

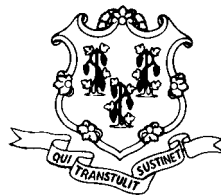


Keeping Connecticut Healthy

## **Hospital Performance Comparisons**

### A REPORT ON QUALITY OF CARE IN CONNECTICUT HOSPITALS

April 2004



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## Hospital Performance Comparisons

### A REPORT ON QUALITY OF CARE IN CONNECTICUT HOSPITALS

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## Executive Summary

Increasing attention is being focused on evaluating and improving health care quality at both the state and national levels. Efforts are being made to provide standardized, useful and valid information to the public about hospital quality of care and also to promote quality improvement efforts within hospitals. The incentives are clear-- high quality care leads to fewer repeat hospitalizations, medical procedures, and medical errors, thereby reducing costs. Results presented in this report constitute the first step in this ongoing process to evaluate and report on health care quality in Connecticut hospitals.

Connecticut's initiative began with the passage of legislation (Sections 19a-127 l-n of the Connecticut General Statutes) during the spring of 2002 that created a quality of care program within the Department of Public Health (DPH). Under that program, hospitals are required to collect and report quality of care information to the DPH in order to produce a public report that compares all licensed hospitals in the state. Connecticut is aligning its efforts with national quality initiatives aimed at collecting similar information.

Included in this report are comparisons among adult general acute-care hospitals in Connecticut about how often they provide the recommended care to patients who have been diagnosed with a heart attack, heart failure, or pneumonia, which are three common and costly medical conditions for which people go to the hospital. Hospital performance rates are provided for ten clinical measures that focus on treatments that are well established and generally accepted recommended care based on medical evidence. In addition, the ten measures are combined to create composite scores for each of the three medical conditions in an effort to provide a simple summary of the results and to alleviate some of the problems inherent with small numbers of cases being reported.

Using inpatient hospitalization information from July 2003 through September 2003, Connecticut's hospitals provided recommended care for heart attack patients 92% of the time, for heart failure patients 84% of the time, and for pneumonia patients 73% of the time, as seen in the table below. The low pneumonia rates are primarily due to the fact that many hospitals do not currently screen or give a vaccine for pneumonia; national rates are similarly low. A comparison of Connecticut hospitals' median performance rates to the median performance rates of hospitals in the United States shows that Connecticut's hospitals are doing better than the U.S. on seven of the ten clinical measures, yet they still fall short of the goal of 100% on most of the measures. That is, performance gaps still exist between the care that could be given and the care that is being delivered.

## Connecticut's Performance Compared to the U.S. Performance

Condition	Measure	Connecticut Median Rate	National Median Rate*
Heart Attack	Aspirin at Arrival	96%	94%
	Beta-Blocker at Arrival	95%	89%
	ACEI for LVSD	68%	77%
	Aspirin at Discharge	97%	94%
	Beta-Blocker at Discharge	93%	90%
	Composite	92%	N/A
Heart Failure	LVF Assessment	90%	85%
	ACEI for LVSD	74%	75%
	Composite	84%	N/A
Pneumonia	Timely Antibiotics	68%	72%
	Pneumococcal Vaccination	41%	38%
	Oxygenation Assessment	100%	99%
	Composite	73%	N/A

\* Source: [www.medicare.gov/hospital](http://www.medicare.gov/hospital) for hospitals participating in the National Voluntary Hospital Reporting Initiative. Data are based upon patients hospitalized from 1/1/03 - 6/30/03.

Consumers should view this information as a starting point for educating themselves about hospital quality, for talking to their doctors about choosing a hospital for medical care, and for asking questions while receiving care in the hospital. This information should also be used by the medical community to heighten their awareness of the opportunity that exists to improve the care that they currently deliver.

# **Hospital Performance Comparisons: A Report on Quality of Care in Connecticut Hospitals**

## **INTRODUCTION**

Increasing attention is being focused on evaluating and improving health care quality at both the state and national levels. Efforts are being made to provide standardized, useful and valid information to the public about hospital quality of care and also to promote quality improvement efforts within hospitals. The incentives are clear-- high quality care leads to fewer repeat hospitalizations, medical procedures, and medical errors, thereby reducing costs. Results presented in this report constitute the first step in this ongoing process to evaluate and report on health care quality in Connecticut hospitals. Included in this report are comparisons among adult general acute-care hospitals in Connecticut about how often they provide the recommended care to patients who have been diagnosed with a heart attack, heart failure, or pneumonia, which are three common and costly medical conditions for which people go to the hospital. Consumers should view this information as a starting point for educating themselves about hospital quality, for talking to their doctors about choosing a hospital for medical care, and for asking questions while receiving care in the hospital. This information should also be used by the medical community to heighten their awareness of the opportunity that exists to improve the care that they currently deliver.

The hospital quality measures in this report come from information collected on patients who were discharged from Connecticut's hospitals during the time period July 1, 2003 through September 30, 2003.

## **BACKGROUND**

### **What is the impetus to improve quality?**

Three landmark reports issued by the Institute of Medicine (IOM), a congressionally chartered advisory group to the federal government, have brought much attention to the problems regarding the quality and safety of health care. The first report, *To Err is Human: Building a Safer Health System*<sup>1</sup> revealed the extent to which medical errors cause harm to patients in hospitals, and it set forth a national agenda for improving patient safety. The second report, *Crossing the Quality Chasm: A New Health System for the 21<sup>st</sup> Century*<sup>2</sup> found that problems in the health care delivery system are the source of many errors and recommended that the Department of Health and Human Services identify a few areas for focused quality measurement and improvement. The latest report, *Leadership by Example: Coordinating Government*

*Roles in Improving Health Care Quality*<sup>3</sup> explored how the federal government can leverage its unique position as regulator, purchaser, provider, and research sponsor to improve care. In the report, the IOM proposed a national quality enhancement strategy focused on performance measurement of clinical quality and patient perceptions of care, as well as a proposed research agenda to support quality enhancement.

Federal and state governments, employers, and the medical community realize that action is needed to improve health care quality and patient safety. Pressure is coming from many directions to make information available to the public about the quality of hospital care. As a result, different types of quality information have been offered to the public by insurers, the business community, consumer organizations, and commercial enterprises that compile and sell “report cards.” The potential thus exists for confusing the public with conflicting and possibly misleading information.

Efforts are being made at both the state and national level to align government efforts and to begin collecting standardized data from hospitals to provide comparable information across hospitals based on valid and reliable data.

### ***Connecticut’s Quality-in-Health-Care Initiative***

During the spring of 2002, the Connecticut General Assembly passed a law creating a quality of care program within the Department of Public Health (DPH) (Sections 19a-127 l-n of the Connecticut General Statutes). The purpose of the program is to measure the quality of care provided by health care facilities in Connecticut. The intent of the legislation is twofold – to increase public accountability for the health care delivery systems of the State’s hospitals and to foster improvement in the care provided by the hospitals. Hospitals are required to collect and report quality of care information to the DPH so that it can produce a public report that compares all licensed hospitals in the state on selected quality performance measures. This report was produced in response to that mandate.

There are two components of a comparative report on hospital quality of care: 1) reporting on hospital clinical performance measures; and 2) reporting on hospital patient satisfaction. The focus of this first comparative report on quality of care in Connecticut hospitals is limited to clinical performance among hospitals. We anticipate that a comparative study of hospital patient satisfaction will take place once funding becomes available.

### ***National Voluntary Hospital Reporting Initiative***

A parallel quality initiative is occurring at the national level, and Connecticut has aligned its efforts to be consistent with the national initiative. The National Voluntary Hospital Reporting Initiative is a joint effort initiated by the American Hospital Association, the Federation of American Hospitals and the Association of American Medical Colleges to: 1) provide useful and valid information about hospital quality to the public; 2) provide hospitals a sense of predictability about public reporting expectations; 3) begin to standardize data and data collection mechanisms; and 4) to foster hospital quality improvement.

The effort is supported by the Department of Health and Human Services along with the Joint Commission on Accreditation of Healthcare Organizations, the National Quality Forum, AARP, and AFL-CIO.

Although participation by hospitals is voluntary, all 30 of Connecticut's adult general acute care hospitals are taking part in this national effort to build a permanent public resource on hospital performance. In fact, Connecticut was the first state in the nation to attain 100% participation by its hospitals.

## **HOSPITAL QUALITY OF CARE**

### **What is meant by "quality" of hospital care?**

Quality of hospital care can take on many meanings. It may mean that there was a successful outcome (e.g., a patient survived a heart attack or was cured of pneumonia) or it may mean that a patient was satisfied with their stay in the hospital and that they thought they were treated well. Quality care can also mean that a patient was given a needed medicine, treatment, or diagnostic test at the right time. The last definition is the one that is used in this report.

Hospitals vary in terms of their quality of care. Gaps exist between the care that could be delivered and the care that is delivered. One way to measure quality hospital care is to determine whether or not a patient got the medicine, test, or treatment that is known to be effective for his or her condition. Through extensive research, national guidelines have been established for the recommended care of patients with various medical conditions. Three common medical conditions that have been broadly studied are heart attacks, heart failure, and pneumonia. For each condition, there are a number of recommended actions,

which a hospital ought to be providing to a patient.

Examples of quality care include:

- Prescribing a medication, such as aspirin, to a patient who should get it and who does not have an allergy or other medical condition making it dangerous for them to receive the medication.
- Providing an important medication or diagnostic test within the recommended time frame, for example within 24 hours of a patient having a heart attack.

### **What are hospital quality measures?**

A hospital quality measure is an indicator that represents one aspect of the care that scientific evidence has shown to provide the best results to most people with an illness or condition. A hospital's measure of performance, also referred to as a performance rate, shows the percentage of patients who are given the right care at the right time for a specific medical condition. For example, if a hospital gives an aspirin to 80 out of 100 patients upon admission to a hospital after a heart attack, then the hospital performance rate for that particular measure is 80%.

However, standard treatment may not be the best treatment for everyone. There may be specific reasons why a patient should not get a certain treatment. For instance, a patient who is allergic to aspirin should not be given aspirin. This patient would not be counted in the measure.

This report focuses on ten hospital performance measures as follows:

<b>Medical Condition</b>	<b>Performance Measure</b>
Heart Attack	Giving an aspirin within 24 hours of arrival at a hospital if it is appropriate for the patient.  Giving a drug called a beta-blocker within 24 hours of arrival at the hospital if it is appropriate for the patient.  Giving a medication called an ACE inhibitor to reduce the workload of the heart, if the function of the heart has been impaired.  Giving a prescription for aspirin when the patient leaves the hospital, if it is appropriate for the patient.  Giving a prescription for a drug called a beta-blocker when the patient leaves the hospital if it is appropriate for the patient.



Heart Failure	<p>Performing a diagnostic test to determine if the heart's function has been impaired, if the test has not been done previously.</p> <p>Giving a medication called an ACE inhibitor to reduce the workload of the heart if the function of the heart has been impaired.</p>
Pneumonia	<p>Giving the patient an antibiotic within 4 hours of arrival at the hospital.</p> <p>Performing a diagnostic test to determine if the patient is receiving enough oxygen.</p> <p>Screening a patient to determine if they had previously received a pneumonia vaccine, and providing the vaccine if it is appropriate for the patient.</p>

### **How were the 10 hospital quality measures selected?**

The ten measures included in this report focus on treatments that are considered basic recommended care for heart attack, heart failure, and pneumonia. These conditions were chosen because they represent serious medical conditions that are common reasons why patients go to hospitals. The measures for each of these conditions are considered to be a starter set for public reporting that have been extensively tested for validity and reliability and are considered best practices of care. They have been endorsed by the National Quality Forum, a national standards setting body, and have been adopted by the Centers for Medicare and Medicaid Services (CMS) as part of their National Voluntary Hospital Reporting Initiative. In addition to these reasons, the Connecticut Department of Public Health decided to align their state reporting efforts with that of CMS in an effort to standardize the data collection process and to reduce hospitals' reporting burden.

### **How were the data collected and is the information accurate?**

Data used to measure hospitals' performance are gathered from medical records at each hospital for patients who have been diagnosed with heart attack, heart failure, or pneumonia. Such data collection involves a combination of data obtained from existing hospital information systems and abstraction of medical records performed by trained individuals. It is the same data used by the Centers for Medicare and Medicaid and the Joint Commission on Accreditation of Healthcare Organizations in their review of hospital quality of care. Processes are in place to standardize the collection and reporting of hospital data to ensure that hospitals collect the data consistently. In addition, audits are performed to validate the accuracy of the data.

## **How can a person use hospital quality information?**

Looking at hospital quality information can be used to see how quality of care differs among hospitals. It can also be used to see how often hospitals provide the type of care considered to be recommend for several common medical conditions. It shows what treatments are usually given and how well hospitals give these treatments. This information can be used when talking to your doctor or other health care professional about the care you might need or are getting in a hospital. It can also be used when thinking about what hospital you or a family member would go to if you needed to be hospitalized.

Although this report provides information about the quality of care provided for heart attack, heart failure, and pneumonia patients, it does not include information about care provided by hospitals for other medical conditions. The care provided for the three specified conditions may or may not be reflective of the care provided for other medical conditions.

## **What can a person do to help with their medical care?**

It is important that consumers get more involved in their health care. You should contact your personal physician, if you have questions about recommended care or any exceptions that may apply to you. In addition to learning about the type of care and treatment that you might expect to receive if you need to go to a hospital, you might also consider other factors when choosing a hospital such as:

- Travel time to a hospital for you and your family
- Insurance coverage
- Cost
- Whether your family doctor is associated with a particular hospital
- Satisfaction with hospital stays experienced by others

Using this report together with other factors can help you make an informed decision about your medical care.

## **HOSPITAL PERFORMANCE COMPARISONS**

### **What performance rates are presented?**

For each measure, hospital performance rates are displayed for all of the hospitals in Connecticut. In addition to the individual measures, a composite rate is created for each of the three medical conditions.

The composite rate combines multiple performance rates into a single rate. It can be interpreted as the percentage of time that a hospital had an opportunity and gave the right care for heart attack, heart failure, or pneumonia. It simplifies the number of results and it alleviates some of the problems inherent with small numbers of cases being reported.

In order to provide valid comparisons, only those patients who were eligible for the recommended treatments are counted. Patients who do not meet the criteria for inclusion as described in the appendix are excluded from the analysis. As long as a hospital provides and documents that it provided the recommended care to the identified eligible patients, then its performance rate should be 100%. Any performance rate less than 100% suggests that either an opportunity to provide the appropriate care was missed or it was not documented.

Data for this report were collected on patients who had been in the hospital during the three-month period from July 1, 2003 through September 30, 2003. Because data were collected for such a short period of time, many hospitals had treated only a small number of patients for some of the measures. When a hospital treats such a small number of patients, its performance rate is considered to be too unreliable for public reporting. Therefore, rates are shown only for those hospitals that treated a minimum of 20 eligible patients for each measure. No inferences about hospital performance should be made when results are not presented. As more data are collected over time, it is expected that this problem will diminish. The actual number of cases eligible for inclusion for each hospital can be found in the appendix.

Although hospitals should strive to achieve performance rates approaching 100%, the graphs for each of the measures include an additional reference score, the statewide median rate, to be used when looking at a hospital's performance. The median performance rate for Connecticut means that half of the hospitals in Connecticut had rates higher than this value and half had lower than this value.

Although not presented in the graphs, a second reference score is presented in Table 1 and again in Table 2 - Table 4 in the appendix. It is the national median performance rate. It is based upon data reported to CMS by hospitals that are participating in the National Voluntary Hospital Reporting Initiative. Because this national initiative includes only a subset of the nation's hospitals, the scores may not be truly representative of the nation. In addition, the national scores are based upon patients hospitalized from January 1, 2003 through June 30, 2003, which are the most recently available national data as of March 2003. National data for the three composite rates were not readily available.

The performance rates displayed are estimates of a hospital's true performance. Uncertainty exists in any estimate and this should be taken into consideration when looking at the results. For each measure, small differences in the rates may not be a sign of significant differences in care. Hospitals whose performance rates differ significantly from the statewide median are designated by a black circle in the graphs. Higher values are better and lower values are worse. Hospitals whose performance does not differ significantly from the statewide median are designated by a grey circle. Additional information about the methodology used to calculate the hospital performance rates and their associated margins of error, as well as information about each hospital's performance on each of the ten performance measures and the three composite measures, can be found in the appendix.

The following three sections display the hospital performance comparison results for the three medical conditions of heart attack, heart failure, and pneumonia.

## **QUALITY OF CARE RESULTS FOR HEART ATTACK PATIENTS**

### **Why is this information important?**

Heart disease is the leading cause of death in the United States and Connecticut. Heart attacks, also called acute myocardial infarctions (AMI), kill more than 1,600 Connecticut residents each year. Appropriate medical care following a heart attack can greatly increase a patient's chances for full recovery.

Appropriate medications in the weeks following a heart attack, together with rehabilitation and changes in lifestyle, can help to prevent another heart attack from occurring.

### **How is quality of care determined for heart attack patients?**

Research studies show that there are several steps in treating a heart attack that can make a significant difference in a patient's recovery. This report identifies five types of recommended care following a heart attack and how often Connecticut hospitals implement these recommended treatments. The recommended types of care include:

- Giving aspirin within 24 hours of the patient's arrival at the hospital, if appropriate for the patient
- Giving a prescription for aspirin when the patient leaves the hospital, if appropriate for the patient
- Giving a medication, such as an ACE inhibitor, to reduce the pressure in the heart, if heart function has been impaired
- Giving a prescription for a beta-blocker when the patient leaves the hospital, if appropriate for the patient
- Giving a drug called a beta-blocker within 24 hours of the patient's arrival at the hospital, if appropriate for the patient

Connecticut hospital medical records for heart attack patients (July 1, 2003 through September 30, 2003 period) were examined to find out how often patients were given each of these recommended treatments (see Figures 1-5). Higher percentages are better. We then combined the individual performance rates into a single composite rate for heart attack in each hospital (Figure 6).

## **Measure 1. Percentage of heart attack patients who are given aspirin within 24 hours of arrival at the hospital (Figure 1)**

### ***Why is this information important?***

Chewing or swallowing an aspirin as soon as symptoms of a heart attack begin may help reduce the severity of the attack. Aspirin can help prevent blood clots from forming or help dissolve blood clots that have formed. Following a heart attack, continued use of aspirin may help reduce the risk of another heart attack. Aspirin can have side effects like stomach inflammation, bleeding, or allergic reactions. Talk to your doctor before using aspirin on a regular basis.

### ***What can you do if your hospital does not do this?***

If your hospital tells you that they believe you have had a heart attack (AMI) but you have not taken an aspirin at home or in the ambulance and have not been given an aspirin on arrival to the hospital, ask your doctor or nurse if this treatment would be appropriate for you.

## **Measure 2. Percentage of heart attack patients who are given an aspirin at discharge (Figure 2)**

### ***Why is this information important?***

Aspirin can help prevent blood clots from forming or help dissolve blood clots that have formed. Following a heart attack, continued use of aspirin may help reduce the risk of another heart attack. Aspirin can have side effects like stomach inflammation, bleeding, or allergic reactions. Talk to your doctor before using aspirin on a regular basis.

