

Evidence-Based Medicine at the Point of Care

From the Medical Library to the Bedside

Library Association of the Republic of China, Medical Library Committee

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Title: New Content Editor, First Consult

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Agenda

- Challenges in practicing evidence-based medicine (EBM)
- Point-of-care resources—why they are needed and how they help physicians practice EBM
- Sample use of EBM support at point of care



The Challenges of Practicing Evidence Based Medicine

- Time consuming
 - Amount of information
 - Rapid pace of new information
- Scientific dilemmas
 - Conflicting results of different studies
 - Inconsistent study design
 - Limited data for some conditions and diseases



Why do physicians need point of care resources?

- To get reliable information quickly
- To provide care based on best practices, supported by the best available evidence, with the goal of improved outcomes
- To follow health policies and regulations established by professional organizations, health insurance companies, government agencies



- Current
 - Frequently updated
- Comprehensive
 - Find answers
- Easy to search and navigate
 - Fast answers
- Evidence based
 - Trustworthy



- Current
 - Updated every 3, 6, or 12 months
 - Important new information posted immediately
 - Latest updates



- Comprehensive
 - Broad range of clinical topics
 - Essential information for each topic
 - Prevention
 - Screening
 - Diagnosis
 - Treatment



- Easy to search and navigate for fast answers
 - Consistent format
 - Linked to related topics
 - Linked to layers of deeper resources



- Evidence based
 - Best available data to guide practice
 - Identified by thorough and systematic search
 - Summarized
 - Graded (quality and relevance)
 - Synthesized to provide recommendations



Evidence Based Point of Care Helping Physician and Patient

- Clinical case:
 - A 45 year old man has a fever, cough, and right-sided chest pain that is worse with deep inspiration
 - A chest x-ray show a small area of pneumonia on the right
- Clinical question:
 - Does pneumonia require treatment in hospital?



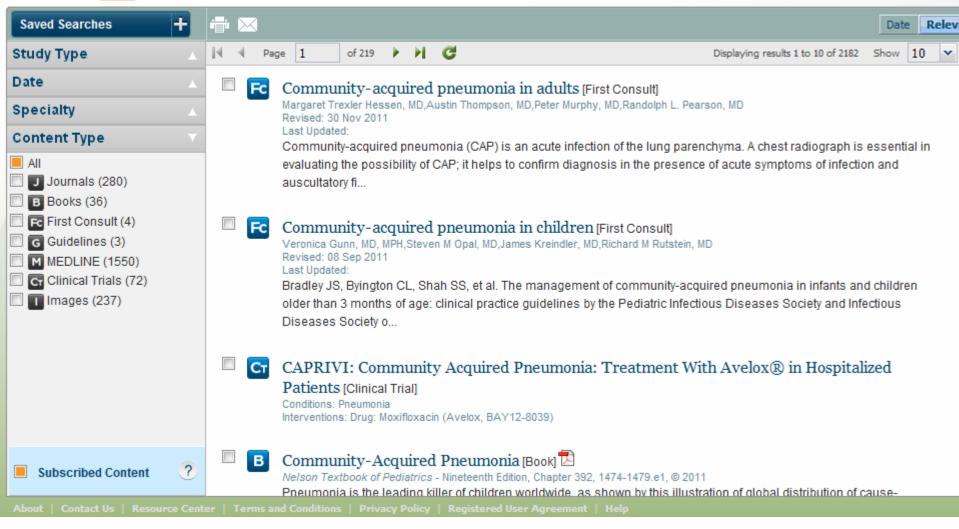
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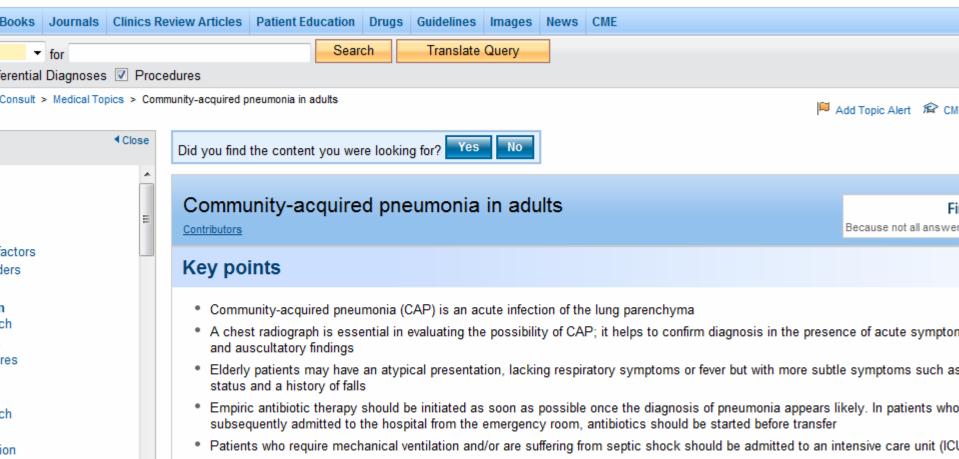
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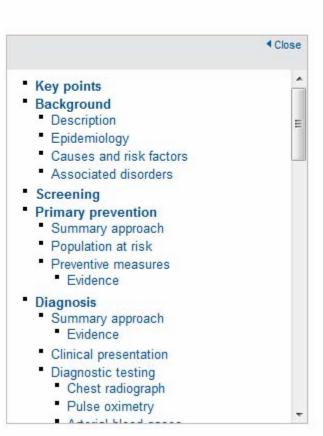
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<60 mm Hg diastolic], age ≥65 years)

