

Waterford: Antimicrobial Guidelines - Antimicrobial Guideline: Community Acquired Pneumonia

CAP Severity Assessment

Community Acquired Pneumonia
<p>Markers of severity in CAP</p> <p>1. CURB-65 score :</p> <p>C onfusion (new onset)</p> <p>U rea >7mmol/L</p> <p>R R\geq30/min</p> <p>B P - hypotension: sBP <90mmHg or dBP \leq60mmHg</p> <p>Age \geq 65 years</p> <p>Clinical judgement is essential when deciding on the management of all patients with CAP. CURB-65 score should be used with caution in younger patients (<30 years) as it may underestimate severity in these patients.</p> <p>2. Other indicators of severity include:</p> <ul style="list-style-type: none"> SIRS criteria Multilobar infiltrates Thrombocytopenia platelets <100 x10⁹ /L Hypoxaemia, respiratory failure. High lactate
<p>Choosing antibiotics</p> <p>Consider:</p> <ul style="list-style-type: none"> Severity assessment Risk of developing complications Local epidemiology (eg. influenza, COVID-19 rates) Recent antibiotic use Recent microbiology test results, including colonisation with MDROs. Drug contraindications and interactions.
<p>Comments</p> <p>These guidelines are NOT aimed at:</p> <p>(a) Patients with conditions such as cancer or immunosuppression including those admitted with pneumonia to specialist units such as oncology, haematology, palliative care, infectious disease units or AIDS units.</p> <p>(b) Adults with non-pneumonic LRTIs, including acute bronchitis and exacerbations of COPD.</p> <p>The most common pathogens in CAP are <i>Streptococcus pneumoniae</i>, <i>Haemophilus influenzae</i>. Also <i>S. aureus</i>, <i>Legionella pneumophila</i>, <i>Mycoplasma pneumoniae</i>.</p> <p>Investigations: Send blood cultures, sputum culture (requesting legionella culture), urine for pneumococcal antigen, (& legionella antigen in severe CAP and if epidemiological risk factors).</p> <p>In all patients with severe CAP send urine for legionella antigen, and test for <u>HIV</u> infection.</p>

CAP CURB-65 = 0-1

Mild CAP (CURB-65=0-1)
<p>Low Severity (CURB-65 = 0-1) <3% mortality</p>
<p>Antibiotic</p>
<p>First line : Amoxicillin 500mg-1gTDS PO</p>
<p>Penicillin allergy:</p>
<p>Doxycycline 200mg once daily loading dose on day 1 followed by 100mg once daily PO</p>
<p>OR</p>
<p>Clarithromycin 500mg BD PO (Caution as risk of QT prolongation; consider interaction with statins).</p>
<p>Comments</p>
<p>Duration: 5 days</p>

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CAP CURB-65 = 2

Moderate CAP (CURB-65=2)

Moderate Severity (CURB-65 = 2) 9% mortality

Antibiotic

First line:

Amoxicillin 1g TDS PO or IV

+

Clarithromycin 500mg BD PO or IV (Excellent oral bioavailability). Caution as risk of QT prolongation; consider interaction with statins.

OR

Doxycycline 200mg loading dose on day 1 followed by 100mg once daily PO.

Switch IV to oral when clinically appropriate.

Penicillin allergy:

Doxycycline 200mg once daily loading dose on day 1 followed by 100mg once daily PO.

OR

* **Levofloxacin** 500mg once daily (IV if PO administration not possible, excellent oral bioavailability).

* Please read the [HPRA Drug Safety Alert](#) issued in 2018 and the [HPRA Drug Safety Newsletter](#) issued in 2023 highlighting restrictions on use of fluoroquinolones (e.g. ciprofloxacin, levofloxacin) due to the risk of disabling, long-lasting and potentially irreversible side effects (including tendon damage, QT prolongation, neuropathies and neuro psychiatric disorder). Use of fluoroquinolones in older patients, those with renal impairment, solid organ transplantation or on systemic corticosteroids increases the risk of tendon damage.

Comments

Duration: 5-7 days.

CAP CURB-65 = 3-5

Severe CAP (CURB-65=3-5)

High severity (CURB-65 = 3-5) 15 - 40% mortality.

Antibiotic

CURB-65=3 :

Co-amoxiclav 1.2g TDS IV

+

Clarithromycin 500mg BD PO or IV (Excellent oral bioavailability). Caution as risk of QT prolongation; consider interaction with statins.

(If legionella strongly suspected consider using * **Levofloxacin** instead, see below for more information).

CURB-65 = 4-5 or ICU assessment required, or penicillin allergy (NOT IgE-mediated /anaphylaxis/ severe reaction):

Ceftriaxone 2g once daily IV

+

Clarithromycin 500mg BD PO or IV (Excellent oral bioavailability). Caution as risk of QT prolongation; consider interaction with statins.

(If legionella strongly suspected consider using * **Levofloxacin** instead, see below for more information.)

Oral stepdown: Review microbiology test results and tailor therapy accordingly. Discuss with microbiology team if required. If no pathogen identified consider oral stepdown to co-amoxiclav when appropriate to do so. In IgE-mediated/anaphylaxis/severe penicillin allergy, levofloxacin or doxycycline may be considered.

IgE-mediated/anaphylaxis/severe penicillin allergy:

Levofloxacin 500mg BD PO or IV.