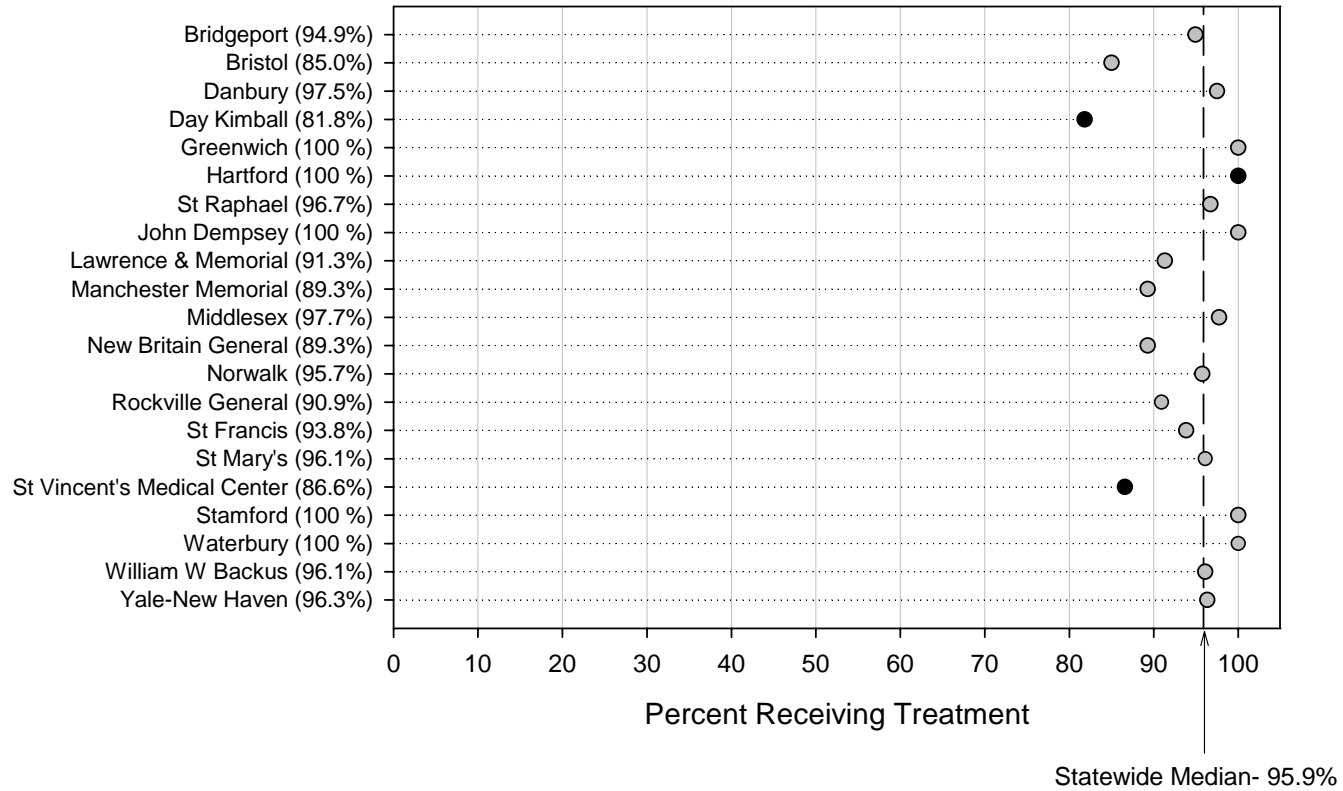
### ***What can you do if your hospital does not do this?***

If you do not already take a daily dose of aspirin and your doctor does not prescribe one at the time of discharge, ask your doctor or nurse about taking a daily aspirin.

Figure – 1

Performance Rates\* for Connecticut Hospitals  
 Heart Attack -- Giving an Aspirin Within 24 Hours of Hospital Arrival  
 July 1- September 30, 2003

----- Hospitals -----  
 (sorted by Hospital name)



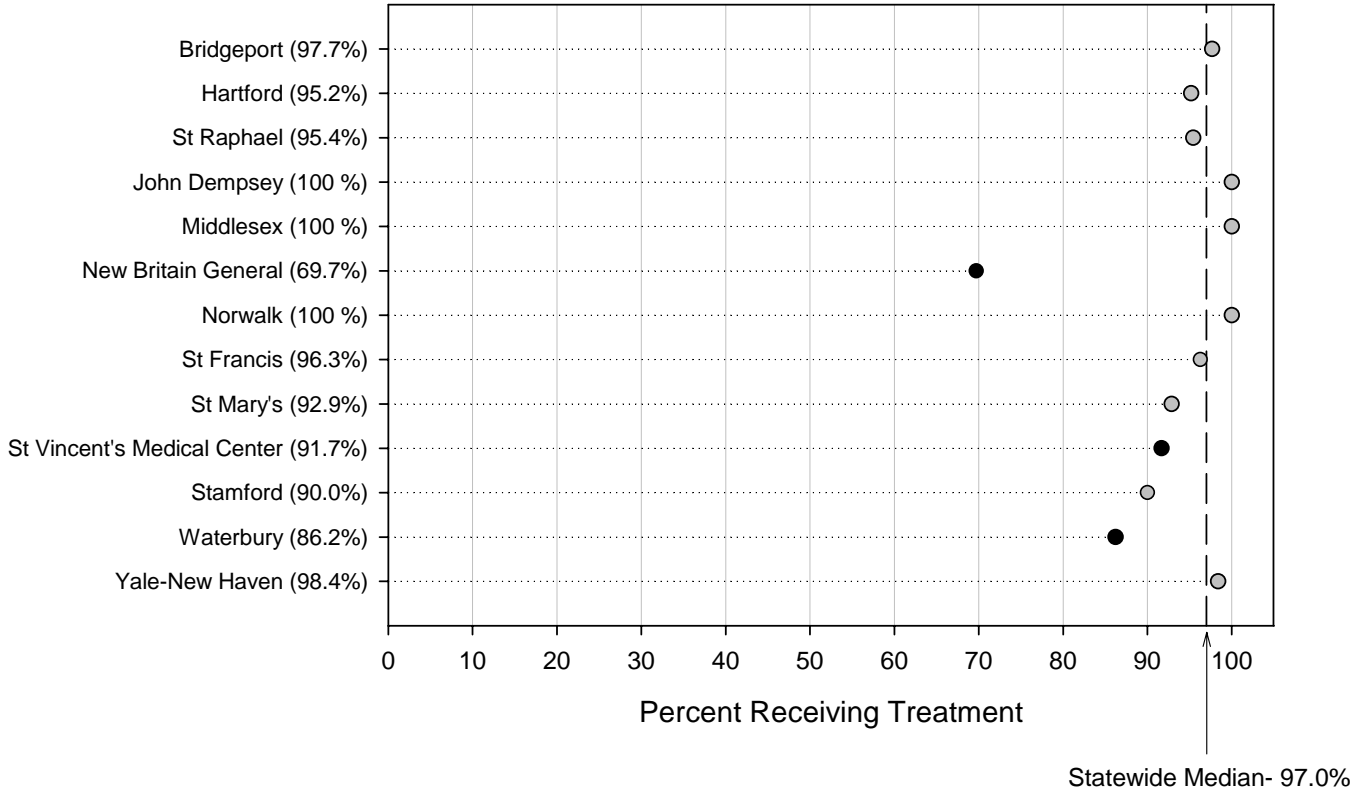
**Key:** The black-shaded circles identify those hospitals whose rates differ from the statewide score, based on a statistical test for significant differences ( $p < 0.05$ ). The grey-shaded circles identify values that are not significantly different from the statewide values.

**Source:** Connecticut Department of Public Health, Bureau of Community Health, Healthcare Quality, Statistics, Analysis & Reporting. April, 2004.

\* Performance rates are not displayed if the number of eligible patients was less than 20.

Figure – 2  
**Performance Rates\* for Connecticut Hospitals**  
**Heart Attack -- Prescribing Aspirin Upon Patient's Discharge**  
 July 1- September 30, 2003

----- Hospitals -----  
 (sorted by Hospital name)



**Key:** The black-shaded circles identify those hospitals whose rates differ from the statewide score, based on a statistical test for significant differences ( $p < 0.05$ ). The grey-shaded circles identify values that are not significantly different from the statewide values.

**Source:** Connecticut Department of Public Health, Bureau of Community Health, Healthcare Quality, Statistics, Analysis & Reporting. April, 2004.

\* Performance rates are not displayed if the number of eligible patients was less than 20.



### **Measure 3. Percentage of heart attack patients who are given an ACE inhibitor (Figure 3)**

#### ***Why is this information important?***

Angiotensin converting enzyme inhibitors, known as ACE inhibitors, are a type of medicine used to treat heart attacks, heart failure, or a decreased function of the left heart chamber (left ventricular systolic dysfunction). ACE inhibitors can help reduce the risk of death from a heart attack if taken within 24 hours of the first symptoms of a heart attack. Continued use may help prevent heart failure. ACE inhibitors work by stopping the production of a hormone (angiotensin II) that can narrow blood vessels. This helps reduce the pressure in the heart, lowering the patient's blood pressure.

#### ***What can you do if your hospital does not do this?***

Not everyone can take ACE inhibitors due to allergies or other medical conditions. Some physicians prescribe angiotensin receptor blockers (ARBs) instead because the drug acts on a more specific site to block the hormone. This decreases potential side effects for some patients who may tolerate the ARB better. If you have not been given an ACEI after being admitted for heart attack, you should ask your doctor or nurse if you should be given an ACEI or if you are already on an ARB.

### **Measure 4. Percentage of heart attack patients who are given a beta blocker at discharge (Figure 4)**

#### ***Why is this information important?***

Beta blockers are a type of medicine that is used to lower blood pressure, treat chest pain (angina) and heart failure, and to help prevent a heart attack. Beta blockers relieve the stress on the heart by slowing the heart rate and reducing the force with which the heart muscles contract to pump blood. They also help keep blood vessels from constricting in the heart, brain, and body.

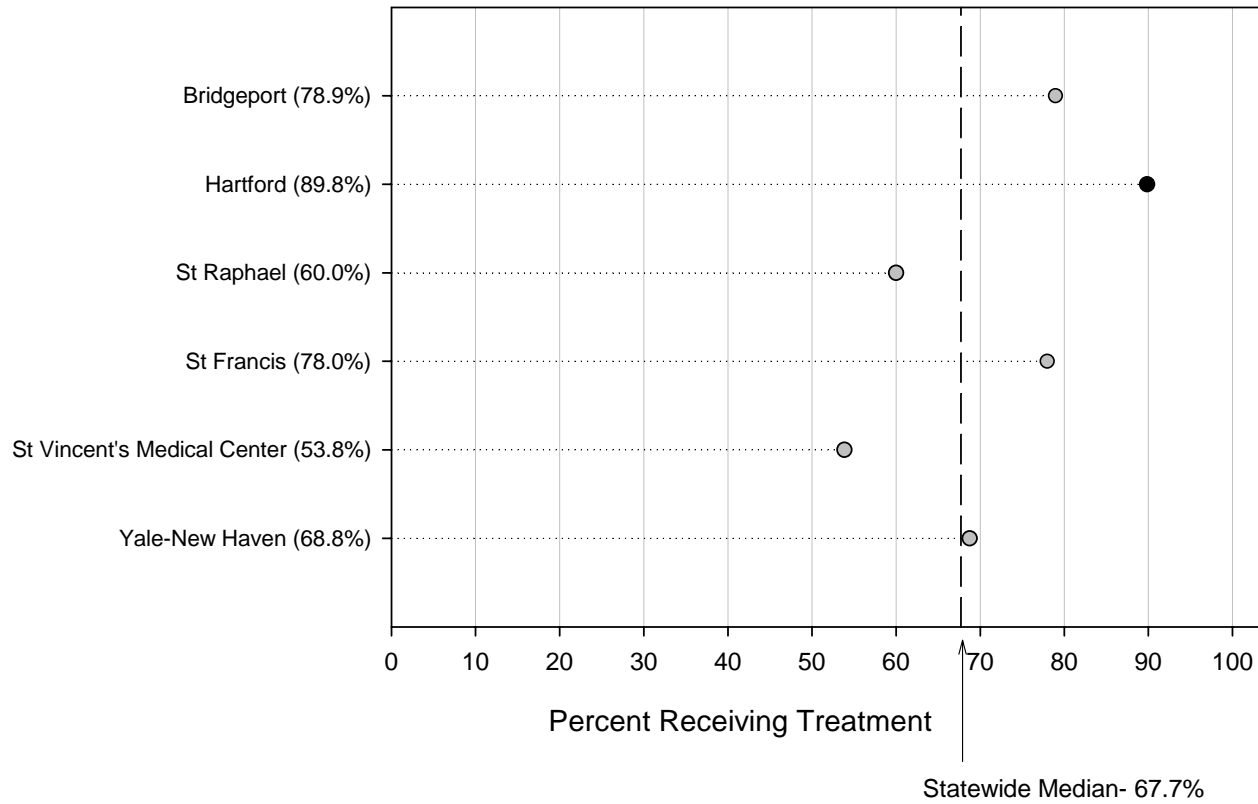
#### ***What can you do if your hospital does not do this?***

Not everyone can take a beta blocker. If you are unsure if you can take a beta blocker and your doctor does not give you one at the time of discharge, ask your doctor about whether or not it is appropriate for you.

Figure – 3

Performance Rates\* for Connecticut Hospitals  
Heart Attack -- Giving an ACE Inhibitor if Heart is Impaired  
July 1- September 30, 2003

----- Hospitals -----  
(sorted by Hospital name)



**Key:** The black-shaded circles identify those hospitals whose rates differ from the statewide score, based on a statistical test for significant differences ( $p < 0.05$ ). The grey-shaded circles identify values that are not significantly different from the statewide values.

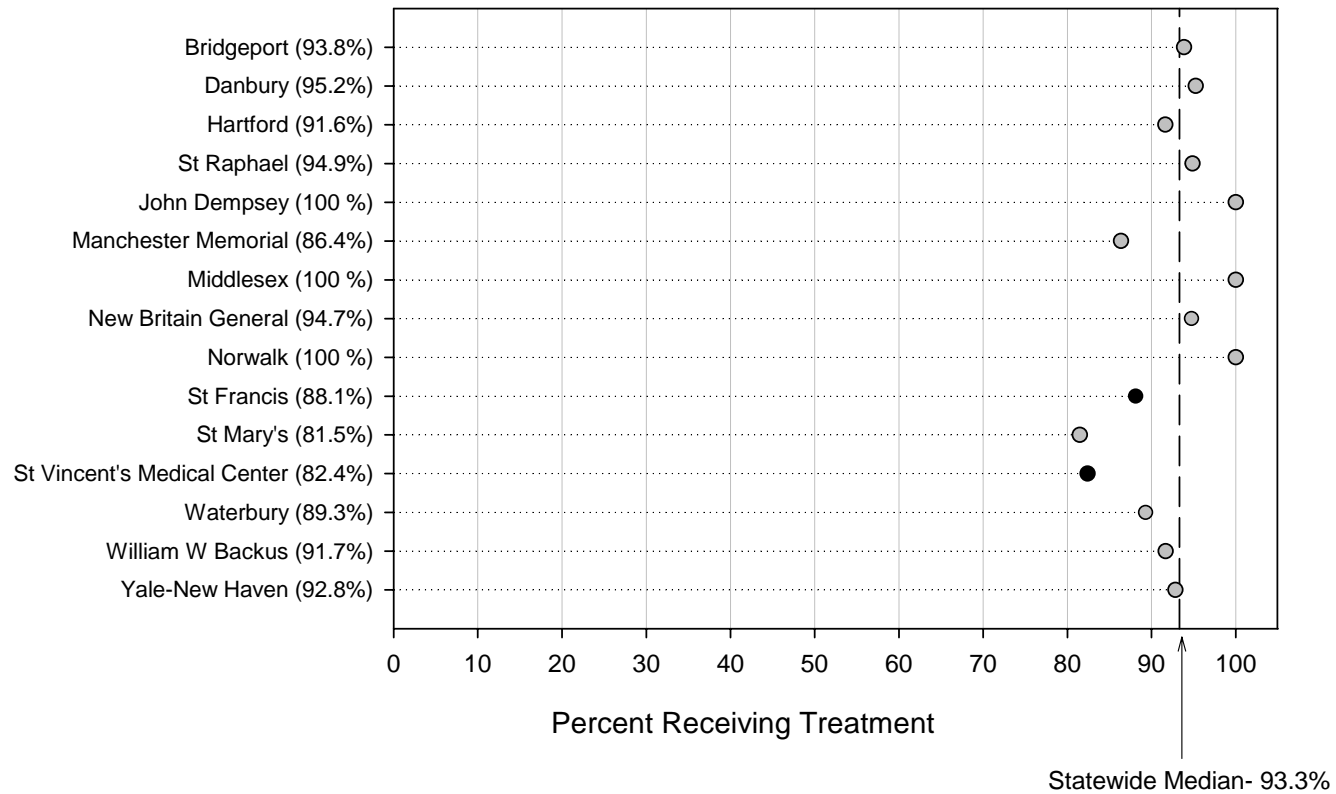
**Source:** Connecticut Department of Public Health, Bureau of Community Health, Healthcare Quality, Statistics, Analysis & Reporting. April, 2004.

\* Performance rates are not displayed if the number of eligible patients was less than 20.

Figure – 4

Performance Rates\* for Connecticut Hospitals  
Heart Attack -- Prescribing a Beta-Blocker Upon Patient's Discharge  
July 1- September 30, 2003

----- Hospitals -----  
(sorted by Hospital name)



**Key:** The black-shaded circles identify those hospitals whose rates differ from the statewide score, based on a statistical test for significant differences ( $p < 0.05$ ). The grey-shaded circles identify values that are not significantly different from the statewide values.

**Source:** Connecticut Department of Public Health, Bureau of Community Health, Healthcare Quality, Statistics, Analysis & Reporting. April, 2004.

\* Performance rates are not displayed if the number of eligible patients was less than 20.

## **Measure 5. Percentage of heart attack patients who are given a beta-blocker within 24 hours of arrival at the hospital (Figure 5)**

### *Why is this information important?*

Beta blockers are a type of medicine that is used to lower blood pressure, treat chest pain (angina) and heart failure, and to help prevent a heart attack. Beta blockers relieve the stress on the heart by slowing the heart rate and reducing the force with which the heart muscles contract to pump blood. They also help keep blood vessels from constricting in the heart, brain, and body.

### *What can you do if your hospital does not do this?*

Not everyone can take a beta blocker. However, if you have not received a beta blocker on arrival to the hospital, ask your doctor or nurse if you should receive a beta blocker.

