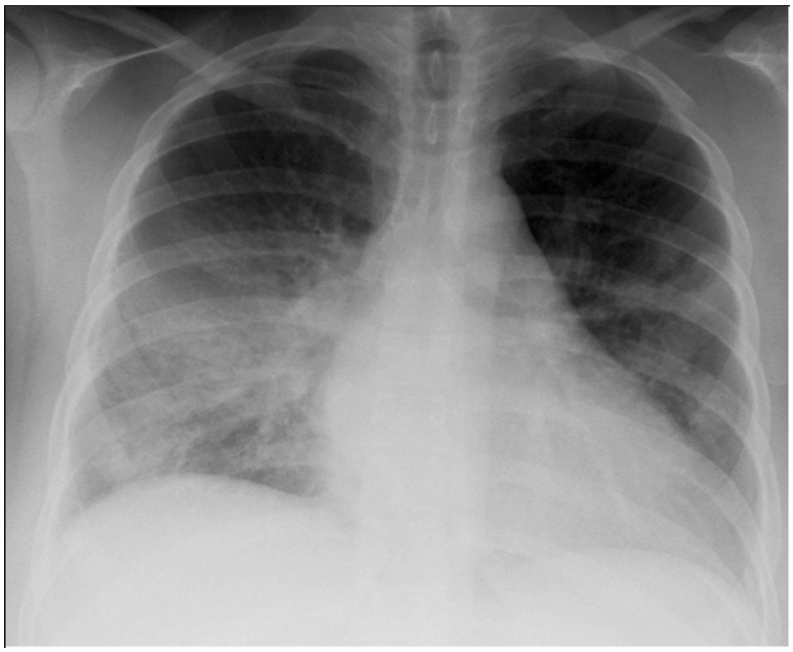
Core Measures Update: Acute MI, Heart Failure, and Pneumonia



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Developed 3/2011

Core Measures Update: Acute MI, Heart Failure, and Pneumonia Self Study Module

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4.0 CONTACT HOURS CEP #15122 70% is Passing Score

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1. Please **print** or **type** all information.
2. Complete answers and return answer sheet with evaluation form **via fax or email to** Key Medical Resources, Inc. Email: Educate100@aol.com **FAX: 951 739-0378.**

Name: _____ Date Completed: _____ Score_____

Email:_____@_____ FAX #: (Only if no email) _____
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My Signature indicates that I have completed this module on my own._____
(Signature)

Please place your answers on this form.

1. _____	8. _____	15._____
2. _____	9. _____	16._____
3. _____	10._____	17._____
4. _____	11._____	18._____
5. _____	12._____	19._____
6. _____	13._____	20._____
7. _____	14._____	

EVALUATION FORM

		Poor									Excellent
1.	The content of this program was:	1	2	3	4	5	6	7	8	9	10
2.	The program was easy to understand:	1	2	3	4	5	6	7	8	9	10
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4.	This program applies to my work:	1	2	3	4	5	6	7	8	9	10
5.	I learned something from this course:	1	2	3	4	5	6	7	8	9	10
6.	Would you recommend this program to others?					Yes			No		
7.	The cost of this program was:				High			OK			Low

Other Comments:

Core Measures Update: Acute MI, Heart Failure, and Pneumonia Self Study Module

Self Study Exam 4.0 C0NTACT HOURS

Choose the Single Best Answer for the Following Questions and Place Answers on the Answer Sheet Provided:

1. The purpose of following Core Measures is to:
   a. Address challenges of standardization
   b. Provide benchmark comparisons
   c. Have reliable evidenced based-performance measures
   d. All of the above

2. There are _____ core measure sets:
   a. 3
   b. 4
   c. 6
   d. More than 6 and they are changing as more sets are developed.

3. Initiation of Core Measures documentation is done:
   a. At admission to the Emergency Department or Nursing Unit.
   b. After diagnosis is confirmed by all diagnostic criteria.
   c. After the first 24 hours in the facility.
   d. At discharge.

4. The Acute MI core measures set I limited to patients who are:
   a. Male
   b. Female
   c. 18 years of age or older
   d. Diagnosed for the first time.

5. For the AMI set, aspirin is administered for the following reason:
   a. The aspirin helps with the chest pain
   b. Early aspirin use reduces mortality
   c. Aspirin will effectively increase the PTT
   d. Aspirin is safe in most older adults

6. An effective drug for patients with left ventricular systolic dysfunction recommended for AMI and HF is:
   a. Morphine
   b. Aspirin
   c. ACEi or ARBs
   d. Nitroglycerin

7. Essential patient teaching and documentation indicated for AMI, HF and Pneumonia is:
   a. Daily weights
   b. Pneumococcal vaccine
   c. ACEi or ARB administration
   d. Smoking cessasation

8. For AMI, national guidelines recommend Fibrinolytic therapy be received within ___ _____ of hospital arrival.
   a. 30 minutes
   b. 90 minutes
   c. 2 hours
   d. 6 hours

9. Statin drugs are recommended for those persons with LDL cholesterol levels above_____
    a. 40
    b. 80
    c. 100
    d. 200

10. The most common Medicare diagnose-related group of the Core Measures in this module and affects nearly 5 million patients in the U.S. is:
    a. Acute Myocardial Infarction
    b. Heart Failure
    c. Pneumonia

11. The Core Measure requirement for Heart Failure requires discharge instruction on which of the following topics to receive credit?
    a. Activity level, diet
    b. Discharge medications, follow-up appointment
    c. Weight monitoring, what do to if symptoms worsen
    d. All of the 6 topics in a, b and c are required

12. LVSD or left ventricular systolic dysfunction is defined as a LVEF or left ventricular ejection fraction of less than _____
    a. 40%
    b. 50%
    c. 60%
    d. 70%

13. Which of the following patients is defined as a smoker?
    a. Smoked for 20 years and stopped 5 years ago.
    b. Smoked cigarettes anytime during the prior year.
    c. Only currently smoking at time of admission.
    d. Smoked 2 years ago but no longer smokes.

14. Pneumococcal vaccination is indicated for persons 65 years of age and older because it is _____ effective in preventing pneumococcal bacteremia and meningitis.
    a. 25%
    b. 50%
    c. 75%
    d. 100%

15. The PN Core Measure indicator for the pneumococcal vaccination is limited to persons _____ years of age or older.
    a. 35
    b. 45
    c. 55
    d. 65

16. Blood cultures are drawn prior to antibiotic administration to screen for:
    a. Best choice of antibiotic.
    b. Antibiotic resistance.
    c. Degree of infection.
    d. Degree of fever.

17. The most important modifiable risk factor the help prevent premature death is:
    a. Hypertension
    b. Smoking
    c. Diabetes
    d. High cholesterol

18. For pneumonia, the initial antibiotic should be received within _____ hours of hospital arrival.
    a. 6
    b. 8
    c. 10
    d. 12

19. Influenza vaccine is recommended for patients age ____ years and older hospitalized during October, November, December, January, February or March.
    a. 40
    b. 50
    c. 60
    d. 65

20. All patients who fit in to the criteria of the three core measures discussed; AMI, HF, PN must have:
    a. Core Measure Checklist initiated and completed at admission
    b. Smoking cessation education
    c. Admission and discharge criteria completed
    d. All of the above

Please place all answers on the answer sheet provided. Thank you. This is the end of the test!

Core Measures Update

Acute MI, Heart Failure, and Community Acquired Pneumonia

Compiled by Terry Rudd, RN, MSN

The advent of core measures in targeted areas is a JCAHO implemented program to help measure outcome for targeted patient populations. Implementing core measures necessitates and understanding of the criteria and the measurement of outcomes that are evaluated, documented and publicized for a given hospital facility.

The following package discusses three of the core measures; of Acute MI, Heart Failure, and Community Acquired Pneumonia). The information was compiled from available internet sources including JCAHO and ORYX sources.

The purpose of this program is to familiarize the reader with the core measures and to identify key factors that are assessed. Individual facilities will determine the method to assure these items are integrated into patient care and outcomes.

Disclaimer: Individual hospitals vary in choosing the core measures to monitor and the criteria that will be measured. The initial guidelines were developed in 2002 and changes may occur as science and new data are documented. This module includes guidelines up to Check with your specific facility to determine how core measures are specifically being implemented at your hospital.

Objectives:

By the end of this program the learner will be able to:

1. Define core measures.
2. Describe the rationale for core measures in a facility.
3. Identify the components of the core measures of Acute MI, Heart Failure, and Community Acquired Pneumonia
4. Describe ways that the individual can assist core measures.

What are Core Measures?

Core Measures are standardized sets of valid, reliable and evidence-based performance measures that were introduced by JCAHO to address the challenges of standardization and benchmark comparisons. These core measures can be embedded in multiple performance measurement systems but have standardized data collection and analysis protocols to permit uniform implementation and reporting across accredited healthcare organizations.

How were Core Measures selected and developed?

In early 1999, JCAHO solicited feedback from a variety of stakeholders about potential focus areas for core measures. Based on this feedback, they selected the following four initial core measures areas.

- Acute Myocardial Infarction (including coronary artery disease)
- Heart Failure
- Community Acquired Pneumonia
- Pregnancy and Related Complications

There are numerous indicators within each measure and additional measures will be added over time. The measures were tested in a pilot project involving five state hospital associations, five performance measurement systems and 83 hospitals in nine states.

Guidelines for Measure Set Selections

Measure Sets Available for Selection

• Hospitals may choose their core measure sets from among those currently available. Hospitals may also choose which indicators to include for their tracking and documentation. No specific measure sets are currently mandated by the Joint Commission for data collection as of October 2010. Measure sets currently available include:

- Acute Myocardial Infarction (AMI)
- Children's Asthma Care (CAC)
- Heart Failure (HF)
- Hospital Based Inpatient Psychiatric Services (HBIPS)
- Hospital Outpatient Department Measures
- Perinatal Care (PC)
- Pneumonia (PN)
- Stroke (STK)
- Surgical Care Improvement Project (SCIP)
- Venous Thromboembolism (VTE)

Detailed information on all available core measure sets with the exception of Hospital Outpatient Department can be found by selecting either the Specifications Manual for National Hospital Quality Measures and/or the Hospital Based Inpatient Based Inpatient Psychiatric Services (HBIPS) and Perinatal Care (PC) Measures (version 2010A2) manual available on The Joint Commission website at:

http://manual.jointcommission.org/bin/view/Manual/WebHome

What is the ORYX™ initiative?

In order for acute care hospitals to receive reimbursement for Medicare patients they must be accredited by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO). The ORYX initiative was introduced by JCAHO in 1997 and implemented in 1998 as a way to integrate outcomes and other performance measurement data into the accreditation process. The goal of the initiative was to ensure a continuous, comprehensive, data-driven accreditation method that focuses on the actual results, rather than the processes of care.

How does Core Measures fit into the ORYX initiative?

With the introduction of ORYX, over 200 performance measurement systems were approved by JCAHO for transmitting data on behalf of accredited hospitals and long term care organizations. However, over the years it became apparent that clean data comparisons between healthcare organizations could not be made because of the lack of standardization across ORYX measures and specifications across systems. Since there were approximately 8,000 ORYX indicators to choose from, valid comparisons could only be made between healthcare organizations using the same measures that were designed and collected based on standard specifications. This led to the idea of developing "core" or fully-standardized reporting measures.

What is the timeline for Core Measures implementation for healthcare providers?

As of July 1, 2002, JCAHO is requiring all U.S. acute care hospitals (other than those with an average daily census of less than or equal to 10) to begin collecting data on at least two core measures sets. Hospitals can select from the total of the first four initial core measures based on the health services they provide. The first transmission of core measures data (for the period of July 1st to September 30, 2002) to JCAHO will occur in January of 2003. All accredited hospitals will be measured by these indicators, and reviewed during JCAHO site visits to hospitals.

How will Core Measures impact my facility's current systems?

Clinical staff may have to review and reform, as needed, your medical record documentation procedures and concurrent review practices to ensure that required core measures data elements are collected properly on each patient.

What is the Core Measures National Comparison Group?

Every quarter, JCAHO will provide reporting vendors with summary statistics for the national comparison group. Vendors will in turn be expected to use this data to generate national comparison charts for their client organizations.

How do I select measure sets?

Acute care hospitals serving patient populations whose conditions correspond to two or more of the core measures sets are required to select two measure sets from the initial four. JCAHO will provide appropriate documentation that must be completed and submitted with the identified chosen sets. Where choices must be made, a hospital is expected to select measures that correlate the most with their high risk and high volume problem areas. Once hospitals begin collecting data on the two selected core measures sets, all current non-core measure requirements (i.e., ORYX) will be discontinued.

