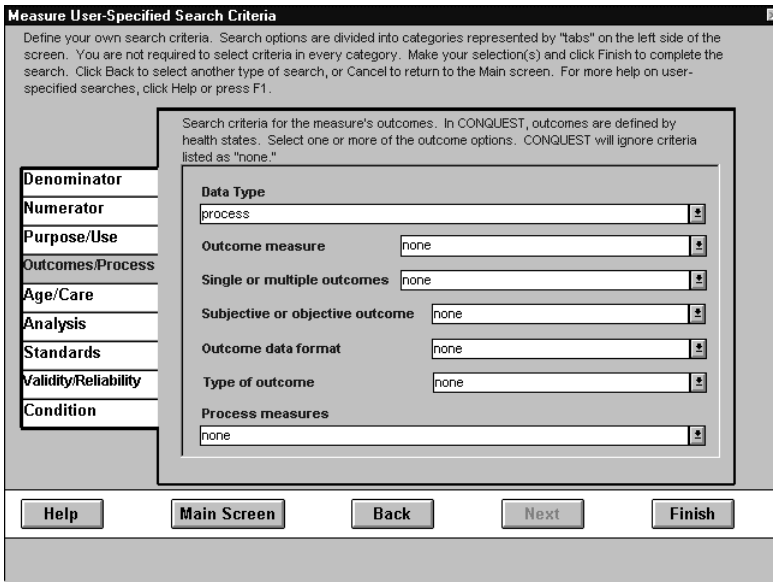
2. At the Search for Measures: Search Type screen, select User-Specified Search Criteria. Then click on the Next button.



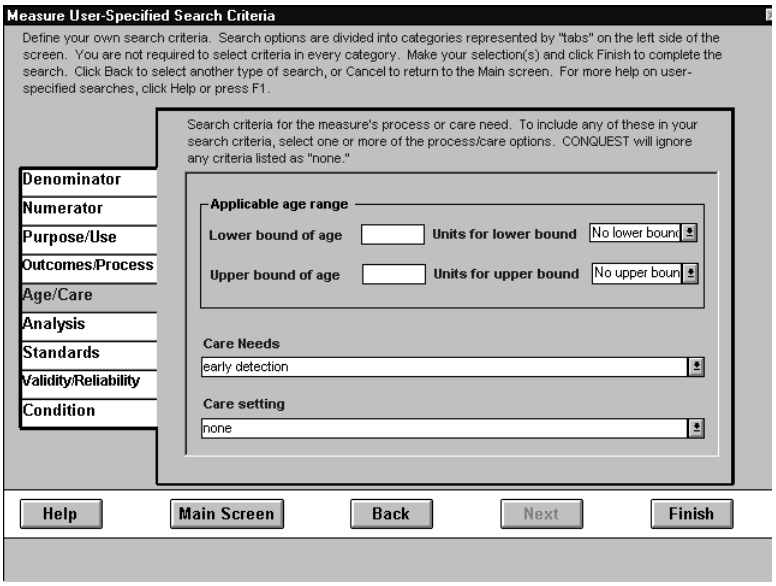
3. You will now search for measures related to: managed care, process, and early detection. From the Measure User-Specified Search Criteria screen, select the tab labeled Purpose/Use. Then click on the arrow next to the ADeveloped for use in or by@ box. Choose managed care from the list.



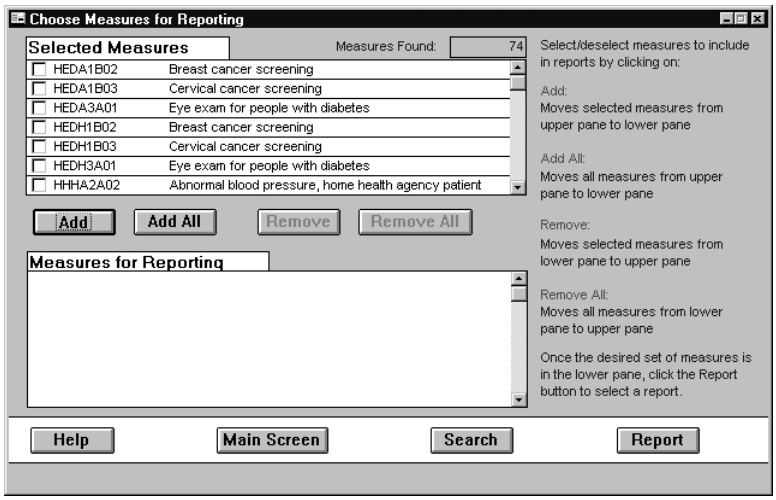
4. Now select the Outcomes/Process tab, then the arrow next to the AData Type@ box. Choose process from this list.



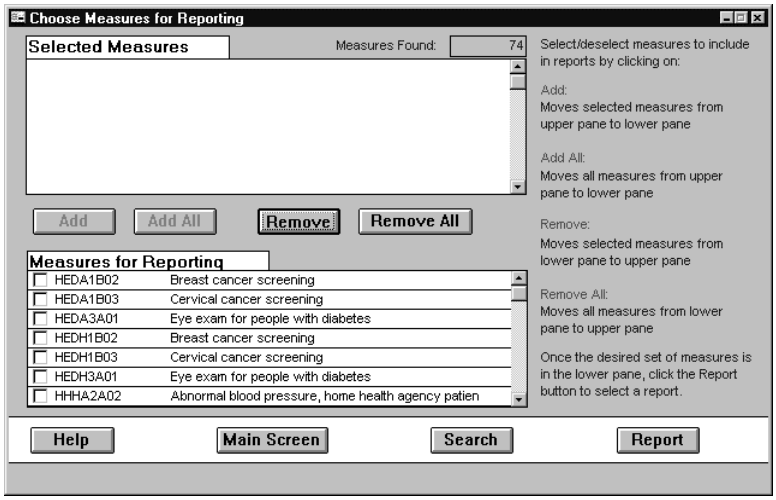
5. Select the tab for Age/Care. From the ACare Needs@ list, choose early detection.



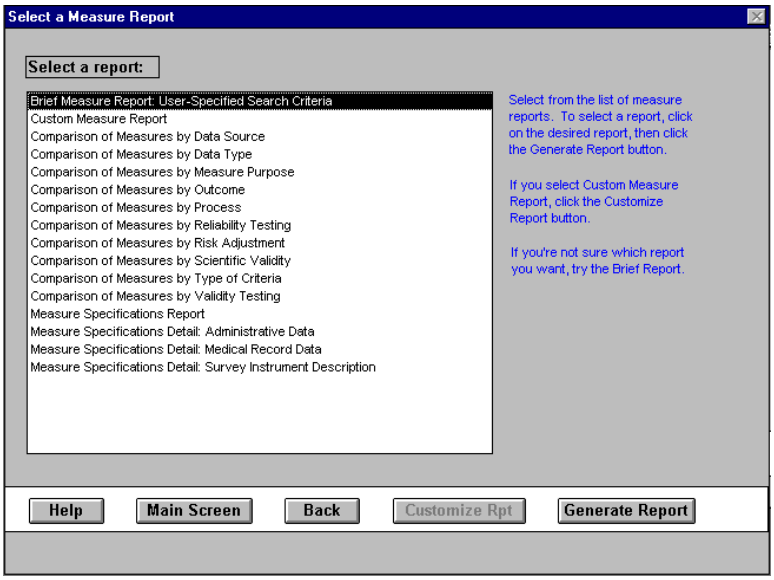
6. Click the Finish button at the bottom of the screen. This will take you to the Choose Measures for Reporting screen.



7. The measures which match our search criteria (there are 74 of them) appear in the top half of the screen. They're sorted in alphabetical order by measure code. Use the scroll bar on the right-hand side of the Selected Measures box to view the entire list. When ready, click the Add All button in the middle of the screen. (To select a subset of the list, choose each measure by clicking in the small box next to its code. An AX@ should appear in each selected box. Then click the Add button.) The measure codes and names will shift to the lower box, labeled Measures for Reporting.



8. Next click on the Report button at the bottom of the screen. This takes you to the Select a Measure Report screen.



The list of available reports appears on this screen. Select the first report, the ABrief Report: User-Specified Search Criteria@ and click on the Generate Report button at the bottom of the screen. The report will appear in preview mode.

9. To print out the 16-page report of measures matching the specified search criteria, choose Print from the File menu.

This report lists those measures in the database that match the search criteria you selected, showing the measure set name, measure name, measure code, and a brief description of the measure=s numerator and denominator.

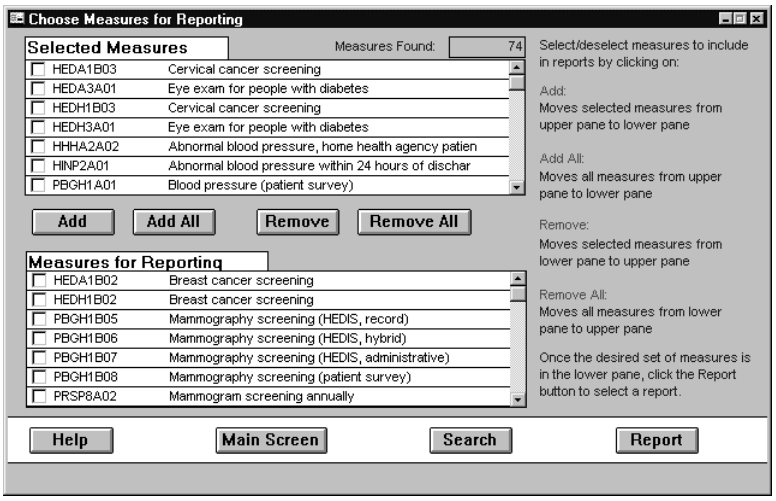
In previewing the report, note that measure names mentioning mammograms are found on several pages of this report. You decide to look further into measures related to mammograms because your HMOs have many women enrollees who could benefit from screening with mammograms to detect breast cancer early. Make a note of the codes for these mammogram measures because you will need them to complete additional steps in this exercise: (HEDA1B02, HEDH1B02, PBGH1B05, PBGH1B06, PBGH1B07, PBGH1B08, PRSP8A02, PRSP8B01, PRSP8B02, PRSP8C01, PRSP8D01, PRSP8D02, PRSP8D03, QCOR4A01, UHCR1B01).

To return to the Choose Measures for Reporting screen, close the report by selecting Close from the File menu and Back on the Select a Measure Report screen.

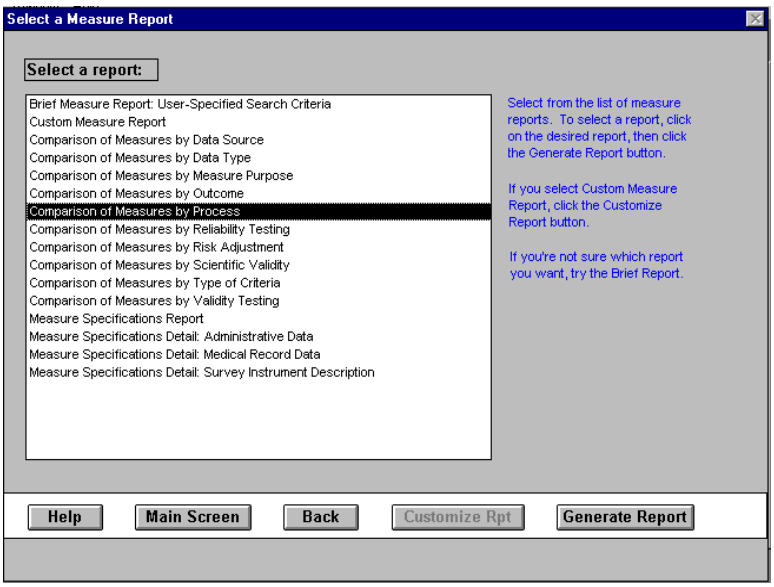
A2. Printing a Comparison of Measures Report

1. There are 74 measures listed in the lower pane of the Choose Measures for Reporting screen. You wish to review 15 of them. The easiest way of selecting the desired 15 measures is to first remove ALL measures from the bottom pane. Do this by clicking Remove All. This shifts the 74 codes back to the upper pane of the screen.

2. Next, select the measures you wish to review by clicking the selection box next to each code so an AX@ appears in the box. Then click the Add button. This shifts the selected measures (15 of them) into the lower pane of the screen. Now click the Report button.



2. From the Select a Measure Report screen, choose AComparison of Measures by Process."



4. Click the Generate Report button to preview the report. This report shows for each measure the aspect(s) of process of care to which it relates. Some measures relate to communicating to patients about mammograms, and some relate to timeliness in scheduling and performing mammograms. However, most of these measures concern frequency and periodicity of mammograms. You decide to examine these measures

further and write down their codes (HEDA1B02, HEDH1B02, PBGH1B05, PBGH1B06, PBGH1B07, PBGH1B08, PRSP8A02, UHCR1B01).

5. To print out the three-page AComparison of Measures by Process Measures@ Report, select Print from the File menu. Click OK in the Print dialog box.

6. Close the report by selecting Close from the File menu. This will take you back to the Select a Measure Report screen. Click Back to return to the Choose Measures for Reporting screen. From here you can choose the mammogram frequency and periodicity measures we=ll need for the next section.

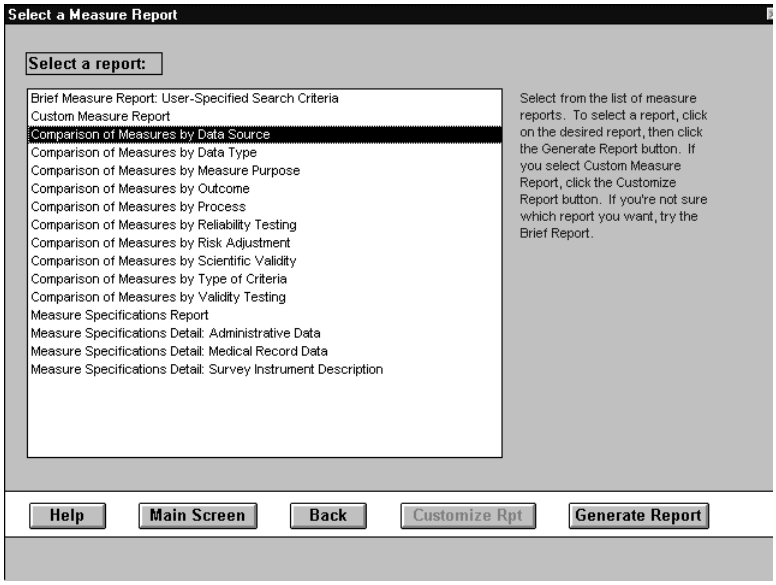
A3. Comparing Measures Using a Measure Report

You next decide to investigate the data sources used to create the mammogram measures you selected in A2, step 4.

1. From the list of measures in the lower pane of the Choose Measures for Reporting screen, select the measures that you did not choose in A2, step 4. Click the Remove button. The bottom list should now contain only those measures you noted in A2, step 4.

2. Click the Report button.

3. Select AComparison of Measures by Data Source@ from the Select a Measure Report screen. Click on Generate Report.



4. Preview the two-page AComparison of Measure Data Sources@ report. Most of these measures use administrative and/or medical records data. Because you don=t have administrative data systems and it=s troublesome for you to obtain medical records data

from the many physician sites in these IPA model HMOs, you're interested in finding two measures that use patient survey as the source of data for the numerator and denominator. Write down these codes (PRSP8A02, PBGH1B08).

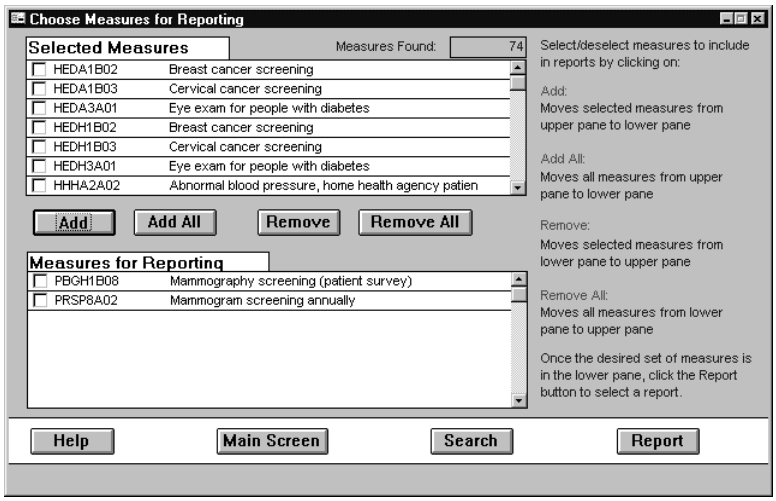
5. To print the report, select Print from the File menu.

6. After printing, return to the Choose Measures for Reporting screen by choosing Close from the File menu and Back on the Select a Measure Report screen.

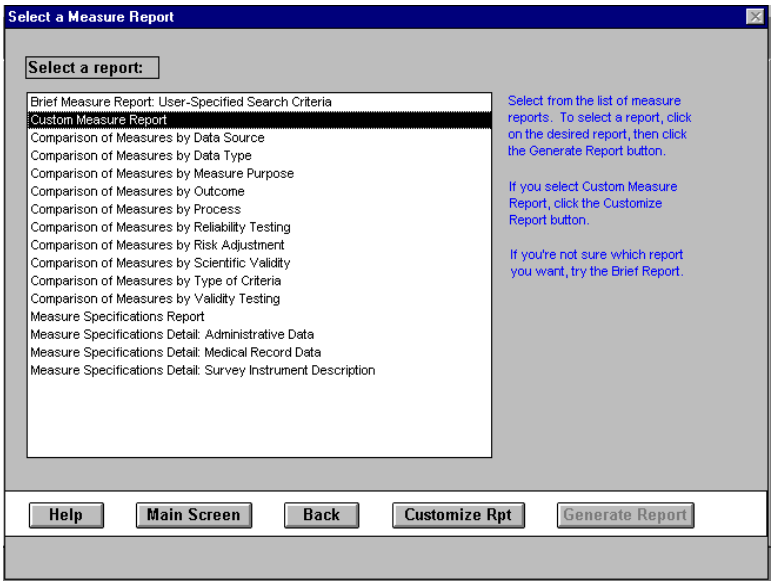
A4. Printing Custom Measure Reports on Selected Measures

Now we'll concentrate on the two survey-based mammogram measures. We're interested in knowing how their developers intended the measures to be used and in what settings.

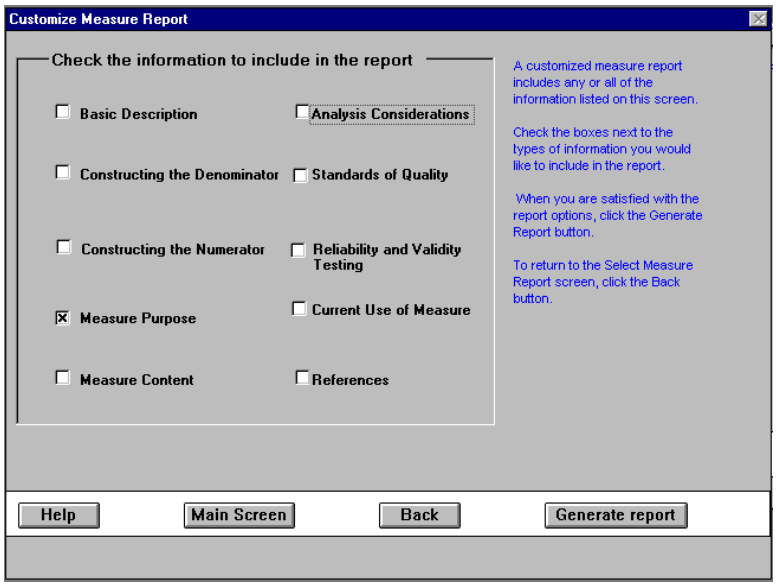
1. From the Choose Measures for Reporting screen, click the box next to all measures except PRSP8A02 and PBGH1B08. Then click the Remove button. The screen should look like the one shown below:



2. Click the Report button to get to the Select a Measure Report screen, choose Custom Measure Report, and click on the Customize Rpt button.



3. From the Custom Measure Report Screen, deselect everything except the box for Measure Purpose.



4. Click the Generate Report icon and preview the report.

After reviewing the combined custom measure reports, you select the measure developed by the Pacific Business Group on Health (coded PBGH1B08) because it reflects the interests of health-plan purchasers (as shown under Type of Review).

A5. Printing a Report on a Selected Measure

Now view the details about the selected measure.

1. Return to the Choose Measures for Reporting screen. Remove the PRSP8A02 code from the Measures for Reporting list by clicking the selection box next to the measure. This places an AX@ in the box. Click the Remove button. Next, click the Report button.

2. At the Select a Measure Report screen, select ACustom Measure Report@ and click on the Customize Rpt button.

3. In the Customize Measure Report screen, all of the choices should be already selected (this is the default). Click on the Generate Report button to preview the report.

4. To print the report, select Print from the File menu.

5. Close the report by selecting Close from the File menu, and then Back from the Select a Measure Report screen. This will display the Choose Measure for Reporting screen. Click the Main Screen button to return to the Main Screen, where we=ll choose a new type of report.

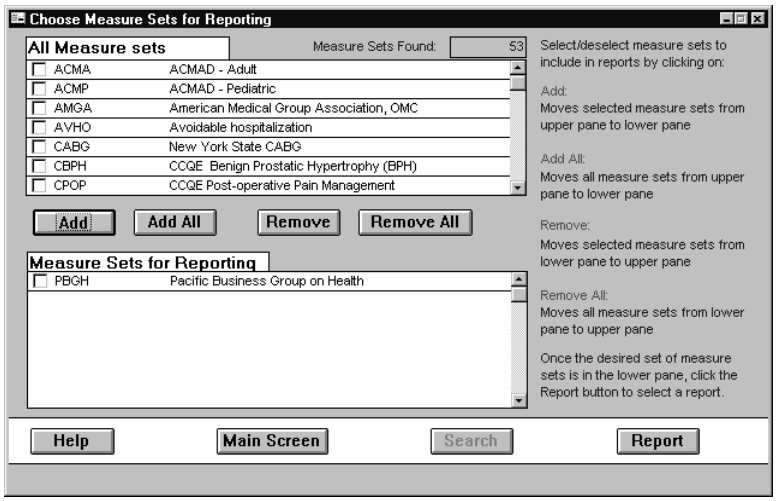
A6. Printing a Report on a Selected Measure Set

Because a survey to create only one measure would not be a good use of resources, you decide to examine other measures in the same set.

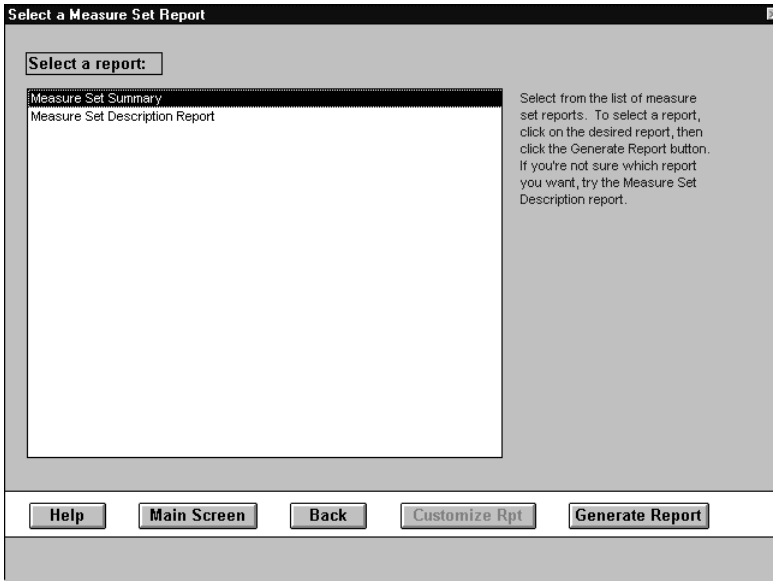
1. From the CONQUEST Database Main Screen, click on the Reports on Measure Sets icon.
2. Select the PBGH measure set from the Choose Measure Sets for Reporting screen and

Reports on Measure Sets

click the Add button, then the Report button.



3. Click on AMeasure Set Summary@ to select it, then click the Generate Report button to preview the report.



4. To print this report, select Print from the File menu.

After scanning this report, you decide that all the survey measures in this set are valuable for your HMOs and will be used. You would approach the contact person listed on the measure set summary to obtain the actual survey instrument and detailed specifications.

TOUR B: HOSPITAL QUALITY IMPROVEMENT COMMITTEE

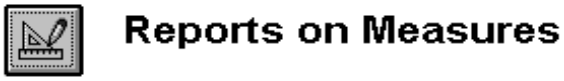
In this tour, the quality improvement (QI) committee of a State hospital association has decided to examine the quality of care related to acute myocardial infarction (AMI) because this condition

is a leading cause of death and disability among Americans. Specifically, the committee wants to measure outcomes for AMI patients. The committee decides to use CONQUEST 2.0 to help decide what measure(s) should be used for this purpose. Imagine that you are acting as staff to the committee and must prepare reports for its inspection.

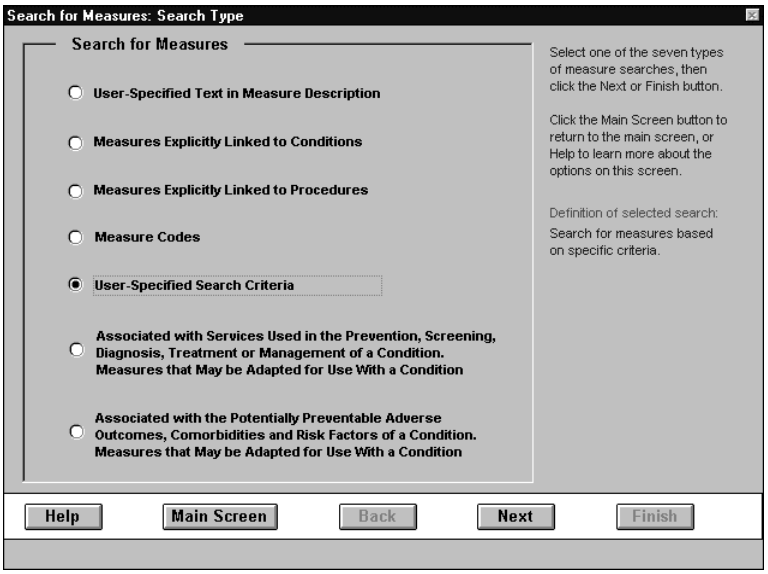
This tour demonstrates certain features of the Measure Database. By following this tour, you will use the Measure Database to identify measures based on their reliability, validity, and other analysis considerations.

B1. Searching for Information Using User-Specified Criteria

1. From the CONQUEST Database Main Screen, click on the Reports on Measures icon.

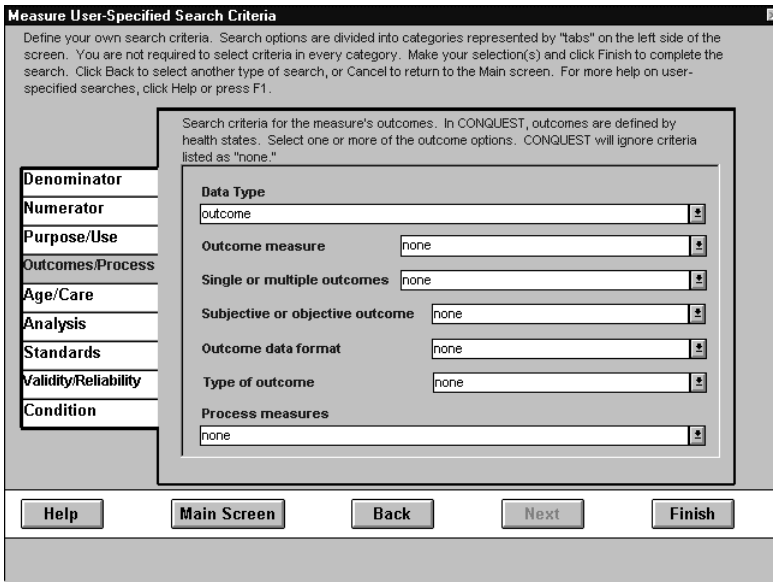


2. At the Search for Measures: Search Type screen, select User-Specified Search Criteria. Then click on the Next button.

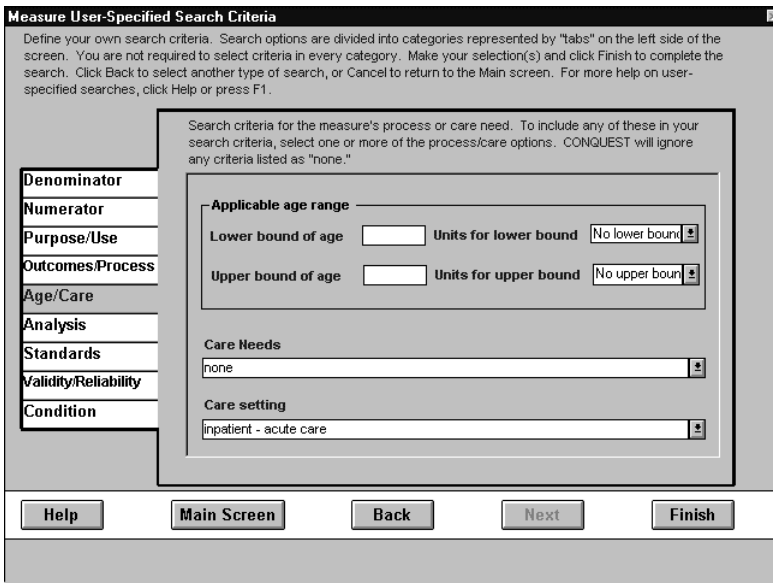


Because the committee is interested in measuring the outcomes of hospital care for AMI patients, you will search for measures related to outcome, care setting, and condition.

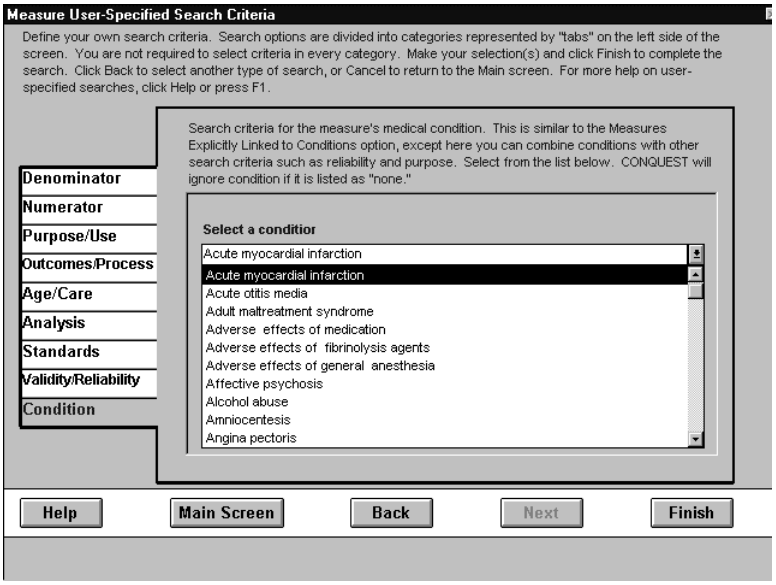
3. At the User-Specified Search screen, select the Outcomes/Process tab. From the AData Type@ list, choose outcome.



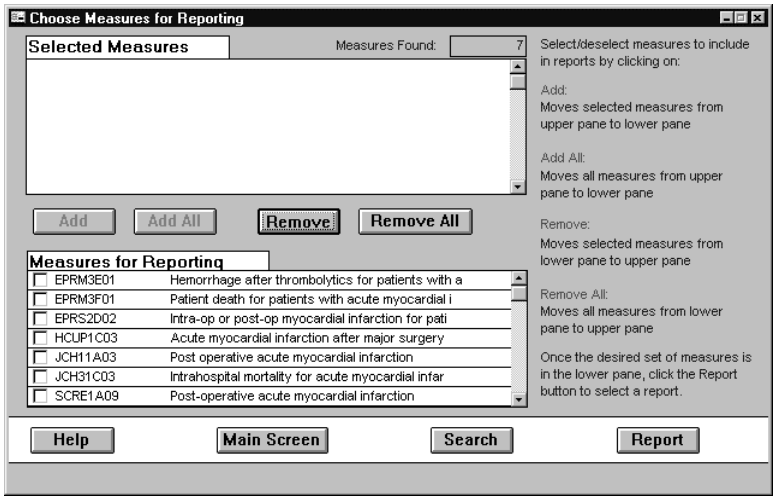
4. Click on the Age/Care tab. From the ACare setting@ list, choose inpatient B acute care.



5. Click on the Condition tab and select Acute myocardial infarction from the list, or type the first few letters of the condition name into the box.

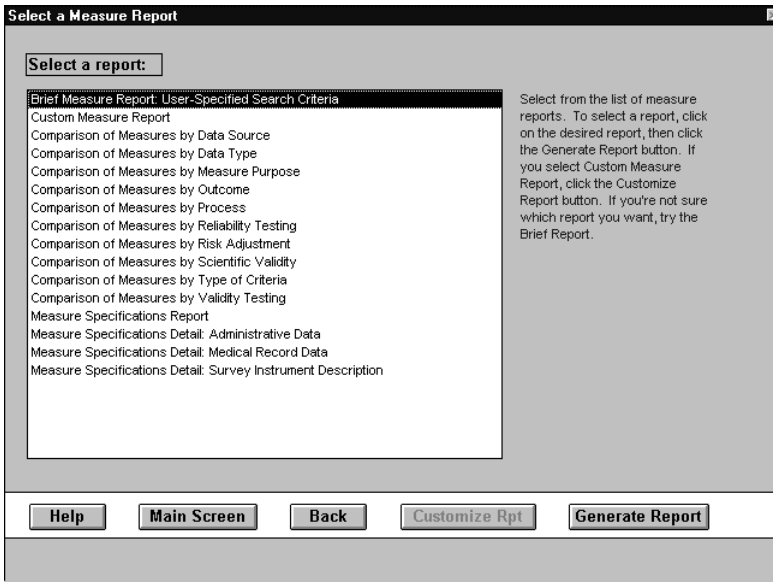


6. Click on the Finish button. The Choose Measures for Reporting screen shows 7 measures found. Click the Add All button to shift the measures to the Measures for Reporting list.



Then click Report.

7. Select ABrief Measure Report: User-Specified Search Criteria@ and click the Generate Report button.



8. Preview the results. This report shows 7 measures. For each measure the report gives the set name, measure name and code, and a brief English language description of the numerator and denominator.

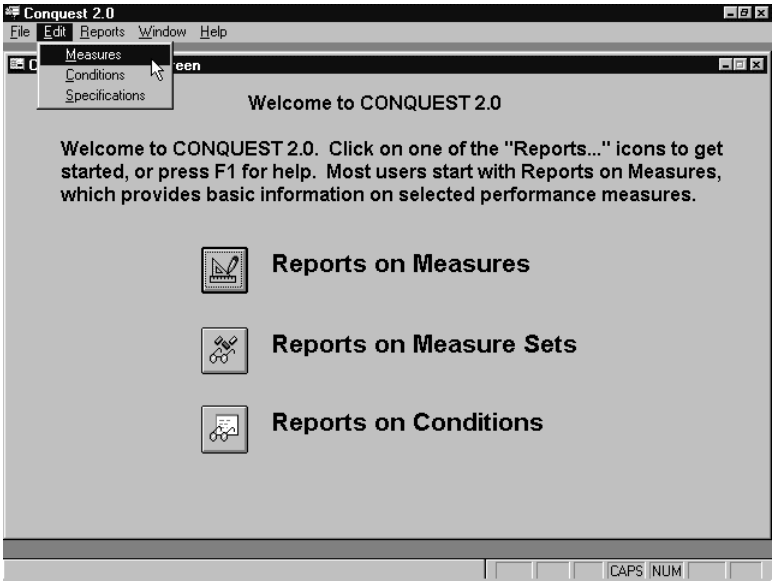
9. To print out the report of measures matching the specified search criteria, select Print from the File menu.

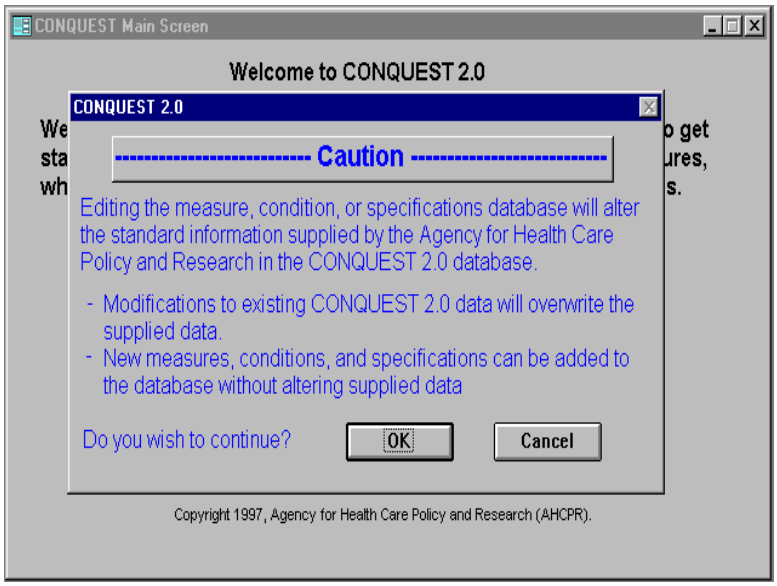
After examining these measures, the QI committee notes that the database does not include one AMI outcome measure known to committee members. The committee decides to add this measure to the database so that it can be analyzed and compared to the others.

10. Choose Close from the File menu and click the Back button on the Select a Measure Report screen to return to the Choose Measure for Reporting screen. Click the Main Screen button to return to the CONQUEST Database Main Screen.

B2. Entering and Editing Data in the Measure Database

1. From the CONQUEST Database Main Screen, click Edit at the top of the screen. Select Measures from the list. You will see a ACaution@ screen noting that editing the database will alter the standard information supplied in the software. Click the AOK@ button to continue or the ACancel@ button if you do not wish to proceed.





2. This takes you to the first screen of the data entry form. The form will open with the first measure of the entire set, sorted alphabetically by measure code. To create a new measure, click on the Add new record button at the top of the page.

The form will blank and the record number at the bottom left of the page will change. To enter data, click on fields directly or tab from one to the next. There are five forms for each measure for data entry. The buttons at the top left of the page navigate between forms.

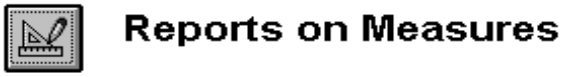
3. We will not enter data. We have shown this step only for illustration. Click the Return button (with the open door symbol) to return to the CONQUEST Database Main Screen.

The committee inspects the output obtained in Step B1. They notice three measures that relate to postoperative AMI. The committee discusses the idea that this is an outcome that a hospital can and should try to prevent by proper selection and preparation of patients for surgery and by proper pre-, intra-, and post-operative care. Although this was not their original intent, they decide now to focus on measures related to the prevention of post-operative AMI measures (specifically, SCRE1A09, JCH11A03, and HCUP1C03).

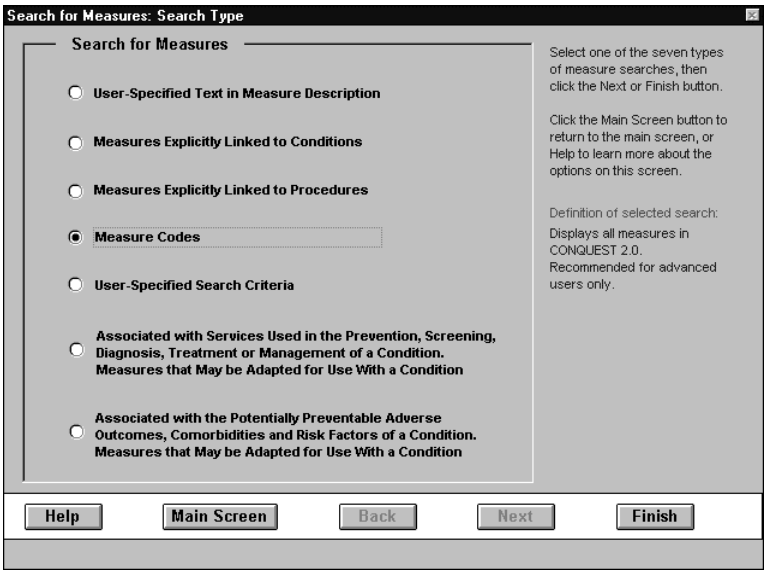
B3. Printing a Measure Report

The committee decides to compare the three postoperative AMI measures on the source of data required to construct the measure. You prepare the report.

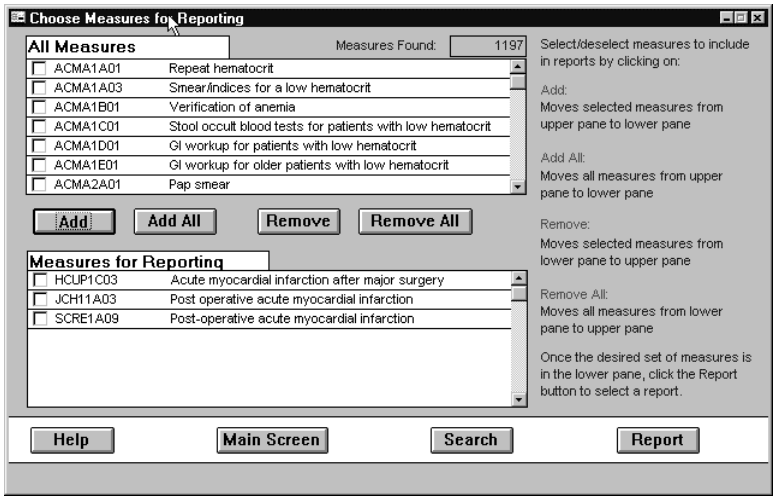
1. From the CONQUEST Database Main Screen, click the Reports on Measures icon.



2. Select Measure Codes and click Finish.

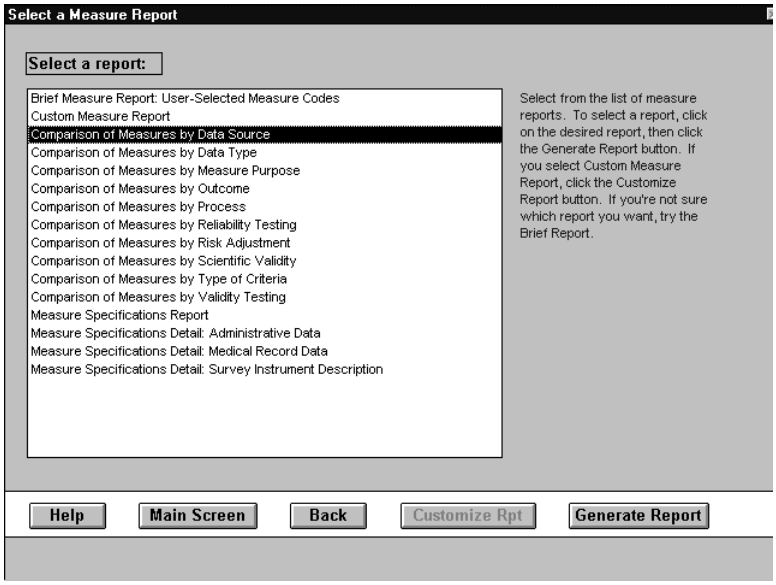


3. Select the measure codes noted in Step B2 from the All Measures list and click the Add button to shift them to the Measures for Reporting list. You can locate these measures either by scrolling through the list, or pressing the Ctrl and F keys at the same time and using the find function to search for measure codes. For more information on this feature, see Chapter 5.



Click Report.

4. Select AComparison of Measures by Data Source.@



Click Generate Report.

5. Preview the report.

6. To print out the AComparison of Measures by Data Source@ report select Print from the File menu.

7. The committee decides to concentrate only on those measures that use data from administrative sources and that do not require medical records abstraction. They reach this decision because the State hospital association has experience in analyzing a statewide hospital administrative database.

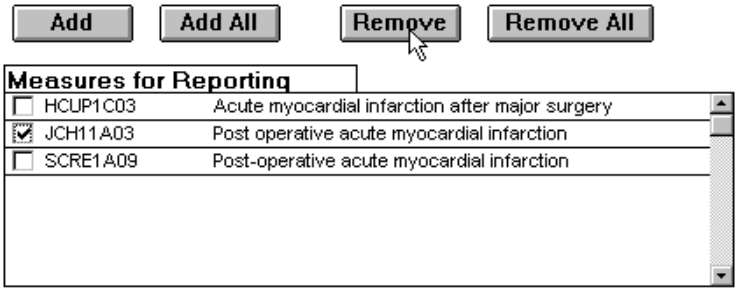
   You scan the report and see that two of the three measures use only administrative data for the numerator and denominator, while the other measure uses both administrative and records data. You write down the codes for the two administrative-only measures (SCRE1A09 and HCUP1C03).

8. To return to the Choose Measures for Reporting screen, close the report by selecting File : Close and Back on the Select a Measure Report screen.

B4. Comparing Measures Using a Measure Report

The committee wants to know if these two measures have been tested for reliability and validity.

1. From the Choose Measures for Reporting screen, remove the JCH11A03 measure from

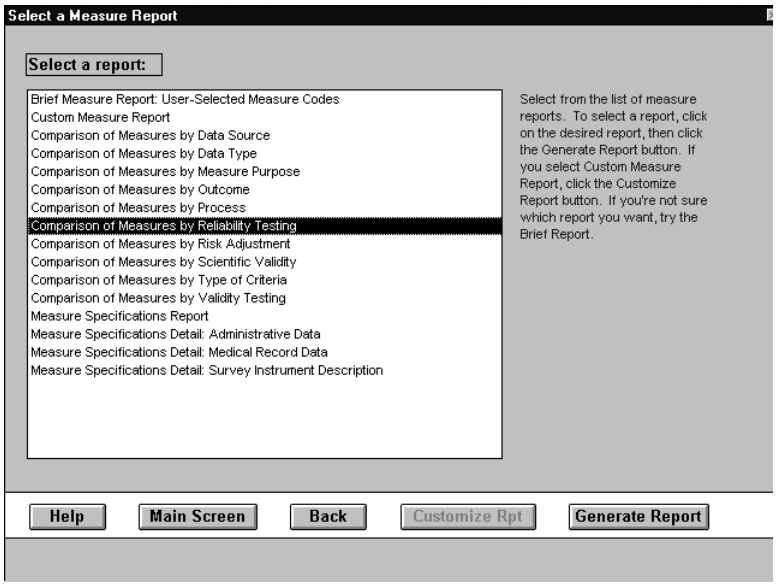


the Measures for Reporting list by placing a check mark or an AX@ in the box next to the code and clicking Remove.

Next, click Report.

To assist you in understanding the different categories of reliability testing, you can click on the Help button that appears on many screens or press F1 on your keyboard. Then click the Search button at the top of the Help window.

2. Select AComparison of Measures by Reliability Testing@ and click Generate Report.



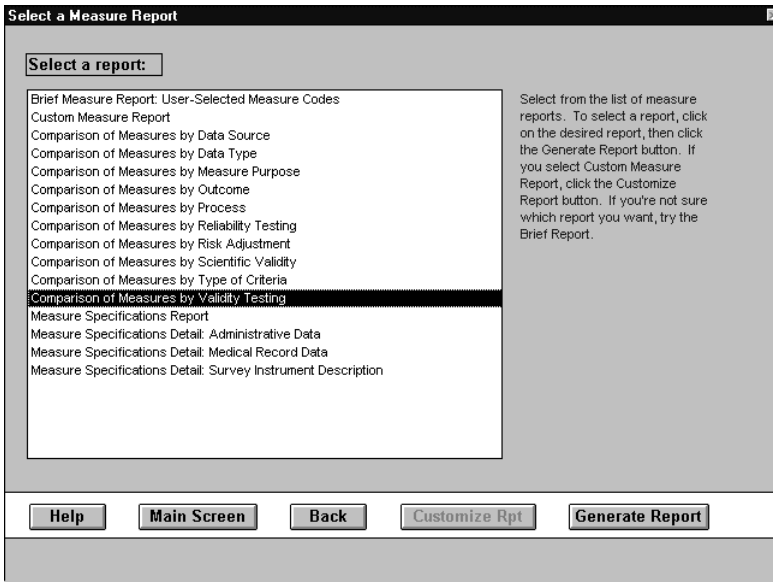
3. Preview the report.

4. To print out the one-page AComparison of Measures by Reliability Testing@ report select Print from the File menu.

5. Close the report window by selecting File: Close and then Back on the Select a Measure Report screen.

6. From the Choose Measures for Reporting screen, click Report (the codes you need are already selected).

7. Select AComparison of Measures by Validity Testing@ and click Generate Report.



8. To print out the AComparison of Measure Validity Testing@ report by choose Print from the File menu.

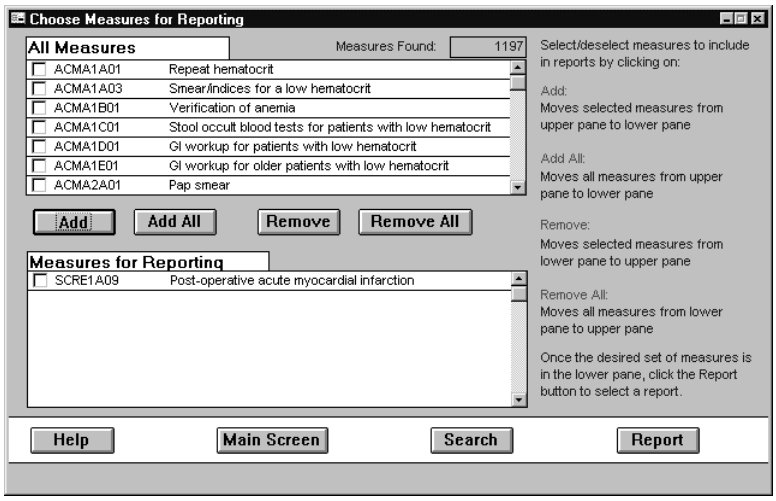
9. After reviewing these two reports, the committee decides to pursue the measure from the Complications Screening Program (SCRE1A09), because it has had more reliability and validity testing than the other measure.

10. Close the report window by selecting File: Close and Back on the Select a Measure Report screen, and return to the Choose Measures for Reporting screen.