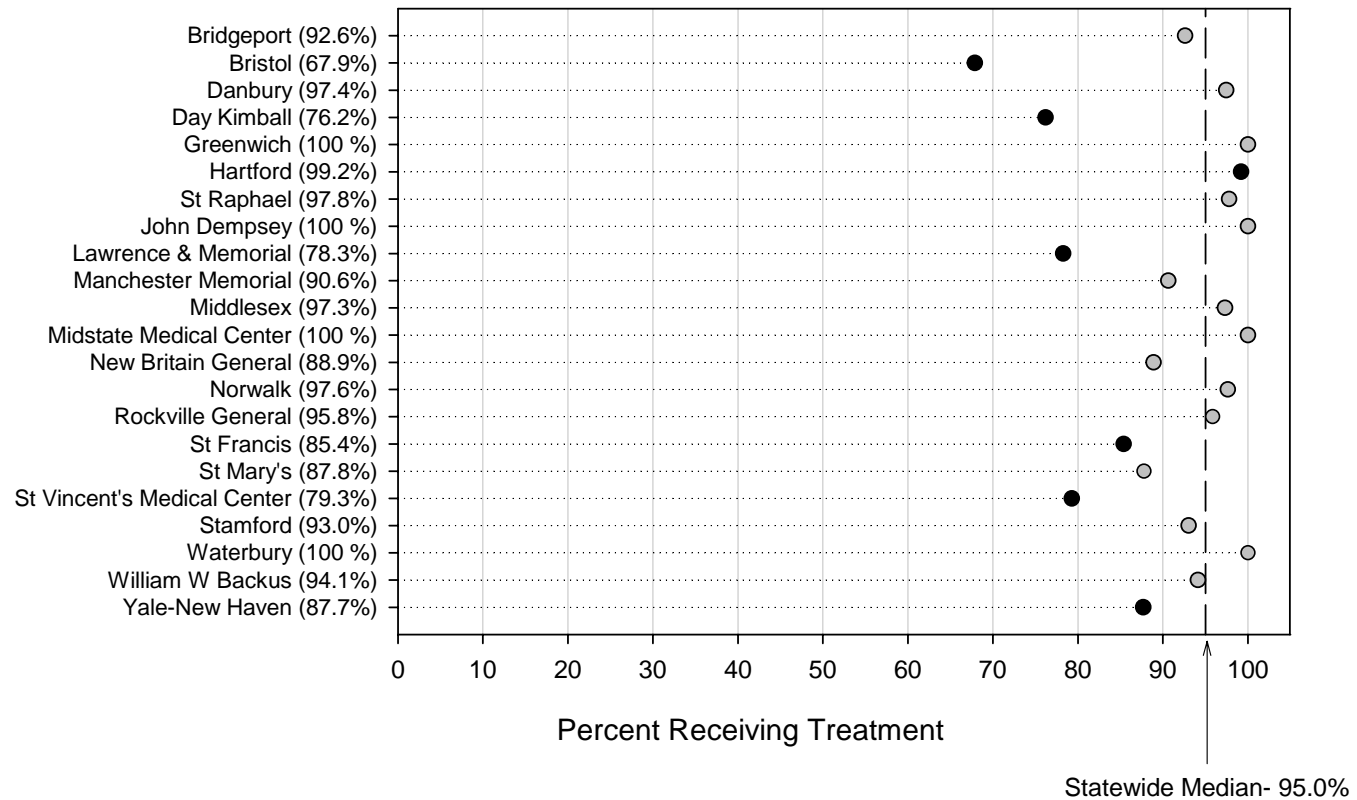
## **Heart Attack Composite Measure (Figure 6)**

The composite heart attack indicator (Figure 6) combines the reported information for the five individual heart attack measures. As expected the figures for the composite indicator show more hospitals than the figures for the individual measures. Only two hospitals were excluded from the heart attack composite indicator figures due to small numbers (less than 20). In contrast, on average 15 hospitals were excluded from each of the five individual measure figures due to the low number of reported events. The hospital differences identified based on the five individual measures are consistent, i.e., high or low, with the differences reported for the composite measures. One of the two hospitals that achieved 100% on this measure (Sharon Hospital) did not appear in any of the individual-measure displays. This illustrates one of the benefits of examining composite measures in addition to individual measures. In the future as more data are collected, more hospitals will appear in comparisons based on the individual measures.

Figure – 5

Performance Rates\* for Connecticut Hospitals  
 Heart Attack -- Giving a Beta-Blocker Within 24 Hours of Hospital Arrival  
 July 1- September 30, 2003

----- Hospitals -----  
 (sorted by Hospital name)



**Key:** The black-shaded circles identify those hospitals whose rates differ from the statewide score, based on a statistical test for significant differences ( $p < 0.05$ ). The grey-shaded circles identify values that are not significantly different from the statewide values.

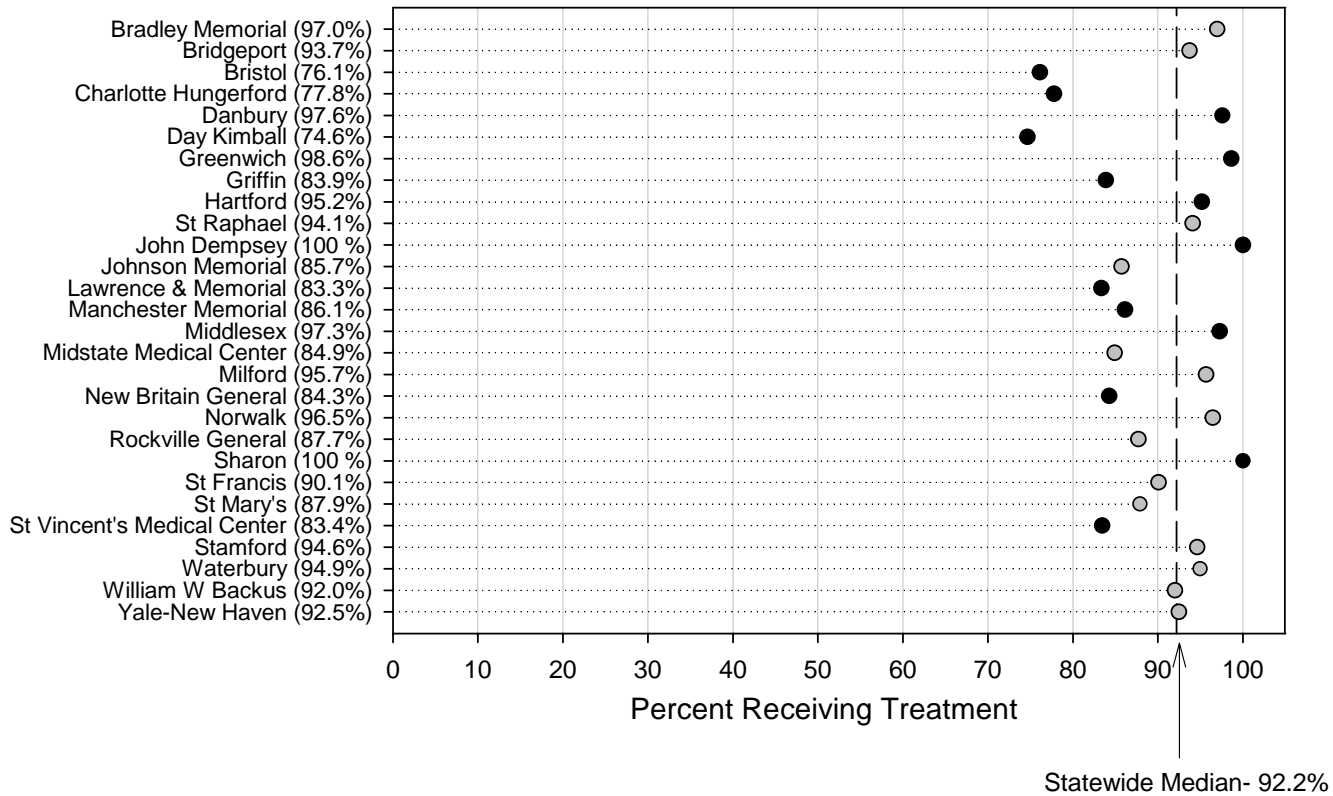
**Source:** Connecticut Department of Public Health, Bureau of Community Health, Healthcare Quality, Statistics, Analysis & Reporting. April, 2004.

\* Performance rates are not displayed if the number of eligible patients was less than 20.

Figure – 6

Performance Rates\* for Connecticut Hospitals  
 Heart Attack -- Giving the Right Treatment at the Right Time  
 July 1- September 30, 2003

----- Hospitals -----  
 (sorted by Hospital name)



**Key:** The black-shaded circles identify those hospitals whose rates differ from the statewide score, based on a statistical test for significant differences ( $p < 0.05$ ). The grey-shaded circles identify values that are not significantly different from the statewide values.

**Source:** Connecticut Department of Public Health, Bureau of Community Health, Healthcare Quality, Statistics, Analysis & Reporting. April, 2004.

\* Performance rates are not displayed if the number of eligible patients was less than 20.

## **QUALITY OF CARE RESULTS FOR HEART FAILURE PATIENTS**

### **Why is this information important?**

Heart failure, also called “congestive heart failure,” kills more than 500 Connecticut residents each year. Congestive heart failure patients are frequently hospitalized and proper hospital care is important to improve their quality of life and to prevent additional hospitalizations. Heart failure can result from a heart attack, coronary artery disease, cardiomyopathy (heart muscle damage), or an overworked heart due to long-term conditions such as high blood pressure, diabetes, or a defect from birth. The recommended treatments for someone who is getting hospital care for heart failure include:

- Giving a diagnostic test, called a left ventricular function (LVF) assessment, to determine if heart function is impaired
- Giving a medication that reduces the workload of the heart such as an ACE inhibitor

Connecticut hospital medical records were reviewed for heart failure patients (July 1, 2003 through September 30, 2003 period) to find out how often patients were given each of these recommended treatments (see Figures 7 and 8). Higher percentages are better. We then combined the individual performance rates into a single composite rate for heart failure in each hospital (Figure 9).

### **Measure 1. Percentage of heart failure patients given a left ventricular function (LVF) assessment before, during, or after their hospitalization (Figure 7)**

#### ***Why is this information important?***

The proper treatment for heart failure depends on what area of the heart is affected. An important test to check how the left chamber of the heart is pumping is the left ventricular function (LVF) assessment. It can tell the doctor whether the left side of the patient’s heart is pumping properly or not. Other evaluations include getting the patient’s medical history, examining the patient, listening to the heart sounds, and other tests as ordered by a physician. These tests may include ECG (electrocardiogram), chest x-ray, blood work, and an echocardiogram.

#### ***What should you do if you don’t receive a left ventricular function assessment?***

Anyone admitted to the hospital for heart failure should be assessed for left ventricular function before or during admission, or scheduled for this assessment after discharge. If you have not received an LVF assessment, ask your doctor to schedule one.

## **Measure 2. Percentage of heart failure patients who are given an ACE inhibitor (Figure 8)**

### ***Why is this information important?***

Angiotensin converting enzyme inhibitors, known as ACE inhibitors, are a type of medicine used to treat heart attacks, heart failure, or a decreased function of the left heart chamber (left ventricular systolic dysfunction). Continued use of an ACE inhibitor may help prevent heart failure. ACE inhibitors work by stopping the production of a hormone (angiotensin II) that can narrow blood vessels. This helps reduce the pressure in the heart, lowering the patient's blood pressure.

### ***What can you do if your hospital does not do this?***

Not everyone can take ACE inhibitors due to allergies or other medical conditions. Some physicians prescribe angiotensin receptor blockers (ARB) instead because the drug acts on a more specific site to block the hormone. This decreases potential side effects for some patients who may tolerate the ARB better. If you have not been given an ACEI after being admitted for heart failure, you should ask your doctor or nurse if you should be given an ACEI or if you are already on an ARB.

## **Heart Failure Composite Measure (Figure 9)**

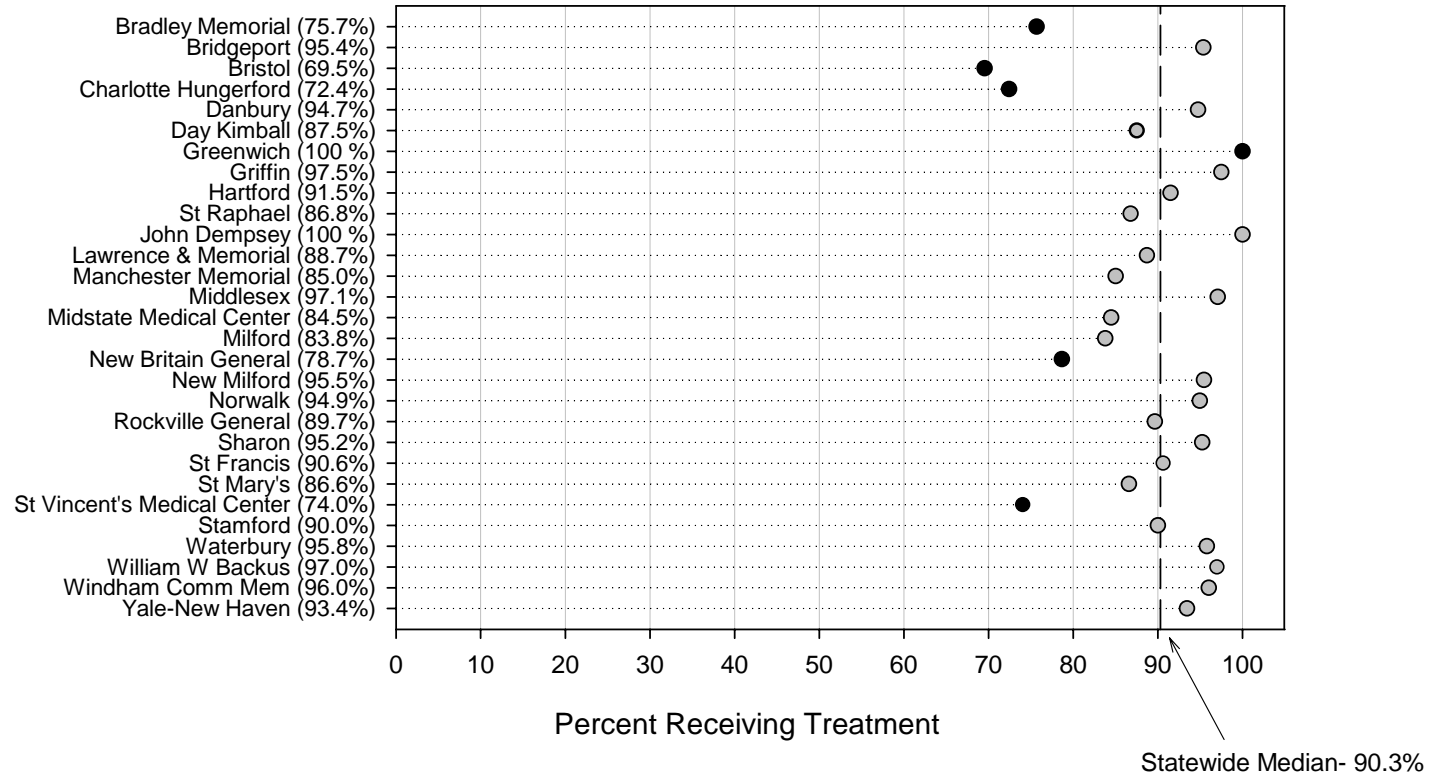
The heart failure composite indicator (Figure 9) combines the reported information for the two individual heart failure measures. As expected the figures for the composite indicator show more hospitals than the figures for the individual measures. No hospitals were excluded from the heart failure composite indicator figures due to small numbers (less than 20). In contrast, on average 6 hospitals were excluded from each of the two individual measure figures due to the low number of reported events. The hospital differences identified based on the two individual measures are consistent, i.e., high or low, with the differences reported for the composite measures.



Figure – 7

Performance Rates\* for Connecticut Hospitals  
Heart Failure -- Testing the Function of the Heart  
July 1- September 30, 2003

----- Hospitals -----  
(sorted by Hospital name)



**Key:** The black-shaded circles identify those hospitals whose rates differ from the statewide score, based on a statistical test for significant differences ( $p < 0.05$ ). The grey-shaded circles identify values that are not significantly different from the statewide values.

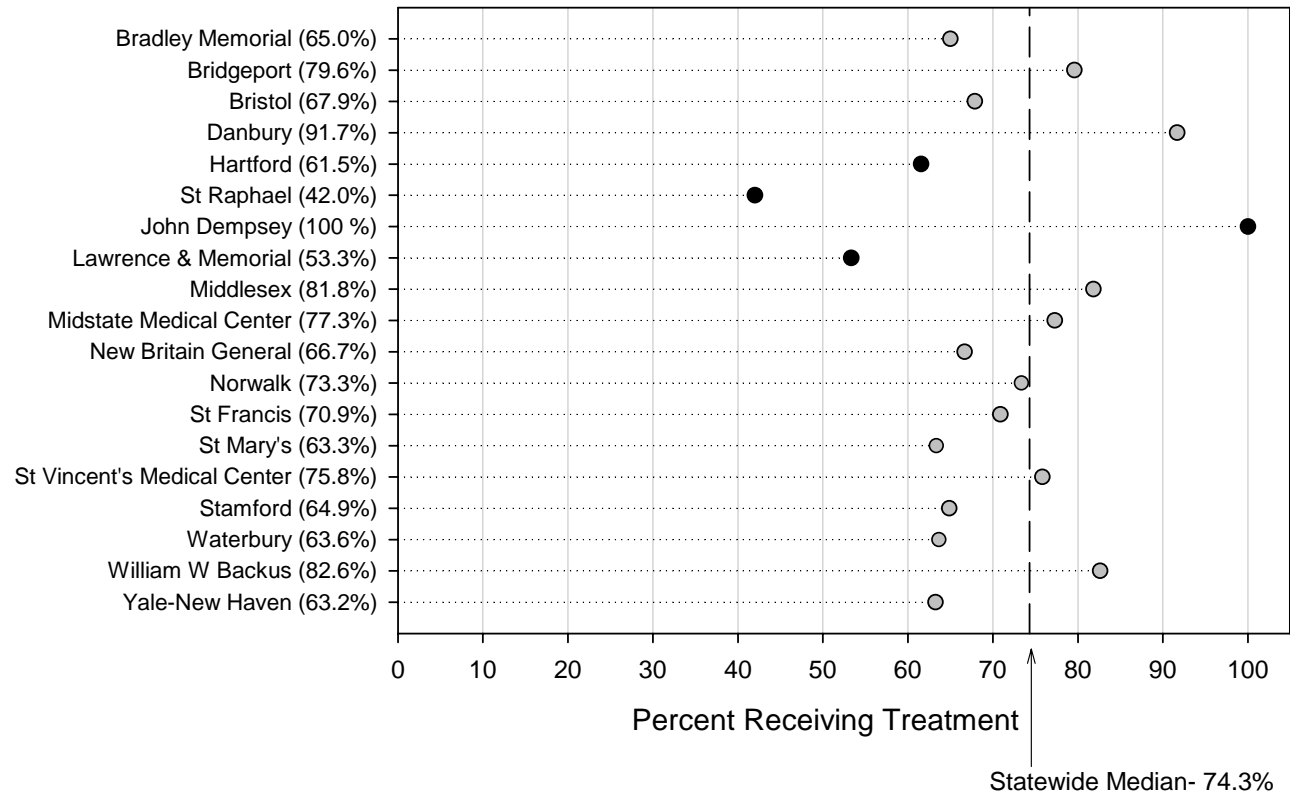
**Source:** Connecticut Department of Public Health, Bureau of Community Health, Healthcare Quality, Statistics, Analysis & Reporting. April, 2004.

\* Performance rates are not displayed if the number of eligible patients was less than 20.

Figure – 8

### Performance Rates\* for Connecticut Hospitals Heart Failure -- Giving an ACE Inhibitor if Heart is Impaired July 1- September 30, 2003

----- Hospitals -----  
(sorted by Hospital name)



**Key:** The black-shaded circles identify those hospitals whose rates differ from the statewide score, based on a statistical test for significant differences ( $p < 0.05$ ). The grey-shaded circles identify values that are not significantly different from the statewide values.