What Core Measures data elements should I collect?

There are numerous data elements across the four core measures sets dependent upone the measures. These include:

- medical record-related elements (e.g., clinical trial indicator, arrival time, adult smoking history)
- administrative elements (e.g., admission date, admission source)
- data elements are JCAHO or PMS assigned (e.g., measurement ID, measurement value).

How do we determine our Core Measures sample population?

Required ICD9-CM (identified by billing codes) identifies the patients who will be included in the sample population for data analysis.

How many patients should we be collecting data on each month?

If you have fewer than 75 patients per month in your core measures patient population, JCAHO requires that you submit data on all of your patients. If you have more than 75 patients per month in a selected measure set, then sampling can be applied to the data. The minimum amount of sampled cases required ranges from 75-200 per month. No more than 200 cases per month will be expected for any given measure set.

A Comprehensive Review of Development and Testing for National Implementation of Hospital Core Measures

This information was obtained form the JCAHO website describing Hospital Core Measures. This is a review of the development and testing for national implementation of hospital core measures. This overview is intended to summarize the challenges and decisions that impacted each core measure set and we believe will help hospitals in selecting the most relevant core measures sets to the population served. Moreover, this treatise is designed to provide the clinical rationale that underlies the measures contained within the initial core measure sets for hospitals.

Background

The Joint Commission began development of performance measures with the inception of the Agenda for Change in 1987. Eventually these activities were subsumed into what is now called the ORYX® initiative.

The initial phase of the ORYX® initiative offered health care organizations significant flexibility. Organizations could meet accreditation requirements by selecting from among literally hundreds of performance measurement systems and thousands of performance measures that best served their strategic measurement goals. The flexibility made available through the initial phases of the ORYX® initiative also presented certain challenges. Most notable was the inability to compare health care organization data across systems and between disparate measures. The next phase of the ORYX® initiative permits more rigorous comparisons using standardized, evidence based measures.

Since 1999, the Joint Commission has solicited input from a variety of stakeholders including clinical professionals, hospitals, consumers, state hospital associations and medical societies about potential focus areas for an initial set of hospital core measures. Once focus areas were identified, advisory panels were convened to identify measures that, when viewed together, permit a robust assessment of the care provided in a given focus area. The Attributes of Core Performance Measures and Associated Evaluation Criteria were used to evaluate candidate measures for potential use as core measures. Stakeholder engagement was actively sought by posting the potential core measures on the Joint Commission web site. A variety of stakeholders, including clinical professionals, health care provider organizations, health care consumers and performance measurement experts provided over 1,600 comments. These comments helped to mold and shape the specifications for the initial core measure sets prior to pilot testing. They also contributed to the postponement of implementation for the Surgical Procedures and Complications core measure set. Stakeholder comments and additional research indicated that consensus among the major professional organizations and stakeholder groups in this area was lacking in this area. It is expected that development of the Surgical Procedures and Complications core measure set will resume as consensus is reached.

Once the initial specifications for the first sets of core measure were developed, the Joint Commission initiated a pilot project to test the feasibility, usefulness, and costs associated with the implementation of core measures. The pilot was a collaborative effort among the Joint Commission, five state hospitals associations, 5 listed measurement systems, and 83 hospitals in nine states. Specific feedback gathered during the pilot project is discussed below. Details related to initial core measure development, and the changes that were made to measures prior to national implementation, are also provided in the section labeled History of Core Measure Set Development and Revisions.

Hospital Core Measure Pilot Project Experience To Date

This summary is based upon twelve months of core measure test data submitted by pilot hospitals to the Joint Commission, pilot reliability site visits to 16 hospitals, and the analysis of participating hospital and measurement system activity logs. In addition, this summary reflects information derived from ongoing discussions with the Centers for Medicare and Medicaid Services (CMS), Joint Commission advisory panels and participating performance measurement systems.

The core measure pilot project was collaboration among the Joint Commission, five state hospitals associations, five listed measurement systems, and 83 hospitals from across nine states. The project was undertaken to provide the Joint Commission, health care organizations and performance measurement systems an early base of experience in implementing a limited number of core performance measures.

- Acute Myocardial Infarction [AMI] (9 measures),
- Heart Failure [HF] (4 measures), and
- Community Acquired Pneumonia [CAP] (5 measures)
- The fourth core measure set, Pregnancy and Related Conditions [PR] was evaluated with the assistance of the National Perinatal Information Center (NPIC), independent of the core measure pilot project.

Of eleven state hospital associations that expressed an interest in participating in a pilot project, five were randomly selected to participate. Each hospital association then identified a single performance measurement system and 7 - 28 participant hospitals. The pilot project utilized ongoing feedback from participating systems and hospitals to modify core measure specifications throughout the project. Joint Commission staff also visited a random sample of 16 participating hospitals to assess the reliability of core measure data elements.

This module will discuss and overview 3 core measure sets: Acute MI, Heart Failure, and Pneumonia. The program will include the core indicators summary, a description of each indicator as well as a sample

of a Core Measure checklist for the nurse and health care team to complete. Initiation of Core Measures for a given diagnosis is done at admission. This may occur in the Emergency Department or at the time that patient is admitted to the hospital unit.

Core Indicators Summary

Acute Myocardial Infarction	
AMI-1	Aspirin at Arrival
AMI-2	Aspirin Prescribed at Discharge
AMI-3	ACEI or ARB for LVSD
AMI-4	Adult Smoking Cessation Advice/Counseling
AMI-5	Beta-Blocker Prescribed at Discharge
AMI-7	Median Time to Fibrinolysis
AMI-7a	Fibrinolytic Therapy Received Within 30 Minutes of Hospital Arrival
AMI-8	Median Time to Primary PCI
AMI-8a	Primary PCI Received Within 90 Minutes of Hospital Arrival
AMI-9	Inpatient Mortality
AMI-10	Statin Prescribed at Discharge
AMI-T1a	LDL Cholesterol Assessment (Optional Test Measure)
AMI-T2	Lipid Lowering Therapy at Discharge (Optional Test Measure)
Heart Failure	
HF-1	Discharge Instructions
HF-2	Evaluation of LVS Function
HF-3	ACEI or ARB for LVSD
HF-4	Adult Smoking Cessation Advice/Counseling
Pneumonia	
PN-2	Pneumococcal Vaccination
PN-3a	Blood Cultures Performed Within 24 Hours Prior to or 24 Hours After Hospital Arrival for Patients Who Were Transferred or Admitted to the ICU Within 24 Hours of Hospital Arrival
PN-3b	Blood Cultures Performed in the Emergency Department Prior to Initial Antibiotic Received in Hospital
PN-4	Adult Smoking Cessation Advice/Counseling
PN-5	Antibiotic Timing (Median)
PN-5c	Initial Antibiotic Received Within 6 Hours of Hospital Arrival
PN-6	Initial Antibiotic Selection for CAP in Immunocompetent Patient
PN-6a	Initial Antibiotic Selection for CAP in Immunocompetent – ICU Patient
PN-6b	Initial Antibiotic Selection for CAP Immunocompetent – Non ICU Patient
PN-7	Influenza Vaccination

Overview of the
Acute Myocardial Infarction (AMI) Core Measure Set

Acute myocardial infarction (AMI) was identified by key Joint Commission stakeholders as one of the initial priority focus areas for hospital core measure development. The literature supports the importance of measuring the processes and outcomes of care for patients with AMI based primarily on disease prevalence. Currently, cardiovascular disease, including AMI, is the leading cause of death in the United States and is the primary disease category for hospital patient discharges. Each year 900,000 people in the United States are diagnosed with AMI; of these, approximately 225,000 cases result in death and, it is estimated that an additional 125,000 patients die before obtaining medical care. The Joint Commission's cardiovascular advisory panel articulated the clinical logic that provided the framework for identifying inter-related, evidence-based measures that, when used together, can more fully assess the overall quality of care provided for AMI patients. The scope of the AMI core measure set was limited to patients 18 years of age and older because the clinical treatment of younger patients is substantially different.

Hospital AMI Core Measures – Initial Release

The following measures comprise the set of hospital AMI Core Measures.

Acute Myocardial Infarction	
AMI-1	Aspirin at Arrival
AMI-2	Aspirin Prescribed at Discharge
AMI-3	ACEI or ARB for LVSD
AMI-4	Adult Smoking Cessation Advice/Counseling
AMI-5	Beta-Blocker Prescribed at Discharge
AMI-7	Median Time to Fibrinolysis
AMI-7a	Fibrinolytic Therapy Received Within 30 Minutes of Hospital Arrival
AMI-8	Median Time to Primary PCI
AMI-8a	Primary PCI Received Within 90 Minutes of Hospital Arrival
AMI-9	Inpatient Mortality
AMI-10	Statin Prescribed at Discharge
AMI-T1a	LDL Cholesterol Assessment (Optional Test Measure)
AMI-T2	Lipid Lowering Therapy at Discharge (Optional Test Measure)

Individual Measure Descriptions:

The following describes the rationale and related considerations underlying each of the measures currently included in the AMI Core Measure Set.

AMI-1 Aspirin at arrival

Description: Acute myocardial infarction (AMI) patients who received aspirin within 24 hours before or after hospital arrival

Rationale: The early use of aspirin in patients with acute myocardial infarction results in a significant reduction in adverse events and subsequent mortality. The benefits of aspirin therapy on mortality are comparable to fibrinolytic therapy. The combination of aspirin and fibrinolytics provides additive benefits for patients with ST-elevation myocardial infarction (ISIS-2, 1988). Aspirin is also effective in patients with non-ST-elevation myocardial infarction (Theroux, 1988 and RISC Group, 1990). National guidelines strongly recommend early aspirin for patients hospitalized with AMI (Antman, 2004 and Anderson, 2007).

AMI-2 Aspirin prescribed at discharge

Description: Acute myocardial infarction (AMI) patients who are prescribed aspirin at hospital discharge

Rationale: Aspirin therapy in patients who have suffered an acute myocardial infarction reduces the risk of adverse events and mortality. Studies have demonstrated that aspirin can reduce this risk by 20% (Antiplatelet Trialists' Collaboration, 1994). National guidelines strongly recommend long-term aspirin for the secondary prevention of subsequent cardiovascular events in eligible older patients discharged after AMI (Antman, 2004; Anderson, 2007; and Smith, 2006).

AMI-3 ACEI for LVSD

Description: Acute myocardial infarction (AMI) patients with left ventricular systolic dysfunction (LVSD) who are prescribed an ACEI or ARB at hospital discharge. For purposes of this measure, LVSD is defined as chart documentation of a left ventricular ejection fraction (LVEF) less than 40% or a narrative description of left ventricular systolic (LVS) function consistent with moderate or severe systolic dysfunction.

Rationale: ACEI inhibitors reduce mortality and morbidity in patients with left ventricular systolic dysfunction (LVSD) after AMI (Flather, 2000; Pfeffer, 1992; Torp-Peterson, 1999; and Yusuf, 1992). Clinical trials have also established ARB therapy as an acceptable alternative to ACEI, especially in patients with heart failure and/or LVSD who are ACEI intolerant (Granger, 2003 and Pfeffer, 2003). National guidelines strongly recommend ACEI for patients hospitalized with AMI who have either clinical heart failure or LVSD (Antman, 2004 and Anderson, 2007). Guideline committees have also supported the inclusion of ARBs in performance measures for AMI (Antman, 2004; Anderson, 2007; and Smith, 2006).

AMI-4 Adult smoking cessation advice/counseling

Description: Acute myocardial infarction (AMI) patients with a history of smoking cigarettes, who are given smoking cessation advice or counseling during hospital stay. For the purposes of this measure, a smoker is defined as someone who has smoked cigarettes anytime during the year prior to hospital arrival.

Rationale: Smoking cessation reduces mortality and morbidity in all populations. Patients who receive even brief smoking-cessation advice from their care providers are more likely to quit. National guidelines strongly recommend smoking cessation counseling for smokers hospitalized with AMI (Fiore, 2008; Antman, 2004; Anderson, 2007; and Smith, 2006)

AMI-5 Beta-Blocker Prescribed at Discharge

Description: Acute myocardial infarction (AMI) patients who are prescribed a beta-blocker at hospital discharge

Rationale: Long-term use of beta-blockers for patients who have suffered an acute myocardial infarction can reduce mortality and morbidity. Studies have demonstrated that the use of beta-blockers is associated with about a 20% reduction in this risk (Yusuf, 1988), and there is evidence of effectiveness in broad populations of patients with AMI (Krumholz, 1998). National guidelines strongly recommend long-term beta-blocker therapy for the secondary prevention of subsequent cardiovascular events in patients discharged after AMI (Antman, 2004; Anderson, 2007; and Smith 2006).