B5. Printing a Report on a Selected Measure

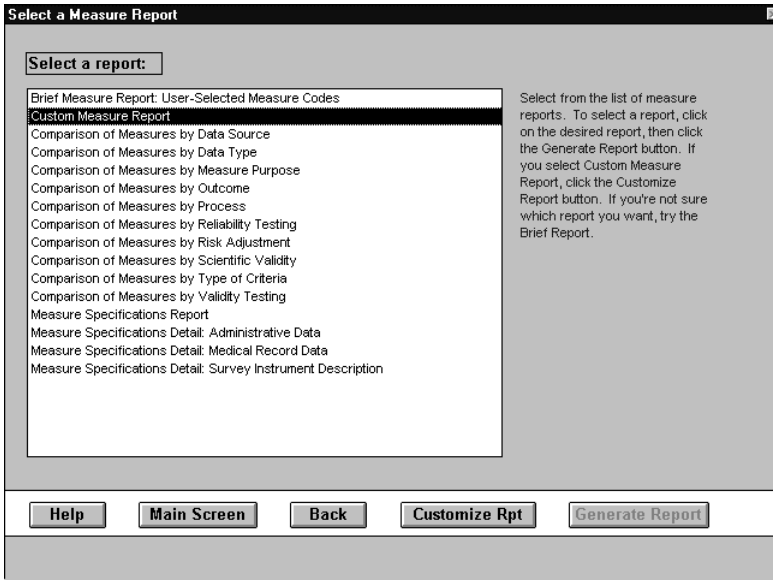
The committee wants to know more about the analysis considerations of this particular measure. Specifically, they know that outcome measures should be adjusted for patient risk and are interested in whether this measure uses risk adjustments to allow for differences between patients in different hospitals.

1. From the Choose Measures for Reporting screen, remove HCUP1C03 from the Measures for Reporting list by selecting the measure in the lower pane and clicking the Remove

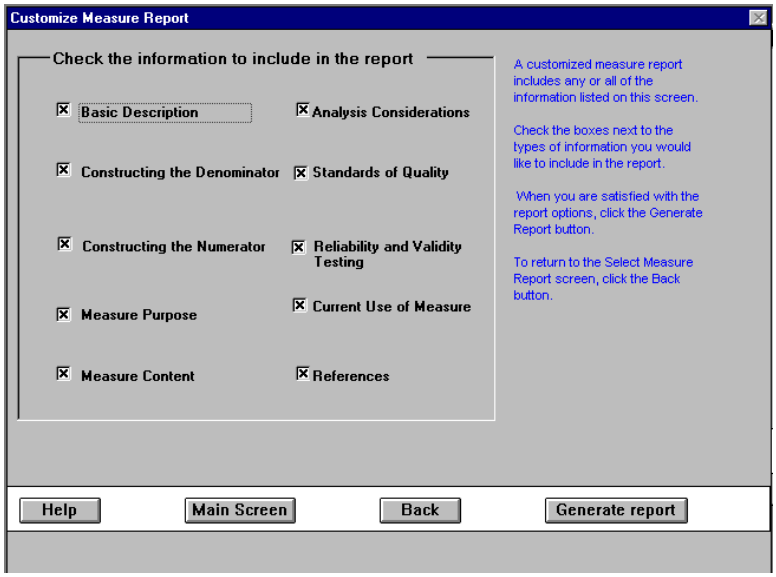


button. The screen should look like the one shown below.

2. Click Report and select ACustom Measure Report@ and click Customize Rpt.



3. From the Customize Measure Report screen, make sure all boxes are checked and click Generate Report.



4. Preview and print the report.

The committee examines the measure=s Aallowance for patient factors in analysis procedures.@ The committee is pleased to note that the measure does include procedures for risk adjustment, because risk adjustment is an essential feature if outcome measures will be used to compare providers who serve patient populations that differ in the risk for poor outcomes. They can now identify the contact person (from page 1 of the Custom Measure Report) to obtain detailed specifications for this measure and to obtain the results of the reliability and validity testing.

TOUR C: DIRECTOR OF A STATE MENTAL HEALTH AGENCY

In this tour, you play the role of director of a State mental health agency. Your agency contracts with managed-care organizations to provide mental health services for clients, and needs to measure the quality of care these organizations provide. An external advisory committee including consumer representatives will provide input for the selection of measures.

You decide to use CONQUEST 2.0 to assist with the question: AHow should we measure performance for our managed-care contractors?@

This tour demonstrates selected features of the Condition Database. Specifically, you will use the Condition Database to compare conditions by prevalence, health care services utilization, cost, and provider settings. Once you select a condition, you will use the Measures Database to find and compare measures for the condition.

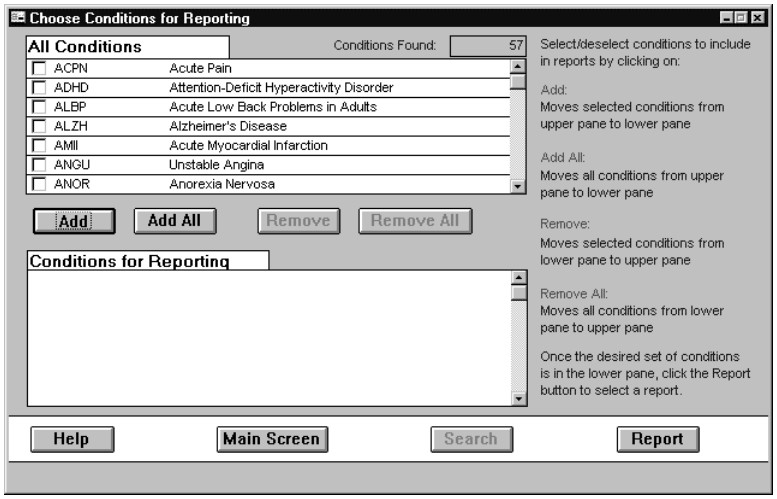
C1. Finding Relevant Conditions

The external advisory committee realizes that using clinical performance measures in the contracting procedure must be approached carefully. They decide to start with a pilot project focusing on one condition only, and to pick that condition from among those primarily affecting adults.

1. From the CONQUEST Database Main Screen, click the Reports on Conditions icon.

Reports on Conditions

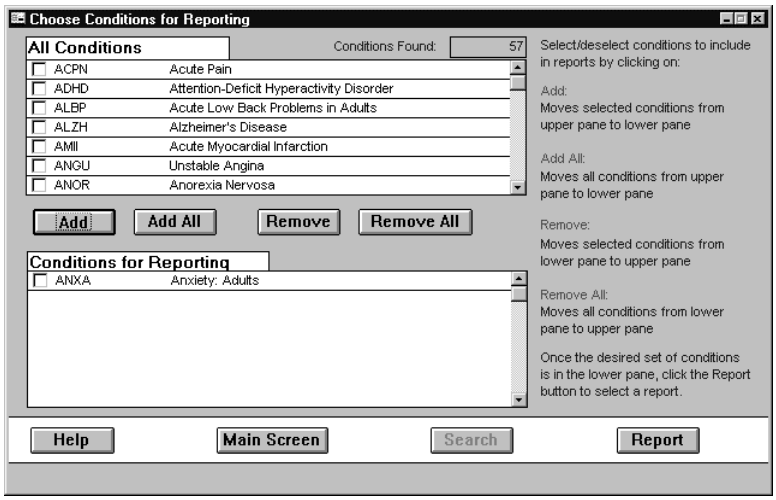
2. At the Choose Conditions for Reporting screen, scroll through the All Conditions list and note the codes for all adult mental health conditions. Note that some of the adult conditions are labeled adult and others are not (e.g., Bipolar disorder).



The adult mental health conditions are: ANXA (Anxiety: Adults), BIPO (Bipolar Disorder), DEPR (Depression in Adults), and SCHA (Schizophrenia: Adults).

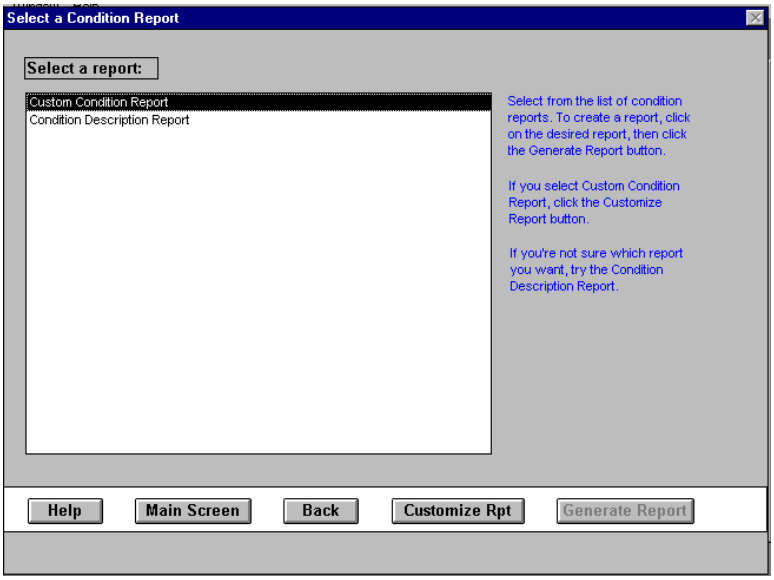
C2. Reporting on Conditions

1. You decide to preview information about the AAnxiety: Adults@ condition. Select the condition in the All Conditions list and click Add to shift it to the lower pane of the Conditions for Reporting list.

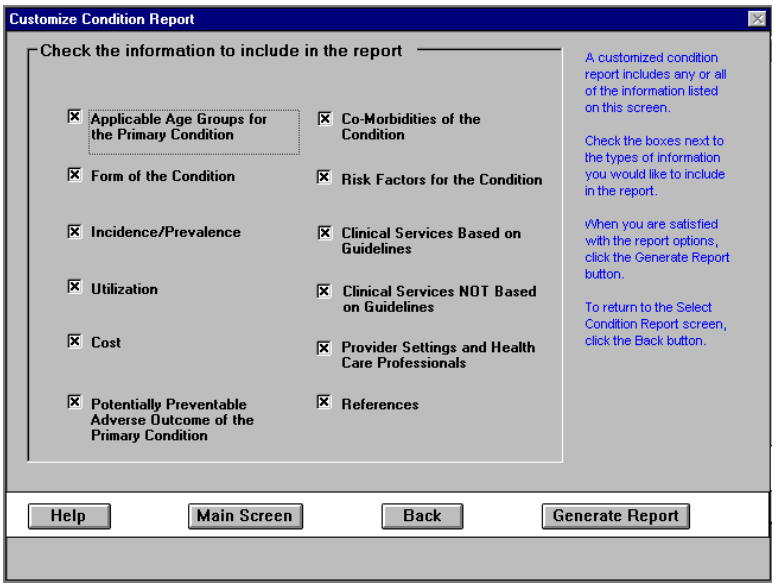


Click the Report button.

2. Select ACustom Condition Report@ and click Customize Rpt.



3. Click Generate Report with all choices selected to preview the report for this condition.

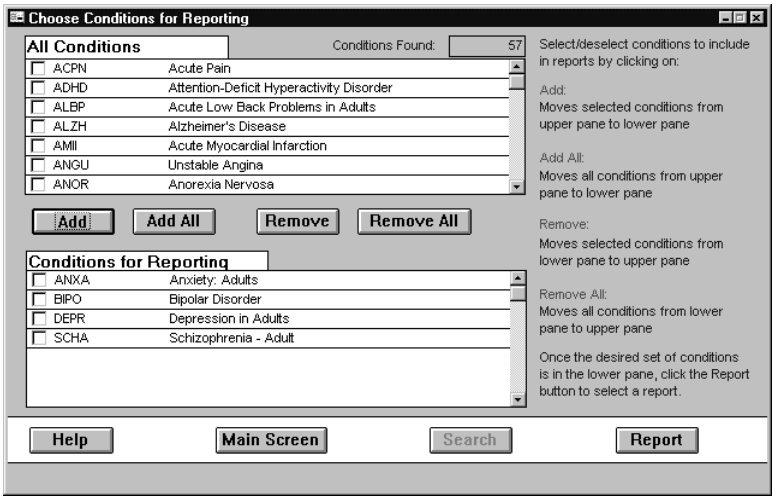


Note that this report is 19 pages long. You decide not to print this report because it contains so much information about this condition and you still have not selected the condition of most interest to you. You decide that examining the prevalence of all four conditions would be more helpful at this point (Item 3 on the Standard Condition Report).

4. Close the report window (without printing) by choosing File: Close from the menu and then selecting Back on the Select a Condition Report screen. This will display the Choose Conditions for Reporting screen.

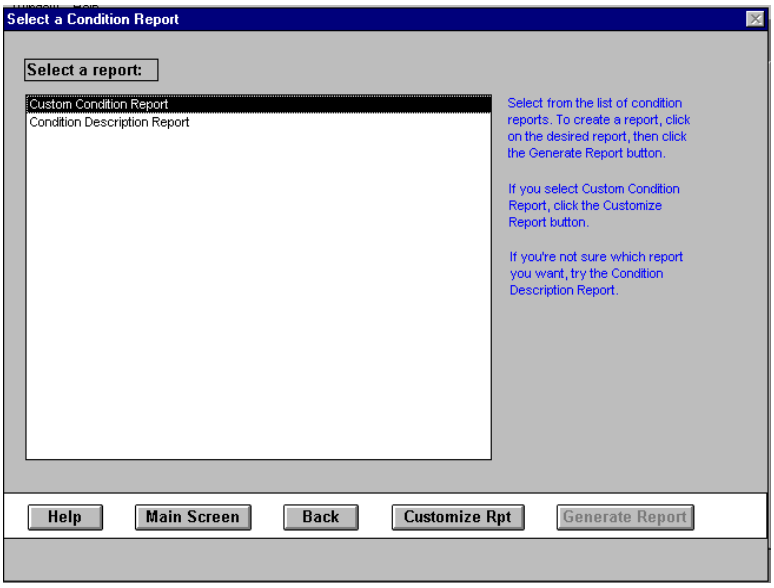
C3. Printing Custom Condition Reports for Selected Conditions

1. Select the remaining three adult-related mental health conditions from the All Conditions list and click the Add button. The four conditions in the Conditions for Reporting list should be: Anxiety: Adults; Bipolar Disorder; Depression in Adults; and Schizophrenia - Adults.

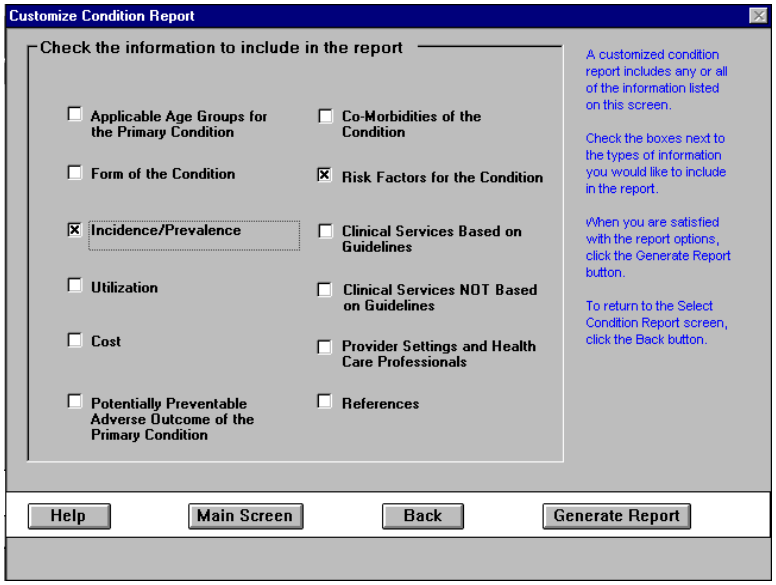


Click Report.

2. From the Select a Condition Report screen, select ACustom Condition Report@ and click Customize Rpt.



3. From the Customize Condition Report screen, deselect everything except the box for Incidence/Prevalence.



Then click the Generate Report button to preview.

4. To print the Custom Condition Report choose Print from the File menu. These reports will be included in the briefing book for the next advisory committee meeting.

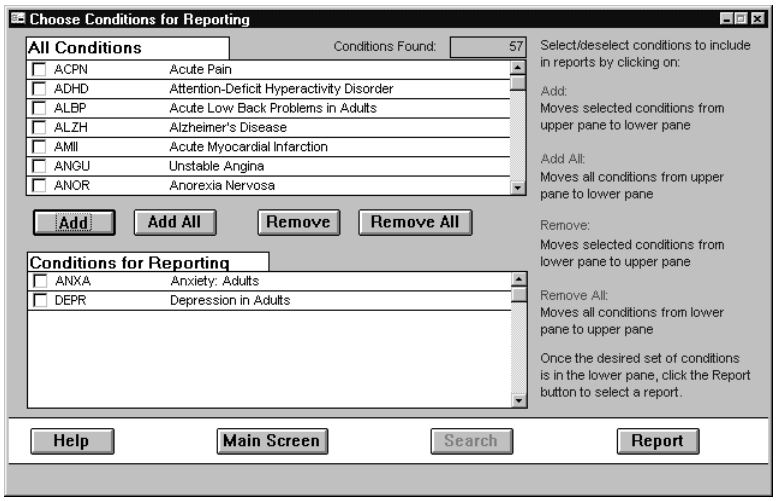
5. After printing the combined report, return to the Choose Conditions for Reporting screen by selecting Close from the File menu and Back on the Select a Condition Report screen.

After previewing the custom condition report showing information on prevalence, the committee decides to pursue depression and anxiety (DEPR and ANXA) because these are the most common of the four conditions. They wish to compare these conditions on several characteristics.

C4. Printing Custom Condition Reports to Compare the Selected Conditions

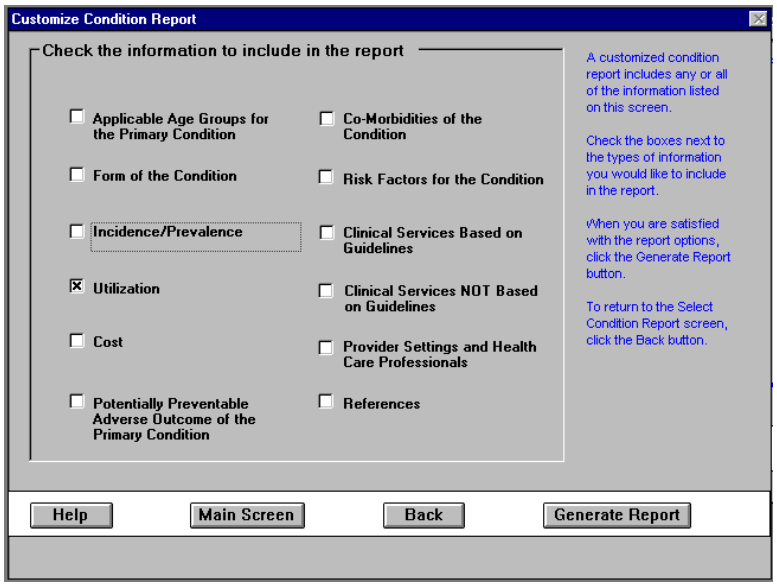
The committee pursues its investigation by printing custom reports on use of services related to both of the conditions chosen above.

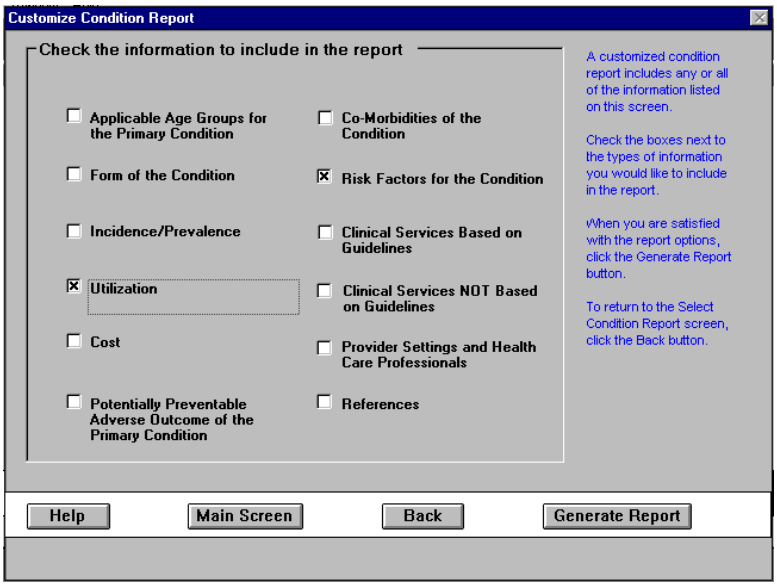
1. At the Choose Conditions for Reporting screen, remove the schizophrenia and bipolar disorder conditions from the Conditions for Reporting list by selecting them in the lower pane and clicking the Remove button. The Choose Conditions for Reporting screen should look the one shown below.



4. Click the Report button, and click on ACustom Condition Report@ on the Select a Condition Report screen. Then click on Customize Rpt.

3. Deselect everything except the box for Utilization, then click the Generate Report button to preview.





4. To print the Custom Condition Report, select Print from the File menu.

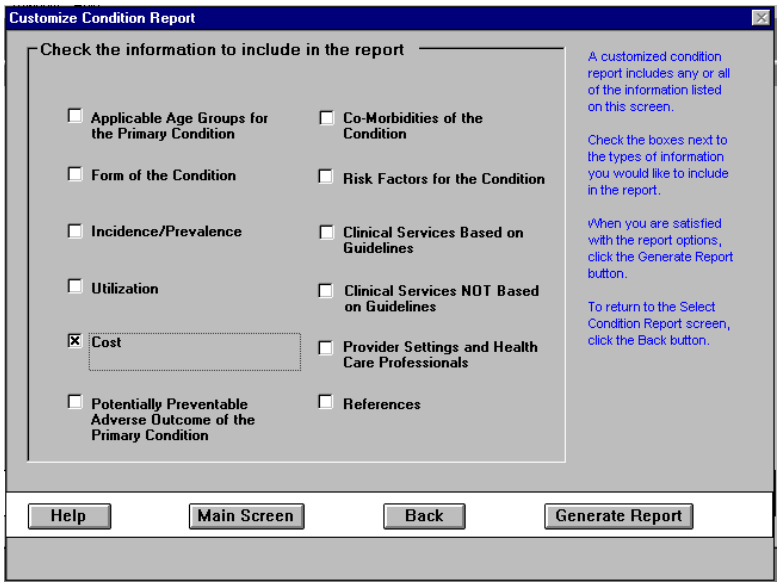
C5. Printing Custom Condition Reports to Compare the Selected Conditions

The committee next decides to print custom reports on costs associated with both of the conditions chosen above.

1. At the Choose Conditions for Reporting screen, make sure the two conditions are already on the Conditions for Reporting list, then click Report.

2. Select ACustom Condition Report@ from the Select a Condition Report screen, and click Customize Rpt.

3. Deselect everything except the box for Cost, then click the Generate Report button to preview.



4. Print the Custom Condition Report by choosing Print from the File menu.

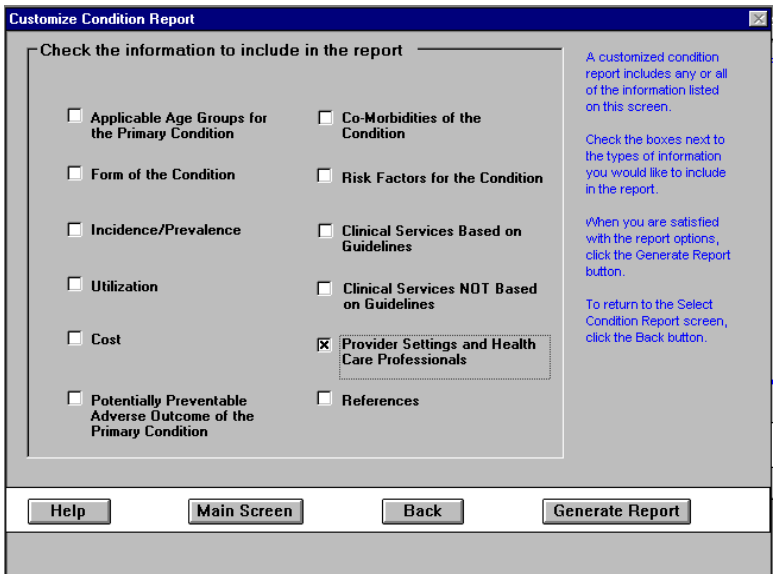
C6. Printing Custom Condition Reports to Compare the Selected Conditions

Lastly, the committee decides to print the custom reports on provider settings and health professionals concerned with both of the conditions chosen above.

1. At the Choose Conditions for Reporting screen, make sure the two conditions are already on the Conditions for Reporting list, then click Report.

2. Select ACustom Condition Report@ from the Select a Condition Report screen, and click Customize Rpt.

3. Deselect everything except the box for Provider Settings and Health Care Professionals, then click the Generate Report button to preview the report.



4. Print the Custom Condition Report by selecting Print from the File menu.

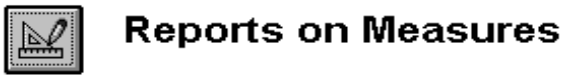
5. After printing these reports, return to the CONQUEST Database Main Screen by selecting close from the File menu, then clicking the Main Screen button in the Choose Conditions for Reporting screen.

After reviewing the reports generated in Steps C4, C5, and C6, the committee chooses depression as the condition for the pilot project because it involves both hospital and ambulatory care, and the information reported on utilization and costs shows that depression requires use of considerable resources.

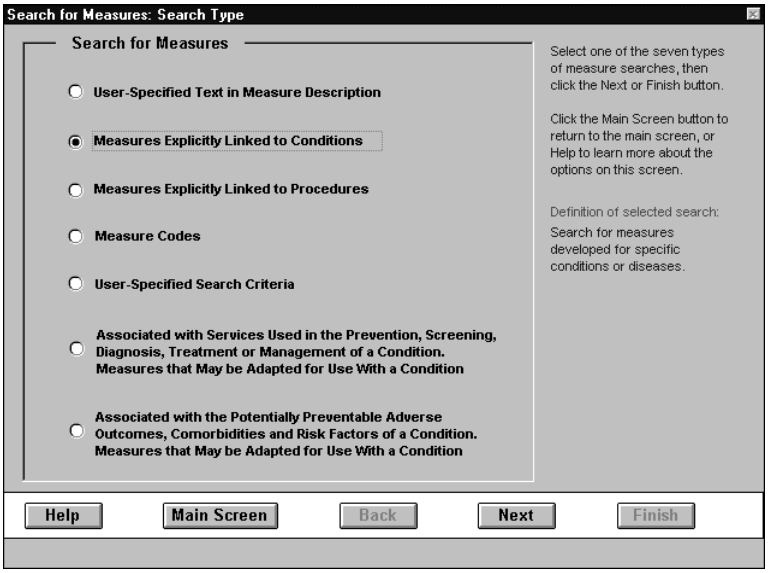
C7. Searching for Information on Measures Explicitly Linked to a Condition

Now that the committee has selected depression for the pilot project, they decide to search for performance measures related to depression.

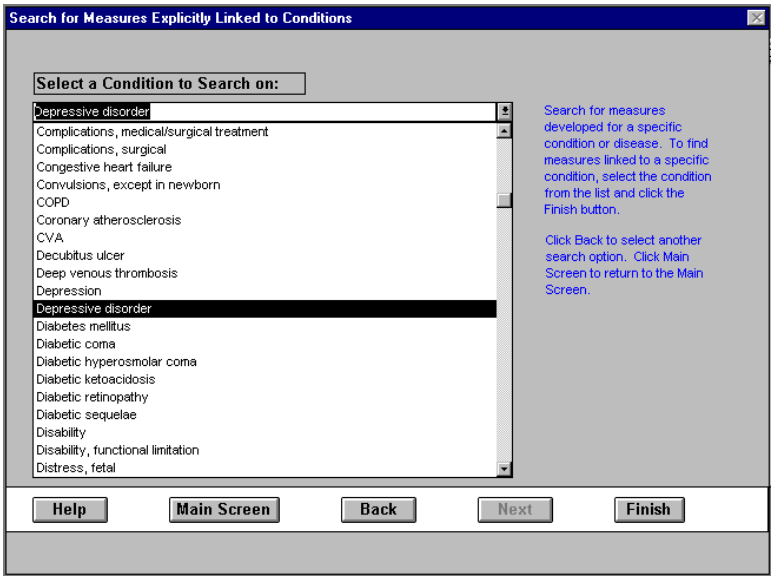
1. From the CONQUEST Database Main Screen, click the Reports on Measures icon.



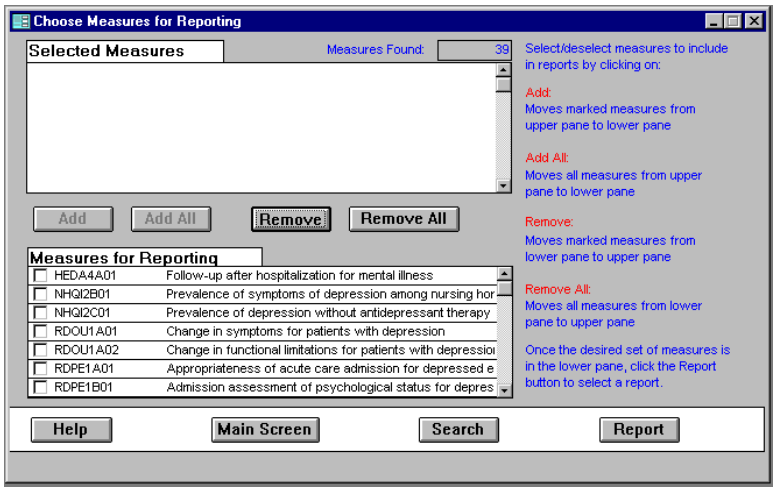
2. From the Search for Measures: Search Type screen, select Search for Measures Explicitly Linked to Conditions, then click Next.



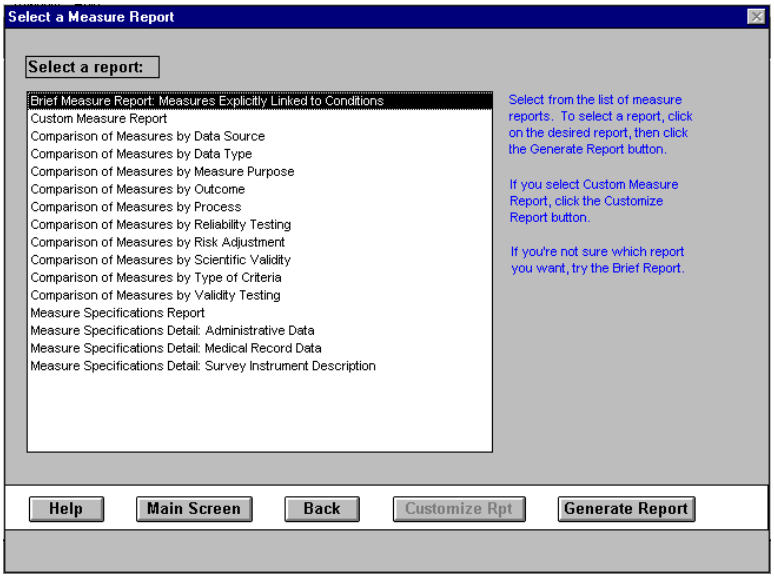
3. At the Search for Measures Explicitly Linked to Conditions screen, scroll down the list of conditions (or type in its first few letters) and select the condition ADepressive disorder.@ Then click Finish. This report is generated by searching the measures for those linked to this condition.



4. At the Choose Measures for Reporting screen, click the Add All button to shift the found measures to the Measures for Reporting list. Note the Measures Found number at the top right of the form. Click the Report button.



5. Choose ABrief Measure Report: Measures Explicitly Linked to Condition@ and click Generate Report to preview the report.



6. To print out the report on measures related to depression, choose Print from the File menu.

The committee is surprised to learn that there are so many different measures for depression. After reviewing these measures, they decide that the ARAND Depressed

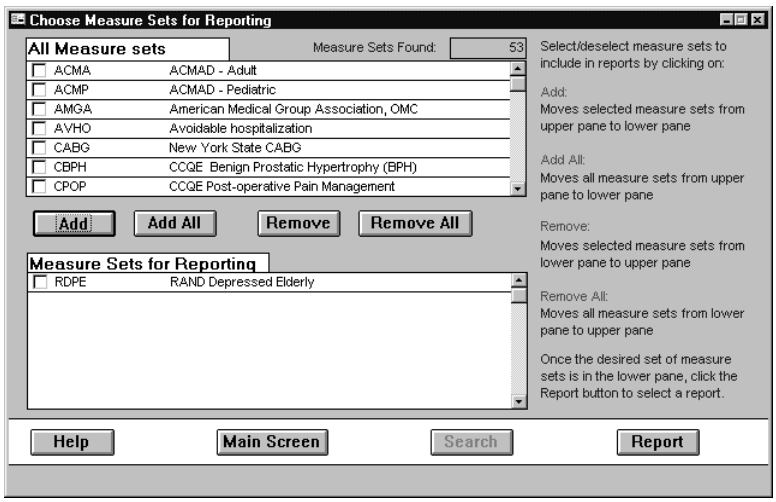
Elderly@ measure set would likely suit their needs best, and they choose to examine this measure set in more detail.

7. Click Close on the File menu and then Back on the Select a Measure Report screen to return to the Choose Measures for Reporting screen. Click the Main Screen button to return to the Main Screen.

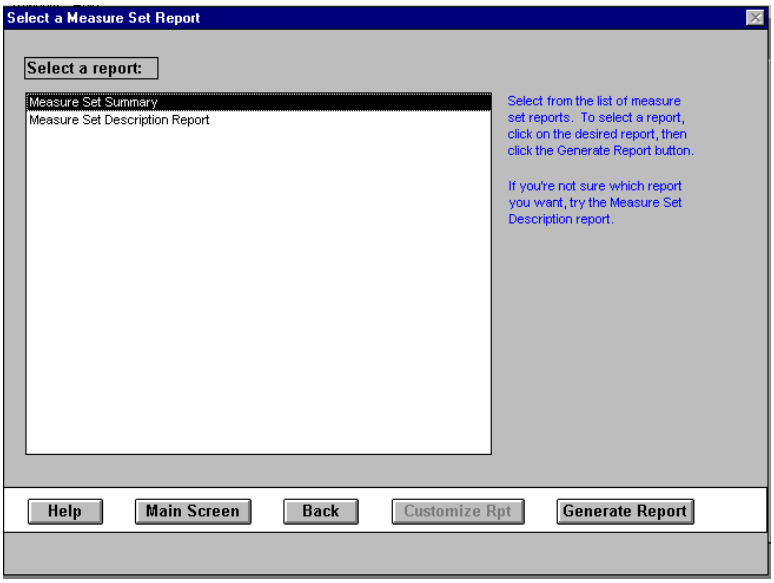
C8. Printing a Report on a Selected Measure Set

1. From the CONQUEST Database Main Screen, click on the Reports on Measure Sets icon.

2. Select the RDPE measure set from the Choose Measure Sets for Reporting screen and click the Add button, then the Report button.



3. Click on AMeasure Set Summary@ to select it, then click the Generate Report button to preview the report.

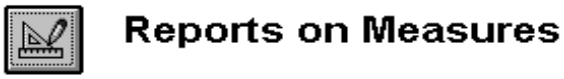


4. To print the Measure Set Summary report, choose Print from the File menu. After previewing this report, the committee wants to compare the individual measures in the set on the criteria for quality that are used.

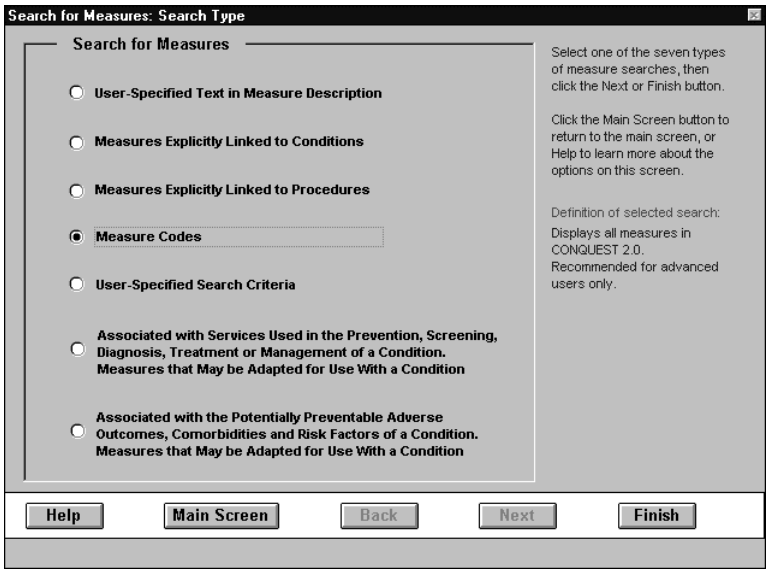
5. After printing these reports, return to the CONQUEST Database Main Screen by closing the report (File : Close), selecting Back on the Select a Measure Set Report screen, and then clicking the Main Screen button at the Choose Measures for Reporting screen.

C9. Comparing Measures Using Custom Measure Reports

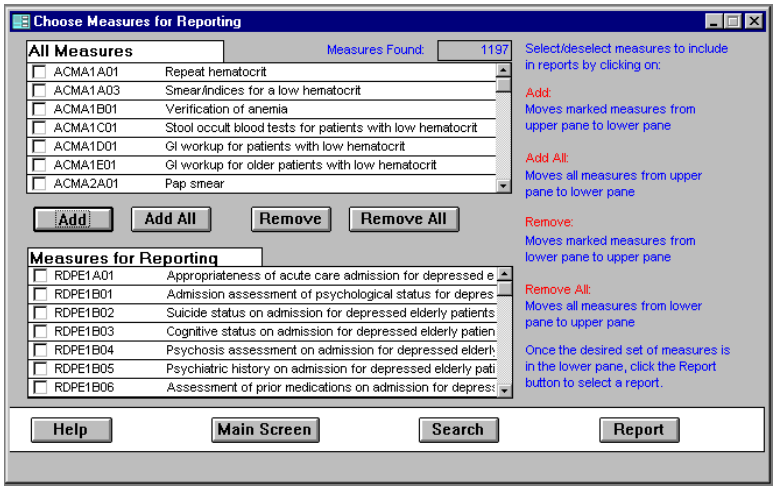
1. From the CONQUEST Database Main Screen, click the Reports on Measures icon.



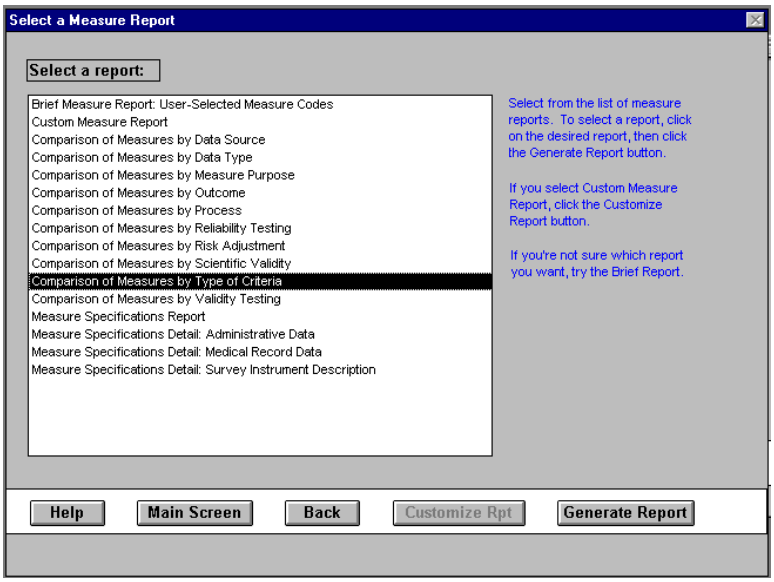
2. At the Search for Measures: Search Type screen, select Measure Codes and Finish.



3. Select the measure codes for the 20 RAND depression process (RDPE), then click the Add button to shift the measures to the Measures for Reporting list. You can either scroll through the measures or use the Find feature to locate measures. See Chapter 5 for a description of the Find feature. Then click Report.



4. At the Select a Measure Report screen, choose AComparison of Measure by Type of Criteria@ and click Generate Report to preview the report.



5. Print the AComparison of Measures by Type of Criteria@ report by choosing Print from the File menu.

   The committee observes that both explicit and implicit criteria are used in these measures.

6. After printing these reports, return to the CONQUEST Database Main Screen by clicking Close under the File menu and Back on the Select a Measure Set Report screen. Then click the Main Screen button on the Choose Measures for Reporting screen.

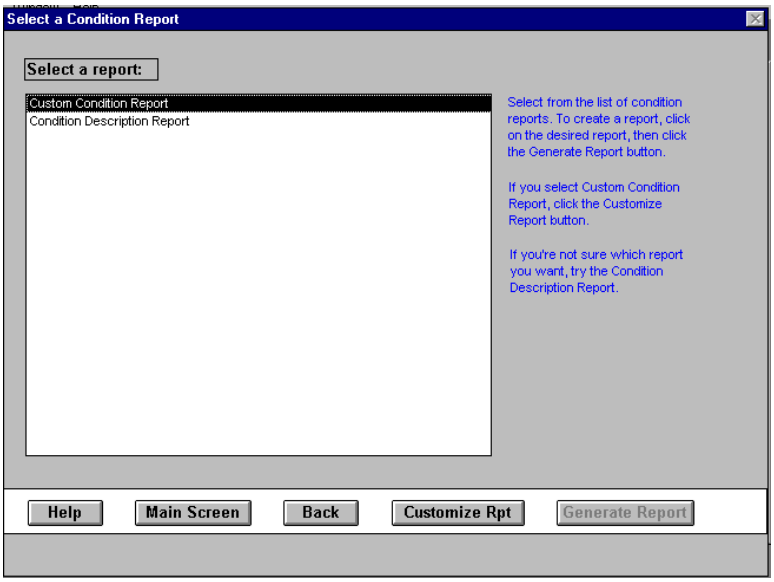
C10. Printing Custom Condition Reports to Find Recommended Services

The committee decides finally to check how well these measures relate to the Agency for Health Care Policy and Research (AHCPR) Clinical Practice Guideline on depression.

1. From the CONQUEST Database Main Screen, click on the Reports on Conditions icon.

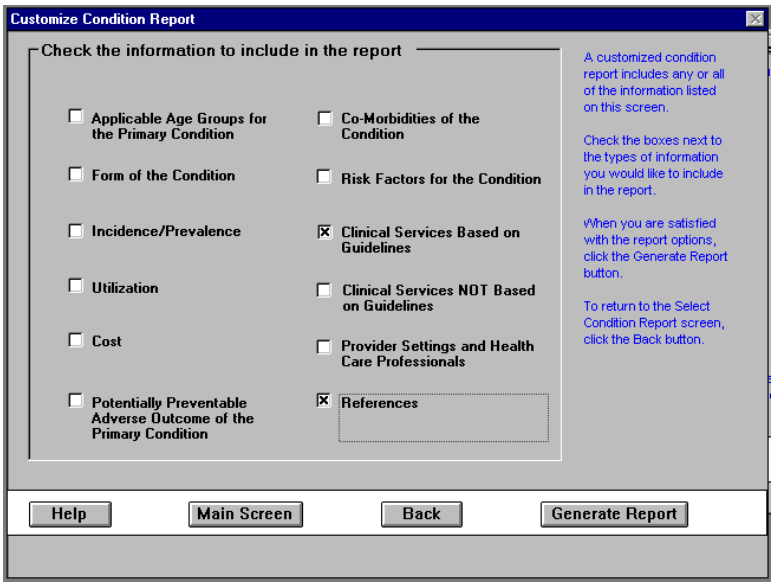
Reports on Conditions

2. From the Choose Conditions for Reporting screen, select the ADEPR@ (Depression in Adults) code from the All Conditions list and click the Add button to shift it to the lower pane of the Conditions for Reporting list. Click Report.



3. At the Select a Condition Report screen, choose ACustom Condition Report@ and click Customize Rpt.

4. At the Customize Condition Report screen, deselect all but the box for Clinical Services Based on Guidelines. Click Generate Report to preview the report.



Scroll down the report preview to view the remaining pages of the report.

5. To print the Custom Condition Report, choose Print from the File menu.

By scanning this report, the committee finds those clinical services based on guidelines that have been recommended for patients with this condition. Guideline recommendations evidently relate

to many of the processes of care evaluated by the criteria in this measure set. To review the scientific basis of the recommendations, the committee decides to read the pages of the guideline text cited in the last column of the report. The guideline text, in turn, gives the committee references to the original scientific literature supporting the guideline and thus supporting the related criteria.

TOUR D: STATE TASK FORCE ON CLINICAL GUIDELINES AND MEDICAL TECHNOLOGY ASSESSMENT

In this tour, a State=s Task Force on Clinical Guidelines and Medical Technology Assessment is interested in the AHCPR angina guideline. The task force wants more information on this guideline, and wants to know if any related measures exist that could be used to track whether clinical performance had changed after dissemination of the guideline.

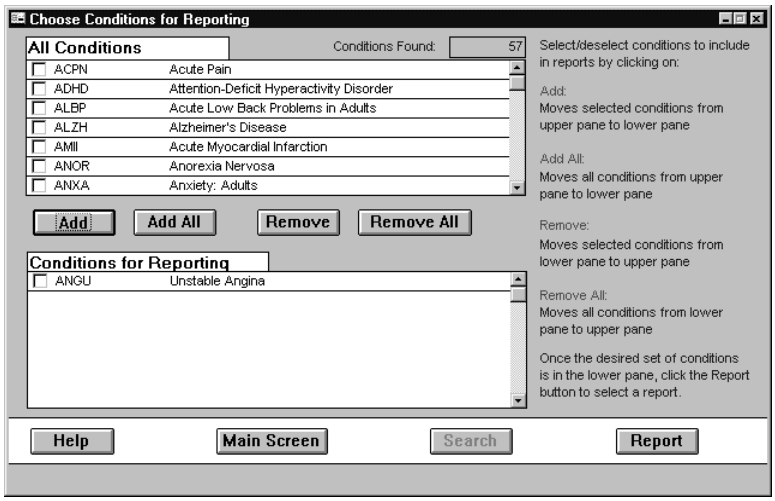
This tour demonstrates selected aspects of the Condition and Measure Databases. Specifically, you will use the Condition Database to print a synopsis of guideline recommendations and findings. You will then search the Measure Database for measures that may be used to assess compliance with the guideline recommendations and findings.

D1. Printing a Custom Condition Report for a Selected Condition

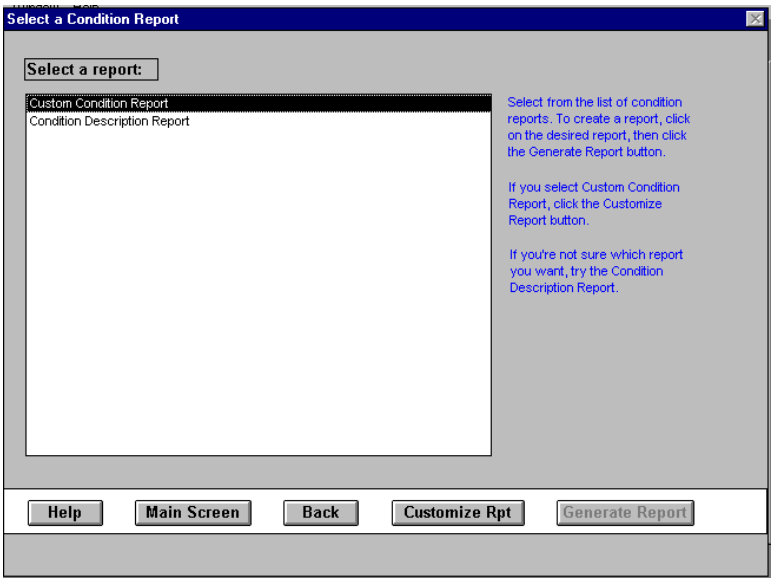
1. From the CONQUEST Database Main Screen, click the Reports on Conditions icon.

Reports on Conditions

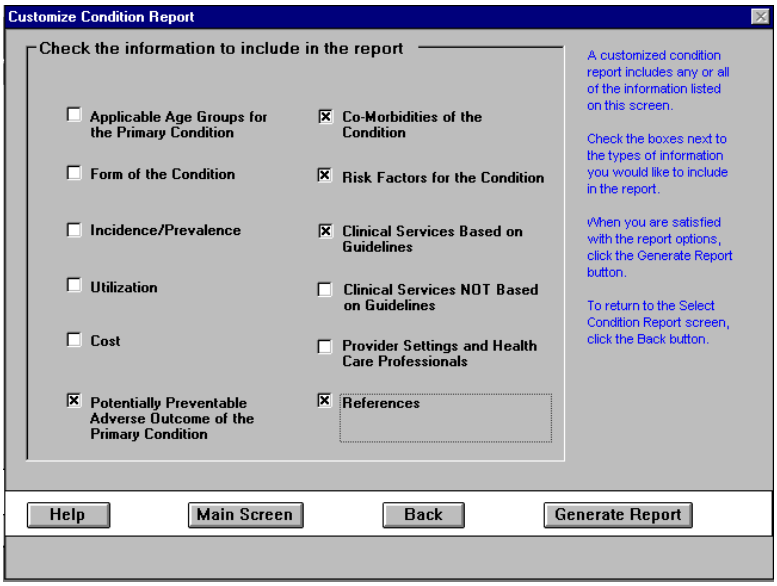
2. From the Choose Conditions for Reporting screen, select the ANGU (Unstable Angina) code, click the Add button, then click the Report button.



3. From the Select a Condition Report screen, choose ACustom Condition Report@ and click Customize Rpt.



4. Deselect all but the boxes for Potentially Preventable Adverse Outcomes, Co-Morbidities, Risk Factors, Clinical Services Based on Guidelines, and References. Click the Generate Report button to preview.



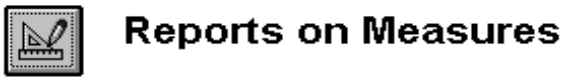
5. To print the report, select Print from the File menu.

6. After printing the report, return to the CONQUEST Database Main Screen by selecting File: Close and then clicking the Main Screen button at the Select a Condition for Reporting screen.