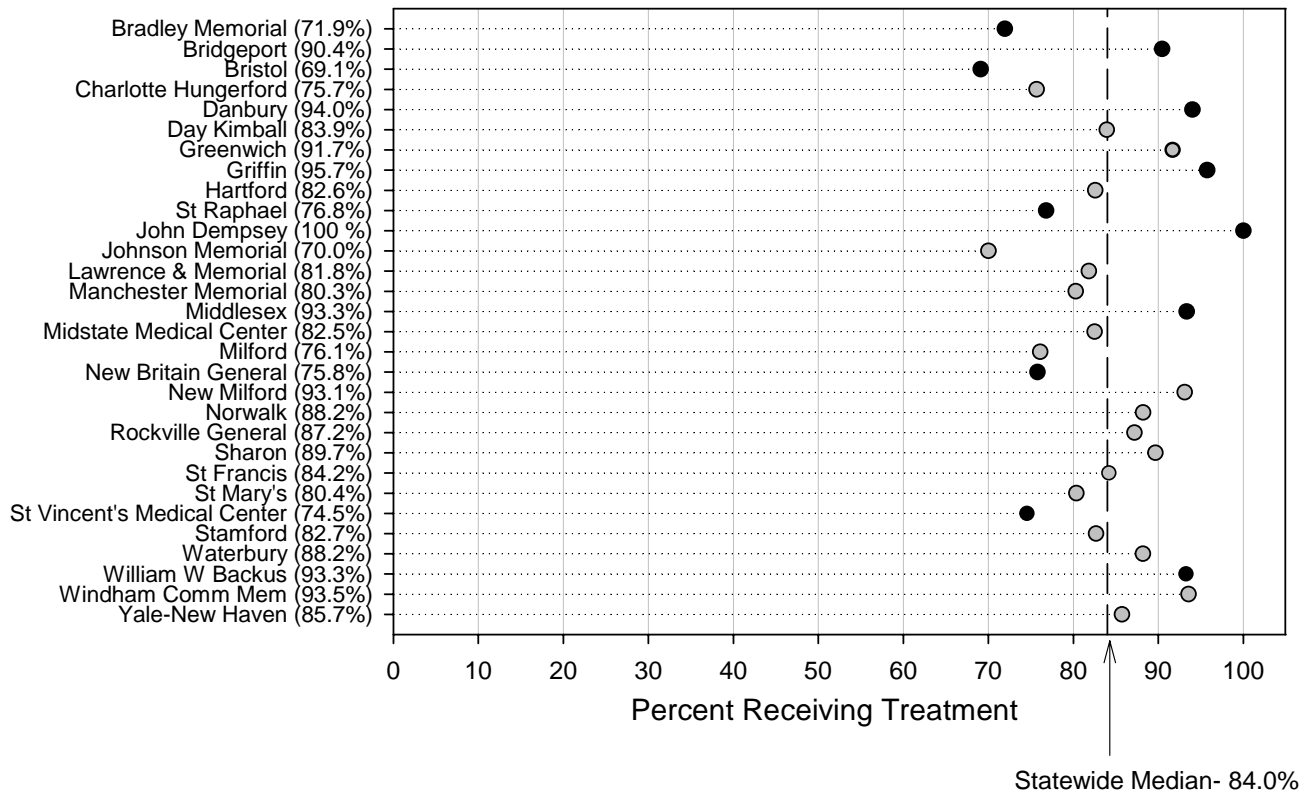
**Source:** Connecticut Department of Public Health, Bureau of Community Health, Healthcare Quality, Statistics, Analysis & Reporting. April, 2004.

\* Performance rates are not displayed if the number of eligible patients was less than 20.

Figure – 9

Performance Rates\* for Connecticut Hospitals  
 Heart Failure -- Giving the Right Treatment at the Right Time  
 July 1- September 30, 2003

----- Hospitals -----  
 (sorted by Hospital name)



**Key:** The black-shaded circles identify those hospitals whose rates differ from the statewide score, based on a statistical test for significant differences ( $p < 0.05$ ). The grey-shaded circles identify values that are not significantly different from the statewide values.

**Source:** Connecticut Department of Public Health, Bureau of Community Health, Healthcare Quality, Statistics, Analysis & Reporting. April, 2004.

\* Performance rates are not displayed if the number of eligible patients was less than 20.

## QUALITY OF CARE RESULTS FOR PNEUMONIA PATIENTS

### Why is this information important?

Pneumonia kills more than 800 Connecticut residents each year. Patients who receive the appropriate care for pneumonia are less likely to be hospitalized again for the illness. The following quality information shows the care that is the recommended treatment for persons getting hospital care for pneumonia:

- A diagnostic test to determine whether the patient is receiving enough oxygen
- A screening test to determine whether the patient has received a pneumonia vaccine and providing the vaccine if appropriate
- Giving an antibiotic to the patient within four hours of arrival at the hospital

Connecticut hospital medical records for pneumonia patients (July 1, 2003 through September 30, 2003 period) were examined to find out how often patients were given each of these recommended treatments (see Figures 10-12). Higher percentages are better. We then combined the individual performance rates into a single composite rate for pneumonia in each hospital (Figure 13).

### **Measure 1. Percentage of patients with pneumonia who are given an oxygenation assessment within 24 hours of arrival at the hospital (Figure 10)**

#### *Why is this information important?*

It is important to measure the amount of oxygen in your blood to see if you need oxygen therapy. Pneumonia can lower the oxygen in your blood because the air spaces in your lungs fill with fluid. The oxygen you breathe does not get into your bloodstream. The assessment may include an arterial blood gas (ABG) or pulse oximetry (electrodes attached to a part of your body like a finger, earlobe, or skin fold).

#### *What can you do if your hospital does not do this?*

If you do not have an assessment of your oxygen level through pulse oximetry or an ABG on arrival to the hospital, ask your doctor or nurse if you should have the test.

**Measure 2. Percentage of patients with pneumonia who are screened for and/or given a pneumonia vaccination before discharge from the hospital (Figure 11)**

***Why is this information important?***

The pneumococcal vaccine may help prevent, or lower the risk of complications of pneumonia caused by bacteria. It may also help prevent future infections.

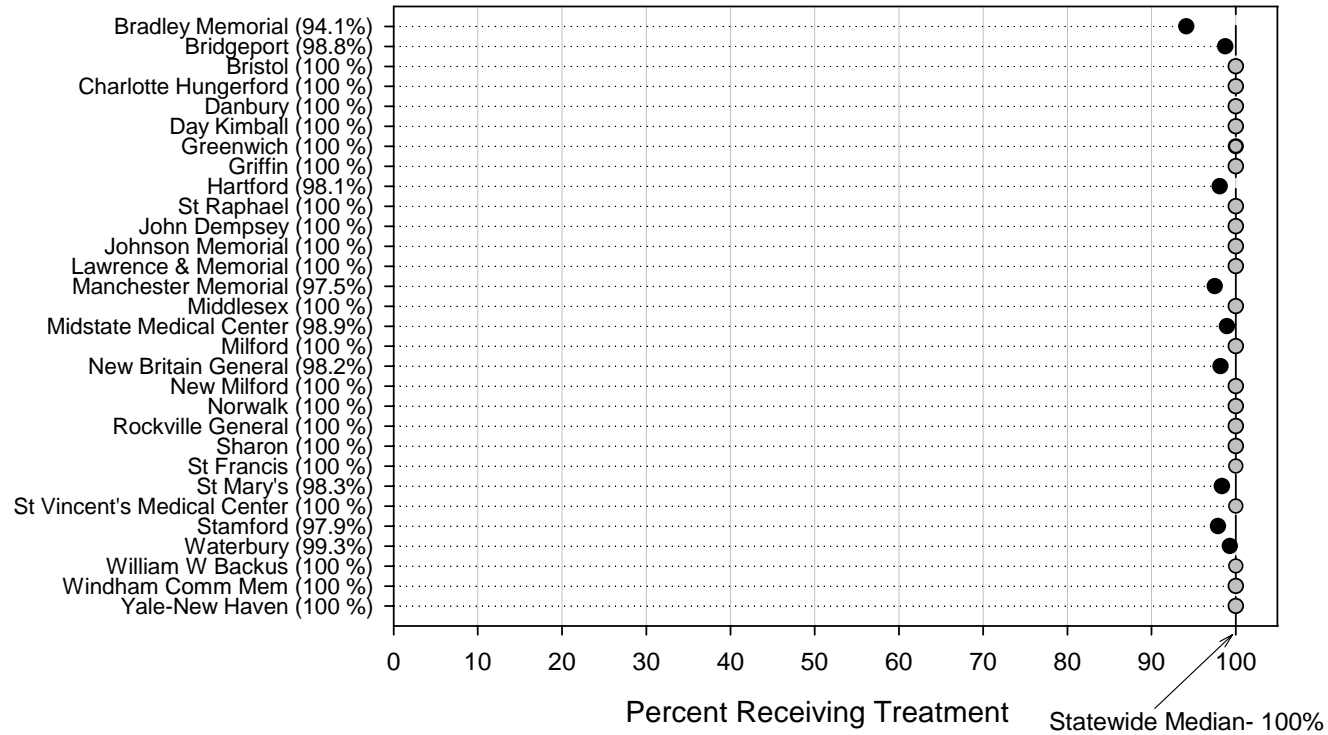
***What can you do if your hospital does not do this?***

Patients who have previously received a pneumonia vaccination may not need to be vaccinated again. You should keep a record of your vaccinations that can be shown to hospital staff at the time of admission. If, during your hospital stay, you do not have a fever and have not received a pneumonia vaccination, ask your doctor or nurse about vaccination.

Figure – 10

Performance Rates\* for Connecticut Hospitals  
 Pneumonia -- Measuring the Oxygen Levels in the Blood  
 July 1- September 30, 2003

----- Hospitals -----  
 (sorted by Hospital name)



**Key:** The black-shaded circles identify those hospitals whose rates differ from the statewide score, based on a statistical test for significant differences ( $p < 0.05$ ). The grey-shaded circles identify values that are not significantly different from the statewide values.

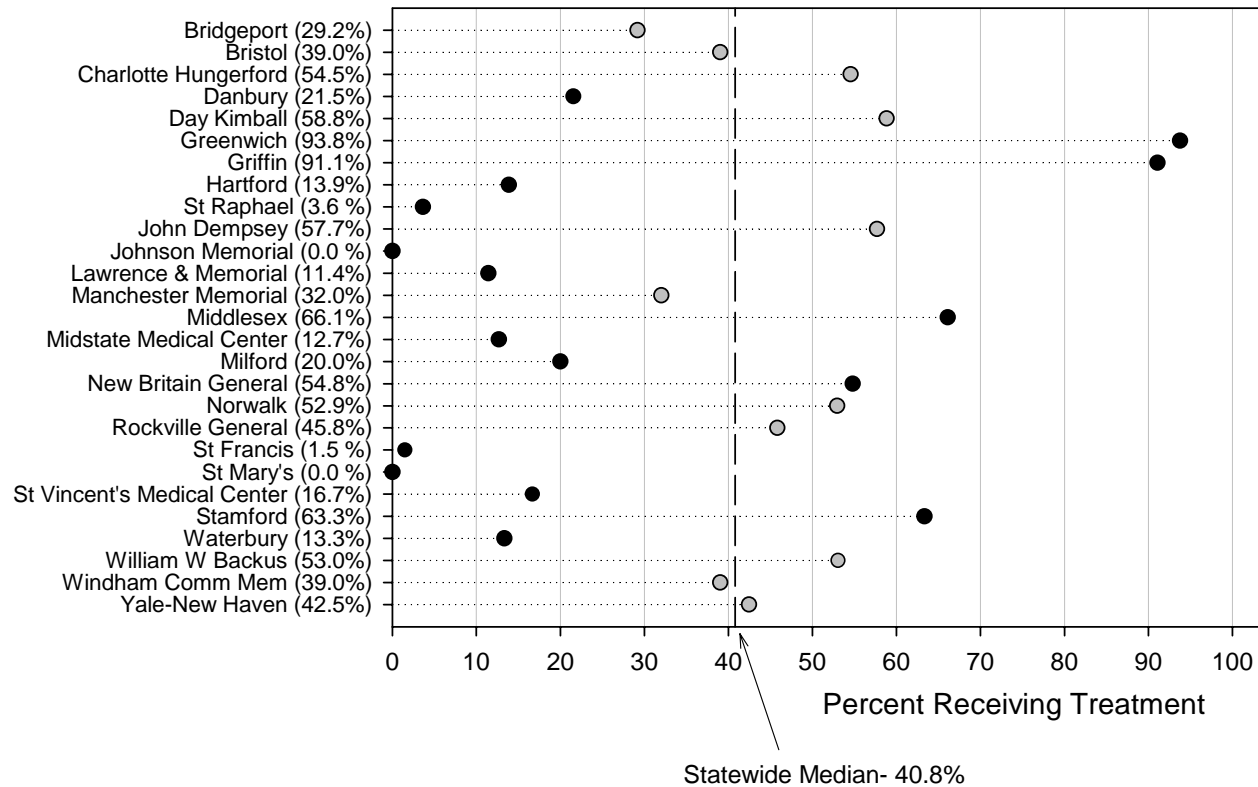
**Source:** Connecticut Department of Public Health, Bureau of Community Health, Healthcare Quality, Statistics, Analysis & Reporting. April, 2004.

\* Performance rates are not displayed if the number of eligible patients was less than 20.

Figure – 11

Performance Rates\* for Connecticut Hospitals  
 Pneumonia -- Screening and/or Providing Pneumonia Vaccine  
 July 1- September 30, 2003

----- Hospitals -----  
 (sorted by Hospital name)



**Key:** The black-shaded circles identify those hospitals whose rates differ from the statewide score, based on a statistical test for significant differences ( $p < 0.05$ ). The grey-shaded circles identify values that are not significantly different from the statewide values.

**Source:** Connecticut Department of Public Health, Bureau of Community Health, Healthcare Quality, Statistics, Analysis & Reporting. April, 2004.

\* Performance rates are not displayed if the number of eligible patients was less than 20.

### **Measure 3. Percentage of patients with pneumonia who got antibiotics within 4 hours of arrival to the hospital (Figure 12)**

#### *Why is this information important?*

Antibiotics are used to treat pneumonia caused by bacteria. Early treatment with antibiotics can cure bacterial pneumonia and reduce the possibility of complications.

#### *What can you do if your hospital does not do this?*

Some patients may have received antibiotics from their physician before they needed admission to the hospital, therefore not every patient will receive antibiotics within 4 hours of arrival at the hospital. If you have not received antibiotics before your admission to the hospital, ask your doctor or nurse if you will be receiving an antibiotic.

### **Pneumonia Composite Measure (Figure 13)**

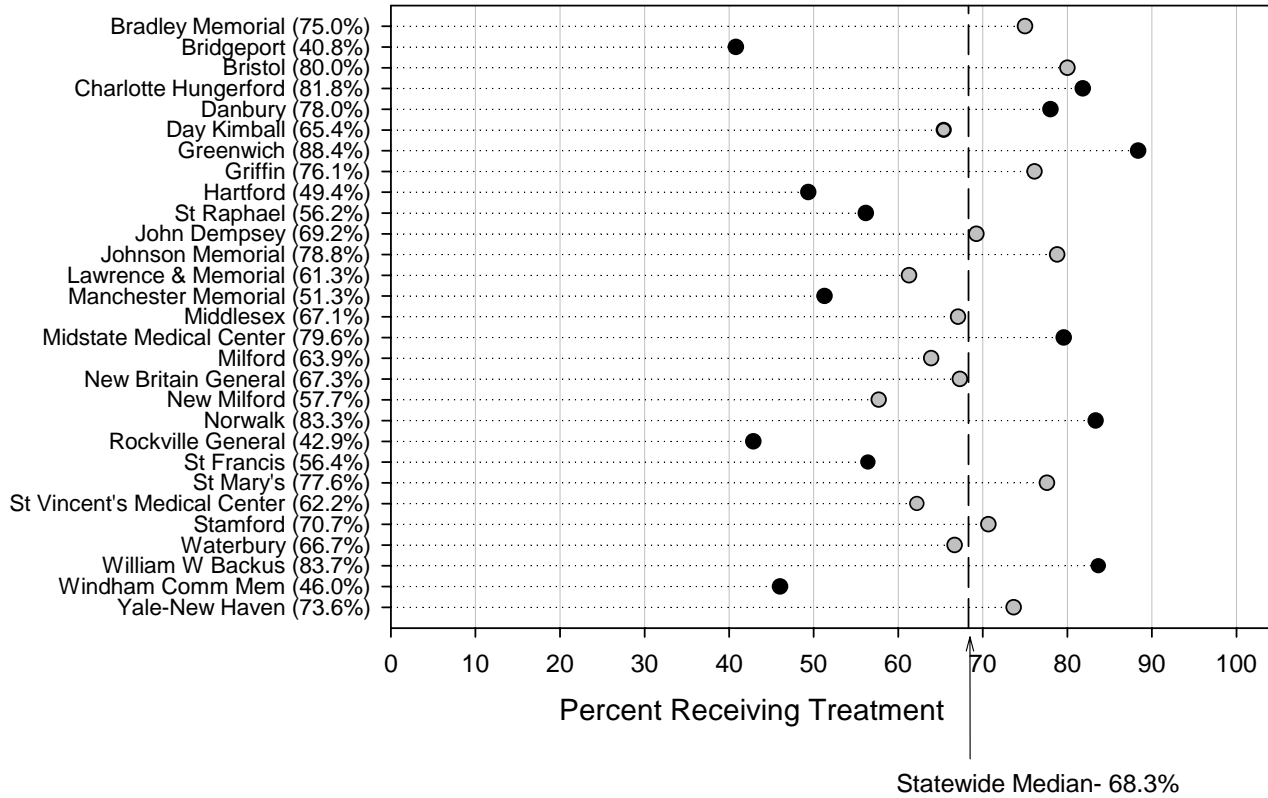
The pneumonia composite indicator (Figure 13) combines the reported information for the three individual pneumonia measures. As expected the figures for the composite indicator show more hospitals than the figures for the individual measures. No hospitals were excluded from the pneumonia composite indicator figures due to small numbers (less than 20). In contrast, on average 2 hospitals were excluded from each of the three individual measure figures due to the low number of reported events. The hospital differences identified based on the three individual measures are consistent, i.e., high or low, with the differences reported for the composite measures for 25 of the hospitals. Two hospitals were high on the composite measure, but low for some individual measures. For the remaining 3 hospitals, the composite measure is not significantly different from the statewide composite median, but individual measures are significantly higher than the median for some measures and lower for others. Higher performance on some measures seems to cancel out the lower performance on others for the 3 hospitals.



Figure – 12

Performance Rates\* for Connecticut Hospitals  
 Pneumonia -- Giving Antibiotics Within 4 Hours of Hospital Arrival  
 July 1- September 30, 2003

----- Hospitals -----  
 (sorted by Hospital name)



**Key:** The black-shaded circles identify those hospitals whose rates differ from the statewide score, based on a statistical test for significant differences ( $p < 0.05$ ). The grey-shaded circles identify values that are not significantly different from the statewide values.

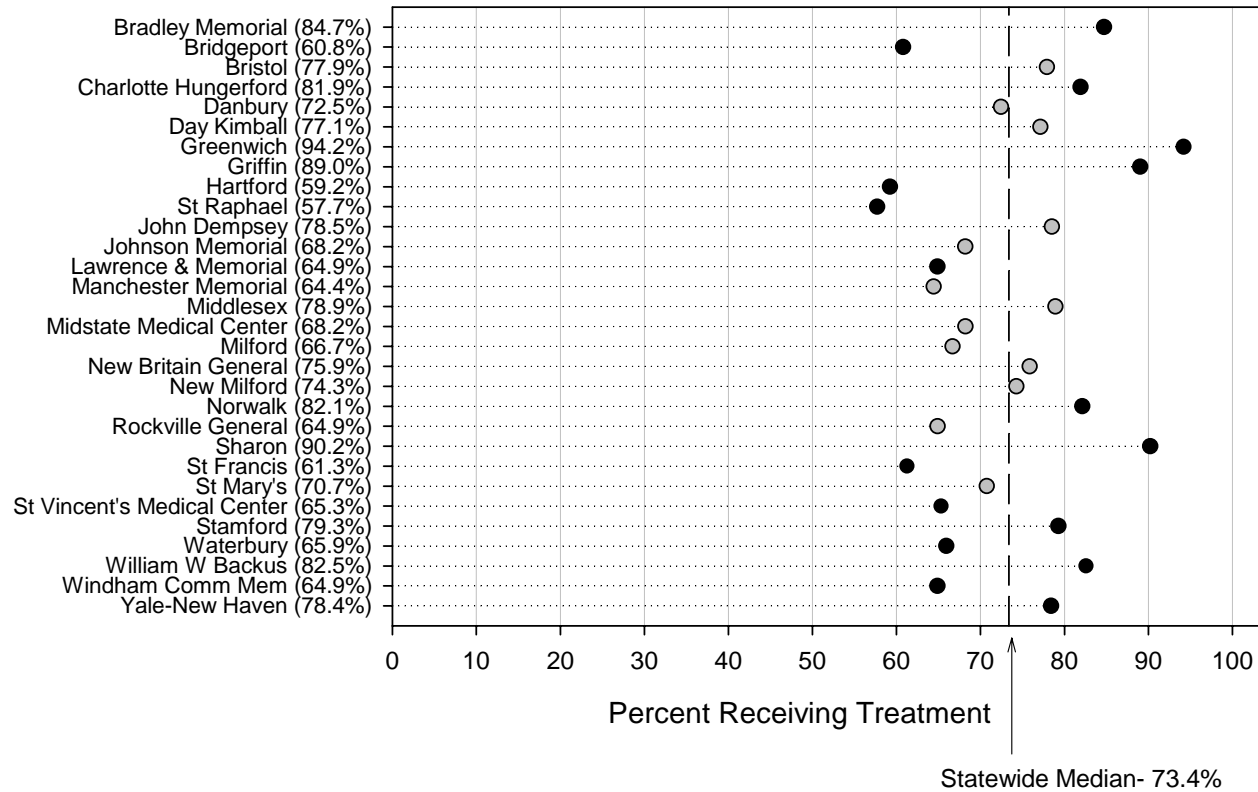
**Source:** Connecticut Department of Public Health, Bureau of Community Health, Healthcare Quality, Statistics, Analysis & Reporting. April, 2004.