AMI-7 Median Time to Fibrinolysis

Description: Median time from arrival to administration of fibrinolytic therapy in acute myocardial infarction (AMI) patients with ST-segment elevation or left bundle branch block (LBBB) on the electrocardiogram (ECG) performed closest to hospital arrival time

Rationale: Time to fibrinolytic therapy is a strong predictor of outcome in patients with an acute myocardial infarction. Nearly 2 lives per 1000 patients are lost per hour of delay

(Fibrinolytic Therapy Trialists' Collaborative Group, 1994). National guidelines recommend that fibrinolytic therapy be given within 30 minutes of hospital arrival in patients with ST-elevation myocardial infarction (Antman, 2004).

AMI-7a Fibrinolytic Therapy Received Within 30 Minutes of Hospital Arrival

Performance Measure Name: Fibrinolytic Therapy Received Within 30 Minutes of Hospital Arrival

Description: Acute myocardial infarction (AMI) patients with ST-segment elevation or LBBB on the ECG closest to arrival time receiving fibrinolytic therapy during the hospital stay and having a time from hospital arrival to fibrinolysis of 30 minutes or less

Rationale: Time to fibrinolytic therapy is a strong predictor of outcome in patients with an acute myocardial infarction. Nearly 2 lives per 1000 patients are lost per hour of delay (Fibrinolytic Therapy Trialists' Collaborative Group, 1994). National guidelines recommend that fibrinolytic therapy be given within 30 minutes of hospital arrival in patients with ST-elevation myocardial infarction (Antman, 2004).

AMI-8 Median Time to Primary PCI

Description: Median time from hospital arrival to primary percutaneous coronary intervention (PCI) in acute myocardial infarction (AMI) patients with ST-segment elevation or left bundle branch block (LBBB) on the electrocardiogram (ECG) performed closest to hospital arrival time

Rationale: The early use of primary angioplasty in patients with ST-segment myocardial infarction (STEMI) results in a significant reduction in mortality and morbidity. The earlier primary coronary intervention is provided, the more effective it is (Brodie, 1998 and DeLuca, 2004). National guidelines recommend the prompt initiation of PCI in patients presenting with ST-elevation myocardial infarction (Antman, 2004).

AMI-8a Primary PCI Received Within 90 Minutes of Hospital Arrival

Description: Acute myocardial infarction (AMI) patients with ST-segment elevation or LBBB on the ECG closest to arrival time receiving primary PCI during the hospital stay with a time from hospital arrival to PCI of 90 minutes or less

Rationale: The early use of primary angioplasty in patients with ST-segment myocardial infarction (STEMI) results in a significant reduction in mortality and morbidity. The earlier primary coronary intervention is provided, the more effective it is (Brodie, 1998 and DeLuca, 2004). National guidelines recommend the prompt initiation of PCI in patients presenting with ST-elevation myocardial infarction (Antman, 2004).

AMI-9 Inpatient mortality

Description: Acute myocardial infarction (AMI) patients who expired during hospital stay

Rationale: Mortality of patients with AMI represents a significant outcome potentially related to quality of care. This rate-based indicator identifies an undesirable outcome of care. High rates over time may warrant investigation into the quality of care provided (Krumholz, 2008).

AMI-10 Statin Prescribed at Discharge

Description: Acute myocardial infarction (AMI) patients who are prescribed a statin at hospital discharge.

Rationale: Several randomized clinical trials have proven the benefits of statin drugs (also known as HMG Co-A reductase inhibitors) in reducing the risk of death and recurrent cardiovascular events in a broad range of patients with established cardiovascular disease, including those with prior myocardial infarction (4S, 1994; Sacks, 1996; LIPID Study Group, 1998; and MRC/BHF Heart Protection Study, 2002). Current ACC/AHA guidelines place a strong emphasis on the initiation or maintenance of statin drugs for patients hospitalized with AMI, particularly those with LDL-cholesterol levels above 100 mg/dL (Antman, 2004;

Smith, 2006; Anderson, 2007; and Antman, 2008). As a result of the strength of the evidence and guideline support, the ACC/AHA have developed a performance measure to assess this aspect of care for patients with acute myocardial infarction (Krumholz, 2008). Because statins are generally well-tolerated, most patients with AMI are appropriate candidates for this therapy.

AMI-T1a Statin Prescribed at Discharge (Optional Test Measure)

Description: Acute myocardial infarction (AMI) patients with documentation of low-density lipoprotein cholesterol (LDL-c) level in the hospital record or documentation that LDL-c testing was done during the hospital stay or is planned for after discharge.

Rationale: Treating elevated LDL-c levels reduces mortality and morbidity in patients with coronary artery disease (CAD). Placebo-controlled trials demonstrate a 30 to 40% relative risk reduction in cardiovascular endpoints with lipid-lowering therapy in a broad range of patients with established CAD (Collins, 2003 and Shepherd, 2002). The National Cholesterol Education Panel and the ACC/AHA recommend lipid screening and lipid lowering, particularly LDL-c reduction, in patients with CAD and hyperlipidemia (NCEP ATP III, 2001; Antman, 2004; Anderson, 2007; and Smith, 2006). Guidelines also recommend that lipid measurements should be performed or obtained from prior medical records for all patients (Antman, 2004).

AMI-T2 Statin Lipid Lowering Therapy at Discharge (Optional Test Measure)

Description: Acute myocardial infarction (AMI) patients with elevated low-density lipoprotein cholesterol (LDL-c greater than or equal to 100 mg/dL or narrative equivalent) who are prescribed a lipid-lowering medication at hospital discharge

Rationale: Treating elevated LDL-c levels reduces mortality and morbidity in patients with coronary artery disease (CAD). Placebo-controlled trials demonstrate a 30 to 40% relative risk reduction in cardiovascular endpoints with lipid-lowering therapy in a broad range of patients with established CAD (Collins, 2003 and Shepherd, 2002). The National Cholesterol Education Panel and the ACC/AHA recommend lipid screening and lipid-lowering, particularly LDL-c reduction, in patients with CAD and hyperlipidemia (NCEP ATP III, 2001; Antman, 2004; Anderson, 2007; and Smith, 2006). This test measure will help us determine the feasibility of reliably ascertaining LDL-c treatment data from the medical record and the acceptability of this quality measure to practicing clinicians.

Sample Core Measure Page for AMI Acute Myocardial Infarction

SIGN, DATE & TIME ALL ORDERS; TELEPHONE ORDERS WITHIN 48 HOURS
DO NOT USE →U, IU, QD, QOD, MS, MSO_4, $MGSO_4$, TRAILING ZERO (5.0), LEADING DECIMAL (.5)
WRITE →unit, international unit, daily, every other day, morphine sulfate, magnesium sulfate, leading zero (0.25)

ALLERGIES: | HT: | WT: (Kg)

DATE: TIME:

ED Orders

✓ CBC ✓BMP ✓UA ✓Troponin per protocol ✓Lipid panel ✓aPTT ✓Protime/INR ✓12 leads EKG ✓CXR
✓Saline Lock ✓Oxygen 2 liters/min per Nasal Cannula. Maintain SaO2 > 92% ✓ASA 325 mg PO STAT (if NPO, give ASA 300mg rectally)
IF STEMI: TNKase per protocol within 30 minutes of door time or contraindicated due to _____
☐ Toprol XL 50mg PO x1 –OR– ☐ Lopressor 5mg IVP every 2 minutes x 3 doses
☐ Lovenox 1mg/kg SubQ x1 –OR– ☐ Heparin drip per protocol ☐ Zocor 40mg PO x1 ☐ Plavix ___mg PO x1
✓Tylenol 650 mg PO every 4 hours prn for mild pain level (1-2) or temperature over 100.4 degrees F ✓Morphine Sulfate 2 mg IVP every 2 hr prn for mild pain level (1-2)
✓Morphine Sulfate 4 mg IVP every 2 hr prn for moderate pain level (3-6) ✓Morphine Sulfate 6 mg IVP every 2 hr prn severe pain level (7-10)

Admit to Dr. **STATUS:** ☐ Inpatient ☐ Observation **LEVEL OF CARE:** ☐ ICU ☐ DOU ☐ MS

Consult Dr._____ ☐ ED notified ☐ Floor notified Dr._____ ☐ ED notified ☐ Floor notified

DX ☐ STEMI ☐ NSTEMI ☐ R/O MI ☐ Unstable Angina Add'l Dx:

DATE	TIME	NURSE NOTED	DATE	TIME	ED PHYSICIAN SIGNATURE

INPATIENT PHYSICIAN ORDER (Signature activates all orders unless crossed out)

TELEPHONE ORDERS TO BE SIGNED BY THE PHYSICIAN WITHIN 48 HOURS

Admit Orders (Inpatient)

✓Vital signs per unit protocol ✓Smoking Cessation Instruction
DIET: ☐ Cardiac Diet ☐ Fluid Restriction_____ml/24 hr ☐ No Caffeine ☐ Clear Liquids ☐ ADA diet _____calories
☐ Other:_____ ☐ Dietary Consult: Cholesterol lowering diet education
ACTIVITY: ☐ Bedrest – Initiate DVT Prophylaxis ☐ Bedrest with bedside commode ☐ Progress as tolerated ☐ Up ad lib

Diagnostics

If not done in ED ✓CBC ✓BMP ✓Hepatic function panel ✓UA, culture if positive
✓Troponin 2nd at (2.5 hrs) _____ ✓3rd at (5 hrs) _____ ✓Lipid panel ✓aPTT ✓Protime/INR ☐ Stool for occult blood
✓STAT CXR ✓STAT EKG ☐ EKG in a.m.
✓Echocardiogram (If not done within 6 months). If done at WHMC before, pull report and attach to chart.
Echocardiogram done on (Date)_____EF %_____ (If EF% less than 40, Notify Physician of results.

Medications

ASPIRIN: CONTRAINDICATED DUE TO: _____
✓ASA 325 mg PO daily if not given (If PO not tolerated/NPO, ASA 300 mg suppository may be given in place of tablet)
BETA BLOCKER: (Select One) or CONTRAINDICATED DUE TO:_____
☐ Toprol XL_____mg PO daily (Hold if SBP less than 90mm hg or HR less than 50/min and notify MD) **–OR–**
☐ Coreg _____mg PO BID (Hold if SBP less than 90mm hg or HR less than 50/min and notify MD)
ACE INHIBITOR or ARB: (Select One) or CONTRAINDICATED DUE TO:_____
☐ Captopril (Capoten) _____mg PO _____x daily **–OR–** ☐ Lisinopril_____mg PO daily
☐ Valsartan (Diovan) _____mg PO daily
ANTICOAGULANT: (Select One) or CONTRAINDICATED DUE TO:_____
☐ Lovenox 1mg/kg SQ every 12 hrs –OR– ☐ Heparin drip per protocol
ANTIPLATELET: (Select One) or CONTRAINDICATED DUE TO: _____
☐ Plavix _____mg PO daily ☐ Integrilin_____
LIPID LOWERING MEDICATION: (Select One) or CONTRAINDICATED DUE TO:
☐ Zocor_____mg PO daily at bedtime **–OR–** ☐ Lipitor _____mg PO daily at bedtime
NITRATES: CONTRAINDICATED DUE TO: _____
✓Nitroglycerin 0.4 mg sublingual every 5 minutes x3 as needed for chest pain: If no relief, call doctor. ☐ ✓Nitroglycerin_____
PAIN MANAGEMENT:
✓Tylenol 650 mg PO every 4 hours prn for mild pain level (1-2) or temperature over 100.4 degrees F
✓Morphine Sulfate 2 mg IVP every 2 hr prn for mild pain level (1-2)
✓Morphine Sulfate 4 mg IVP every 2 hr prn for moderate pain level (3-6) ✓Morphine Sulfate 6 mg IVP every 2 hr prn severe pain level (7-10)
IV Therapy: ☐ Saline lock, Flush every shift and as needed ☐ IV Fluids_____at_____ml/hr
Respiratory: ✓O2 to maintain SP02 greater than 92% ☐ Nasal Cannula ☐ Mask ☐ Other_____

Nurse (Print)	Nurse (Signature)	Signature attests that orders were Read back to the physician/prescriber.	Physician Full Name giving the T.O.(Print):

NURSE NOTED:	DATE	TIME	PHYSICIAN/PRESCRIBER SIGNATURE OR AUTHENTICATION	DATE	TIME
24 HR. CHART CHECK BY NURSE	DATE	TIME			

Sample Core Measure Worksheet with indicators identified for that facility.

