

Intended Audience and Patient Population:

These measures are designed for emergency physicians and other physicians providing care in the emergency department.

These clinical performance measures are designed for individual quality improvement. Some of the measures may also be appropriate for accountability if appropriate sample sizes and implementation rules are achieved.

Measures:Accountability Measures

Measure #1: Electrocardiogram Performed for Non-Traumatic Chest Pain

Measure #2: Aspirin at Arrival for AMI

Measure #3: Electrocardiogram Performed for Syncope

Measure #4: Vital Signs for Community-Acquired Bacterial Pneumonia

Measure #5: Assessment for Oxygen Saturation for Community-Acquired Bacterial Pneumonia

Measure #6: Assessment of Mental Status for Community-Acquired Bacterial Pneumonia

Measure #7: Empiric Antibiotic for Community-Acquired Bacterial Pneumonia

Quality Improvement Only

Measure #8: Fibrinolytic Therapy Ordered within 20 Minutes of ECG Performed for AMI

Measure #9: Care Coordination for PCI

Emergency Medicine
Measure #1: Electrocardiogram Performed for Non-Traumatic Chest Pain

This measure may be used as an accountability measure.

Data Elements	Clinical Performance Measure	Feedback
<p>Per Patient, Per Visit Yes/No – Patient had an ECG performed</p> <p>Yes/No – Documentation of medical reason(s) for not performing an ECG</p> <p>Yes/No – Documentation of patient reason(s) for not performing an ECG</p> <p>Sources Electronic medical record</p> <p>Paper medical record</p> <p>Flowsheet</p> <p>Administrative claims data*</p> <p>*adequate data source only if new codes are developed specific to the intent of this measure</p>	<p>Numerator: Patients who had an ECG performed</p> <p>Denominator: All patients aged 40 years and older with an emergency department discharge diagnosis of non-traumatic chest pain</p> <p>Denominator Exclusions: Documentation of medical reason(s) for not performing an ECG</p> <p>Documentation of patient reason(s) for not performing an ECG</p> <p>Measure: Percentage of patients aged 40 years and older with an emergency department discharge diagnosis of non-traumatic chest pain who had an ECG performed</p>	<p>Per Patient Whether or not the patient aged 40 years and older with an emergency department discharge diagnosis of non-traumatic chest pain had an ECG performed</p> <p>Per Patient Population Percentage of patients aged 40 years and older with an emergency department discharge diagnosis of non-traumatic chest pain who had an ECG performed</p>

The following clinical recommendation statements are quoted verbatim from the referenced clinical guidelines and represent the evidence base for the measure:

A 12-lead ECG should be performed and shown to an experienced emergency physician within 10 minutes of ED arrival for all patients with chest discomfort (or anginal equivalent) or other symptoms suggestive of STEMI. (ACC/AHA¹) (Class 1, Level C)

If pain is severe or pressure or substernal or exertional or radiating to jaw, neck, shoulder or arm, then the following are recommended:

- ECG (Rule)
- IV access, supplemental oxygen, cardiac monitor, serum cardiac markers (eg, CKMB), CXR, nitrates, management of ongoing pain, admit (ACEP²)

Rationale for the measure:

All patients in the age group for which CAD/ACS is part of the differential diagnosis, should have an ECG performed. Data elements required for the measure can be captured and the measure is actionable by the physician.

Emergency Medicine
Measure #2: Aspirin at Arrival for AMI

This measure may be used as an accountability measure.

