

PNEUMONIA IN RESIDENTIAL CARE FACILITIES V2.0

Comments from the Expert Advisory Group

- Nursing home-acquired pneumonia is defined as pneumonia occurring in a resident of a residential care facility or nursing home and more closely resembles community-acquired pneumonia than hospital-acquired pneumonia.
- Assess severity using clinical judgement supported by the CRB65 score, noting additional risk factors may impact severity e.g. hypoxia, co-morbidities, immunosuppression, multi-lobar involvement (if chest x-ray available).

CRB65 is used to assess 30 day mortality risk in adults with pneumonia.

The score is calculated by giving 1 point for each of the following prognostic features:

- Confusion (defined as a Mental Test Score of 8 or less, or new disorientation in person, place or time)
- Respiratory rate ≥ 30 /minute
- Low blood pressure systolic [≤ 90 mmHg] or diastolic [≤ 60 mmHg]
- Age 65 or more

- Consider viral respiratory illness, including RSV, COVID-19 and influenza in the differential diagnosis in a patient presenting with a cough. Follow [HPSC guidance](#) on assessment and testing for patients presenting with a cough. Particular consideration should be given to RSV, influenza and COVID-19 if these illnesses are known to be circulating in the facility.
- Renal impairment is common in elderly patient populations. See renal antibiotic dosing tables for more information when considering antibiotic recommendations in this guideline.
- Where dysphagia is an issue, doxycycline capsules should not be opened as contents can cause oesophageal irritation. Doxycycline dispersible tablets are available as an unlicensed medicine. For pharmacies that provide a service to residential care facilities, it is recommended a small quantity of dispersible doxycycline is kept in stock to avoid a delay in supply.

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Aspiration Pneumonia

- Antibiotics are not indicated for aspiration or aspiration pneumonitis without evidence of bacterial infection.
- There is no validated tool available to assess the severity of signs and symptoms in aspiration pneumonia.
- Empirical treatment for aspiration pneumonia does not require coverage for anaerobic organisms. Anaerobic coverage is not suggested for suspected aspiration pneumonia **except** when patients are at particularly high risk of anaerobic infection, for example in those with obvious dental/periodontal disease, putrid sputum production or those in whom lung abscess/empyema is suspected.
- **In these specific cases**, if anaerobic coverage is deemed necessary:
 - Metronidazole 400mg every 8 hours can be added to amoxicillin, doxycycline or levofloxacin (recommended doses outlined in treatment table below).
 - Co–amoxiclav does not require extra anaerobic cover
 - Recommended duration of antibiotics is 5 days.
- Prophylactic antibiotics do not help prevent the development of aspiration pneumonia and are not recommended.
- Discuss antibiotic choice with microbiology or infectious diseases specialist if risk factors for multi-drug resistant pathogens, failure to respond to empirical treatment or concerns of complications such as lung abscess or empyema.
- Ensuring adequate oral hygiene is important in reducing the incidence of aspiration pneumonia among more vulnerable elderly individuals.

Other considerations

- At convalescence, ensure COVID-19, influenza and pneumococcal vaccinations are up to date.
- Consider analgesia (e.g. paracetamol) for pleuritic pain.
- Ensure adequate hydration.
- Consider pulse oximetry to assess oxygenation.
- Consider [sepsis](#).