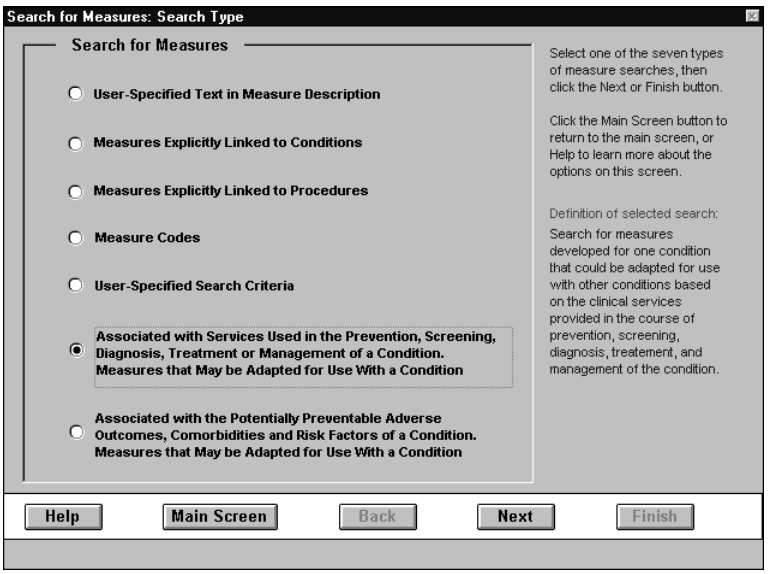
The task force uses this report to familiarize itself with the main points of the guideline. Next, it decides to search for performance measures related to unstable angina.

D2. Searching for Information on Measures Associated with Services Used for a Condition

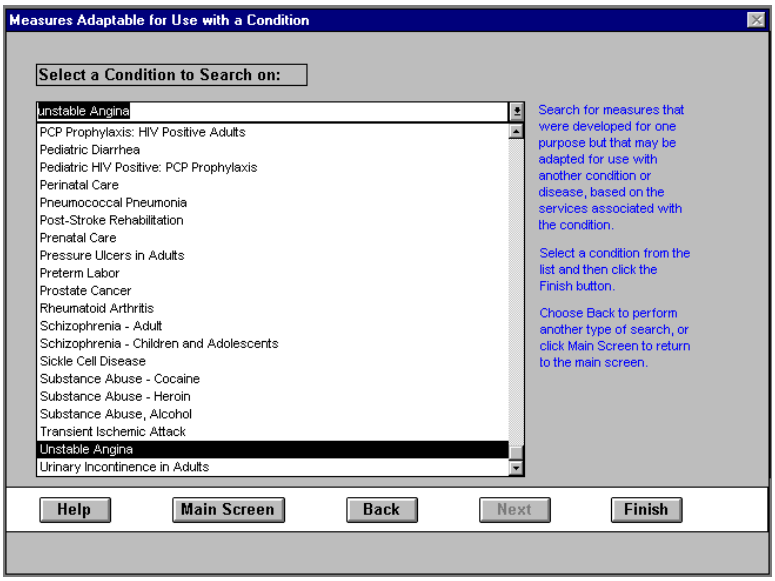
1. From the CONQUEST Database Main Screen, click on the Reports on Measures icon.



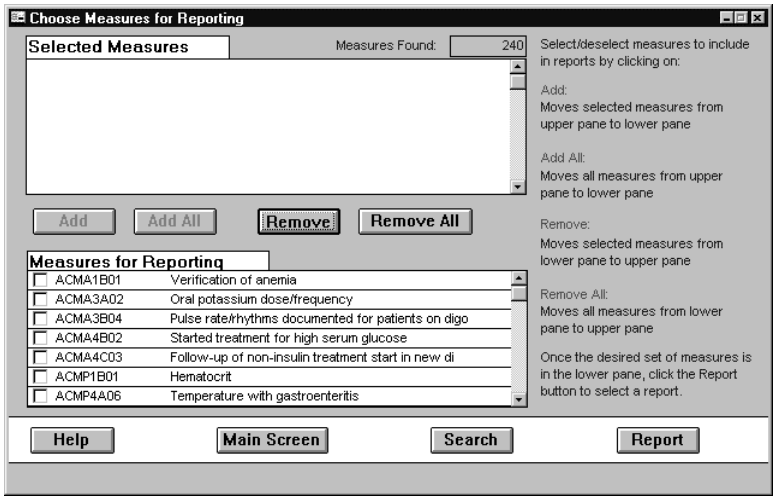
2. From the Search for Measures: Search Type screen, select Associated with Services Used in the Prevention, Screening, Diagnosis, Treatment or Management of a Condition, then click Next.



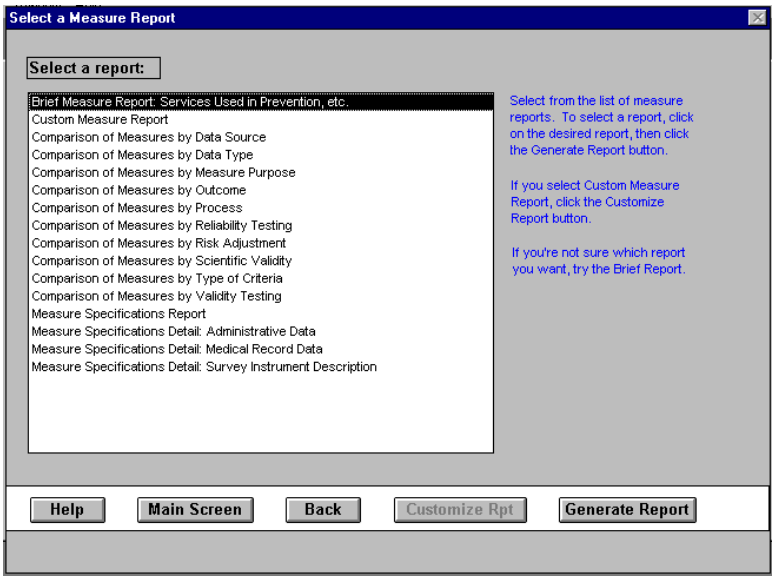
3. From the Measures Adaptable for Use with a Condition Selection Screen, scroll down and select the condition AUnstable Angina,@ then click the Finish button.



4. At the Choose Measures for Reporting screen, click the Add All button to shift the found set of measures to the Measures for Reporting list. Then click the Report button.



5. Select ABrief Measure Report: Services Used in Prevention, etc.," then click Generate Report to preview it.



6. To print the Brief Measure Report: Services Used in Prevention, etc., select Print from the File menu.

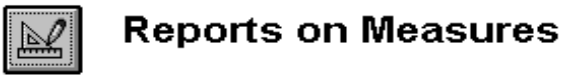
Notice that some of the measures listed in the report are quite obviously related to unstable angina. For example, there are several measures on pages one and two (e.g. HCCP1A01, HCCP2A02) concerned with acute myocardial infarction**C**itself an adverse outcome of unstable angina. However, other measures do not appear to relate to unstable angina at all. For instance, Measure RPPS1B03, ABlood pressure documented by nurse if cerebrovascular accident@ (page 5), concerns a CVA. However, a closer examination of where this measure appears in the report shows that blood pressure measurements are recommended by the guideline for all patients with unstable angina. The task force may wish to adapt this or one of the other blood pressure measures for patients with unstable angina.

7. After printing the report, return to the CONQUEST Database Main Screen by selecting File : Close, Back on the Select a Measure Report screen, and then clicking the Main Screen button at the Choose Conditions for Reporting screen.

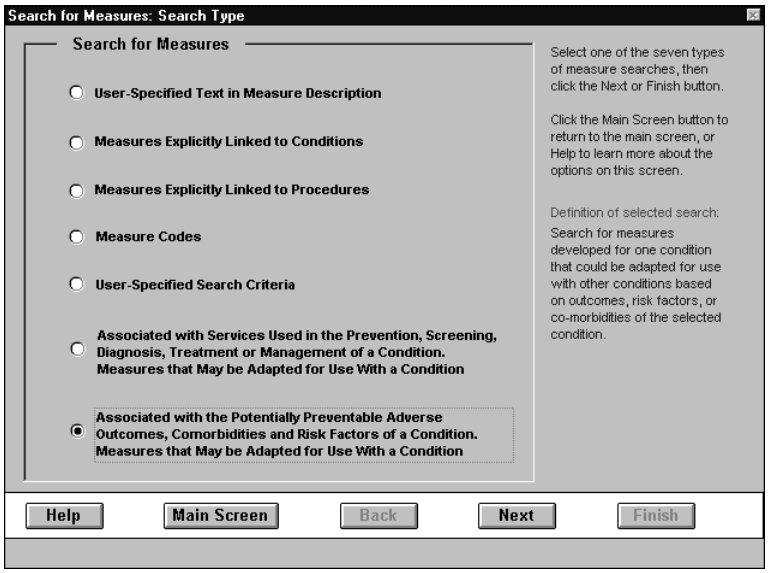
D3. Searching for Information on Measures Associated with Outcomes

Finally, the task force decides to search for measures related to outcomes of unstable angina.

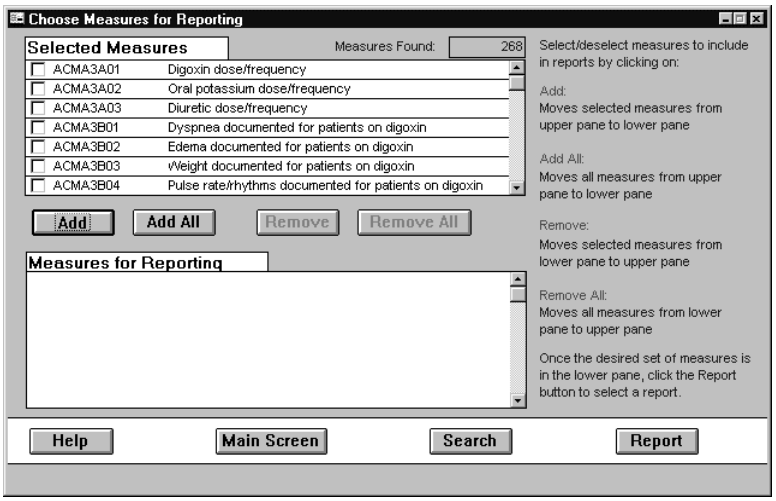
1. From the CONQUEST Database Main Screen, click on the Reports on Measures icon.

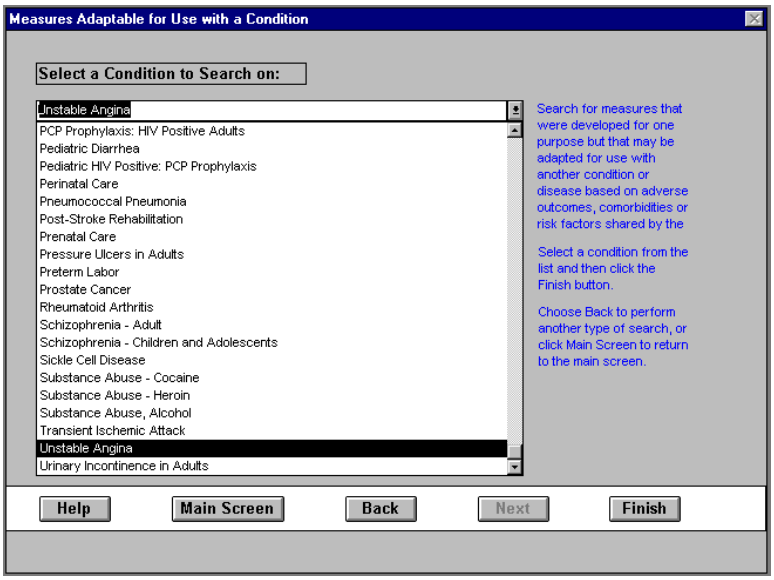


2. Select Search for Measures Associated with the Potentially Preventable Adverse Outcomes, Comorbidities and Risk Factors of a Condition and click Next.



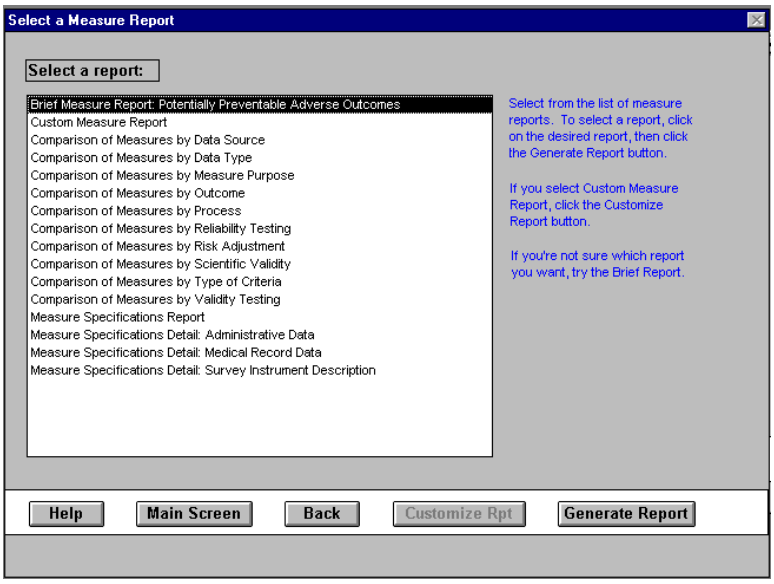
3. Scroll down to select AUnstable Angina@ (ANGU) from the conditions list of the Measures Adaptable for Use with a Condition screen, then click Finish.





4. At the Choose Measures for Reporting screen, click Add All, then the Report button.

5. Choose the ABrief Measure Report: Potentially Preventable Adverse Outcomes@ and click Generate Report to preview the report.



6. To print the report of measures associated with Potentially Preventable Adverse Outcomes, choose Print from the File menu.

Again, notice that some of the measures listed are quite obviously related to unstable angina while others are not. For example, some measures concern chronic obstructive pulmonary disease (COPD), which is a comorbidity of unstable angina. One COPD measure, DEMR1B23,

concerns smoking cessation. The task force notes that cigarette smoking is also a risk factor for unstable angina. The task force concludes that they could adapt the measure of smoking cessation for patients with COPD for use in monitoring smoking cessation for patients with unstable angina.

Chapter 10 - Entering and Modifying Information in the Databases

CHAPTER TOPICS

This chapter covers the steps necessary to enter and/or modify information about measures or conditions into the databases, including:

- Coding measures.
- Entering new measures into the database.
- Editing data in the measure database.
- Coding conditions.
- Entering new conditions into the database.
- Editing data in the condition database.
- Coding measure specifications.
- Entering new measure specifications into the database.
- Editing data in the measure specifications database.

CODING MEASURES

Much of the information about performance measures found in CONQUEST 2.0 has been validated by the measure developers and it is important not to modify validated data.

To enter new information into the measures database, you must first complete the on-line measure coding form which can be accessed through the edit menu. The coding form, which consists of 5 pages, is divided into 10 sections. Each section captures a number of specific attributes or dimensions of a performance measure. A brief overview of the contents of the measure coding form is provided below. Detailed information on how to code each item can be found in the *Procedures to Code* manual or CONQUEST 2.0 online help.

The measure coding form consists of the following sections:

- General Measure Attributes
  - measure name
  - set name
  - subset name
  - clinical rationale for the measure
  - descriptions of the numerator and denominator
  - clinical events associated with the numerator and denominator

- Constructing the Denominator
  - method of patient identification
  - denominator data source
  - sampling used
  - inclusions and exclusions to the denominator

- **$** Constructing the Numerator
  - numerator data source
  - type of numerator criteria
  - time window reviewed for occurrence of numerator event

- **$** Measure Purpose
  - health service delivery model developed for use in or by
  - type of review developed for

- **$** Measure Content
  - data type
  - applicability of outcome measure
  - scope of outcome(s) assessed
  - source of outcome data
  - outcome data format
  - type of outcome assessed
  - processes of care explicitly linked to outcomes
  - type of process measure
  - age range covered by measure
  - care needs
  - care setting

- **$** Analysis Considerations
  - allowance for patient factors in analysis procedures
  - aggregation/scoring
  - interpretation of results

- **$** Standards of Quality

- **$** Reliability and Validity Testing
  - reliability testing
  - validity testing
  - extent of testing to date

- **$** Current Use
  - part of ongoing measure system
  - extent of use to date
  - cost of implementation

- **$** References

The first section of the coding form, "General Measure Attributes," asks for the measure set name and code, subset name and code, and measure name and code. These terms may be new to you. Definitions of these terms within CONQUEST 2.0 are provided below.

Definitions

Measure set:	A collection of performance measures from one developer with a common purpose.
Measure set name:	Usually assigned by the developer of the measures.
Measure set code:	A four-character acronym or mnemonic for the set name.
Subset:	A grouping of one or more measures according to clinical content within a set.
Subset name:	Usually assigned by the developer of the measures.
Subset code:	A two-digit sequential numbering of subsets within a measure set.
Measure name:	Name assigned either by the measure developer or by the coder of the measure set. The name describes the clinical content of the measure.
Measure code:	An eight-digit code that includes the set code, the subset number, and a sequential numbering within the subset.
Batch:	In previous versions of CONQUEST, measures within a subset were also grouped into batches. These groupings were defined by all measures with an identical structure within a subset. The batch concept has been eliminated in CONQUEST 2.0.

Required Fields

The following fields on the coding form must be completed for the searching and reporting functions of CONQUEST 2.0 to work properly.

Measure set name (SETNAME)	Measure set code (SETCODE)
Subset name (SUBNAME)	Subset code (SUBCODE)
Measure name (MEANAME)	Measure code (MEACODE)

Optional Fields: Clinical Event Codes

The following fields are optional. These fields allow the user to find measures associated with conditions and/or services. They also allow users to find measures associated with the complications, comorbidities, and risk factors of a condition as well as services used in the prevention, screening, diagnosis, and treatment of a condition.

A measure can have up to four clinical events associated with the numerator and another four events associated with the denominator. An event can be a clinical condition or a diagnosis or a service, and describes the clinical content of the performance measure. Most measures will have at least one event for the numerator and one for the denominator. Some measures will have no clinical events listed. A listing of all clinical events for all measures in the database can be found in Appendices A and B. You may define your own clinical event code when you enter new measures into the database. Below is a listing of these data fields, including the variable names.

Clinical Events Associated with the Denominator

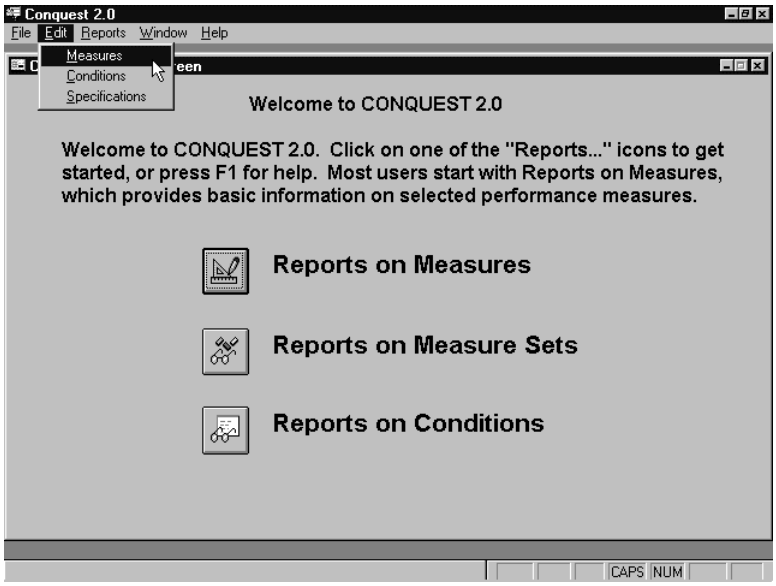
Clinical event #1 (DEN1TEXT)	Clinical event code #1 (DENCODE1)
Clinical event #2 (DEN2TEXT)	Clinical event code #2 (DENCODE2)
Clinical event #3 (DEN3TEXT)	Clinical event code #3 (DENCODE3)
Clinical event #4 (DEN4TEXT)	Clinical event code #4 (DENCODE4)

Clinical Events Associated with the Numerator

Clinical event #1 (NUM1TEXT)	Clinical event code #1 (NUMCODE1)
Clinical event #2 (NUM2TEXT)	Clinical event code #2 (NUMCODE2)
Clinical event #3 (NUM3TEXT)	Clinical event code #3 (NUMCODE3)
Clinical event #4 (NUM4TEXT)	Clinical event code #4 (NUMCODE4)

Detailed Instructions for Entering New Measures into the Database

1. From the CONQUEST 2.0 Main Screen, click the Edit menu item at the top of the screen.



2. From the Edit menu choose Measures.

3. A dialog will appear verifying that you want to edit the database. Click OK and the measure coding form will appear. You will see the first of a series of data-entry forms. At the top of the page are seven icons. The first icon shows a record with a yellow star. Icons two through six show a form. The last icon is the open door. Click on the first icon, the record with a yellow star. This creates a new record.

4. Begin entering data until you complete the clinical events sections for both numerator and denominator, question 1D - you will need to click on the third icon (second form icon) to move to data-entry form two.

5. Continue entering until you complete question 4B part I. Click on the fourth icon (third form icon) to move to data-entry form three.

6. Continue entering until you complete question 5J part l. Click on the fifth icon (fourth form icon) to move to data-entry form four.

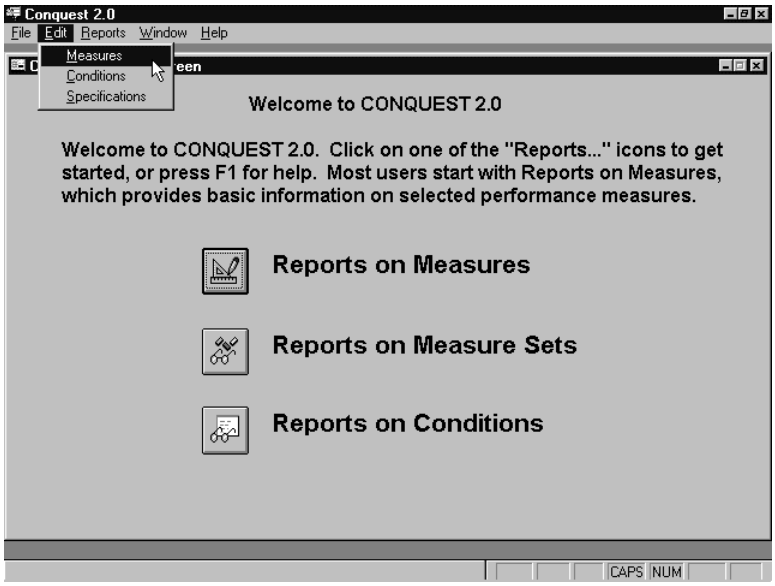
7. Continue entering until you complete question 8D part f. Click on the sixth icon (fifth form icon) to move to data-entry form five, the last form.

8. When you complete data-entry form five at question 10C, you may exit to the CONQUEST Database Main Screen by clicking on the open door icon at the top of the page. To enter another measure into the database, follow procedures 3 through 8 described above.

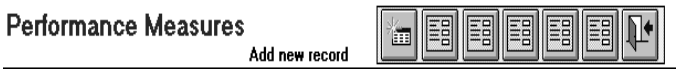
Editing Data in the Measure Database

CONQUEST 2.0 allows you to modify data already in the databases. Most of the information about performance measures found in CONQUEST 2.0 has been validated by the measure developers and it is important not to modify these existing data. The instructions below are recommended for editing new measures that you have entered.

1. From the CONQUEST 2.0 Main Screen, click the Edit menu and choose Measures.



2. A dialog will appear verifying that you want to edit the database. Click OK and the measure coding form will appear. You will be on the first record in the measures database. At the top of the screen you will see seven icons. The first icon shows a record with a yellow star. Icons two through six show a form. The last icon is the open door. At the bottom of the screen you will see the record number and the total number of records. Measures are ordered in alphabetical and numerical order by the measure code.



3. Data are entered into the underlying database table through these forms. As you enter data and press the enter key, you are automatically tabbed to the next box. At the end of each form, a tab will take you to a new record *while staying in the same form*. The record number and total number of records in the database is shown at the bottom of the

screen. The innermost buttons move you from one record to another within the same form or page. The button on the far right moves you to the last record in the database, whereas the button on the far right moves you to the first record in the database.

4. Begin editing the data on the first form. To move to <u>another form within the same measure</u> you will need to click on the appropriate form icon at the top of the page to move to the data-entry form that you need. Make sure that you are still on the record that you want to edit as you move through the forms.

5. When you complete data-entry form five, you may exit to the CONQUEST Database Main Screen by clicking on the open door icon at the top of the page.

CODING CONDITIONS

To enter new information into the condition database, you must first complete the on-line condition coding form. Like the measure coding form, the condition coding form is divided into sections, and in total consists of three pages (forms). Each section captures a different attribute or aspect of a condition. An overview of the contents of the condition coding form is provided below.

- **$** Age groupings applicable to the primary condition
- **$** Forms of the primary condition
- **$** Prevalence of the primary condition
- **$** Cost and utilization associated with the primary condition
  - utilization of health care services
  - cost associated with the primary condition
- **$** Potentially preventable adverse events associated with the primary condition
- **$** Comorbidities of the primary condition
- **$** Risk factors for the primary condition
- **$** Clinical services used in the diagnosis and treatment of the primary condition
- **$** Provider settings and health care professional associated with the primary condition
  - provider settings
  - health care professionals
- **$** References

Each condition in the database is represented by a text code consisting of a four-digit mnemonic. For example, the code for chronic adult asthma is ASCA (asthma, chronic, adult). You may supply your own condition code.

Required Fields

The following fields on the coding form must be completed for the searching and reporting functions of CONQUEST 2.0 to work properly.

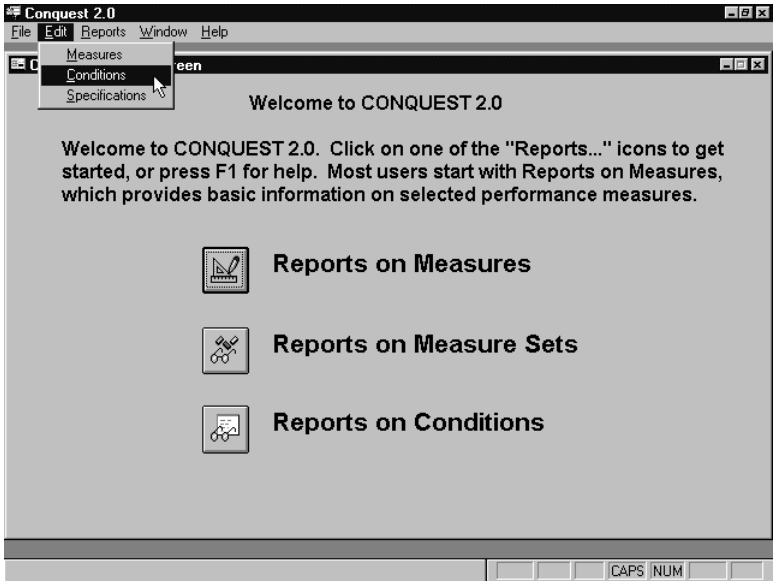
Condition name (CONDNAME)	Condition code (CONDCODE)

The information in the Condition Database is stored in several tables within the database.

Detailed Instructions for Entering New Conditions into the Database

1. At the main CONQUEST 2.0 screen, click on the Edit menu at the top of the screen.

2. From the menu choose Conditions



3. The first of a series of data-entry forms will appear. At the top of the page are five icons. The first icon shows a record with a yellow star. Icons two through four show a form. The last icon is an open door. Click on the icon on the far left, the record with a yellow star. This creates a new record.

4. Data are entered into the underlying database tables through these forms. As you enter data and press the enter key, you are automatically tabbed to the next box. At the end of each form, a tab will take you to a new record *while staying in the same form*. The record number and total number of records in the database is shown at the bottom of the screen. The inner buttons move you from one record to another within the same form or page. The button on the far left moves you to the last record in the database.

5. Begin entering data on form 1. Data for Questions 2 (Course of the Condition), 3 (Prevalence), and 4 (Utilization) will be entered on subforms.

6. After completing question 4, Utilization, you will need to click on the third icon (second form icon) to move to data-entry form two.

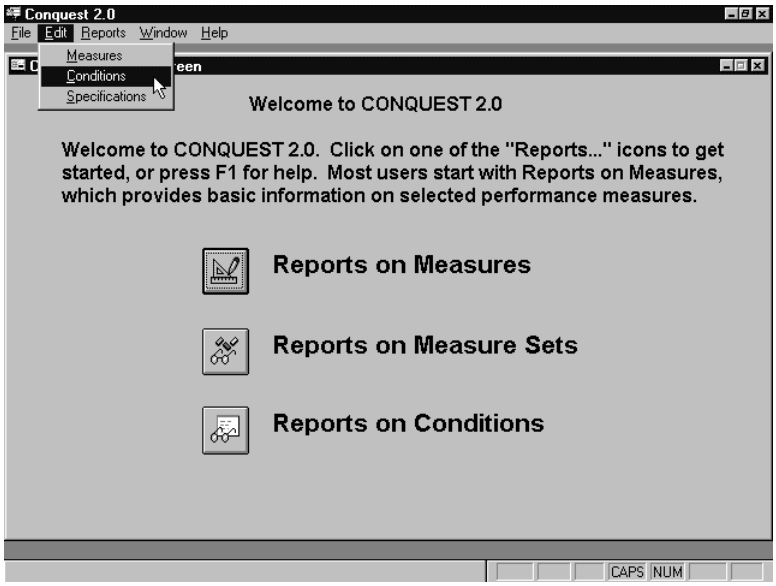
7. Continue entering until you complete Question 9, Services. Click on the fourth icon (third form icon) to move to data-entry form three.

8. When you complete data-entry form three, you may exit to the main menu by clicking on the open door icon at the top of the page. To enter another condition, click on the first form icon and then click on new record.

Editing Data in the Conditions Database

1. At the main CONQUEST 2.0 screen, click on the Edit menu option.

2. From the Edit menu choose Conditions.



3. You are taken to the first of a series of data-entry forms. At the top of the page are five icons. The first icon shows a record with a yellow star. Icons two through four show a form. The last icon is the open door. Click on the left-most icon, the record with a yellow star. This creates a new record.

4. The top of the page displays condition name and condition code.

5. Data are entered into these tables through forms. As you enter data and press the enter

key, you are automatically tabbed to the next box. At the end of the question, a tab will take you to a new record within the form. At the bottom of each form the record number and total number of records is shown.

The triangles move you from one record to another within the same form or page. The triangle with the line on the right moves you to the last record in the database. Use these arrows to find the condition you want to edit.

6. Begin editing data on form 1. Data for Questions 2 (Course of the Condition), 3 (Prevalence), and 4 (Utilization) will be entered on subforms.

7. Use the form icons to move from one from to another to continue editing. Be sure to stay on the same record as you move from one from to another.

8. When you complete data entry form three, you may exit to the main menu by clicking on the open door icon at the top of the page.

Locating the Correct Condition

1. To locate the condition you wish to edit, place the cursor in the condition code box and press the ACtrl@ and AF@ keys at the same time. This brings up the "Find" dialog box.

2. Type in the exact code of the condition you wish to find and click AFind First.@ The software will locate the desired record.

3. Alternatively, you could place the cursor in the condition name box and press the ACtrl@ and AF@ keys at the same time.

4. Type in a few letters or words of the condition you wish to find.

5. Next, change the search conditions by editing the "Where" box. You may edit the "Where" box to read "Any part of field" by clicking on the triangle with the arrow under it.

6. Then click "Find First." The software will locate the first record matching your search conditions. If it is not the record you wish to edit, click on "Find Next" until you locate the desired record.

CODING MEASURE SPECIFICATIONS

To enter new information into the specifications database, you must first complete the on-line measure specifications coding form. Like the other coding forms previously described, the specification coding form is divided into sections. In total it consists of four pages (forms). Each section captures a different feature of the specifications for performance measures. An overview of the contents of this coding form is provided below.

- Measure Description
- Sampling Description
- Case Finding/Time Window
- Denominator Data Elements
- Denominator Algorithm Steps
- Numerator Data Elements
- Numerator Algorithm Steps
- Supplemental Data
  - Administrative
  - Medical Records
- Risk Adjustment

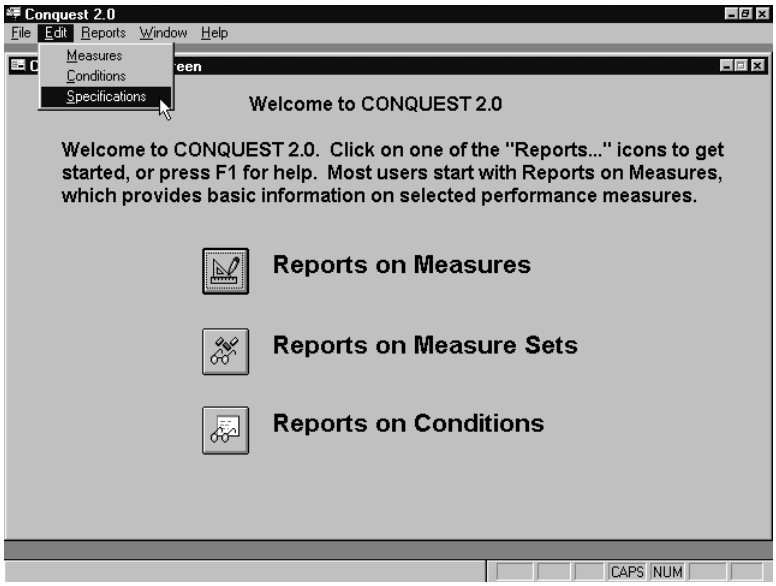
Required Fields

Selected fields on the coding form must be completed for the searching and reporting functions of CONQUEST 2.0 to work properly. They are identified in the following sections of the *User's Guide.*

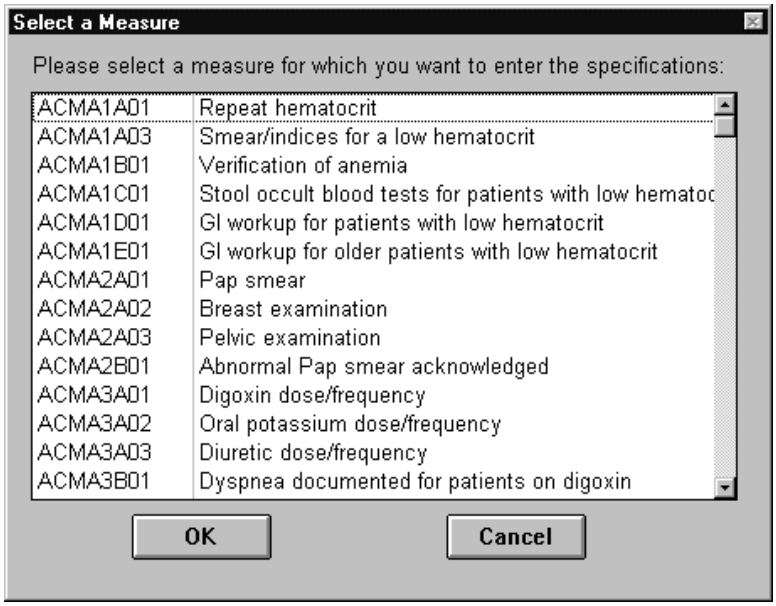
Detailed Instructions for Entering New Specifications into the Database

1. At the main CONQUEST 2.0 screen, click on the Edit menu.

2. From the menu choose Specifications.



3. A dialog box will appear asking for the measure code for which you want to add the

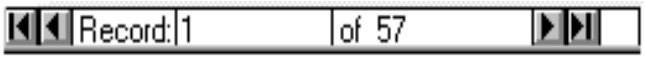


specifications into the database. Select a measure from the list and click OK.

4. The first of a series of data-entry forms will appear. At the top of the page are six icons. The first icon shows a record with a yellow star. Icons two through five show a form. The last icon is an open door. Click on the first icon, the record with a yellow star. This creates a new record.

5. Data are entered into the underlying database tables through these forms. As you enter data and press the enter key, you are automatically tabbed to the next box. At the end of each form, a tab will take you to a new record *while staying in the same form*. The record number and total number of records in the database is shown at the bottom of the screen.

The innermost buttons move you from one record to another within the same form or page. The button on the far right moves you to the last record in the database.



6. Begin entering data on form 1. The last question in the Case Finding/Time Window section is the last question on form 1.

7. To continue entering data for the same measure, you will need to go to the second data-entry form by clicking on the third icon (second form icon) to move to data-entry form 2.

8. Continue entering until you complete the Numerator Algorithm Steps section. Click on the fourth icon (third form icon) to move to data-entry form 3.

9. Continue entering until you complete the Supplemental Medical Record Data (Table C) section. Click on the fifth icon (forth form icon) to move to data-entry form 4.

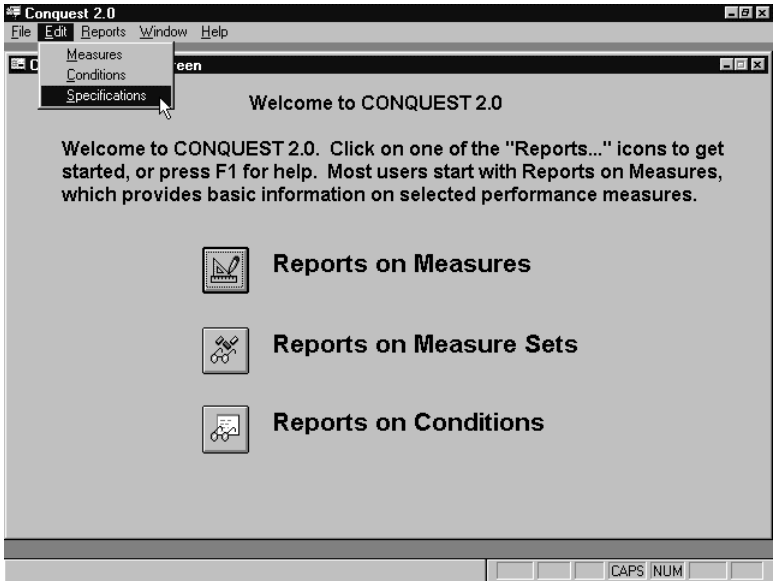
10. When you complete data entry form four, you may exit to the main menu by clicking on the open door icon at the top of the page.

11. To enter specifications for another measure, click on the new record icon. You will need to enter the measure code for the next measure as described in Step 3 above.

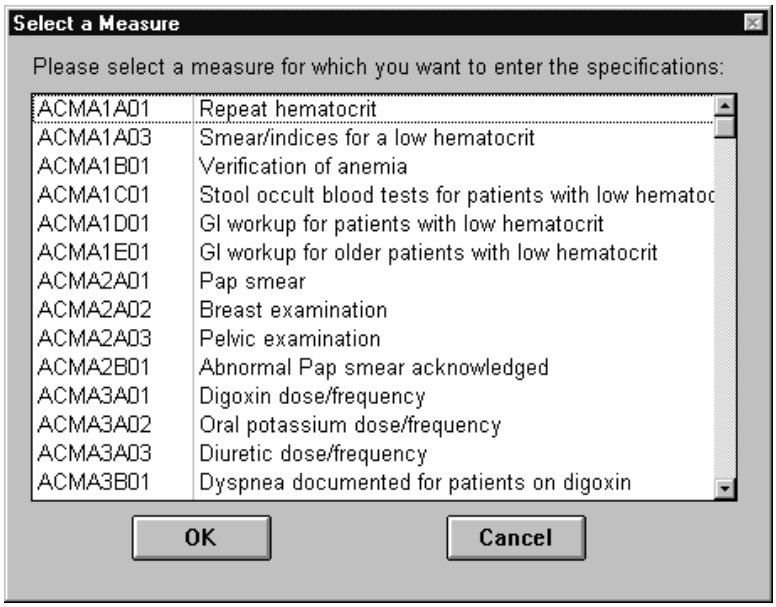
EDITING DATA IN THE SPECIFICATIONS DATABASE

1. At the main CONQUEST 2.0 screen, click on the Edit menu at the top of the screen.

2. From the menu choose Specifications.

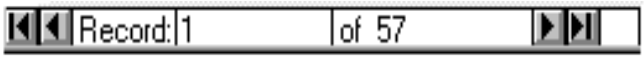


3. A dialog box will appear asking for the measure code for which you want to edit the specifications in the database.



4. The first of a series of data-entry forms will appear. At the top of the page are six icons. The first icon shows a record with a yellow star. Icons two through five show a form. The last icon is an open door. You should be looking at the data for the measure that you requested in step 3 above.

5. The record number and total number of records in the database is shown at the bottom of the screen. The innermost buttons move you from one record to another within the same form or page. The button on the far right moves you to the last record in the database.



6. Begin editing data on form 1. The last question in the Case Finding/Time Window section is the last question on form 1.

7. To continue editing data for the same measure, you will need to go to the second data-entry form by clicking on the third icon (second form icon) to move to data-entry form 2.

8. Continue editing until you complete the Numerator Algorithm Steps section. Click on the fourth icon (third form icon) to move to data-entry form 3.

9. Continue editing until you complete the Supplemental Medical Record Data (Table C) section. Click on the fifth icon (fourth form icon) to move to data-entry form 4.

10. When you complete editing the data on form 4, you may exit to the main menu by clicking on the open door icon at the top of the page. All edits are saved automatically.

Chapter 11 - Accessing the AHCPR Website

OVERVIEW

This chapter describes the software necessary to access the AHCPR Website, and how you may obtain this software. There are four components necessary to access the AHCPR Website, or any other Website. These are: a web browser, a TCP/IP protocol, a modem or network card, and an Internet Service Provider (ISP) of some type. Since the World Wide Web (or AWeb@) is such a fast-growing and dynamic phenomenon with so many points of entry, the list of methods for accessing the Web changes on an almost daily basis. Accordingly, this chapter is not intended to be a comprehensive description of Internet access, but rather is geared to those means that are likely to be employed by the Atypical@ CONQUEST user.

Although this list is intended to describe all the necessary hardware and software to connect to the Internet, there is some overlap between these components and the hardware/software you are likely to have. Increasingly, companies are bundling components together. For example, if you buy a modem, you will probably get a Web browser and a TCP/IP stack. Many Internet Service Providers are also making Web browser and connectivity software available at no or low charge, so you might find that you already have some of the software you need to access the Internet.

WEB BROWSER SOFTWARE

Because of the explosive growth of the Web, there are a number of competing products which allow you to view Web pages on the Internet. By one count, there are over 50 different Web browsers in use, operating on at least 8 different classes of platforms. Web browsers are available for UNIX-based computers, PCs running Windows, Macintosh computers, Amiga systems, even DOS. Since CONQUEST 2.0 was designed to operate on Windows-based computers, we will focus on the software that runs under Windows. The table below lists some of the more popular browsers, some of which may require a licensing fee from the browser developer. Two of the more popular browsers are developed by Netscape Communications and Microsoft Corporation. Both the Microsoft browser (Internet Explorer) and the Netscape browser (Navigator/Communicator) are available from almost any computer store, or can be obtained directly from the publisher. This is not intended to be a comprehensive list of all Web browsers, but a resource for obtaining some of the more popular browsers.

Browser	Company	Mailing Address	Phone	Web address
HotJava Browser 1.1	JavaSoft	10201 North DeAnza Blvd. Cupertino, CA 95014	(888) THE-JAVA	http://java.sun.com/products/hotjava/1.1/index.html
Internet Explorer	Microsoft Corporation	One Microsoft Way Redmond, WA 98052	(425) 882-8080	http://www.microsoft.com/ie/
Lynx[1]	N/A	N/A	N/A	http://lynx.browser.org
Mosaic	National Center for Supercompu-ting Applications (NSCA)	University of Illinois at Urbana-Champaign 152 Computing Applications Building 605 East Springfield Avenue Champaign IL 61820-5518	(217) 244-0072	http://www.ncsa.uiuc.edu/SDG/Software/mosaic-w/releaseinfo/download.html
Navigator	Netscape Comm.	501 E. Middlefield Road Mountain View, CA 94043	(650) 937-3777	http://www.netscape.com/comprod/sales/index.html
Opera	Opera Software AS	Postbox 122 2007 Kjeller Norway	+47 63 84 86 34	http://traviata.nta.no/

In addition to the sources described above, Web browser software is available at computer retailers around the country and is standard on many new computers.

TCP/IP STACK

In order to access the Internet, your computer will need a TCP/IP network protocol or TCP/IP Astack.@ This is software that allows your computer to Atalk@ to another computer that is connected to the Internet. TCP/IP protocols are included with Windows 95 and Windows NT 4.

For Windows 3.x users, Trumpet Winsock is available from Trumpet Software International. Individual licenses are available for $25, and you may contact Trumpet at:

Trumpet Software International Pty Ltd
21660 East Copley Drive, Suite 340
Diamond Bar, California 91765, USA
(909) 861-4400

[1] Lynx is a text-only Web browser developed by the University of Kansas. Although no longer supported by the University of Kansas, subsequent versions of Lynx have been made available (usually at no charge) by various software developers.

MODEM OR NETWORK CARD

In order to connect to the Internet, you will also need a modem or (in some cases) a network card. Modems are available from almost every computer store and utilize conventional phone lines to dial in to an Internet Service Provider. Many modems are available for under $100, and typical modems allow you to connect at 28.8 Kbps or faster. New modems allow you to connect at faster rates using special digital phone lines. These ISDN modems are not available in all areas, so contact your local phone company to see about connecting to the Internet using ISDN.

In some cases, your organization may have a Agateway@ to the Internet that allows computers in your office to connect to the Internet. These connections tend to be much faster than modem connections, although they also tend to require more setup. Contact your LAN administrator or systems administrator to see if your computer has this capability.

INTERNET SERVICE PROVIDER

Almost everyone connects to the Internet using an Internet Service Provider (ISP) of one type or another. There are several national ISPs, and probably the most well known is America Online or AOL. Most long-distance phone companies also provide Internet access, and some companies provide Internet access exclusively. Other ISPs provide access to people in a common geographic area. These Alocal ISPs@ are often listed in phone directories under Internet or Computers. Although fees vary, typical accounts are $20 per month for Internet access.

THE AHCPR WEBSITE

Once your computer has been configured to connect to the Internet, you can access the AHCPR Website by entering the following address in your Web browser:

http://www.ahcpr.gov

Information about CONQUEST can be found at:

http://www.ahcpr.gov/qual/conquest.htm

These addresses are subject to change. You may wish to use an Internet search engine such as Yahoo!, Alta Vista, or Excite to locate information regarding CONQUEST on the Web.