Data Elements	Clinical Performance Measure	Feedback
<p>Per Patient, Per Visit Yes/No – Patient had documentation of receiving or taking aspirin</p> <p>Time of arrival at emergency department Time patient received or had taken aspirin</p> <p>Time discharged from the emergency department</p> <p>Yes/No – Documentation of medical reason(s) for patient not receiving aspirin</p> <p>Yes/No – Documentation of patient reason(s) for patient not receiving aspirin</p> <p>Sources Electronic medical record</p> <p>Paper medical record</p> <p>Flowsheet</p> <p>Administrative claims data*</p> <p>*adequate data source only if new codes are developed specific to the intent of this measure</p>	<p>Numerator: Patients who had documentation of receiving aspirin within 24 hours before emergency department arrival or during emergency department stay</p> <p>Denominator: All patients with an emergency department discharge diagnosis of acute myocardial infarction</p> <p>Denominator Exclusions: Documentation of medical reason(s) for patient not receiving aspirin within 24 hours before emergency department arrival or during emergency department stay</p> <p>Documentation of patient reason(s) for patient not receiving aspirin within 24 hours before emergency department arrival or during emergency department stay</p> <p>Measure: Percentage of patients with an emergency department discharge diagnosis of AMI who had documentation of receiving aspirin within 24 hours before emergency department arrival or during emergency department stay</p>	<p>Per Patient Whether or not the patient with an emergency department discharge diagnosis of AMI had documentation of receiving aspirin within 24 hours before emergency department arrival or during emergency department stay</p> <p>Per Patient Population Percentage of patients with an emergency department discharge diagnosis of AMI who had documentation of receiving aspirin within 24 hours before emergency department arrival or during emergency department stay</p>
<p>The following clinical recommendation statements are quoted <u>verbatim</u> from the referenced clinical guidelines and represent the evidence base for the measure: Aspirin should be chewed by patients who have not taken aspirin before presentation with STEMI. The initial dose should be 162 mg (<i>Level A</i>) to 325 mg (<i>Level C</i>). Although some trials have used enteric-coated aspirin for initial dosing, more rapid buccal absorption occurs with non-enteric-coated aspirin formulations. (ACC/AHA³)</p>		
<p>Rationale for the measure: The emergency physician should document that the patient received aspirin no matter where or when the aspirin was taken. Data elements required for the measure can be captured and the measure is actionable by the physician.</p>		

Emergency Medicine
Measure #3: Electrocardiogram Performed for Syncope

This measure may be used as an accountability measure.

Data Elements	Clinical Performance Measure	Feedback
<p>Per Patient, Per Visit</p> <p>Yes/No – Patient had an ECG performed</p> <p>Yes/No – Documentation of medical reason(s) for not performing an ECG</p> <p>Yes/No – Documentation of patient reason(s) for not performing an ECG</p> <p>Sources</p> <p>Electronic medical record</p> <p>Paper medical record</p> <p>Flowsheet</p> <p>Administrative claims data*</p> <p>*adequate data source only if new codes are developed specific to the intent of this measure</p>	<p>Numerator: Patients who had an ECG performed</p> <p>Denominator: All patients aged 18 years and older with an emergency department discharge diagnosis of syncope</p> <p>Denominator Exclusions:</p> <p>Documentation of medical reason(s) for not performing an ECG</p> <p>Documentation of patient reason(s) for not performing an ECG</p> <p>Measure: Percentage of patients aged 18 years and older with an emergency department discharge diagnosis of syncope who had an ECG performed</p>	<p>Per Patient</p> <p>Whether or not the patient aged 18 years and older with an emergency department discharge diagnosis of syncope had an ECG performed</p> <p>Per Patient Population</p> <p>Percentage of patients aged 18 years and older with an emergency department discharge diagnosis of syncope who had an ECG performed</p>

The following clinical recommendation statements are quoted verbatim from the referenced clinical guidelines and represent the evidence base for the measure:

Obtain a standard 12-lead ECG in patients with syncope. (ACEP³) (Level A)

- A patient with a normal ECG has a low likelihood of dysrhythmias as a cause of syncope.
- Abnormal ECG has been associated as being the most important predictor of serious outcomes and a multivariate predictor for arrhythmia or death within 1 year after the syncopal episode.

Rationale for the measure:

ECG can occasionally pick up potentially life-threatening conditions such as pre-excitation syndromes, prolonged QT syndromes, or Brugada's syndrome in otherwise healthy appearing young adults. ECG testing is performed inconsistently, even in high risk patients; the largest study to date of ECG testing variation in ED syncope visits using a 9 year national sample illustrated that ECG testing was documented in only 59% of ED syncope visits. Data elements required for the measure can be captured and the measure is actionable by the physician.

Emergency Medicine
Measure #4: Vital Signs for Community-Acquired Bacterial Pneumonia

This measure may be used as an accountability measure.