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Treatment

Pneumonia in Residential Care Facilities: Empiric Treatment Table (Page 1 of 2)			
<p>Assess using clinical judgement supported by the CRB65 score (each symptom or sign scores one point) (Confusion, Respiratory rate \geq 30/min, BP \leq 90/60 mmHg, Age \geq 65)</p>			
Drug	Dose	Duration	Notes
<p>CRB65 Score 0-2 and assessed suitable for treatment in the residential care facility/ nursing home. Review if symptoms are not improving within 48-72 hours as expected with antibiotics and escalate therapy, or consider hospital referral.</p>			
<p>1st line option Amoxicillin</p>	<p>CRB65 score 0: 500 mg every 8 hours</p> <p>CRB65 score 1 to 2: 1 g every 8 hours</p>	5 days	<ul style="list-style-type: none"> • Avoid in penicillin allergy. • Dose adjustment required in renal impairment. • Consider adding Clarithromycin 500 mg every 12 hours for 5 days if concern of atypical pathogen (e.g. mycoplasma, legionella). See macrolide warnings and check drug interactions. Dose adjustment required in renal impairment.
<p>2nd line option Doxycycline (1st line in penicillin allergy)</p>	<p>200 mg every 24 hours</p> <p>OR</p> <p>100 mg every 12 hours</p> <p>OR</p> <p>in non-severe infection, doxycycline 200 mg stat then 100 mg every 24 hours can be considered.</p>	5 days	<ul style="list-style-type: none"> • If dysphagia is a concern, do not open capsules as the contents can cause oesophageal irritation. Doxycycline is available as 100 mg dispersible tablet (ULM) - see expert advisory comments. • Advise to take with a glass of water and sit upright for 30 minutes after taking. Can take with food or milk. • Absorption is significantly impaired by antacids, iron/calcium/magnesium/zinc-containing products and should be separated by at least 3 hours. • Risk of photosensitivity. <p>Alternatively consider clarithromycin 500 mg every 12 hours for 5 days if doxycycline contraindicated. See macrolide warnings and check drug interactions. Dose adjustment required for clarithromycin in renal impairment.</p>
<p>Table continued on next page</p>			

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Pneumonia in Residential Care Facilities: Empiric Treatment Table (Page 2 of 2)

CRB65 Score 3 or more: Consider urgent hospital transfer or treat in a nursing home/ residential care facility if not for hospital admission.

CRB65 Score 3 or more : Prior to urgent hospital transfer, if delayed transfer expected, consider administration of:

Amoxicillin OR If oral medication is not an option: Benzylpenicillin	1 g PO STAT 1.2 g IV/IM STAT	N/A	<ul style="list-style-type: none"> • Avoid in penicillin allergy • Urgent hospital admission only
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CRB65 Score 3 or more :

Treatment in a nursing home/ residential care facility if not for hospital admission.

1st line option Co-amoxiclav	875/125 mg every 8 hours OR (500/125 mg every 8 hours if 875/125 mg unavailable)	5 days	<ul style="list-style-type: none"> • Avoid in penicillin allergy. • Dose adjustment required in renal impairment. • Liquid co-amoxiclav available, see table below*. • Consider adding Clarithromycin 500 mg every 12 hours if concern of atypical pathogen (e.g. mycoplasma, legionella). See macrolide warnings and check drug interactions. Dose adjustment required in renal impairment.
2nd line option Levofloxacin	500 mg every 12 or 24 hours depending on severity	5 days	<ul style="list-style-type: none"> • Multiple adverse effects associated with fluoroquinolones • If dysphagia is a concern, tablets will not disperse in water and crushing tablets is not recommended. Liquid preparation not available. Contact microbiologist for advice. • Dose adjustment required in renal impairment. • Check for drug interactions. • Absorption is significantly impaired by antacids, iron/calcium/magnesium/zinc-containing products. • Increased risk of tendon damage with concomitant use of steroids. • Lowers seizure threshold and is contraindicated in epilepsy.

*Co-amoxiclav suspensions available for those with swallowing difficulties: see next page

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*Co-amoxiclav suspensions available for those with swallowing difficulties:

Co-amoxiclav Solid Dose Form	Suspension Available as	Measured dose
500 mg/125 mg Tablet	Augmentin® Paediatric Oral Suspension (125 mg/31.25 mg per 5 mL) OR Co-amoxiclav paediatric (125 mg/31.25 mg per 5 mL)	20mL = 500 mg/125 mg
875 mg/125 mg Tablet	Augmentin® Duo Oral Suspension (400 mg/57 mg per 5 mL)	11mL = 880 mg/125 mg (off label use)

Patient Information

- [Pneumonia](https://www2.hse.ie/conditions/pneumonia/) (https://www2.hse.ie/conditions/pneumonia/)