\* Performance rates are not displayed if the number of eligible patients was less than 20.

Figure – 13

Performance Rates\* for Connecticut Hospitals  
 Pneumonia -- Giving the Right Treatment at the Right Time  
 July 1- September 30, 2003

----- Hospitals -----  
 (sorted by Hospital name)



**Key:** The black-shaded circles identify those hospitals whose rates differ from the statewide score, based on a statistical test for significant differences ( $p < 0.05$ ). The grey-shaded circles identify values that are not significantly different from the statewide values.

**Source:** Connecticut Department of Public Health, Bureau of Community Health, Healthcare Quality, Statistics, Analysis & Reporting. April, 2004.

\* Performance rates are not displayed if the number of eligible patients was less than 20.

## DISCUSSION

Because data were collected for only a three-month period of time, many hospitals treated only a small number of patients for some of the measures. When a hospital treats such a small number of patients, its performance rate is considered to be too unreliable for public reporting. Therefore, rates are shown only for those hospitals that treated a minimum of 20 eligible patients for each measure. No inferences can be made for those hospitals whose results are not presented. There were 91 out of 390 or about 23% of the hospital performance rates that could not be displayed due to the small number of patients being treated. As more data are collected over time, it is expected that this problem will diminish. We anticipate that after one year of reporting, hospital performance rates that are suppressed due to the small number of patients will decline to approximately 8% from the current 23%. However, for some of the measures, the number of eligible patients was so small, i.e. less than 5, that it could take well over a year to have sufficient numbers for reporting. The increases in the number of records over time will also result in more precise estimates of hospitals' performance rates. While some reported rates appear to differ from the median rate for Connecticut hospitals, we are often not able to say that they differ with adequate statistical certainty due to the limited data currently available.

**Table 1**

<b>Connecticut's Performance Compared to the U.S. Performance</b>			
<b>Condition</b>	<b>Measure</b>	<b>Connecticut Median Rate</b>	<b>National Median Rate*</b>
Heart Attack	Aspirin at Arrival	96% ^	94%
	Beta-Blocker at Arrival	95% ^	89%
	ACEI for LVSD	68%	77%
	Aspirin at Discharge	97% ^	94%
	Beta-Blocker at Discharge	93% ^	90%
Heart Failure	LVF Assessment	90% ^	85%
	ACEI for LVSD	74%	75%
Pneumonia	Timely Antibiotics	68%	72%
	Pneumococcal Vaccination	41% ^	38%
	Oxygenation Assessment	100% ^	99%

\* Source: [www.medicare.gov/hospital](http://www.medicare.gov/hospital) for hospitals participating in the National Voluntary Hospital Reporting Initiative. Data are based upon patients hospitalized from 1/1/03 - 6/30/03.

^ The Connecticut median rate is higher than the comparable national figure for this measure.

Table 1 shows a comparison of Connecticut hospitals' median performance rates to the median performance rates of hospitals in the United States. Connecticut's hospitals are doing better than the U.S. on seven of the ten clinical measures yet they still fall short of the goal of 100% on most of the measures. That is, performance gaps still exist between the care that could be given and the care that is being delivered.

At both the state and national level, performance rates are low for the two measures related to the administration of an angiotensin converting enzyme inhibitor (ACEI) for either heart attack or heart failure patients, as well as for the pneumonia measures related to the administration of timely antibiotics and pneumococcal vaccinations. These four measures also have the widest range of reported performance rates, suggesting that significant differences in practice patterns exist and that better performing hospitals may have developed practices that might ultimately benefit other hospitals that choose to adopt similar methods.

Performance rates are low for the measures related to the administration of an ACEI for either heart attack (68% for Connecticut) or heart failure (74% for Connecticut) patients. Although guidelines recommend that ACEIs be considered the first line therapy for patients with reduced left ventricular ejection fractions (LVEF), some patients do not tolerate ACEIs well and they may be receiving angiotensin II receptor blockers (ARBs) instead. In recent years, several clinical studies<sup>4</sup> have been published comparing the use of ARBs with that of ACEIs and have found them to provide similar benefits with fewer adverse effects. Therefore, physicians who are concerned about the potential adverse effects of ACEIs are prescribing ARBs as an alternative. Such usage can affect hospital performance rates in one of two ways. If the physician specifically documents that he/she used an ARB rather than an ACEI, this would remove the case from the number of patients who should have received an ACEI and would reduce the volume of cases for that measure. However, if the physician prescribes an ARB rather than an ACEI but does not specifically document it on the patient's chart, then it would be counted as failing to give an ACEI, resulting in a lower performance rate. Given that there are still many patients with heart failure and reduced LVEF who do not receive either medication, it is important that hospitals recognize the need to provide treatment with one of these medications and to document the treatment choice.

Connecticut hospitals have had varying success in vaccinating all eligible patients aged 65 and over for pneumonia. Pneumococcal vaccination rates in Connecticut range from 0% to 94% with a median rate of 41%. The hospitals with the greatest success have used a variety of methods including pre-printed order sets, worksheets or stickers with vaccine reminders for physicians, and close follow-up by patient case

managers<sup>5</sup>. Some of the reasons that have been identified for the lower vaccination rates by hospitals include patient refusal due to fear of side effects, difficulty determining whether the patient had previously received the vaccine, physicians forgetting to order the vaccine<sup>6</sup>, or most notably because hospitals are required by current Connecticut law to obtain an individual physician order for each patient vaccination. Recent studies<sup>7</sup> in the medical literature show that a standing hospital policy (sometimes termed a "standing order") that allows nurses to screen patients for contraindications and administer the vaccine when appropriate, without requiring an individual physician order for each patient, is far more effective in achieving high levels of vaccination than other strategies. In recognition of this, the federal Centers for Medicare and Medicaid Services modified federal law in 2002 to allow the use of standing hospital policies for certain vaccinations. Because it is more stringent, Connecticut law supersedes the federal law and provides legal protection for health care providers that many feel is critical to maintain. Connecticut legislation is pending that would allow hospitals to use standing orders for pneumococcal vaccines and, if enacted, the legislation should help Connecticut hospitals improve their rates of pneumococcal vaccination.

The percentage of pneumonia patients who received an antibiotic within four hours of arrival at the hospital is another indicator with potential for improvement. Performance rates vary widely by hospital from 41% to 88%, with a statewide median rate of 68%. One explanation for this is that the Centers for Medicare and Medicaid Services only recently changed its recommended target time for antibiotic administration from eight hours to four hours based on a new study<sup>8</sup> showing that a more timely administration of the first dose of antibiotic decreases morbidity and mortality from complications of pneumonia, and hospitals may not yet have adapted to the newer time thresholds. In order to meet the new CMS target, many hospitals are redesigning their processes to administer the first dose of antibiotic as soon as the diagnosis of pneumonia is confirmed, which may occur in the emergency department, rather than waiting until the patient reaches their room in the patient care unit, which takes more time.

Another possible reason for the delayed administration of antibiotics is that many patients are treated by their primary care physician for pneumonia before they need hospitalization, in which case patients may be placed on antibiotics while still at home. Many of the new antibiotics are longer acting and may be given only once or twice a day. Therefore, a patient already taking an antibiotic who is then admitted to a hospital may not receive the next dose until the next time that it is due to be given, which may exceed the four-hour target being measured. If this information is not documented in the patient's medical record, the case will be incorrectly counted as a failure to give timely antibiotics.

## RESOURCES

Below are some useful resources if you would like more information about hospital quality of care.

The **Connecticut Department of Public Health** is the state agency responsible for developing the Hospital Performance Comparison Report. It is also the agency responsible for the licensing and regulatory oversight of Connecticut hospitals. For more information about the activities in the Connecticut Department of Public Health, visit their website at [www.dph.state.ct.us](http://www.dph.state.ct.us).

The **Connecticut Hospital Association** represents and serves Connecticut's hospitals. For more information about the hospitals in Connecticut, contact the Connecticut Hospital Association at [www.cthosp.org](http://www.cthosp.org) or 203-294-7213.

**Qualidigm®** is the Quality Improvement Organization for Connecticut under the direction of the Centers for Medicare and Medicaid. They implement quality improvement programs with hospitals and serve as advocates for Medicare beneficiaries. Contact them at [www.qualidigm.org](http://www.qualidigm.org) or 860-632-2008.

For more information about the **National Voluntary Hospital Reporting Initiative** of the **Centers for Medicare and Medicaid**, visit the web site [www.cms.hhs.gov/quality/hospital](http://www.cms.hhs.gov/quality/hospital) or [www.medicare.gov/hospital](http://www.medicare.gov/hospital).

The **Joint Commission on Accreditation of Healthcare Organizations** (JCAHO) evaluates the quality and safety of care of health care organizations and accredits them. They have prepared information to help consumers select a hospital. Go to their website at [www.jcaho.org](http://www.jcaho.org) or call their Customer Service Department at 630-792-5800.

The **Agency for Health Research and Quality** (AHRQ) is the lead federal agency responsible for research on quality, cost, access, utilization, and health care outcomes and patient safety. AHRQ has a variety of resources for consumers including *Your Guide to Choosing Quality Health Care*. Visit their website at [www.ahrq.gov](http://www.ahrq.gov).

The **Connecticut Attorney General's Office** has prepared a consumer guide: *Navigating the Health Care System: A Resource Guide for Consumers*. It can be found on the web at [www.cslib.org/attygen/](http://www.cslib.org/attygen/).

## ACKNOWLEDGEMENTS

Although this report was prepared by the Connecticut Department of Public Health, its development was made possible through collaboration with the Centers for Medicare and Medicaid Services. Qualidigm®, which is the CMS Quality Improvement Organization for Connecticut, was an integral partner of the DPH in this public reporting initiative, as was the Connecticut Hospital Association which actively facilitated the collection of the data.

Guidance in the development of this report was also provided by the DPH Hospital Performance Comparison Working Group, consisting of representatives of the hospital industry, health care plans, businesses, consumer groups and the Connecticut DPH. This Working Group reports to the Quality in Health Care Advisory Committee created by state statute.

A special acknowledgement must be made to the Rhode Island Department of Health and the Kansas City Metropolitan Healthcare Council, whose publications provided useful material in developing this report. Rhode Island was the first state to publish hospital performance comparison data containing the 10 measures found in this report. Their publication, *Hospital Performance in Rhode Island: How Often Our Hospitals Provide the Recommended Care for Heart Attack, Heart Failure and Pneumonia*, was originally published in November 2002. The Kansas City Metropolitan Healthcare Council published a similar report, *Hospital Performance in the Kansas City Region: How Often Our Hospitals Provide the Recommended Care for Heart Attack, Heart Failure and Pneumonia*, in September 2003.

A special acknowledgement must also be made regarding the use of the material that was found on the CMS website regarding their National Voluntary Hospital Reporting Initiative as listed under Resources in this document.

## CONNECTICUT HOSPITALS

Only licensed hospitals that regularly care for adults with heart attacks, heart failure, and pneumonia are included in this report. This report does not contain information from pediatric, psychiatric, or rehabilitation hospitals.

For more information about the quality of care provided by hospitals in Connecticut, contact the quality improvement department of any of the hospitals listed below or visit the hospital's web site.

<p><b>The William W. Backus Hospital</b>            326 Washington Street            Norwich, CT 06360-2733            Deborah Parker            860-889-8331 ext. 2350  <a href="mailto:dparker@wwbh.org">dparker@wwbh.org</a></p>	<p><b>John Dempsey Hospital</b>            263 Farmington Avenue            Farmington, CT 06032-1941            Rhea Sanford, RN, Ph.D.            860-679-3519  <a href="mailto:rsanford@nso1.uchc.edu">rsanford@nso1.uchc.edu</a></p>
<p><b>Bradley Memorial Hospital</b>            81 Meriden Avenue            Southington, CT 06489-3297            Sally Malech            860-224-5470  <a href="mailto:smalech@nbgh.org">smalech@nbgh.org</a></p>	<p><b>Greenwich Hospital</b>            5 Perryridge Road            Greenwich, CT 06830-4697            George Pawlush            203-863-3126  <a href="mailto:georgep@greenhosp.org">georgep@greenhosp.org</a></p>
<p><b>Bridgeport Hospital</b>            267 Grant Street            Bridgeport, CT 06610-0120            Tom Wilson            203-384-3557  <a href="mailto:qtwils@bpthosp.org">qtwils@bpthosp.org</a></p>	<p><b>Griffin Hospital</b>            130 Division Street            Derby, CT 06418-1326            Deborah Gibber            203-732-7428  <a href="mailto:dgibber@griffinhealth.org">dgibber@griffinhealth.org</a></p>
<p><b>Bristol Hospital</b>            Brewster Road            Bristol, CT 06011-0977            Karen Poole            860-585-3528  <a href="mailto:kpoole@bristolhospital.org">kpoole@bristolhospital.org</a></p>	<p><b>Hartford Hospital</b>            80 Seymour Street            Hartford, CT 06102-5037            Laura Caramanica            860-545-2895  <a href="mailto:lcarama@harthosp.org">lcarama@harthosp.org</a></p>
<p><b>Danbury Hospital</b>            24 Hospital Avenue            Danbury, CT 06810-6099            Matthew Miller, MD            203-797-7966  <a href="mailto:matthew.miller@danhosp.org">matthew.miller@danhosp.org</a></p>	<p><b>The Charlotte Hungerford Hospital</b>            540 Litchfield Street            Torrington, CT 06790-0988            Daniel McIntyre            860-496-6474  <a href="mailto:dmcintyre@hungerford.org">dmcintyre@hungerford.org</a></p>
<p><b>Day Kimball Hospital</b>            320 Pomfret Street            Putnam, CT 06260-0901            Ron Coderre            860-928-7141  <a href="mailto:rcoderre@daykimball.org">rcoderre@daykimball.org</a></p>	<p><b>Johnson Memorial Hospital</b>            210 Chestnut Hill Road            Stafford Springs, CT 06076-0860            Debra Abel            860-684-4251  <a href="mailto:dabel@jmhosp.org">dabel@jmhosp.org</a></p>



<p><b>Lawrence &amp; Memorial Hospital</b>  365 Montauk Avenue  New London, CT 06320-4769  Alan Bier, MD  860-442-0711, ext. 2073  <a href="mailto:abier@lmhosp.chime.org">abier@lmhosp.chime.org</a></p>	<p><b>Saint Francis Hospital and Medical Center</b>  114 Woodland Street  Hartford, CT 06105-1200  Susan Freeman, MD  860-714-4361  <a href="mailto:sfreeman@stfranciscare.org">sfreeman@stfranciscare.org</a></p>
<p><b>Manchester Memorial Hospital</b>  71 Haynes Street  Manchester, CT 06040-4188  Andrew Beck  860-647-4751  <a href="mailto:abeck@echh.org">abeck@echh.org</a></p>	<p><b>Saint Mary's Hospital</b>  56 Franklin Street  Waterbury, CT 06706-1281  Sandra Roosa, RN  203-709-6095  <a href="mailto:sroosa@stmh.org">sroosa@stmh.org</a></p>
<p><b>Middlesex Hospital</b>  28 Crescent Street  Middletown, CT 06457-3650  Susan Menichetti  860-704-3010  <a href="mailto:susan_menichetti@midhosp.org">susan_menichetti@midhosp.org</a></p>	<p><b>Hospital of Saint Raphael</b>  1450 Chapel Street  New Haven, CT 06511-1450  Charles Riordan, MD  203-789-3000  <a href="mailto:criordan@srhs.org">criordan@srhs.org</a></p>
<p><b>MidState Medical Center</b>  435 Lewis Avenue  Meriden, CT 06451-2101  Barbara Kaplowe  203-694-8365  <a href="mailto:bkaplow@harthosp.org">bkaplow@harthosp.org</a></p>	<p><b>St. Vincent's Medical Center</b>  2800 Main Street  Bridgeport, CT 06606-4292  Kerry Eaton  203-576-5850  <a href="mailto:keaton@svhs-ct.org">keaton@svhs-ct.org</a></p>
<p><b>Milford Hospital</b>  300 Seaside Avenue  Milford, CT 06460-4603  Lloyd Friedman, MD  203-876-4288  <a href="mailto:Lloyd.Friedman@milfordhospital.org">Lloyd.Friedman@milfordhospital.org</a></p>	<p><b>Sharon Hospital</b>  50 Hospital Hill Road  Sharon, CT 06069-0789  Teri Gillette  860-364-4228  <a href="mailto:Teri.Gillette@sharonhospital.com">Teri.Gillette@sharonhospital.com</a></p>
<p><b>New Britain General Hospital</b>  100 Grand Street  New Britain, CT 06052-2017  Kate Betancourt  860-224-5900 ext. 2646  <a href="mailto:ebetancourt@nbgh.org">ebetancourt@nbgh.org</a></p>	<p><b>The Stamford Hospital</b>  Shelburne Road and West Broad Street  Stamford, CT 06904-9317  John Rodis, MD  203-325-7295  <a href="mailto:jrodis@stamhealth.org">jrodis@stamhealth.org</a></p>
<p><b>New Milford Hospital</b>  21 Elm Street  New Milford, CT 06776-2993  Linda Vryhof  860-350-7276  <a href="mailto:vryhof@newmilfhosp.org">vryhof@newmilfhosp.org</a></p>	<p><b>Waterbury Hospital</b>  64 Robbins Street  Waterbury, CT 06708-2600  Deborah Quetti  203-573-7128  <a href="mailto:dquetti@wtbyhosp.chime.org">dquetti@wtbyhosp.chime.org</a></p>
<p><b>Norwalk Hospital</b>  34 Maple Street  Norwalk, CT 06850-3894  Jim Judson  203-852-2866  <a href="mailto:jim.judson@norwalkhealth.org">jim.judson@norwalkhealth.org</a></p>	<p><b>Windham Community Memorial Hospital</b>  112 Mansfield Avenue  Willimantic, CT 06226-2040  Kathy Arbuckle  860-456-3852  <a href="mailto:karbuckle@wcmh.org">karbuckle@wcmh.org</a></p>
<p><b>Rockville General Hospital</b>  31 Union Street  Vernon, CT 06066-3160  Andrew Beck  860-647-4751  <a href="mailto:abeck@echh.org">abeck@echh.org</a></p>	<p><b>Yale-New Haven Hospital</b>  20 York Street  New Haven, CT 06510-3202  William Crede, MD  203-688-4634  <a href="mailto:crede@ynhh.org">crede@ynhh.org</a></p>

## REFERENCES

1. Institute of Medicine. *To err is human: building a safer health system*. Washington DC: *National Academy Press*, 2000.
2. Institute of Medicine. *Crossing the quality chasm: a new health system for the 21<sup>st</sup> century*. *National Academy Press*, 2001.
3. Institute of Medicine. *Leadership by example: coordinating government roles in improving health care quality*. *National Academy Press*, 2003.
4. Executive Council of the Heart Failure Society of America. Implications of recent clinical trials for heart failure performance measures. HFSA Position Statement. *J Cardiac Failure* 2004;10:4-5.
5. Metersky ML, Fine JM, Tu GS, et al. Lack of effect of a pneumonia clinical pathways on hospital-based pneumococcal vaccination rates. *Am J Med* 2001;110:141-3 (Feb 1).
6. Metersky ML, Mennone JZ, Fine JM. Factors inhibiting use of the pneumococcal polysaccharide vaccine: a survey of Connecticut physicians. *Conn Med* 1998;62:649-54 (Nov).
7. MMWR. Notice to readers: facilitating influenza and pneumococcal vaccination through standing orders programs. *MMWR* 2003;52:68-9 (Jan 31).
8. Houck PM, Bratzler DW, Nsa W, Ma A, Bartlett JG. Timing of antibiotic administration and outcomes for Medicare patients hospitalized with community-acquired pneumonia. *Arch Intern Med* 2004;164:637-44 (March 22).