Upon Admission				Before Discharge		
Acute MI	Yes	No		Acute MI	Yes	No
Standing Orders on Chart				Medication reconciliation completed and signed by patient		
ASA within 24 hours of admission				ASA Prescribed		
β Blocker given within 24 hours of admission				β Blocker prescribed		
Thrombolysis given within 30 minutes						
ACEi or ARB for LVSD						
Smoking Cessation Advice given & Documented						

This is an example of a worksheet for a hospital to show which measures must be completed for every patient. The checklist would be initiated in the Emergency Department or admitting unit such as ICU. It would be essential, that upon admission and before discharge all indicators are addressed with verification on the Core Measure form why the indicator was not followed. For example, if someone were allergic to aspirin, that would be indicated.

Overview of the Heart Failure (HF) Core Measure Set

Heart failure (HF) was identified by key Joint Commission stakeholders as one of the initial priority focus areas for hospital core measure development. The literature supports the importance of measuring the processes and outcomes of care for patients with HF primarily based on disease prevalence. Nearly 5 million patients in the U.S. have HF, and approximately 500,000 to 900,000 new cases are diagnosed each year. Heart failure is the most common Medicare diagnosis-related group, and more Medicare dollars are spent for the diagnosis and treatment of HF than for any other diagnosis.

The Joint Commission's cardiovascular advisory panel articulated the clinical logic that provided the framework for identifying inter-related, evidence-based measures that, when used together, can more fully assess the overall quality of care provided for HF patients. The scope of the HF core measure set is limited to patients 18 years of age and older because the clinical treatment of younger patients is handled substantially differently.

Hospital HF Core Measures – Initial Release

The following four measures comprise the set of hospital HF Core Measures.

HF-1	Discharge Instructions
HF-2	Evaluation of LVS Function
HF-3	ACEI or ARB for LVSD
HF-4	Adult Smoking Cessation Advice/Counseling

Individual Measure Descriptions:

The following describes the rationale and related considerations underlying each of the measures currently included in the HF Core Measure Set.

HF-1 Discharge instructions

Description: Heart failure patients discharged home with written instructions or educational material given to patient or caregiver at discharge or during the hospital stay addressing **all** of the following: activity level, diet, discharge medications, follow-up appointment, weight monitoring, and what to do if symptoms worsen

Rationale: Patient non-compliance with diet and medications is an important reason for changes in clinical status. Health care professionals should ensure that patients and their families understand their dietary restrictions, activity recommendations, prescribed medication regimen, and the signs and symptoms of worsening heart failure. National guidelines strongly support the role of patient education (Jessup, 2009 and HFSA, 2006).

Type of Measure

It is necessary that all six discharge instructions be given to the patient in order to qualify as a numerator event for this measure. For quality improvement efforts, the Joint Commission has provided algorithms to performance measurement systems that will assist health care organizations in identifying the individual discharge instructions that are problematic. During the Joint Commission pilot project, several participants believed this measure afforded them the greatest opportunity for quality improvement initiatives within their institution. This is substantiated by the overall pilot project data-the mean rate for this measure was 28%.

Complete discharge instructions include a copy of the written instructions containing ALL of the following:

1. activity level
2. diet
3. discharge medications
4. follow-up appointment
5. weight monitoring
6. what to do if symptoms worsen

All six elements must be present to receive credit.

HF-2 LVF assessment

Description: Heart failure patients with documentation in the hospital record that left ventricular systolic (LVS) function was evaluated before arrival, during hospitalization, or is planned for after discharge

Rationale: Appropriate selection of medications to reduce morbidity and mortality in heart failure requires the identification of patients with impaired left ventricular systolic function. National guidelines advocate the evaluation of left ventricular systolic function as the single most important diagnostic test in the management of all patients with heart failure (Jessup, 2009 and HFSA, 2006).

Measurement of left ventricular performance is a critical step in the evaluation and management of almost all patients with suspected or clinically evident heart failure. The combined use of history, physical examination, chest x-ray, and electrocardiography cannot reliably distinguish between the major categories of HF: left ventricular systolic dysfunction, left ventricular diastolic dysfunction, or a non-cardiac etiology. If measurement of ventricular performance is not obtained in patients presenting with heart failure, appropriate treatment may be withheld. Specifically, patients with left ventricular systolic dysfunction will not be identified and, therefore, will not be treated with agents known to prolong life. Preliminary data from the pilot test demonstrate an opportunity for improvement with a mean rate of 79%. This measure only addressed HF patients not admitted on angiotensin converting enzyme inhibitor (ACEI) or angiotensin receptor blocker (ARB) during the Joint Commission pilot project. It has been modified for national implementation in accord with recent updated guideline recommendations related to LVF assessment for patient with HF.[10]

HF-3 ACEI for LVSD

Description: Heart failure patients with left ventricular systolic dysfunction (LVSD) who are prescribed an ACEI or ARB at hospital discharge. For purposes of this measure, LVSD is defined as chart documentation of a left ventricular ejection fraction (LVEF) less than 40% or a narrative description of left ventricular systolic (LVS) function consistent with moderate or severe systolic dysfunction.

Rationale: ACEI inhibitors reduce mortality and morbidity in patients with heart failure and left ventricular systolic dysfunction (The SOLVD Investigators, 1991 and CONSENSUS Trial Study Group, 1987) and are effective in a wide range of patients (Masoudi, 2004). Clinical trials have also established ARB therapy as an acceptable alternative to ACEI, especially in patients who are ACEI intolerant (Granger, 2003 and Pfeffer, 2003). National guidelines strongly recommend ACEIs for patients hospitalized with heart failure (Jessup, 2009 and HFSA, 2006). Guideline committees have also supported the inclusion of ARBs in performance measures for heart failure (Executive Council of the Heart Failure Society of America, 2004). Clinical trials have established that the using ACEI for patients diagnosed with HF can alleviate symptoms, improve clinical status, enhance overall sense of well-being, and can reduce the risk of death and hospitalization. [11] This measure assesses whether ACEI were appropriately prescribed at discharge for patients with left ventricular systolic dysfunction (LVSD) who have the potential to receive the intended benefit. Preliminary data from the pilot project shows a mean measure rate of 86% indicating some opportunity for improvement. During the pilot project, this measure excluded patients from the denominator admitted on ARB drugs. Since this time, however, the Heart Failure Society of America (HFSA) guidelines, which reflect the latest clinical trial results, were modified and recommend that ACEIs and ARBs should not be considered equivalent. The HFSA guidelines recommend that ARBs as second-line drugs to be used only when there are contraindications to ACEI. Therefore, ARBs were eliminated as a contraindication to prescribing ACEI.

In the pilot project, bilateral renal artery stenosis was among the contraindications to ACEI at discharge. According to the CMS National Heart Failure Project baseline data, this was a rare event, present in only approximately 0.3 percent of cases. Thus, to reduce data collection effort, bilateral renal artery stenosis was also eliminated as a contraindication to prescribing ACEI in the final measure specifications for national implementation. Chronic renal dialysis was also identified as a contraindication to ACEI during the pilot project. Currently, however, most nephrologists and cardiologists consider ACEI to be an appropriate medication for patients with LVSD undergoing chronic renal dialysis. Therefore, chronic renal dialysis was removed from the list of categorical contraindications.

HF-4 Adult smoking cessation advice/counseling

Description: Heart failure patients with a history of smoking cigarettes, who are given smoking cessation advice or counseling during hospital stay. For purposes of this measure, a smoker is defined as someone who has smoked cigarettes anytime during the year prior to hospital arrival.

Rationale: Smoking cessation reduces mortality and morbidity in all populations. Patients who receive even brief smoking-cessation advice from their care providers are more likely to quit. National guidelines strongly recommend smoking cessation counseling for smokers with cardiovascular disease, including heart failure (Fiore, 2008 and Jessup, 2009).

Each year more than 430,000 deaths in the United States are attributed to a smoking related illness.[13] Because one third to one half of cardiovascular patients begin smoking again within 6 to 12 months of their diagnosis, the patient population for this measure includes those who have a history of smoking within one year of admission.

Preliminary data from the pilot project indicates that 39% of HF patients with a history of smoking within the past year received smoking cessation advice or counseling. For further discussion on smoking cessation measures, refer to material in the Overview of the Community Acquired Pneumonia Core.

Sample Core Measure Page for HF Heart Failure

SIGN, DATE & TIME ALL ORDERS; TELEPHONE ORDERS WITHIN 48 HOURS
DO NOT USE →U, IU, QD, QOD, MS, MSO_4, $MGSO_4$, TRAILING ZERO (5.0), LEADING DECIMAL (.5)
WRITE →unit, international unit, daily, every other day, morphine sulfate, magnesium sulfate, leading zero (0.25)

ALLERGIES:	HT.	WT. (Kg)
DATE: TIME:		

ED Orders
✓CBC ✓BMP ✓UA
✓CXR ✓12 Lead EKG
☐BNP ☐Troponin per protocol
✓Insert Saline Lock per hospital policy
✓Oxygen 2 liters/min per Nasal Cannula. Maintain SaO2 greater than 92%

Admit to Dr._____ **STATUS:** ☐ Inpatient ☐ Observation **LEVEL OF CARE:** ☐ ICU ☐ DOU ☐ MS

Consult Dr._____ ☐ ED notified ☐ Floor notified Dr._____ ☐ ED notified ☐ Floor notified

DX ✓CHF Add'l DX:

DATE	TIME	ED NURSE NOTED	DATE	TIME	ED PHYSICIAN SIGNATURE

INPATIENT PHYSICIAN ORDER (Signature activates all orders unless crossed out)
TELEPHONE ORDERS TO BE SIGNED BY THE PHYSICIAN WITHIN 48 HOURS

Admit Orders (Inpatient)
✓**SMOKING CESSATION and DOCUMENT** (Patient Education)
✓Intake and Output every shift
✓Daily weight prior to breakfast and record on graphic record
DIET: ✓ Cardiac Diet ☐Fluid Restriction_____ml/24 hr ☐ ADA Diet _____calories ☐ 2gm Na Diet
ACTIVITY: ☐ Bedrest ☐ Bedrest with bedside commode ☐ Progress as tolerated ☐ Up ad lib

Diagnostics
If not done in ED
✓CBC ✓BMP ✓Hepatic function panel ✓UA ☐ BNP ☐ Lipid Panel in a.m.
✓CXR ✓EKG
✓**Echocardiogram (if not done within 6 months).** If done at WHMC pull report and attach to chart.
Echocardiogram done on (date)_____EF_____% (If EF under 40%, notify physician of result)

Medications
ACE INHIBITOR or ARB: (Select One) CONTRAINDICATED DUE TO:_____
☐ Captopril (Capoten) _____mg PO _____x daily
☐ Lisinopril (Zestril) _____mg PO daily
☐ (ARB) Valsartan (Diovan) _____mg PO daily
BETA BLOCKER: (Select One) CONTRAINDICATED DUE TO:_____
☐ Toprol XL_____mg PO daily
(Hold for SBP less than 90 mmHg or HR less than 50/min and notify Physician)
☐ Carvedilol (Coreg)_____mg bid
(Hold for SBP less than 90 mmHg or HR less than 50/min and notify Physician)
DIURETIC: CONTRAINDICATED DUE TO:_____
☐ Furosemide (Lasix) _____mg ☐ Orally ☐ IV _____times daily
☐ Potassium _____meq ☐ PO ☐ IVPB
☐ Spironolactone (Aldactone) 25 mg PO daily
IV Therapy: ☐ Saline lock, Flush every shift and as needed ☐ IV Fluids _____at_____ml/hr
Respiratory: ✓O2 to maintain SP02 greater than 92% and PRN ☐ Nasal Cannula ☐ Mask
Additional Orders:
_____

Nurse (Print)	Nurse (Signature)	Signature attests that orders were Read back to the physician/prescriber.	Physician Full Name giving the T.O.(Print):

NURSE NOTED:	DATE	TIME	PHYSICIAN/PRESCRIBER SIGNATURE OR AUTHENTICATION	DATE	TIME
24 HR. CHART CHECK BY NURSE	DATE	TIME			

Sample Core Measure Worksheet with indicators identified for that facility.