Data Elements	Clinical Performance Measure	Feedback
<p>Per Patient, Per Visit Yes/No – Vital signs (temperature, pulse, respirations and blood pressure) recorded and reviewed</p> <p>Sources Electronic medical record</p> <p>Paper medical record</p> <p>Flowsheet</p> <p>Administrative claims data* *adequate data source only if new codes are developed specific to the intent of this measure</p>	<p>Numerator: Patients with vital signs recorded and reviewed</p> <p>Denominator: All patients aged 18 years and older with the diagnosis of community-acquired bacterial pneumonia</p> <p>Measure: Percentage of patients aged 18 years and older with the diagnosis of community-acquired bacterial pneumonia with vital signs recorded and reviewed</p>	<p>Per Patient Whether or not the patient aged 18 years and older with the diagnosis of community-acquired pneumonia had vital signs recorded and reviewed</p> <p>Per Patient Population Percentage of patients aged 18 years and older with the diagnosis of community-acquired bacterial pneumonia with vital signs recorded and reviewed</p>
<p>The following clinical recommendation statements are quoted <u>verbatim</u> from the referenced clinical guidelines and represent the evidence base for the measure: It is necessary to assess the severity of illness. This includes the radiographic findings (multilobar pneumonia or pleural effusion) and physical findings (respiratory rate, systolic and diastolic blood pressure, signs of dehydrations and mental status). (ATS⁷⁴) (Level II Evidence)</p>		
<p>Rationale for the measure: Each of the vital signs should be recorded in the emergency department. Data elements required for the measure can be captured and the measure is actionable by the physician. While vital signs may be routinely recorded, there likely is a gap in care on acting on those values that warrant further evaluation. Moreover, it is important for physicians to review the vital signs to ensure continuous quality improvement and consistent patient care.</p>		

Emergency Medicine
Measure #5: Assessment of Oxygen Saturation for Community-Acquired Bacterial Pneumonia

This measure may be used as an accountability measure.

Data Elements	Clinical Performance Measure	Feedback
<p>Per Patient, Per Visit Yes/No – Oxygen saturation assessed</p> <p>Yes/No – Documentation of physician reason(s) for not assessing oxygen saturation</p> <p>Yes/No – Documentation of patient reason(s) for not assessing oxygen saturation</p> <p>Sources Electronic medical record</p> <p>Paper medical record</p> <p>Flowsheet</p> <p>Administrative claims data* *adequate data source only if new codes are developed specific to the intent of this measure</p>	<p>Numerator: Patients with oxygen saturation assessed</p> <p>Denominator: All patients aged 18 years and older with the diagnosis of community-acquired bacterial pneumonia</p> <p>Denominator exclusions: Documentation of physician reason(s) for not assessing oxygen saturation</p> <p>Documentation of patient reason(s) for not assessing oxygen saturation</p> <p>Documentation of system reason(s) for not assessing oxygen saturation</p> <p>Measure: Percentage of patients aged 18 years and older with the diagnosis of community-acquired bacterial pneumonia with oxygen saturation assessed</p>	<p>Per Patient Whether or not the patient aged 18 years and older with the diagnosis of community-acquired bacterial pneumonia had oxygen saturation assessed</p> <p>Per Patient Population Percentage of patients aged 18 years and older with the diagnosis of community-acquired bacterial pneumonia with oxygen saturation assessed</p>
<p>The following clinical recommendation statements are quoted <u>verbatim</u> from the referenced clinical guidelines and represent the evidence base for the measure: It is necessary to assess the severity of illness. This includes the radiographic findings (multilobar pneumonia or pleural effusion) and physical findings (respiratory rate, systolic and diastolic blood pressure, signs of dehydrations and mental status). For those patients with chronic heart or lung disease, the assessment of oxygenation by pulse oximetry will help identify the need for hospitalization. (ATS⁴) (Level II Evidence)</p>		
<p>Rationale for the measure: The assessment of oxygenation helps to assess the severity of the illness. Data elements required for the measure can be captured and the measure is actionable by the physician.</p>		

Emergency Medicine
Measure #6: Assessment of Mental Status for Community-Acquired Bacterial Pneumonia

This measure may be used as an accountability measure.