List of Acronyms

Abbreviation	Explanation
ACE	Angiotensin Converting Enzyme: As in ACE Inhibitors, a class of drugs used in the treatment of heart disease
AGPA	American Group Practice Association
AHCPR	Agency for Health Care Policy and Research
AMI	Acute Myocardial Infarction
APACHE	Acute Physiology and Chronic Health Evaluation: A tool developed by Knaus and colleagues to measure the severity of illness among critically ill patients
BPH	Benign Prostatic Hypertrophy
CABG	Coronary Artery Bypass Graft
CCQE	Center Clinical Quality Evaluation: Formerly known as American Medical Research and Review Center, the research arm of the American Medical Peer Review Association now referred to as the American Health Quality Association.
CNS	Central Nervous System
CONQUEST	COmputerized Needs-oriented QUality measurement Evaluation System: A database of clinical performance measures and associated conditions
CPT	Current Procedural Terminology: A coding system used for medical services and procedures performed by physicians
CSP-BIH	Complications Screening Program - Beth Israel Hospital: A computer program to identify hospitals with greater than expected numbers of complications
CT	Computerized Tomography
DEMPAQ	Developing and Evaluating Measures to Promote Ambulatory Care Quality: A 3-year research project to develop and test methods to assess the quality of care in physician office practices
DoD	Department of Defense
EEG	Electroencephalogram
ER	Emergency Room
FACCT	Foundation for Accountability: A purchaser- and consumer-driven organization to evaluate, endorse, develop, and promote patient-oriented measures of quality focusing on outcomes
HCFA	Health Care Financing Administration
HCUP	Healthcare Cost and Utilization Project: A Federal-State-industry partnership to assemble health care data for use in health services research and health policy analysis sponsored by the Agency for Health Care Policy and Research
HEDIS	Health Plan Employer Data and Information Set: A set of indicators developed by the National Committee for Quality Assurance
HMO	Health Maintenance Organization: A type of managed care plan

Abbreviation	Explanation
IMSystem	Indicator Measurement System: A set of indicators developed by the Joint Commission on Accreditation of Health Care Organizations
JAMA	Journal of the American Medical Association
JCAHO	Joint Commission on Accreditation of Health Care Organizations
MHCA	Managed Health Care Association
NCQA	National Committee for Quality Assurance
PBGH	Pacific Business Group on Health
POS	Point of Service: A type of managed care plan
PPAO	Potential Preventable Adverse Outcome: A type of outcome captured by the CONQUEST database
PPO	Preferred Provider Organization
PRO	Peer Review Organization
PROSPER	Patient Reports of System Performance: A 3-year project to develop and test methods to assess quality of care based on patient reports
PSA	Prostate-Specific Antigen: A blood test to screen for prostate cancer
QCARE	Center for Quality of Care Research and Education, Harvard School of Public Health
SF-36	Short-form 36: The short form of the Medical Outcomes Study functional status questionnaire
VA	Veterans Administration
VA QUIC	Veterans Administration - Quality Improvement Checklist: Tool to measure quality and provide facility comparisons within the VA system

Glossary

acceptability: the degree to which health care satisfies patients.

acceptable alternative: a common and legitimate reason for not conforming to practice guideline recommendations; for example, the clinician recommended a treatment according to the guideline, but the patient refused. Acceptable alternatives are specified explicitly when writing review criteria, whether the alternatives have been stated explicitly in the practice guideline or merely implied. "Acceptable alternative" is also the name of the status assigned to a criterion during a review if documentation is found for a defined acceptable alternative to the criterion.

accessibility: the ease with which health care can be obtained.

adverse event: an undesired event implying harm to a patient.

algorithm: a rule of procedure, or set of instructions, containing conditional logic for solving a problem or accomplishing a task. Guideline algorithms relate to recommendations for patient care. Criteria algorithms concern rules for evaluating criteria conformance. Algorithms may be expressed in words only or in diagrammatic form.

appropriateness: the probability of benefit to the patient exceeds the probability of harm.

benchmark: a level of care set as a goal to be attained. Internal benchmarks are derived from similar processes or services within an organization. Competitive benchmarks are comparisons with the best external competitors in the field. Generic benchmarks are drawn from the best performance of similar processes in other industries.

care need: categories of preventive care, early detection of disease, and treatment/ management of established disease/condition.

case-based: refers to a single patient or case.

case mix: distribution of a group of patients into categories reflecting differences in patients' diagnoses/conditions.

case: the time period during which a case is considered eligible for sampling period: inclusion in the denominator of a performance measure.

case severity: a measure of intensity or gravity of a given condition or diagnosis for a patient.

clinical: personal health services. It includes personal care provided for physical and mental conditions and for normal life processes such as growth of children, pregnancy, and childbirth, and aging of adults. It covers health

	promotion and disease prevention, early detection of disease, and treatment/management of established disease.
clinical condition:	a diagnosis (such as cerebrovascular hemorrhage) or a patient state that may be associated with more than one diagnosis (such as paraplegia) or that may be as yet undiagnosed (such as low back pain).
clinical event:	services provided to patients (items of history taking, physical examination, preventive care, tests, procedures, drugs, advice) or information on clinical condition, or on patient state used as a patient outcome. Clinical performance measures refer to clinical events.
clinical performance measurement:	a summation of data about the health care given to many patients to create a rate or score for average performance.
clinical performance:	instruments that estimate the extent to which a health care provider delivers clinical services that are appropriate for each patient's condition, measures: provides them safely, competently, and in an appropriate time frame, and achieves desired outcomes in terms of those aspects of patient health and patient satisfaction that can be affected by clinical services.
clinical practice guidelines:	systematically developed statements to assist practitioners' and patients' decisions about health care to be provided for specific clinical circumstances.
comorbidities:	conditions that commonly exist as the same time, in the same patient, as the primary condition.
comparative standard:	a standard derived from a comparison with other performance rates constructed by using exactly the same performance measure, such as the prior performance of a clinician or provider, the observation of the performance of others, or the statistical analysis of group rates.
condition:	a single diagnosis or patient state.
condition-specific criteria:	criteria that apply to a patient population or to clinical events associated with a specific clinical condition.
confidence interval:	an interval or range based on a random sample, for which there is a given probability (e.g., 95 percent) that the population mean is contained within that interval. For example, a study may show that a drug lowers the average blood pressure for patients in the study by 4.8 mm Hg, with the 95-percent confidence interval between 2.5 and 7.3 mm Hg. The confidence interval is used in performance measurement to indicate whether an individual rate from a performance review is considered statistically similar to or different from the group average rate, or from a performance rate selected to represent an acceptable level of care.

confidence limits:	the upper and lower boundaries of a confidence interval.
criteria:	statements by which data concerning clinical events experienced by patients are classified in order to create a performance measurement. A criterion defines whether a particular event provides evidence for good quality of care. For instance, a criterion determines which of the patients counted in the denominator should be counted in the numerator in a clinical performance rate.
criteria set:	a series of criterion statements linked together because they all apply to the same patient sample.
criterion status:	the category to which a case is assigned by application of a criterion. For example, the case that meets a criterion is assigned the status "met"; a case that meets an acceptable alternative to a criterion (see definition above) is assigned the status "acceptable alternative." If a criteria set incorporates branching logic (i.e., a certain criterion applies only to a defined subgroup of cases), cases not within that subgroup are assigned the status "not applicable" for that criterion. If data needed to determine whether a case met a criterion are not found in the selected data source, the status "not reviewable" is assigned. A case that does not fit any of the above categories is assigned by default to the status "not met" (i.e., the care given to the case did not conform to the practice guideline).
data sample:	the population or group of patients to whom a performance measure will be applied to assess rates of conformance to a clinical practice guideline. The denominator group.
decision rule:	instructions for deciding how to evaluate clinical data. When abstracting data from medical records, decision rules determine whether and how a data item should be coded.
denominator:	for a performance measure, the sample of cases that will be observed to determine conformance to medical review criteria.
denominator event/state:	the event or health state that defines a patient's eligibility for inclusion in the denominator group for a performance measurement.
domain of care:	refers to the categories of physical health, mental health, and oversight of normal life process (growth and development of children, pregnancy, aging).
efficiency:	occurs when health care of the desired quality is produced at the lowest cost, or when health care produced at a fixed cost is of the highest quality.
exclusion:	characteristics or conditions that make cases ineligible for review by a specific performance measure or by a specific criterion within a performance measure.

explicit criteria:	objective criteria specified in advance as a basis for making judgments of performance.
external review:	review in which criteria and standards of judgment are developed or ratified with input from persons other than the clinician or clinician group that is being evaluated.
implicit criteria:	criteria formed by a respected clinician who uses clinical judgment in evaluating performance; these implicit criteria remain concealed in the mind of the reviewer.
implicit review:	review conducted using implicit criteria.
indicator:	a quantitative measure for monitoring clinical care.
internal review:	review in which clinicians are involved in setting or adopting the criteria and standards by which they evaluate themselves.
generic algorithm:	an algorithm used to analyze data to produce a performance measure; a generic algorithm constructs a particular type of performance rate but computes a separate performance rate for each of many different clinical events.
generic criteria:	criteria that apply to a patient population or to clinical events irrespective of any specific clinical condition. For instance, PROs used to apply generic screening criteria to medical records of a random sample of Medicare inpatients to detect the occurrence of adverse outcomes.
measure:	instrument or tool used for making measurements.
measurement:	the performance rate obtained by applying a measure.
measurement error:	variation in measurements due to causes other than real differences in the attribute being measured.
medical review review:	systematically developed statements that can be used to assess specific health care decisions, services, and outcomes. Each criterion derived from a guideline recommendation is used to determine whether the case being reviewed conforms to a particular recommendation in the guideline. A status is assigned to each criterion to reflect the care given.
numerator:	for a performance measure, the cases in the denominator group that experience events specified in a medical review criterion as evidence of guideline conformance.
outcome data:	data describing a patient's health status.
patterns of care:	among a group of clinicians, the distribution of the clinicians' rates of performance.

peer review:	review conducted by a peer (a similarly qualified clinician) or peers; historically, peer review has been conducted by case-based implicit review, and so the terms are sometimes used interchangeably.
performance rate:	a measurement produced by using a performance measure, providing a quantitative evaluation of events related to delivery of services to targeted individuals. A performance rate results when the numerator for a performance measure is divided by the denominator for this measure.
population based:	the word *population* in this instance is used in the epidemiological sense--a defined group of individuals sampled for study. The term *population based* is sometimes used to mean *rate based*. However, a population-based measure generally is a performance rate for a group of patients in a geographic area or in a particular health plan enrollment. When used in this sense, *population based* applies to all patients rather than to only those who use services.
potentially preventable adverse outcomes:	complications of the condition which may be modified or prevented with appropriate treatment.
predictive value:	the likelihood that a case classified by the new tool as the recipient of good care actually received good care.
prescriptive standard:	a statement of what should be achieved rather than a statement of what has been achieved.
primary condition:	the condition upon which a search is based.
process data:	what is done to, for, or by patients as part of the delivery of care, such as the performance of a test or procedure.
profiles:	sets of performance rates aggregated by clinician, clinician group, or organization to monitor some aspect of health care delivery.
quality of health care:	the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.
rate:	a quantitative measure, usually expressed as a percentage, of the occurrence of an event of interest within a specified time interval. Rates are derived by creating a fraction in which the numerator is the number of patients experiencing an event of interest and the denominator is the population of patients at risk for the occurrence of that event. A rate may also be constructed by counting events rather than patients in the numerator and denominator--that is, when the event could occur more than once for a given patient.

reliability:	the extent to which a measurement is reproducible; low levels of random error in measurement.
risk factors:	environmental, chemical, psychological, physiological, or genetic states which predispose an individual to the development of a disease.
sample:	the subset of a population or the group of cases to whom a performance measure will be applied in order to measure clinical performance.
sensitivity:	a high rate of detection of "true positives."
services associated with a condition:	the clinical services provided to the patient in the course of prevention, screening, diagnosis, treatment, and management of the condition.
specificity:	a high rate of detection of "true negatives."
standard for accreditation:	a statement of expectation set by competent authority concerning a degree or level of requirement, excellence, or attainment in quality or performance.
standard of care (regulatory usage):	minimal level of policy, equipment, and capacity necessary to achieve licensure or certification.
standard of care (legal usage):	in malpractice case court proceedings there is an attempt to determine whether a patient suffered harm due to negligent violation of a standard of care. The standard of care for the case is elaborated by the questioning of expert witnesses who have studied the facts of the case before the court and have relevant knowledge of comparable behavior.
standards of quality:	authoritative statements of (1) minimum levels of acceptable performance or results, (2) excellent levels of performance or results, or (3) the range of acceptable performance or results.
structural data:	information about organizational facilities, equipment, policies, and procedures; for example, a hospital policy for patient-controlled analgesia.
structured implicit review:	Implicit review conducted with instructions directing the reviewer to focus on certain types of data or answer certain questions in the review process.
threshold:	a pre-established level for care. If a desired attribute of care falls below this level or an undesired attribute of care rises above this level, further evaluation or action is triggered.
timeliness:	services are completed in a time frame that maximizes health benefit and satisfaction of the patient.

time window:	the time period following an index event during which a case is "observed" for evidence that the care did or did not conform to medical review criteria. In other words, the interval in which it must be determined whether or not a numerator event took place.
unit of analysis:	the unit to which a performance measure is applied; the unit may be the patient, clinician, group of clinicians, or institution.
validity:	the ability of a measure to capture what it purports to measure.
variable:	a characteristic that is measured. An *independent variable* is a characteristic that explains another variable. A dependent variable is a characteristic that is explained by one or more other variables.
variation:	for performance rates, *variation* refers to differences between the performance rate of one clinician or group of clinicians or organizations and the performance rates of comparable others.

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Appendix A - Linking Codes for Clinical Events

Sorted by clinical event

Clinical event	Linking code
Abdominal aortic aneurysm	4414d
Abdominal exam	abexam
Abdominal pain	7890d
Ablation	ablat
Abnormal blood chemistry, unclassified	7906d
Abnormal clinical finding, unclassified	7964d
Abnormal findings of body structures, unclassified	7939d
Abnormal findings of body substances, unclassified	7929d
Abnormal findings, unclassified	7969d
Abnormal glucose tolerance in pregnancy, unspecified	64880
Abnormal loss of weight	7832d
Abnormal Pap smear, cervix	7950d
Abscess of appendix	5401
Absence of menstruation	6260
Absorbent products	abs
Academic underachievement	31383
Accidental operative laceration	9982d
ACE inhibitors	K15d
Acetaminophen	aceta
Acoustic reflex testing	92568
Acquired deformity, unclassified	7388
Acromegaly and gigantism	2530
Active musculoskeletal exercise, unclassified	9312
Activities of daily living	ADL
Activity resumption counseling	activres
Acute and subacute endocarditis, unspecified	4219d

Clinical event	Linking code
Acute appendicitis, unspecified	5409
Acute bronchitis	4660d
Acute delirium	2930
Acute myocardial infarction	K75
Acute pancreatitis	5770
Acute stress reaction, unspecified	3089
Acute thyroiditis	2450
Acute URI, unspecified	4659
Addiction	addic
Addiction therapy	addtherp
Adenoid vegetations	4742
Adenoidectomy	286
Adhesive capsulitis of shoulder	7260
Adjustment reaction, emotions, unclassified	30929
Administrative encounter, unspecified	V689
Adolescent pregnancy	teenpg
Adrenal disorder, unspecified	2559d
Adult attention deficit disorder	aadd
Adult maltreatment syndrome	99581
Adverse effects, BCG vaccine	E9480
Adverse effects, fibrinolysis agents	E9344
Adverse effects, general anesthetics, unclassified and unspecified	E9384
Adverse effects, medicinal, unspecified	E9479
Adverse effects, mixed bacterial vaccines	E9489
Adverse effects, mixed viral and bacterial vaccines	E9497
Adverse effects, polio vaccine	E9495
Affective psychosis, unspecified	29690
Agenesis of lung	7485
Agranulocytosis	2880
AIDS	0429
Airway inhalation treatment	94640

Clinical event	Linking code
Alanine amino transferase(ALT) (SGPT)	84460
Alcohol abuse, unspecified	30500
Alcohol rehabilitation/detoxification	9463
Allergens, unclassified	V09d
Allergy	9953d
Allergy skin tests	95004
Alpha blocker	alpha
Alpha-1-antitrypsin, phenotype	82104
Alpha-fetoprotein, serum	82105
Alprazolam	P1d
Alzheimer's diseases	3310
Ambulation	ambula
Ambulation and gait training	9322
Ambulatory blood pressure monitoring	93784
Aminophylline, intravenous	R9d
Amnestic syndrome	2940
Amniocentesis	59000c
Amniotic embolism, unspecified	67310
Amphetamine abuse, unspecified	30570
Amputation below knee	27880
Amyloidosis	2773d
Anal/urinary muscle study	51784
Analgesics and antipyretics, unclassified	N19d
Androgens and female sex hormones in combination	X02d
Anemia, unspecified	2859
Anesthesia	anesth
Anesthetics for topical use	S31d
Anesthetics, local	R12d
Aneurysm, unspecified	4429d
Angina pectoris	K74
Angiocardiography, unspecified	8857

Clinical event	Linking code
Ankylosing vertebral hyperostosis	7216
Anomalies of spleen	7590
Anorexia nervosa	3071
Anoscopy	46611
Antenatal screening, unclassified	V288
Anti-anemic preparations, unclassified	B39d
Antiarrhythmics	K01d
Antibiotics	R11d
Antibiotics, topical preparations	S50d
Anticholinergic agents	N30d
Anticoagulant/antithrombotic agents	B0d
Antidepressants, unclassified	P39d
Anti-epileptics	N2d
Antiglaucoma preparations and miotics	F1d
Antihistamines for systemic use, unclassified	R49d
Antihypertensives, unclassified	K19d
Anti-inflammatory and antirheumatic products, NSAID	L01d
Antinuclear antibodies	86038
Antiparkinson drugs, unclassified	N39d
Antipsychotics	P0d
Antiseptics	R10d
Antisocial personality	3017
Antispasmodic, anticholinergic, and propulsive agents	D29d
Antiviral preparations	S53d
Anxiolytics, unclassified	P19d
Aortocoronary bypass, unspecified	3610
APGAR score	apgar
Appendectomy	44950
Aromatic amino-acid metabolism, unclassified	2702
Arterial catheterization	3891
Arteritis, unspecified	4476

Clinical event	Linking code
Arthrocentesis	8191
Arthrodesis, unspecified	8120
Arthroplasty carpal without implant	8175
Arthroscopy, unspecified	8020
Aseptic necrosis bone, unspecified	73340
Aspartate amino transferase (AST) (SGOT)	84450
Asphyxia	7990d
Aspirin prophylaxis	aspirin
Assay blood lipoprotein (HDL only)	83715
Assay calcium	82310c
Assay creatinine	82565
Assay ethanol	82055
Assay ferritin	82728
Assay for digoxin	80162c
Assay for lead	83655
Assay for lithium	80178
Assay for phenytoin	80185c
Assay for theophylline	80198
Assay glucose, quantitative	82947
Assay hemoglobin	83020
Assay iron	83540
Assay magnesium	83735
Assay protein	84155
Assay serum albumin	82040
Assay serum cholesterol	82465
Assay serum potassium	84132
Assay serum sodium	84295
Assay triglycerides	84478
Assay urea nitrogen	84520
Assessment, unspecified	assess
Assistive devices	assist

Clinical event	Linking code
Asthma	R96
Asthma, exercise induced	asthexer
Atherectomy, open	35480
Atherosclerosis, unspecified	4409
Atrial cardioversion	9961
Atrial fibrillation	42731
Atrioventricular block, complete	4260
Atrophic vaginitis	6273
Attention deficit with hyperactivity	31401
Attention deficit without hyperactivity	31400
AUA symptom classification index	AUAsymp
Audiometry	9541
Autoimmune diseases, unclassified	2794
Back pain	backpain
Bacteremia	7907d
Bacterial infection, unspecified	0419d
Bacterial pneumonia, unspecified	4829d
Barbiturates	P20d
Barium swallow	8761
BCG immunization	90728
Bed or complete rest	bedrest
Behavior therapy	9433
Behavioral problems, unclassified	V403
Benign neoplasm of the large bowel	2113
Benign neoplasm of the soft tissue, thorax	2154
Benign prostatic hypertrophy	Y85
Benzodiazepines	P10d
Beta agonist	betaagon
Beta blocking agents	K59d
Beta-2 microglobulin	82232
Beta-adrenergic agents	betaadre

Clinical event	Linking code
Bicycle ergometer test	8943
Biliary and liver anomalies, unspecified	75160
Biofeedback training, any method	90901
Biopsy of breast	19100
Biopsy of cervix	57500
Biopsy of heart lining	93505
Biopsy of lung or mediastinum	32405
Biopsy of uterus lining	58100
Biopsy, unspecified	biopsy
Bipolar affective disorder, unspecified	2967
Bladder calculus, unclassified	5941
Bladder operation, unclassified	5799
Bladder/urethra injury, closed	8670d
Blood culture for bacteria	87040
Blood gases	82803
Blood lipoprotein assay	83718
Blood pressure measurement	bp
Blood serology, qualitative	86592
Blood smear interpretation	85060
Blood test, unspecified	Bltest
Blood typing, ABO	86900
Body measurement	9307
Bone and cartilage disease, unclassified	73399
Bone cyst, unclassified	73329
Bone marrow biopsy	85102c
Bone scan	9214
Bony fusion	bonyfus
Both eyes blind according to the WHO definition	36900
Brace / splints	brace
Brain condition, unspecified	3489d
Brain imaging (PET)	78608

Clinical event	Linking code
Brain injury, unclassified	85400
Breast feeding	brfeed
Brief depressive reaction	3090
Bronchiectasis	494
Bronchitis, unspecified	490
Bronchoscopy and remove lesion	31640
Bulimia	30751
Bullous myringitis	38401
Bursitis, unclassified	7273
Calcitonin stimulation panel	80410c
Calcium	T20d
Calcium channel blockers	K14d
Carcinoembryonic antigen	82378
Carcinoma in situ, unspecified	2349d
Cardiac arrest	4275
Cardiac drug stress test	93024
Cardiac dysrhythmia, unspecified	4279
Cardiac exam	cardexam
Cardiac rehabilitation	93797
Cardiac stress test, unclassified	8944
Cardiogenic shock	78551
Cardiomegaly	4293
Cardiomyopathy in other disease	4258d
Cardiorespiratory problem, unclassified	V472
Cardiovascular and hematopoietic scan and radioisotope function study	9205
Cardiovascular system	Kd
Caregiver education	careged
Caregiver support	caresupp
Carpal tunnel release	0443
Carpal tunnel syndrome	N93
Case management	casemgt

Clinical event	Linking code
Casting/strapping procedure	29799
CAT. scan of head	8703
Cataplexy and narcolepsy	347
Cataract extraction, unclassified	1369p
Cataract, unspecified	3669
Catatonia, unspecified	29520
Catheterization, intubation, dilation, instrumentation	IC53
Cauda equina syndrome, unspecified	34460
CD4 count	CD4
Cellulitis	6828
Cephalosporins and related substances	A04d
Cerebellar ataxia, unclassified	3343d
Cerebral atherosclerosis	4370
Cerebral palsy, unspecified	3439
Cerebrovascular diseases, unspecified	4379
Cervical incompetence, pregnancy, unspecified	65450
Cervicitis	6160
Cesarean section	740
Chemotherapy, subcutaneous or intramuscular	96400
Chest pain, unspecified	78650
Chest symptoms/complaints	L04
Chest x-ray	71010
Chiropractic manipulation	98940
Cholangitis	5761
Cholecystectomy	5122
Cholecystitis, unclassified	5751d
Choledocholithiasis, unspecified	57450
Cholelithiasis, unspecified	57420
Cholesteatoma, unspecified	38530
Cholesterolosis of the gallbladder	5756
Chondromalacia	73392

Clinical event	Linking code
Chorioamnionitis affecting fetus or newborn	7627
Chorion biopsy	59015
Chorioretinitis, unspecified	36320
Chronic maxillary sinusitis	4730
Chromosome analysis: placenta	88267
Chronic airway obstruction	496d
Chronic illness, unspecified	chronic
Chronic liver disease, unspecified	5719d
Chronic pulmonary heart disease, unspecified	4169
Chronic renal failure	585d
Chronic sinusitis, unclassified	4738
Chronic ulcer of leg	7071d
Circulatory diseases, unspecified	4599
Cirrhosis of liver, unspecified	5715
Cleft palate, unspecified	74900
Closed breast biopsy	8511
Closed fracture of the clavicle, unspecified	81000
Closed prostatic biopsy	6011
Closed vertebral fracture, unspecified	8058
CNS disorder, unspecified	3499d
Coarctation of aorta	74710
Cocaine abuse, unspecified	30560
Cognitive impairment	cogimp
Colchicine	T3d
Cold therapy	coldther
Colonoscopy	45379
Colposcopy of cervix	colpos
Coma	A07
Combined immune deficiency	2792d
Communication	comm
Complete blood count (CBC)	CBC

Clinical event	Linking code
Complex cystometrogram	51726
Complication of disease, death	deathdis
Complication of diseases	compli
Complication of surgical/medical treatment	A87
Complication of treatment, death	death
Compression	compress
Congenital abnormality of the uterus in pregnancy, unspecified	65400
Congestive heart failure	4280
Conization of cervix	57520
Constipation	D12
Consultation, unspecified	8909
Contact lens fitting	92310c
Contraceptive management, unclassified	V258
Contracted pelvis, unspecified	65313
Contractures	contrac
Contrast arteriogram, unspecified	8840
Contrast cerebral arteriogram	8841
Contrast x-ray exam of colon	74270
Contrast x-ray of bladder	74430
Contrast x-ray urinary tract	74400c
Convulsions	7803d
Convulsions in newborn	7790d
Coombs test	86880
Corneal degeneration, unspecified	37140
Coronary atherosclerosis	4140
Corticosteroids	H01d
Counseling, unclassified	V654
CPK	cpk
Creatinine clearance test	82575
Cryotherapy of the skin	17340
Cryptococcosis	1175d

Clinical event	Linking code
Crystal arthropathies, unspecified	71290
Culture specimen, bacteria	87070
Culture, unspecified	9192
Cushing's syndrome	2550
CVA	436d
Cyclophosphamide	C99d
Cyclothymic disorder	30113
Cystic fibrosis without ileus	27700
Cystic kidney diseases, unspecified	75310
Cystitis, unspecified	5959
Cystometrogram	8922
Cystoscopy	52000
Cytokines	C20d
Cytomegaloviral disease	0785
Cytopathology, Pap smear	88150
Death (excluding perinatal)	A96
Débride skin/muscle/bone, fracture	11012
Decubitus ulcer	7070
Dehydration	T11
Delirium tremens	2910
Delivery of single liveborn	V270
Dementia	2900
Dental examination	8931
Depressive disorder, unclassified	311d
Depressive psychosis, unspecified	29620
Desmopressin	K49d
Developmental delay, unspecified	3159
Developmental language disease	31531
Developmental testing, extended	96111
Device handling	99002
Dexamethasone panel	80420c

Clinical event	Linking code
Diabetes in pregnancy, unspecified	64800
Diabetes insipidus	2535
Diabetes mellitus	T90
Diabetic coma	A07
Diabetic hyperosmolar coma	25022
Diabetic ketoacidosis	25010
Diabetic nephropathy	25040
Diabetic neuropathy	25060
Diabetic retinopathy, unspecified	25050
Diabetic sequelae	25090
Diagnostic imaging, unspecified	8890
Diagnostic ultrasound, abdomen	8876
Diagnostic ultrasound, digestive	8874
Diagnostic ultrasound, gravid uterus	8878
Diagnostic ultrasound, head, unclassified	8871
Diagnostic ultrasound, heart	8872
Diagnostic ultrasound, unclassified	8879
Diagnostic ultrasound, urinary	8875
Dialysis procedure	90999
Dietary surveillance and counseling	V653
Differential WBC count	85007
Digital rectal exam	8934
Digoxin	digoxin
Dilation of the prostatic urethra	52510
Diphtheria, unspecified	0329d
Diptheria-tetanus-pertussis (DTP) immunization	A51d
Discharge planning	discplan
Disease iron metabolism	2750
Disease of calcium metabolism	2754d
Disease of copper metabolism	2751d
Disease of gallbladder, unclassified	5758

Clinical event	Linking code
Disfigurements of head	V486
Diuretics, unclassified	K29d
Diverticular disease	D92
Documentation	docu
Down's syndrome	7580
Dressing, self care	dress
Drug abuse	P19
Drug level, blood	blddrug
Drug monitoring	drugmon
Drug rehabilitation/detoxification	9466
Dysmenorrhea	6253
Dysphagia	7872d
Dysplasia of cervix	6221
Early onset of delivery, unspecified	64420
Eating	eating
Eating disorder, unspecified	30750
Eclampsia, antepartum	64263
Economic problem	V602
Edema	7823d
Education about asthma and lung diseases	asthed
Education about back injury and care	backed
Education about cancer and cancer care	canced
Education about cardiovascular diseases	carded
Education about depression	depred
Education about diabetes and diabetes self care	diabed
Education about hypertension	htned
Education about medication use	meded
Educational circumstance	V623
Effects radiation unspecified	990
Ejection fraction	ejecfrac
Elderly gravida	eldgrav

Clinical event	Linking code
Elective surgery, unspecified	V509
Electrical stimulation	97032
Electrocardiogram	93000
Electrocardiograph monitoring	8954
Electroconvulsive therapy	90870
Electroencephalogram	95812
Electromyography	9308
Electrophoretic test	82664
Electrophysiology evaluation	93619
Electroretinogram	9521
Elevated blood pressure without hypertension	7962d
Elimination	elimin
Embarrassment	embaras
Emergency department visit	99281
Emphysema without fistula	5109
Emphysema, unclassified	4928
Encephalopathy, unspecified	3483d
Endocarditis, unspecified	42490
Endocrine disorder, unspecified	2599d
Endometrial hyperplasia	6213
Endometriosis, unspecified	6179
Endoscopic insertion of stent into bile duct	5187
Endoscopic retrograde cholangiopancreatography (ERCP)	5111
Enlargement lymph nodes	7856d
Enteral infusion of concentrated nutritional substances	966
Environmental manipulation	90882
Epinephrine subcutaneously	F10d
Episiotomy	736
Ergot alkaloids	W30d
Erythropoietin	82668
Esophageal varices without bleeding	4561d

Clinical event	Linking code
Essential hypertension complicating pregnancy, unspecified	64200
Estrogens, plain	X00d
Evaluation of patient functional status	IC39
Excision/biopsy/removal/cautery	IC52
Exercise counseling and training	exered
Exercise restriction	exerrest
Exercise tolerance assessment	exertol
Exostosis	72691
Extracranial-intracranial bypass	3928
Eye and vision examination	V720
Fall, unclassified and unspecified	E888
False sense of security	falsecur
Familial hereditary disease possible affecting fetus	65520
Family circumstance, unspecified	V619
Family disruption	V610
Family history	famhis
Family history of a cardiovascular disease, unclassified	V174
Family history of a GI malignancy	V160
Family history of a musculoskeletal disease, unclassified	V178
Family history of a psychiatric condition	V170
Family history of a stroke	V171
Family planning/other	Y14
Family therapy	9442
Fasting lipids	fastlip
Feeding problem	7833d
Feeling anxious/nervous/tense	P01
Feeling/behaving irritable	P04
Felty's syndrome	7141
Fem stress incontinence	78330
Fetal abnormality, unspecified	65590
Fetal blood sample/biopsy	7533

Clinical event	Linking code
Fetal diseases, unspecified	7684
Fetal monitoring, unspecified	7534
Fetal presentation, transverse or oblique, unspecified	65230
Fetal presentation, breech, unspecified	65220
Fetal presentation, face or brow, unspecified	65240
Fetal presentation, malposition, unclassified or unspecified	65280
Fever	A03
Fistula of gallbladder	fist
Flavoxate	U9d
Folic acid, plain	B32d
Follow-up exam, unspecified	V679
Food preparation	foodprep
Food/vomit pneumonitis	5070
Foot care	footcare
Foot exam	footexam
Forceps delivery, unspecified	66950
Fracture	E887
Fracture, unclassified, of femur, unspecified	8208
Fundoscopic eye examination	fundo
Gallstone ileus	56031
Gangrene	7854d
Gastrointestinal hemorrhage, unspecified	5789d
Gated heart, multiple	78473
General medical exam, unspecified	V709
General physical exam	897
General symptoms, unclassified	7809d
Generalized anxiety disease	30000
Genetic counseling	V263
Genital prolapse, unclassified	6188
GI system symptoms, unclassified	5589d
GI ulcers	ulcers

Clinical event	Linking code
Gilles de la Tourette's disorder	30723
Glasgow coma scale	glascow
Glaucoma, unspecified	3659
Glucagon tolerance test	82946
Glucose blood test	82950
Glucose tolerance test (GTT)	82951
Glycated hemoglobin test	83036
Gonorrhea, complicating pregnancy, childbirth, or puerperium	64711
Gout, unspecified	2749d
Grand multiparity, unspecified	65940
Grooming and hygiene, self care	groom
Group health education	99078
Group therapeutic procedures	97150
Gynecologic examination	8926
Habitual aborter, unspecified	64630
Hb-S diseases with crisis	28262
Hb-S diseases without crisis	28261
Head and unclassified endarterectomy, unclassified	3812
Headache	7840d
Health status	healtsta
Hearing loss	3899
Hearing loss, unspecified	3899d
Heart diseases, unspecified	4299d
Heart examination	heartex
Heart valve replacement, unclassified	V433
Heart wall motion (add-on)	78478
Heat effect, unspecified	9929d
Hebephrenia, unspecified	29510
Height measurement	height
Hematocrit	85013
Hematology procedure	85999

Clinical event	Linking code
Hematuria	5997
Hemoglobin	85018
Hemoglobinopathies, unclassified	2827
Hemorrhage complicating a procedure	9981d
Hemorrhage in early pregnancy, unspecified	64080
Hemorrhagic complications of a procedure	4590d
Hemorrhagic condition, unspecified	2879
Heparin	B01d
Hepatic function panel	80058
Hepatitis A	A64d
Hepatitis A vaccine	90730
Hepatitis B	A65d
Hepatitis B core antibody (HBcAb); IgG and IgM test	86289
Hepatitis B vaccine, 11-19 years	90745
Hepatomegaly	D96
Hernia, unspecified	5539d
Herpes simplex, unspecified	0549
High gastric bypass	4431
Hip pain	hippain
Histoplasmosis, unspecified	11590
History and physical	hisphy
History of a circulatory system disease	V125
History of a disease, unclassified	V138
History of a disease, unspecified	V139
History of a drug allergy, unspecified	V149
History of a mental disorder, unclassified	V118
History of an ovarian malignancy	V1043
History of a rectal and anal malignancy	V1006
History of alcoholism	V113
History of an infection/parasitic disease	V120
History of an injury	V155

Clinical event	Linking code
History of past noncompliance	V1581
History of smoking	hxsmoke
HIV	0449d
HIV antigen test	86311
Home glucose monitoring	Hmglucos
Home health care	99351
Hospice	hospice
Hospital discharge day	99238
Housekeeping	housekep
Human papilloma virus	0794d
Hydration therapy	hydtherp
Hydronephrosis	591
Hydrotherapy	97036
Hydroxychloroquine	A71d
Hyperbaric oxygen therapy	99183
Hyperlipidemia, unclassified and unspecified	2724d
Hyperosmolality	2760
Hyperosmolar coma	25020
Hyperplasia of prostate	600d
Hyperpotassemia	2767
Hypersensitivity angiitis, unspecified	44620
Hypertension, unspecified	4019d
Hypertensive heart disease, unspecified	40290
Hypertensive renal disease, unspecified without renal failure	40390
Hypertensive retinopathy	36211
Hyperthermia treatment	77600
Hypnotherapy	9432
Hypnotics and sedatives	P2d
Hypopotassemia	2768
Hypotension, unspecified	4589
Hypothermia	9981

Clinical event	Linking code
Hypothyroidism, unspecified	2449
Hypoxemia	lacko2
Hysterectomy, unclassified and unspecified	689
Idiopathic peripheral neuropathy, unspecified	3569
Idiopathic proctocolitis	556
Ill-defined condition, unclassified	7998d
Immobilization, pressure, and attention to wound, unclassified	9359
Immune deficiency, unspecified	2793
Immunization, unspecified	90749
Immunoassay, RIA	83520
Immunodeficiency with increased IgM	27905
Immunosuppressive agents, unclassified	C39d
Impaction intestine, unclassified	56039
Impaired brain growth	imbragr
Impaired renal function, unclassified	5888
Incidental appendectomy	471
Incision/drainage/aspiration	IC51
Incompetence of cervix	6225
Incontinence of bowel	D17
Indirect inguinal hernia repair with graft or prothesis	5304
Induction of labor	734
Infections	L70
Infectious disease	1369d
Infectious mononucleosis	A75
Inflammatory disorders of penis	6072d
Influenza	A57d
Influenza B immunization	90737
Influenza immunization	90724
Influenza with pneumonia	4870
Inhaled anti-allergics	R23d
Inhaled beta-agonist	inhabeta

Clinical event	Linking code
Inhaled bronchodilators (anticholinergic)	R21d
Inhaled steroids	R22d
Inhibited sex excitement	30272
Inject Rh immune globulin	9911
Injection, intra-arterial (IA)	90783
Injection, sub-cutaneous (SC) and intramuscular (IM)	90782
Injury, unspecified	E9589
Insert emergency airway	31500c
Insert indwelling cath	5794
Insert intracoronary stent	92980
Insert temporary pacemaker system	3778
Insomnia, unclassified	78052
Insufficient prenatal care	V237
Insulins	T00d
Intensive care unit	ICU
Interpersonal problem, unclassified	V6281
Intestinal obstruct, unspecified	5609
Intracerebral hemorrhage	431
Intraocular foreign body, unspecified	36060
Intraspinal abscess	3241
Intrauterine death, unspecified	65640
Intravenous infusion	IV
Intravenous pyelogram	8773
IPPB	9391
Iridocyclitis, unspecified	3643
Iron binding test	83550
Iron deficiency anemia, unspecified	2809
Iron preparations	B30d
Irradiation cystitis	59582
Isolated phobias, unclassified	30029
IV infusion therapy, 1 hour	90780

Clinical event	Linking code
Jaundice	jaun
Joint disease, unclassified and unspecified	71980
Joint effusion, unspecified	71900
Joint mobilization	97265
Joint pain, unspecified	71940
Joint replacement, unclassified	V436
Joint symptom, unclassified and unspecified	71960
Juvenile osteochondrosis of pelvis	7321d
Juvenile rheumatoid arthritis, unspecified	71430
Kaposi's sarcoma, unspecified	1769
Kidney function study	78725
Labor and delivery	labdel
Labyrinthitis, unspecified	38630
Lack of coordination	7813d
Laparoscopic cholecystectomy	5123
Laparotomy, unclassified	5419
Laxatives, unclassified	D59d
Legal abortion with unspecified complication	63572
Leukoplakia of the oral mucosa	5286
Light therapy	lightth
Limited function/disability	Z28
Lithium	P02d
Lithotripsy	litho
Liver disorder, unspecified	5739d
Liver function study	78220
Local anesthetics (excluding dermatologicals)	N01d
Local excision breast lesion	8521
Loss of sensation	sensloss
Loss/death parent/family	Z23
Lower extremity study	93925
Lumbosacral neuritis, unspecified	7244

Clinical event	Linking code
Lung examination	lungexam
Lung function test (maximum breathing capacity/maximal voluntary ventilation)	94200c
Lymphatic diagnostic procedure, unclassified	4019
Macrolides and lincosamides	A06d
Macular degeneration, unspecified	36250
Magnesium	T22d
Magnetic resonance imaging, unspecified	8897
Major depressive disorder, recurrent episode, unspecified	29630
Malaise and fatigue	7807d
Male hypospadias and epispadias	7526
Malignant hypertension	4010
Malignant melanoma of the skin, unspecified	1729
Malignant neoplasm of bladder	U76
Malignant neoplasm of kidney	U75
Malignant neoplasm of the adrenals	1940
Malignant neoplasm of the breast, unspecified	1749
Malignant neoplasm of the bronchus/lung	R84
Malignant neoplasm of the cervix, unclassified	1808
Malignant neoplasm of the colon, unspecified	1539
Malignant neoplasm of the corpus uteri	1820
Malignant neoplasm of the esophagus, unclassified	1508
Malignant neoplasm of the gallbladder	1560
Malignant neoplasm of the larynx, unspecified	1619
Malignant neoplasm of the oral/pharynx, unclassified	1498
Malignant neoplasm of the oropharynx, unclassified	1468
Malignant neoplasm of the ovary	1830
Malignant neoplasm of the pancreas	D76
Malignant neoplasm of the prostate	185d
Malignant neoplasm of the stomach	D74
Malignant neoplasm of the vertebrae	1702
Malignant neoplasm, other, unspecified	1991

Clinical event	Linking code
Mammogram	76092
Mammography continuing education	mammCME
Mammography, unclassified	75092
Manual and mechanical traction	9321
Manual exam of the breast	8936
Manual hemogram, complete CBC	85031
Marital counseling	maritalc
Massage therapy	97124
Mastoidectomy	69501
Mastoiditis, unspecified	3839d
Maternal alcohol affecting fetus or newborn	76071
Maternal conditions, unspecified, affecting fetus or newborn	7609d
Maternal infections affecting fetus or newborn	7602
Measles	A54d
Measles-mumps-rubella (MMR) immunization	A53d
Mechanical ventilation	vent
Mediastinitis	5192d
Medical audit	medaudit
Medical exam, health evaluation, complete	IC30
Medication history	medhis
Medications	meds
Meningitis, unspecified	3229d
Mental disorders in pregnancy, unspecified	64840
Mental disorders, postpartum	64844
Mental retardation, unspecified	319
Metabolism disorder, unspecified	2779d
Methotrexate	C01d
Migraine, unspecified, without intractable migraine	34690
Mild/unspecified preeclampsia, unspecified	64240
Mineral supplements and tonics, unclassified	T29d
Mitral stenosis	3940

Clinical event	Linking code
Mitral valve disorder	4240d
Mixed incontinence	78833
Mobility	mobility
Monitoring, unclassified	monitor
Mononeuritis, unspecified	3559
Motor problems with limbs	V492
MRI chest and heart	8892
MRI brain and brainstem	8891
MRI pelvis	8895
MRI spinal canal	8893
Multiparity	V615
Multiple gestation, twin, unspecified	65100
Multiple gestation, unspecified	65190
Multiple myeloma without remission	20300
Multiple sclerosis	N86
Mumps	D71
Muscle disorders, unclassified	7283
Muscle or tendon stretching	9327
Muscle relaxants, unclassified	L29d
Myalgia and myositis, unspecified	7291
Mycobacterial disease, unspecified	0319
Myopathy, unspecified	3599d
Myringotomy, unclassified	2009
Narcotics (opioids)	N10d
Nausea and vomiting	7870d
Nebulizer therapy	9394
Neonate	W90
Nephritis, unspecified	5839d
Nerve/musculoskeletal symptoms, unclassified	7819d
Neurologic exam of lower extremities	neuroleg
Neurologic examination	8913

Clinical event	Linking code
Neurologic function test, unclassified	8915
Neurological functioning	neuro
Neurolytic injection, symptomatic nerve	0532
Neuropsychiatric test battery	96117
Neurosyphilis, unspecified	0949d
Neurotic disorder, unspecified	3009d
Newborn infection	nbinfec
Newborn observation for suspected neurological problems	V291
Newborn respiratory condition, unspecified	7709d
Nitrates	nitrates
Nocturnal enuresis	78836
None	none
Noninflammatory disease of the vagina, unclassified	6238
Nonspecific skin erupt, unclassified	7821
Normal pregnancy	preg
Nutrition deficiency, unspecified	2699d
Nutrition, unspecified	nutri
Obesity	2780
Observation care	99218
Obsessive-compulsive disease	3003
Obstetrical perineal laceration, unspecified	66440
Obstruction of eustachian tube, unspecified	38160
Obstruction of the bile duct	5762
Obstructive hydrocephalus	3314
Occlusion of carotid artery without infarction	43310
Occupational circumstances, unclassified	V622
Occupational therapy	9383
Office/outpatient visit, est.	99211
Office/outpatient visit, new	99201
Old myocardial infarction	412d
Oligohydramnios, unspecified	65800

Clinical event	Linking code
Oophorotomy	650
Ophthalmologic counseling and instruction	9536
Ophthalmoscopy	1621
Oppositional disorder	31381
Oral aphthae	5282d
Oral exam	oralexam
Oral poliovirus immunization	90712
Orthostatic hypotension	4580
Orthotic device fitting	9323
Osteitis deformans, unspecified	7310
Osteoarthrosis, unspecified	71590
Osteochondropathy, unspecified	7329
Osteomalacia, unspecified	2682
Osteomyelitis, unspecified	73020
Osteoporosis	L95
Other acupuncture	9992
Other alter consciousness	78009
Other CAT. scan	8838
Other concern behavior childhood	P22
Other conduct disturbance	3128
Other current conditions of pregnancy, unspecified	64890
Other destruction of intervertebral disc	8059
Other diagnostic procedures	IC43
Other disease of the neurologic system	N99
Other disease specific education	othed
Other functional disorders of the bladder	59659
Other head injury without skull fracture	N80
Other hyperalimentation	2788
Other joint mobilization	9316
Other lung disease, unclassified	51889
Other lymphomas, unspecified, extra-nodal, organ	20280

Clinical event	Linking code
Other mental/psychologic disorders	P99
Other pulmonary insufficiency	51882
Other skeletal x-ray	8833
Other streptococcus	04109
Other urinary incontinence	7883
Other veneral disease, chlamydia trachomatis, lower genitourinary tract	09953
Otitis media	3829
Otitis media with effusion	38101
Otorrhea, unspecified	38860
Otoscopy	1811
Ovarian failure, unclassified	2563
Oxygen enrichment, unclassified	9396
Oxytocics	W3d
Pacemaker	pacem
Packed cell transfusion	9904
Pain assessment	painass
Pain due to cancer	cancerpn
Pain due to trauma	traupain
Pain, generalized	A01
Pain management	painmgt
Panic disorder	30001
Paralysis agitans	3320
Parkinsonism	N87
Partial hysterectomy	58180
Pathology report	pathrpt
Patient education materials	99071
Patient preferences	prefer
Peak expiratory flow rate	peakflow
Pelvic inflammatory disease	X74
Pelvic pain	pelpain
Pentobarbital	Nd

Clinical event	Linking code
Peptic ulcer, unspecified	ulcers
Percutaneous diskectomy	62287
Perforated tympanic membrane, unspecified	38420
Perforation of intestine	56983
Pericardial diseases, unspecified	4239d
Perinatal condition, unspecified	7799d
Perinatal mortality	A95
Peripheral vascular disease, unspecified	4439d
Peritoneal dialysis	5498
Personality disorder, unspecified	3019
Pertussis	0330
Photocoagulation	photocoa
Physical restraints	physrest
Physical therapy, unclassified	9339
Physician standby services	99360
Pituitary disorder, unspecified	2539
Placenta previa, unspecified	64100
Platelet count, automated	85595
Pneumococcal pneumonia	481d
Pneumococcus infection, unspecified	0412d
Pneumococcus-meningococcus	A58d
Pneumocystosis	1363
Pneumonia	R81
Pneumonia in infection disease, unclassified	4848
Pneumonia, mycoplasma pneumoniae	4830
Poliomyelitis	A56d
Poliomyelitis immunization	90713
Polycystic kidney, unspecified	75312
Polymyalgia rheumatica	725
Polyp of corpus uteri	6210
Polyphagia	7836

Clinical event	Linking code
Popliteal synovial cyst	72751
Positioning	posit
Poststroke patients	poststr
Postvoiding residual urine	postvoid
Postmenopausal bleeding	X12
Postpartum care	V240
Postpartum hemorrhage unclassified, unspecified	66610
Postsurgical infection	9985d
Postsurgical pain	surgpain
Potassium	T21d
Potassium-sparing diuretics	K22d
Poverty/financial problem	Z01
Pre- and perinatal education	babyed
Preeclampsia or eclampsia superimposed on pre-existing hypertension	64270
Pregnancy confirmed	V222
Pregnancy with history of infertility	V230
Pregnancy with poor obstetric history	V234
Premature birth	A93
Premature rupture of membranes, unspecified	65810
Pre-menopause menorrhagia	6270
Prenatal training	9337
Pressure dressing application	9356
Preterm infant	A93
Preventive visit, established patient, 40-64 years	99396
Previous cesarean delivery, unspecified	65420
Priapism	6073d
Primary cardiomyopathy, unclassified	4254d
Primigravida	primigra
Prinzmetal angina	4131d
Problem housing/neighborhood	Z03
Problem with education	Z07

Clinical event	Linking code
Problems with learning	V400
Prolonged labor, unspecified	66210
Prolonged posttraumatic stress disorder	30981
Prophylactic chemotherapy, unclassified	V073
Propofol	P29d
Prostaglandins	D12d
Prostate specific antigen (PSA)	84153
Prostatectomy (TURP)	52601
Prostatic disorder, unspecified	6029
Protein-calorie malnutrition, unspecified	2639
Prothrombin time	85610
Psychiatric commitment evaluation	9413
Psychiatric interview/evaluation, unclassified	9419
Psychogenic disorder, unspecified	3069
Psychologic mental status determination, unspecified	9409
Psychological stress, unclassified	V6289
Psychological testing	96100
Psychopharmaceuticals, unclassified	P99d
Psychosexual disease, unclassified	30289
Psychosis, unspecified	2989
Psychosocial circumstances, unspecified	V629
Psychotherapy	90841
PT exercise, unclassified	9319
PTCA, one vessel, without agent	3601
Puerperal infection/sepsis	W70
Pulmonary arterial wedge pressure monitoring	8964
Pulmonary embolism	K93
Pulmonary heart disease	K82
Pulmonary scan	9215
Pulmonary service/procedure	94799
Pulsation balloon implant	3761

Clinical event	Linking code
Pulse	pulse
Pulse oximetry	pulsox
Pure hypercholesterolemia	2720
Pure hyperglyceridemia	2721d
Pyelonephritis, unspecified	59080
Pyogen arthritis, unspecified	71100
Radiation treatment delivery	77401
Radiographic procedure	76499c
Range of motion exercises	ROMExc
Range of motion measurements	95851
Range of motion testing	9305
Raynaud's syndrome	4430
Recreational therapy	9381
Rectal and anal disease, unclassified	56949
Red blood cell (RBC) count	85041
Reduced quality of life	qual
Reduction in lipid levels	lowlipd
Refraction	92015
Regional enteritis, unspecified	5559
Regional lymph node excision	403
Rehabilitation procedures, unspecified	V579
Rehabilitation, unclassified	9389
Removal of coronary artery obstruction, unclassified	3609
Renal and ureteral disease, unclassified	59389
Renal and ureteral disease, unspecified	5939
Renal artery atherosclerosis	4401d
Renal disease, unspecified, antepartum	64623
Renal failure, unspecified	586d
Residual schizophrenia, unspecified	29560
Respiratory abnormal, unclassified	78609
Respiratory arrest	7991d

Clinical event	Linking code
Respiratory distress syndrome	769
Respiratory failure	51881
Respiratory tract intubation, unclassified	9605
Retention urine, unspecified	78820
Reticulocyte count	85044
Retinal detachment, unspecified	3619d
Rh incompatibility reaction	9997d
Rh isoimmunization, unspecified	65610
Rheumatoid arthrit and allied conditions	L88
Rheumatoid arthritis	7140
Rheumatoid factor test	86430
Rhinoscopy	2121
Rickettsioses, unclassified	0838d
Right or left heart cardiac catheterization	3723
Routine child health exam	V202
Rubella	A55d
Rubella complicating pregnancy, childbirth, or puerperium	64752
Salicylic acid and derivatives	N11d
Satisfaction survey	satis
Schizophrenia unspecified, unspecified	29590
Schizophrenia, paranoid type, unspecified	29530
Screening	screen
Screening for alcoholism	V791
Screening for alpha-fetoprotein	V281
Screening for cardiovascular, unclassified	V812
Screening for cystic fibrosis	V776
Screening for depression	V790
Screening for diabetes mellitus	V771
Screening for hemoglobinopathies, unclassified	V783
Screening for malignant neoplasm of the bladder	V763
Screening for malignant neoplasm of the respiratory organs	V760

Clinical event	Linking code
Screening for malignant neoplasm, site unclassified	V7649
Screening for mental disease, unspecified	V799
Screening for rubella	V733
Screening for unspecified conditions	V829
Sec malignant neoplasm of the nerves, unclassified	1984
Second hypertension, unclassified	40599
Secondary malignant neoplasm of the bones	1985
Secondary polycythemia	2890
Sedation	sedat
Sedimentation rate, erythrocyte, automated	85652
Sedimentation rate, erythrocyte, non-automated	85651
Self care management	selfcare
Self care management training	97535
Self-help	selfhelp
Sensitivity test	IC32
Sensory disorders	37444
Separation anxiety	30921
Septicemia	7907d
Serum lipid-reducing agents, unclassified	T69d
Sexually transmitted diseases	std
Shock due to anesthesia	9954d
Shock, unspecified	78550
Shortness of breath (dyspnea)	R02
Sicca syndrome	7102
Sickle-cell anemia, unspecified	28260
Sickle-cell trait	2825
Sickle-cell/Hb-C diseases	28263
Sigmoidoscopy, diagnostic	45330
Skin integrity	skin
Skin sensation disturbance	7820d
Sleep disturbance, unspecified	78050

Clinical event	Linking code
Smear, stain and interpretation	87205
Smoker	smoker
Smoking cessation	smokcess
Social functioning	social
Social phobia	30023
Special anesthesia procedure	99135
Speech and hearing evaluation	92506
Speech therapy	V573
Spina bifida	74190
Spinal anesthesia	spinanes
Spinal cord diseases, unspecified	3369
Spinal fluid tap, diagnostic	62270
Spinal fusion, unspecified	8100
Spinal stenosis, unspecified	72400
Splenomegaly	B87
Spondylosis unspecified without myelopathy	72190
Spontaneous pneumothorax, unclassified	5128
Stress management	stress
Stress reaction	3084
Stricture of artery	4471
Subendocardial infarction	41072
Sudden infant death syndrome	7980d
Suicide attempt	P77
Sulfonamides and trimethoprim	A05d
Sulfonylureas	T01d
Suppurative peritonitis, unclassified	5672d
Surgery followup	V670
Surgical complication, CNS	9970
Surgical complication, respiratory system	9973d
Swallowing problems	D21
Sympathetic nerve injection, unclassified	0539p