It should be determined whether the patient should be admitted to the hospital or can be treated at home based on the presence of conditions that could affect home care. In addition to clinical judgment, clinicians can use the Periodic Presented Severity Index (PSI) calc CURB-65 criteria (confusion, blood urea nitrogen [BUN] >20 mg/dL, respiratory rate >30 breaths/min, low blood pressure [<90 mm





Evidence References 💷

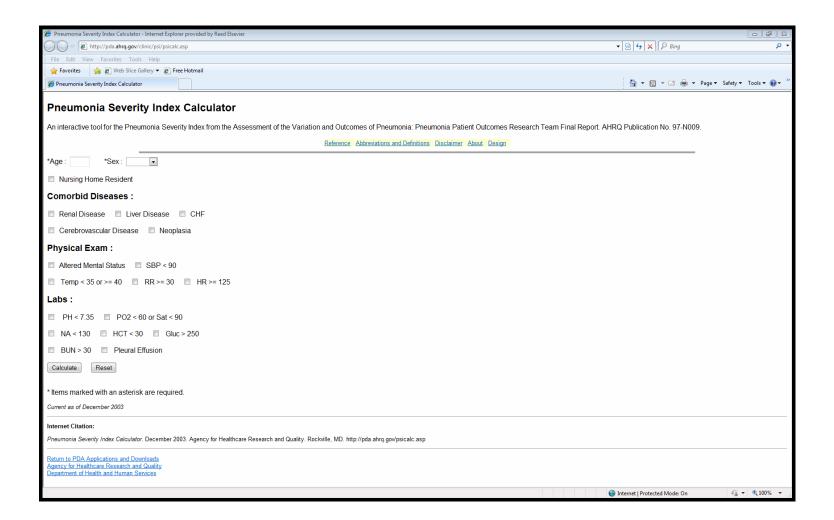
Learn about evidence grading system

Diagnosis

Summary approach [EBM]

- Although the symptoms and signs may point to a diagnosis of CAP, a definitive clinical decision canninfiltrate has been confirmed on chest radiograph. However, a negative chest radiographic finding does early in the course of infection
- Once a chest radiograph has been obtained and the diagnosis confirmed, the initial site of treatment h
 important clinical decisions in the management of patients with CAP and often determines the selection
 the intensity of patient observation, and the use of health care resources. The decision should be base
 preexisting conditions that may compromise home care, calculation of the PSI score, and clinical judge.
- The PSI uses a point system of several variables. Patients are initially divided into class I or higher de mental status, and the presence of comorbid conditions (neoplastic disease, liver disease, CHF, cerel
 - Patients aged 50 years or younger who have normal findings fall into class I
 - Patients over age 50 years who have abnormal findings are assessed further based on demograresidence), the presence of comorbid conditions (mentioned above), physical examination findintachycardia, systolic hypertension, hypothermia, and hyperthermia), and laboratory or radiographyponatremia, hyperglycemia, anemia, hypoxemia, pleural effusion)
 - Patients with less than 70 points fall into class II, whereas patients with 71 to 90 points fall into into class IV, and patients with more than 130 points fall into class V. Most patients in classes the remainder treated as inpatients
- A simpler, alternative means of objective assessment of pneumonia severity is the <u>CURB-65 scale</u> from receive one point for each of the following indicators: confusion (compared to baseline); BUN greater the equal to 30 breaths per minute; systolic blood pressure less than 90 mm Hg or diastolic blood pressure 65 years or older. The British Thoracic Society suggests that hospital admission be considered for particles of 3 or more be admitted to the hospital; a score of 4 or 5 should prompt consideration of
- The decision to admit a patient to the intensive care unit (ICU) can be based on the presence of one of mechanical ventilation and septic shock, and three minor criteria, which include respiratory rate greated hypotension requiring aggressive fluid resuscitation, multilobar disease, PO₂/fraction of inspired oxygen or discriptation, uremia (RLIN >20 mg/dl.) Jeukopenia (Jeukopenia Count < 4,000 cells/ul.) thrombookting