Data Elements	Clinical Performance Measure	Feedback
<p>Per Patient, Per Visit Yes/No – Patient had assessment of mental status</p> <p>Sources Electronic medical record</p> <p>Paper medical record</p> <p>Flowsheet</p> <p>Administrative claims data* *adequate data source only if new codes are developed specific to the intent of this measure</p>	<p>Numerator: Patients with mental status assessed</p> <p>Denominator: All patients aged 18 years and older with the diagnosis of community-acquired bacterial pneumonia</p> <p>Measure: Percentage of patients aged 18 years and older with the diagnosis of community-acquired bacterial pneumonia with mental status assessed</p>	<p>Per Patient Whether or not the patient aged 18 years and older with the diagnosis of community-acquired bacterial pneumonia had mental status assessed</p> <p>Per Patient Population Percentage of patients aged 18 years and older with the diagnosis of community-acquired bacterial pneumonia with mental status assessed</p>
<p>The following clinical recommendation statements are quoted <u>verbatim</u> from the referenced clinical guidelines and represent the evidence base for the measure: It is necessary to assess the severity of illness. This includes the radiographic findings (multilobar pneumonia or pleural effusion) and physical findings (respiratory rate, systolic and diastolic blood pressure, signs of dehydrations and mental status). (ATS⁴) (Level II Evidence)</p>		
<p>Rationale for the measure: The assessment of mental status helps to assess the severity of the illness. Data elements required for the measure can be captured and the measure is actionable by the physician.</p>		

Emergency Medicine
Measure #7: Empiric Antibiotic for Community-Acquired Bacterial Pneumonia

This measure may be used as an accountability measure.

Data Elements	Clinical Performance Measure	Feedback
<p>Per Patient, Per Visit Yes/No – Patient prescribed an appropriate empiric antibiotic</p> <p>Yes/No – Documentation of physician reason(s) for not prescribing an antibiotic</p> <p>Yes/No – Documentation of patient reason(s) for not prescribing an antibiotic</p> <p>Sources Electronic medical record</p> <p>Paper medical record</p> <p>Flowsheet</p> <p>Administrative claims data* *adequate data source only if new codes are developed specific to the intent of this measure</p>	<p>Numerator: Patients with an appropriate empiric antibiotic prescribed</p> <p>Denominator: All patients 18 years and older with the diagnosis of community-acquired bacterial pneumonia</p> <p>Denominator exclusions: Documentation of physician reason(s) for not prescribing an antibiotic</p> <p>Documentation of patient reason(s) for not prescribing an antibiotic</p> <p>Documentation of system reason(s) for not prescribing an antibiotic</p> <p>Measure: Percentage of patients aged 18 years and older with the diagnosis of community-acquired bacterial pneumonia with an appropriate empiric antibiotic prescribed</p>	<p>Per Patient Whether or not the patient aged 18 years and older with the diagnosis of community-acquired bacterial pneumonia had an appropriate empiric antibiotic prescribed</p> <p>Per Patient Population Percentage of patients aged 18 years and older with the diagnosis of community-acquired bacterial pneumonia with an appropriate empiric antibiotic prescribed</p>
<p>The following clinical recommendation statements are quoted <u>verbatim</u> from the referenced clinical guidelines and represent the evidence base for the measure:</p> <p>All patients should be treated empirically. Patients treated as outpatients with no cardiopulmonary disease and no modifying factors should be treated with advanced generation macrolide: azithromycin or clarithromycin or doxycycline. Patients treated as an outpatient with cardiopulmonary disease and/or risk factors should be treated with beta lactam plus macrolide or doxycycline or fluoroquinolone alone. Empiric therapy based on the ATS guidelines lead to better outcomes than if the guidelines are not followed. (ATS⁴) (Level II Evidence)</p> <p>Fluoroquinolones (gatifloxacin, gemifloxacin, levofloxacin, and moxifloxacin) are recommended for initial empiric therapy of selected outpatients with CAP. (Level A Recommendation, Level I Evidence) Other options (macrolides and doxycycline) are generally preferred for uncomplicated infections in outpatients. (IDSA⁸) (Level A Recommendation, Level I Evidence)</p> <p>A macrolide is recommended as monotherapy for selected outpatients, such as those who were previously well and not recently treated with antibiotics. (Level A Recommendation, Level I Evidence) A macrolide plus a beta lactam is recommended for initial empiric treatment of outpatients in whom resistance is an issue. (IDSA⁸⁵) (Level A Recommendation, Level I Evidence)</p>		
<p>Rationale for the measure: All patients need to be treated empirically according to the guideline recommendations. Data elements required for the measure can be captured and the measure is actionable by the physician.</p>		

Emergency Medicine
Measure #8: Fibrinolytic Therapy Ordered within 20 Minutes of ECG Performed for AMI

This measure may be used as a quality improvement measure only.