## **Appendices A - D**

# Appendix A

## DEFINITIONS OF MEASURES

### Acute Myocardial Infarction (AMI or Heart Attack)

For the purposes of this report the AMI population consists of those patients over the age of 18 with a discharge ICD-9-CM code indicating an initial AMI episode (410.x1).

Each measure within the AMI measure set is calculated individually based on the inclusion/exclusion criteria for that particular measure; therefore, the denominators for each measure may be different.

#### *Aspirin at arrival*

Exclusion criteria:

- Less than 18 years of age
- Patients transferred from another acute care hospital on the day of arrival
- Patients received in transfer from another hospital, including another emergency department
- Patients discharged on day of arrival
- Patients expired on day of arrival
- Patients who left against medical advice on day of arrival
- Patients with contraindication to aspirin including:
  - active bleeding on arrival or within 24 hours of arrival,
  - aspirin allergy,
  - on warfarin/Coumadin prior to arrival
- Other explicitly linked reason documented by a physician, nurse practitioner or physician assistant for not giving aspirin on arrival

#### *Aspirin at discharge*

Exclusion criteria:

- Less than 18 years of age
- Patients transferred to another acute care hospital
- Patients who expired
- Patients who left against medical advice
- Patients discharged to hospice
- Patients with contraindication to aspirin including:
  - active bleeding on arrival or within 24 hours of arrival,
  - aspirin allergy,
  - on warfarin/Coumadin prior to arrival

- Other explicitly linked reason documented by a physician, nurse practitioner or physician assistant for not prescribing aspirin at discharge

### ***ACEI for LVSD***

Inclusion criteria:

- Chart documentation of Left Ventricular Ejection Fraction (LVEF) less than 40% or a narrative description of LVF consistent with moderate or severe systolic dysfunction

Exclusion criteria:

- Less than 18 years of age
- Patients transferred to another acute care hospital
- Patients who expired
- Patients who left against medical advice
- Patients discharged to hospice
- Patients with chart documentation of participation in a clinical trial testing alternatives to ACEI documented in the medical record:
  - ACEI allergy,
  - moderate or severe aortic stenosis
- Other explicitly linked reason documented by a physician, nurse practitioner or physician assistant for not prescribing ACEI

### ***Beta blocker prescribed at discharge***

Exclusion criteria:

- Less than 18 years of age
- Patients transferred to another acute care hospital
- Patients who expired
- Patients who left against medical advice
- Patients discharged to hospice
- Patients with one or more of the following beta blocker contraindications/reasons for not prescribing:
  - Beta blocker allergy,
  - Bradycardia (heart rate less than 60 bpm) on day of discharge or day prior to discharge while not on beta blocker
  - Second or third degree heart block on ECG on arrival or during hospital stay and does not have a pacemaker
  - Systolic BP less than 90 mmHg on day of discharge or day prior to discharge while not on beta blocker
- Other explicitly linked reason documented by a physician, nurse practitioner or

physician assistance

### ***Beta blocker at arrival***

Exclusion criteria:

- Less than 18 years of age
- Patients transferred from another acute care hospital on the day of arrival
- Patients received in transfer from another hospital, including another emergency department
- Patients discharged on day of arrival
- Patients expired on day of arrival
- Patients who left against medical advice on day of arrival
- Patients with one or more of the following beta blocker contraindications/reasons for not prescribing:
  - Beta blocker allergy,
  - Bradycardia (heart rate less than 60 bpm) on arrival or within 24 hours of arrival while not on beta blocker
  - Heart failure on arrival or within 24 hours after arrival
  - Second or third degree heart block on ECG on arrival or within 24 hours after arrival and does not have a pacemaker
  - Shock on arrival or within 24 hours after arrival
  - Systolic BP less than 90 mmHg on arrival or within 24 hours after arrival
- Other explicitly linked reason documented by a physician, nurse practitioner or physician assistant for not giving a beta blocker within 24 hours after hospital arrival

### **Heart Failure**

For the purposes of this report the Heart Failure population consists of those patients over the age of 18 with a discharge ICD-9-CM code indicating a Heart Failure episode (402.01, 402.11, 402.91, 404.01, 404.03, 404.11, 404.13, 404.91, 404.93, 428.0, 428.1, 428.20, 428.21, 428.22, 428.23, 428.30, 428.31, 428.32, 428.33, 428.40, 428.41, 429.42, 428.43, 428.9).

Each measure within the Heart Failure measure set is calculated individually based on the inclusion/exclusion criteria for that particular measure; therefore, the denominators for each measure may be different.

### ***Left Ventricular Function (LVF) Assessment***

Exclusion criteria:

- Patients less than 18 years of age
- Patients transferred to another acute care hospital

- Patients who expired
- Patients who left against medical advice
- Patients discharged to hospice
- Other explicitly linked reason documented by a physician, nurse practitioner or physician assistant for no LVF assessment

### ***ACEI for LVSD***

Inclusion criteria:

- Chart documentation of Left Ventricular Ejection Fraction (LVEF) less than 40% or a narrative description of LVF consistent with moderate or severe systolic dysfunction

Exclusion criteria:

- Less than 18 years of age
- Patients transferred to another acute care hospital
- Patients who expired
- Patients who left against medical advice
- Patients discharged to hospice
- Patients with chart documentation of participation in a clinical trial testing alternatives to ACEI documented in the medical record:
  - ACEI allergy,
  - moderate or severe aortic stenosis
- Other explicitly linked reason documented by a physician, nurse practitioner or physician assistant for not prescribing ACEI

### **Pneumonia**

For the purposes of this report the pneumonia population consists of those patients over the age of 29 days with a discharge ICD-9-CM code indicating a principal diagnosis of pneumonia or a principal diagnosis of septicemia or respiratory failure with a secondary diagnosis of pneumonia.

Patients without a working diagnosis of pneumonia on admission or those for whom “comfort measures only” are prescribed during their hospitalization are immediately excluded from the population.

Each measure within the pneumonia measure set is calculated individually based on the inclusion/exclusion criteria for that particular measure; therefore, the denominators for each measure may be different.



### ***Oxygenation assessment***

Exclusion criteria:

- Patients received in transfer from another acute care hospital
- Patients who have no working diagnosis of pneumonia at the time of admission
- Patients receiving “comfort measures only”
- Patients less than 29 days of age

### ***Pneumococcal screening and/or vaccination***

Inclusion criteria:

- Patients over 65 years of age with a principal diagnosis of pneumonia or a principal diagnosis of septicemia or respiratory failure with a secondary diagnosis of pneumonia

Exclusion criteria:

- Patients received in transfer from another acute care hospital
- Patients who left against medical advice
- Patients who have no working diagnosis of pneumonia at the time of admission
- Patients receiving “comfort measures only”
- Patients less than 65 years of age
- Patient expired

### ***Antibiotic timing***

Exclusion criteria:

- Patients received in transfer from another acute care hospital
- Patients who have no working diagnosis of pneumonia at the time of admission
- Patients who do not receive antibiotics during hospitalization
- Patients receiving “comfort measures only”
- Patients less than 29 days of age
- Patients whose initial antibiotic was administered more than 36 hours from the time of arrival
- Does not include antibiotics received prior to hospitalization but this may cause an extended time to initial antibiotic in the hospital

## Appendix B

### COMPOSITE MEASURE METHODOLOGY

Composite measures combine various aspects of care into one score. Composite scores can minimize the problem of small sample size (small patient numbers) for many hospitals because the composite sample is the aggregate (total) of *all* eligible patients for *all* measures included in the composite. Use of composite measures reduces the amount of information consumers need to make a decision.

The composite numerator (number of eligible patients who received the recommended care) is the sum of numerators for each performance measure for each condition. The composite denominator (number of eligible patients) is the sum of the denominators for each performance measure for each condition. The composite score is calculated by dividing the composite numerator by the composite denominator. Table 1 shows how a composite is calculated using heart attack care as an example.

**Table 1. Heart Attack Care Composite Measure Example\***

<b>Performance Measure</b>	<b>Numerator (number of eligible patients who received the recommended care)</b>	<b>Denominator (number of eligible patients)</b>
Aspirin at admission	16	18
Beta-blocker at admission	13	15
ACE Inhibitor for LVSD	5	6
Aspirin at discharge	15	16
Beta-blocker at discharge	14	14
Heart attack composite	63	69

\* Calculated Heart Attack Composite Rate:  $63/69 = 91\%$

## Appendix C

### HEART ATTACK, HEART FAILURE, AND PNEUMONIA PERFORMANCE RATES

Tables 2 - 4 display performance rates and the number of eligible patients for each hospital and individual measure for each of the three medical conditions -- heart attack, heart failure, and pneumonia. Comparison scores include the statewide median rate and the national median rate.

Tables 5 - 7 display more detailed data for each hospital and measure. Performance rates with their respective upper and lower limits of the 95% confidence interval are listed for each Connecticut hospital for each individual performance measure. The confidence interval, which goes from the lower confidence limit to the upper confidence limit, tells you the range of values for the hospital's true performance and with what degree of confidence. For example, a performance rate of 93% with a lower 95% confidence limit of 82% and an upper 95% confidence limit of 98% means that the hospital's true score is between 82% and 98%, with a 95% certainty. In other words, there is only a 5% chance that the hospital's true score is *not* between 82% and 98%. Performance rates are listed only when a hospital had a total of 20 cases or more for the measure during the study period.

Table 2

Heart Attack Performance Rates for Connecticut Hospitals						
July 1, 2003 to September 30, 2003						
	Aspirin at Arrival	Aspirin at Discharge	ACEI for LVSD	Beta Blocker at Discharge	Beta Blocker at Arrival	Composite
<b>National Median Rate*</b>	<b>94%</b>	<b>94%</b>	<b>77%</b>	<b>90%</b>	<b>89%</b>	<b>N/A</b>
<b>Connecticut Median Rate</b>	<b>96%</b>	<b>97%</b>	<b>68%</b>	<b>93%</b>	<b>95%</b>	<b>92%</b>
Bradley Memorial Hospital & Health Center	**	**	**	**	**	97% of 33 patients
Bridgeport Hospital	95% of 79 patients	98% of 129 patients	79% of 38 patients	94% of 130 patients	93% of 54 patients	94% of 430 patients
Bristol Hospital	85% of 20 patients	**	**	**	68% of 28 patients	76% of 67 patients
Charlotte Hungerford Hospital	**	**	**	**	**	78% of 45 patients
Danbury Hospital	98% of 40 patients	**	**	95% of 21 patients	97% of 39 patients	98% of 123 patients
Day Kimball Hospital	82% of 22 patients	**	**	**	76% of 21 patients	75% of 71 patients
Greenwich Hospital Association	100% of 21 patients	**	**	**	100% of 23 patients	99% of 73 patients
Griffin Hospital	**	**	**	**	**	84% of 62 patients
Hartford Hospital	100% of 128 patients	95% of 228 patients	90% of 59 patients	92% of 227 patients	99% of 123 patients	95% of 765 patients
Hospital Of St Raphael	97% of 91 patients	95% of 131 patients	60% of 25 patients	95% of 136 patients	98% of 90 patients	94% of 473 patients
John Dempsey Hospital	100% of 27 patients	100% of 30 patients	**	100% of 34 patients	100% of 28 patients	100% of 130 patients
Johnson Memorial Hospital	**	**	**	**	**	86% of 21 patients
Lawrence & Memorial Hospital	91% of 46 patients	**	**	**	78% of 46 patients	83% of 138 patients
Manchester Memorial Hospital	89% of 28 patients	**	**	86% of 22 patients	91% of 32 patients	86% of 108 patients
Middlesex Hospital	98% of 44 patients	100% of 26 patients	**	100% of 27 patients	97% of 37 patients	97% of 146 patients
MidState Medical Center	**	**	**	**	100% of 20 patients	85% of 53 patients
Milford Hospital	**	**	**	**	**	96% of 46 patients
New Britain General Hospital	89% of 56 patients	70% of 33 patients	**	95% of 38 patients	89% of 54 patients	84% of 197 patients
New Milford Hospital	**	**	**	**	**	**
Norwalk Hospital	96% of 47 patients	100% of 20 patients	**	100% of 24 patients	98% of 42 patients	96% of 141 patients
Rockville General Hospital	91% of 22 patients	**	**	**	96% of 24 patients	88% of 65 patients
Sharon Hospital	**	**	**	**	**	100% of 41 patients
St Francis Hospital & Medical Center	94% of 81 patients	96% of 187 patients	78% of 59 patients	88% of 185 patients	85% of 82 patients	90% of 594 patients
St Mary's Hospital	96% of 51 patients	93% of 28 patients	**	81% of 27 patients	88% of 49 patients	88% of 165 patients
St Vincent's Medical Center	87% of 82 patients	92% of 120 patients	54% of 26 patients	82% of 125 patients	79% of 82 patients	83% of 435 patients
Stamford Hospital	100% of 45 patients	90% of 20 patients	**	**	93% of 43 patients	95% of 130 patients
Waterbury Hospital	100% of 61 patients	86% of 29 patients	**	89% of 28 patients	100% of 51 patients	95% of 178 patients
William W Backus Hospital	96% of 51 patients	**	**	92% of 24 patients	94% of 51 patients	92% of 150 patients
Windham Community Memorial Hospital	**	**	**	**	**	**
Yale-New Haven Hospital	96% of 82 patients	98% of 186 patients	69% of 48 patients	93% of 195 patients	88% of 73 patients	92% of 584 patients

\* 50% of hospitals participating in the National Voluntary Hospital Reporting Initiative and reporting data from 1/1/03 - 6/30/03 scored higher than this rate.

\*\* Performance rates are not displayed if the number of eligible patients was less than 20 during the reporting period.

**Table 3**

<b>Heart Failure Performance Rates for Connecticut Hospitals</b> <i>July 1, 2003 to September 30, 2003</i>			
	LVF Assessment	ACEI for LVSD	Composite
<b>National Median Rate*</b>	<b>85%</b>	<b>75%</b>	<b>N/A</b>
<b>Connecticut Median Rate</b>	<b>90%</b>	<b>74%</b>	<b>84%</b>
Bradley Memorial Hospital & Health Center	76% of 37 patients	65% of 20 patients	72% of 57 patients
Bridgeport Hospital	95% of 108 patients	80% of 49 patients	90% of 157 patients
Bristol Hospital	70% of 82 patients	68% of 28 patients	69% of 110 patients
Charlotte Hungerford Hospital	72% of 29 patients	**	76% of 37 patients
Danbury Hospital	95% of 76 patients	92% of 24 patients	94% of 100 patients
Day Kimball Hospital	88% of 40 patients	**	84% of 56 patients
Greenwich Hospital Association	100% of 41 patients	**	92% of 60 patients
Griffin Hospital	98% of 40 patients	**	96% of 47 patients
Hartford Hospital	92% of 153 patients	62% of 65 patients	83% of 218 patients
Hospital Of St Raphael	87% of 174 patients	42% of 50 patients	77% of 224 patients
John Dempsey Hospital	100% of 29 patients	100% of 20 patients	100% of 49 patients
Johnson Memorial Hospital	**	**	70% of 20 patients
Lawrence & Memorial Hospital	89% of 124 patients	53% of 30 patients	82% of 154 patients
Manchester Memorial Hospital	85% of 60 patients	**	80% of 71 patients
Middlesex Hospital	97% of 68 patients	82% of 22 patients	93% of 90 patients
MidState Medical Center	84% of 58 patients	77% of 22 patients	83% of 80 patients
Milford Hospital	84% of 37 patients	**	76% of 46 patients
New Britain General Hospital	79% of 150 patients	67% of 48 patients	76% of 198 patients
New Milford Hospital	95% of 22 patients	**	93% of 29 patients
Norwalk Hospital	95% of 99 patients	73% of 45 patients	88% of 144 patients
Rockville General Hospital	90% of 29 patients	**	87% of 39 patients
Sharon Hospital	95% of 21 patients	**	90% of 29 patients
St Francis Hospital & Medical Center	91% of 213 patients	71% of 103 patients	84% of 316 patients
St Mary's Hospital	87% of 82 patients	63% of 30 patients	80% of 112 patients
St Vincent's Medical Center	74% of 154 patients	76% of 62 patients	75% of 216 patients
Stamford Hospital	90% of 90 patients	65% of 37 patients	83% of 127 patients
Waterbury Hospital	96% of 71 patients	64% of 22 patients	88% of 93 patients
William W Backus Hospital	97% of 66 patients	83% of 23 patients	93% of 89 patients
Windham Community Memorial Hospital	96% of 25 patients	**	94% of 31 patients
Yale-New Haven Hospital	93% of 198 patients	63% of 68 patients	86% of 266 patients

\* 50% of hospitals participating in the National Voluntary Hospital Reporting Initiative and reporting data from 1/1/03 - 6/30/03 scored higher than this rate.

\*\* Performance rates are not displayed if the number of eligible patients was less than 20 during the reporting period.