Upon Admission				Before Discharge		
Heart Failure	Yes	No		Heart Failure	Yes	No
Standing Orders on Chart				Medication reconciliation completed and signed by patient		
Evaluation of LVS Function (i.e. echocardiogram) in current and/or previous admission				CHF booklet given * documented at discharge		
ACEi or ARB for LVSD				Discharge Instruction Completed:		
Smoking Cessation Advice given & Documented				• Activity • Diet Control • Medication prescribed • Symptoms worsening • Weight monitoring		

This is an example of a worksheet for a hospital to show which measures must be completed for every patient. The checklist would be initiated in the Emergency Department or admitting unit such as ICU. Discharge planning and instruction on all six indicators of activity, diet control, medication prescribed, symptoms worsening and weight monitoring need to be part of the discharge instructions. It would be essential, that upon admission and before discharge all indicators are addressed with verification on the Core Measure form why the indicator was not followed. For example, if someone were allergic to aspirin, that would be indicated.

Overview of the Pneumonia Core Measure Set

This measure applies to all patients with pneumonia (community, healthcare associated, nursing home) whether principal or secondary diagnosis. Community acquired pneumonia was one of the initial priority focus areas for hospital core measure development identified by key Joint Commission stakeholders. The importance of measuring the processes and outcomes of care for patients with pneumonia is further supported by the literature highlighting disease prevalence, increasing antibiotic resistance, and healthcare costs. In the United States, pneumonia is the sixth most common cause of death. From 1979-1994, the overall rates for death due to pneumonia and influenza increased by 59%. Much of the increase is due to a greater population of persons aged 65 years or older, and a changing epidemiology of pneumonia, including a greater proportion of the population with underlying medical conditions at increased risk of respiratory infection. Annually, 2-3 million cases of community acquired pneumonia (CAP) result in 10 million physician visits; 500,000 hospitalizations; and 45,000 deaths.

The Joint Commission's Pneumonia Advisory Panel articulated the clinical logic that provided the framework for identifying inter-related evidence-based measures that when used together, can assess the overall quality of care provided for patients with pneumonia. The scope of the pneumonia core measure set is limited to CAP. Nosocomial pneumonia was excluded for the following reasons:

A limited number of well tested, evidence based measures are currently available;

- Case identification is difficult and not always accurate;
- Definitions are problematic;
- The literature has not clearly addressed how to decrease the incidence, suggestions available but lack scientific evidence;
- Therapy is difficult to standardize;
- Mortality and incidence may be due to comorbidities; and
- The linkage between best practices and outcomes has yet to be established

Of the four initial hospital core measure sets, only the CAP, PN core measure set contains measures applicable to the pediatric population. Four of the six measures in the CAP core measure set are applicable to pediatrics with populations that include patients 29 days of age and older. These measures include CAP 1, CAP 3, CAP 4b, and CAP 5 and are described in the Individual Measure Descriptions below.

Hospital PN Core Measures – Initial Release

The following measures comprise the set of hospital PN Core Measures.

Pneumonia	
PN-2	Pneumococcal Vaccination
PN-3a	Blood Cultures Performed Within 24 Hours Prior to or 24 Hours After Hospital Arrival for Patients Who Were Transferred or Admitted to the ICU Within 24 Hours of Hospital Arrival
PN-3b	Blood Cultures Performed in the Emergency Department Prior to Initial Antibiotic Received in Hospital
PN-4	Adult Smoking Cessation Advice/Counseling
PN-5	Antibiotic Timing (Median)
PN-5c	Initial Antibiotic Received Within 6 Hours of Hospital Arrival
PN-6	Initial Antibiotic Selection for CAP in Immunocompetent Patient
PN-6a	Initial Antibiotic Selection for CAP in Immunocompetent – ICU Patient
PN-6b	Initial Antibiotic Selection for CAP Immunocompetent – Non ICU Patient
PN-7	Influenza Vaccination

Individual Measure Descriptions:
The following describes the rational and related considerations underlying each of the measures currently in the Pneumonia Core Measure Set

PN-2 Pneumococcal Vaccination

Description: Pneumonia patients, age 65 and older, who were screened for pneumococcal vaccine status and were administered the vaccine prior to discharge, if indicated.

Rationale: Pneumococcal vaccination is indicated for persons 65 years of age and older, because it is up to 75% effective in preventing pneumococcal bacteremia and meningitis. It is also an important vaccine due to increasing antibiotic resistance among pneumococci. In the United States today, vaccine coverage is suboptimal. Although inpatient vaccine screening and administration are recommended, hospitalization is an underutilized opportunity for adult vaccination.

PN 3a Blood Cultures Performed Within 24 Hours Prior to or 24 Hours After Hospital Arrival for Patients Who Were Transferred or Admitted to the ICU Within 24 Hours of Hospital Arrival

Description: Pneumonia patients transferred or admitted to the ICU within 24 hours of hospital arrival, who had blood cultures performed within 24 hours prior to or 24 hours after hospital arrival.

Rationale: Although recommendations for blood cultures are controversial due to the overall low yield, they can have a significant impact on the care of an individual patient and are important for epidemiologic reasons, such as antibiotic susceptibility patterns used to develop treatment guidelines. The Joint IDSA/ATS Guidelines on the Management of Community-Acquired Pneumonia (CAP) in Adults recommend that certain patients with CAP should be investigated for specific pathogens that would significantly alter decisions regarding empirical therapy, when the presence of these pathogens is suspected (Mandell, 2007). The guidelines recommend that pretreatment blood samples for culture should be obtained from hospitalized CAP patients who are admitted to the Intensive Care Unit, have cavitary infiltrates, leukopenia, chronic severe liver disease, asplenia, pleural effusion, have a positive pneumococcal urinary antigen test (UAT), and have active alcohol abuse (Mandell, 2007). Pretreatment cultures are recommended because the yield of clinically useful information is greater if the culture is collected before antibiotics are administered. In a large retrospective study of blood cultures in pneumonia patients, Metersky et al demonstrated that when patients are selected appropriately, for example, those who are sicker or have comorbid conditions like liver disease, etc., the yield of blood culture pathogens was doubled for each risk factor. This measure, however, focuses on the actual performance of a culture for all patients who are ill enough to be admitted or transferred to the ICU within 24 hours of hospital arrival rather than restricting measurement to culture collection prior to antibiotics as the later provides an incentive for hospitals not to perform a culture in any patient who has already received antibiotics.

PN 3b Blood Cultures Performed in the Emergency Department Prior to Initial Antibiotic Received in Hospital

Description: Pneumonia patients whose initial emergency room blood culture specimen was collected prior to first hospital dose of antibiotics. This measure focuses on the treatment provided to Emergency Department patients prior to admission orders.

Rationale: Although recommendations for blood cultures are controversial due to the overall low yield, they can have a significant impact on the care of an individual patient and are important for epidemiologic reasons, such as antibiotic susceptibility patterns used to develop treatment guidelines. The Joint IDSA/ATS Guidelines on the Management of

Community-Acquired Pneumonia (CAP) in Adults recommend that certain patients with CAP should be investigated for specific pathogens that would significantly alter decisions regarding empirical therapy, when the presence of these pathogens is suspected (Mandell, 2007). The guidelines recommend that pretreatment blood samples for culture should be obtained from hospitalized CAP patients who are admitted to the Intensive Care Unit, have cavitary infiltrates, leukopenia, chronic severe liver disease, asplenia, plural effusion, have a positive pneumococcal urinary antigen test (UAT), and have active alcohol abuse (Mandell, 2007). Pretreatment cultures are recommended because the yield of clinically useful information is greater if the culture is collected before antibiotics are administered. In a large retrospective study of blood cultures in pneumonia patients, Metersky et al demonstrated that when patients are selected appropriately, for example, those who are sicker or have co-morbid conditions like liver disease, etc., the yield of blood culture pathogens was doubled for each risk factor. The study also demonstrated that doing cultures after antibiotics were given decreased yield by 50%.

This measure focuses on treatment provided in the Emergency Department where the largest number and variety of CAP patients receive treatment prior to admission orders. A review of performance measure data from the pneumonia national hospital quality measures over the past few years indicates that 68 to 70% of patients admitted to the hospital for CAP receive care and services in the ED prior to admission. Emergency Departments serve patients with a variety of co-morbidities such as those indicated above and varying levels of severity related to their clinical condition. The ED also serves as a triage point for the next level of care; intensive care, or general unit. In concordance with the guideline recommendations, the performance measure does not require blood cultures for all ED patients, but if a culture is done, it must be done prior to administration of the first dose of antibiotics received in the hospital in order to meet the intent of this measure.

PM-4 Adult Smoking Cessation Advice/Counseling

Description: Pneumonia patients with a history of smoking cigarettes who are given smoking cessation advice or counseling during hospital stay. For the purposes of this measure, a smoker is defined as someone who has smoked cigarettes anytime during the year prior to hospital arrival.

Rationale: Tobacco use is the single greatest cause of disease in the United States today. Smoking accounts for one out of every five deaths in the United States and is the most important modifiable cause of premature death. Smoking cessation treatments ranging from brief clinician advice to specialist-delivered intensive programs, including pharmacotherapy, are not only clinically effective, but also are extremely cost-effective relative to other commonly used disease prevention interventions and medical treatments. Hospitalization can be an ideal opportunity for a patient to stop smoking, and smoking cessation may promote the patient's medical recovery. Patients who receive even brief smoking-cessation advice from their care providers are more likely to quit than those who receive no counseling whatsoever.

PN-5 Antibiotic Timing

Description: Median time from arrival at the hospital to the administration of the first dose of antibiotic at the hospital

Rationale: Time to first antibiotic dose for community-acquired pneumonia (CAP) has recently received significant attention from a quality of care perspective. This emphasis is based on 2 large retrospective studies of Medicare beneficiaries that demonstrated statistically significantly lower mortality among patients who received early antibiotic therapy (Meehan, Houck). The initial study by Meehan demonstrated a 15% relative reduction in 30-day mortality when antibiotics were administered within 8 hours of arrival, whereas the subsequent analysis by Houck et al found that delivery of antibiotics within 4 hours was

associated with lower 30-day mortality (15% relative reduction). The studies differed in that Houck and colleagues excluded patients who were on antibiotics prior to hospital arrival. Several small prospective studies that document the time to first antibiotic dose do not consistently demonstrate this reduction in 30-day mortality, although none had as large a patient population as those in the studies of Meehan and Houck. The IDSA/ATS guideline committee did recommend that antibiotic therapy should be administered as soon as possible after the diagnosis of pneumonia is considered likely and specifically state that delivery of first antibiotic dose would be expected within 6–8 hours of presentation whenever the admission diagnosis is likely CAP.

PN-5c Initial Antibiotic Received Within 6 Hours of Hospital Arrival

Description: Pneumonia patients who receive their first dose of antibiotics within 6 hours after arrival at the hospital

Rationale: Time to first antibiotic dose for community-acquired pneumonia (CAP) has recently received significant attention from a quality-of care perspective. This emphasis is based on 2 large retrospective studies of Medicare beneficiaries that demonstrated statistically significantly lower mortality among patients who received early antibiotic therapy (Meehan, Houck). The initial study by Meehan demonstrated a 15% relative reduction in 30-day mortality when antibiotics were administered within 8 hours of arrival, whereas the subsequent analysis by Houck et al found that delivery of antibiotics within 4 hours was associated with lower 30-day mortality (15% relative reduction). The studies differed in that Houck and colleagues excluded patients who were on antibiotics prior to hospital arrival. Several small prospective studies that document the time to first antibiotic dose do not consistently demonstrate this reduction in 30-day mortality, although none had as large a patient population as those in the studies of Meehan and Houck. The IDSA/ATS guideline committee did recommend that antibiotic therapy should be administered as soon as possible after the diagnosis of pneumonia is considered likely and specifically state that delivery of first antibiotic dose would be expected within 6–8 hours of presentation whenever the admission diagnosis is likely CAP

PN-6 Initial Antibiotic Selection for CAP in Immunocompetent Patient

PN-6a Initial Antibiotic Selection for CAP in Immunocompetent – ICU Patient

PN-6b Initial Antibiotic Selection for CAP Immunocompetent – Non ICU Patient

Description:

(PN-6) Immunocompetent patients with Community-Acquired Pneumonia who receive an initial antibiotic regimen during the first 24 hours that is consistent with current guidelines

(PN-6a) Immunocompetent ICU patients with Community-Acquired Pneumonia who receive an initial antibiotic regimen during the first 24 hours that is consistent with current guidelines

(PN-6b) Immunocompetent non-Intensive Care Unit (ICU) patients with Community-Acquired Pneumonia who receive an initial antibiotic regimen during the first 24 hours that is consistent with current guidelines

Rationale: The current North American antibiotic guidelines for Community-Acquired Pneumonia in immunocompetent patients are from the Centers for Disease Control and Prevention (CDC), the Infectious Diseases Society of America (IDSA), the Canadian Infectious Disease Society / Canadian Thoracic Society (CIDS/CTS), and the American Thoracic Society (ATS). All four reflect that Streptococcus pneumoniae is the most common cause of CAP, that treatment that covers “atypical” pathogens (e.g., Legionella species, Chlamydia pneumoniae, Mycoplasma pneumoniae) can be associated with improved survival, and that the prevalence of antibiotic resistant S. pneumoniae is increasing.