Clinical event	Linking code
Symptoms of breast, unclassified	61179
Synovectomy site, unspecified	8070
Synovitis, unspecified	72700
Syphilis, unspecified	0979
Tachycardia, unspecified	7850d
TB tine test	86585
Temperature	temp
Terbutaline	R29d
Test feces for blood	82270
Testing for sexually transmitted diseases	sextest
Tetanus	N72
Tetracyclines	A00d
Thalassemias	2824
Theophylline and derivatives	R25d
Thermography, unclassified	8889
Thiazides and combinations	K20d
Thoracentesis	3491
Thromboangiitis obliterans	4431d
Thrush	1120
Thyroid panel	80091c
Thyroid preparations	T80d
Tic disorder, unspecified	30720
TMJ disorders, unspecified	52460
Tobacco abuse	P17
Toileting	toilet
Tonography and eye evaluation	92120
Tonsillectomy	282
Total hip replacement	27130
Total knee replacement	27447
Toxic effect strychnine	9891
Toxoplasmosis, unspecified	1309

Clinical event	Linking code
Transferring	transfer
Transfusion, unclassified	9909
Transient cerebral ischemia, unspecified	4359
Transmission of ECG	93012
Transplant status, unspecified	V429
Transplantation of heart	33945
Transplantation of kidney	50360
Treatment plan	treaplan
Treponema pallidum confirmed	86781
Tuberculosis respiratory	R70
Tympanometry	92567
Tympanosclerosis, unspecified	38500
Ultrasound exam followup	76970
Unclassified exam	neckexam
Unilateral orchiectomy	623
Unlisted evaluation and management service	99499
Unspecified hypertension complicating pregnancy	64290
Urethral dilation	586
Urethral pressure profile	8925
Urethral repair, unclassified	5849
Urethral stricture, unspecified	5989
Urethrotomy	580
Urge incontinence	78831
Urinalysis	81005
Urinalysis dipstick	81002c
Urinary anomaly, unspecified	7539
Urinary incontinence	78830
Urinary problems, unclassified	V474
Urinary tract disease, unspecified	5999d
Urinary tract infection	5990
Urine culture, colony count	87086

Clinical event	Linking code
Urine, microalbumin, quantitative	82043
Urine, microalbumin, semiquantitative	82044
Uroflowmetry	8924
Use of cyclosporine	C3d
Uterine anomaly, unclassified	7523
Uterine leiomyoma, unspecified	2189d
Uterine prolapse	6181
Vacuum extraction delivery, unclassified	7279
Vaginal hysterectomy	58260
Vaginal repair, unclassified	7079
Varicella-zoster	86787
VBAC delivery	59610
Venous insufficiency, unspecified	45981
Venous thrombosis, unspecified	4539
Ventricular fibrillation	42741
Vertigo/dizziness (excluding H82)	N17
Vesicoureteral reflux	5937
Viral infection, unspecified	07999
Viral pneumonia, unspecified	4809
Visual correction	viscorre
Visual evoked potential	9523
Visual loss, unspecified	3699d
Vitamin deficiency, unspecified	2692
Vitamins	T1d
Vocational rehabilitation	9385
Wedge osteotomy, unclassified	7729
Weight gain	T07
Weight loss	T08
Weight measurement	weight
Whirlpool therapy	97022
White blood cell (WBC) count	85048

Clinical event	Linking code
Whooping cough	R71
Wound irrigation, unclassified	9659
X-ray consultation	76140
X-ray exam of abdomen	74000
X-ray exam of chest	71015
X-ray exam of spine	72010
X-ray exam of upper GI tract	74240
X-ray, unclassified and unspecified	8839
Zidovudine	A32d

Appendix B - Linking Codes for Clinical Events

Sorted by linking code

Clinical event	Linking code
Mycobacterial disease, unspecified	0319
Diphtheria, unspecified	0329d
Pertussis	0330
Other streptococcus	04109
Pneumococcus infection, unspecified	0412d
Bacterial infection, unspecified	0419d
AIDS	0429
Carpal tunnel release	0443
HIV	0449d
Neurolytic injection, symptomatic nerve	0532
Sympathetic nerve injection, unclassified	0539p
Herpes simplex, unspecified	0549
Cytomegaloviral disease	0785
Human papilloma virus	0794d
Viral infection, unspecified	07999
Rickettsioses, unclassified	0838d
Neurosyphilis, unspecified	0949d
Syphilis, unspecified	0979
Other veneral disease, chlamydia trachomatis, lower genitourinary tract	09953
Débride skin/muscle/bone, fracture	11012
Thrush	1120
Histoplasmosis, unspecified	11590
Cryptococcosis	1175d
Toxoplasmosis, unspecified	1309

Clinical event	**Linking code**
Pneumocystosis	1363
Infectious disease	1369d
Cataract extraction, unclassified	1369p
Malignant neoplasm of the oropharynx, unclassified	1468
Malignant neoplasm of the oral/pharynx, unclassified	1498
Malignant neoplasm of the esophagus, unclassified	1508
Malignant neoplasm of the colon, unspecified	1539
Malignant neoplasm of the gallbladder	1560
Malignant neoplasm of the larynx, unspecified	1619
Ophthalmoscopy	1621
Malignant neoplasm of the vertebrae	1702
Malignant melanoma of the skin, unspecified	1729
Cryotherapy of the skin	17340
Malignant neoplasm of the breast, unspecified	1749
Kaposi's sarcoma, unspecified	1769
Malignant neoplasm of the cervix, unclassified	1808
Otoscopy	1811
Malignant neoplasm of the corpus uteri	1820
Malignant neoplasm of the ovary	1830
Malignant neoplasm of the prostate	185d
Biopsy of breast	19100
Malignant neoplasm of the adrenals	1940
Sec malignant neoplasm of the nerves, unclassified	1984
Secondary malignant neoplasm of the bones	1985
Malignant neoplasm, other, unspecified	1991
Myringotomy, unclassified	2009
Other lymphomas, unspecified, extra-nodal, organ	20280
Multiple myeloma without remission	20300
Benign neoplasm of the large bowel	2113
Rhinoscopy	2121
Benign neoplasm of the soft tissue, thorax	2154

Clinical event	**Linking code**
Uterine leiomyoma, unspecified	2189d
Carcinoma in situ, unspecified	2349d
Hypothyroidism, unspecified	2449
Acute thyroiditis	2450
Diabetic ketoacidosis	25010
Hyperosmolar coma	25020
Diabetic hyperosmolar coma	25022
Diabetic nephropathy	25040
Diabetic retinopathy, unspecified	25050
Diabetic neuropathy	25060
Diabetic sequelae	25090
Acromegaly and gigantism	2530
Diabetes insipidus	2535
Pituitary disorder, unspecified	2539
Cushing's syndrome	2550
Adrenal disorder, unspecified	2559d
Ovarian failure, unclassified	2563
Endocrine disorder, unspecified	2599d
Protein-calorie malnutrition, unspecified	2639
Osteomalacia, unspecified	2682
Vitamin deficiency, unspecified	2692
Nutrition deficiency, unspecified	2699d
Aromatic amino-acid metabolism, unclassified	2702
Total hip replacement	27130
Pure hypercholesterolemia	2720
Pure hyperglyceridemia	2721d
Hyperlipidemia, unclassified and unspecified	2724d
Total knee replacement	27447
Gout, unspecified	2749d
Disease iron metabolism	2750

Clinical event	**Linking code**
Disease of copper metabolism	2751d
Disease of calcium metabolism	2754d
Hyperosmolality	2760
Hyperpotassemia	2767
Hypopotassemia	2768
Cystic fibrosis without ileus	27700
Amyloidosis	2773d
Metabolism disorder, unspecified	2779d
Obesity	2780
Other hyperalimentation	2788
Amputation below knee	27880
Immunodeficiency with increased IgM	27905
Combined immune deficiency	2792d
Immune deficiency, unspecified	2793
Autoimmune diseases, unclassified	2794
Iron deficiency anemia, unspecified	2809
Tonsillectomy	282
Thalassemias	2824
Sickle-cell trait	2825
Sickle-cell anemia, unspecified	28260
Hb-S diseases without crisis	28261
Hb-S diseases with crisis	28262
Sickle-cell/Hb-C diseases	28263
Hemoglobinopathies, unclassified	2827
Anemia, unspecified	2859
Adenoidectomy	286
Hemorrhagic condition, unspecified	2879
Agranulocytosis	2880
Secondary polycythemia	2890
Dementia	2900
Delirium tremens	2910

Clinical event	**Linking code**
Acute delirium	2930
Amnestic syndrome	2940
Hebephrenia, unspecified	29510
Catatonia, unspecified	29520
Schizophrenia, paranoid type, unspecified	29530
Residual schizophrenia, unspecified	29560
Schizophrenia unspecified, unspecified	29590
Depressive psychosis, unspecified	29620
Major depressive disorder, recurrent episode, unspecified	29630
Bipolar affective disorder, unspecified	2967
Affective psychosis, unspecified	29690
Casting/strapping procedure	29799
Psychosis, unspecified	2989
Generalized anxiety disease	30000
Panic disorder	30001
Social phobia	30023
Isolated phobias, unclassified	30029
Obsessive-compulsive disease	3003
Neurotic disorder, unspecified	3009d
Cyclothymic disorder	30113
Antisocial personality	3017
Personality disorder, unspecified	3019
Inhibited sex excitement	30272
Psychosexual disease, unclassified	30289
Alcohol abuse, unspecified	30500
Cocaine abuse, unspecified	30560
Amphetamine abuse, unspecified	30570
Psychogenic disorder, unspecified	3069
Anorexia nervosa	3071
Tic disorder, unspecified	30720

Clinical event	**Linking code**
Gilles de la Tourette=s disorder	30723
Eating disorder, unspecified	30750
Bulimia	30751
Stress reaction	3084
Acute stress reaction, unspecified	3089
Brief depressive reaction	3090
Separation anxiety	30921
Adjustment reaction, emotions, unclassified	30929
Prolonged posttraumatic stress disorder	30981
Depressive disorder, unclassified	311d
Other conduct disturbance	3128
Oppositional disorder	31381
Academic underachievement	31383
Attention deficit without hyperactivity	31400
Attention deficit with hyperactivity	31401
Insert emergency airway	31500c
Developmental language disease	31531
Developmental delay, unspecified	3159
Bronchoscopy and remove lesion	31640
Mental retardation, unspecified	319
Meningitis, unspecified	3229d
Biopsy of the lung or mediastinum	32405
Intraspinal abscess	3241
Alzheimer's diseases	3310
Obstructive hydrocephalus	3314
Paralysis agitans	3320
Cerebellar ataxia, unclassified	3343d
Spinal cord diseases, unspecified	3369
Transplantation of heart	33945
Cerebral palsy, unspecified	3439
Cauda equina syndrome, unspecified	34460

Clinical event	**Linking code**
Migraine, unspecified, without intractable migraine	34690
Cataplexy and narcolepsy	347
Encephalopathy, unspecified	3483d
Brain condition, unspecified	3489d
Thoracentesis	3491
CNS disorder, unspecified	3499d
Atherectomy, open	35480
Mononeuritis, unspecified	3559
Idiopathic peripheral neuropathy, unspecified	3569
Myopathy, unspecified	3599d
PTCA, one vessel, without agent	3601
Intraocular foreign body, unspecified	36060
Removal of coronary artery obstruction, unclassified	3609
Aortocoronary bypass, unspecified	3610
Retinal detachment, unspecified	3619d
Hypertensive retinopathy	36211
Macular degeneration, unspecified	36250
Chorioretinitis, unspecified	36320
Iridocyclitis, unspecified	3643
Glaucoma, unspecified	3659
Cataract, unspecified	3669
Both eyes blind according to the WHO definition	36900
Visual loss, unspecified	3699d
Corneal degeneration, unspecified	37140
Right or left heart cardiac catheterization	3723
Sensory disorders	37444
Pulsation balloon implant	3761
Insert temporary pacemaker system	3778
Otitis media with effusion	38101
Head and unclassified endarterectomy, unclassified	3812

Clinical event	**Linking code**
Obstruction of eustachian tube, unspecified	38160
Otitis media	3829
Mastoiditis, unspecified	3839d
Bullous myringitis	38401
Perforated tympanic membrane, unspecified	38420
Tympanosclerosis, unspecified	38500
Cholesteatoma, unspecified	38530
Labyrinthitis, unspecified	38630
Otorrhea, unspecified	38860
Arterial catheterization	3891
Hearing loss	3899
Hearing loss, unspecified	3899d
Extracranial-intracranial bypass	3928
Mitral stenosis	3940
Malignant hypertension	4010
Lymphatic diagnostic procedure, unclassified	4019
Hypertension, unspecified	4019d
Hypertensive heart disease, unspecified	40290
Regional lymph node excision	403
Hypertensive renal disease, unspecified without renal failure	40390
Second hypertension, unclassified	40599
Subendocardial infarction	41072
Old myocardial infarction	412d
Prinzmetal angina	4131d
Coronary atherosclerosis	4140
Chronic pulmonary heart disease, unspecified	4169
Acute and subacute endocarditis, unspecified	4219d
Pericardial diseases, unspecified	4239d
Mitral valve disorder	4240d
Endocarditis, unspecified	42490
Primary cardiomyopathy, unclassified	4254d

Clinical event	**Linking code**
Cardiomyopathy in other disease	4258d
Atrioventricular block, complete	4260
Atrial fibrillation	42731
Ventricular fibrillation	42741
Cardiac arrest	4275
Cardiac dysrhythmia, unspecified	4279
Congestive heart failure	4280
Cardiomegaly	4293
Heart diseases, unspecified	4299d
Intracerebral hemorrhage	431
Occlusion carotid artery without infarction	43310
Transient cerebral ischemia, unspecified	4359
CVA	436d
Cerebral atherosclerosis	4370
Cerebrovascular diseases, unspecified	4379
Renal artery atherosclerosis	4401d
Atherosclerosis, unspecified	4409
Abdominal aortic aneurysm	4414d
Aneurysm, unspecified	4429d
Raynaud's syndrome	4430
High gastric bypass	4431
Thromboangiitis obliterans	4431d
Peripheral vascular disease, unspecified	4439d
Hypersensitivity angiitis, unspecified	44620
Stricture of artery	4471
Arteritis, unspecified	4476
Appendectomy	44950
Sigmoidoscopy, diagnostic	45330
Colonoscopy	45379
Venous thrombosis, unspecified	4539

Clinical event	**Linking code**
Esophageal varices without bleeding	4561d
Orthostatic hypotension	4580
Hypotension, unspecified	4589
Hemorrhagic complications of a procedure	4590d
Venous insufficiency, unspecified	45981
Circulatory diseases, unspecified	4599
Acute URI, unspecified	4659
Acute bronchitis	4660d
Anoscopy	46611
Incidental appendectomy	471
Chr maxillary sinusitis	4730
Chronic sinusitis, unclassified	4738
Adenoid vegetations	4742
Viral pneumonia, unspecified	4809
Pneumococcal pneumonia	481d
Bacterial pneumonia, unspecified	4829d
Pneumonia, mycoplasma pneumoniae	4830
Pneumonia in infection disease, unclassified	4848
Influenza with pneumonia	4870
Bronchitis, unspecified	490
Emphysema, unclassified	4928
Bronchiectasis	494
Chronic airway obstruction	496d
Transplantation of kidney	50360
Food/vomit pneumonitis	5070
Emphysema without fistula	5109
Endoscopic retrograde cholangiopancreatography (ERCP)	5111
Cholecystectomy	5122
Laparoscopic cholecystectomy	5123
Spontaneous pneumothorax, unclassified	5128
Complex cystometrogram	51726

Clinical event	**Linking code**
Anal/urinary muscle study	51784
Endoscopic insertion of stent into bile duct	5187
Respiratory failure	51881
Other pulmonary insufficiency	51882
Other lung disease, unclassified	51889
Mediastinitis	5192d
Cystoscopy	52000
TMJ disorders, unspecified	52460
Dilation of the prostatic urethra	52510
Prostatectomy (TURP)	52601
Oral aphthae	5282d
Leukoplakia of the oral mucosa	5286
Indirect inguinal hernia repair with graft or prothesis	5304
Abscess of appendix	5401
Acute appendicitis, unspecified	5409
Laparotomy, unclassified	5419
Peritoneal dialysis	5498
Hernia, unspecified	5539d
Regional enteritis, unspecified	5559
Idiopathic proctocolitis	556
GI system symptoms, unclassified	5589d
Gallstone ileus	56031
Impaction intestine, unclassified	56039
Intestinal obstruct, unspecified	5609
Laparoscopic cholecystectomy	56340
Suppurative peritonitis, unclassified	5672d
Rectal and anal disease, unclassified	56949
Perforation of intestine	56983
Cirrhosis of liver, unspecified	5715
Chronic liver disease, unspecified	5719d

Clinical event	**Linking code**
Liver disorder, unspecified	5739d
Cholelithiasis, unspecified	57420
Choledocholithiasis, unspecified	57450
Biopsy of cervix	57500
Cholecystitis, unclassified	5751d
Conization of cervix	57520
Cholesterolosis of the gallbladder	5756
Disease of gallbladder, unclassified	5758
Cholangitis	5761
Obstruction of the bile duct	5762
Acute pancreatitis	5770
Gastrointestinal hemorrhage, unspecified	5789d
Insert indwelling cath	5794
Bladder operation, unclassified	5799
Urethrotomy	580
Biopsy of uterus lining	58100
Partial hysterectomy	58180
Vaginal hysterectomy	58260
Nephritis, unspecified	5839d
Urethral repair, unclassified	5849
Chronic renal failure	585d
Urethral dilation	586
Renal failure, unspecified	586d
Impaired renal function, unclassified	5888
Amniocentesis	59000c
Chorion biopsy	59015
Pyelonephritis, unspecified	59080
Hydronephrosis	591
Vesicoureteral reflux	5937
Renal and ureteral disease, unclassified	59389
Renal and ureteral disease, unspecified	5939

Clinical event	**Linking code**
Bladder calculus, unclassified	5941
Irradiation cystitis	59582
Cystitis, unspecified	5959
VBAC delivery	59610
Other functional disorders of the bladder	59659
Urethral stricture, unspecified	5989
Urinary tract infection	5990
Hematuria	5997
Urinary tract disease, unspecified	5999d
Hyperplasia of prostate	600d
Closed prostatic biopsy	6011
Prostatic disorder, unspecified	6029
Inflammatory disorders of penis	6072d
Priapism	6073d
Symptoms of breast, unclassified	61179
Cervicitis	6160
Endometriosis, unspecified	6179
Uterine prolapse	6181
Genital prolapse, unclassified	6188
Polyp of corpus uteri	6210
Endometrial hyperplasia	6213
Dysplasia of cervix	6221
Incompetence of cervix	6225
Spinal fluid tap, diagnostic	62270
Percutaneous diskectomy	62287
Unilateral orchiectomy	623
Noninflammatory disease of the vagina, unclassified	6238
Dysmenorrhea	6253
Absence of menstruation	6260
Pre-menopause menorrhagia	6270

Clinical event	**Linking code**
Atrophic vaginitis	6273
Legal abortion with unspecified complication	63572
Hemorrhage in early pregnancy, unspecified	64080
Placenta previa, unspecified	64100
Essential hypertension complicating pregnancy, unspecified	64200
Mild/unspecified preeclampsia, unspecified	64240
Eclampsia, antepartum	64263
Preeclampsia or eclampsia superimposed on pre-existing hypertension	64270
Unspecified hypertension complicating pregnancy	64290
Early onset of delivery, unspecified	64420
Renal disease, unspecified, antepartum	64623
Habitual aborter, unspecified	64630
Gonorrhea, complicating pregnancy, childbirth, or puerperium	64711
Rubella complicating pregnancy, childbirth, or puerperium	64752
Diabetes in pregnancy, unspecified	64800
Mental disorders in pregnancy, unspecified	64840
Mental disorders, postpartum	64844
Abnormal glucose tolerance in pregnancy, unspecified	64880
Other current conditions of pregnancy, unspecified	64890
Oophorotomy	650
Multiple gestation, twin, unspecified	65100
Multiple gestation, unspecified	65190
Fetal presentation, breech, unspecified	65220
Fetal presentation, transverse or oblique, unspecified	65230
Fetal presentation, face or brow, unspecified	65240
Fetal presentation, malposition, unclassified or unspecified	65280
Contracted pelvis, unspecified	65313
Congenital abnormality of the uterus in pregnancy, unspecified	65400
Previous cesarean delivery, unspecified	65420
Cervical incompetence, pregnancy, unspecified	65450

Clinical event	**Linking code**
Familial hereditary disease possible affecting fetus	65520
Fetal abnormality, unspecified	65590
Rh isoimmunization, unspecified	65610
Intrauterine death, unspecified	65640
Oligohydramnios, unspecified	65800
Premature rupture of membranes, unspecified	65810
Grand multiparity, unspecified	65940
Prolonged labor, unspecified	66210
Obstetrical perineal laceration, unspecified	66440
Postpartum hemorrhage, unclassified, unspecified	66610
Forceps delivery, unspecified	66950
Amniotic embolism, unspecified	67310
Cellulitis	6828
Hysterectomy, unclassified and unspecified	689
Mastoidectomy	69501
Decubitus ulcer	7070
Chronic ulcer of leg	7071d
Vaginal repair, unclassified	7079
Chest x-ray	71010
X-ray exam of chest	71015
Sicca syndrome	7102
Pyogen arthritis, unspecified	71100
Crystal arthropathies, unspecified	71290
Rheumatoid arthritis	7140
Felty's syndrome	7141
Juvenile rheumatoid arthritis, unspecified	71430
Osteoarthrosis, unspecified	71590
Joint effusion, unspecified	71900
Joint pain, unspecified	71940
Joint symptom, unclassified and unspecified	71960
Joint disease, unclassified and unspecified	71980

Clinical event	**Linking code**
X-ray exam of spine	72010
Ankylosing vertebral hyperostosis	7216
Spondylosis unspecified without myelopathy	72190
Spinal stenosis, unspecified	72400
Lumbosacral neuritis, unspecified	7244
Polymyalgia rheumatica	725
Adhesive capsulitis of shoulder	7260
Exostosis	72691
Synovitis, unspecified	72700
Bursitis, unclassified	7273
Popliteal synovial cyst	72751
Vacuum extraction delivery, unclassified	7279
Muscle disorders, unclassified	7283
Myalgia and myositis, unspecified	7291
Osteomyelitis unspecified, unspecified	73020
Osteitis deformans, unspecified	7310
Juvenile osteochondrosis of pelvis	7321d
Osteochondropathy, unspecified	7329
Bone cyst, unclassified	73329
Aseptic necrosis bone, unspecified	73340
Chondromalacia	73392
Bone and cartilage disease, unclassified	73399
Induction of labor	734
Episiotomy	736
Acquired deformity, unclassified	7388
Cesarean section	740
X-ray exam of abdomen	74000
Spina bifida	74190
X-ray exam upper GI tract	74240
Contrast x-ray exam of colon	74270

Clinical event	**Linking code**
Contrast x-ray of urinary tract	74400c
Contrast x-ray of bladder	74430
Coarctation of aorta	74710
Agenesis of lung	7485
Cleft palate, unspecified	74900
Mammography, unclassified	75092
Biliary and liver anomalies, unspecified	75160
Uterine anomaly, unclassified	7523
Male hypospadias and epispadias	7526
Cystic kidney diseases, unspecified	75310
Polycystic kidney, unspecified	75312
Fetal blood sample/biopsy	7533
Fetal monitoring, unspecified	7534
Urinary anomaly, unspecified	7539
Down's syndrome	7580
Anomalies of spleen	7590
Maternal infections affecting fetus or newborn	7602
Maternal alcohol affecting fetus or newborn	76071
Mammogram	76092
Maternal conditions, unspecified, affecting fetus or newborn	7609d
X-ray consultation	76140
Chorioamnionitis affecting fetus or newborn	7627
Radiographic procedure	76499c
Fetal diseases, unspecified	7684
Respiratory distress syndrome	769
Ultrasound exam followup	76970
Newborn respiratory condition, unspecified	7709d
Wedge osteotomy, unclassified	7729
Radiation treatment delivery	77401
Hyperthermia treatment	77600
Convulsions in newborn	7790d

Clinical event	**Linking code**
Perinatal condition, unspecified	7799d
Other alter consciousness	78009
Convulsions	7803d
Sleep disturbance, unspecified	78050
Insomnia, unclassified	78052
Malaise and fatigue	7807d
General symptoms, unclassified	7809d
Lack of coordination	7813d
Nerve/musculoskeletal symptoms, unclassified	7819d
Skin sensation disturbance	7820d
Nonspecific skin erupt, unclassified	7821
Liver function study	78220
Edema	7823d
Abnormal loss of weight	7832d
Fem stress incontinence	78330
Feeding problem	7833d
Polyphagia	7836
Headache	7840d
Gated heart, multiple	78473
Heart wall motion (add-on)	78478
Tachycardia, unspecified	7850d
Gangrene	7854d
Shock, unspecified	78550
Cardiogenic shock	78551
Enlargement lymph nodes	7856d
Brain imaging (PET)	78608
Respiratory abnormal, unclassified	78609
Chest pain, unspecified	78650
Nausea and vomiting	7870d
Kidney function study	78725

Clinical event	**Linking code**
Dysphagia	7872d
Retention urine, unspecified	78820
Other urinary incontinence	7883
Urinary incontinence	78830
Urge incontinence	78831
Mixed incontinence	78833
Nocturnal enuresis	78836
Abdominal pain	7890d
Abnormal blood chemistry, unclassified	7906d
Bacteremia	7907d
Septicemia	7907d
Abnormal findings of body substances, unclassified	7929d
Abnormal findings of body structures, unclassified	7939d
Abnormal Pap smear, cervix	7950d
Elevated blood pressure without hypertension	7962d
Abnormal clinical finding, unclassified	7964d
Abnormal findings, unclassified	7969d
Sudden infant death syndrome	7980d
Asphyxia	7990d
Respiratory arrest	7991d
Ill-defined condition, unclassified	7998d
Hepatic function panel	80058
Thyroid panel	80091c
Assay for digoxin	80162c
Assay for lithium	80178
Assay for phenytoin	80185c
Assay for theophylline	80198
Arthroscopy, unspecified	8020
Calcitonin stimulation panel	80410c
Dexamethasone panel	80420c
Closed vertebral fracture, unspecified	8058

Clinical event	**Linking code**
Other destruction of intervertebral disc	8059
Synovectomy site, unspecified	8070
Spinal fusion, unspecified	8100
Closed fracture of the clavicle, unspecified	81000
Urinalysis dipstick	81002c
Urinalysis	81005
Arthrodesis, unspecified	8120
Arthroplasty carpal without implant	8175
Arthrocentesis	8191
Assay serum albumin	82040
Urine, microalbumin, quantitative	82043
Urine, microalbumin, semiquantitative	82044
Assay ethanol	82055
Fracture, unclassified, of femur, unspecified	8208
Alpha-1-antitrypsin, phenotype	82104
Alpha-fetoprotein, serum	82105
Beta-2 microglobulin	82232
Test feces for blood	82270
Assay calcium	82310c
Carcinoembryonic antigen	82378
Assay serum cholesterol	82465
Assay creatinine	82565
Creatinine clearance test	82575
Electrophoretic test	82664
Erythropoietin	82668
Assay ferritin	82728
Blood gases	82803
Glucagon tolerance test	82946
Assay glucose, quantitative	82947
Glucose blood test	82950

Clinical event	**Linking code**
Glucose tolerance test (GTT)	82951
Assay hemoglobin	83020
Glycated hemoglobin test	83036
Immunoassay, RIA	83520
Assay iron	83540
Iron binding test	83550
Assay for lead	83655
Assay blood lipoprotein (HDL only)	83715
Blood lipoprotein assay	83718
Assay magnesium	83735
Assay serum potassium	84132
Prostate specific antigen (PSA)	84153
Assay protein	84155
Assay serum sodium	84295
Aspartate amino transferase (AST) (SGOT)	84450
Alanine amino transferase(ALT) (SGPT)	84460
Assay triglycerides	84478
Assay urea nitrogen	84520
Differential WBC count	85007
Hematocrit	85013
Hemoglobin	85018
Manual hemogram, complete CBC	85031
Red blood cell (RBC) count	85041
Reticulocyte count	85044
White blood cell (WBC) count	85048
Blood smear interpretation	85060
Bone marrow biopsy	85102c
Closed breast biopsy	8511
Local excision breast lesion	8521
Brain injury, unclassified	85400
Platelet count, automated	85595

Clinical event	**Linking code**
Prothrombin time	85610
Sedimentation rate, erythrocyte, non-automated	85651
Sedimentation rate, erythrocyte, automated	85652
Hematology procedure	85999
Antinuclear antibodies	86038
Hepatitis B core antibody (HBcAb); IgG and IgM test	86289
HIV antigen test	86311
Rheumatoid factor test	86430
TB tine test	86585
Blood serology, qualitative	86592
Bladder/urethra injury, closed	8670d
Treponema pallidum confirmed	86781
Varicella-zoster	86787
Coombs test	86880
Blood typing, ABO	86900
CAT. scan of head	8703
Blood culture for bacteria	87040
Culture specimen, bacteria	87070
Urine culture, colony count	87086
Smear, stain and interpretation	87205
Barium swallow	8761
Intravenous pyelogram	8773
Cytopathology, Pap smear	88150
Chromosome analysis: placenta	88267
Other skeletal x-ray	8833
Other CAT. scan	8838
X-ray, unclassified and unspecified	8839
Contrast arteriogram, unspecified	8840
Contrast cerebral arteriogram	8841
Angiocardiography, unspecified	8857

Clinical event	**Linking code**
Diagnostic ultrasound, head, unclassified	8871
Diagnostic ultrasound, heart	8872
Diagnostic ultrasound, digestive	8874
Diagnostic ultrasound, urinary	8875
Diagnostic ultrasound, abdomen	8876
Diagnostic ultrasound, gravid uterus	8878
Diagnostic ultrasound, unclassified	8879
Thermography, unclassified	8889
Diagnostic imaging, unspecified	8890
MRI brain and brainstem	8891
MRI chest and heart	8892
MRI spinal canal	8893
MRI pelvis	8895
Magnetic resonance imaging, unspecified	8897
Consultation, unspecified	8909
Neurologic examination	8913
Neurologic function test, unclassified	8915
Cystometrogram	8922
Uroflowmetry	8924
Urethral pressure profile	8925
Gynecologic examination	8926
Dental examination	8931
Digital rectal exam	8934
Manual exam of the breast	8936
Bicycle ergometer test	8943
Cardiac stress test, unclassified	8944
Electrocardiograph monitoring	8954
Pulmonary arterial wedge pressure monitoring	8964
General physical exam	897
Oral poliovirus immunization	90712
Poliomyelitis immunization	90713

Clinical event	**Linking code**
Influenza immunization	90724
BCG immunization	90728
Hepatitis A vaccine	90730
Influenza B immunization	90737
Hepatitis B vaccine, 11-19 years	90745
Immunization, unspecified	90749
IV infusion therapy, 1 hour	90780
Injection, sub-cutaneous (SC) and intramuscular (IM)	90782
Injection, intra-arterial (IA)	90783
Psychotherapy	90841
Electroconvulsive therapy	90870
Environmental manipulation	90882
Biofeedback training, any method	90901
Dialysis procedure	90999
Culture, unspecified	9192
Refraction	92015
Cardiovascular and hematopoietic scan and radioisotope function study	9205
Tonography and eye evaluation	92120
Bone scan	9214
Pulmonary scan	9215
Contact lens fitting	92310c
Speech and hearing evaluation	92506
Tympanometry	92567
Acoustic reflex testing	92568
Insert intracoronary stent	92980
Electrocardiogram	93000
Transmission of ECG	93012
Cardiac drug stress test	93024
Range of motion testing	9305
Body measurement	9307

Clinical event	**Linking code**
Electromyography	9308
Active musculoskeletal exercise, unclassified	9312
Other joint mobilization	9316
PT exercise, unclassified	9319
Manual and mechanical traction	9321
Ambulation and gait training	9322
Orthotic device fitting	9323
Muscle or tendon stretching	9327
Prenatal training	9337
Physical therapy, unclassified	9339
Biopsy of heart lining	93505
Pressure dressing application	9356
Immobilization, pressure, and attention to wound, unclassified	9359
Electrophysiology evaluation	93619
Ambulatory blood pressure monitoring	93784
Cardiac rehabilitation	93797
Recreational therapy	9381
Occupational therapy	9383
Vocational rehabilitation	9385
Rehabilitation, unclassified	9389
IPPB	9391
Lower extremity study	93925
Nebulizer therapy	9394
Oxygen enrichment, unclassified	9396
Psychologic mental status determination, unspecified	9409
Psychiatric commitment evaluation	9413
Psychiatric interview/evaluation, unclassified	9419
Lung function test (maximum breathing capacity/maximal voluntary ventilation)	94200c
Hypnotherapy	9432
Behavior therapy	9433

Clinical event	**Linking code**
Family therapy	9442
Alcohol rehabilitation/detoxification	9463
Airway inhalation treatment	94640
Drug rehabilitation/detoxification	9466
Pulmonary service/procedure	94799
Allergy skin tests	95004
Electroretinogram	9521
Visual evoked potential	9523
Ophthalmologic counseling and instruction	9536
Audiometry	9541
Electroencephalogram	95812
Range of motion measurements	95851
Respiratory tract intubation, unclassified	9605
Psychological testing	96100
Developmental testing, extended	96111
Neuropsychiatric test battery	96117
Chemotherapy, sub-cutaneous or intramuscular	96400
Wound irrigation, unclassified	9659
Enteral infusion of concentrated nutritional substances	966
Whirlpool therapy	97022
Electrical stimulation	97032
Hydrotherapy	97036
Massage therapy	97124
Group therapeutic procedures	97150
Joint mobilization	97265
Self care management training	97535
Toxic effect strychnine	9891
Chiropractic manipulation	98940
Effects radiation unspecified	990
Device handling	99002

Clinical event	**Linking code**
Packed cell transfusion	9904
Patient education materials	99071
Group health education	99078
Transfusion, unclassified	9909
Inject Rh immune globulin	9911
Special anesthesia procedure	99135
Hyperbaric oxygen therapy	99183
Office/outpatient visit, new	99201
Office/outpatient visit, est	99211
Observation care	99218
Hospital discharge day	99238
Emergency department visit	99281
Heat effect, unspecified	9929d
Home health care	99351
Physician standby services	99360
Preventive visit, established patient, 40-64 years	99396
Unlisted evaluation and management service	99499
Allergy	9953d
Shock due to anesthesia	9954d
Adult maltreatment syndrome	99581
Atrial cardioversion	9961
Surgical complication, CNS	9970
Surgical complication, respiratory system	9973d
Hypothermia	9981
Hemorrhage complicating a procedure	9981d
Accidental operative laceration	9982d
Postsurgical infection	9985d
Other acupuncture	9992
Rh incompatibility reaction	9997d
Tetracyclines	A00d
Pain, generalized	A01

Clinical event	**Linking code**
Fever	A03
Cephalosporins and related substances	A04d
Sulfonamides and trimethoprim	A05d
Macrolides and lincosamides	A06d
Coma	A07
Diabetic coma	A07
Zidovudine	A32d
Diptheria-tetanus-pertussis (DTP) immunization	A51d
Measles-mumps-rubella (MMR) immunization	A53d
Measles	A54d
Rubella	A55d
Poliomyelitis	A56d
Influenza	A57d
Pneumococcus-Meningococcus	A58d
Hepatitis A	A64d
Hepatitis B	A65d
Hydroxychloroquine	A71d
Infectious mononucleosis	A75
Complication of surgical/medical treatment	A87
Premature birth	A93
Preterm infant	A93
Perinatal mortality	A95
Death (excluding perinatal)	A96
Adult attention deficit disorder	aadd
Abdominal exam	abexam
Ablation	ablat
Absorbent products	abs
Acetaminophen	aceta
Activity resumption counseling	activres
Addiction	addic

Clinical event	**Linking code**
Addiction therapy	addtherp
Activities of daily living	ADL
Alpha blocker	alpha
Ambulation	ambula
Anesthesia	anesth
APGAR score	apgar
Aspirin prophylaxis	aspirin
Assessment, unspecified	assess
Assistive devices	assist
Education about asthma and lung diseases	asthed
Asthma, exercise induced	asthexer
AUA symptom classification index	AUAsymp
Heparin	B01d
Anticoagulant/antithrombotic agents	B0d
Iron preparations	B30d
Folic acid, plain	B32d
Anti-anemic preparations, unclassified	B39d
Splenomegaly	B87
Pre and perinatal education	babyed
Education about back injury and care	backed
Back pain	backpain
Bed or complete rest	bedrest
Beta-adrenergic agents	betaadre
Beta agonist	betaagon
Biopsy, unspecified	biopsy
Drug level, blood	blddrug
Blood test, unspecified	Bltest
Bony fusion	bonyfus
Blood pressure measurement	bp
Brace / splints	brace
Breast feeding	brfeed

Clinical event	**Linking code**
Methotrexate	C01d
Cytokines	C20d
Immunosuppressive agents, unclassified	C39d
Use of cyclosporine	C3d
Cyclophosphamide	C99d
Education about cancer and cancer care	canced
Pain due to cancer	cancerpn
Education about cardiovascular diseases	carded
Cardiac exam	cardexam
Caregiver education	careged
Caregiver support	caresupp
Case management	casemgt
Complete blood count (CBC)	CBC
CD4 count	CD4
Chronic illness, unspecified	chronic
Cognitive impairment	cogimp
Cold therapy	coldther
Colposcopy of cervix	colpos
Communication	comm
Complication of diseases	compli
Compression	compress
Contractures	contrac
CPK	cpk
Constipation	D12
Prostaglandins	D12d
Incontinence of bowel	D17
Swallowing problems	D21
Antispasmodic, anticholinergic, and propulsive agents	D29d
Laxatives, unclassified	D59d
Mumps	D71

Clinical event	**Linking code**
Malignant neoplasm of the stomach	D74
Malignant neoplasm of the pancreas	D76
Diverticular disease	D92
Hepatomegaly	D96
Complication of treatment, death	death
Complication of disease, death	deathdis
Education about depression	depred
Education about diabetes and diabetes self care	diabed
Digoxin	digoxin
Discharge planning	discplan
Documentation	docu
Dressing, self care	dress
Drug monitoring	drugmon
Fracture	E887
Fall, unclassified and unspecified	E888
Adverse effects, fibrinolysis agents	E9344
Adverse effects, general anesthetics, unclassified and unspecified	E9384
Adverse effects, medicinal, unspecified	E9479
Adverse effects, BCG vaccine	E9480
Adverse effects, mixed bacterial vaccines	E9489
Adverse effects, polio vaccine	E9495
Adverse effects, mixed viral and bacterial vaccines	E9497
Injury, unspecified	E9589
Eating	eating
Ejection fraction	ejecfrac
Elderly gravida	eldgrav
Elimination	elimin
Embarrassment	embaras
Exercise counseling and training	exered
Exercise restriction	exerrest

Clinical event	**Linking code**
Exercise tolerance assessment	exertol
Epinephrine subcutaneously	F10d
Antiglaucoma preparations and miotics	F1d
False sense of security	falsecur
Family history	famhis
Fasting lipids	fastlip
Fistula of gallbladder	fist
Food preparation	foodprep
Foot care	footcare
Foot exam	footexam
Fundoscopic eye examination	fundo
Glasgow coma scale	glascow
Grooming and hygiene, self care	groom
Corticosteroids	H01d
Health status	healtsta
Heart examination	heartex
Height measurement	height
Hip pain	hippain
History and physical	hisphy
Home glucose monitoring	Hmglucos
Hospice	hospice
Housekeeping	housekep
Education about hypertension	htned
History of smoking	hxsmoke
Hydration therapy	hydtherp
Medical exam, health evaluation, complete	IC30
Sensitivity test	IC32
Evaluation of patient functional status	IC39
Other diagnostic procedures	IC43
Incision/drainage/aspiration	IC51
Excision/biopsy/removal/cautery	IC52

Clinical event	**Linking code**
Catheterization, intubation, dilation, instrumentation	IC53
Intensive care unit	ICU
Impaired brain growth	imbragr
Inhaled beta-agonist	inhabeta
Intravenous infusion	IV
Jaundice	jaun
Antiarrhythmics	K01d
Calcium channel blockers	K14d
ACE inhibitors	K15d
Antihypertensives, unclassified	K19d
Thiazides and combinations	K20d
Potassium-sparing diuretics	K22d
Diuretics, unclassified	K29d
Desmopressin	K49d
Beta blocking agents	K59d
Angina pectoris	K74
Acute myocardial infarction	K75
Pulmonary heart disease	K82
Pulmonary embolism	K93
Cardiovascular system	Kd
Anti-inflammatory and antirheumatic products, NSAID	L01d
Chest symptoms/complaints	L04
Muscle relaxants, unclassified	L29d
Infections	L70
Rheumatoid arthrit and allied conditions	L88
Osteoporosis	L95
Labor and delivery	labdel
Hypoxemia	lacko2
Light therapy	lightth
Lithotripsy	litho

Clinical event	**Linking code**
Reduction in lipid levels	lowlipd
Lung examination	lungexam
Mammography continuing education	mammCME
Marital counseling	maritalc
Medical audit	medaudit
Education about medication use	meded
Medication history	medhis
Medications	meds
Mobility	mobility
Monitoring, unclassified	monitor
Local anesthetics (excluding dermatologicals)	N01d
Narcotics (opioids)	N10d
Salicylic acid and derivatives	N11d
Vertigo/dizziness (excluding H82)	N17
Analgesics and antipyretics, unclassified	N19d
Anti-epileptics	N2d
Anticholinergic agents	N30d
Antiparkinson drugs, unclassified	N39d
Tetanus	N72
Other head injury without skull fracture	N80
Multiple sclerosis	N86
Parkinsonism	N87
Carpal tunnel syndrome	N93
Other disease of the neurologic system	N99
Newborn infection	nbinfec
Pentobarbital	Nd
Unclassified exam	neckexam
Neurological functioning	neuro
Neurologic exam of lower extremities	neuroleg
Nitrates	nitrates
None	none

Clinical event	**Linking code**
Nutrition, unspecified	nutri
Oral exam	oralexam
Other disease specific education	othed
Feeling anxious/nervous/tense	P01
Lithium	P02d
Feeling/behaving irritable	P04
Antipsychotics	P0d
Benzodiazepines	P10d
Tobacco abuse	P17
Drug abuse	P19
Anxiolytics, unclassified	P19d
Alprazolam	P1d
Barbiturates	P20d
Other concern behavior childhood	P22
Propofol	P29d
Hypnotics and sedatives	P2d
Antidepressants, unclassified	P39d
Suicide attempt	P77
Other mental/psychologic disorders	P99
Psychopharmaceuticals, unclassified	P99d
Pacemaker	pacem
Pain assessment	painass
Pain management	painmgt
Pathology report	pathrpt
Peak expiratory flow rate	peakflow
Pelvic pain	pelpain
Photocoagulation	photocoa
Physical restraints	physrest
Positioning	posit
Post stroke patients	poststr

Clinical event	**Linking code**
Post voiding residual urine	postvoid
Patient preferences	prefer
Normal pregnancy	preg
Primigravida	primigra
Pulse	pulse
Pulse oximetry	pulsox
Reduced quality of life	qual
Shortness of breath (dyspnea)	R02
Antiseptics	R10d
Antibiotics	R11d
Anesthetics, local	R12d
Inhaled bronchodilators (anticholinergic)	R21d
Inhaled steroids	R22d
Inhaled anti-allergics	R23d
Theophylline and derivatives	R25d
Terbutaline	R29d
Terbutaline	R29d
Antihistamines for systemic use, unclassified	R49d
Tuberculosis respiratory	R70
Whooping cough	R71
Pneumonia	R81
Malignant neoplasm of the bronchus/lung	R84
Asthma	R96
Aminophylline, intravenous	R9d
Range of motion exercises	ROMExc
Anesthetics for topical use	S31d
Antibiotics, topical preparations	S50d
Antiviral preparations	S53d
Satisfaction survey	satis
Screening	screen
Sedation	sedat

Clinical event	**Linking code**
Self care management	selfcare
Self-help	selfhelp
Loss of sensation	sensloss
Testing for sexually transmitted diseases	sextest
Skin integrity	skin
Smoking cessation	smokcess
Smoker	smoker
Social functioning	social
Spinal anesthesia	spinanes
Sexually transmitted diseases	std
Stress management	stress
Post-surgical pain	surgpain
Insulins	T00d
Sulfonylureas	T01d
Weight gain	T07
Weight loss	T08
Dehydration	T11
Vitamins	T1d
Calcium	T20d
Potassium	T21d
Magnesium	T22d
Mineral supplements and tonics, unclassified	T29d
Colchicine	T3d
Serum lipid-reducing agents, unclassified	T69d
Thyroid preparations	T80d
Diabetes mellitus	T90
Adolescent pregnancy	teenpg
Temperature	temp
Toileting	toilet
Transferring	transfer

Clinical event	**Linking code**
Pain due to trauma	traupain
Treatment plan	treaplan
Malignant neoplasm of kidney	U75
Malignant neoplasm of bladder	U76
Flavoxate	U9d
GI ulcers	ulcers
Peptic ulcer, unspecified	ulcers
Prophylactic chemotherapy, unclassified	V073
Allergens, unclassified	V09d
History of a rectal and anal malignancy	V1006
History of an ovarian malignancy	V1043
History of alcoholism	V113
History of a mental disorder, unclassified	V118
History of an infection/parasitic disease	V120
History of a circulatory system disease	V125
History of a disease, unclassified	V138
History of a disease, unspecified	V139
History of a drug allergy, unspecified	V149
History of an injury	V155
History of past noncompliance	V1581
Family History of a GI malignancy	V160
Family History of a psychiatric condition	V170
Family History of a stroke	V171
Family History of a cardiovascular disease, unclassified	V174
Family History of a musculoskeletal disease, unclassified	V178
Routine child health exam	V202
Pregnancy confirmed	V222
Pregnancy with history of infertility	V230
Pregnancy with poor obstetric history	V234
Insufficient prenatal care	V237
Postpartum care	V240

Clinical event	**Linking code**
Contraceptive management, unclassified	V258
Genetic counseling	V263
Delivery of single liveborn	V270
Screening for alpha-fetoprotein	V281
Antenatal screening, unclassified	V288
Newborn observation for suspected neurological problems	V291
Problems with learning	V400
Behavioral problems, unclassified	V403
Transplant status, unspecified	V429
Heart valve replacement, unclassified	V433
Joint replacement, unclassified	V436
Cardiorespiratory problem, unclassified	V472
Urinary problems, unclassified	V474
Disfigurements of head	V486
Motor problems with limbs	V492
Elective surgery, unspecified	V509
Speech therapy	V573
Rehabilitation procedures, unspecified	V579
Economic problem	V602
Family disruption	V610
Multiparity	V615
Family circumstance, unspecified	V619
Occupational circumstances, unclassified	V622
Educational circumstance	V623
Interpersonal problem, unclassified	V6281
Psychological stress, unclassified	V6289
Psychosocial circumstances, unspecified	V629
Dietary surveillance and counseling	V653
Counseling, unclassified	V654
Surgery followup	V670

Clinical event	**Linking code**
Followup exam, unspecified	V679
Administrative encounter, unspecified	V689
General medical exam, unspecified	V709
Eye and vision examination	V720
Screening for rubella	V733
Screening for malignant neoplasm of the respiratory organs	V760
Screening for malignant neoplasm of the bladder	V763
Screening for malignant neoplasm, site unclassified	V7649
Screening for diabetes mellitus	V771
Screening for cystic fibrosis	V776
Screening for hemoglobinopathies, unclassified	V783
Screening for depression	V790
Screening for alcoholism	V791
Screening for mental disease, unspecified	V799
Screening for cardiovascular, unclassified	V812
Screening for unspecified conditions	V829
Mechanical ventilation	vent
Visual correction	viscorre
Ergot alkaloids	W30d
Oxytocics	W3d
Puerperal infection/sepsis	W70
Neonate	W90
Weight measurement	weight
Estrogens, plain	X00d
Androgens and female sex hormones in combination	X02d
Postmenopausal bleeding	X12
Pelvic inflammatory disease	X74
Family planning/other	Y14
Benign prostatic hypertrophy	Y85
Poverty/financial problem	Z01
Problem housing/neighborhood	Z03

Clinical event	**Linking code**
Problem with education	Z07
Loss/death parent/family	Z23
Limited function/disability	Z28

Appendix C - List of Measures

Measure code	Measure name
ACMA1A01	Repeat hematocrit
ACMA1A03	Smear/indices for a low hematocrit
ACMA1B01	Verification of anemia
ACMA1C01	Stool occult blood tests for patients with low hematocrit
ACMA1D01	GI workup for patients with low hematocrit
ACMA1E01	GI workup for older patients with low hematocrit
ACMA2A01	Pap smear
ACMA2A02	Breast examination
ACMA2A03	Pelvic examination
ACMA2B01	Abnormal Pap smear acknowledged
ACMA3A01	Digoxin dose/frequency
ACMA3A02	Oral potassium dose/frequency
ACMA3A03	Diuretic dose/frequency
ACMA3B01	Dyspnea documented for patients on digoxin
ACMA3B02	Edema documented for patients on digoxin
ACMA3B03	Weight documented for patients on digoxin
ACMA3B04	Pulse rate/rhythms documented for patients on digoxin
ACMA3B05	Lung examination documented for patients on digoxin
ACMA3B06	Heart examination documented for patients on digoxin
ACMA3C01	Oral potassium prescribed for patients on digoxin
ACMA3D01	Serum creatinine for patients on digoxin
ACMA3E01	Serum potassium for patients on digoxin
ACMA4A01	Documentation of high serum glucose
ACMA4B01	Change treatment for high serum glucose
ACMA4B02	Started treatment for high serum glucose
ACMA4C01	Followup of treatment change in diabetics
ACMA4C02	Followup of insulin start in a new diabetic
ACMA4C03	Followup of non-insulin treatment start in new diabetic
ACMA4D01	Workup of new abnormal high serum glucose
ACMP1A01	Height