If patient is colonised with or considered to be high risk for **MRSA**, consider adding **Vancomycin** or **Teicoplanin** to the above combinations while awaiting culture and screen results. (Please see [Vancomycin / Teicoplanin](#) dosing schedule).

Levofloxacin and clarithromycin have excellent bioavailability – consider oral step down when clinically appropriate.

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Comments

- Send blood cultures, sputum culture (requesting legionella culture), urine for pneumococcal and legionella antigen, and HIV test.
- Consider switch to PO antibiotics as soon as clinical improvement occurs and patient is afebrile for 24 hours.
- Stop glycopeptide if no evidence of MRSA.
- **Duration:** 7 days. This may need to be extended according to clinical judgement.
- Offer annual influenza vaccine to patients prior to hospital discharge if inpatient during flu season and appropriate to do so. See [National Immunisation Guidelines](#) for more details.
- Check pneumococcal vaccine status and arrange vaccination if required.

Legionellosis

General points

Risk factors: older age, smoking, chronic lung, cardiovascular or renal disease, immunocompromise.

When to suspect: Legionnaire's disease usually presents as community acquired pneumonia but infection can also be hospital-acquired. Infection is usually associated with exposure to a water source contaminated with *L. pneumophila* such as spas, hot tubs etc. Illness can present with multisystem features including GI symptoms, neurological features such as confusion, and low serum sodium in addition to features of respiratory tract infection.

Investigations : Urine specimen for detection of Legionella antigen. Send serum for legionella antibody testing if high clinical suspicion and urinary antigen is not detected (Urine assay does not detect all Legionella serogroups).

Request legionella culture on respiratory specimens (sputum, tracheal aspirate or BAL).

Note: Legionellosis is a notifiable disease in Ireland.

There is no evidence of person-to-person spread of *Legionella pneumophila*.

Antibiotics

* **Levofloxacin** 500mg once daily (12 hourly if severe), PO or IV (Excellent oral bioavailability).

Discuss with Microbiologist.

IV route to be used if oral absorption is unreliable.

Alternatives: **Clarithromycin** 500mg BD PO or IV if oral administration not possible OR **Azithromycin** 500mg once daily PO (Caution as risk of QT prolongation, consider interaction with statins).

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References

1. Uptodate.com Accessed 3rd June 2020.
2. HPSC Legionnaires' Disease <https://www.hpsc.ie/a-z/respiratory/legionellosis/>

CAP and COVID-19

CAP and COVID-19

General points

Inappropriate antibiotic use may reduce availability if used indiscriminately, and broad-spectrum antibiotics in particular may lead to *Clostridioides difficile* infection and antimicrobial resistance.

Send investigations: eg. Swab for SARS CoV2-RNA, blood and sputum cultures, pneumococcal +/- legionella urinary antigens, CXR, FBC.

Differentiating between COVID-19 pneumonia and bacterial pneumonia on clinical features alone can be difficult.

Note many patients with COVID-19 may have a high CRP which does not by itself indicate the presence of a bacterial infection.

As COVID -19 is a viral infection antibiotics are ineffective unless there is a bacterial co-infection which is thought to be uncommon (<10%). The risk of bacterial co-infection is likely increased in those requiring critical care and may present later in hospital as HAP or VAP.

The following features may indicate the presence of bacterial pneumonia:

- * Characteristic symptoms such as purulent sputum or pleuritic chest pain,
- * Localised chest findings on clinical exam
- * Lobar consolidation on CXR
- * Neutrophilia

For the use of anti-viral and other agents in the treatment of COVID-19, please see most recent [HSE Drugs Management Programme COVID 19 Guidelines and Protocols](#).

Antibiotics in CAP and suspected/proven COVID-19

The following guidance from the HSE may be of use when deciding when to start antibiotics in these patients:

1. **No purulent sputum and no evidence of pneumonia:**
 - * Do not prescribe antibiotics for the treatment of secondary bacterial pneumonia.
1. **Purulent sputum AND one of bronchitis/pneumonia (CURB 0-2) OR if known underlying lung disease where patient has a history of secondary bacterial infection in winter months:**
 - * First Line: **Doxycycline** 200mg on day 1 then 100mg once daily for 5 days in total.
 - * Alternative: **Amoxicillin** 500mg TDS PO for 5 days.
1. **Severe CAP (CURB 3-5):** See [CAP guideline](#).

Review previous microbiology test results for history of respiratory tract colonisation or infection with *Pseudomonas aeruginosa* or MDROs such as MRSA.

In patients with immunosuppression or severe underlying lung disease use HAP (>5 days in hospital) guideline.

Review all antibiotics following SARS CoV-2 RNA test result and/or at 24-48 hours.

If following appropriate investigations there is no evidence of secondary bacterial infection, empirical antibiotics can be stopped.

References

1. Antimicrobial Stewardship and COVID-19. HPSC 24th April 2020
2. Advice to antimicrobial management teams on antimicrobial prescribing in suspected lower respiratory tract infections in the context of the COVID-19 pandemic. Healthcare Improvement Scotland. SAPG 12th May 2020.

COVID-19 rapid guideline: managing suspected or confirmed pneumonia in adults in the community. NICE guideline [NG165] Published date: 03 April 2020 Last updated: 23 April 2020.

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