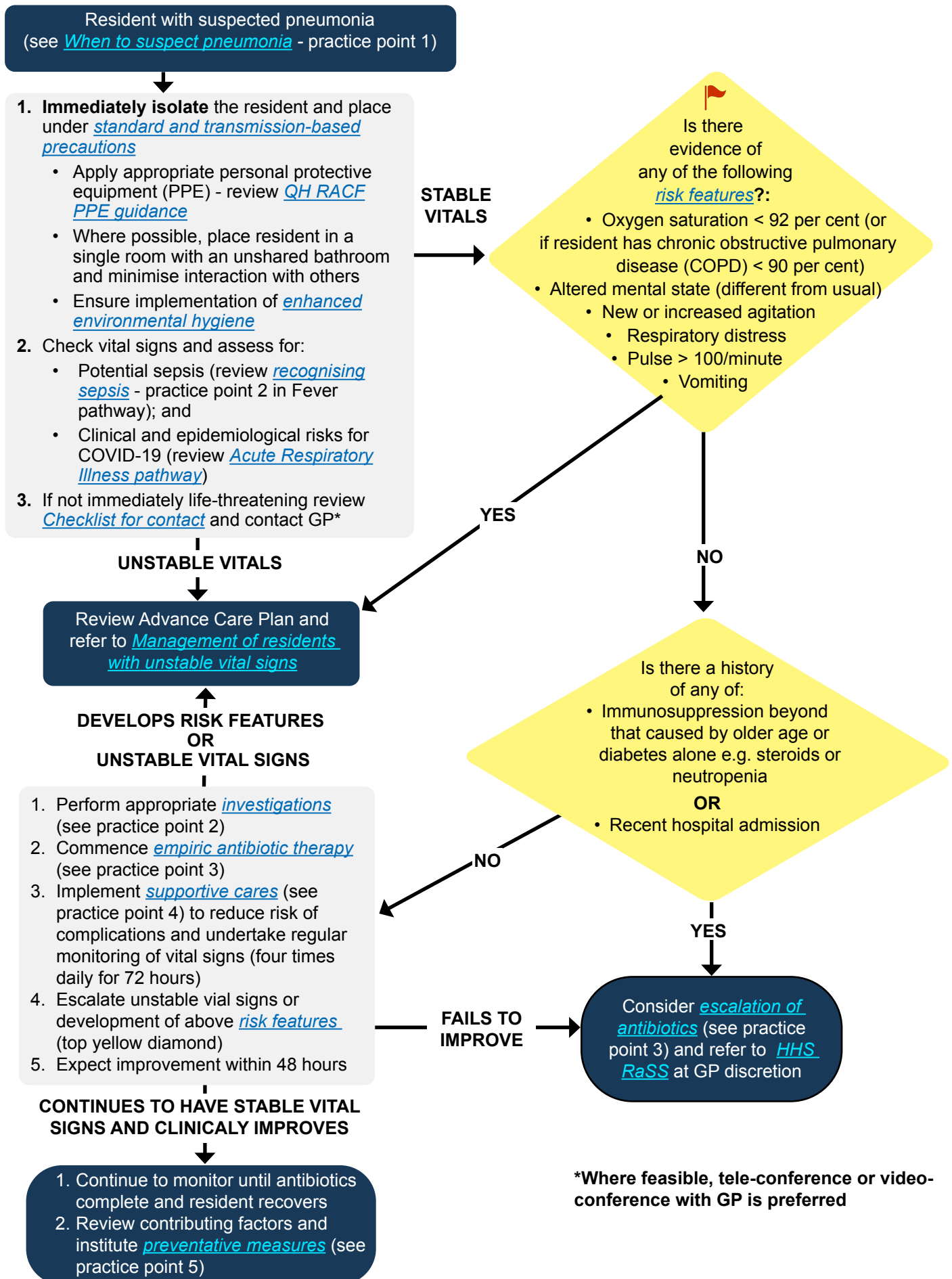


Pneumonia

(use this pathway in conjunction with the [Acute Respiratory Illness](#) pathway)



Pneumonia practice points

1) When to suspect pneumonia

Pneumonia should be considered in any resident who has two or more of the following features:

1. Fever
2. New or increased cough
3. New or increased sputum production
4. Pleuritic chest pain
5. Tachypnoea (or elevated respiratory rate)
6. Pulse rate > 100 beats per minute
7. New or increased abnormal findings on chest examination, particularly focal crackles
8. Acute onset confusion or delirium

Aspiration as the cause of pneumonia should be particularly considered in the following settings:

1. Resident requires regular suctioning
2. Presence of a feeding tube
3. Resident is bed-bound
4. Altered level of consciousness
5. Swallowing problem or dysphagia
6. Thickened fluids or pureed diet
7. Dependence on feeding
8. Sedative medications
9. Hiatus hernia or gastroesophageal reflux disease