Summary of Evidence

Complete List of Evidence References

Diagnostic criteria

- L Severity score in low-risk patients: Severity scoring systems predict 30 day mortality in community acquired pneumonia with some accuracy, and the pneumonia severity index (PSI) has the best predictive ability for identifying low-risk patients that can be managed in the outpatient setting. FC Composite GRADE = Low
 - A good quality systematic review with meta-analysis evaluated diagnostic performance along with comparison of PSI and variations of the CURB scoring system (CURB-65 and CRB-65). The review identified 23 prospective studies and trials of varying quality including data on 22,753 subjects. The authors reported diagnostic odds ratios for mortality of 10.77 for the PSI, 6.40 for the CURB-65, 5.97 for CRB-65, and 5.75 for CURB. They found PSI to have the highest sensitivity and lowest specificity for mortality; CRB-65 was the most specific but least sensitive. Further, they concluded that all four scales were accurate measures of negative predictive value in low-risk patients but were less accurate measures of positive predictive value. FC GRADE = Low 1. Loke YK, Kwok CS, Niruban A, Myint PK. Value of severity scales in predicting mortality from community-acquired pneumonia: systematic review and meta-analysis. Thorax, 2010;65:884-90
 - A good quality systematic review and meta-analysis evaluated 40 observational studies of varying quality on performance of PSI and variations of the CURB scoring system. There were no significant differences in overall performance of the severity indexes; however, the PSI performed



Trusted Results, Time Saved

- The quality of evidence is low, but the physician knows that the literature has been searched thoroughly and the data systematically evaluated and summarized
- He or she is not missing important information
- The physician saves time doing the research to care for other patients
- The patient is treated safely and comfortably at home



Back to the Patient

- The calculated PSI score indicates Class 1, low risk
- The evidence, summarized and graded, supports treatment as an outpatient



Comprehensive Information, Easy Navigation

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 - Incorporates FC as a point of care resource
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community-acquired pneumonia. We would like to add some comments. Their study addressed a selected population.

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Musonda P, Sankaran P, Subramanian DN, Smith AC, Prentice P, Tariq SM, Kamath AV, Myint PK - Am. J. Med. Sci. - Dec 2011; 342(6) 489-93

Abstract

Community-acquired pneumonia (CAP) is common and associated with a significant mortality. Currently recommended criteria to assess severity of CAP could be improved. We derived 2 new criteria CARSI [confusion, age (<65, ≥65 to <85 or≥ 85), respiratory rate and shock index] and CARASI, where shock index is replaced by temperature-adjusted shock index based on previous observations. By using data of a prospective study performed in Norfolk and Suffolk, United Kingdom, we compare these new indices with the CURB-65 criteria. A total of 190 patients were included (men, 53%). The age range was 18 to 101 years (median, 76 years). There were a total of 54 deaths during a 6-week follow-up, all within 30 days of admission. Sixty-five (34%) had severe pneumonia by CURB-65. Using CARSI and CARASI, 39 (21%) and 36 (19%) had severe pneumonia, respectively. Sensitivity was slightly less, but specificity was higher with CARSI and CARASI indices than that of CURB-65. Positive and negative predictive values in predicting death during 6-week follow-up were comparable among 3 indices examined. The receiver operating characteristic curve values (95% confidence interval) for the criteria were 0.67 (0.60-0.75) for CURB-65, 0.64 (0.60-0.71) for CARSI and 0.64 (0.57-0.71) for CARASI. Comparing receiver operating characteristic curves for CURB-65 versus CARSI, or CURB-65 versus CARASI, there was no evidence of a difference between the tools, P = 0.35 and 0.33, respectively. There was good agreement, which was strongly statistically significant (kappa = 0.56, P < 0.0001 and kappa = 0.54, P < 0.0001, respectively). Both CARSI and CARASI are useful in predicting deaths associated with CAP, including older patients, and may be particularly useful in the emergency and community settings.

Citation

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