Pneumonia that has not been treated effectively can lead to many serious complications. Patients can become septic, go into complete respiratory failure, or develop pleural effusions. All of these complications can lead quickly to death.

PN-7 Influenza Vaccine

Description: Pneumonia patients age 50 years and older, hospitalized during October, November, December, January, February or March who were screened for influenza vaccine status and were vaccinated prior to discharge, if indicated.

Rationale: Influenza vaccination is indicated for people age 50 years and older, because it is highly effective in preventing influenza-related pneumonia, hospitalization, and death. Vaccine coverage in the United States is suboptimal. Screening and vaccination of inpatients is recommended, but hospitalization is an underutilized opportunity to provide vaccination to adults.

It is important that the above standards of care are followed when treating pneumonia because these six simple interventions will helpsave your patients life.

Sample Core Measure Page for Pneumonia

SIGN, DATE & TIME ALL ORDERS; TELEPHONE ORDERS WITHIN 48 HOURS
DO NOT USE →U, IU, QD, QOD, MS, MSO_4, $MGSO_4$, TRAILING ZERO (5.0), LEADING DECIMAL (.5)
WRITE →unit, international unit, daily, every other day, morphine sulfate, magnesium sulfate, leading zero (0.25)

ALLERGIES: | HT. | WT. (Kg)

DATE: TIME:

ED Orders

✓CBC ✓BMP ✓UA/Urine Culture ✓CXR ✓12 Lead EKG
✓Blood Culture x 2, 5 minutes apart. ✓Sputum Culture (RT may induce, prior to antibiotic)
✓Insert Saline Lock per hospital policy ✓Oxygen 2 liters/min per Nasal Cannula. Maintain SaO2 > 92%
✓Antibiotic administered within 4 hours of DOOR time, AFTER blood culture
☐ ICU Patient: Rocephin 1 gm IVPB **AND** Levaquin 750mg IVPB X1
☐ If allergic to Penicillin, give Azactam 1 gm IVPB **AND** Levaquin 750mg IVPB X1
☐ Non-ICU Patient: Levaquin 750mg IVPB X1 ☐ If suspecting MRSA, give Vancomycin 1 gm IVPB X1
☐ If from LTC/SNF, give Zosyn 3.375 mg IVPB **AND** Levquin 750 mg X1

Admit to Dr._____ **STATUS:** ☐ Inpatient ☐ Observation **LEVEL OF CARE:** ☐ ICU ☐ DOU ☐ MS

Consult ☐ ED notified ☐ ED notified
Dr._____ ☐ Floor notified Dr._____ ☐ Floor notified

DX ✓Pneumonia Add'l DX:

DATE	TIME	Nurse noted	DATE	TIME	ED PHYSICIAN SIGNATURE

INPATIENT PHYSICIAN ORDER (Signature activates all orders unless crossed out)

TELEPHONE ORDERS TO BE SIGNED BY THE PHYSICIAN WITHIN 48 HOURS

Admit Orders (Inpatient)

✓Vital signs per unit protocol
DIET : ✓Regular ☐ Low Sodium ☐ Cardiac ☐ Clear Liquid ☐ Diabetic _____cal ☐ Other_____
ACTIVITY: ☐ Bed Rest ☐ Up in Chair ☐ Ambulatory
✓**SMOKING CESSATION and DOCUMENT** (Patient Education)
✓**Pneumococcal/Influenza Vaccine:** Screen and Administer vaccine if criteria met

Diagnostics

If not done in ED
✓Chest x-ray ✓Blood Cultures x 2, 5 minutes apart. **STAT (Prior to antibiotic therapy)**
✓UA/Urine Culture ✓Sputum Culture (RT may induce, prior to antibiotic)
✓CBC ✓BMP ✓Hepatic function panel ☐ Other_____

Medications

✓ **Start antibiotics STAT after blood cultures obtained**

NON-ICU PATIENT (Med/Surg, Telemetry)
☐ Levaquin (Levofloxacin) 750 mg IVPB every 24 hours – **OR** –
☐ Rocephin (Ceftriaxone) 1 gm IVPB **AND** Zithromax (Azithromycin) 500 mg IVPB every 24 hrs

ICU PATIENT (Not from SNF)
☐ Rocephin (Ceftriaxone) 1 gm IVPB **AND** Zithromax (Azithromycin) 500 mg IVPB every 24 hrs – **OR** –
☐ Rocephin (Ceftriaxone) 1 gm IVPB **AND** Levaquin (Levofloxacin) 750 mg IVPB every 24 hrs

PATIENT FROM SNF or OTHER LONG TERM HEALTH CARE FACILITY
☐ Zosyn (Piperacillin/Tazobactam) 3.375 gm IVPB every 6 hours **AND** Levaquin (Levofloxacin) 750mg IVPB every 24 hours
– OR –
☐ Zosyn (Piperacillin/Tazobactam) 3.375 gm IVPB every 6 hours **AND** Gentamicin per pharmacy
(Maxipime, Fortaz, or Primaxin may be used in place of Zosyn)

*** **IF SUSPECTING MRSA*** ☐ Vancomycin 1 gm IVPB x1 and pharmacy to follow
IF ALLERGIC TO PENICILLIN ☐ Azactam (Aztreonam) 1 gm IVPB every 8 hours **AND** Levaquin 750 mg IVPB every 24 hours

IV Therapy: ☐ Saline Lock – flush every shift and as needed ☐ IV Solution_____@_____ml/hr

Respiratory: ✓O2 to maintain SPO2 greater than 92% ☐ Nasal Cannula ☐ Mask ☐ Other_____

Nurse (Print)	Nurse (Signature)	Signature attests that orders were Read back to the physician/prescriber.	Physician Full Name giving the T.O.(Print):

NURSE NOTED:	DATE	TIME	PHYSICIAN/PRESCRIBER SIGNATURE OR AUTHENTICATION	DATE	TIME
24 HR. CHART CHECK BY NURSE	DATE	TIME			

Sample Core Measure Worksheet with indicators identified for that facility.

Upon Admission				Before Discharge		
Pneumonia	Yes	No		Pneumonia	Yes	No
Standing Orders on Chart				Medication reconciliation completed and signed by patient		
Oxygen saturation done on admission				Pneumococcal vaccine given before discharge		
Blood Culture drawn before 1st antibiotic given						
Antibiotic given in 24 hours						
Smoking Cessation Advice given & Documented						
Pneumococcal vaccine screening (check old chart, nursing home record if applicable)						

This is an example of a worksheet for a hospital to show which measures must be completed for every patient. The checklist would be initiated in the Emergency Department or admitting unit such as ICU. It would be essential, that upon admission and before discharge all indicators are addressed with verification on the Core Measure form why the indicator was not followed. For example, if someone had already received the pneumoccal vaccine before coming to the hospital, that would need to be documented.

Core Measure Worksheet

Initial date & time _____

Upon Admission **Discharge date & time** _____

Acute MI/ Chest pain	Yes	No	Heart Failure	Yes	No	Pneumonia	Yes	No
Standing Orders on Chart			Standing Orders on Chart			Standing Orders on Chart		
ASA within 24 hours of admission			Evaluation of LVS Function (i.e. echocardiogram) in current and/ or previous admission			Oxygen saturation done on admission		
β Blocker given within 24 hours of admission			ACEi or ARB for LVSD			Blood Culture drawn before 1st antibiotic given		
Thrombolysis given within 30 mins			Smoking Cessation Advice given + documented			Antibiotic given in 24 hours		
ACEi or ARB for LVSD						Smoking Cessation Advice given + documented		
Smoking Cessation Advice given + documented						Pneumococcal vaccine screening (check old chart, nursing home record if applicable)		

Nurse Signature

Admission shift	First shift	Second shift	Third shift	Discharge

Before Discharge

Acute MI/ Chest pain	Yes	No	Heart Failure	Yes	No	Pneumonia	Yes	No
Medication reconciliation completed and signed by patient			Medication reconciliation completed and signed by patient			Medication reconciliation completed and signed by patient		
ASA prescribed			CHF booklet given + documented at discharge			Pneumococcal vaccine given before discharge		
β Blocker prescribed			Discharge Instruction completed:					
			Activity					
			Diet control					
			Follow up care					
			Medication prescribed					
			Symptoms worsening					
			Weight monitoring					

Explain the reason not completed

Nurse Signature	Nurse Signature	Nurse Signature	Nurse Signature	Nurse Signature
_____	_____	_____	_____	_____

Core measure criteria

Core measures address high priority areas. After JCAHO makes a call for measures and the measures are received in house, they are assessed for possible inclusion in a core measure set. A core performance measure must:

- target health improvement of specified populations.
- have explicit, standardized requirements for data collection and for calculation of the measure value or score.
- be reliable.
- be valid.
- be easily understood by data users.
- be risk-adjusted, where appropriate.
- be assessed for availability and accessibility of data elements and the effort/cost required for data collection.
- be useful to the accreditation process and supports organizations' performance improvement efforts.
- provides organizations with opportunities to improve processes and/or outcomes.
- have a measure construct and calculation algorithm are available to the public.
- be implemented and maintained by organizations with responsible effort.

Understanding the Core Measures can help you understand the researched guidelines that help deliver better care in selected population groups. You can be an integral part of your team in helping with processes to improve patient care by implementing and following Core Measure guidelines.

Please Answer the Questions on the answer sheet provided. Fax or email your answer sheet to the information listed on the answer sheet. Thank you.