Measure code	Measure name
ACMP1A02	Weight
ACMP1B01	Hematocrit
ACMP1B02	Lead
ACMP1C01	Immunizations
ACMP1D01	Tine test
ACMP1E01	Head circumference
ACMP2A01	Results in chart for urinary tract infection
ACMP2B01	Symptomatic urinary tract infection, treated
ACMP2B02	Asymptomatic urinary tract infection, treated
ACMP2C01	Acceptable antibiotic for urinary tract infection
ACMP2D01	Repeat initial culture for urinary tract infection
ACMP2E01	Antibiotic matches sensitivities
ACMP2F01	Post-treatment culture for urinary tract infection
ACMP2F02	IVP/VCUG for urinary tract infection
ACMP3A01	Initial examination of otitis media
ACMP3B01	Followup examination of otitis media
ACMP3C01	Management plan for otitis media
ACMP4A01	Diarrhea with gastroenteritis
ACMP4A02	Vomiting with gastroenteritis
ACMP4A03	Intake with gastroenteritis
ACMP4A04	Urination with gastroenteritis
ACMP4A05	Weight with gastroenteritis
ACMP4A06	Temperature with gastroenteritis
ACMP4A07	Hydration status with gastroenteritis
ACMP4A08	Abdominal examination with gastroenteritis
AMGA1A01	Average self-reported hip pain for patients scheduled to undergo hip replacement
AMGA1A02	Average self-reported effect of hip pain on work or activities for patients scheduled to undergo hip replacement
AMGA1A03	Average self-reported effect of hip pain on activities necessary for independence in ambulation or transfer ability for patients scheduled to undergo hip replacement
AMGA1A04	Average self-reported effect of hip pain on gait for patients

Measure code	Measure name
	scheduled to undergo hip replacement
AMGA1B01	Average physician-reported range of hip motion for patients scheduled to undergo hip replacement
AMGA1B02	Physician-reported frequency of distribution of complications occurring during surgery and up to two weeks after hip replacement surgery for patients in the denominator
AMGA2A01	Average self reported visual impairment for patients presenting for cataract evaluation
AMGA2A02	Average self-reported severity of glare for patients presenting for cataract evaluation
AMGA2B01	Average self-reported excellence of vision for patients presenting for cataract evaluation
AMGA2C01	Average physician-reported visual acuity for patients at time of scheduling of cataract surgery
AMGA2C03	Average physician-reported intraocular pressure for patients presenting to schedule cataract surgery
AMGA3A01	Average self-reported frequency of symptoms for patients with diabetes at baseline
AMGA3A02	Average self-reported frequency of visual impairment interfering with activity for patients with diabetes at baseline
AMGA3A03	Average self-reported frequency of leg/foot symptoms interfering with activity for patients with diabetes at baseline
AMGA3A04	Average self-reported frequency of diabetes care interfering with social activity for patients with diabetes at baseline
AMGA3B01	Average self-reported worry about complications of diabetes for patients with diabetes at baseline
AMGA3C01	Proportion of patients for whom the physician reports decreased lower extremity sensation among patients with diabetes at baseline
AMGA3C02	Proportion of patients for whom the physician reports evidence of foot callus among patients with diabetes at baseline
AMGA3C03	Proportion of patients for whom the physician reports evidence of foot ulcer among patients with diabetes at baseline
AMGA3C04	Proportion of patients for whom the physician reports orthostasis among patients with diabetes at baseline
AMGA3C05	Proportion of patients for whom the physician reports evidence

Measure code	Measure name
	of pedal pulses among patients with diabetes at baseline
AMGA3C06	Proportion of patients for whom the physician reports a dilated fundoscopic examination among patients with diabetes at baseline
AMGA3C07	Proportion of patients for whom the physician reports the presence of diabetic retinopathy among patients with diabetes at baseline
AMGA3C08	Proportion of patients for whom the physician reports insulin reactions requiring the help of another person with prior six months, among patients with diabetes at baseline
AMGA3C09	Proportion of patients for whom the physician reports dipstick-positive proteinuria among patients with diabetes at baseline
AMGA3D01	Average physician-reported resting pulse rate for patients with diabetes at baseline
AMGA3D02	Average physician-reported fasting plasma/serum glucose for patients with diabetes at baseline
AMGA3D03	Average physician-reported random plasma/serum glucose measurement for patients with diabetes at baseline
AMGA3D04	Average physician-reported HgbA1C measurement for patients with diabetes at baseline
AMGA3D05	Average physician-reported serum creatinine for patients with diabetes at baseline
AMGA3D06	Average physician-reported seated systolic blood pressure for patients with diabetes at baseline
AMGA3D07	Average physician-reported seated diastolic blood pressure for patients with diabetes at baseline
AMGA3D08	Average physician-reported total cholesterol for patients with diabetes at baseline
AMGA3D09	Average physician-reported HDL cholesterol for patients with diabetes at baseline
AMGA3D10	Average physician-reported triglycerides for patients with diabetes at baseline
AMGA3E01	Proportion of patients hospitalized during the past six months, as reported by physicians, for patients with diabetes at baseline
AMGA4A01	Average patient-reported frequency of low back pain

Measure code	Measure name
	symptoms for patients with low back pain at followup
AMGA4A02	Average patient-reported severity of low back pain symptoms for patients with low back pain at followup
AMGA4A03	Average patient-reported feelings about current back condition for patients with low back pain at followup
AMGA4A04	Average patient-reported change in worry about current back condition for patients with low back pain at followup
AMGA4B01	Average patient-reported limitation of usual activities due to back pain for patients with low back pain at followup
AMGA4B02	Average patient-reported bed days due to back pain for patients with low back pain at followup
AMGA4B03	Average patient-reported lost work/school days due to back pain for patients with low back pain at followup
AMGA4C01	Average physician-reported limitation of spine range of motion for patients with low back pain at followup
AMGA4C02	Average physician-reported ankle reflexes for patients with low back pain at followup
AMGA4C03	Average physician-reported lower extremity motor weakness for patients with low back pain at followup
AMGA4C04	Average physician-reported lower extremity sensory loss for patients with low back pain at followup
AMGA4D01	Average physician-reported straight leg raising (supine) scores for patients with low back pain at followup
AVHO1A01	Ruptured appendix
AVHO1A02	Asthma
AVHO1A03	Cellulitis
AVHO1A04	Congestive heart failure
AVHO1A05	Diabetes
AVHO1A06	Gangrene
AVHO1A07	Hypokalemia
AVHO1A08	Immunizable conditions
AVHO1A09	Malignant hypertension
AVHO1A10	Pneumonia
AVHO1A11	Pyelonephritis

Measure code	Measure name
AVHO1A12	Perforated or bleeding ulcer
CABG1A01	Hospital deaths after CABG
CBPH1A01	History using AUA form for patients with BPH
CBPH2A01	Rectal exam for prostate size
CBPH2A02	Rectal exam for prostate texture
CBPH2B01	Biopsy if DRE suggests cancer
CBPH3A01	Serum creatinine done for patients with BPH
CBPH3A02	Urinalysis done for patients with BPH
CBPH4A01	Recurrent hematuria workup for patients with BPH
CBPH4A02	Recurrent urinary tract infection workup for patients with BPH
CBPH4A03	Creatinine >1.5 workup for patient with BPH
CBPH4A04	Refractory urinary retention workup for patients with BPH
CBPH4A05	Bladder stones workup for patients with BPH
CBPH4A06	Surgery if complications secondary to BPH
CBPH5A01	Indications for intravenous pyelogram for patients with BPH
CBPH5A02	Indications for kidney ultrasound for patients with BPH
CBPH5A03	Indications for transrectal ultrasound for patients with BPH
CBPH5A04	Indications for post void residual urine test for patients with BPH
CBPH5A05	Indications for cystoscopy for patients with BPH
CBPH6A01	Consumer guide given to patients with BPH
CBPH6A02	Treatment options discussed with patients with BPH
CBPH6B01	Treatment if mild BPH
CBPH6B02	Treatment if moderate-to-severe BPH
CBPH7A01	Followup if watchful waiting for BPH
CBPH7A02	Followup if on alpha blockers for BPH
CPOP1A01	Pre-operative pain history
CPOP1A02	Pre-operative psychosocial history
CPOP2A01	Pre-operative pain plan
CPOP3A01	Intra-operative pain management
CPOP3B01	Mu agonists in first 24 hours after surgery for surgical pain
CPOP3B02	NSAIDs in first 24 hours after surgery for surgical pain
CPOP3B03	NSAIDs after first 24 hours following surgery for surgical pain

Measure code	Measure name
CPOP3C01	Meperidine not routinely given for surgical pain
CPOP3C02	Intramuscular medication for surgical pain
CPOP3D01	Supervision of regional medication for surgical pain
CPOP3E01	Medication dose and route documented for control of surgical pain
CPOP4A01	Behavioral methods to reduce surgical pain
CPOP5A01	Self-assessment tool used to measure surgical pain
CPOP5B01	Surgical pain monitoring
CPOP5B02	Sedation monitoring for post-surgery patients
CPOP5B03	Respiration monitoring for post-surgery patients
CPOP5B04	Catheter site monitoring for post-surgery patients
CPOP6A01	Treatment change for continued post-surgery pain
CPOP6A02	Treatment change for over-sedation of post-surgery patients
CPOP6A03	Treatment change for depressed respiration among treated post-surgery patients
CPOP6A04	Treatment change for other complications among post-surgery patients
CPOP7A01	Outcome: Respiratory arrest among medicated post-surgery patients
CPOP7A02	Outcome: Infection at catheter site among medicated post-surgery patients
CPOP7A03	Outcome: Urinary retention among medicated post-surgery patients
CPOP7A04	Outcome: Pneumonia among medicated post-surgery patients
CPOP7A05	Outcome: Deep vein thrombosis among medicated post-surgery patients
CPOP8A01	Discharge instructions regarding pain medication
CUIN1A01	History for medications for patients with urinary incontinence
CUIN1A02	History for urinary symptoms for patients with urinary incontinence
CUIN1A03	History for neurological problems for patients with urinary incontinence
CUIN1A04	History for gynecologic or urinary problems for patients with urinary incontinence

Measure code	Measure name
CUIN1A05	History for treatment of urinary incontinence
CUIN1A06	Social/environmental history if dependent for patients with urinary incontinence
CUIN2A01	General physical exam for patients with urinary incontinence
CUIN2A02	Abdominal examination for patients with urinary incontinence
CUIN2A03	Rectal examination for patients with urinary incontinence
CUIN2A04	Pelvic examination for patients with urinary incontinence
CUIN2A05	PVR estimation for patients with urinary incontinence
CUIN3A01	Urinalysis for patients with urinary incontinence
CUIN3B01	If transient cause for urinary incontinence, patient managed
CUIN4A01	Indications for cystometry for patients with urinary incontinence
CUIN4A02	Indications for urethral pressure profilometry for patients with urinary incontinence
CUIN4A03	Indications for electromyography for patients with urinary incontinence
CUIN4A04	Indications for cystourethroscopy for patients with urinary incontinence
CUIN4A05	Indications for upper abdominal imaging for patients with urinary incontinence
CUIN4A06	Indications for lower abdominal imaging for patients with urinary incontinence
CUIN4A07	Indications for videourodynamics for patients with urinary incontinence
CUIN5A01	Patient education for patients with urinary incontinence
CUIN5B01	Use of absorbent pads for patients with urinary incontinence
CUIN5C01	Treatment appropriate to urinary incontinence diagnosis
CUIN6A01	Followup for drug therapy for urinary incontinence
DEMC1A01	Primary care office or home visit for patients with diabetes
DEMC1A02	Hemoglobin A1C test for patients with diabetes
DEMC1A03	Urinalysis for patients with diabetes
DEMC1A04	Triglycerides for patients with diabetes
DEMC1A05	Total cholesterol for patients with diabetes
DEMC1A06	HDL cholesterol for patients with diabetes

Measure code	Measure name
DEMC1A07	Ophthalmology visit for patients with diabetes
DEMC1B01	Blood glucose for patients with diabetes
DEMC1C01	Admission for ketoacidosis for patients with diabetes
DEMC1C02	Admission for hyperosmolar coma for patients with diabetes
DEMC1C03	Admission for other coma for patients with diabetes
DEMC1C04	Admission for hypoglycemic coma for patients with diabetes
DEMC1C05	Admission for lower-extremity amputation for patients with diabetes
DEMC2A01	Primary care office or home visit for patients with hypertension
DEMC2B01	Serum creatinine for patients with hypertension
DEMC2B02	Triglycerides for patients with hypertension
DEMC2B03	Total cholesterol for patients with hypertension
DEMC2B04	Serum potassium for patients with hypertension
DEMC2C01	Admission for cerebrovascular accident for patients with hypertension
DEMC2C02	Admission for transient cerebral ischemic attack for patients with hypertension
DEMC2C03	Admission for acute myocardial infarction for patients with hypertension
DEMC2C04	Admission for hyperkalemia for patients with hypertension
DEMC2C05	Admission for hypokalemia for patients with hypertension
DEMC2C06	Admission for congestive heart failure for patients with hypertension
DEMC3A01	Primary care office or home visit for patients with ischemic heart disease
DEMC3B01	Total cholesterol for patients with ischemic heart disease
DEMC3B02	HDL cholesterol for patients with ischemic heart disease
DEMC3B03	Coronary catheterization for patients with ischemic heart disease
DEMC3B04	Electrocardiogram without exercise for patients with ischemic heart disease
DEMC3B05	Exercise stress test for patients with ischemic heart disease
DEMC3B06	Echocardiography for patients with ischemic heart disease
DEMC3B07	Radionuclide study without exercise for patients with ischemic

Measure code	Measure name
	heart disease
DEMC3B08	Radionuclide study with exercise for patients with ischemic heart disease
DEMC3C01	Admission for acute myocardial infarction for patients with ischemic heart disease
DEMC3C02	Admission for ventricular arrhythmia for patients with ischemic heart disease
DEMC3C03	Admission for congestive heart failure for patients with ischemic heart disease
DEMC4A01	Primary care office or home visit for patients with congestive heart failure
DEMC4A02	Serum potassium for patients with congestive heart failure
DEMC4B01	Echocardiography for patients with congestive heart failure
DEMC4B02	Electrocardiography for patients with congestive heart failure
DEMC4B03	Chest x-ray for patients with congestive heart failure
DEMC4B04	Contrast angiography for patients with congestive heart failure
DEMC4B05	Exercise stress test for patients with congestive heart failure
DEMC4C01	Admission for congestive heart failure for patients with congestive heart failure
DEMC4C02	Admission for arrhythmia for patients with congestive heart failure
DEMC4C03	Admission for pulmonary embolism for patients with congestive heart failure
DEMC4C04	Admission for volume depletion for patients with congestive heart failure
DEMC5A01	Primary care office or home visit for patients with chronic obstructive pulmonary disease
DEMC5B01	Spirometry for patients with chronic obstructive pulmonary disease
DEMC5B02	Chest x-ray for patients with chronic obstructive pulmonary disease
DEMC5B03	Home oxygen therapy for patients with chronic obstructive pulmonary disease
DEMC5B04	Blood gases for patients with chronic obstructive pulmonary disease

Measure code	Measure name
DEMC5C01	Admission for pneumonia for patients with chronic obstructive pulmonary disease
DEMC5C02	Admission for acute bronchitis for patients with chronic obstructive pulmonary disease
DEMC5C03	Admission for influenza for patients with chronic obstructive pulmonary disease
DEMC5C04	Admission for congestive heart failure for patients with chronic obstructive pulmonary disease
DEMR1A01	Appropriate evidence for a new diagnosis of hypertension
DEMR1A02	Appropriate evidence for a new diagnosis of ischemic heart disease
DEMR1A03	Appropriate evidence for a new diagnosis of osteoarthritis
DEMR1A04	Appropriate evidence for a new diagnosis of chronic obstructive pulmonary disease
DEMR1A05	Appropriate evidence for a new diagnosis of diabetes
DEMR1A06	Appropriate evidence for a new diagnosis of congestive heart failure
DEMR1A07	Search for treatable causes of a new diagnosis of hypertension
DEMR1A08	Search for treatable causes of a new diagnosis of ischemic heart disease
DEMR1A09	Search for treatable causes of a new diagnosis of osteoarthritis
DEMR1A10	Search for treatable causes of a new diagnosis of chronic obstructive pulmonary disease
DEMR1A11	Search for treatable causes of a new diagnosis of diabetes
DEMR1A12	Search for treatable causes of a new diagnosis of congestive heart failure
DEMR1B01	Monitoring hypertension: document diet every six months
DEMR1B02	Monitoring hypertension: document drug compliance every six months
DEMR1B03	Monitoring hypertension: pulse measurement every six months
DEMR1B04	Monitoring hypertension: blood pressure measurement every six months
DEMR1B05	Monitoring hypertension: yearly weight measurement

Measure code	Measure name
DEMR1B06	Monitoring hypertension: yearly heart exam
DEMR1B07	Monitoring hypertension: yearly lung exam
DEMR1B08	Monitoring hypertension: yearly fundoscopy
DEMR1B09	Monitoring hypertension: yearly U/A dipstick for protein
DEMR1B10	Monitoring ischemic heart disease: document stability of symptoms at least once per year
DEMR1B11	Monitoring ischemic heart disease: assess weight gain at least yearly
DEMR1B12	Monitoring ischemic heart disease: document whether dyspnea at least yearly
DEMR1B13	Monitoring ischemic heart disease: review compliance with diet, drugs, smoking, and alcohol
DEMR1B14	Monitoring ischemic heart disease: yearly weight measurement
DEMR1B15	Monitoring ischemic heart disease: yearly heart exam
DEMR1B16	Monitoring ischemic heart disease: yearly lung exam
DEMR1B17	Monitoring ischemic heart disease: yearly pulse measurement
DEMR1B18	Monitoring ischemic heart disease: yearly blood pressure measurement
DEMR1B19	Monitoring osteoarthritis: document control of symptoms at least yearly
DEMR1B20	Monitoring osteoarthritis: yearly exam of joints most affected
DEMR1B21	Monitoring osteoarthritis: yearly weight measurement
DEMR1B22	Monitoring osteoarthritis: document side effects of medications at least yearly
DEMR1B23	Monitoring chronic obstructive pulmonary disease: document compliance with smoking cessation (if smoker) at least yearly
DEMR1B24	Monitoring chronic obstructive pulmonary disease: pulse measurement at least yearly
DEMR1B25	Monitoring chronic obstructive pulmonary disease: yearly respiratory rate
DEMR1B26	Monitoring chronic obstructive pulmonary disease: yearly lung exam
DEMR1B27	Monitoring chronic obstructive pulmonary disease: yearly

Measure code	Measure name
	chest x-ray
DEMR1B28	Monitoring chronic obstructive pulmonary disease: yearly blood pressure measurement
DEMR1B29	Monitoring chronic obstructive pulmonary disease: document tolerance of exertion at least once per year
DEMR1B30	Monitoring diabetes mellitus: document blood glucose control at least every six months
DEMR1B31	Monitoring diabetes mellitus: weight measurement every six months
DEMR1B32	Monitoring diabetes mellitus: pulse, every six months
DEMR1B33	Monitoring diabetes mellitus: blood pressure measurement at least every six months
DEMR1B34	Monitoring diabetes mellitus: HgbAIC or fructosamine measurement at least every six months
DEMR1B35	Monitoring diabetes mellitus: U/A dipstick for protein at least every six months
DEMR1B36	Monitoring diabetes mellitus: blood glucose measurement at least every six months
DEMR1B37	Monitoring diabetes mellitus: document dietary compliance at least yearly
DEMR1B38	Monitoring diabetes mellitus: yearly heart exam
DEMR1B39	Monitoring diabetes mellitus: yearly leg and foot exam
DEMR1B40	Monitoring diabetes mellitus: yearly fundoscopy
DEMR1B41	Monitoring congestive heart failure: yearly chest pain
DEMR1B42	Monitoring congestive heart failure: document whether dyspnea at least yearly
DEMR1B43	Monitoring congestive heart failure: document tolerance of exertion at least yearly
DEMR1B44	Monitoring congestive heart failure: document drug treatment at least yearly
DEMR1B45	Monitoring congestive heart failure: yearly weight measurement
DEMR1B46	Monitoring congestive heart failure: yearly pulse measurement
DEMR1B47	Monitoring congestive heart failure: yearly blood pressure

Measure code	Measure name
	measurement
DEMR1B48	Monitoring congestive heart failure: yearly heart exam
DEMR1B49	Monitoring congestive heart failure: yearly exam for peripheral edema
DEMR1B50	Monitoring congestive heart failure: yearly lung exam
DEMR2A01	Appropriate indications for blood pressure test
DEMR2A02	Appropriate indications for Hgb/Hct test
DEMR2A03	Appropriate indications for cholesterol test
DEMR2A04	Appropriate indications for potassium test
DEMR2A05	Appropriate indications for blood glucose test
DEMR2A06	Appropriate indications for blood gases test
DEMR2A07	Appropriate indications for creatinine test
DEMR2A08	Appropriate indications for ESR test
DEMR2A09	Appropriate indications for dipstick/UA test
DEMR2A10	Appropriate indications for ECG test
DEMR2A11	Appropriate indications for joint x-ray test
DEMR2A12	Appropriate indications for chest x-ray test
DEMR2A13	Appropriate indications for mammogram
DEMR2B01	Appropriate response to an abnormal blood pressure test
DEMR2B02	Appropriate response to an abnormal hemoglobin/hematocrit test
DEMR2B03	Appropriate response to an abnormal cholesterol test
DEMR2B04	Appropriate response to an abnormal potassium test
DEMR2B05	Appropriate response to an abnormal blood glucose test
DEMR2B06	Appropriate response to an abnormal blood gases analysis
DEMR2B07	Appropriate response to an abnormal creatinine test
DEMR2B08	Appropriate response to an abnormal ESR
DEMR2B09	Appropriate response to an abnormal dipstick/UA test
DEMR2B10	Appropriate response to an abnormal ECG test
DEMR2B11	Appropriate response to an abnormal chest x-ray
DEMR2B12	Appropriate response to an abnormal mammogram
DEMR3A01	Dose and frequency documented for ACE inhibitor
DEMR3A02	Dose and frequency documented for alpha blocker

Measure code	Measure name
DEMR3A03	Dose and frequency documented for beta blocker
DEMR3A04	Dose and frequency documented for calcium channel blocker
DEMR3A05	Dose and frequency documented for loop diuretic
DEMR3A06	Dose and frequency documented for potassium-sparing diuretic
DEMR3A07	Dose and frequency documented for thiazide diuretic
DEMR3A08	Dose and frequency documented for thiazide and potassium-sparing diuretic
DEMR3A09	Dose and frequency documented for nitrate
DEMR3A10	Dose and frequency documented for insulin
DEMR3A11	Dose and frequency documented for oral hypoglycemic agent
DEMR3A12	Dose and frequency documented for corticosteroid
DEMR3A13	Dose and frequency documented for NSAID
DEMR3A14	Dose and frequency documented for salicylate
DEMR3A15	Dose and frequency documented for inhaled beta-adrenergic agonist
DEMR3A16	Dose and frequency documented for inhaled cholinergic inhibitor
DEMR3A17	Dose and frequency documented for oral xanthine-derivative
DEMR3A18	Dose and frequency documented for cephalosporin
DEMR3A19	Dose and frequency documented for erythromycin
DEMR3A20	Dose and frequency documented for tetracycline
DEMR3A21	Dose and frequency documented for aminopenicillins
DEMR3A22	Dose and frequency documented for trimethoprim-sulfamethoxazole
DEMR3B01	Appropriate prescription of ACE inhibitor
DEMR3B02	Appropriate prescription of alpha blocker
DEMR3B03	Appropriate prescription of beta blocker
DEMR3B04	Appropriate prescription of calcium channel blocker
DEMR3B05	Appropriate prescription of loop diuretic
DEMR3B06	Appropriate prescription of potassium-sparing diuretic
DEMR3B07	Appropriate prescription of thiazide diuretic
DEMR3B08	Appropriate prescription of thiazide and potassium-sparing diuretic

Measure code	Measure name
DEMR3B09	Appropriate prescription of nitrate
DEMR3B10	Appropriate prescription of insulin
DEMR3B11	Appropriate prescription of oral hypoglycemic agent
DEMR3B12	Appropriate prescription of corticosteroid
DEMR3B13	Appropriate prescription of NSAID
DEMR3B14	Appropriate prescription of salicylate
DEMR3B15	Appropriate prescription of inhaled beta-adrenergic agonist
DEMR3B16	Appropriate prescription of oral xanthine-derivative
DEMR3B17	Appropriate prescription of cephalosporin
DEMR3B18	Appropriate prescription of erythromycin
DEMR3B19	Appropriate prescription of tetracycline
DEMR3B20	Appropriate prescription of aminopenicillins
DEMR3B21	Appropriate prescription of trimethoprim-sulfamethoxazole
DEMR3C01	Blood pressure every six months for pre-existing prescription of ACE
DEMR3C02	Standing blood pressure annually for pre-existing prescription of ACE
DEMR3C03	Blood pressure within one month of new prescription of ACE
DEMR3C04	BUN or serum creatinine within one month of new prescription of ACE
DEMR3C05	WBC and differential within three months of new prescription of ACE
DEMR3C06	Serum potassium, within three months of new prescription of ACE
DEMR3C07	Blood pressure every six months for pre-existing prescription of alpha blocker
DEMR3C08	Standing blood pressure annually for pre-existing prescription of alpha blocker
DEMR3C09	Blood pressure within one month of new prescription of alpha blocker
DEMR3C10	Lung exam annually for pre-existing prescription of beta blocker
DEMR3C11	Pulse rate annually for pre-existing prescription of beta blocker
DEMR3C12	Blood pressure every six months for pre-existing prescription

Measure code	Measure name
	of beta blocker
DEMR3C13	Standing blood pressure annually for pre-existing prescription of beta blocker
DEMR3C14	Lung exam within one month of new prescription of beta blocker
DEMR3C15	Pulse rate within one month of a new prescription of beta blocker
DEMR3C16	Blood pressure within a month of a new prescription of a beta blocker
DEMR3C17	Blood pressure every six months for a pre-existing prescription of a calcium channel blocker
DEMR3C18	Standing blood pressure annually for a pre-existing prescription of a calcium channel blocker
DEMR3C19	Blood pressure within one month of a new prescription of a calcium channel blocker
DEMR3C20	Pulse within one month of a new prescription of a calcium channel blocker
DEMR3C21	BUN or serum creatinine every six months for pre-existing prescription of a loop diuretic
DEMR3C22	Serum potassium every six months for pre-existing prescription of a loop diuretic
DEMR3C23	Serum sodium every six months for pre-existing prescription of a loop diuretic
DEMR3C24	BUN or serum creatinine within one month of new prescription of loop diuretic
DEMR3C25	Serum sodium within one month of new prescription of a loop diuretic
DEMR3C26	Serum potassium within one month of new prescription of a loop diuretic
DEMR3C27	BUN or serum creatinine every six months for a pre-existing prescription of a potassium-sparing diuretic
DEMR3C28	Serum potassium every six months for pre-existing prescription of a potassium-sparing diuretic
DEMR3C29	Serum sodium every six months for pre-existing prescription of a potassium-sparing diuretic
DEMR3C30	BUN or serum creatinine within one month of new prescription

Measure code	Measure name
	of potassium-sparing diuretic
DEMR3C31	Serum sodium within one month of new prescription of a potassium-sparing diuretic
DEMR3C32	Serum potassium within one month of new prescription of a potassium-sparing diuretic
DEMR3C33	BUN or serum creatinine every six months for a pre-existing prescription of a thiazide diuretic
DEMR3C34	Serum potassium every six months for pre-existing prescription of a thiazide diuretic
DEMR3C35	Serum sodium every six months for pre-existing prescription of a thiazide diuretic
DEMR3C36	BUN or serum creatinine within one month of new prescription of a thiazide diuretic
DEMR3C37	Serum sodium within one month of a new prescription of a thiazide diuretic
DEMR3C38	Serum potassium within one month of a new prescription of a thiazide diuretic
DEMR3C39	Blood pressure every six months for pre-existing prescription of combination thiazide and potassium-sparing diuretic
DEMR3C40	Standing blood pressure annually for pre-existing prescription of combination thiazide and potassium-sparing diuretic
DEMR3C41	BUN or creatinine every six months for pre-existing prescription of combination thiazide and potassium-sparing diuretic
DEMR3C42	Serum potassium every six months for pre-existing prescription of combination thiazide and potassium-sparing diuretic
DEMR3C43	Serum sodium every six months for pre-existing prescription of combination thiazide and potassium-sparing diuretic
DEMR3C44	Blood pressure within one month of new prescription of combination thiazide and potassium-sparing diuretic
DEMR3C45	BUN or serum creatinine within one month of new prescription of combination thiazide and potassium-sparing diuretic
DEMR3C46	Serum potassium within one month of new prescription of combination thiazide and potassium-sparing diuretic
DEMR3C47	Serum sodium within one month of new prescription of combination thiazide and potassium-sparing diuretic

Measure code	Measure name
DEMR3C48	Blood glucose every three months for pre-existing prescription of insulin
DEMR3C49	HgbA1C or fructosamine annually for pre-existing prescription of insulin
DEMR3C50	Blood glucose within three months of new prescription of insulin
DEMR3C51	HgbA1C within three months of new prescription of insulin
DEMR3C52	Blood glucose every three months for pre-existing prescription of oral hypoglycemic agent
DEMR3C53	Hgb annually for pre-existing prescription of oral hypoglycemic agent
DEMR3C54	Blood glucose within three months of new prescription of oral hypoglycemic agent
DEMR3C55	HgbA1C within three months of new prescription of oral hypoglycemic agent
DEMR3C56	Serum sodium annually for pre-existing prescription of long-term, high-dose corticosteroid
DEMR3C57	Blood glucose every six months for pre-existing prescription of long-term, high-dose corticosteroid
DEMR3C58	Serum potassium annually for pre-existing prescription of long-term, high-dose corticosteroid
DEMR3C59	Ophthalmologic exam for cataract development annually for pre-existing prescription of long-term, high-dose corticosteroid
DEMR3C60	Occult blood annually for pre-existing prescription of long-term, high-dose corticosteroid
DEMR3C61	Blood glucose within one month of new prescription of long-term, high-dose corticosteroid
DEMR3C62	Serum sodium within one month of new prescription of long-term, high-dose corticosteroid
DEMR3C63	Serum potassium within one month of new prescription of long-term, high-dose corticosteroid
DEMR3C64	Occult blood within one year of new prescription of long-term, high-dose corticosteroid
DEMR3C65	Ophthalmologic exam for cataract development within one year of new prescription of long-term, high-dose corticosteroid
DEMR3C66	PPD status before start of therapy for pre-existing prescription

Measure code	Measure name
	of long-term, high-dose corticosteroid
DEMR3C67	CBC and ask about gastric distress every six months for pre-existing prescription of long-term, high-dose NSAID
DEMR3C68	BUN or serum creatinine every six months for pre-existing prescription of long-term, high-dose NSAID
DEMR3C69	SGOT or SGPT annually for pre-existing prescription of long-term, high-dose NSAID
DEMR3C70	Urinalysis every six months for pre-existing prescription of long-term, high-dose NSAID
DEMR3C71	CBC and ask about gastric distress within three months of new prescription of long-term, high-dose NSAID
DEMR3C72	SGOT or SGPT within six months of new prescription of long-term, high-dose NSAID
DEMR3C73	BUN or serum creatinine within six months of new prescription of long-term, high-dose NSAID
DEMR3C74	Urinalysis within six months of new prescription of long-term, high-dose NSAID
DEMR3C75	History for gastrointestinal distress every six months for pre-existing prescription of long-term, high-dose salicylate
DEMR3C76	Hct every six months for pre-existing prescription of long-term, high-dose salicylate
DEMR3C77	History for gastrointestinal distress within six months of new prescription of long-term, high-dose salicylate
DEMR3C78	Hct within six months of new prescription of long-term, high-dose salicylate
DEMR3C79	Lung exam every six months for pre-existing prescription of beta-adrenergic agonist (inhaled)
DEMR3C80	Lung exam within one month of new prescription of beta-adrenergic agonist (inhaled)
DEMR3C81	Serum theophylline every three months for pre-existing prescription xanthine-derivative (oral)
DEMR3C82	Serum theophylline within one month of new prescription of xanthine-derivative (oral)
DEMR3C83	CBC every month for pre-existing prescription of long-term, high-dose trimethoprim-sulfamethoxazole
DEMR3C84	Urinalysis every six months for pre-existing prescription of

Measure code	Measure name
	long-term, high-dose trimethoprim-sulfamethoxazole
DEMR3C85	BUN or serum creatinine every six months for pre-existing prescription of long-term, high-dose trimethoprim-sulfamethoxazole
DEMR3C86	CBC within one month of new prescription of long-term, high-dose trimethoprim-sulfamethoxazole
DEMR3C87	Urinalysis within six months of new prescription of long-term, high-dose trimethoprim-sulfamethoxazole
DEMR3C88	BUN or serum creatinine within six months of new prescription of long-term, high-dose trimethoprim-sulfamethoxazole
DEMR4A01	Blood pressure screening
DEMR4A02	Screening, mammogram
DEMR4A03	Breast examination
DEMR4B01	Yearly influenza immunization
DEMR5A01	Followup of hospitalization or consult
DEMR5B01	Followup of significant clinical findings
EPRM1A01	Prevalence of post-admission pressure ulcer development
EPRM1B01	Pressure ulcer prevention
EPRM2A01	Validity of colon cancer diagnosis
EPRM2B01	Presumed appropriate preadmission care for patients with colon cancer
EPRM2C01	Presumed appropriate inpatient care for patients with colon cancer
EPRM2D01	Presumed satisfactory post-discharge plan for patients with colon cancer
EPRM2E01	Intra-op or post-op colon obstruction for patients with colon cancer
EPRM2E02	Intra-op or post-op colon perforation for patients with colon cancer
EPRM2E03	Intra-op or post-op death for patients with colon cancer
EPRM2F01	Presumed appropriate post-procedure care for patients with colon cancer
EPRM3A01	Presumed validation of diagnosis for patients with acute myocardial infarction
EPRM3B01	Presumed appropriate inpatient care, myocardial infarction

Measure code	Measure name
	outside hospital
EPRM3B02	Care after in-patient acute myocardial infarction
EPRM3B03	Presumed inappropriate inpatient care for patients with acute myocardial infarction
EPRM3C01	Satisfactory post-discharge plan for patients with acute myocardial infarction
EPRM3D01	Patients not receiving thrombolytics within 12 hours of chest pain for patients with acute myocardial infarction
EPRM3E01	Hemorrhage after thrombolytics for patients with acute myocardial infarction
EPRM3F01	Patient death for patients with acute myocardial infarction
EPRS1A01	Appropriateness of TURP surgery
EPRS1B01	Discharge plan for patients with TURP
EPRS1C01	Patient death for patients with TURP
EPRS1D01	Post-op referral to tertiary care for patients with TURP
EPRS1D02	Re-operation during same admission for patients with TURP
EPRS2A01	Appropriateness of coronary artery bypass surgery
EPRS2B01	Adequate post-discharge plan for patients with CABG
EPRS2C01	Appropriate pre-admission or pre-procedural care for patients with CABG
EPRS2D01	Intra-op or post-op stroke for patients with CABG
EPRS2D02	Intra-op or post-op myocardial infarction for patients with CABG
EPRS2D03	Intra-op or post-op mediastinitis for patients with CABG
EPRS2D04	Intra-op or post-op death for patients with CABG
EPRS2E01	Return to cardiac surgery, same admission
HCCP1A01	Aspirin during hospitalization for patients with acute myocardial infarction
HCCP2A01	Timing of thrombolytics for patients with acute myocardial infarction
HCCP2A02	Timing of aspirin for patients with acute myocardial infarction
HCCP2A03	Timing of emergent PTCA for patients with acute myocardial infarction
HCCP2A04	Reperfusion for patients with acute myocardial infarction

Measure code	Measure name
HCCP3A01	Aspirin at discharge for patients with acute myocardial infarction
HCCP3A02	Beta blockers at discharge for patients with acute myocardial infarction
HCCP3A03	Use of ACE inhibitors at discharge for patients with acute myocardial infarction
HCCP3A04	Avoidance of calcium channel blockers at discharge for patients with acute myocardial infarction
HCCP4A01	Smoking cessation counseling for patients with acute myocardial infarction
HCUP1A01	In-hospital mortality following laminectomy/ spinal fusion
HCUP1A02	In-hospital mortality following cholecystectomy
HCUP1A03	In-hospital mortality following hip replacement
HCUP1A04	In-hospital mortality following knee replacement
HCUP1B01	In-hospital mortality following hysterectomy
HCUP1B02	In-hospital mortality following TURP
HCUP1C01	Pneumonia after major surgery/invasive vascular procedure
HCUP1C02	Urinary tract infection after major surgery
HCUP1C03	Acute myocardial infarction after major surgery
HCUP1C04	Venous thrombosis or pulmonary embolism after major surgery/invasive vascular procedure
HCUP1C05	Pulmonary compromise after major surgery
HCUP1C06	Gastrointestinal hemorrhage or ulceration after major surgery
HCUP1D01	Wound infection
HCUP1E01	Adverse effects and iatrogenic complications
HCUP1F01	Obstetrical complications
HCUP1G01	Mechanical complications due to device, implant, or graft (excluding organ transplant)
HCUP2A01	Successful vaginal birth after cesarean section
HCUP2A02	Cesarean section delivery
HCUP2B01	Incidental appendectomy among elderly
HCUP2C01	Laparoscopic cholecystectomy
HCUP2D01	Hysterectomy
HCUP2D02	Coronary artery bypass graft

Measure code	Measure name
HCUP2D03	Laminectomy and/or spinal fusion
HCUP2E01	Transurethral prostatectomy
HCUP2E02	Radical prostatectomy
HCUP3A01	Low birthweight
HCUP3A02	Very low birthweight
HCUP3B01	Diabetes-short term complications
HCUP3B02	Diabetes-long term complications
HCUP3B03	Pediatric asthma discharges
HCUP3B04	Immunization-preventable pneumonia and influenza among the elderly
HCUP3B05	Cerebrovascular disease among non-elderly adults
HCUP3C01	Perforated appendix
HEDA0104	Adolescent immunization
HEDA0105	DTP vaccination
HEDA0108	H influenza type b vaccination
HEDA0109	Hepatitis B vaccination
HEDA0110	MMR vaccination
HEDA0111	Polio vaccination
HEDA0302	Beta blocker treatment after heart attack
HEDA0701	Check-ups after delivery
HEDA1A01	Childhood immunization
HEDA1B02	Breast cancer screening
HEDA1B03	Cervical cancer screening
HEDA2A01	Prenatal care in the first trimester
HEDA2B01	Low birthweight
HEDA2B02	Very low birthweight
HEDA3A01	Eye exam for people with diabetes
HEDA4A01	Followup after hospitalization for mental illness
HEDH0104	Adolescent immunization
HEDH0105	DTP vaccination
HEDH0108	H influenza type b vaccination
HEDH0109	Hepatitis B vaccination
HEDH0110	MMR vaccination

Measure code	Measure name
HEDH0111	Polio vaccination
HEDH0301	Beta blocker treatment after heart attack
HEDH0701	Check-ups after delivery
HEDH1A01	Childhood immunization
HEDH1B02	Breast cancer screening
HEDH1B03	Cervical cancer screening
HEDH2A01	Prenatal care in the first trimester
HEDH3A01	Eye exam for people with diabetes
HEDH4A01	Ambulatory followup after hospitalization for mental illness
HEDS0101	Advising smokers to quit
HEDS0102	Flu shots for older adults
HEDS0201	Health of seniors
HHHA1A01	Intake for level of care, home health agency
HHHA1A02	Physical environment assessment, home health agency
HHHA1A03	Intake for patient assessment, home health agency
HHHA2A01	Abnormal temperature, home health agency patient
HHHA2A02	Abnormal blood pressure, home health agency patient
HHHA2A03	Abnormal pulse, home health agency patient
HHHA2B01	Implementing diagnostic services as ordered, home health patient
HHHA2C01	Followup of abnormal results, home health agency
HHHA2C02	Intervention if social change, home health agency
HHHA2C03	Report of abuse or neglect, home health agency
HHHA2D01	Other significant changes among home health agency patients
HHHA2D02	Report of compliance issues among home health agency patients
HHHA3A01	Identifying special therapy needs for home health patients
HHHA3A02	Reassessment of needs for home health patients
HHHA3B01	Special therapy plan documentation, home health patient
HHHA3C01	Patient education for specialty therapy, home health agency
HHHA4A01	Deaths within 48 hours of transfer to hospital, home health patient
HHHA5A01	Temperature elevation in home health patients

Measure code	Measure name
HHHA5B01	Post-procedure infection in home health patients
HHHA6A01	Injury or adverse event in home health patient
HHHA6A02	Decubitus ulcer in home health patient
HHHA6B01	Inappropriate home health care or plan
HHHA6B02	Appropriate termination of home health care
HHHA6C01	Life-threatening complication
HHHA6C02	Drug adverse event
HHHA7A01	Documentation of home health discharge plan
HINP1A01	Adequacy of discharge planning
HINP2A01	Abnormal blood pressure within 24 hours of discharge
HINP2A02	Abnormal temperature within 24 hours of discharge
HINP2A03	Abnormal pulse within 24 hours of discharge
HINP2A04	Wound drainage within 24 hours of discharge
HINP2B01	Unresolved diagnostic findings at discharge
HINP2C01	IVs on day of discharge
HINP3A01	Postoperative death
HINP3B01	Death after return to ICU
HINP3C01	Other unexplained death
HINP4A01	Incorrectly treated bacteremia
HPSY10A1	Psychiatric inpatient death
HPSY1A01	Inadequate psychiatric assessment
HPSY2A01	Inadequate treatment planning for psychiatric patients
HPSY3A01	Lack of ongoing monitoring and evaluation for psychiatric patients
HPSY4A01	Inadequate or inappropriate use of medication for psychiatric patients
HPSY4B01	Failure to monitor medication use for psychiatric patients
HPSY4C01	Medication error for psychiatric patients
HPSY5A01	Self-inflicted harm among psychiatric patients
HPSY5A02	Fall among psychiatric patients
HPSY5A03	Seizure among psychiatric patients
HPSY5A04	Loss of consciousness among psychiatric patients
HPSY5A05	Other potential serious complications among psychiatric

Measure code	Measure name
	patients
HPSY6A01	Inappropriate use of restraints among psychiatric patients
HPSY6B01	Unsafe use of restraints for psychiatric patients
HPSY7A01	Inappropriate use of seclusion for psychiatric patients
HPSY7B01	Unsafe use of seclusion for psychiatric patients
HPSY8A01	Inappropriate use of electroconvulsive therapy for psychiatric patients
HPSY8B01	Unsafe use of electroconvulsive therapy for psychiatric patients
HPSY9A01	Discharge plan for psychiatric patients
HSNF1A01	Appropriateness of admission to a skilled nursing facility
HSNF2A01	Medication for skilled nursing facility patients
HSNF2A02	Inappropriate use of restraints for skilled nursing facility patients
HSNF2B01	Abnormal vital signs for skilled nursing facility patients
HSNF2B02	Fall with injury for skilled nursing facility patients
HSNF2B03	Infection after invasive procedure for skilled nursing facility patients
HSNF2B04	Difficulties with nutrition or hydration for skilled nursing facility patients
HSNF2B05	Change in mental status among skilled nursing facility patients
HSNF2B06	Change in mobility among skilled nursing facility patients
HSNF2B07	Pressure sores among skilled nursing facility patients
HSNF2B08	Change in elimination among skilled nursing facility patients
HSNF3A01	Followup of abnormal tests among skilled nursing facility patients
HSNF4A01	Care plan for skilled nursing facility patients
JCH11A01	Postoperative CNS complications
JCH11A02	Post-op peripheral neurological deficit
JCH11A03	Post-operative acute myocardial infarction
JCH11A04	Post-operative cardiac arrest
JCH11A05	Post-operative intrahospital mortality
JCH21A01	Cesarean section
JCH21B01	VBAC

Measure code	Measure name
JCH21C01	Low birthweight
JCH21D01	Perinatal adverse events
JCH21E01	Low APGAR Score in low birthweight babies
JCH31A01	CABG length of stay
JCH31A02	PTCA length of stay
JCH31B01	Diagnosis of congestive heart failure
JCH31C01	Intrahospital mortality for CABG
JCH31C02	Intrahospital mortality for PTCA
JCH31C03	Intrahospital mortality for acute myocardial infarction
JCH31D01	Timing of thrombolytic therapy for acute myocardial infarction
JCH41A01	Pathology report for cancer patients
JCH41B01	Use of staging for cancer patients
JCH41B02	Estrogen receptor test for breast cancer
JCH41B03	Complete colon examination for colorectal cancer
JCH41C01	Complete resection during thoracotomy for cancer patients
JCH51A01	Vital signs for monitoring trauma patients
JCH51B01	Timeliness of head CT for trauma patients
JCH51B02	Timeliness of neurosurgical intervention for trauma patients
JCH51B03	Timeliness of orthopedic surgical intervention for trauma patients
JCH51B04	Timeliness of abdominal surgical intervention for trauma patients
JCH51C01	Thoracostomy or thoracotomy for selected trauma patients who die
JCH51C02	Laparotomy or thoracotomy for selected trauma patients who die
JCH51D01	Management of coma in trauma patients
JCH51E01	Glasgow Coma scale for patients with head injuries
JCH61A01	Surgical site infection
JCH61B01	Ventilator pneumonia
JCH61B02	Bloodstream infection
JCH71A01	Creatinine clearance for elderly patients
JCH71B01	Timing of prophylactic antibiotic administration

Measure code	Measure name
JCH71C01	Patient education regarding insulin
JCH71D01	Digoxin level
JCH71D02	Theophylline level
JCH71D03	Phenytoin level
JCH71D04	Lithium level
JCH71E01	Number of drugs at discharge
MDQI1B01	Surgical wound infection
MDQI1C01	Inpatient mortality
MDQI1D01	Neonatal mortality
MDQI1E01	Perioperative mortality
MDQI1F01	Cesarean section
MDQI1G01	Unscheduled readmissions
MDQI1H01	Unscheduled admission following ambulatory procedures
MDQI1I01	Unscheduled returns to the Special Care Unit (SCU)
MDQI1I02	Unscheduled returns to the Operating Room (OR)
MDQI2A01	Unscheduled returns to the emergency department (ED)
MDQI2B01	Registered patients in the emergency room more than six hours
MDQI2C01	Discrepancy between initial and final ED x-ray reports requiring adjustment in patient management
MDQI2D01	Registered patients who leave the emergency room prior to completion of treatment
MDQI2E01	Cancellation of ambulatory procedure on the day of procedure
MHCA1A01	Average self-reported General Health Perception Scale score for patients with angina at baseline
MHCA1A02	Average self-reported Mental Health Scale score for patients with angina at baseline
MHCA1A03	Average self-reported Social Function Scale score for patients with angina at baseline
MHCA1A04	Average self-reported Bodily Pain Scale score for patients with angina at baseline
MHCA1A05	Average self-reported Energy/Fatigue Scale score for patients with angina at baseline
MHCA1A06	Average self-reported rating of how much chest pain interferes

Measure code	Measure name
	with physical activities for patients with angina at baseline
MHCA1A07	Average self-reported rating of how much chest pain interferes with social activities for patients with angina at baseline
MHCA1B01	Average self-reported Physical Functioning Scale score for patients with angina at baseline
MHCA1B02	Average self-reported Role Functioning, Physical Scale score for patients with angina at baseline
MHCA1B03	Average self-reported Role Functioning, Emotional Scale score for patients with angina at baseline
MHCA1C01	Average physician-reported number of episodes of chest pain per week for patients with angina at baseline
MHCA1D01	Average physician-reported rating of the course of chest pain for patients with angina at baseline
MHCA1E01	Average number of patients, as reported by physicians, who experience chest pain at night in bed, for patients with angina at baseline
MHCA2A01	Average self-reported General Health Perception Scale score for patients with asthma at baseline
MHCA2A02	Average self-reported Mental Health Scale score for patients with asthma at baseline
MHCA2A03	Average self-reported Social Function Scale score for patients with asthma at baseline
MHCA2A04	Average self-reported Bodily Pain Scale score for patients with asthma at baseline
MHCA2A05	Average self-reported Energy/Fatigue Scale score for patients with asthma at baseline
MHCA2A06	Average self-reported total rating score of asthma effects on quality of life for patients with asthma at baseline
MHCA2B01	Average self-reported Physical Functioning Scale score for patients with asthma at baseline
MHCA2B02	Average self-reported Role Functioning, Physical Scale score for patients with asthma at baseline
MHCA2B03	Average self-reported Role Functioning, Emotional Scale score for patients with asthma at baseline
MHCA2C01	Average self-reported score of symptoms from asthma and medications for patients with asthma at baseline

Measure code	Measure name
MHCA2C02	Average self-reported score of bronchitis symptoms for patients with asthma at baseline
MPNE0101	Timing of initial antibiotic administration for patients hospitalized with pneumonia
MPNE0102	Initial collection of blood cultures for hospitalized patients with community acquired pneumonia
MPNE0103	Blood culture performed on hospital patients with community-acquired pneumonia prior to initial administration of antibiotic
MPNE0104	Initial assessment of oxygenation for hospitalized patients with community-acquired pneumonia
NHQI0101	Incidence of new fracture in nursing home
NHQI0402	Onset of cognitive impairment among nursing home residents
NHQI0802	Incidence of decline in ROM among nursing home residents
NHQI10A1	Prevalence of daily physical restraints among nursing home residents
NHQI10B1	Prevalence of little or no activity among nursing home residents
NHQI12A1	Prevalence of Stage I-4 pressure ulcers among nursing home residents
NHQI1B01	Prevalence of falls in the nursing home
NHQI2A01	Prevalence of behavioral symptoms affecting others among nursing home residents
NHQI2B01	Prevalence of symptoms of depression among nursing home residents
NHQI2C01	Prevalence of depression without antidepressant therapy among nursing home residents
NHQI3A01	Use of 9 or more different medications by nursing home residents
NHQI5A01	Prevalence of bladder or bowel incontinence among nursing home residents
NHQI5B01	Prevalence of occasional or frequent bladder or bowel incontinence without a toileting plan among nursing home residents
NHQI5C01	Prevalence of indwelling catheters among nursing home residents

