

The 5x5 Antimicrobial Audit

COMMUNITY ACQUIRED PNEUMONIA (CAP) CHEAT SHEET

This document has been designed as a quick reference tool for auditors conducting the 5x5 Antimicrobial Audit. It is not intended for use as a guideline at the time of prescribing. Auditors may use this resource to support assessment of concordance with the *Therapeutic Guidelines: Antibiotic (version 15)* for adult patients receiving treatment for CAP.

Cheat Sheet Exclusions

Advice in this document does not apply to the following patient groups:

- Significantly immunocompromised patients
- Patients with chronic suppurative lung disease (e.g. cystic fibrosis or bronchiectasis)
- Patients from a high-level care nursing home
- Patients who have acquired CAP in a tropical region.

Management of CAP in these patient groups should be directed by local guidelines and/or advice contained in corresponding sub-topics within *Therapeutic Guidelines: Antibiotic*.¹

Step 1: Assess Severity

Where documentation for CAP does not specify a level of severity, auditors must make an assessment of severity based on the information available at the time of prescribing. Clinical judgement may be aided by the use of severity scoring tools (see overleaf). *Therapeutic Guidelines: Antibiotic* encourages prescribers to consider the patient's age, comorbidities and the presence of clinical features when determining severity.¹ Auditors are similarly encouraged to use their discretion when collecting data.

Patients requiring hospitalisation due to CAP will fall into either the severe or moderate category. All patients in intensive care units or who have impending organ failure should be classed as severe.¹ Where a patient's admission to hospital is unrelated to their CAP severity (and they would otherwise be suitable for outpatient therapy), it may be appropriate to treat according to guidelines for mild CAP.¹

Step 2: Review Allergies

Immediate penicillin hypersensitivity is defined as the development of urticaria, angioedema, bronchospasm or anaphylaxis within one to two hours of administration of a penicillin.¹

NOTE: Patients with a history of other severe reactions to penicillins (e.g. DRESS or Stevens-Johnson syndrome) should follow the guidelines for immediate hypersensitivity.¹

Non-immediate penicillin hypersensitivity includes macular, papular, or morbilliform rashes and other non-severe reactions, usually occurring several days after commencement of treatment.¹

If a penicillin allergy is documented without a specific reaction, auditors should attempt to clarify (then document) the details of the allergy. If a patient has previously received cephalosporins without adverse effects, then regimens for non-immediate penicillin hypersensitivity are likely to be suitable.

Occasionally, a patient will have a drug allergy which is not mentioned in the guidelines, or for which no advice is provided. In these cases, therapy should be reviewed against the standard guideline recommendations, and if found non-concordant, the documented allergy may be acknowledged as a reason for non-concordance with guidelines.

For more information on empirical therapy for CAP, refer to the *Therapeutic Guidelines: Antibiotic* (available via CIAP). You may also find an answer to your query in the *5x5 Antimicrobial Audit FAQ*.

The 5 x 5 Antimicrobial Audit: Community Acquired Pneumonia (CAP) Cheat Sheet
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¹Community Acquired Pneumonia in Adults [revised 2014 Oct]. In: eTG complete [Internet]. Melbourne: Therapeutic Guidelines Limited; 2014 Nov