Appendix A – Glossary of Terms

Accuracy (of data) The extent to which data are free of identifiable errors.
Acute Hemorrhagic Stroke A non-traumatic intracerebral hemorrhage, subarachnoid hemorrhage or hemorrhagic infarction.
Acute Ischemic Stroke A measurable neurological deficit of sudden onset, presumed secondary to focal cerebral ischemia, and not otherwise attributable to intracerebral hemorrhage (ICH) or another disease process. Cerebrovascular disorder caused by deprivation of blood flow to an area of the brain, generally as a result of thrombosis, embolism, or reduced blood pressure.
Acute Myocardial Infarction (AMI) Death of heart muscle resulting from insufficient blood supply to the heart. For purposes of this measure set, acute myocardial infarction is identified by the ICD-9-CM codes in Appendix A, Table 1.1.
Administrative/Billing Data (data source) Administrative data are patient-identifiable data used for administrative, regulatory, and payment (financial) purposes. Administrative data generally reflects the content of discharge abstracts (for example, demographic information on patients such as age, sex, zip code; information about the episode of care such as length of stay, discharge status; and ICD-9-CM diagnosis and procedure codes). Namely, the Uniform Bill of the Health Care Financing Administration (UB-04) provides specifications for the abstraction of administrative/billing data.
Agency for Healthcare Research and Quality (AHRQ) The Agency for Healthcare Research and Quality (AHRQ) is the health services research arm of the U.S. Department of Health and Human Services (HHS), complementing the biomedical research mission of its sister agency, the National Institutes of Health. AHRQ is a home to research centers that specialize in major areas of health care research such as quality improvement and patient safety, outcomes and effectiveness of care, clinical practice and technology assessment, and health care organization and delivery systems.
Aggregate (hospital data) Aggregate data elements derived for a specific hospital from the results of each measures algorithm over a given time period (e.g., monthly, quarterly). These data are transmitted to The Joint Commission by ORYX® Vendors.
Aggregate Risk-Adjusted Data Elements Aggregate data elements derived from episode of care (EOC) records that result from the application of risk adjustment models by ORYX Vendors for transmission to The Joint Commission.
Algorithm An ordered sequence of data element retrieval and aggregation through which numerator and denominator events or continuous variable values are identified by a measure.
Allowable Value A list of acceptable responses for a data element.
Angioplasty Reconstruction of blood vessels damaged by disease or injury.
ANSI X12 The American National Standards Institute's standard for transmitting data electronically, or electronic data interchange (EDI).
Antithrombotic Therapy Pharmacologic agents (oral or parenteral) preventing or interfering with the formation of a thrombus or blood coagulation.
Atherosclerosis Common disorder characterized by yellowish plaques of cholesterol, other lipids, and cellular debris in the inner layers of the walls of arteries.
Atrial Fibrillation Cardiac arrhythmia characterized by disorganized electrical activity in the atria accompanied by an irregular ventricular response that is usually rapid. The atria quiver instead of pumping in an organized fashion, resulting in compromised ventricular filling and reduced stroke volume. Stasis of left atrial flow increases the risk of stroke.
Atrial Flutter Type of atrial tachycardia characterized by contraction rates between 230/min and 380/min.
Binary Outcome Events or conditions that occur in one or two possible states often labeled 0 or 1. Such data are frequently encountered in medical research. Common examples include dead or alive, and improved or not improved.
Cardiac Module A set of evidence-based process measures designed to prevent cardiac complications in surgical patients.
Caregiver The patient's family or any other person who will be responsible for care of the patient after discharge.
Central Tendency A property of the distribution of a variable, usually measured by statistics such as the mean, median, and mode.
Cesarean Section Surgical delivery of a fetus through incision in the abdominal wall and the uterine wall. Does not include removal of the fetus from the abdominal cavity in case of rupture of the uterus or abdominal pregnancy.
Children's Asthma Care (CAC) Asthma is defined as a lung disorder marked by breathing difficulty, wheezing, or coughing. For purposes of this measure set, the population is defined as children equal or greater than 2 through 17 years of age.
Clinical Measures Measures designed to evaluate the processes or outcomes of care associated with the delivery of clinical services; allow for intra- and interorganizational comparisons to be used to continuously improve patient health outcomes; may focus on the appropriateness of clinical decision making and implementation of these decisions; must be condition specific, procedure specific, or address important functions of patient care (e.g., medication use, infection control, patient assessment, etc).
CMS Informational Measures Measure and technical specifications published for interested parties for informational purposes only. Measures identified with an informational status are not currently used by CMS for the Reporting Hospital Quality Data for Annual Payment Update (RHQDAPU) "pay-for-reporting" program or public reporting on the Hospital Compare website. The measures are not programmed for collection through the Clinical Abstraction Reporting Tool (CART) or the QIO Clinical Warehouse.
CMS Test Measures Measures and technical specifications developed for optional collection and submission of data to CMS to assist in determining the feasibility of reliably ascertaining data from medical records and the acceptability of these quality measures to practicing clinicians. Measures identified with test status are not currently used by CMS for the Reporting Hospital Quality Data for Annual Payment Update (RHQDAPU) "pay-for-reporting" program or public reporting on the Hospital Compare website. The measures are programmed for collection through the Clinical Abstraction Reporting Tool (CART) and submission to the QIO Clinical Warehouse.
Comparison Group The group of health care organizations to which an individual health care organization is compared. (ORYX Vendors transmit aggregated comparison group data for non-core measures. The Joint Commission will aggregate health care organization-level data to create the comparison group for each core measure.)
Confounding Factors Intervening variables that distort the true relationship between/among the variables of interest. They are related to the outcome of interest, but extraneous to the study question and are non-randomly distributed among the groups being compared. They can hide a true correlation or give the appearance of a correlation when none actually exists.
Continuous Variable An aggregate data measure in which the value of each measurement can fall anywhere along a continuous scale (e.g., the time [in minutes] from hospital arrival to administration of thrombolysis).

Continuous Variable Data Elements Those data elements required to construct the measure as stated in the section labeled "Continuous Variable Statement."
Controllers Controllers are long term control medications for asthma. Controllers reduce airway inflammation and prevent asthma exacerbations. Inhaled corticosteroids are the preferred medications for controlling mild, moderate, and severe persistent asthma. Refer to Appendix C, Table 6.1 for a listing of controller medications.
Corticosteroids Any of the hormones produced by the adrenal cortex or their synthetic equivalents, used to achieve quick relief of asthma exacerbations or long term control of the swelling, inflammation and mucus production that occurs when the airway are irritated. Corticosteroids are available in inhaled, topical, oral, and intravenous forms.
Critical Access Hospital (CAH) Is a rural public, non-profit or for-profit hospital; a hospital that was closed within the previous ten years; or is a rural health clinic that was downsized from a hospital that is located in a State that has established a State plan with CMS for the Medicare Rural Hospital Flexibility Program. A CAH makes available 24-hour emergency care services 7 days per week and are, by definition, located more than a 35 mile drive from any other hospital or CAH (in mountainous terrain or in areas with only secondary roads available, the mileage criterion is 15 miles); or is certified by the State in the State plan as being a **necessary provider** of health care services to residents in the area. They provide no more than 15 beds for acute (hospital-level) inpatient care and provide an annual average length of stay of 96 hours per patient for acute care patients. An exception to the 15-bed requirement is made for swing-bed facilities, which are allowed to have up to 25 inpatient beds that can be used interchangeably for acute or SNF-level care, provided that not more than 15 beds are used at any one time for acute care. Hospitals certified by the Secretary of the Department of Health and Human Services (DHHS) as critical access hospitals are eligible for cost-based reimbursement from Medicare if they meet a specific set of federal Conditions of Participation (CoPs).
Data Collection The act or process of capturing raw or primary data from a single or number of sources. Also called "data gathering."
Data Collection Effort The availability and accessibility of the required data elements, the relative effort required, and associated cost of abstracting or collecting the data.
Data Element A discrete piece of data, such as patient birthdate or principal diagnosis. See also *denominator data elements, numerator data elements,* and *continuous variable data elements.*
Data Entry The process by which data are transcribed or transferred into an electronic format.
Data Quality The accuracy and completeness of measure data on performance in the context of the analytic purposes for which they will be used.
Data Transmission The process by which data are electronically sent from one organization to another. For example, a hospital sending patient-level data to its selected ORYX Vendor, and the vendor sending measure-level data to The Joint Commission or patient-level data to the QIO Clinical Warehouse.
Denominator The lower part of a fraction used to calculate a rate, proportion, or ratio. Also the population for a rate-based measure.
Denominator Data Elements Those data elements required to construct the denominator.
Depilatories Chemical-based lotions or creams used to dissolve hair at the skin's surface.
Disaster Medical Assistance Team (DMAT) Provides emergency medical assistance following a catastrophic disaster or other major emergency.
Discrete Variable See *rate-based measure*.
Elective Carotid Endarterectomy Surgical procedure performed by choice, involving excision of atheromatous segments of the endothelium and tunica media of the carotid artery, leaving a smooth tissue lining and facilitating blood flow through the vessel; surgery done to prevent stroke.
Elective Carotid Intervention Surgery (e.g., carotid endarterectomy) and other procedures (e.g., carotid angioplasty, stenting) involving the carotid artery, performed due to the patient's choice.
Electronic Data Interchange (EDI) An instance of data being sent electronically between parties, normally according to predefined industry standards.
Electrocardiogram (ECG) A graphic tracing of the heart's electrical impulses.
Emergency Medical System (EMS) Network of services coordinated to provide aid and medical assistance from primary response to definitive care, involving personnel trained in the rescue, stabilization, transportation, and advanced treatment of traumatic or medical emergencies.
Empiric Antibiotic Therapy Antibiotic treatment based on the clinician's judgment and the patients signs and symptoms and offered before a diagnosis has been confirmed.
Episode of Care (EOC) A patient or case-level record submitted to the database.
Excluded Populations Detailed information describing the populations that should not be included in the indicator. For example, specific age groups, ICD-9-CM procedure or diagnostic codes, or certain time periods could be excluded from the general population drawn upon by the indicator.
Extranet A private network using the Internet protocol to securely share business information or operations with vendors, customers, and/or other businesses. "The Joint Commission Connect" is the name given to the Joint Commission's extranet site.
Fibrinolytic Therapy Administration of a pharmacological agent intended to cause lysis of a thrombus (destruction or dissolution of a blood clot). Refer to Appendix C, Table 1.5 for a listing of fibrinolytic agents.
Format Specifies the character length of a specific data element; the type of information the data element contains: numeric, decimal, number, date, time, character, or alphanumeric; and the frequency with which the data element occurs.
General Data Elements Data elements that must be collected by hospitals for each patient record. These data are patient demographic data, hospital identifiers, and patient identifiers.
Health Care Organization (HCO) The business entity which is participating in an ORYX Vendor (e.g., health care organization level data describes information about the business entity).
Health Care Organization (HCO) Level Data Aggregation of patient level data to summarize the performance of an individual hospital on a performance measure. This data is transmitted to The Joint Commission by the hospital's ORYX Vendor.
Heart Failure (HF) A clinical syndrome characterized by signs and symptoms resulting from disturbances in cardiac output or from increased venous pressure, including fatigue, shortness of breath, or leg swelling. For purposes of this measure set, heart failure is identified by ICD-9-CM codes in Appendix A, Table 2.1.

Hospital According to the American Hospital Association, hospitals are licensed institutions with at least six beds whose primary function is to provide diagnostic and therapeutic patient services for medical conditions by an organized physician staff, and have continuous nursing services under the supervision of registered nurses.
Hospitalist A physician whose main practice provides care for hospitalized patients.
ICD-9-CM Codes A two-part classification system in current use for coding patient medical information used in abstracting systems and for classifying patients into diagnosis-related groups (DRGs). The first part is a comprehensive list of diseases with corresponding codes compatible with the World Health Organization's list of disease codes. The second part contains procedure codes independent of the disease codes.
Initial Patient Populations Detailed information describing the population(s) that the indicator intends to measure. Details could include such information as specific age groups, diagnoses, ICD-9-CM diagnostic and procedure codes, CPT codes, revenue codes, enrollment periods, insurance and health plan groups, etc.
Infection Module A set of evidence-based process measures designed to prevent postoperative infection in the surgical patient.
Inpatient Mortality Any patient death occurring while admitted as an inpatient in the hospital.
Inpatient Prospective Payment System (IPPS) Rule A prospective payment system (PPS) under Medicare for hospital acute inpatient services. Hospitals contract with Medicare to furnish acute inpatient care and are reimbursed through pre-determined payment on a per discharge or per case basis for Medicare beneficiaries with inpatient stays.
Intermittent Pneumatic Compression Device Device that uses sequential and/or intermittent compression to counteract blood flow stasis by increasing peak flow velocity. As a result, less blood is allowed to pool in veins thus decreasing chances for thrombus formation. In addition, compression has an anticlotting effect by increasing fibrolytic activity which in turn stimulates the release of plasminogen activator. These two physiological effects, in combination with the mechanical movement of fluid in a proximal direction make the sequential devices effective in preventing and treating VTE.
Intracerebral Hemorrhage (ICH) Non-traumatic abrupt onset of headache or altered level of consciousness and/or focal neurological deficit that is associated with a focal collection of blood within the brain parenchyma on CT scan and is not due to trauma or hemorrhagic conversion of a cerebral infarction.
Invalid Data Values for data elements that are required for calculating and/or risk adjusting a core measure that fall outside of the acceptable range of values defined for that data element. Refer to the Missing and Invalid Data section for further information.
IV Thrombolytic Therapy Intravenous administration of a thrombolytic agent, such as tissue plasminogen activator (TPA), to dissolve an arterial clot.
"The Joint Commission Connect" The name given to the Joint Commission's extranet site, a secured online connection to The Joint Commission.
Low-Density Lipoprotein (LDL) Plasma protein provided by the liver, carrying relatively more cholesterol and triglycerides than protein. The high cholesterol content may account for its greater atherogenic potential. Also known as "bad cholesterol."
Mean A measure of central tendency for a continuous variable measure. The mean is the sum of the values divided by the number of observations.
Measure Data Elements Data elements used by one specific measure or several measures in two or more measure sets, such as *Clinical Trial*.
Measure Information Form Tool to provide specific clinical and technical information on a measure. The information contained includes: performance measure name, description, rationale, numerator/denominator/continuous variable statements, included populations, excluded populations, data elements, risk adjustment, sampling, data accuracy, and selected references.
Measure of Performance See *performance measure*.
Measure-Specific Data Elements Data elements used by one specific measure or several measures in one specific measure set, such as *Laparoscope* in the SCIP measures.
Median The value in a group of ranked observations that divides the data into two equal parts.
Medical Record (Data Source) Data obtained from the records or documentation maintained on a patient in any health care setting (for example, hospital, home care, long term care, practitioner office). Includes automated and paper medical record systems.
Military Time A 24 hour period from midnight to midnight using a 4-digit number of which the first two digits indicate the hour and the last two digits indicate the minute.
Missing Data No values present for one or more data elements that are required for calculating and/or risk adjusting a national hospital inpatient quality measure. Refer to the Missing and Invalid Data section for further information.
Mode The most frequently occurring response for that data element.
Module A set of measures under a common group/topic area (e.g., infection module).
National Hospital Inpatient Quality Measure A standardized performance measure that meets the Centers for Medicare & Medicaid Services and Joint Commission evaluation criteria, has precisely defined specifications, can be uniformly embedded in extant systems, has standardized data collection protocols to permit uniform implementation by health care organizations and permit comparisons of health care organization performance over time through the establishment of a national comparative data base.
National Hospital Inpatient Quality Measure Set A unique grouping of performance measures carefully selected to provide, when viewed together, a robust picture of the care provided in a given area (e.g., cardiovascular care).
Non-Core Measure A performance measure defined by the ORYX Vendor that has undergone review against Joint Commission established measure criteria and has been accepted for use in the ORYX initiative.
Nosocomial Infection An infection acquired by a patient in a health care organization, especially a hospital. This infection is not present or incubating before admission to a hospital.
Numerator The upper portion of a fraction used to calculate a rate, proportion, or ratio.
Numerator Data Elements Those data elements necessary or required to construct the numerator.
Observed Rate The observed rate is the measure rate that is based on a hospital's aggregated data for the reporting period. This is calculated as the number of measure numerator cases for the reporting period divided by the number of denominator cases. Observed rates are used to measure hospital performances.