Table 4

<b>Pneumonia Performance Rates for Connecticut Hospitals</b>				
<i>July 1, 2003 to September 30, 2003</i>				
	Oxygenation Assessment	Pneumococcal Vaccination	Timely Antibiotic	Composite
<b>National Median Rate*</b>	<b>99%</b>	<b>38%</b>	<b>72%</b>	<b>N/A</b>
<b>Connecticut Median Rate</b>	<b>100%</b>	<b>41%</b>	<b>68%</b>	<b>73%</b>
Bradley Memorial Hospital & Health Center	94% of 34 patients	**	75% of 32 patients	85% of 85 patients
Bridgeport Hospital	99% of 80 patients	29% of 48 patients	41% of 76 patients	61% of 204 patients
Bristol Hospital	100% of 66 patients	39% of 41 patients	80% of 65 patients	78% of 172 patients
Charlotte Hungerford Hospital	100% of 67 patients	55% of 44 patients	82% of 66 patients	82% of 177 patients
Danbury Hospital	100% of 100 patients	22% of 65 patients	78% of 100 patients	72% of 265 patients
Day Kimball Hospital	100% of 54 patients	59% of 34 patients	65% of 52 patients	77% of 140 patients
Greenwich Hospital Association	100% of 45 patients	94% of 32 patients	88% of 43 patients	94% of 120 patients
Griffin Hospital	100% of 68 patients	91% of 56 patients	76% of 67 patients	89% of 191 patients
Hartford Hospital	98% of 157 patients	14% of 101 patients	49% of 154 patients	59% of 412 patients
Hospital Of St Raphael	100% of 73 patients	4% of 55 patients	56% of 73 patients	58% of 201 patients
John Dempsey Hospital	100% of 42 patients	58% of 26 patients	69% of 39 patients	79% of 107 patients
Johnson Memorial Hospital	100% of 34 patients	0% of 21 patients	79% of 33 patients	68% of 88 patients
Lawrence & Memorial Hospital	100% of 118 patients	11% of 70 patients	61% of 111 patients	65% of 299 patients
Manchester Memorial Hospital	98% of 40 patients	32% of 25 patients	51% of 39 patients	64% of 104 patients
Middlesex Hospital	100% of 82 patients	66% of 59 patients	67% of 82 patients	79% of 223 patients
MidState Medical Center	99% of 94 patients	13% of 71 patients	80% of 93 patients	68% of 258 patients
Milford Hospital	100% of 38 patients	20% of 25 patients	64% of 36 patients	67% of 99 patients
New Britain General Hospital	98% of 110 patients	55% of 73 patients	67% of 107 patients	76% of 290 patients
New Milford Hospital	100% of 28 patients	**	58% of 26 patients	74% of 70 patients
Norwalk Hospital	100% of 78 patients	53% of 51 patients	83% of 78 patients	82% of 207 patients
Rockville General Hospital	100% of 35 patients	46% of 24 patients	43% of 35 patients	65% of 94 patients
Sharon Hospital	100% of 22 patients	**	**	90% of 51 patients
St Francis Hospital & Medical Center	100% of 118 patients	1% of 67 patients	56% of 117 patients	61% of 302 patients
St Mary's Hospital	98% of 60 patients	0% of 29 patients	78% of 58 patients	71% of 147 patients
St Vincent's Medical Center	100% of 129 patients	17% of 84 patients	62% of 127 patients	65% of 340 patients
Stamford Hospital	98% of 94 patients	63% of 60 patients	71% of 92 patients	79% of 246 patients
Waterbury Hospital	99% of 139 patients	13% of 90 patients	67% of 138 patients	66% of 367 patients
William W Backus Hospital	100% of 105 patients	53% of 66 patients	84% of 104 patients	83% of 275 patients
Windham Community Memorial Hospital	100% of 64 patients	39% of 41 patients	46% of 63 patients	65% of 168 patients
Yale-New Haven Hospital	100% of 154 patients	42% of 73 patients	74% of 148 patients	78% of 375 patients

\* 50% of hospitals participating in the National Voluntary Hospital Reporting Initiative and reporting data from 1/1/03 - 6/30/03 scored higher than this rate.

\*\* Performance rates are not displayed if the number of eligible patients was less than 20 during the reporting period.

**Table 5**

Heart Attack Performance Rates for Connecticut Hospitals July 1, 2003 to September 30, 2003							
Measure		Bradley Memorial Hospital & Health Center	Bridgeport Hospital	Bristol Hospital	Charlotte Hungerford Hospital	Danbury Hospital	Day Kimball Hospital
Aspirin at Arrival	Performance Rate	**	0.95	0.85	**	0.98	0.82
	Numerator	**	75	17	**	39	18
	Denominator	9	79	20	12	40	22
	Lower 95% CL*	**	0.88	0.62	**	0.87	0.60
	Upper 95% CL*	**	0.99	0.97	**	1.00	0.95
Aspirin at Discharge	Performance Rate	**	0.98	**	**	**	**
	Numerator	**	126	**	**	**	**
	Denominator	4	129	6	7	17	9
	Lower 95% CL*	**	0.93	**	**	**	**
	Upper 95% CL*	**	1.00	**	**	**	**
ACEI for Left Ventricular Systolic Dysfunction	Performance Rate	**	0.79	**	**	**	**
	Numerator	**	30	**	**	**	**
	Denominator	5	38	3	3	6	7
	Lower 95% CL*	**	0.63	**	**	**	**
	Upper 95% CL*	**	0.90	**	**	**	**
Beta Blocker at Discharge	Performance Rate	**	0.94	**	**	0.95	**
	Numerator	**	122	**	**	20	**
	Denominator	5	130	10	9	21	12
	Lower 95% CL*	**	0.88	**	**	0.76	**
	Upper 95% CL*	**	0.97	**	**	1.00	**
Beta Blocker at Arrival	Performance Rate	**	0.93	0.68	**	0.97	0.76
	Numerator	**	50	19	**	38	16
	Denominator	10	54	28	14	39	21
	Lower 95% CL*	**	0.82	0.48	**	0.87	0.53
	Upper 95% CL*	**	0.98	0.84	**	1.00	0.92
Composite Score	Performance Rate	0.97	0.94	0.76	0.78	0.98	0.75
	Numerator	32	403	51	35	120	53
	Denominator	33	430	67	45	123	71
	Lower 95% CL*	0.84	0.91	0.64	0.63	0.93	0.63
	Upper 95% CL*	1.00	0.96	0.86	0.89	0.99	0.84

\* Exact Confidence Limits (CL) for a binomial proportion were calculated.

\*\* Performance rates are not displayed if denominators were less than 20 during the reporting period.

**Table 5 (continued)**

Heart Attack Performance Rates for Connecticut Hospitals July 1, 2003 to September 30, 2003							
Measure		Greenwich Hospital Association	Griffin Hospital	Hartford Hospital	Hospital Of St Raphael	John Dempsey Hospital	Johnson Memorial Hospital
Aspirin at Arrival	Performance Rate	1.00	**	1.00	0.97	1.00	**
	Numerator	21	**	128	88	27	**
	Denominator	21	17	128	91	27	10
	Lower 95% CL*	0.87	**	0.98	0.91	0.89	**
	Upper 95% CL*	1.00	**	1.00	0.99	1.00	**
Aspirin at Discharge	Performance Rate	**	**	0.95	0.95	1.00	**
	Numerator	**	**	217	125	30	**
	Denominator	10	9	228	131	30	2
	Lower 95% CL*	**	**	0.92	0.90	0.90	**
	Upper 95% CL*	**	**	0.98	0.98	1.00	**
ACEI for Left Ventricular Systolic Dysfunction	Performance Rate	**	**	0.90	0.60	**	**
	Numerator	**	**	53	15	**	**
	Denominator	6	6	59	25	11	1
	Lower 95% CL*	**	**	0.79	0.39	**	**
	Upper 95% CL*	**	**	0.96	0.79	**	**
Beta Blocker at Discharge	Performance Rate	**	**	0.92	0.95	1.00	**
	Numerator	**	**	208	129	34	**
	Denominator	13	11	227	136	34	1
	Lower 95% CL*	**	**	0.87	0.90	0.92	**
	Upper 95% CL*	**	**	0.95	0.98	1.00	**
Beta Blocker at Arrival	Performance Rate	1.00	**	0.99	0.98	1.00	**
	Numerator	23	**	122	88	28	**
	Denominator	23	19	123	90	28	7
	Lower 95% CL*	0.88	**	0.96	0.92	0.90	**
	Upper 95% CL*	1.00	**	1.00	1.00	1.00	**
Composite Score	Performance Rate	0.99	0.84	0.95	0.94	1.00	0.86
	Numerator	72	52	728	445	130	18
	Denominator	73	62	765	473	130	21
	Lower 95% CL*	0.93	0.72	0.93	0.92	0.98	0.64
	Upper 95% CL*	1.00	0.92	0.97	0.96	1.00	0.97

\* Exact Confidence Limits (CL) for a binomial proportion were calculated.

\*\* Performance rates are not displayed if denominators were less than 20 during the reporting period.



**Table 5 (continued)**

Heart Attack Performance Rates for Connecticut Hospitals July 1, 2003 to September 30, 2003							
Measure		Lawrence & Memorial Hospital	Manchester Memorial Hospital	Middlesex Hospital	MidState Medical Center	Milford Hospital	New Britain General Hospital
Aspirin at Arrival	Performance Rate	0.91	0.89	0.98	**	**	0.89
	Numerator	42	25	43	**	**	50
	Denominator	46	28	44	17	16	56
	Lower 95% CL*	0.79	0.72	0.88	**	**	0.78
	Upper 95% CL*	0.98	0.98	1.00	**	**	0.96
Aspirin at Discharge	Performance Rate	**	**	1.00	**	**	0.70
	Numerator	**	**	26	**	**	23
	Denominator	19	17	26	6	6	33
	Lower 95% CL*	**	**	0.89	**	**	0.51
	Upper 95% CL*	**	**	1.00	**	**	0.84
ACEI for Left Ventricular Systolic Dysfunction	Performance Rate	**	**	**	**	**	**
	Numerator	**	**	**	**	**	**
	Denominator	8	9	12	2	4	16
	Lower 95% CL*	**	**	**	**	**	**
	Upper 95% CL*	**	**	**	**	**	**
Beta Blocker at Discharge	Performance Rate	**	0.86	1.00	**	**	0.95
	Numerator	**	19	27	**	**	36
	Denominator	19	22	27	8	5	38
	Lower 95% CL*	**	0.65	0.89	**	**	0.82
	Upper 95% CL*	**	0.97	1.00	**	**	0.99
Beta Blocker at Arrival	Performance Rate	0.78	0.91	0.97	1.00	**	0.89
	Numerator	36	29	36	20	**	48
	Denominator	46	32	37	20	15	54
	Lower 95% CL*	0.64	0.75	0.86	0.86	**	0.77
	Upper 95% CL*	0.89	0.98	1.00	1.00	**	0.96
Composite Score	Performance Rate	0.83	0.86	0.97	0.85	0.96	0.84
	Numerator	115	93	142	45	44	166
	Denominator	138	108	146	53	46	197
	Lower 95% CL*	0.76	0.78	0.93	0.72	0.85	0.78
	Upper 95% CL*	0.89	0.92	0.99	0.93	0.99	0.89

\* Exact Confidence Limits (CL) for a binomial proportion were calculated.

\*\* Performance rates are not displayed if denominators were less than 20 during the reporting period.

**Table 5 (continued)**

<b>Heart Attack Performance Rates for Connecticut Hospitals                      July 1, 2003 to September 30, 2003</b>							
Measure		New Milford Hospital	Norwalk Hospital	Rockville General Hospital	Sharon Hospital	St Francis Hospital & Medical Center	St Mary's Hospital
Aspirin at Arrival	Performance Rate	**	0.96	0.91	**	0.94	0.96
	Numerator	**	45	20	**	76	49
	Denominator	5	47	22	11	81	51
	Lower 95% CL*	**	0.85	0.71	**	0.86	0.87
	Upper 95% CL*	**	0.99	0.99	**	0.98	1.00
Aspirin at Discharge	Performance Rate	**	1.00	**	**	0.96	0.93
	Numerator	**	20	**	**	180	26
	Denominator	1	20	5	8	187	28
	Lower 95% CL*	**	0.86	**	**	0.92	0.76
	Upper 95% CL*	**	1.00	**	**	0.98	0.99
ACEI for Left Ventricular Systolic Dysfunction	Performance Rate	**	**	**	**	0.78	**
	Numerator	**	**	**	**	46	**
	Denominator	0	8	5	2	59	10
	Lower 95% CL*	**	**	**	**	0.65	**
	Upper 95% CL*	**	**	**	**	0.88	**
Beta Blocker at Discharge	Performance Rate	**	1.00	**	**	0.88	0.81
	Numerator	**	24	**	**	163	22
	Denominator	1	24	9	9	185	27
	Lower 95% CL*	**	0.88	**	**	0.83	0.62
	Upper 95% CL*	**	1.00	**	**	0.92	0.94
Beta Blocker at Arrival	Performance Rate	**	0.98	0.96	**	0.85	0.88
	Numerator	**	41	23	**	70	43
	Denominator	5	42	24	11	82	49
	Lower 95% CL*	**	0.87	0.79	**	0.76	0.75
	Upper 95% CL*	**	1.00	1.00	**	0.92	0.95
Composite Score	Performance Rate	**	0.96	0.88	1.00	0.90	0.88
	Numerator	**	136	57	41	535	145
	Denominator	12	141	65	41	594	165
	Lower 95% CL*	**	0.92	0.77	0.93	0.87	0.82
	Upper 95% CL*	**	0.99	0.95	1.00	0.92	0.92

\* Exact Confidence Limits (CL) for a binomial proportion were calculated.

\*\* Performance rates are not displayed if denominators were less than 20 during the reporting period.

**Table 5 (continued)**

<b>Heart Attack Performance Rates for Connecticut Hospitals                      July 1, 2003 to September 30, 2003</b>							
Measure		St Vincent's Medical Center	Stamford Hospital	Waterbury Hospital	William W Backus Hospital	Windham Community Memorial Hospital	Yale-New Haven Hospital
Aspirin at Arrival	Performance Rate	0.87	1.00	1.00	0.96	**	0.96
	Numerator	71	45	61	49	**	79
	Denominator	82	45	61	51	7	82
	Lower 95% CL*	0.77	0.94	0.95	0.87	**	0.90
	Upper 95% CL*	0.93	1.00	1.00	1.00	**	0.99
Aspirin at Discharge	Performance Rate	0.92	0.90	0.86	**	**	0.98
	Numerator	110	18	25	**	**	183
	Denominator	120	20	29	19	3	186
	Lower 95% CL*	0.85	0.68	0.68	**	**	0.95
	Upper 95% CL*	0.96	0.99	0.96	**	**	1.00
ACEI for Left Ventricular Systolic Dysfunction	Performance Rate	0.54	**	**	**	**	0.69
	Numerator	14	**	**	**	**	33
	Denominator	26	3	9	5	0	48
	Lower 95% CL*	0.33	**	**	**	**	0.54
	Upper 95% CL*	0.73	**	**	**	**	0.81
Beta Blocker at Discharge	Performance Rate	0.82	**	0.89	0.92	**	0.93
	Numerator	103	**	25	22	**	181
	Denominator	125	19	28	24	2	195
	Lower 95% CL*	0.75	**	0.72	0.73	**	0.88
	Upper 95% CL*	0.89	**	0.98	0.99	**	0.96
Beta Blocker at Arrival	Performance Rate	0.79	0.93	1.00	0.94	**	0.88
	Numerator	65	40	51	48	**	64
	Denominator	82	43	51	51	5	73
	Lower 95% CL*	0.69	0.81	0.94	0.84	**	0.78
	Upper 95% CL*	0.87	0.99	1.00	0.99	**	0.94
Composite Score	Performance Rate	0.83	0.95	0.95	0.92	**	0.92
	Numerator	363	123	169	138	**	540
	Denominator	435	130	178	150	17	584
	Lower 95% CL*	0.80	0.89	0.91	0.86	**	0.90
	Upper 95% CL*	0.87	0.98	0.98	0.96	**	0.94

\* Exact Confidence Limits (CL) for a binomial proportion were calculated.

\*\* Performance rates are not displayed if denominators were less than 20 during the reporting period.

**Table 6**

<b>Heart Failure Performance Rates for Connecticut Hospitals                      July 1, 2003 to September 30, 2003</b>							
Measure		Bradley Memorial Hospital & Health Center	Bridgeport Hospital	Bristol Hospital	Charlotte Hungerford Hospital	Danbury Hospital	Day Kimball Hospital
Left Ventricular Function Assessment	Performance Rate	0.76	0.95	0.70	0.72	0.95	0.88
	Numerator	28	103	57	21	72	35
	Denominator	37	108	82	29	76	40
	Lower 95% CL*	0.59	0.90	0.58	0.53	0.87	0.73
	Upper 95% CL*	0.88	0.98	0.79	0.87	0.99	0.96
ACEI for Left Ventricular Systolic Dysfunction	Performance Rate	0.65	0.80	0.68	**	0.92	**
	Numerator	13	39	19	**	22	**
	Denominator	20	49	28	8	24	16
	Lower 95% CL*	0.41	0.66	0.48	**	0.73	**
	Upper 95% CL*	0.85	0.90	0.84	**	0.99	**
Composite Score	Performance Rate	0.72	0.90	0.69	0.76	0.94	0.84
	Numerator	41	142	76	28	94	47
	Denominator	57	157	110	37	100	56
	Lower 95% CL*	0.58	0.85	0.60	0.59	0.87	0.72
	Upper 95% CL*	0.83	0.95	0.78	0.88	0.98	0.92

\* Exact Confidence Limits (CL) for a binomial proportion were calculated.

\*\* Performance rates are not displayed if denominators were less than 20 during the reporting period.

**Table 6 (continued)**

<p align="center"><b>Heart Failure Performance Rates for Connecticut Hospitals July 1, 2003 to September 30, 2003</b></p>							
Measure		Greenwich Hospital Association	Griffin Hospital	Hartford Hospital	Hospital Of St Raphael	John Dempsey Hospital	Johnson Memorial Hospital
Left Ventricular Function Assessment	Performance Rate	1.00	0.98	0.92	0.87	1.00	**
	Numerator	41	39	140	151	29	**
	Denominator	41	40	153	174	29	19
	Lower 95% CL*	0.93	0.87	0.86	0.81	0.90	**
	Upper 95% CL*	1.00	1.00	0.95	0.91	1.00	**
ACEI for Left Ventricular Systolic Dysfunction	Performance Rate	**	**	0.62	0.42	1.00	**
	Numerator	**	**	40	21	20	**
	Denominator	19	7	65	50	20	1
	Lower 95% CL*	**	**	0.49	0.28	0.86	**
	Upper 95% CL*	**	**	0.73	0.57	1.00	**
Composite Score	Performance Rate	0.92	0.96	0.83	0.77	1.00	0.70
	Numerator	55	45	180	172	49	14
	Denominator	60	47	218	224	49	20
	Lower 95% CL*	0.82	0.85	0.77	0.71	0.94	0.46
	Upper 95% CL*	0.97	0.99	0.87	0.82	1.00	0.88

\* Exact Confidence Limits (CL) for a binomial proportion were calculated.

\*\* Performance rates are not displayed if denominators were less than 20 during the reporting period.

**Table 6 (continued)**

<p align="center"><b>Heart Failure Performance Rates for Connecticut Hospitals July 1, 2003 to September 30, 2003</b></p>							
Measure		Lawrence & Memorial Hospital	Manchester Memorial Hospital	Middlesex Hospital	MidState Medical Center	Milford Hospital	New Britain General Hospital
Left Ventricular Function Assessment	Performance Rate	0.89	0.85	0.97	0.84	0.84	0.79
	Numerator	110	51	66	49	31	118
	Denominator	124	60	68	58	37	150
	Lower 95% CL*	0.82	0.73	0.90	0.73	0.68	0.71
	Upper 95% CL*	0.94	0.93	1.00	0.93	0.94	0.85
ACEI for Left Ventricular Systolic Dysfunction	Performance Rate	0.53	**	0.82	0.77	**	0.67
	Numerator	16	**	18	17	**	32
	Denominator	30	11	22	22	9	48
	Lower 95% CL*	0.34	**	0.60	0.55	**	0.52
	Upper 95% CL*	0.72	**	0.95	0.92	**	0.80
Composite Score	Performance Rate	0.82	0.80	0.93	0.83	0.76	0.76
	Numerator	126	57	84	66	35	150
	Denominator	154	71	90	80	46	198
	Lower 95% CL*	0.75	0.69	0.86	0.72	0.61	0.69
	Upper 95% CL*	0.88	0.89	0.98	0.90	0.87	0.82

\* Exact Confidence Limits (CL) for a binomial proportion were calculated.

\*\* Performance rates are not displayed if denominators were less than 20 during the reporting period.