Measure code	Measure name
NHQI5D01	Prevalence of fecal impaction among nursing home residents
NHQI6A01	Prevalence of urinary tract infections among nursing home residents
NHQI7A01	Prevalence of weight loss among nursing home residents
NHQI7A02	Prevalence of dehydration among nursing home residents
NHQI7B01	Prevalence of tube feeding among nursing home residents
NHQI8A01	Prevalence of bedfast nursing home residents
NHQI8B01	Incidence of decline in "late-loss" activities of daily living among nursing home residents
NHQI9B01	Prevalence of antipsychotic daily dose in excess of guideline among nursing home residents
NHQI9B02	Prevalence of antianxiety drug use among nursing home residents
NHQI9C01	Prevalence of hypnotic use in excess of two times in last week for nursing home residents
OASS0101	Improvement in grooming
OASS0102	Improvement in dressing upper body
OASS0103	Improvement in dressing lower body
OASS0104	Improvement in bathing
OASS0105	Improvement in toileting
OASS0106	Improvement in transferring
OASS0107	Improvement in ambulation/locomotion
OASS0108	Improvement in eating
OASS0109	Improvement in light meal preparation
OASS0110	Improvement in laundry
OASS0111	Improvement in housekeeping
OASS0112	Improvement in shopping
OASS0113	Improvement in ability to use telephone
OASS0114	Stabilization in grooming
OASS0115	Stabilization in dressing upper body
OASS0116	Stabilization in bathing
OASS0117	Stabilization in toileting
OASS0118	Stabilization in transferring

Measure code	Measure name
OASS0119	Stabilization in ambulation/locomotion
OASS0120	Stabilization in eating
OASS0121	Stabilization in housekeeping
OASS0122	Stabilization in dressing lower body
OASS0123	Stabilization in light meal preparation
OASS0124	Stabilization in laundry
OASS0201	Improvement in ability to manage oral medications
OASS0202	Stabilization in ability to manage oral medications
OASS0401	Used any emergency care in last period
OASS0503	Improvement in speech/language
OASS0504	Improvement in pain interfering with activity
OASS0602	Improvement in number of surgical wounds
OASS0603	Improvement in status of surgical wounds
OASS0701	Improvement in dyspnea
OASS0801	Improvement in urinary tract infection
OASS0802	Improvement in urinary incontinence
OASS0803	Improvement in bowel incontinence
OASS0804	Stabilization in urinary incontinence
OASS0805	Stabilization in bowel incontinence
OASS0901	Improvement in confusion frequency
OASS0902	Improvement in cognitive functioning
OASS0903	Improvement in level of anxiety
OASS0904	Stabilization in cognitive functioning
OASS0905	Improvement in behavior problem frequency
PBGH1A01	Blood pressure (patient survey)
PBGH1A02	Cholesterol screening (HEDIS, record)
PBGH1A03	Cholesterol screening (HEDIS, administrative)
PBGH1A04	Cholesterol screening (HEDIS, hybrid)
PBGH1A05	Cholesterol screening (patient survey)
PBGH1B01	Cervical cancer screening (HEDIS, record)
PBGH1B02	Cervical cancer screening (HEDIS, administrative)
PBGH1B03	Cervical cancer screening (HEDIS, hybrid)

Measure code	Measure name
PBGH1B04	Cervical cancer screening (patient survey)
PBGH1B05	Mammography screening (HEDIS, record)
PBGH1B06	Mammography screening (HEDIS, hybrid)
PBGH1B07	Mammography screening (HEDIS, administrative)
PBGH1B08	Mammography screening (patient survey)
PBGH1C01	Childhood immunization (HEDIS, administrative)
PBGH1C02	Childhood immunization (HEDIS, hybrid)
PBGH1C03	Childhood immunization (HEDIS, record)
PBGH1D01	Exercise counseling (patient survey)
PBGH1D02	Nutrition counseling (patient survey)
PBGH1D03	Smoking education (patient survey)
PBGH1D04	Injury prevention counseling (patient survey)
PBGH1D05	Motor vehicle safety counseling (patient survey)
PBGH1D06	Alcohol and substance use counseling (patient survey)
PBGH1D07	Sexually transmitted disease counseling (patient survey)
PBGH2A01	Plans provide information about smoking cessation
PBGH2A02	Plans provide information about childhood immunization wellness program
PBGH2A03	Plans provide information about prenatal care wellness program
PBGH3A01	Diabetic retinal exam (HEDIS, adminstrative)
PBGH3A02	Diabetic retinal examination (HEDIS, hybrid)
PBGH3A03	Diabetic retinal exam (HEDIS, record)
PBGH4A01	Prenatal care in the first trimester (HEDIS, administrative)
PBGH4A02	Prenatal care in the first trimester (HEDIS, hybrid)
PBGH4A03	Prenatal care in the first trimester (HEDIS, record)
PBGH4A04	Prenatal care timing (patient survey)
PRSP1A01	Received no followup after x-ray
PRSP1B01	Lack of timely followup of x-ray test
PRSP1C01	Does not know who is responsible for further tests or treatment after an x-ray
PRSP1C02	Unclear whether practitioner is aware of x-ray results
PRSP1C03	Receiving confusing or contradictory information about the x-

Measure code	Measure name
	ray or its results
PRSP2A01	Received no followup after special test
PRSP2B01	Lack of timely scheduling of special tests
PRSP2B02	Lack of timely followup of special tests
PRSP2C01	Does not know who is responsible for deciding whether further tests are needed after a special test
PRSP2C02	Unclear whether practitioner is aware of special test results
PRSP2C03	Receiving confusing or contradictory information about a special test or its results
PRSP3B01	Does not know if primary care physician is aware of specialist recommendations
PRSP3B02	Does not know who is responsible for care after a referral.
PRSP3B03	Received confusing or contradictory information about referral, diagnosis, treatment, or need for further care following referral
PRSP4A01	Lack of timely scheduling of a biopsy
PRSP4A02	Lack of timely followup of a biopsy
PRSP4B01	Received no followup after biopsy
PRSP4C01	Does not know practitioner responsible for further tests or treatments after biopsy
PRSP4C02	Unclear whether practitioner is aware of biopsy results
PRSP4C03	Receiving confusing or contradictory information about the biopsy, the results, or whether further tests or treatments are needed
PRSP5A01	Received no followup after blood test
PRSP5B01	Lack of timely followup after blood test
PRSP5C01	Does not know who is responsible for further tests or treatment after a blood test
PRSP5C02	Unclear whether practitioner is aware of blood test results
PRSP5C03	Receiving confusing or contradictory information about the blood test or its results
PRSP6A01	Drug refill errors
PRSP6B01	Lack of timely response to drug problem
PRSP6C01	Absence of instructions regarding frequency of use
PRSP6C02	Absence of instructions regarding drug dosage

Measure code	Measure name
PRSP6C03	Special warnings about taking medications
PRSP6C04	Received confusing or contradictory information medication instructions, refills, or what to do about problems or bad reactions
PRSP7A01	Lack of home monitoring advice for patients with asthma, ischemic heart disease, hypertension, lung disease
PRSP7B01	Absence of instructions about signs to contact physician for patients with asthma and lung disease
PRSP7B02	Absence of instructions about signs to contact physician for patients with ischemic heart disease
PRSP7B03	Absence of instructions about signs to contact physician for patients with diabetes
PRSP7C01	Special diet for patients with ischemic heart disease, hypertension, and diabetes
PRSP7C02	Physical therapy exercises for patients with arthritis
PRSP7C03	Lack of general exercise and/or rest instructions for patients with ischemic heart disease, hypertension, arthritis, lung disease
PRSP7C04	Lack of smoking warning for patients with diabetes, hypertension, asthma, lung disease, ischemic heart disease
PRSP7C05	Not told to limit alcohol for patients with diabetes and hypertension
PRSP7C06	Does not know practitioner responsible for chronic condition
PRSP7C07	Received confusing or contradictory information about chronic condition
PRSP8A01	Annual breast exam
PRSP8A02	Mammogram screening annually
PRSP8A03	Pap smear biannually
PRSP8B01	Lack of timely screening mammogram scheduling
PRSP8B02	Lack of timely mammogram followup
PRSP8B03	Lack of timely Pap smear followup
PRSP8C01	Received no followup after mammogram
PRSP8C02	Received no followup after Pap smear
PRSP8D01	Does not know practitioner responsible for care following mammogram

Measure code	Measure name
PRSP8D02	Unclear whether practitioner is aware of mammogram results
PRSP8D03	Received confusing or contradictory information about the mammogram
PRSP8D04	Does not know practitioner responsible for care following Pap smear
PRSP8D05	Unclear whether practitioner aware of Pap smear results
PRSP8D06	Received confusing or contradictory information about the Pap smear
PRSP9A01	No annual blood pressure
PRSP9A02	No annual rectal examination
PRSP9A03	No annual occult blood
PRSP9A04	No influenza immunization in the past 12 months
QCOR1A01	Time to first preventive care visit
QCOR2A01	Influenza immunization
QCOR3A01	Frequency of visits
QCOR4A01	Time since last mammogram
QDMC1A01	Time to first visit for patients with diabetes
QDMC2A01	Influenza immunization for patients with diabetes
QDMC3A01	Glycosylated hemoglobin for patients with diabetes
QDMC3B01	Diet education for patients with diabetes
QDMC3B02	Diabetes management education
QDMC4A01	Frequency of visits for patients with diabetes
QDMC4B01	Glycosylated hemoglobin for patients with diabetes
QDMC5A01	Time since last visit or service for patients with diabetes
QDMC5B01	Time since last funduscopic examination for patients with diabetes
QDMC5B02	Time since last glycosylated hemoglobin for patients with diabetes
QDMC5B03	Time since last urine protein for patients with diabetes
QDMC5B04	Time since last serum creatinine for patients with diabetes
QDMR1A01	Influenza immunization for patients with diabetes
QDMR2A01	Home glucose testing for patients with diabetes
QDMR2A02	Smoker/antismoking advice for patients with diabetes

Measure code	Measure name
QDMR2A03	Diet education for patients with diabetes
QDMR2A04	Diabetes management education for patients with diabetes
QDMR3A01	Frequency of visits/services for patients with diabetes
QDMR4A01	Time since last visit or service for patients with diabetes
QDMR4A02	Time since last in-office blood pressure for patients with diabetes
QDMR4A03	Time since last weight for patients with diabetes
QDMR4A04	Time since last fundoscopic examination of the eyes for patients with diabetes
QDMR4A05	Time since last foot examination for patients with diabetes
QDMR4A06	Time since last serum cholesterol for patients with diabetes
QDMR4A07	Time since last serum triglycerides for patients with diabetes
QDMR4A08	Time since last serum HDL test for patients with diabetes
QDMR4A09	Time since last glycosylated Hgb for patients with diabetes
QDMR4A10	Time since last urine protein test for patients with diabetes
QDMR4A11	Time since last serum creatinine test for patients with diabetes
QDMR5A01	Latest in-office diastolic blood pressure for patients with diabetes
QDMR5A02	Latest in-office systolic blood pressure for patients with diabetes
QDMR5A03	Latest serum cholesterol value for patients with diabetes
QDMR5A04	Latest serum triglyceride value for patients with diabetes
QDMR5A05	Latest serum HDL value for patients with diabetes
QDMR5A06	Latest glycosylated hemoglobin for patients with diabetes
QDMR5A07	Latest serum creatinine value for patients with diabetes
QHDR1A01	Influenza immunization for patients with ischemic heart disease
QHDR2A01	Antismoking advice for patients with ischemic heart disease
QHDR2A02	Risk factor education for patients with ischemic heart disease
QHDR2B01	Electrocardiogram for patients with ischemic heart disease
QHDR2C01	Aspirin therapy for patients with ischemic heart disease
QHDR3A01	Visit/service for patients with ischemic heart disease
QHDR4A01	Blood pressure for patients with ischemic heart disease

Measure code	Measure name
QHDR4A02	Serum cholesterol for patients with ischemic heart disease
QHDR4A03	Serum HDL for patients with ischemic heart disease
QHDR4A04	Serum LDL for patients with ischemic heart disease
QHDR5A01	Diastolic blood pressure for patients with ischemic heart disease
QHDR5A02	Systolic blood pressure for patients with ischemic heart disease
QHDR5A03	Serum cholesterol for patients with ischemic heart disease
QHDR5A04	Serum HDL for patients with ischemic heart disease
QHDR5A05	Serum LDL for patients with ischemic heart disease
QHDR6A01	ACE inhibitors for patients with ischemic heart disease and congestive heart failure
QIHC1A01	Influenza immunization for patients with ischemic heart disease
QIHC2A01	Frequency of ambulatory visits for patients with ischemic heart disease
RAPP1A01	Appropriateness of CABG for patients with chronic stable angina
RAPP1A02	Appropriateness of CABG for patients with unstable angina
RAPP1A03	Appropriateness of CABG for post-myocardial infarction patients within 21 days
RAPP1A04	Appropriateness of CABG for patients with continuing pain within 24 hours of an acute myocardial infarction
RAPP1A05	Appropriateness of CABG for patients with acute myocardial infarction and cardiogenic shock
RAPP1A06	Appropriateness of CABG for asymptomatic patients
RAPP1A07	Appropriateness of CABG for patients with near sudden death
RAPP1A08	Appropriateness of CABG for patients with complications following PTCA
RAPP2A01	Appropriateness of PTCA for patients with chronic stable angina
RAPP2A02	Appropriateness of PTCA for patients with unstable angina
RAPP2A03	Appropriateness of PTCA for post-myocardial infarction patients within 21 days
RAPP2A04	Appropriateness of PTCA for patients with continuing pain

Measure code	Measure name
	within 24 hours of an acute myocardial infarction
RAPP2A05	Appropriateness of PTCA for patients with acute myocardial infarction and cardiogenic shock
RAPP2A06	Appropriateness of PTCA for asymptomatic patients
RAPP2A07	Appropriateness of PTCA for patients with near sudden death
RAPU1A01	Rehabilitation efforts to improve mobility for patients at risk for pressure ulcers
RAPU1A02	Plan to turn and reposition for patients at risk for pressure ulcers
RAPU1A03	Positioning devices for bedridden patients for patients at risk for pressure ulcers
RAPU1A04	Pressure relief for heels for patients at risk for pressure ulcers
RAPU2A01	Assess for pressure ulcer risk factors
RAPU2B01	Daily skin inspection for patients at risk for pressure ulcers
RAPU2C01	Newly inadequate dietary intake for patients at risk for pressure ulcers
RAPU2D01	Rehabilitation for increased mobility for patients at risk for pressure ulcers
RAPU2D02	Turning and repositioning for patients at risk for pressure ulcers
RAPU2D03	Pressure relief for heels for patients at risk for pressure ulcers
RAPU2D04	Pressure-reducing devices in bed for patients at risk for pressure ulcers
RCAT1A01	Interpreting for non-English-speaking patients
RCAT1A02	Relating information to deaf patients
RCAT2A01	Adequate physical and mental health
RCAT3A01	Decision for cataract surgery
RCAT3A02	Individual patient factors
RCAT3B01	Visual function reduction
RCAT3C01	Informing patients of risk of blindness
RCAT3D01	Preoperative medical examination and testing
RCAT3D02	Screening for functional disability
RCAT3E01	Keratometry measurement
RCAT3E02	A-Scan measurements

Measure code	Measure name
RCAT4A01	Patient understanding of risks/benefits
RCAT4B01	Decision to proceed with surgery
RCAT4B02	Discussion of intraocular lens implantation
RCAT5A01	Cataract surgery on the second eye
RCAT6A01	Administer anesthesia by trained individual
RCAT6A02	Monitoring techniques for anesthesia
RCAT6A03	IV access for anesthesia
RCAT7A01	Post-operative care responsibility
RCAT7A02	Responsibility for surgical outcomes
RCAT7B01	Knowledge of procedure and complications
RCAT7C01	Post-operative role of the surgeon
RCAT7D01	Periodic post-operative examination
RCAT7D02	Frequency of followup
RCAT7E01	Discharge from ambulatory surgery
RCAT7E02	Discharge instructions before leaving
RCAT7F01	Indications for post-operative hospitalization
RCAT7G01	Components of post-operative examination
RCAT7H01	Discharge instructions reviewed at home
RCAT8A01	Scheduling of YAG capsulotomy
RCAT8A02	Re-examination within two weeks
RCAT8B01	Justification for YAG capsulotomy
RCAT8C01	Preoperative examination
RCAT8D01	Ophthalmology post-operative care
RCAT8E01	Eye refraction within two weeks
RCAT8E02	Intraocular pressure measurement within two weeks
RCAT8E03	Slit lamp examination within two weeks
RCAT8F01	Patient instruction regarding retinal detachment
RCAT8F02	Patient instruction regarding glaucoma
RDOU1A01	Change in symptoms for patients with depression
RDOU1A02	Change in functional limitations for patients with depression
RDPE1A01	Appropriateness of acute care admission for depressed elderly patients
RDPE1B01	Admission assessment of psychological status for depressed

Measure code	Measure name
	elderly patients
RDPE1B02	Suicide status on admission for depressed elderly patients
RDPE1B03	Cognitive status on admission for depressed elderly patients
RDPE1B04	Psychosis assessment on admission for depressed elderly patients
RDPE1B05	Psychiatric history on admission for depressed elderly patients
RDPE1B06	Assessment of prior medications on admission for depressed elderly patients
RDPE1B07	Heart sound exam on admission for depressed elderly patients
RDPE1B08	Completeness of neurological examination on admission for depressed elderly patients
RDPE1C01	Psychotropic drug management for depressed elderly patients
RDPE1D01	Discharge of depressed elderly patients to hospital or nursing home
RDPE2A01	Doctor visits to depressed elderly patients
RDPE2A02	Rehabilitation, recreation, or occupational therapy for depressed elderly patients.
RDPE2B01	Nursing assessment of cognitive status for depressed elderly patients.
RDPE3A01	Mortality for depressed elderly patients
RDPE3B01	Clinical status of depressed elderly patients unimproved at discharge
RDPE3B02	Unacceptable or equivocal clinical status for depressed elderly patients at discharge
RDPE3C01	Readmission of depressed elderly patients
RDPE3D01	Inpatient complications for depressed elderly patients
RDPE3E01	Days readmitted for depressed elderly patients
RDPR1A01	Received help for depression if needed
RDPR1A02	If seen by mental health specialist, received psychotherapy for depression prior
RDPR1A03	Receiving antidepressant prior
RDPR2A01	Receiving antidepressant at two-year followup
RDPR3A01	Received discussion of depression and screening visit
RDPR3A02	Received referral for depression at screening visit

Measure code	Measure name
RHYS0101	Appropriateness of hysterectomy for cervical dysplasia
RHYS0102	Appropriateness of hysterectomy for symptomatic endometriosis
RHYS0103	Appropriateness of hysterectomy for premenopausal abnormal uterine bleeding of unknown etiology
RHYS0104	Appropriateness of hysterectomy for postmenopausal abnormal uterine bleeding of unknown etiology
RHYS0105	Appropriateness of hysterectomy for premenopausal women with leiomyomata and abnormal uterine bleeding without pain
RHYS0106	Appropriateness of hysterectomy for premenopausal women with leiomyomata and pelvic pain but without abnormal uterine bleeding
RHYS0107	Appropriateness of hysterectomy for premenopausal women with leiomyomata and both abnormal uterine bleeding and pain
RHYS0108	Appropriateness of hysterectomy for postmenopausal women with leiomyomata
RHYS0109	Appropriateness of hysterectomy for pelvic pain and adhesions
RHYS0110	Appropriateness of hysterectomy for dysmenorrhea
RHYS0111	Appropriateness of hysterectomy for chronic noncyclic pelvic pain
RHYS0112	Appropriateness of hysterectomy for endometrial hyperplasia
RHYS0113	Appropriateness of hysterectomy for pelvic relaxation with urinary incontinence or without symptoms
RHYS0114	Appropriateness of hysterectomy for pelvic relaxation with pain or discomfort
RPPS1A01	Lung exam by physician if congestive heart failure
RPPS1A02	Physician documents past surgery in chart if congestive heart failure
RPPS1A03	Alcohol or smoking habits documented in record by physician if acute myocardial infarction
RPPS1A04	Jugular vein examination documented in record by physician if acute myocardial infarction
RPPS1A05	Tobacco use documented in record by physician if pneumonia

Measure code	Measure name
RPPS1A06	Lower extremity edema documented in record by physician if pneumonia
RPPS1A07	Prior cerebrovascular accident documented in record by physician if cerebrovascular accident
RPPS1A08	Presence or absence of gag reflex documented in record by physician if cerebrovascular accident
RPPS1A09	Mental status of hip fracture patients is documented in record by physician
RPPS1A10	Pedal/leg pulse documented in record by physician if hip fracture patient
RPPS1B01	Blood pressure in documented record by nurse if congestive heart failure
RPPS1B02	Blood pressure documented in record by nurse if pneumonia
RPPS1B03	Blood pressure documented in record by nurse if cerebrovascular accident
RPPS1C01	Electrocardiogram obtained if congestive heart failure
RPPS1C02	Electrocardiogram obtained if cerebrovascular accident
RPPS1C03	Electrocardiogram obtained if hip fracture
RPPS1C04	Serum potassium obtained if congestive heart failure
RPPS1C05	Serum potassium obtained if cerebrovascular accident
RPPS1C06	Serum potassium obtained if hip fracture
RPPS1D01	Oxygen therapy/intubation used if required for congestive heart failure
RPPS1D02	Oxygen therapy/intubation used if required for pneumonia
RPPS1E01	Antibiotic therapy begun within four hours of admission if pneumonia and not immunocompromised
RPPS1E02	Antibiotic therapy begun within two hours of admission if pneumonia and immunocompromised
RPPS1F01	Intensive care unit care or telemetry on day one of hospitalization if congestive heart failure and patient is moderately sick
RPPS1F02	Intensive care unit care or telemetry on day two of hospitalization if congestive heart failure and patient is moderately sick
RPPS1F03	Intensive care unit care or telemetry on day one of

Measure code	Measure name
	hospitalization if pneumonia and patient is moderately sick
RPPS1F04	Intensive care unit care or telemetry on day two of hospitalization if pneumonia and patients is moderately sick
RPPS1F05	Intensive care unit care or telemetry on day one of hospitalization if congestive heart failure and patient is severely ill
RPPS1F06	Intensive care unit care or telemetry on day two of hospitalization if pneumonia and patient is severely sick
RPRE1A01	Anemia screening for pregnant women
RPRE1A02	Asymptomatic bacteriuria screening for pregnant women
RPRE1A03	Syphilis screening for pregnant women
RPRE1A04	Cervical gonorrhea screening for pregnant women
RPRE1A05	Rh factor and antibody screening for pregnant women
RPRE1B01	Rubella immunity screening for pregnant women
RPRE1C01	Hepatitis B screen for pregnant women
RPRE2A01	First visit in first trimester
RPRE2B01	Accurate gestational age
RPRE2C01	Screening for alpha-fetoprotein, pregnant women
RPRE2D01	Fundal height measurement each visit
RPRE2E01	Blood pressure measurement at each visit
RPRE3A01	Responding to a positive syphilis screen
RPRE3A02	Responding to an elevated blood pressure
RPRE3A03	Responding to abnormal glucose challenge
RPRE3A04	Responding to abnormal alpha-fetoprotein
RPRE3B01	Glucose challenge for pregnant women with risk factors
RPRE3C01	Screening women with sickle cell trait
RPRE3C02	Screening fathers of sickle cell mothers
RPRE3D01	Screening women at risk for children with Down's Syndrome.
RPRE3D02	Screening women at risk for children with neural tube defect
RPRE3E01	Evaluation of signs of development delay
RPRE3F01	Screening women at risk for sickle cell children
RPRE3G01	Followup of syphilis treatment for pregnant women
RPRE3G02	Biweekly glucose test following abnormal glucose tolerance

Measure code	Measure name
	test of pregnant women
RPRE3H01	Normal pregnancies should not extend >44 weeks
RPRE3H02	Treating pregnant Rh negative women
RPRE3H03	Gestational diabetes pregnancies should not extend >42 weeks
RPRE3I01	Responding to confirmed pregnancy-induced hypertension
RPRE3J01	Hepatitis B documentation in record at time of delivery
RPRE3K01	Twice weekly fetal monitoring for post-date women
RPRE3L01	Abnormal alpha-fetoprotein and normal ultrasound
RPRE3M01	Responding to (+) urine cultures
RPRE3M02	Responding to confirmed syphilis
RPRE3M03	Responding to (+) gonorrhea culture
RPRE3N01	Genetic counseling for confirmed sickle cell pregnancy
RPRE3N02	Dietary advice for abnormal glucose tolerance test
RPRE3N03	Responding to an abnormal karyotype
RPRE3O01	Responding to fetal distress
RPRE3P01	Responding to severe pregnancy-induced hypertension
RPRE3Q01	Responding to an abnormal alpha-fetoprotein
RPRE3R01	Continued abnormal glucose levels
RPRE3S01	Followup of urinary tract infection treatment
RPRE3S02	Followup of gonorrhea treatment
RPRE3T01	Rescreen for anemia after 24 weeks
SCRE1A01	Postoperative cerebral infarction
SCRE1A02	Aspiration pneumonia
SCRE1A03	Post-op pulmonary compromise
SCRE1A04	Post-op gastrointestinal hemorrhage following non-GI surgery
SCRE1A05	Cellulitis or decubitus ulcer
SCRE1A06	Septicemia
SCRE1A07	Post- or intra-operative shock due to anesthesia
SCRE1A08	Shock or cardiorespiratory arrest in-hospital
SCRE1A09	Post-operative acute myocardial infarction
SCRE1A10	Post-operative coma or stupor
SCRE1A11	Post-operative pneumonia

Measure code	Measure name
SCRE1A12	Wound infection
SCRE1A13	Post-procedure hemorrhage
SCRE1A14	In-hospital hip fracture or fall
SCRE1B01	Reopening of surgical site
SCRE1C01	Technical difficulty with medical care
SCRE1D01	Postoperative complications relating to urinary tract anatomy
SCRE1D02	Mechanical complications due to device or implant
SCRE1D03	Miscellaneous complications
SCRE1D04	Post-operative complications relating to central or peripheral nervous system
SCRE1D05	Post-operative cardiac abnormalities except acute myocardial infarction
SCRE1D06	Post-operative infections except pneumonia and wound
SCRE1D07	Procedure-related perforation or lacerations
SCRE1D08	Post-operative physiological or metabolic derangement
SCRE1D09	Complications relating to anesthetic agents
SCRE1D10	Venous thrombosis and pulmonary embolism
SCRE1D11	Iatrogenic complications
UARK1A01	Average change in self-reported score of severity of depressive symptoms between baseline and followup for patients with depression
UARK1B01	Average number of patients reporting a remission of depression at followup
UARK1B02	Average change in self-reported score of social functioning between baseline and followup for patients with depression
UARK1B03	Average change in self-reported number of bed-days between baseline and followup for patients with depression
UARK1B04	Average change in self-reported number of disability days between baseline and followup for patients with depression
UARK1B05	Average change in self-reported number of days of work disability between baseline and followup for patients with depression
UARK1C01	Mortality for patients with depression
UARK1D01	Average change in suicidality for patients with depression

Measure code	Measure name
UARK2A01	Average change in self-reported score of frequency of panic attacks between baseline and followup for patients with panic disorder
UARK2B01	Average change in self-reported score of number of listed symptoms during worst panic attacks between baseline and followup for patients with panic disorder
UARK2C01	Average change in the self-reported score sensitivity to anxiety between baseline and followup for patients with panic disorder
UARK2D01	Average change in the self-reported anticipatory anxiety between baseline and followup for patients with panic disorder
UARK2D02	Average change in the self-reported marital functioning between baseline and followup for patients with panic disorder
UARK2E01	Average change in suicidality scores between baseline and followup for patients with panic disorder
UARK2F01	Average change in self-reported social functioning between baseline and followup for patients with panic disorder
UARK2F02	Average change in self-reported sexual functioning between baseline and followup for patients with panic disorder
UARK2F03	Average change in self-reported life satisfaction between baseline and followup for patients with panic disorder
UARK2F04	Average change in self-reported self-medication with alcohol or drugs between baseline and followup for patients with panic disorder
UARK2G01	Average change in self-reported occupational functioning between baseline and followup for patients with panic disorder
UARK2G02	Average change in self-reported social support between baseline and followup for patients with panic disorder
UARK2G03	Average change in self-reported self-medication with smoking between baseline and followup for patients with panic disorder
UARK2H01	Mortality for patients with panic disorder
UARK2I01	Average change in self-reported bed-days between baseline and followup for patients with panic disorder
UHCR1A01	Diphtheria, pertussis, and tetanus immunizations for children
UHCR1A02	Polio immunization for children
UHCR1A03	Measles, mumps, and rubella immunizations for children

Measure code	Measure name
UHCR1A04	Hemophilus influenza b polysaccharide immunization for children
UHCR1B01	Mammogram screening for women
UHCR1B02	Pap smear screening for women
UHCR1C01	Neonatal outcome
UHCR2A01	Eye examinations for diabetics
UHCR2B01	Pediatric asthma admission
UHCR3A01	Cesarean section
VARE1A01	Chronic obstructive pulmonary disease
VARE1A02	Heart failure and shock
VARE1A03	Diabetes
VARE2A01	Pulmonary diseases
VARE2A02	Combined pulmonary diseases
VARE2A03	Cardiology diseases
VARE2A04	Combined cardiology
VARE2A05	General medicine
VARE2A06	All 17 combined

Appendix D - List of Measure Sets

Measure set code	Measure set name	Specifications available?
ACMA	ACMAD - Adult	No
ACMP	ACMAD - Pediatric	No
AMGA	American Medical Group Association, OMC	Yes
AVHO	Avoidable Hospitalization	Yes
CABG	New York State CABG	Yes
CBPH	CCQE Benign Prostatic Hypertrophy (BPH)	Yes
CPOP	CCQE Post-operative Pain Management	Yes
CUIN	CCQE Urinary Incontinence in Females	Yes
DEMC	DEMPAQ Claims	No
DEMR	DEMPAQ Records	No
EPRM	VA External Peer Review Prog.(EPRP)-Med.	No
EPRS	VA External Peer Review Program-Surgical	No
HCCP	HCFA CCP	Yes
HCUP	HCUP - 3	Yes
HEDA	HEDIS 3.0 Administrative	Yes
HEDH	HEDIS 3.0 Hybrid	Yes
HEDS	HEDIS 3.0 Survey	Yes
HHHA	HCFA Home Health Agency	Yes
HINP	HCFA Inpatient	Yes
HPSY	HCFA Psychiatric	Yes
HSNF	HCFA SNF	Yes
JCH1	JCAHO IMSystem: Perioperative Care	Yes
JCH2	JCAHO IMSystem: Prenatal Care	Yes
JCH3	JCAHO IMSystem: Cardiac	Yes
JCH4	JCAHO IMSystem: Oncology	Yes
JCH5	JCAHO IMSystem: Trauma	Yes
JCH6	JCAHO IMSystem: Infection Control	Yes
JCH7	JCAHO IMSystem: Medication Use	Yes
MDQI	Maryland Hospital Association QI Project	Yes
MHCA	Mgd. Healthcare Assoc. Outcome Mgt. Syst.	Yes
MPNE	MQIS - Pneumonia	Yes
NHQI	UWisc. - Nursing Home Quality Indicators	Yes
OASS	OASIS-Home Health	Yes

Measure set code	Measure set name	Specifications available?
PBGH	Pacific Business Group on Health	Yes
PRSP	PROSPER	Yes
QCOR	QCare - CORE	Yes
QDMC	QCare - DM Claims	Yes
QDMR	QCare Diabetes--Records	Yes
QHDR	QCare Ischemic Heart Disease - Records	Yes
QIHC	QCare - IHD Claims	Yes
RAPP	RAND Appropriateness of PTCA and CABG	Yes
RAPU	RAND Pressure Ulcers	Yes
RCAT	RAND Cataract	Yes
RDOU	RAND Depression Outcome Measures	Yes
RDPE	RAND Depressed Elderly	No
RDPR	RAND Depression Process	Yes
RHYS	RAND Hysterectomy Appropriateness	Yes
RPPS	RAND Prospective Payment System	Yes
RPRE	RAND Prenatal Care	No
SCRE	Complications Screening Program BIH	Yes
UARK	OMS/UARK	Yes
UHCR	United Health Care Report	No
VARE	VA Readmission	Yes

Appendix E - List of Conditions

Condition name	Condition code
Acute Low Back Problems in Adults	ALBP
Acute Myocardial Infarction	AMII
Acute Pain	ACPN
Alzheimer's Disease	ALZH
Anorexia Nervosa	ANOR
Anxiety: Children, Adolescents	ANXC
Anxiety: Adults	ANXA
Asthma: Pediatric, Acute	ASPA
Asthma: Adult, Acute	ASAA
Asthma: Adult, Chronic	ASAC
Asthma: Pediatric, Chronic	ASPC
Attention-Deficit Hyperactivity Disorder	ADHD
Benign Prostatic Hyperplasia	BPHY
Biliary Disease	BIDI
Bipolar Disorder	BIPO
Breast Cancer - Screening	BRCS
Bulimia Nervosa	BULM
Cancer Pain	CAPN
Cataract in Adults: Management of Functional Impairment	CATR
Cervical Cancer - Screening	CCAS
Childhood Immunization	IMMU
Chronic Obstructive Pulmonary Disease	COPD
Cigarette Smoking	CIGS
Colorectal Cancer Detection	COLD
Community-Acquired Pneumonia	CPNE
Depression in Adults	DEPR
Diabetes - Type I	IDDM
Diabetes - Type II	NIDM
Elderly Care	ELCA
End-Stage Renal Disease	ESRD
Heart Failure	HRTF
Hypertension	HTNN
Hysterectomy	HYST
Influenza - Prevention	FLUP

Condition name	Condition code
Osteoarthritis	OSAR
Otitis Media - Acute	OMAC
Otitis Media with Effusion	OMEF
PCP Prophylaxis: HIV-Positive Adults	PCPA
Pediatric Diarrhea	PDIA
Pediatric HIV Positive: PCP Prophylaxis	PPCP
Perinatal Care	PERI
Pneumococcal Pneumonia	PNPN
Post-Stroke Rehabilitation	STRK
Prenatal Care	PN01
Pressure Ulcers in Adults	ULCR
Preterm Labor	PRET
Prostate Cancer	PRCA
Rheumatoid Arthritis	RHAR
Schizophrenia - Adult	SCHA
Schizophrenia - Children and Adolescents	SCHC
Sickle Cell Disease	SSDS
Substance Abuse - Alcohol	ETOH
Substance Abuse - Cocaine	SUBC
Substance Abuse - Heroin	SUBH
Transient Ischemic Attack	TIAA
Unstable Angina	ANGU
Urinary Incontinence in Adults	URIN

Appendix F - List of Procedures

Procedure name	Procedure code
Angioplasty	3510
Aortocoronary bypass	3610
Assay creatinine	82565
Assay hemoglobin	83020
Assay quantitative, glucose	82947
Assay serum cholesterol	82465
Assay serum potassium	84132
Beta blocking agents	F13d
Biopsy of the spleen	4139
Blood gases	828-3
Blood pressure	bp
CABG	3610
Calcium channel blocker drugs	K14d
Cardiac catheterization	3723
Cardiac pacemaker status	V450
Chest x-ray	71010
Coronary artery bypass	3610
Coronary artery dilation	92982
Cytopathology, Pap smear	88150
Diagnostic bronchoscopy	31622
DTP immunization	90701
Electrocardiogram, complete	93000
Glycated hemoglobin test	83036
Gynecologic examination	8926
Head and neck endarterectomy	3812
Hematocrit	85013
Hepatitis B vaccine	90745
Hernia repair	5300
Immunization	IC44
Influenza b immunization	90737
Laparoscopic cholecystectomy	5123
Mammogram, screening	76092
Manual exam of breast	8936
Normal delivery liveborn	W90
Other skeletal x-ray	8833

Procedure name	Procedure code
Pap smear	88150
Poliomyelitis immunization	90713
Postpart care after delivery	V240
Rbc sed rate	85651
Remove cataract, insert lens	66983c
Remove coronary artery obstruction	3609
Routine child health exam	V202
Routine medical exam	V700
Small bowel endoscopy	4513
Spinal fusion	8100
Spleen biopsy	4139
Total hip replacement	27130
Total knee replacement	27447
Urinalysis, dipstick	81000c
Urine culture, colony count	87086

Appendix G - Overview of the CONQUEST 2.0 Project

WHAT IS CONQUEST?

CONQUEST stands for COmputerized Needs-oriented QUality measurement Evaluation SysTem. CONQUEST is a scheme for collecting and evaluating clinical performance measures. It has two interlocking databases--a Measure Database and a Condition Database that are linked through codes for clinical conditions and their associated services, comorbidities, complications, and risk factors. These databases are currently provided within Access in the Microsoft Office for Windows software. A prototype user-friendly interface is included to help users unfamiliar with Access to find information about clinical performance measures and clinical conditions suited to their needs.

This Appendix covers the development of CONQUEST.

Topics include:

- Background to CONQUEST
- A database of clinical performance measures
- A database of clinical conditions
- The uses of CONQUEST 2.0
- Uses of performance measures
- Features of the CONQUEST 2.0 Database

BACKGROUND TO CONQUEST

The health-care system is changing rapidly. Increasingly, quality improvement and the need for quality measurement are at the forefront of the national health policy agenda. As policymakers limit the role of the Federal Government, attempting to reduce its cost, fundamental changes in the structures and processes of health care systems are occurring in both the public and private sectors.

A major effect of these changes has been the dramatic growth of interest in quality measurement.

- *Consumers* want information to guide choices among health-care plans.
- *Purchasers* (private and government) want to assure accountability for quality in a competitive environment.
- *Health-care plans* and *providers* want data:
  - For internal quality improvement.
  - To guide decisions about which providers should be in a network or receive monetary bonuses.

- ❖ To track the impact of changes in health care delivery on quality of care.

Clinical performance measures produce some of the most meaningful and practical information in this regard.

What Are Clinical Performance Measures?

Clinical performance measures are tools that assess the delivery of clinical services. Good clinical performance requires providing services that are appropriate for each patient's or enrollee's condition, providing them safely, competently, and in an appropriate time frame, and achieving desired outcomes in terms of those aspects of patient health and patient satisfaction that can be affected by clinical services.

In other words, clinical performance measures assess certain aspects of the quality of health care delivery. Quality includes the concepts of appropriateness, access, acceptability, and satisfaction. Performance measures that focus on the appropriateness of clinical decisionmaking and competence of implementation are called "clinical" quality measures. These measures are detailed, often condition specific, and focus on the relationship between the processes of care and patient outcomes.

- Did the clinician do the right thing at the right time?
- Was effective care provided to each patient?
- Was care provided safely and in an appropriate time frame for each patient?
- Was the outcome as good as could be expected, given each patient's condition and personal characteristics and the current state of medical science?

Clinical performance measures are designed for making comparisons: comparisons over time within a provider group or organization, comparisons between providers, provider groups, or organizations, or comparisons to a goal for performance. However, the methods used must be uniformly specified and uniformly applied to all the clinicians who are compared. Detailed specifications for data collection and analysis must, therefore, be developed and tested for comparability in advance of a cycle of measurement.

Clinical Performance Measurement

Clinical performance measurement is achieved by collecting data about the health care given by clinicians to patients. These health care data can either be about processes of care (services provided to patients and patient self-care activities) or about health outcomes (changes in patients' health status or health risk states attributable to processes of care).

A clinical performance measurement takes the form of a rate or score for average performance of a clinician or clinicians in caring for a group of patients. A common method to create such a measurement is to identify a representative sample of patients who receive care from the given clinicians during a chosen time period; these patients are counted in the denominator of a rate or score. Data are also collected about the care received by these patients within a chosen "time window": criteria for quality of care are applied to these data for each patient. Patients who received good quality of care are counted in the numerator of the performance rate or score. A measure of bad performance can be constructed similarly by counting patients who did not receive good quality of care in the numerator. For instance, a clinical performance measure can take the form of rates of occurrence of complications, provided appropriate allowance is made for differences in the risk of experiencing a complication among patients counted in the denominators of the rates.

Health care data that do not identify the contribution of clinicians to patients' care do not constitute clinical performance measures unless further analysis is done. For instance, utilization rates such as rates of hospitalization or rates for surgical procedures are not measures of clinical performance until they incorporate criteria for appropriateness of use for each patient. Similarly, measures of health outcomes cannot be used for comparisons of clinical performance unless the user can ensure that the comparison is based on patient populations with equivalent chances for a good outcome. Only if comparable patient populations are included in all comparisons, or valid methods are used to adjust for differences in case mix, severity of illness, comorbidities, and patient preferences, can data on health outcomes be used to infer quality of clinical performance.

Performance Measure Sets

Developers of measures frequently develop a set of measures that are meant to be used together for a specific purpose or in a specific setting. The advantage of using a set of measures is that several different aspects of clinical performance can be explored in one cycle of measurement. Sets can range in size from less than ten to hundreds of measures. Different measure sets may apply to different patient populations in different care settings with different care needs, and for different clinical conditions.

Diagnostically Related Measure Sets

A diagnostically related measure set groups performance measures according to a diagnosis or condition. For example, a diabetes mellitus measure set may contain measures concerning the tests and treatments for diabetes as well as measures of the

outcomes experienced by a population of patients with diabetes. It may also include performance measures related to comorbidities, complications, and risk factors related to diabetes.

Diagnostically related measure sets make sense for performance measurement because they measure a continuum of services centered on the needs of patients across health care settings and types of professionals. By focusing scarce measurement resources on in-depth studies of a single diagnosis or condition, diagnostically related measure sets facilitate performance measurement. Over time, measure sets may be rotated to cover a wide variety of important diagnoses.

Recent Efforts to Organize Clinical Performance Measurement

As the market's readiness for new information about clinical quality measurement has increased, so too has the need for systems to organize and standardize the structure and substance of measures so that they can be applied in a consistent manner and result in comparable data.

Recently, organizations such as the Foundation for Accountability (FAcct), the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), and the National Committee on Quality Assurance (NCQA) have initiated collection of clinical performance measures. Each of these organizations seeks to collect and synthesize information on clinical performance measures. JCAHO aims to create a catalog of clinical performance measures to "serve as a national performance measure resource." NCQA solicits measures for HEDIS 3.0. Health care organizations seeking accreditation from either JCAHO or NCQA must demonstrate compliance with standards requiring ongoing quality measurement programs.

The Agency for Health Care Policy and Research (AHCPR), an agency of the Federal Government, serves the public interest by sponsoring research in performance measurement and promoting scientific rigor in performance measurement. Not only has AHCPR sponsored the development and evaluation of a wide variety of clinical performance measures, but it has also released two reports on measure development and evaluation:

- *Using Clinical Practice Guidelines to Evaluate Quality of Care: Issues and Methods* (AHCPR Publication Nos. 95-0045 and 95-0046, 1995).
- *Understanding and Choosing Clinical Performance Measures for Quality Improvement: Development of a Typology.* (AHCPR Publication Nos. 95-N001 and 95-N002, 1995).

Originally, CONQUEST 1.0 and CONQUEST 1.1 contributed to the scientific mission of

AHCPR by their capacity to disseminate knowledge about clinical performance measures and to promote efficiency in clinical performance measurement. CONQUEST 2.0 continues in the same spirit with additional performance measures and a refined user interface.

THE TYPOLOGY PROJECT

The Typology Project was AHCPR's first effort to collect and summarize available information on clinical performance measures. In funding the project, the AHCPR sought to (1) develop a resource for identifying performance measures, (2) define an approach for evaluating measures, and (3) to examine issues related to the use of clinical performance measures. AHCPR contracted with the Center for Health Policy Studies (CHPS) in Columbia, Maryland, and its subcontractor, the Center for Quality of Care Research and Education (QCaRE) at the Harvard School of Public Health to pursue these goals. Dr. R. Heather Palmer at Harvard provided the conceptual leadership as well as the primary methodological guidance for the project.

During the Typology Project researchers:

- Collected and analyzed examples of the range of clinical performance measures currently in use.
- Summarized the resulting information, especially in terms of properties that determine whether clinical performance measures are appropriate for particular uses.
- Assessed the feasibility of deriving clinical performance measures from existing databases.
- Explored the costs of different types of clinical performance measures.
- Explored sampling issues associated with the application of selected clinical performance measures at the level of health care plans.

By examining many examples of clinical performance measures, researchers discerned an underlying structure of performance measurement. This underlying structure, in turn, allowed them to identify key attributes of measures. They then organized these attributes into a classification scheme which serves as the basis for a common language for performance measurement.

The Typology Project took a population-based approach to locating measures. First, a listing of major health care issues by age group was compiled. When the literature search for measures related to these conditions proved to be an inefficient strategy (most existing measure sets were not described in the peer-reviewed literature), networking was selected as a strategy to locate measures. Using the measures located through this sequence of activities, researchers developed a classification scheme known as the Typology.

A Database of Performance Measures

As researchers reviewed measures related to conditions and began to develop the classification scheme, it became obvious that there had to be a convenient way to store and retrieve information. A computer database was the logical solution to the problem. The Typology provides a structure and framework for organizing measures. The database provides easy access to information.

The Value of a Database of Clinical Performance Measures

A database of performance measures makes sense for three reasons: (1) it provides prompt access to information about the characteristics of different performance measures, (2) it permits sorting and cross-tabulation of information on measures, and (3) it provides a common language of performance measurement to facilitate communication.

The Need for Information

As described earlier, in a rapidly changing environment, private purchasers, consumer groups, Federal and State agencies, and health care plans demand better information on quality to compare clinical performance among providers over time. A publicly available resource of clinical performance measures and their attributes makes it easy to find measures suited to the various needs of health care providers, purchasers, regulators, and consumers.

A database of performance measures helps users:

- Find measures belonging to named measure sets.
- Find the characteristics of individual measures.
- Compare measures on key attributes.
- Identify data requirements for measures.
- Determine which measures are best suited to a particular purpose.
- Find measures for clinical conditions and populations of interest.

The Need for a Common Language of Performance Measures

The demand for better information on quality has led to a flurry of performance measure development. Users attempting to take advantage of the growing number of

measures have been hampered by:

- The need to obtain descriptions of measure sets individually from their developers in order to learn even basic facts about the measures.
- Incomplete information about the content of a measure in published sources.
- Lack of detail about methods for identifying and sampling appropriate target populations.
- Imprecise definitions of data elements.
- Inadequate information about how to use collected data to create a performance rate.
- **$** Missing facts about the reliability or validity of the measures.

A classification scheme such as the Typology and its availability in the software form known as CONQUEST provides a tool to capture key characteristics of many performance measures in one database. It also offers a method for quick comparisons of measures by using a common language for describing very different kinds of measures.

The Typology, A Classification Scheme

First and foremost, CONQUEST 2.0 is a typology, a classification system. As described earlier, performance measures can be captured in many ways. The typology researchers have identified a number of important attributes of performance measures and classified measures according to these attributes. The typology provides a common language for talking about, comparing, and evaluating clinical performance measures.

THE MEASURE DATABASE

Performance measures are developed by a wide variety of groups and organizations for many different purposes. The Measure Database contains 1,197 measures belonging to 53 measure sets. The sets were selected to represent a wide variety of measurement strategies, clinical content, users, and uses. CONQUEST 2.0 permits users to enter whatever additional measure sets are of interest to them, and then compare these sets to others in the database. A list of the measure sets currently included in CONQUEST 2.0 can be found in Appendix D. The coding found in CONQUEST 2.0 for these measure sets was verified by the developer of each measure set.

THE CONDITION DATABASE

The health care needs of a population drive the choice of performance measures. For example, a health plan that has a mostly elderly population with many who have diabetes will be interested in performance measures focused on diabetes care for

elderly patients. The Condition Database currently contains 59 conditions, and a list of these conditions can be found in Appendix E.

Sixteen of these conditions were coded directly from a related AHCPR Clinical Practice Guideline, with entries verified by a member of each Guideline Panel. The remaining conditions were chosen because they are common, create a substantial burden of illness, and consume considerable health care resources. The categories coded for

these conditions in the CONQUEST 2.0 database were derived from scientific publications, including reports of AHCPR Patient Outcomes Research Teams (PORTs). The literature was selected with advice from clinical experts and is cited in the CONQUEST 2.0 database. CONQUEST 2.0 permits users to enter whatever additional conditions are of interest to them and then to search the Measure Database for related measures.

Clinical Events Codes Linking the Measure and Condition Databases

For each measure in the Measure Database, up to three codes are permitted to capture the "clinical events" that define the numerator and up to three codes that define the denominator. These clinical events include:

- Services such as items of the patient's history and physical examination, tests, procedures, drugs, and other therapies.
- Health states such as clinical conditions and the comorbidities, complications, and risk factors associated with them.

Codes for clinical events are also applied to services and health states for each condition in the Condition Database. By matching clinical events codes, users can conduct searches that link across the Measure and Condition Databases. For instance, the user can find services recommended by a guideline for a condition in the Condition Database, then search to see if any measures related to these services are currently available in the Measure Database, using the function "Search for Measures that may be adapted."

CONQUEST 2.0, however, does not contain linking codes for all listed clinical events. There are no linking codes for health states that are very broadly defined; such a linking code might not yield clinically meaningful relationships between the Condition and Measure Databases. For instance, there are no linking codes for certain health states encountered in coding AHCPR Guideline-related conditions in the Condition Database, such as "social stigma," "false sense of security," and "pain." Similarly, there are no linking codes in the Measure Database for broadly defined services such as "visit" (not further specified) nor "hospitalization" (not further specified). However,

omitting codes for broad categories such as "hospitalization" does not prevent users from searching for measures related to hospital versus ambulatory care. This search can be accomplished by using the coding in the Measure Database for the care setting to which a measure applies.

Some measures in the Measure Database relate to conditions that are not yet included in the Condition Database. Similarly, for some clinical events in the Condition Database there are no measures yet developed or included in the Measure Database.

THE USES OF CONQUEST 2.0

Three major uses of CONQUEST 2.0 are described here: (1) as a source of information about performance measures in the database, (2) as a source of information on specific conditions and the populations that experience them, as well as measures developed for or adaptable to performance measurement for the condition, and (3) as a tool for comparing and evaluating the worth of measures.

Source of Information About Measures in the Database

The first use of CONQUEST 2.0 is as a source of information about measures to suit users' specific performance measurement needs. For example, a corporate purchaser of health care may wish to locate outcome measures explicitly designed for managed care settings. Or a State Medicaid director may be interested in measures of processes of care for children that use administrative data. With CONQUEST 2.0, users can search for measures for:

- Specific conditions.
- Specific age groups.
- Primary prevention.
- Secondary prevention, i.e., early detection.
- Managed care.
- Particular health-care settings.
- Process measurement.
- Outcome measurement.
- Proxy outcome measurement.
- Administrative data.
- Medical records data.
- Patient survey data.

Users can limit their search to measures with reliability and validity testing or to measures currently in use.

For each measure in the database, along with the coded categories listed above, the user finds a verbal description of the numerator and denominator of the measure and a short "clinical rationale." The developer of the measures provided the clinical rationale which describes the condition to which a measure relates, why it is important to measure performance for this condition, and how the measure captures an aspect of quality of clinical performance.