Data Elements	Clinical Performance Measure	Feedback
<p>Per Patient, Per Visit</p> <p>Yes/No – Patient had fibrinolytic therapy ordered</p> <p>Time fibrinolytic therapy was ordered</p> <p>Yes/No –Patient had ECG performed</p> <p>Time ECG was performed</p> <p>Yes/No – Documentation of medical reason(s) for not ordering fibrinolytic therapy within 20 minutes of performing ECG</p> <p>Yes/No – Documentation of patient reason(s) for not ordering fibrinolytic therapy within 20 minutes of performing ECG</p> <p>Sources</p> <p>Electronic medical record</p> <p>Paper medical record</p> <p>Flowsheet</p> <p>Administrative claims data*</p> <p>*adequate data source only if new codes are developed specific to the intent of this measure</p>	<p>Numerator: Patients whose time from ECG performed to the time fibrinolytic therapy is ordered is 20 minutes or less</p> <p>Denominator: All patients(regardless of age) with an emergency department diagnosis of acute myocardial infarction who received fibrinolytic therapy</p> <p>Denominator Exclusions:</p> <p>Documentation of medical reason(s) for not ordering fibrinolytic therapy within 20 minutes of performing ECG</p> <p>Documentation of patient reason(s) for not ordering fibrinolytic therapy within 20 minutes of performing ECG</p> <p>Measure: Percentage of patients (regardless of age) with an emergency department diagnosis of acute myocardial infarction who received thrombolytic therapy and the fibrinolytic therapy was ordered by the physician within 20 minutes of performing the ECG</p>	<p>Per Patient</p> <p>Whether or not the patient with a diagnosis of acute myocardial infarction who received fibrinolytic therapy had the fibrinolytic therapy ordered by the physician within 20 minutes of performing the ECG</p> <p>Per Patient Population</p> <p>Percentage of patients (regardless of age) with an emergency department diagnosis of acute myocardial infarction who received fibrinolytic therapy and the fibrinolytic therapy was ordered by the physician within 20 minutes of performing the ECG</p>
<p>The following clinical recommendation statements are quoted <u>verbatim</u> from the referenced clinical guidelines and represent the evidence base for the measure:</p> <p>The delay from patient contact with the healthcare system (typically, arrival at the ED or contact with paramedics) to initiation of fibrinolytic therapy should be less than 30 minutes. (ACC/AHA¹) (Class I, Level B)</p>		
<p>Rationale for the measure:</p> <p>The time between the diagnostic ECG to the administration of the fibrinolytic therapy is under the control of the emergency physician. Some time is needed to evaluate any contraindications, weigh the treatment options and obtain the informed consent. Data elements required for the measure can be captured and the measure is actionable by the physician.</p>		

Emergency Medicine
Measure #9: Care Coordination for PCI for AMI

This measure may be used as a quality improvement measure only.