**Table 6 (continued)**

<b>Heart Failure Performance Rates for Connecticut Hospitals                      July 1, 2003 to September 30, 2003</b>							
Measure		New Milford Hospital	Norwalk Hospital	Rockville General Hospital	Sharon Hospital	St Francis Hospital & Medical Center	St Mary's Hospital
Left Ventricular Function Assessment	Performance Rate	0.95	0.95	0.90	0.95	0.91	0.87
	Numerator	21	94	26	20	193	71
	Denominator	22	99	29	21	213	82
	Lower 95% CL*	0.77	0.89	0.73	0.76	0.86	0.77
	Upper 95% CL*	1.00	0.98	0.98	1.00	0.94	0.93
ACEI for Left Ventricular Systolic Dysfunction	Performance Rate	**	0.73	**	**	0.71	0.63
	Numerator	**	33	**	**	73	19
	Denominator	7	45	10	8	103	30
	Lower 95% CL*	**	0.58	**	**	0.61	0.44
	Upper 95% CL*	**	0.85	**	**	0.79	0.80
Composite Score	Performance Rate	0.93	0.88	0.87	0.90	0.84	0.80
	Numerator	27	127	34	26	266	90
	Denominator	29	144	39	29	316	112
	Lower 95% CL*	0.77	0.82	0.73	0.73	0.80	0.72
	Upper 95% CL*	0.99	0.93	0.96	0.98	0.88	0.87

\* Exact Confidence Limits (CL) for a binomial proportion were calculated.

\*\* Performance rates are not displayed if denominators were less than 20 during the reporting period.

**Table 6 (continued)**

<b>Heart Failure Performance Rates for Connecticut Hospitals                      July 1, 2003 to September 30, 2003</b>							
Measure		St Vincent's Medical Center	Stamford Hospital	Waterbury Hospital	William W Backus Hospital	Windham Community Memorial Hospital	Yale-New Haven Hospital
Left Ventricular Function Assessment	Performance Rate	0.74	0.90	0.96	0.97	0.96	0.93
	Numerator	114	81	68	64	24	185
	Denominator	154	90	71	66	25	198
	Lower 95% CL*	0.66	0.82	0.88	0.89	0.80	0.89
	Upper 95% CL*	0.81	0.95	0.99	1.00	1.00	0.96
ACEI for Left Ventricular Systolic Dysfunction	Performance Rate	0.76	0.65	0.64	0.83	**	0.63
	Numerator	47	24	14	19	**	43
	Denominator	62	37	22	23	6	68
	Lower 95% CL*	0.63	0.47	0.41	0.61	**	0.51
	Upper 95% CL*	0.86	0.80	0.83	0.95	**	0.75
Composite Score	Performance Rate	0.75	0.83	0.88	0.93	0.94	0.86
	Numerator	161	105	82	83	29	228
	Denominator	216	127	93	89	31	266
	Lower 95% CL*	0.68	0.75	0.80	0.86	0.79	0.81
	Upper 95% CL*	0.80	0.89	0.94	0.97	0.99	0.90

\* Exact Confidence Limits (CL) for a binomial proportion were calculated.

\*\* Performance rates are not displayed if denominators were less than 20 during the reporting period.



**Table 7**

<b>Pneumonia Performance Rates for Connecticut Hospitals                      July 1, 2003 to September 30, 2003</b>							
Measure		Bradley Memorial Hospital & Health Center	Bridgeport Hospital	Bristol Hospital	Charlotte Hungerford Hospital	Danbury Hospital	Day Kimball Hospital
Oxygenation Assessment	Performance Rate	0.94	0.99	1.00	1.00	1.00	1.00
	Numerator	32	79	66	67	100	54
	Denominator	34	80	66	67	100	54
	Lower 95% CL*	0.80	0.93	0.96	0.96	0.97	0.95
	Upper 95% CL*	0.99	1.00	1.00	1.00	1.00	1.00
Pneumococcal Vaccination (screened and/or given)	Performance Rate	**	0.29	0.39	0.55	0.22	0.59
	Numerator	**	14	16	24	14	20
	Denominator	19	48	41	44	65	34
	Lower 95% CL*	**	0.17	0.24	0.39	0.12	0.41
	Upper 95% CL*	**	0.44	0.55	0.70	0.33	0.75
Initial Antibiotic Given within 4 Hours of Hospital Arrival	Performance Rate	0.75	0.41	0.80	0.82	0.78	0.65
	Numerator	24	31	52	54	78	34
	Denominator	32	76	65	66	100	52
	Lower 95% CL*	0.57	0.30	0.68	0.70	0.69	0.51
	Upper 95% CL*	0.89	0.53	0.89	0.90	0.86	0.78
Composite Score	Performance Rate	0.85	0.61	0.78	0.82	0.72	0.77
	Numerator	72	124	134	145	192	108
	Denominator	85	204	172	177	265	140
	Lower 95% CL*	0.75	0.54	0.71	0.75	0.67	0.69
	Upper 95% CL*	0.92	0.68	0.84	0.87	0.78	0.84

\* Exact Confidence Limits (CL) for a binomial proportion were calculated.

\*\* Performance rates are not displayed if denominators were less than 20 during the reporting period.

**Table 7 (continued)**

<b>Pneumonia Performance Rates for Connecticut Hospitals                      July 1, 2003 to September 30, 2003</b>							
Measure		Greenwich Hospital Association	Griffin Hospital	Hartford Hospital	Hospital Of St Raphael	John Dempsey Hospital	Johnson Memorial Hospital
Oxygenation Assessment	Performance Rate	1.00	1.00	0.98	1.00	1.00	1.00
	Numerator	45	68	154	73	42	34
	Denominator	45	68	157	73	42	34
	Lower 95% CL*	0.94	0.96	0.95	0.96	0.93	0.92
	Upper 95% CL*	1.00	1.00	1.00	1.00	1.00	1.00
Pneumococcal Vaccination (screened and/or given)	Performance Rate	0.94	0.91	0.14	0.04	0.58	0.00
	Numerator	30	51	14	2	15	0
	Denominator	32	56	101	55	26	21
	Lower 95% CL*	0.79	0.80	0.08	0.00	0.37	0.00
	Upper 95% CL*	0.99	0.97	0.22	0.13	0.77	0.13
Initial Antibiotic Given within 4 Hours of Hospital Arrival	Performance Rate	0.88	0.76	0.49	0.56	0.69	0.79
	Numerator	38	51	76	41	27	26
	Denominator	43	67	154	73	39	33
	Lower 95% CL*	0.75	0.64	0.41	0.44	0.52	0.61
	Upper 95% CL*	0.96	0.86	0.58	0.68	0.83	0.91
Composite Score	Performance Rate	0.94	0.89	0.59	0.58	0.79	0.68
	Numerator	113	170	244	116	84	60
	Denominator	120	191	412	201	107	88
	Lower 95% CL*	0.88	0.84	0.54	0.51	0.70	0.57
	Upper 95% CL*	0.98	0.93	0.64	0.65	0.86	0.78

\* Exact Confidence Limits (CL) for a binomial proportion were calculated.

\*\* Performance rates are not displayed if denominators were less than 20 during the reporting period.

**Table 7 (continued)**

<b>Pneumonia Performance Rates for Connecticut Hospitals                      July 1, 2003 to September 30, 2003</b>							
Measure		Lawrence & Memorial Hospital	Manchester Memorial Hospital	Middlesex Hospital	MidState Medical Center	Milford Hospital	New Britain General Hospital
Oxygenation Assessment	Performance Rate	1.00	0.98	1.00	0.99	1.00	0.98
	Numerator	118	39	82	93	38	108
	Denominator	118	40	82	94	38	110
	Lower 95% CL*	0.97	0.87	0.96	0.94	0.92	0.94
	Upper 95% CL*	1.00	1.00	1.00	1.00	1.00	1.00
Pneumococcal Vaccination (screened and/or given)	Performance Rate	0.11	0.32	0.66	0.13	0.20	0.55
	Numerator	8	8	39	9	5	40
	Denominator	70	25	59	71	25	73
	Lower 95% CL*	0.05	0.15	0.53	0.06	0.07	0.43
	Upper 95% CL*	0.21	0.54	0.78	0.23	0.41	0.66
Initial Antibiotic Given within 4 Hours of Hospital Arrival	Performance Rate	0.61	0.51	0.67	0.80	0.64	0.67
	Numerator	68	20	55	74	23	72
	Denominator	111	39	82	93	36	107
	Lower 95% CL*	0.52	0.35	0.56	0.70	0.46	0.58
	Upper 95% CL*	0.70	0.68	0.77	0.87	0.79	0.76
Composite Score	Performance Rate	0.65	0.64	0.79	0.68	0.67	0.76
	Numerator	194	67	176	176	66	220
	Denominator	299	104	223	258	99	290
	Lower 95% CL*	0.59	0.54	0.73	0.62	0.56	0.71
	Upper 95% CL*	0.70	0.74	0.84	0.74	0.76	0.81

\* Exact Confidence Limits (CL) for a binomial proportion were calculated.

\*\* Performance rates are not displayed if denominators were less than 20 during the reporting period.

**Table 7 (continued)**

<b>Pneumonia Performance Rates for Connecticut Hospitals                      July 1, 2003 to September 30, 2003</b>							
Measure		New Milford Hospital	Norwalk Hospital	Rockville General Hospital	Sharon Hospital	St Francis Hospital & Medical Center	St Mary's Hospital
Oxygenation Assessment	Performance Rate	1.00	1.00	1.00	1.00	1.00	0.98
	Numerator	28	78	35	22	118	59
	Denominator	28	78	35	22	118	60
	Lower 95% CL*	0.90	0.96	0.92	0.87	0.97	0.91
	Upper 95% CL*	1.00	1.00	1.00	1.00	1.00	1.00
Pneumococcal Vaccination (screened and/or given)	Performance Rate	**	0.53	0.46	**	0.01	0.00
	Numerator	**	27	11	**	1	0
	Denominator	16	51	24	14	67	29
	Lower 95% CL*	**	0.38	0.26	**	0.00	0.00
	Upper 95% CL*	**	0.67	0.67	**	0.08	0.10
Initial Antibiotic Given within 4 Hours of Hospital Arrival	Performance Rate	0.58	0.83	0.43	**	0.56	0.78
	Numerator	15	65	15	**	66	45
	Denominator	26	78	35	15	117	58
	Lower 95% CL*	0.37	0.73	0.26	**	0.47	0.65
	Upper 95% CL*	0.77	0.91	0.61	**	0.66	0.87
Composite Score	Performance Rate	0.74	0.82	0.65	0.90	0.61	0.71
	Numerator	52	170	61	46	185	104
	Denominator	70	207	94	51	302	147
	Lower 95% CL*	0.62	0.76	0.54	0.79	0.56	0.63
	Upper 95% CL*	0.84	0.87	0.74	0.97	0.67	0.78

\* *Exact Confidence Limits (CL) for a binomial proportion were calculated.*

\*\* *Performance rates are not displayed if denominators were less than 20 during the reporting period.*

**Table 7 (continued)**

<b>Pneumonia Performance Rates for Connecticut Hospitals                      July 1, 2003 to September 30, 2003</b>							
Measure		St Vincent's Medical Center	Stamford Hospital	Waterbury Hospital	William W Backus Hospital	Windham Community Memorial Hospital	Yale-New Haven Hospital
Oxygenation Assessment	Performance Rate	1.00	0.98	0.99	1.00	1.00	1.00
	Numerator	129	92	138	105	64	154
	Denominator	129	94	139	105	64	154
	Lower 95% CL*	0.98	0.93	0.96	0.97	0.95	0.98
	Upper 95% CL*	1.00	1.00	1.00	1.00	1.00	1.00
Pneumococcal Vaccination (screened and/or given)	Performance Rate	0.17	0.63	0.13	0.53	0.39	0.42
	Numerator	14	38	12	35	16	31
	Denominator	84	60	90	66	41	73
	Lower 95% CL*	0.09	0.50	0.07	0.40	0.24	0.31
	Upper 95% CL*	0.26	0.75	0.22	0.65	0.55	0.55
Initial Antibiotic Given within 4 Hours of Hospital Arrival	Performance Rate	0.62	0.71	0.67	0.84	0.46	0.74
	Numerator	79	65	92	87	29	109
	Denominator	127	92	138	104	63	148
	Lower 95% CL*	0.53	0.60	0.58	0.75	0.33	0.66
	Upper 95% CL*	0.71	0.80	0.74	0.90	0.59	0.81
Composite Score	Performance Rate	0.65	0.79	0.66	0.83	0.65	0.78
	Numerator	222	195	242	227	109	294
	Denominator	340	246	367	275	168	375
	Lower 95% CL*	0.60	0.74	0.61	0.78	0.57	0.74
	Upper 95% CL*	0.70	0.84	0.71	0.87	0.72	0.82

\* *Exact Confidence Limits (CL) for a binomial proportion were calculated.*

\*\* *Performance rates are not displayed if denominators were less than 20 during the reporting period.*

## Appendix D

### Sec. 19a-127l. Quality of care program.

(a) There is established a quality of care program within the Department of Public Health. The department shall develop for the purposes of said program (1) a standardized data set to measure the clinical performance of health care facilities, as defined in section 19a-630, and require such data to be collected and reported periodically to the department, including, but not limited to, data for the measurement of comparable patient satisfaction, and (2) methods to provide public accountability for health care delivery systems by such facilities. The department shall develop such set and methods for hospitals during the fiscal year ending June 30, 2003, and the committee established pursuant to subsection (c) of this section shall consider and may recommend to the joint standing committee of the General Assembly having cognizance of matters relating to public health the inclusion of other health care facilities in each subsequent year.

(b) In carrying out its responsibilities under subsection (a) of this section, the department shall develop the following for the quality of care program: (1) Comparable performance measures to be reported; (2) Selection of patient satisfaction survey measures and instruments; (3) Methods and format of standardized data collection; (4) Format for a public quality performance measurement report; (5) Human resources and quality measurements; (6) Medical error reduction methods; (7) Systems for sharing and implementing universally accepted best practices; (8) Systems for reporting outcome data; (9) Systems for continuum of care; (10) Recommendations concerning the use of an ISO 9000 quality auditing program; (11) Recommendations concerning the types of statutory protection needed prior to collecting any data or information under this section and sections 19a-127m and 19a-127n; and (12) Any other issues that the department deems appropriate.

(c) There is established a Quality of Care Advisory Committee which shall advise the Department of Public Health on the issues set forth in subdivisions (1) to (12), inclusive, of subsection (b) of this section. The advisory committee shall meet at least quarterly.

(d) The advisory committee shall consist of (1) four members who represent and shall be appointed by the Connecticut Hospital Association, including three members who represent three separate hospitals that are not affiliated of which one such hospital is an academic medical center; (2) one member who represents and shall be appointed by the Connecticut Nursing Association; (3) two members who represent and shall be appointed by the Connecticut Medical Society, including one member who is an active medical care provider; (4) two members who represent and shall be appointed by the Connecticut Business and Industry Association, including one member who represents a large business and one member who represents a small business; (5) one member who represents and shall be appointed by the Home Health Care Association; (6) one member who represents and shall be appointed by the Connecticut Association of Health Care Facilities; (7) one member who represents and shall be appointed by the Connecticut Association of Not-For-Profit Providers for the Aging; (8) two members who represent and shall be appointed by the AFL-CIO; (9) one member who represents consumers of health care

services and who shall be appointed by the Commissioner of Public Health; (10) one member who represents a school of public health and who shall be appointed by the Commissioner of Public Health; (11) one member who represents and shall be appointed by the Office of Health Care Access; (12) the Commissioner of Public Health or said commissioner's designee; (13) the Commissioner of Social Services or said commissioner's designee; (14) the Secretary of the Office of Policy and Management or said secretary's designee; (15) two members who represent licensed health plans and shall be appointed by the Connecticut Association of Health Care Plans; (16) one member who represents and shall be appointed by the federally designated state peer review organization; and (17) one member who represents and shall be appointed by the Connecticut Pharmaceutical Association. The chairperson of the advisory committee shall be the Commissioner of Public Health or said commissioner's designee. The chairperson of the committee, with a vote of the majority of the members present, may appoint ex-officio nonvoting members in specialties not represented among voting members. Vacancies shall be filled by the person who makes the appointment under this subsection.

(e) The chairperson of the advisory committee may designate one or more working groups to address specific issues and shall appoint the members of each working group. Each working group shall report its findings and recommendations to the full advisory committee.

(f) The Commissioner of Public Health shall report on the quality of care program on or before June 30, 2003, and annually thereafter, in accordance with section 11a-4, to the joint standing committee of the General Assembly having cognizance of matters relating to public health and to the Governor. Each report on said program shall include activities of the program during the prior year and a plan of activities for the following year.

(g) On or before April 1, 2004, the Commissioner of Public Health shall prepare a report, available to the public, that compares all licensed hospitals in the state based on the quality performance measures developed under the quality of care program.

(h) The Department of Public Health may seek out funding for the purpose of implementing the provisions of this section. Said provisions shall be implemented upon receipt of said funding.

**Sec. 19a-127m. Implementation of performance improvement plans by hospitals.**

Submission of plans to department as condition of licensure. All hospitals, licensed pursuant to provisions of the general statutes, shall be required to implement performance improvement plans. Such plans shall be submitted on or before June 30, 2003, and annually thereafter by each hospital to the Department of Public Health as a condition of licensure.

**Sec. 19a-127n. Adverse events: Definitions; reporting requirements; regulations; confidentiality of information.**

(a) For purposes of this section, an "adverse event" means an injury that was caused by or is associated with medical management and that results in death or measurable disability. Such events shall also include those sentinel events for which remediation plans are required by the Joint Commission on the

Accreditation of Healthcare Organizations.

(b) Adverse events shall be classified into the following categories:

(1) "Class A adverse event" means an event that has resulted in or is associated with a patient's death or the immediate danger of death;

(2) "Class B adverse event" means an event that has resulted in or is associated with a patient's serious injury or disability or the immediate danger of serious injury or disability;

(3) "Class C adverse event" means an event that has resulted in or is associated with the physical or sexual abuse of a patient; and

(4) "Class D adverse event" means an adverse event that is not reported under subdivisions (1) to (3), inclusive, of this subsection.

(c) On and after October 1, 2002, a hospital or outpatient surgical facility shall report to the Department of Public Health on Class A, B and C adverse events as follows: (1) A verbal report shall be made not later than twenty-four hours after the adverse event occurred; (2) a written report not later than seventy-two hours after the adverse event occurred; and (3) a corrective action plan shall be filed not later than seven days after the adverse event occurred.

(d) A hospital or outpatient surgical facility shall report to the Department of Public Health on Class D adverse events on a quarterly basis. Such reports shall include corrective action plans. For purposes of this subsection and subsection (c) of this section, "corrective action plan" means a plan that implements strategies that reduce the risk of similar events occurring in the future. Said plan shall measure the effectiveness of such strategies by addressing the implementation, oversight and time lines of such strategies. Failure to implement a corrective action plan may result in disciplinary action by the Commissioner of Public Health, pursuant to section 19a-494.

(e) The Commissioner of Public Health shall adopt regulations, in accordance with chapter 54, to carry out the provisions of this section. Such regulations shall include, but shall not be limited to, a prescribed form for the reporting of adverse events pursuant to subsections (c) and (d) of this section. The commissioner may require the use of said form prior to the adoption of said regulations.

(f) On or before March first annually, the commissioner shall report, in accordance with the provisions of section 11-4a, on adverse event reporting, to the joint standing committee of the General Assembly having cognizance of matters relating to public health.

(g) Information collected pursuant to this section shall not be required to be disclosed pursuant to subsection (a) of section 1-210 for a period of six months from the date of submission of the written report required pursuant to subsection (c) of this section and shall not be subject to subpoena or discovery or introduced into evidence in any judicial or administrative proceeding except as otherwise specifically provided by law.