Step 3: Determine Guideline-Concordant Therapy

PENICILLIN ALLERGY STATUS	CAP SEVERITY		
	Mild	Moderate (Non-Severe)	Severe CAP
	May apply where a patient's hospital admission is unrelated to their CAP, which would otherwise be suitable for outpatient therapy	Patients admitted with CAP that has not been classified as severe	Automatically includes ICU patients and those with impending organ failure. Otherwise determined by clinical judgement, CORB ≥ 2 or SMART-COP ≥ 5
No penicillin hypersensitivity or allergy	<p>Concordant options:</p> <ul style="list-style-type: none"> • AMOXYCILLIN • DOXYCYCLINE <p>If patient has not improved in 48 hours:</p> <ul style="list-style-type: none"> • AMOXYCILLIN + DOXYCYCLINE 	<p>Concordant options (non-tropical regions):</p> <ul style="list-style-type: none"> • BENZYL PENICILLIN + DOXYCYCLINE • BENZYL PENICILLIN + CLARITHROMYCIN • AMOXYCILLIN + DOXYCYCLINE • AMOXYCILLIN + CLARITHROMYCIN <p>If Gram-negative bacilli are identified in the blood or sputum, the patient is out of scope for the audit.</p>	<p>Concordant options (non-tropical regions):</p> <ul style="list-style-type: none"> • CEFTRIAXONE + AZITHROMYCIN • CEFOTAXIME + AZITHROMYCIN • BENZYL PENICILLIN + GENTAMICIN + AZITHROMYCIN
Non-immediate penicillin hypersensitivity	<p>Concordant options:</p> <ul style="list-style-type: none"> • DOXYCYCLINE • CLARITHROMYCIN <p>If clinical failure observed, concordant therapy options include:</p> <ul style="list-style-type: none"> • DOXYCYCLINE + CEFUROXIME • CLARITHROMYCIN + CEFUROXIME 	<p>Concordant options (non-tropical regions):</p> <ul style="list-style-type: none"> • CEFTRIAXONE + DOXYCYCLINE • CEFTRIAXONE + CLARITHROMYCIN • CEFOTAXIME + DOXYCYCLINE • CEFOTAXIME + CLARITHROMYCIN • CEFUROXIME + DOXYCYCLINE • CEFUROXIME + CLARITHROMYCIN <p>If Gram-negative bacilli are identified in the blood or sputum, the patient is out of scope for the audit.</p>	<p>Concordant options (non-tropical regions):</p> <ul style="list-style-type: none"> • CEFTRIAXONE + AZITHROMYCIN • CEFOTAXIME + AZITHROMYCIN
Immediate penicillin hypersensitivity	<p>Concordant options:</p> <ul style="list-style-type: none"> • DOXYCYCLINE • CLARITHROMYCIN <p>If clinical failure observed:</p> <ul style="list-style-type: none"> • MOXIFLOXACIN 	<p>Concordant option (non-tropical regions):</p> <ul style="list-style-type: none"> • MOXIFLOXACIN 	<p>Concordant option (non-tropical regions):</p> <ul style="list-style-type: none"> • MOXIFLOXACIN

Antibiotic choices from: Community Acquired Pneumonia in Adults [revised 2014 Oct]. In: eTG complete [Internet]. Melbourne: Therapeutic Guidelines Limited; 2014 Nov. Although these antibiotic choices are largely based on information developed by Therapeutic Guidelines Ltd (TGL), TGL has no oversight of the process used to develop this table. TGL bears no responsibility for harm arising from alteration, omission, reformatting, or other change made by the CEC to the information published in Therapeutic Guidelines: Antibiotic, version 15 (2014)

Note: Pneumonia severity scoring tools have recognised limitations, and are designed to aid (not replace) clinical judgement.

CORB score	
C	acute <u>C</u> onfusion
O	<u>O</u> xygen saturation $\leq 90\%$
R	<u>R</u> espiratory rate ≥ 30 breath/min
B	systolic <u>B</u> P < 90 mmHg or diastolic BP ≤ 60 mmHg
2 or more features suggests SEVERE CAP	

Buising et al. Identifying severe community-acquired pneumonia in the emergency department: A simple clinical prediction tool. *Emergency Medicine Australasia* 2007; 19: 418–426.

SMART-COP score		
Patient ≤ 50 yo	Patient > 50 yo	Points
<u>S</u> ystolic BP ≤ 90 mm Hg	Systolic BP ≤ 90 mm Hg	2
<u>M</u> ultilobar CXR involvement	Multilobar CXR involvement	1
<u>A</u> lbumin < 35 g/L	Albumin < 35 g/L	1
<u>R</u> esp rate ≥ 25 breath/min	Resp rate ≥ 30 breath/min	1
<u>T</u> achycardia ≥ 125 bpm	Tachycardia ≥ 125 bpm	1
<u>C</u> onfusion (acute)	Confusion (acute)	1
<u>O</u> xygen low PaO ₂ < 70 mm Hg OR O ₂ saturation $\leq 93\%$ OR PaO ₂ /FiO ₂ < 333	Oxygen low PaO ₂ < 60 mm Hg OR O ₂ saturation $\leq 90\%$ OR PaO ₂ /FiO ₂ < 250	2
<u>p</u> H < 7.35	pH < 7.35	2
Total points ≥ 5 suggests SEVERE CAP		

Charles PGP, et al. SMART-COP: A Tool for Predicting the Need for Intensive Respiratory or Vasopressor Support in Community-Acquired Pneumonia. *Clinical Infectious Diseases* 2008; 47:375–84.