Data Elements	Clinical Performance Measure	Feedback
<p>Per Patient, Per Visit</p> <p>Yes/No – Patient with documentation that the emergency physician initiated communication (any documented attempt to contact interventional cardiology) with the interventional cardiologist</p> <p>Time of diagnostic ECG showing STEMI or new LBBB</p> <p>Time of initial communication attempt with the interventional cardiologist</p> <p>Yes/No – Patient received primary PCI</p> <p>Sources</p> <p>Electronic medical record</p> <p>Paper medical record</p> <p>Flowsheet</p> <p>Administrative claims data*</p> <p>*adequate data source only if new codes are developed specific to the intent of this measure</p>	<p>Numerator: Patients with documentation that the emergency physician <i>initiated</i> communication with the cardiology intervention service within 10 minutes of the diagnostic ECG</p> <p>Denominator: All patients (regardless of age) with an emergency department diagnosis of STEMI or new LBBB on ECG who received primary PCI</p> <p>Measure: Percentage of patients (regardless of age) with an emergency department diagnosis of STEMI or new LBBB on ECG who received primary PCI who had documentation that the emergency physician initiated communication with the cardiology intervention service within 10 minutes of the diagnostic ECG</p>	<p>Per Patient</p> <p>Whether or not the patient with an emergency department diagnosis of STEMI or new LBBB on ECG and received primary PCI had documentation that the emergency physician initiated communication with the cardiology intervention service within 10 minutes of the diagnostic ECG</p> <p>Per Patient Population</p> <p>Percentage of patients (regardless of age) with an emergency department diagnosis of STEMI or new LBBB on ECG who received primary PCI who had documentation that the emergency physician initiated communication with the cardiology intervention service within 10 minutes of the diagnostic ECG</p>
<p>The following clinical recommendation statements are quoted <u>verbatim</u> from the referenced clinical guidelines and represent the evidence base for the measure:</p> <p><u>Primary PCI</u></p> <p>If immediately available, primary PCI should be performed in patients with STEMI (including true posterior MI) or MI with new or presumably new LBBB who can undergo PCI of the infarct artery within 12 hours of symptom onset, if performed in a timely fashion (balloon inflation within 90 minutes of presentation) by persons skilled in the procedure (individuals who perform more than 75 PCI procedures per year). (ACC/AHA¹) (Class I, Level A)</p> <p><u>Primary percutaneous coronary intervention (PCI):</u></p> <ul style="list-style-type: none"> • Preferred treatment if performed by an experienced team < 90 minutes after first medical contact (ESC⁴⁶) (Class I, Level A) 		
<p>Rationale for the measure:</p> <p>This measure addresses the time that is under the control of the emergency physician. Less time is needed because the contact could be initiated prior to completing the consent process. Some time is needed to evaluate any contraindications and to weigh the treatment options. Data elements required for the measure can be captured and the measure is actionable by the physician.</p>		

EVIDENCE CLASSIFICATION/RATING SCHEMES -

European Society of Cardiology (ESC) Evidence Rating Scale

Strength of evidence:

- Level A Data derived from at least two randomized clinical trials
- Level B Data derived from a single randomized clinical trial and/or meta-analysis or from non-randomized studies
- Level C Consensus opinion of the experts based on trials and clinical experience

Usefulness or efficacy of a recommended treatment:

- Class I Evidence and/or general agreement that a given treatment is beneficial, useful and effective
- Class II Conflicting evidence and/or a divergence of opinion about the usefulness/efficacy of the treatment
 - IIa weight of evidence/opinion is in favor of usefulness/efficacy
 - IIb usefulness/efficacy is less well established by evidence/opinion
- Class III Evidence or general agreement that the treatment is not useful/effective and in some cases may be harmful.

American College of Emergency Physicians (ACEP) Evidence Rating Scale

- Rule: An action reflecting principles of good practice in most situations. There may be circumstances when a rule need not or cannot be followed; in these situations, it is advisable that deviation from the rule be justified in writing. Inability to comply with rules should be incorporated in institutional policies.
- Guideline: An action that may be considered, depending on the patient, the circumstances, or other factors. Thus, guidelines are not always followed, and there is no implication that failure to follow a guideline is improper.

American College of Cardiology/American Heart Association Classification of Recommendations and Level of Evidence

Classification of Recommendations

- Class I: Conditions for which there is evidence and/or general agreement that a given procedure or treatment is beneficial, useful, and effective.
- Class II: Conditions for which there is conflicting evidence and/or a divergence of opinion about the usefulness/efficacy of a procedure or treatment.
 - Class IIa: Weight of evidence/opinion is in favor of usefulness/efficacy.
 - Class IIb: Usefulness/efficacy is less well established by evidence/opinion.
- Class III: Conditions for which there is evidence and/or general agreement that a procedure/treatment is not useful/effective and in some cases may be harmful.

Levels of Evidence

- Level A: Data derived from multiple randomized clinical trials or meta-analyses.
- Level B: Data derived from a single randomized trial, or nonrandomized studies.
- Level C: Only consensus opinion of experts, case studies, or standard-of-care.