This application of CONQUEST 2.0 is limited only by the number and diversity of measures in the Measure and Condition Databases. If additional measures are known to exist but not yet entered into CONQUEST 2.0, the user can code and enter these measures and compare them to those already entered.

Source of Information on Specific Conditions and Populations

The second use of CONQUEST 2.0 is as a source of information on how clinical conditions affect populations in terms of prevalence, burden of illness, costs of care, and other characteristics. For each condition, information can be displayed concerning recommended services and the complications that may occur in different time frames. The user can then search for performance measures related to a condition, or to its services and complications, and ask for reports on the attributes of these measures.

The section on services in the condition database provides a method for quick and approximate summary and comparison of recommendations from clinical practice guidelines. This section also links to the Measure Database and allows searches for measures related to these guideline recommendations.

If interested in conditions not yet entered into CONQUEST 2.0, the user can code and enter these conditions, then search for related performance measures that may already have been entered into the Measure Database, using the clinical event codes to link the Measure and Condition Databases.

Tool for Evaluating Measures

A third use of CONQUEST 2.0 is as a tool to compare, contrast, and evaluate whether the construction of a performance measure is suitable for its purpose. This application builds on the common framework and language established by CONQUEST 2.0. For instance, if outcome measures are used to compare providers, some method must be used to allow for differences among these providers in the patient populations they serve and in regard to patient characteristics that determine the risk for a worse outcome. CONQUEST 2.0 codes whether a method was used to allow for patient differences and, if so, the type of method used.

HOW CONQUEST 2.0 IS USED

By selecting from a menu of options, users can produce reports which compare groups of measures on a single attribute, e.g., data sources required to construct the measures or aspects of process or outcome captured by the measures. The current prototype user interface is programmed in Microsoft Access 2.0, a software package that is widely available. Users familiar with Access have the freedom to design their own queries and reports using all the available functions of Access.

Users of Clinical Performance Measures

Clinical performance measures are especially useful for strategies designed to promote quality clinical care. These strategies include accreditation programs, internal quality improvement programs, purchaser and consumer choice among providers using "report cards," standardized reports of performance measurement, and external quality improvement programs.

Accreditation Programs

Professional groups offer programs of voluntary accreditation based on requirements for organizational structure assessed by means of site visits. For instance, accreditation is offered by the Joint Commission on Accreditation of Health Care Organizations (JCAHO) for hospitals, ambulatory surgery centers, long-term care facilities, home-care programs, and health care networks, and by the National Committee on Quality Assurance (NCQA) for managed care organizations. Both programs require an internal quality improvement component within each accredited organization, and both have developed sets of clinical performance measures.

Internal Quality Improvement Programs

Health care providers operate internal quality improvement programs often stimulated by requirements of accreditation organizations. Internal quality improvement programs use repeated measurements of clinical performance to identify areas needing improvement, and then to check whether performance is better after actions aimed to improve care are implemented.

Purchaser Choice on the Basis of Quality

Increasingly, corporate purchasers in the private sector of health care require that health care plans provide measurements of clinical performance to guide the choices of employees among health care providers. As part of their marketing strategy for

individual consumers, some plans provide their own "report cards" displaying clinical performance measurements. Both the NCQA and the Foundation for Accountability (FAcct) are developing performance measurement sets to guide purchaser choices.

Consumer Choice on the Basis of Quality

Are clinical performance measures also useful for "Report Cards" for consumers? We believe consumers will find clinical performance measures of great interest if they are presented in an understandable format. Many of the "Report Cards" used to date contain few measures, with little clinical information and thus fail to address different consumer needs and preferences. Different clinical conditions are of interest to different clinical populations. For each condition, measures are needed to cover different aspects of care. Most importantly, reports on clinical performance for consumers should include text educating consumers about the care that is recommended by clinical practice guidelines and the outcomes that can be expected for each condition.

External Quality Improvement Programs

External quality improvement programs operated by state or regional consortia and by peer review organizations (PROs) coordinate cycles of clinical performance measurement, and feed back comparisons of performance to encourage internal quality improvement efforts. The external agency collects the performance measurements, verifies their accuracy, and presents comparisons among similar providers of care.

Assessing the Worth of Clinical Performance Measures

CONQUEST 2.0 codes whether a measure has been tested for reliability and validity and what type of test was used. A valid clinical performance measure is one that measures what it is supposed to measure; for measures included in CONQUEST 2.0 the construct being measured is an aspect of clinical performance. For a measure to be valid, it must be low in both random and systematic error. Validity includes reliability, which is the extent to which the measure is low in random error; an unreliable measure, therefore, cannot have high validity. Reliability of a measure captures how consistently it performs when applied.

Reliability and validity of a measure are determined with regard to the intended use of the measurement. For instance, a patient survey may have been validated as a measure of health status. This does not mean that this survey is valid as a measure of quality of clinical performance. Many factors other than the quality of care received influence a patient's health status. Determinants of health include prior health, type of illness affecting the patient, the severity of that illness, any comorbidities, the patient's

own lifestyle choices, and whether the patient accepts or can afford effective medical care. To create a measure of clinical performance requires that the data be analyzed so as to remove the influence on health status of all of these factors other than clinical care. If this is done, a new measure has been created and must now be validated as a measure of clinical performance.

For any of the uses described above, the user may want to know, "How good is this measure?" CONQUEST 2.0 does not classify measures as "good" or "bad" because a measure may be "good" for one purpose and "bad" for another. The worth of a measure to the user depends upon the purpose for which it will be used and the time, personnel, data, and other resources available for measurement.

Whether a measure is suitable for a particular use depends in large part upon the purpose of the user. Since more reliable and valid measures tend to be more expensive to construct, users may settle for a less valid measure if that is acceptable for the given purpose. For instance, a high degree of validity in measurement is required if an external agent intends to use the measure to sanction, or deny payment to, a provider. Toward the other extreme, less validity is required when a provider organization intends to use repeated measurement, with subjective interpretation of the trend in results, to manage progress over time toward an internal target for improved performance. CONQUEST 2.0 provides the user with information on the purpose for which a measure was originally developed.

Suitability for a given purpose also depends upon the resources available for measurement. CONQUEST 2.0 permits the user to review the data sources required for a measure and to find out whether analysis of the costs of measurement was done. If funds and data are limited, a crude measurement may be better than no measurement, as long as the user remains aware of the limitations of the measure. Serious problems can arise, however, if a user deploys a crude measurement tool, then acts upon it as though it means precisely what it seems to mean. For instance, problems arise when users interpret a change in a performance measurement as a true change, and plan to act upon it, when the amount of change observed falls within the range of measurement error in the instrument.

In summary, a "good" measure is one that has sufficient validity for its intended use. Because the notions of validity and reliability are critical to judgments about measures, the CONQUEST 2.0 classification assesses measures for several different types of validity and reliability. If reliability and validity testing have been done, the results can be obtained along with the measure specifications from the measure developer.

Controlling Costs for Performance Measurement

Users can contain costs while maintaining rigor in clinical performance measurement if they:

- Use data that are routinely available.
- Re-use existing measure sets if suitable for their purpose.
- Adapt existing measures rather than develop new ones.
- Use representative samples of cases when cost per case is high.
- Use smaller sample sizes when repeating measurements.

Adapting Measures

The CONQUEST 2.0 database allows users to locate measures that may be adapted for different uses than those that their developer intended.

For example, a measure developed for managed care settings may be adapted for use in fee-for-service practices if the adapter finds a way around an obvious difficulty: measures used for managed care settings usually sample cases from the enrollee population; however, there are no enrollees for fee-for-service clinicians. The adapter therefore redefines the denominator of the measure to include individuals who have seen each physician of interest for regularly scheduled visits at least twice in the prior year. Additional adaptation may be required because data sources are likely to differ between the two settings. Administrative data in the fee-for-service setting is likely to be different from administrative data in managed care.

A measure developed for one condition may be adapted to another condition. For instance, a measure of communication to patients about self-care for diabetes may be adapted to measure communication concerning self-care for asthma. In this example, the adapter recognizes a similarity in the processes of care recommended for two different conditions.

CONQUEST 2.0 currently contains a wide variety of types of measures. Measures with outdated clinical content are included if their structure is sophisticated. A user might choose to update the clinical content of the measure, or adapt the measure to a different condition altogether.

Once adapted, a measure usually does not produce results that can be directly compared with those of the original measure. Also, an adapted measure must be tested again for reliability and validity.

FEATURES OF THE CONQUEST 2.0 DATABASE

This section summarizes some key features of CONQUEST 2.0, focusing on the current form of the Measure Database, the Condition Database, and the user interface.

CONQUEST 2.0 is a valuable tool for collecting, analyzing, and selecting clinical performance measures related to common conditions that create a serious burden of illness and consume substantial health care resources. However, CONQUEST 2.0 cannot substitute for clinical knowledge nor for knowledge of quality measurement science. Reading a clinical practice guideline does not confer the ability to practice as a clinician; similarly, obtaining printouts from CONQUEST 2.0 does not make the reader an expert in clinical performance measurement. Rather, CONQUEST 2.0 permits knowledgeable users to work with remarkable efficiency while expanding the breadth and depth of their knowledge about clinical performance measurement.

Features of the Measure Database

Important features of the Measure Database include the following.

- **The typology that structures the Measure Database provides a common language for performance measurement.** The attributes of performance measures described in CONQUEST 2.0 are key to understanding the strengths and limitations of a measure and its intended and potential uses. This understanding is essential to valid and useful performance measurement.

- **The Measure Database permits updating as required.** As the science of performance measurement continues to mature, existing measure entries can be edited and new measures can be entered. Measures currently in the database will need to be refined and revised. New measures will need to be added. Over time, the categories of the classification scheme may need revision.

- **Measures may be adapted to new uses.** Measures may be adaptable to clinical conditions, populations, care settings, or uses other than those originally intended by the developer; once adapted, a measure should be tested (again) for reliability and validity.

$ **Older measures with sophisticated structure are included.** Measures developed over a decade ago are included if their construction and testing suggest that they are more advanced than many measures currently in use. Clinical content for these older measures is likely to need updating when adapting the measures for current use.

- **Developers must be contacted to verify measures.** Ultimately, the most efficient process for updating measures or adding new measures involves contacting the developers of the measures. Although these contacts are labor intensive, they are essential to maintaining the integrity of the database.

Measure developers must have the opportunity to verify the coding of their measures, and the best way to ensure their input is through personal contacts.

- **Beta testing does not guarantee that a measure is ready to be used.** Beta testing of a measure does not necessarily mean that it is ready to be used without further refinement. Users must always consider their own reasons for measurement and their own unique situations.

- **Presence of reliability or validity testing does not guarantee reliability or validity of a measure.** Coding of reliability and/or validity testing in the database does not provide prospective users of a measure the *results* of the testing. Potential users must seek out original sources or contact the developer to obtain details.

- **Denominator and numerator descriptions are not specifications.** The denominator or numerator descriptions provided by CONQUEST 2.0 do not take the place of detailed measure specifications and algorithms for constructing the measure. Such information is contained in the specifications database for those measures where the developer has provided it.

- **The presence of measures in the database does not imply any recommendation about the practice of medicine.** Informational messages on each report warn users against unwarranted assumptions concerning the measures contained in the database. The contents of these databases does not imply any recommendation concerning the practice of medicine. Decisions to use services and expectations concerning the health outcomes that are achievable must always be made by a responsible clinician in light of a patient's individual circumstances. Clinical science advances frequently; before users measure clinical performance, the clinicians concerned should evaluate whether the measures proposed are still current, and also appropriate for their setting of care.

Features of the Condition Database

- **The structure of the Condition Database provides a framework for considering characteristics of conditions that are important for performance measurement.** Many fields in the Condition Database are incomplete because the information is not yet available. The categories of information incorporated in the Condition Database cover major areas of interest for individuals and groups doing performance measurement, e.g., prevalence, cost, use, complications, and services. Over time, continued outcomes research

will provide the information needed to complete the database.

- **The Condition Database permits updating as required.** The Condition Database permits editing of existing entries and entry of new conditions as new information emerges and as users' own needs dictate. The evidence available during the building of CONQUEST 2.0 for each condition and its associated services, complications, comorbidities, and risk factors was not exhaustive. Over time, as new information emerges, the database can be made more comprehensive.

- **Linking codes should be narrow rather than broad.** The linking codes assigned to the services associated with the condition, as well as the linking codes assigned to the preventable adverse outcomes, comorbidities, and risk factors of the condition need to be reasonably specific to the service or outcome. Non-specific linking codes lead to matches between the Measure and Condition Databases that are too broad and do not make sense clinically. There is a trade-off between sensitivity and specificity in designating linking codes.

- **Precise coding of some categories is not possible.** Coding the type of disability, the time course of the condition, and the frequency of occurrence of each form of the condition is a matter of judgment. It is important for users to understand that the coding for these fields is not precise but rather intended to provide an approximate estimate for disability, time course, or frequency of occurrence.

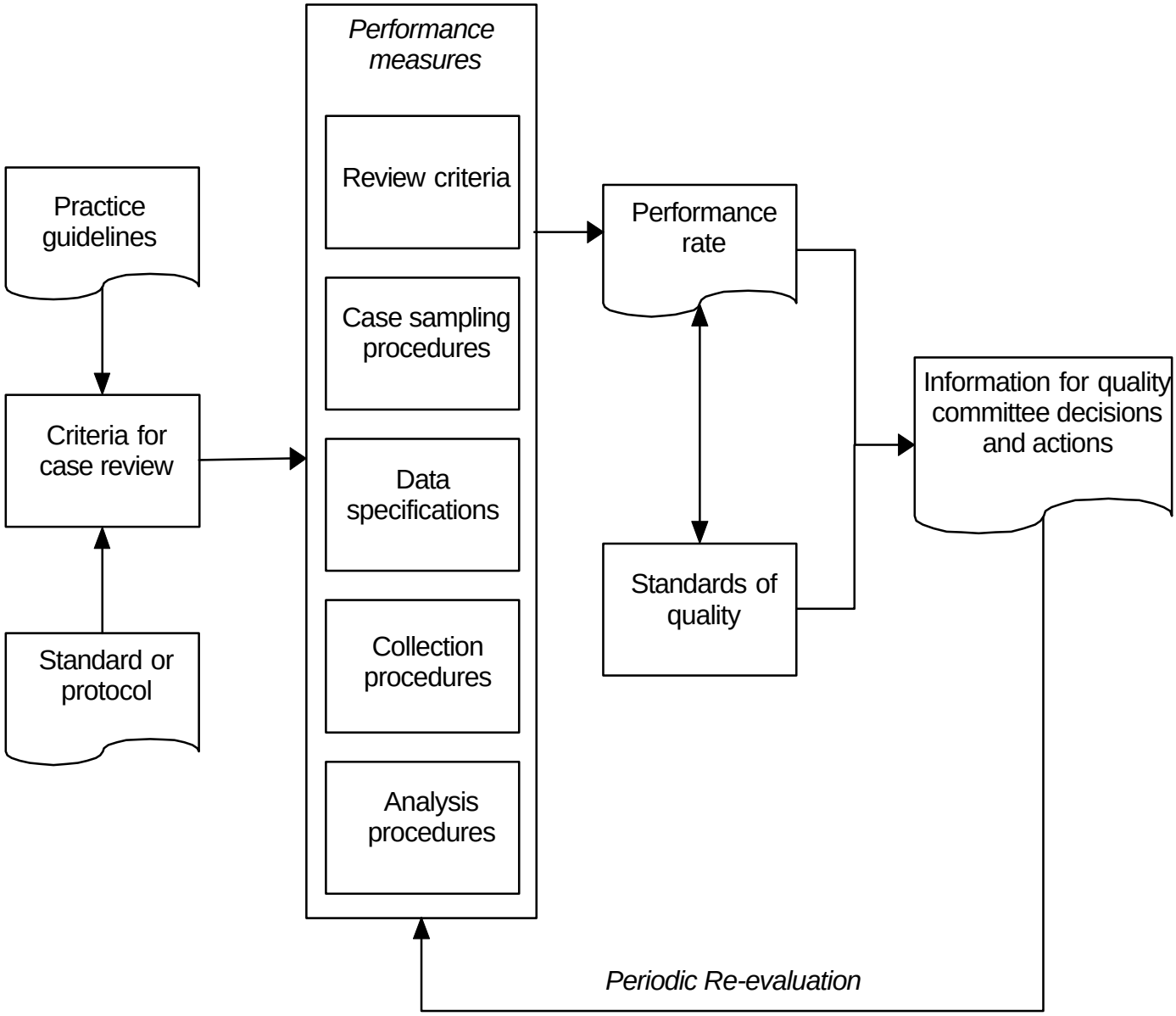
$ **Guideline-related material is summarized rather than detailed.** For guideline-related conditions, services for the condition are coded in relation to the guideline's recommendations, but in a simplified form that does not include the level of detail available in the guideline itself. However, the database provides references to pages of the guideline that direct the user to this more detailed source of information.

Features of the User Interface

The CONQUEST 2.0 user interface provides users who are not familiar with the underlying Microsoft Access software with a way to enter and retrieve information in a variety of useful report formats. Users familiar with Microsoft Access can create a wide

variety of analyses and reports based on their own choices in selecting and recombining the detailed information in the CONQUEST 2.0 Database. In-depth users will wish to familiarize themselves with Microsoft Access in order to benefit from the rich level of detail and many possibilities for analyses and reports that CONQUEST 2.0 provides.

Appendix H - Creating and Using Performance Measures



Appendix I - Overview of the CONQUEST 1.0 Project

The COmputerized Needs-oriented QUality measurement Evaluation SysTem is a tool that permits users to collect and evaluate health care quality measurements to find those suited or adaptable to their needs. It was developed with funding from the Agency for Health Care Policy and Research (AHCPR) acquired by the Center for Quality of Care Research and Education at the Harvard School of Public Health and Mikalix & Company.

CONQUEST 1.0 has two databases describing "Measures" and clinical "Conditions." The Measure Database contains descriptions of clinical performance measures--tools to measure the quality of the health care delivered by specific providers. The Condition Database contains descriptions for diagnosed conditions and patient health states whether diagnosed or not.

These two databases link by codes for clinical services and health outcomes related to specific measures and specific conditions. The Measure Database contains selected attributes of 53 sets of clinical performance measures containing a total of 1,185 measures. The Condition Database contains selected attributes of 52 clinical conditions.

Users can enter measures and conditions of interest to them if these are not already in the database. To obtain specific information, users can search for measures by name, search for measures related to specific conditions or the services and health outcomes associated with those conditions, and then print reports of the attributes of these measures, including whom to contact to obtain the exact measure specifications.

This overview covers the history and development of CONQUEST 1.0. Topics include:

- Background to CONQUEST 1.0
- A database of clinical performance measures
- What is CONQUEST 1.0?
- The uses of CONQUEST 1.0
- Uses of performance measures
- Features of the CONQUEST 1.0 Database

BACKGROUND TO CONQUEST 1.0

The health care system is changing rapidly. Increasingly, quality improvement and the need for quality measurement are at the forefront of the national health policy agenda. As policy-makers limit the role of the Federal government, attempting to reduce its cost, fundamental changes in the structures and processes of health care systems are

occurring in both the public and private sectors.

A major effect of the changes has been the dramatic growth of interest in quality measurement.

- Consumers want information to guide choices among health care plans.
- Purchasers (private and Government) want to ensure accountability for quality in a competitive environment.
- Health care plans and providers want data:
  - For internal quality improvement.
  - To guide decisions about which providers should be in a network or receive monetary bonuses.
  - To track the impact of changes in health care delivery on quality of care.

Clinical performance measures produce some of the most meaningful and practical information in this regard.

WHAT ARE CLINICAL PERFORMANCE MEASURES?

Clinical performance measures are tools that assess the delivery of clinical services. Good clinical performance requires providing services that are appropriate for each patient or enrollee's condition, providing them safely, competently, and in an appropriate time frame, and achieving desired outcomes in terms of those aspects of patient health and patient satisfaction that can be affected by clinical services.

In other words, clinical performance measures assess certain aspects of the quality of health care delivery. Quality includes the concepts of appropriateness, access, acceptability, and satisfaction. Performance measures that focus on the appropriateness of clinical decision-making and competence of implementation are called "clinical" quality measures. These measures are detailed, often condition specific, and focus on the relationship between the processes of care and patient outcomes.

- Did the clinician do the right thing at the right time?
- Was effective care provided to each patient?
- Was care provided safely and in an appropriate time frame for each patient?
- Was the outcome as good as could be expected, given each patient's condition and personal characteristics and the current state of medical science?

Clinical performance measures are designed for making comparisons: comparisons over time within a provider group or organization, comparisons between providers, provider groups or organizations, or comparisons to a goal for performance. However,

the methods used must be uniformly specified and uniformly applied to all the clinicians who are compared. Detailed specifications for data collection and analysis must, therefore, be developed and tested for comparability in advance of a cycle of measurement.

CLINICAL PERFORMANCE MEASUREMENT

Clinical performance measurement is achieved by collecting data about the health care given by clinicians to patients. These health care data can either be about processes of care (services provided to patients and patient self-care activities) or about health outcomes (changes in patients' health status or health risk states attributable to processes of care).

A clinical performance measurement takes the form of a rate or score for average performance of a clinician or clinicians in caring for a group of patients. A common way to create such a measurement is to identify a representative sample of patients who receive care from the given clinicians during a chosen time period; these patients are counted in the denominator of a rate or score. Data are also collected about the care received by these patients within a chosen "time window": criteria for quality of care are applied to these data for each patient. Patients who received good quality of care are counted in the numerator of the performance rate or score. A measure of bad performance can be constructed similarly by counting patients who did not receive good quality of care in the numerator. For instance, a clinical performance measure can take the form of rates of occurrence of complications, provided appropriate allowance is made for differences in the risk of experiencing a complication among patients counted in the denominators of the rates.

Health care data that do not identify the contribution of clinicians to patients' care do not constitute clinical performance measures unless further analysis is done. For instance, utilization rates such as rates of hospitalization or rates for surgical procedures are not measures of clinical performance until they incorporate criteria for appropriateness of use for each patient. Similarly, measures of health outcomes cannot be used for comparisons of clinical performance unless the user can ensure that the comparison is based on patient populations with equivalent chances for a good outcome. Only if comparable patient populations are included in all comparisons, or valid methods are used to adjust for differences in case mix, severity of illness, comorbidities and patient preferences, can data on health outcomes be used to infer quality of clinical performance.

PERFORMANCE MEASURE SETS

Developers of measures frequently develop a set of measures that are meant to be used together for a specific purpose or in a specific setting. The advantage of using a set of measures is that several different aspects of clinical performance can be explored in one cycle of measurement. Sets can range in size from less than ten to hundreds of measures. Different measure sets may apply to different patient populations in different care settings with different care needs, and for different clinical conditions.

Diagnostically Related Measure Sets

A diagnostically related measure set groups performance measures according to a diagnosis or condition. For example, a diabetes mellitus measure set may contain measures concerning the tests and treatments for diabetes as well as measures of the outcomes experienced by a population of patients with diabetes. It may also include performance measures related to comorbidities, complications, and risk factors related to diabetes.

Diagnostically related measure sets make sense for performance measurement because they measure a continuum of services centered on the needs of patients across health care settings and types of professionals. By focusing scarce measurement resources on in-depth studies of a single diagnosis or condition, diagnostically related measure sets facilitate performance measurement. Over time, measure sets may be rotated to cover a wide variety of important diagnoses.

RECENT EFFORTS TO ORGANIZE CLINICAL PERFORMANCE MEASUREMENT

As the market's readiness for new information about clinical quality measurement has increased, so too has the need for systems to organize and standardize the structure and substance of measures so that they can be applied in a consistent manner and result in comparable data.

Recently, organizations such as the Foundation for Accountability (FAcct), the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), and the National Committee on Quality Assurance (NCQA) have initiated collection of clinical performance measures. Each of these organizations seeks to collect and synthesize information on clinical performance measures. The JCAHO aims to create a catalog of clinical performance measures to "serve as a national performance measure resource." NCQA solicits measures for HEDIS 3.0. Health care organizations seeking accreditation from either the JCAHO or NCQA must demonstrate compliance with standards requiring ongoing quality measurement programs.

The Agency for Health Care Policy and Research (AHCPR), a scientific agency of the Federal government, serves the public interest by sponsoring research in performance measurement and promoting scientific rigor in performance measurement. Not only has AHCPR sponsored the development and evaluation of a wide variety of clinical performance measures, but it has also recently released two reports on measure development and evaluation:

- Using Clinical Practice Guidelines to Evaluate Quality of Care: Issues and Methods (AHCPR Publication Nos. 95-0045 and 95-0046, 1995).

- Understanding and Choosing Clinical Performance Measures for Quality Improvement: Development of a Typology. (AHCPR Publication Nos. 95-N001 and 95-N002, 1995).

CONQUEST 1.0 contributes to the scientific mission of AHCPR by its capacity to disseminate knowledge about clinical performance measures and to promote efficiency in clinical performance measurement.

THE TYPOLOGY PROJECT

The Typology Project was AHCPR's first effort to collect and summarize available information on clinical performance measures. In funding the project, AHCPR sought to (1) develop a resource for identifying performance measures, (2) develop an approach for evaluating measures, and (3) examine issues related to the use of clinical performance measures. AHCPR contracted with the Center for Health Policy Studies (CHPS) in Columbia, Maryland, and its subcontractor, the Center for Quality of Care Research and Education (QCaRE) at the Harvard School of Public Health to pursue these goals. Dr. R. Heather Palmer at Harvard provided the conceptual leadership as well as the primary methodological guidance for the project.

During the Typology Project we:

- Collected and analyzed examples of the range of clinical performance measures currently in use.
- Summarized the resulting information, especially in terms of properties that determine whether clinical performance measures are appropriate for particular uses.
- Assessed the feasibility of deriving clinical performance measures from existing databases.
- Explored the costliness of different types of clinical performance measures.
- Explored sampling issues associated with the application of selected clinical

performance measures at the level of health care plans.

By examining many examples of clinical performance measures, we discerned an underlying structure to performance measurement. This underlying structure, in turn, allowed us to identify key attributes of measures. We then organized these attributes into a classification scheme which serves as the basis for a common language for performance measurement.

The Typology Project took a population-based approach to locating measures. First, a listing of major health care issues by age group was compiled. Next, we searched the literature for measures related to these conditions. When this proved to be an inefficient strategy (most existing measure sets were not described in the peer-reviewed literature), networking was selected as a strategy to locate measures. Using the measures located through this sequence of activities, we developed a classification scheme known as the Typology.

A Database of Performance Measures

As we reviewed measures related to conditions and began to develop the classification scheme, it became obvious that we needed a convenient way to store and retrieve information. A computer database was the logical solution to the problem. The Typology provides a structure and framework for organizing measures. The database provides easy access to information.

The Value of a Database of Clinical Performance Measures

A database of performance measures makes sense for three reasons: (1) it provides prompt access to information about the characteristics of different performance measures, (2) it permits sorting and cross-tabulation of information on measures, (3) it provides a common language of performance measurement to facilitate communication.

The Need for Information

As described earlier, in our rapidly changing environment, private purchasers, consumer groups, federal and state agencies, and health-care plans demand better information on quality to compare clinical performance among providers over time. A publicly available resource concerning of clinical performance measures and their attributes makes it easy to find measures suited to the various needs of health-care providers, purchasers, regulators, and consumers.

A database of performance measures helps users:

- Find measures belonging to named measure sets.
- Find the characteristics of individual measures.
- Compare measures on key attributes.
- Identify data requirements for measures.
- Determine which measures are best suited to a particular purpose.
- Find measures for clinical conditions and populations of interest.

THE NEED FOR A COMMON LANGUAGE OF PERFORMANCE MEASURES

The demand for better information on quality has led to a flurry of performance measure development. Users attempting to take advantage of the growing number of measures have been hampered by:

- The need to obtain descriptions of measure sets individually from their developers in order to learn even basic facts about the measures.
- Incomplete information about the content of a measure in published sources.
- Lack of detail about methods for identifying and sampling appropriate target populations.
- Imprecise definitions of data elements.
- Inadequate information about how to use collected data to create a performance rate.
- Missing facts about the reliability or validity of the measures.

A classification scheme such as the Typology and its availability in the software form known as CONQUEST 1.0 provides a tool to capture key characteristics of many performance measures in one database. It also offers a method for quick comparisons of measures by using a common language for describing very different kinds of measures.

WHAT IS CONQUEST 1.0?

CONQUEST stands for COmputerized Needs-oriented QUality measurement Evaluation SysTem. CONQUEST 1.0 is a scheme for collecting and evaluating clinical performance measures. It has two interlocking databases--a Measure Database and a Condition Database that are linked through codes for clinical conditions and their associated services, comorbidities, complications, and risk factors. These databases are currently provided within Access in the Microsoft Office for Windows software. A prototype user-friendly interface is included to help users unfamiliar with Access to find clinical performance measures suited to their needs.

The Typology A Classification Scheme

First and foremost, CONQUEST 1.0 is a typology--a classification scheme. As described earlier, performance measures can be captured in many ways. We have identified a number of important attributes of performance measures and classified measures according to these attributes. The typology provides a common language for talking about, comparing, and evaluating clinical performance measures.

The Measure Database

Performance measures are developed by a wide variety of groups and organizations for many different purposes. At present, the Measure Database contains 1,185 measures belonging to 53 measure sets. The sets were selected to represent a wide variety of measurement strategies, clinical content, users, and uses. CONQUEST 1.0 permits users to enter whatever additional measure sets are of interest to them, and then compare these sets to others in the database.

The measure sets currently included in CONQUEST 1.0 are:

ACMAD - Adult
ACMAD - Pediatrics
AVHO - Avoidable Hospitalizations
CCQE - BPH
CCQE - Post-operative pain
CCQE - UI
Complications Screening Program BIH
DEMPAQ - Claims
DEMPAQ - Records
HCFA - AMI
HCFA - Mortality
HCFA Generic Screens - Home Care
HCFA Generic Screens - Inpatient
HCFA Generic Screens - Psychiatric
HCFA Generic Screens - SNF
HCUP - 3
HEDIS - Administrative
HEDIS - Records
HEDIS - Hybrid
JCAHO - Cardiology
JCAHO - Infection Control
JCAHO - Medication Use
JCAHO - Oncology
JCAHO - Perioperative
JCAHO - Prenatal

JCAHO - Trauma
Maryland Hospital Association
New York State CABG
Outcomes Management - AGPA
Outcomes Management - MCHA
Outcomes Management - Depression (UARK)
Outcomes Management - Panic Disorder (UARK)
Pacific Business Group on Health
PROSPER
QCaRE Core
QCaRE Diabetes - Claims
QCaRE Diabetes - Records
QCaRE IHD - Claims
QCaRE IHD - Records
RAND - Appropriateness of CABG/PTCA
RAND - Cataracts
RAND - Depressed Elderly
RAND - Depression, Outcome
RAND - Depression, Process
RAND - Prenatal Care
RAND - Pressure Ulcers
RAND - Prospective Payment System
United Health Care Report Card
University of Wisconsin - Nursing Home Measures
VA External Peer Review Program - Medical
VA External Peer Review Program - Surgical
VA QUIC
VA Risk-adjusted Readmission Rate

The coding of these measure sets into the CONQUEST 1.0 database was verified by a developer of each measure set.

The Condition Database

The health care needs of a population drive the choice of performance measures. For example, a health plan that has a mostly elderly population with many who have diabetes will be interested in performance measures focused on diabetes care for elderly patients. The Condition Database currently contains 52 conditions, as listed below:

Acute Pain
Attention-Deficit Hyperactivity Disorder

Acute Low Back Problems in Adults
Alzheimer's Disease
Acute Myocardial Infarction
Unstable Angina
Anorexia Nervosa
Anxiety: Adults
Anxiety: Children, Adolescents
Asthma: Adult, Acute
Asthma: Adult, Chronic
Asthma: Pediatric, Acute
Asthma: Pediatric, Chronic
Biliary Disease
Bipolar Disorder
Benign Prostatic Hyperplasia
Breast Cancer - Screening
Bulimia Nervosa
Cancer Pain
Cataract in Adults: Management of Functional Impairment
Cervical Cancer - Screening
Colorectal Cancer Detection
Chronic Obstructive Pulmonary Disease
Depression in Adults
Early HIV Infection
End-Stage Renal Disease
Substance Abuse - Alcohol
Influenza - Prevention
Heart Failure
Hypertension
Diabetes - Type I
Diabetes - Type II
Otitis Media - Acute
Otitis Media with Effusion
Osteoarthritis
PCP Prophylaxis: HIV-Positive Adults
Pediatric Diarrhea
Pneumococcal Pneumonia
Pediatric HIV Positive: PCP Prophylaxis
Prostate Cancer
Obstetrics Prenatal Care - Ambulatory
Preterm Labor
Rheumatoid Arthritis
Schizophrenia, Adult

Schizophrenia, Children and Adolescents
Sickle Cell Disease
Post-stroke Rehabilitation
Substance Abuse - Cocaine
Substance Abuse - Heroin
Transient Ischemic Attack
Pressure Ulcers in Adults
Urinary Incontinence in Adults

Sixteen of these conditions were coded directly from a related AHCPR Clinical Practice Guideline, with entries verified by a member of each Guideline Panel. The remaining conditions were chosen because they are common, create a substantial burden of illness, and consume considerable health-care resources. The categories coded for these conditions in the CONQUEST 1.0 database were derived from scientific publications, including reports of AHCPR Patient Outcomes Research Teams (PORTs). The literature was selected with advice from clinical experts and is cited in the CONQUEST 1.0 database. CONQUEST 1.0 permits users to enter whatever additional conditions are of interest to them and then to search the Measure Database for related measures.

Clinical Events Codes Linking the Measure and Condition Databases

For each measure in the Measure Database, up to three codes are permitted to capture the "clinical events" that define the numerator and up to three codes that define the denominator. These clinical events include:

- Services such as items of the patient's history and physical examination, tests, procedures, drugs, and other therapies.
- Health states such as clinical conditions and the comorbidities, complications, and risk factors associated with them.

Codes for clinical events are also applied to services and health states for each condition in the Condition Database. By matching clinical events codes, users can conduct searches that link across the Measure and Condition Databases. For instance, the user can find services recommended by a guideline for a condition in the Condition Database, then search to see if any measures related to these services are currently available in the Measure Database, using the function "Search for Measures that may be adapted."

CONQUEST 1.0, however, does not contain linking codes for all listed clinical events. There are no linking codes for health states that are very broadly defined; such a

linking code might not yield clinically meaningful relationships between the Condition and Measure Databases. For instance, there are no linking codes for certain health states encountered in coding AHCPR Guideline-related conditions in the Condition Database, such as "social stigma," "false sense of security," and "pain." Similarly, there are no linking codes in the Measure Database for broadly defined services such as "visit" (not further specified) or "hospitalization" (not further specified). However, omitting codes for broad categories such as "hospitalization" does not prevent users from searching for measures related to hospital versus ambulatory care. This search can be accomplished by using the coding in the Measure Database for the care setting to which a measure applies.

Some measures in the Measure Database relate to conditions that are not yet included in the Condition Database. Similarly, for some clinical events in the Condition Database there are no measures yet developed or yet included in the Measure Database.

THE USES OF CONQUEST 1.0

Three major uses of CONQUEST 1.0 are described here: (1) as a source of information about performance measures in the database, (2) as a source of information on specific conditions and the populations that experience them, as well as measures developed for or adaptable to performance measurement for the condition, and (3) as a tool for comparing and evaluating the worth of measures.

Source of Information About Measures in the Database

The first use of CONQUEST 1.0 is as a source of information about measures to suit users' specific performance measurement needs. For example, a corporate purchaser of health care may wish to locate outcome measures explicitly designed for managed-care settings. Or a State Medicaid director may be interested in measures of processes of care for children that use administrative data. With CONQUEST 1.0, users can search for measures for:

- specific conditions
- specific age groups
- primary prevention
- secondary prevention, i.e., early detection
- managed care
- particular health care settings
- process measurement
- outcome measurement
- proxy outcome measurement
- administrative data

- medical records data
- patient survey data

Users can limit their search to measures with reliability and validity testing or to measures currently in use.

For each measure in the database, along with the coded categories listed above, the user finds a verbal description of the numerator and denominator of the measure and a short "clinical rationale." The developer of the measures provided the clinical rationale; usually it describes the condition to which a measure relates, why it is important to measure performance for this condition, and how the measure captures an aspect of quality of clinical performance.

This application of CONQUEST 1.0 is limited only by the number and diversity of measures in the Measure and Condition Databases. If additional measures are known to exist but not yet entered into CONQUEST 1.0, the user can code and enter these measures and compare them to those already entered.

Source of Information on Specific Conditions and Populations

The second use of CONQUEST 1.0 is as a source of information on how clinical conditions affect populations in terms of their prevalence, burden of illness, costs of care, and other characteristics. For each condition, information can be displayed concerning recommended services and the complications that may occur in different time frames. The user can then search for performance measures related to a condition or to its services and complications and ask for reports on the attributes of these measures.

The section on services in the condition database provides a method for quick and approximate summary and comparison of recommendations from clinical practice guidelines. This section also links to the Measure Database and allows searches for measures related to these guideline recommendations.

If interested in conditions not yet entered into CONQUEST 1.0, the user can code and enter these conditions, then search for related performance measures that may already have been entered into the measure database, using the clinical event codes to link the Measure and Condition Databases.

Tool for Evaluating Measures

A third use of CONQUEST 1.0 is as a tool to compare, contrast, and evaluate whether the construction of a performance measure is suitable for its purpose. This application

builds on the common framework and language established by CONQUEST 1.0. For instance, if outcome measures are used to compare providers, some method must be used to allow for differences among these providers in the patient populations they serve and in regard to patient characteristics that determine the risk for a worse outcome. CONQUEST 1.0 codes whether a method was used to allow for patient differences and, if so, the type of method used.

HOW CONQUEST 1.0 IS USED

By selecting from a menu of options, users can produce reports that compare groups of measures on a single attribute, e.g., data sources required to construct the measures or aspects of process or outcome captured by the measures. The current prototype user interface is programmed in Access for Microsoft Office for Windows, a software package that is widely available. Users familiar with Access have the freedom to design their own queries and reports using all the available functions of Access.

Users of Clinical Performance Measures

Clinical performance measures are especially useful for strategies designed to promote quality of clinical care. These strategies include accreditation programs, internal quality improvement programs, purchaser and consumer choice among providers using "report cards," standardized reports of performance measurement, and external quality improvement programs.

Accreditation Programs

Professional groups offer programs of voluntary accreditation based on requirements for organizational structure assessed by means of site visits. For instance, accreditation is offered by the Joint Commission on Accreditation of Health Care Organizations (JCAHO) for hospitals, ambulatory surgery centers, long-term care facilities, home-care programs, and health care networks and by the National Committee on Quality Assurance (NCQA) for managed-care organizations. Both programs require an internal quality improvement component within each accredited organization, and both have developed sets of clinical performance measures.

Internal Quality Improvement Programs

Health care providers operate internal quality improvement programs often stimulated by requirements of accreditation organizations. Internal quality improvement programs use repeated measurements of clinical performance to identify areas needing improvement, and then to check whether performance is better after actions aimed to improve care are implemented.

Purchaser Choice on the Basis of Quality

Increasingly, corporate purchasers in the private sector of health care require that

health care plans provide measurements of clinical performance to guide the choices of employees among health care providers. As part of their marketing strategy for individual consumers, some plans provide their own "report cards" displaying clinical performance measurements. Both the NCQA and the Foundation for Accountability (FAcct) are developing performance measurement sets to guide purchaser choices.

Consumer Choice on the Basis of Quality

Are clinical performance measures also useful for "Report Cards" for consumers? We believe consumers will find clinical performance measures of great interest if they are presented in an understandable format. Many of the "Report Cards" used to date contain few measures, with little clinical information and, thus, fail to address different consumer needs and preferences. Different clinical conditions are of interest to different clinical populations. For each condition, measures are needed to cover different aspects of care. Most importantly, reports on clinical performance for consumers should include text educating consumers about the care that is recommended by clinical practice guidelines and the outcomes that can be expected for each condition.

External Quality Improvement Programs

External quality improvement programs operated by state or regional consortia and by Peer Review Organizations (PROs) coordinate cycles of clinical performance measurement, and feed back comparisons of performance to encourage internal quality improvement efforts. The external agency collects the performance measurements, verifies their accuracy, and presents comparisons among similar providers of care.

Assessing the Worth of Clinical Performance Measures

CONQUEST 1.0 codes whether a measure has been tested for reliability and validity and what type of test was used. A valid clinical performance measure is one that measures what it is supposed to measure; for measures included in CONQUEST 1.0 the construct being measured is an aspect of clinical performance. For a measure to be valid, it must be low in both random and systematic error. Validity includes reliability, which is the extent to which the measure is low in random error; an unreliable measure, therefore, cannot have high validity. Reliability of a measure captures how consistently it performs when applied.

Reliability and validity of a measure is determined with regard to the intended use of the measurement. For instance, a patient survey may have been validated as a measure of health status. This does not mean that this survey is valid as a measure of quality of clinical performance. Many factors other than the quality of care received influence a patient's health status. Determinants of health include prior health, type of illness affecting the patient, the severity of that illness, any co-morbidities, the patient's

own lifestyle choices, and whether the patient accepts or can afford effective medical care. To create a measure of clinical performance requires that the data be analyzed so as to remove the influence on health status of all of these factors other than clinical care. If this is done, a new measure has been created and must now be validated as a measure of clinical performance.

For any of the uses described above, the user may want to know, "How good is this measure?" CONQUEST 1.0 does not classify measures as "good" or "bad" because a measure may be "good" for one purpose and "bad" for another. The worth of a measure to the user depends upon the purpose for which it will be used and the time, personnel, data, and other resources available for measurement.

Whether a measure is suitable for a particular use depends in large part upon the purpose of the user. Since more reliable and valid measures tend to be more expensive to construct, users may settle for a less valid measure if that is acceptable for the given purpose. For instance, a high degree of validity in measurement is required if an external agent intends to use the measure to sanction, or deny payment to, a provider. Toward the other extreme, less validity is required when a provider organization intends to use repeated measurement, with subjective interpretation of the trend in results, to manage progress over time toward an internal target for improved performance. CONQUEST 1.0 provides the user with information on the purpose for which a measure was originally developed.

Suitability for a given purpose also depends upon the resources available for measurement. CONQUEST 1.0 permits the user to review the data sources required for a measure and to find out whether analysis of the costs of measurement was done. If funds and data are limited, a crude measurement may be better than no measurement, as long as the user remains aware of the limitations of the measure. Serious problems can arise, however, if a user deploys a crude measurement tool, then acts upon it as though it means precisely what it seems to mean. For instance, problems arise when users interpret a change in a performance measurement as a true change, and plan to act upon it, when the amount of change observed falls within the range of measurement error in the instrument.

In summary, a "good" measure is one that has sufficient validity for its intended use. Because the notions of validity and reliability are critical to judgments about measures, the CONQUEST 1.0 classification assesses measures for several different types of validity and reliability. If reliability and validity testing have been done, the results can be obtained along with the measure specifications from the measure developer.

Controlling Costs for Performance Measurement

Users can contain costs while maintaining rigor in clinical performance measurement if they:

- Use data that are routinely available.
- Re-use existing measure sets if suitable for their purpose.
- Adapt existing measures rather than develop new ones.
- Use representative samples of cases when cost per case is high.
- Use smaller sample sizes when repeating measurements.

Adapting Measures

The CONQUEST 1.0 database allows users to locate measures that may be adapted for different uses than those that their developer intended.

For example, a measure developed for managed care settings may be adapted for use in fee-for-service practices if the adapter finds a way around an obvious difficulty: measures used for managed care settings usually sample cases from the enrollee population; however, there are no enrollees for fee-for-service clinicians. The adapter therefore redefines the denominator of the measure to include individuals who have seen each physician of interest for regularly scheduled visits at least twice in the prior year. Additional adaptation may be required because data sources are likely to differ between the two settings. Administrative data in the fee-for-service setting is likely to be different from administrative data in managed care.

A measure developed for one condition may be adapted to another condition. For instance, a measure of communication to patients about self-care for diabetes may be adapted to measure communication concerning self-care for asthma. In this example, the adapter recognizes a similarity in the processes of care recommended for two different conditions.

CONQUEST 1.0 currently contains a wide variety of types of measures. Measures with outdated clinical content are nevertheless included if their structure is sophisticated. A user might choose to update the clinical content of the measure, or adapt the measure to a different condition altogether.

Once adapted, a measure usually does not produce results that can be directly compared with those of the original measure. Also, an adapted measure must be tested again for reliability and validity.

FEATURES OF THE CONQUEST 1.0 DATABASE

Here we summarize some key features of CONQUEST 1.0 concerning the current form of the Measure Database, the Condition Database, and the prototype user interface.

CONQUEST 1.0 is a valuable tool for collecting, analyzing, and selecting clinical performance measures related to common conditions that create a serious burden of illness and consume substantial health care resources. However, CONQUEST 1.0 cannot substitute for clinical knowledge nor for knowledge of quality measurement science. Reading a clinical practice guideline does not confer the ability to practice as a clinician; similarly, obtaining printouts from CONQUEST 1.0 does not make the reader an expert in clinical performance measurement. Rather, CONQUEST 1.0 permits knowledgeable users to work with remarkable efficiency while expanding the breadth and depth of their knowledge about clinical performance measurement.

Features of the Measure Database

Important features of the Measure Database include the following.

- The typology that structures the Measure Database provides a common language for performance measurement. The attributes of performance measures described in CONQUEST 1.0 are key to understanding the strengths and limitations of a measure and its intended and potential uses. This understanding is essential to valid and useful performance measurement.

- The Measure Database permits updating as required. The Measure Database permits updating as the science of performance measurement continues to mature by editing existing entries and entering new measures. Measures currently in the database will need to be refined and revised. New measures will need to be added. Over time, the categories of the classification scheme may need revision.

- Measures may be adapted to new uses. Measures may be adaptable to clinical conditions, populations, care settings, or uses other than those originally intended by the developer; once adapted, a measure should be tested (again) for reliability and validity.

- Older measures with sophisticated structure are included. Measures developed over a decade ago are included if their construction and testing suggest that they are more advanced than many measures currently in use. Clinical content for these older measures is likely to need updating when adapting the measures for current use.

- Developers must be contacted to verify measures. Ultimately, the most efficient

process for updating measures or adding new measures involves contacting the developers of the measures. Although these contacts are labor intensive, they are essential to maintaining the integrity of the database. Measure developers must have the opportunity to verify the coding of their measures, and the best way to ensure their input is through personal contacts.

- Beta testing does not guarantee that a measure is ready to be used. Beta testing of a measure does not necessarily mean that it is ready to be used without further refinement. Users must always consider their own reasons for measurement and their own unique situations.

- Presence of reliability or validity testing does not guarantee reliability or validity of a measure. Coding of reliability and/or validity testing in the database does not provide prospective users of a measure the results of the testing. Potential users must seek out original sources or contact the developer to obtain details.

- Denominator and numerator descriptions are not specifications. The denominator or numerator descriptions provided by CONQUEST 1.0 do not take the place of detailed measure specifications and algorithms for constructing the measure. Such information must be obtained from the developer in order to use the performance measure.

- The presence of measures in the database does not imply any recommendation about the practice of medicine. Informational messages on each report warn users against unwarranted assumptions concerning the measures contained in the database. The contents of these databases does not imply any recommendation concerning the practice of medicine. Decisions to use services and expectations concerning the health outcomes that are achievable must always be made by a responsible clinician in light of a patient's individual circumstances. Clinical science advances frequently; before users measure clinical performance, the clinicians concerned should evaluate whether the measures proposed are still current, and also appropriate for their setting of care.

Features of the Condition Database

Important features of the Condition Database include the following.

- The structure of the Condition Database provides a framework for considering characteristics of conditions that are important for performance measurement. Many fields in the Condition Database are incomplete because the information is

not presently available. The categories of information incorporated in the Condition Database cover major areas of interest for individuals and groups doing performance measurement, e.g., prevalence, cost, use, complications, and services. Over time, we anticipate that continued outcomes research will provide the information needed to complete the database.

- The Condition Database permits updating as required. The Condition Database permits editing of existing entries and entry of new conditions as new information emerges and as users' own needs dictate. The evidence available during the building of CONQUEST 1.0 for each condition and its associated services, complications, comorbidities, and risk factors was not exhaustive. Over time, as new information emerges, the database can be made more comprehensive.

- Linking codes should be narrow rather than broad. The linking codes assigned to the services associated with the condition, as well as the linking codes assigned to the preventable adverse outcomes, comorbidities, and risk factors of the condition need to be reasonably specific to the service or outcome. Non-specific linking codes lead to matches between the Measure and Condition Databases that are too broad and do not make sense clinically. There is a trade-off between sensitivity and specificity in designating linking codes.

- Precise coding of some categories is not possible. Coding the type of disability, the time course of the condition, and the frequency of occurrence of each form of the condition is a matter of judgment. It is important for users to understand that the coding for these fields is not precise but rather intended to provide an approximate estimate for disability, time course, or frequency of occurrence.

- Guideline-related material is summarized rather than detailed. For guideline-related conditions, services for the condition are coded in relation to the guideline's recommendations, but in a simplified form that does not include the level of detail available in the guideline itself. However, the database provides references to pages of the guideline that direct the user to this more detailed source of information.

Features of the User Interface

The CONQUEST 1.0 user interface is a prototype. Its development was a by-product of the effort to create, verify, and demonstrate the capacities of the Measure and Condition Databases. The interface provides users who are not familiar with Access software a way to enter and retrieve information in a variety of useful report formats. Users familiar with Access can create a wide variety of analyses and reports based on

their own choices in selecting and recombining the detailed information in the CONQUEST 1.0 Database. Serious users will wish to familiarize themselves with Access in order to benefit from the rich level of detail and many possibilities for analyses and reports that CONQUEST 1.0 provides.

- A level of understanding of clinical performance measurement is required. Users must understand the basics of clinical performance measurement to use the prototype interface effectively.

- The interface effectively demonstrates future possibilities for user-friendly software. Users are likely to envisage many useful additions to the interface, e.g., the ability to view the whole page of the data report within the computer screen or the ability to "select" measures for a report rather than entering them individually by code. These and many other possible refinements to the interface were not implemented to date in order to make the CONQUEST 1.0 database itself available to the many users who already are urgently requesting it.

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