2) Investigations when pneumonia is suspected

1. Consider viral causes for presentation and, using transmission-based precautions, swab for COVID-19 PCR, influenza PCR and respiratory virus PCR - refer to [Acute Respiratory Illness](#) pathway
2. Urinary antigen testing for Streptococcus pneumoniae and Legionella pneumophila
3. Sputum gram stain and culture if resident is able to produce a good sputum specimen - caution is advised if sputum is not high quality (high quality sputum is defined as evidence of neutrophils 25 per cent in a x 100 microscopic field and less than 10 squamous epithelial cells present in a x 100 microscopic field)
4. Consider chest x-ray (mobile where available) and full blood count and electrolytes where: diagnosis is uncertain or if resident fails to respond to therapy

3) Empiric antibiotic therapy for pneumonia

Treat with antibiotics for 5 days if response within 48 hours is observed; if response is slow, treat for 7 days:

If uncomplicated pneumonia and NO penicillin allergy, use:

Amoxicillin 1g orally every 8 hours

If resident hypersensitive to penicillin, use:

Doxycycline 100mg orally every 12 hours - Note: Doxycycline can cause oesophagitis, which is more likely in bed-bound residents. Ensure doxycycline is taken with food and a full glass of water, and that the resident remains upright for 1 hour after the dose. If enteral feeding tube, do not open or crush the capsule - see [Don't Rush to Crush](#) for advice

If doxycycline contra-indicated or not tolerated and the resident has immediate non-severe or delayed non-severe hypersensitivity to penicillins, use:

Cefuroxime 500mg orally every 12 hours

Suspect atypical organisms if any of the following risk factors for Legionella are present:

1. Chronic lung disease or smoking history
2. Diabetes
3. End-stage kidney disease
4. Malignancy or
5. Immune compromise

If atypical organisms suspected, and where doxycycline is not already in use, add:

Doxycycline 100mg orally every 12 hours

Note: management of residents within hospital rather than within the facility, in the absence of [risk features](#) (see flow chart), does not decrease mortality

Continued page 3

Pneumonia practice points (cont'd)

3) Empiric antibiotic therapy for pneumonia (cont'd)

Escalate Antibiotic therapy if resident:

1. Fails to improve within 48 hours

OR

2. Has had recent hospitalisation

OR

3. Is immunosuppressed

Escalation of antibiotics should be guided by clinical assessment for risk of:

1. Atypical organisms (see above)
2. Recent hospitalisation or potential for beta-lactamase producing organisms
3. Clinical risk factors for aspiration pneumonia
4. Development of risk features or unstable vital signs suggesting parenteral antibiotics are indicated (where consistent with resident's goals of care)

Refer to [Therapeutic guidelines: antibiotics](#) for antibiotic guidance if escalation of therapy is indicated

4) Supportive cares for residents with pneumonia

1. Monitor fluid balance closely:
 - Pneumonia with associated fever and tachypnoea can lead to significant insensible water loss (water loss that is not easily measured)
 - Monitor fluid intake and offer increased oral fluids
 - Consider [Subcutaneous fluids](#) if indicated
2. Analgesics and antipyretics for pain and fever
3. Review and treat risk factors for pneumonia:
 - Assess swallow - change fluids to those appropriate to swallow where indicated
 - Assess neurological function
 - Attend to oral hygiene
 - Control gastro-oesophageal reflux:
 - Elevate head of bed where safe to do so
 - Ensure resident is fed while sitting upright and sit upright for at least 30 minutes after feeding
 - Review medications and consider withholding or adjusting dose, where appropriate, of sedative medications
4. Implement supportive care measures outlined in [Fever or suspected infection](#) pathway

5) Preventative measures against recurrent pneumonia

1. Ensure immunisations are up-to-date for:
 - Influenza
 - COVID-19AND
 - Pneumococcus
2. Review oral care regimen with regular professional oral hygiene care implemented to supplement daily oral regimens where indicated
3. Review medications and consider whether appropriate to cease or wean, particularly for:
 - Proton pump inhibitors
 - Sedatives
4. Speech therapy review to assess swallow and modify diet where aspiration pneumonia suspected
5. For residents with gastrostomy feeds, ensure feeds are administered with the head of the bed elevated to at least 45 degrees and remain elevated for at least 30 minutes after the feed

Pneumonia practice points (cont'd)

6) Escalation criteria

Ensure that any escalation is consistent with resident's goals of care and resident choice

History:

- Symptoms:
 - Increasing shortness of breath or respiratory distress
 - Vomiting
- Comorbidities that require stabilisation or presence of:
 - Immunocompromise
 - Respiratory failure

Examination:

- Vital signs: unstable vital signs where consistent with goals of care (refer to [Recognition of the deteriorating resident](#)) and / or altered mental status (different to usual)
- Respiratory distress or new or increasing agitation
- New or increasing oxygen requirement
- Altered level of consciousness
- Failure to respond to oral antibiotics within 72 hours

Pneumonia references

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Pneumonia version control

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