American College of Emergency Physicians (ACEP) Evidence Rating Scale

Strength of evidence

- Class I Interventional studies including clinical trials, observational studies including prospective cohort studies, aggregate studies including meta-analyses of randomized clinical trials only.
- Class II Observational studies including retrospective cohort studies, case-controlled studies, aggregate studies including other meta-analyses.
- Class III Descriptive cross-sectional studies, observational reports including case series, case reports; consensual studies including published panel consensus by acknowledged groups of experts.

Level of recommendations

- Level A Generally accepted principles for patient management that reflect a high degree of clinical certainty (i.e., based on strength of evidence Class I or overwhelming evidence from strength of evidence Class II studies that directly address all the issues).
- Level B Recommendations for patient management that may identify a particular strategy or range of management strategies that reflect moderate clinical certainty (i.e., based on strength of evidence Class II studies that directly address the issue, decision analysis that directly addresses the issue, or strong consensus of strength of evidence Class III studies).
- Level C Other strategies for patient management that are based on preliminary, inconclusive, or conflicting evidence, or in the absence of any published literature, based on panel consensus.

American Thoracic Society (ATS) Evidence Rating Scale

Level of evidence

- Level I Evidence comes from well-conducted randomized controlled trials;
- Level II Evidence comes from well-designed, controlled trials without randomization (including cohort, patient series, and case control studies). Level II studies included any large case series in which systematic analysis of disease patterns and/or microbial etiology was conducted, as well as reports of new therapies that were not collected in a randomized fashion.
- Level III Evidence comes from case studies and expert opinion. In some instances therapy recommendations come from antibiotic susceptibility data, without clinical observations, and these constitute Level III recommendations.

Infectious Diseases Society of America (IDSA) – United States Public Health Service grading system for rating recommendations in clinical guidelines

Strength of recommendation

- Category A Good evidence to support a recommendation for use
- Category B Moderate evidence to support a recommendation for use
- Category C Poor evidence to support a recommendation
- Category D Moderate evidence to support a recommendation against use
- Category E Good evidence to support a recommendation against use

Quality of evidence

- Grade I Evidence from ≥ 1 properly randomized, controlled trial
- Grade II Evidence from ≥ 1 well-designed clinical trial, without randomization; from cohort or case-controlled analytic studies (preferably from 11 center); from multiple time-series; or from dramatic results of uncontrolled experiments
- Grade III Evidence from opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees

References

- ¹ Antman EM, Anbe DT, Armstrong PW, Bates ER, Green LA, Hand M, Hochman JS, Krumholz HM, Kushner FG, Lamas GA, Mullany CJ, Ornato JP, Pearle DL, Sloan MA, Smith SC Jr. ACC/AHA guidelines for the management of patients with ST-elevation myocardial – Executive summary. A report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. *J Am Coll Cardiol* 2004 Aug;44(3):671-719.
- ² American College of Emergency Physicians (ACEP). Clinical policy for the initial approach to adults presenting with a chief complaint of chest pain, with no history of trauma. *Ann Emerg Med* 1995;25:274-299.
- ³ American College of Emergency Physicians (ACEP). Clinical policy: critical issues in the evaluation and management of patients presenting to the emergency department with syncope. Draft. September 1, 2006.
- ⁴ American Thoracic Society (ATS). Guidelines for the management of adults with community-acquired pneumonia: Diagnosis, assessment of severity, antimicrobial therapy and prevention. *American Journal of Respiratory and Critical Care Medicine* 2001 163:1730-1754.
- ⁵ Mandell LA, Bartlett JG, Dowell SF, File TM Jr, Musher DM, Whitney C. Update of practice guidelines for the management of community-acquired pneumonia in immunocompetent adults. *Infectious Disease Society of America (IDSA). Clin Infect Dis* 2003 Dec 1;37(11):1405-33.
- ⁶ Van de Werf F, Ardissino D, Betriu A, Cokkinos DV, Falk E, Fox KA, Julian D, Lengyel M, Neumann FJ, Ruzyllo W, Thygesen C, Underwood SR, Vahanian A, Verheugt FW, Wijns W. Management of acute myocardial infarction in patients presenting with ST-segment elevation. The Task Force on the Management of Acute Myocardial Infarction of the European Society of Cardiology (ESC). *Eur Heart J* 2003 Jan;24(1):28-66.