Oral Antibiotics For the purposes of the SCIP measure set, refers to two different combinations of antibiotics by the PO route, which can be given by mouth, NG tube, or PEG tube. Those combinations are either Neomycin and Erythromycin or Neomycin and Flagyl (also called Metronidazole). These combinations are for use in prophylaxis, specifically for colon surgery patients. For further information, see Prophylactic Antibiotic Regimen Selection for Surgery table; page SCIP-Inf-2-5.
ORYX® Vendor An entity consisting of an automated database(s), that facilitates performance improvement in health care organizations through the collection and dissemination of process and/or outcome measures of performance. ORYX Vendors must be able to generate internal comparisons of organization performance over time, and external comparisons of performance among participating organizations at comparable times.
Outpatient Prospective Payment System (OPPS) Rule A prospective payment system (PPS) under Medicare for hospital outpatient services, certain Part B services furnished to hospital inpatients that have no Part A coverage, and partial hospitalization services furnished by community mental health centers. All services paid under the PPS are classified into groups called Ambulatory Payment Classifications or APCs. A payment rate is established for each APC. Depending on the services provided, hospitals may be paid for more than one APC for an encounter.
Parenteral Not through the alimentary canal but rather by injection through some other route, such as subcutaneous, intramuscular, intraorbital, intracapsular, intraspinal, intrasternal, intravenous, etc.
Paroxysmal Occurring as sudden or periodic attacks or recurrences of symptoms of a disease; exacerbation.
Patient Level Data Collection of data elements that depict the health care services provided to an individual (patient). Patient level data are aggregated to generate hospital level data and comparison group data.
Patient Survey (Data Source) Survey data are exclusively obtained from patients and/or their family members/significant others.
Percentile A value on a scale of 100 that indicates the percentage of a distribution that is equal to or below it.
Performance Measure A quantitative tool (for example, rate, ratio, index, percentage) that provides an indication of an organization's performance in relation to a specified process or outcome. Refer to the *Process Measure* and the *Outcome Measure* in Appendix E.
Performance Measurement System's Extranet Track (PET) A secured electronic Specifications Manual for National Hospital Inpatient Quality Measures Discharges designed to identify across multiple health care settings.
Relievers Relievers are used to quickly alleviate bronchoconstriction. Relievers relax the bands of muscle that surround the airways. Relievers are also known as rescue, quick relief, or short-acting medications of choice to quickly relieve asthma exacerbations. Relievers include short acting beta2 agonists and anticholinergics. Refer to Appendix C, Table 6.2 for a listing of reliever medications.
Reporting Hospital Data for Annual Payment Update The Reporting Hospital Quality Data for Annual Payment Update (RHQDAPU) initiative is intended to empower consumers with quality of care information to make more informed decisions about their health care, while encouraging hospitals and clinicians to improve the quality of inpatient care provided to all patients. The hospital quality of care information gathered through the RHQDAPU initiative is available to consumers on the Hospital Compare website.
Reporting Period The defined time period which describes the patient's end-of-service.
Reperfusion Reestablishing blood flow in an obstructed coronary artery. It may be accomplished with thrombolytic therapy or percutaneous coronary intervention.
Risk Adjusted Measures Measures that are risk adjusted using statistical modeling or stratification methods.
Risk Adjusted Rate A rate that takes into account differences in case mix to allow for more valid comparisons between groups.
Risk Adjustment A statistical process for reducing, removing, or clarifying the influences of confounding factors that differ among comparison groups (for example, logistic regression, stratification).
Risk Adjustment Model The statistical algorithm that specifies the numerical values and the sequence of calculations used to risk adjust (e.g., reduce or remove the influence of confounding factors) performance measures.
Risk Factor A factor that produces or influences a result. In statistics, an independent variable used to identify membership of qualitatively different groups.
Risk Factor Value A specific value assigned to a risk factor for a given episode of care (EOC) record.
Risk Model The statistical algorithm that specifies the numerical values and the sequence of calculations used to risk adjust (e.g., reduce or remove the influence of confounding factors) performance measures.
Sampling Frequency If a hospital chooses to sample, they may sample data on either a monthly or quarterly basis.
Sampling Method Describes the process used to select a sample. Sampling approaches for national hospital inpatient quality measures are simple random sampling and systematic sampling. Refer to the "Sampling Approaches" discussion in the Population and Sampling Specifications section for further information.
Sample Size The number of individuals or particular patients included in a study. Usually chosen so that the study has a particular statistical power of detecting an effect of a particular size. Refer to the "Sample Size Requirements" discussion in the Population and Sampling Specifications for further information. For measure set specific "Sample Size Requirements" refer to the Measure Information section.
Score A rating, usually expressed as a number, and based on the degree to which certain qualities or attributes are present (e.g., Glascow coma, ASA scores).
Severity The degree of biomedical risk; or mortality of medical treatment.
Simple Random Sample A process in which a sample of data is selected from the total population in such a way that every case has the same chance of being selected and that the sample size is met. Refer to the "Sampling Approaches" discussion in the Population and Sampling Specifications section for further information.
Standard Deviation A measure of variability that indicates the dispersion, spread, or variation in a distribution.
Statin A class of pharmaceutical agents that modify LDL-cholesterol by blocking the action of an enzyme in the liver which is needed to synthesize cholesterol, thereby decreasing the level of cholesterol circulating in the blood; HMG-CoA reductase inhibitors.
Stent Rod or threadlike device for supporting tubular structures during surgical anastamosis or for holding arteries open during percutaneous angioplasty.
Strata See stratified measure.
Stratification A form of risk adjustment which involves classifying data into strata based on one or more characteristics, variables, or other categories.

Stratification Based Approach for Risk Adjustment The process of dividing or classifying subgroups known as strata in order to facilitate more valid comparisons. For example, a measure's outcome may be divided into type of surgery-specific categories or strata.
Stratified Measure A performance measure that is classified into a number of strata to assist in analysis and interpretation. The overall or un-stratified measure evaluates all of the strata together of the overall measure. For example, surgical patients who received a prophylactic antibiotic within one hour prior to surgical incision is reported as all surgical patients with the appropriate *ICD-9-CM Principal Procedure Code,* who received the prophylactic antibiotic within one hour prior to surgical incision; however, the stratified measure(s) for SCIP-Inf-1 is reported by the specific ICD-9-CM Principal Procedure, such as CABG (SCIP-Inf-1b) or Other Cardiac Surgery (SCIP-Inf-1c).
Stratum See stratified measure.
Stroke (STK) See definitions for Acute Ischemic Stroke and Acute Hemorrhagic Stroke.
Subarachnoid Hemorrhage (SAH) Non-traumatic abrupt onset of headache or altered level of consciousness that is associated with blood in the subarachnoid space on CT or a clinical history and exam consistent with SAH (sudden onset of severe headache or altered level of consciousness) with xanthochromia and many red blood cells in the cerebrospinal fluid.
Sub-Population A population that is part of a larger population. For example, the measure set VTE evaluates all patients in the hospital. This measure set is broken into three distinct sub-populations: No VTE (VTE-1 and VTE-2), Principal VTE (VTE-3, VTE-4, and VTE-5), and Other VTE Only (VTE-3, VTE-4, VTE-5, and VTE-6).
Surgical Care Improvement Project (SCIP) The Surgical Care Improvement Project (SCIP) is a national quality partnership of organizations focused on improving surgical care by significantly reducing surgical complications through performance measurement. Utilizing ten process measures in three separate modules (infection, cardiac, and VTE), the goal is to reduce the incidence of surgical complications nationally by 25 percent by the year 2010.
Surgical Infection Prevention (SIP) In August of 2002, the Centers for Medicare & Medicaid Services and the Centers for Disease Control and Prevention collaborated to develop the Surgical Infection Prevention project. The Medicare Surgical Infection Prevention Project was started with the single objective - to decrease morbidity and mortality associated with postoperative infection in the Medicare patient population. As of July 2006 discharges, the three SIP measures become the first three SCIP infection measures.
Systematic Random Sampling A process in which the starting case is selected randomly, and the next cases are selected according to a fixed interval that is based upon the number of cases in the population. For example, the starting case is the second patient that arrives at the hospital. This patient and every subsequent fifth patient becomes part of the random sample until the sample size is reached. Refer to the "Sampling Approaches" discussion in the Population and Sampling Specifications section for further information.
Systemic Corticosteroids Corticosteroids are hormones produced by the adrenal cortex or their synthetic equivalents and are administered orally or intravenous. Corticosteroids are used to achieve quick relief of acute or moderate to severe asthma exacerbations. Oral corticosteroids are also used for long term control of the swelling, inflammation and mucus production in the airways. Refer to Appendix C, Table 2.15 for a listing of PN systemic corticosteroid medications or Table 6.3 for a listing of CAC systemic corticosteroid medications.
Thrombolytic Therapy See fibrinolytic therapy.
Time Last Known Well Time at which the patient was last known to be without the signs and symptoms of the current stroke or at his or her prior baseline. Variation may exist if the signs and symptoms are not witnessed.
Tissue Plasminogen Activator (TPA) Clot-dissolving substance produced naturally by cells in the walls of blood vessels, and also manufactured synthetically. TPA activates plasminogen to dissolve clots and is used therapeutically to open occluded arteries.
Transmission Schedule The schedule of dates on which data are expected to be transmitted to The Joint Commission and the QIO Clinical Warehouse.
Unable to Determine (UTD) Each data element that is applicable per the algorithm for each of the measures within a measure set must be "touched" by the abstractor. While there is an expectation that all data elements are collected, it is recognized that in certain situations information may not be available (e.g., dates, times, codes, etc.). If, after due diligence, the abstractor determines that a value is not documented or is not able to determine the answer value, the abstractor must select "Unable to Determine (UTD)" as the answer.
Vaccine A vaccine is a suspension of an attenuated (weakened) or killed microorganism, such as bacteria or virus, administered for the prevention, amelioration, or treatment of infectious diseases.
Validation The process by which the integrity and correctness of data are established. Validation processes can occur immediately after a data item is collected or after a complete set of data are collected. The Centers for Medicare & Medicaid Services (CMS) chart level validation will validate the data at several levels. There are consistency and internal edit checks to assure the integrity of the submitted data; there are external edit checks to verify expectations about the volume of the data received, and there will be chart level audits to assure the reliability of the submitted data. Information on these procedures is available on http://www.qualitynet.org.
Validity Ability to identify opportunities for improvement in the quality of care; demonstration that the indicator use results in improvements in outcomes and/or quality of care.
Variance Equal to the square of the standard deviation.
Venous Thromboembolism (VTE) A term that includes deep vein thrombosis and/or pulmonary embolism.Specifications Manual for National Hospital Inpatient Quality Measures Discharges 10-01-10 (4Q10) through 03-31-11 (1Q11) Appendix D-15
Verification The process used to ensure consistent implementation of core measure algorithms specified in this manual across disparate ORYX Vendors.