Whittington Health NHS

Whittington Hospital

Community Acquired Pneumonia (CAP) in Adults – Guidelines for Management

Subject:	Community Acquired Pneumonia (CAP)
Policy Number	IPC/Micro 32
Ratified By:	Clinical Guidelines Committee
Date Ratified:	June 2010 v2.1
Version:	3.0
Policy Executive Owner:	Dr Sara Lock
Designation of Author:	Respiratory Medicine
Name of Assurance Committee:	Infection Prevention & Control Committee
Date Issued:	December 2014
Review Date:	December 2017
Target Audience:	All clinical staff involved in assessing the severity of illness in patients arriving in the Emergency Department and prescribing and administering antibiotics for them.
Key Words:	Community acquired pneumonia, CAP, LRTI, CURB, Streptococcus pneumoniae, Haemophilus influenzae, Legionella, MRSA.

Version Control Sheet

Version	Date	Author	Status	Comment
3.0	Dec 2014	Dr Sara Lock (Respiratory Consultant) **<u>Consultation</u>** Dr Julie Andrews (Consultant Microbiologist) Ai-Nee Lim (Lead Pharmacist, Antimicrobials)	Active	Updated to reflect the new Whittington guideline format. The CAP bundle and respiratory inpatient referral are now available on the Anglia ICE system. Clarification on the diagnostic procedures.

➢ Criteria for use

These guidelines are for the use of patients with new consolidation on their Chest X-Ray (CXR), consistent with a diagnosis of CAP. Rarely CXR changes may lag behind clinical signs.

It is important to label the patient as having pneumonia rather than using the non-diagnostic label of 'chest infection' if they have new consolidation on their CXR.

➢ Background/introduction

Community acquired pneumonia (CAP) is a common illness with a potentially high mortality. One study in 1997 estimated 261,000 episodes in the UK over one year, 83,000 of whom were hospitalised. The annual cost was £440.7 million, 96% of which was attributable to hospitalised patients [1]. Up to 10% of inpatients required intensive care. The mortality of patients on intensive therapy unit (ITU) with CAP neared 35% [2].

A retrospective study in elderly patients with CAP concluded that delivery of antimicrobials **within four hours** to patients with community acquired pneumonia resulted in reduced inpatient and thirty day mortality plus a reduced length of stay [3].

In 2013 the Whittington participated in the British Thoracic Society (BTS) pneumonia bundle project and there is now a **CAP bundle on Anglia ICE** in the Essential Admissions Criteria section to help guide clinicians, which should be completed on admission.

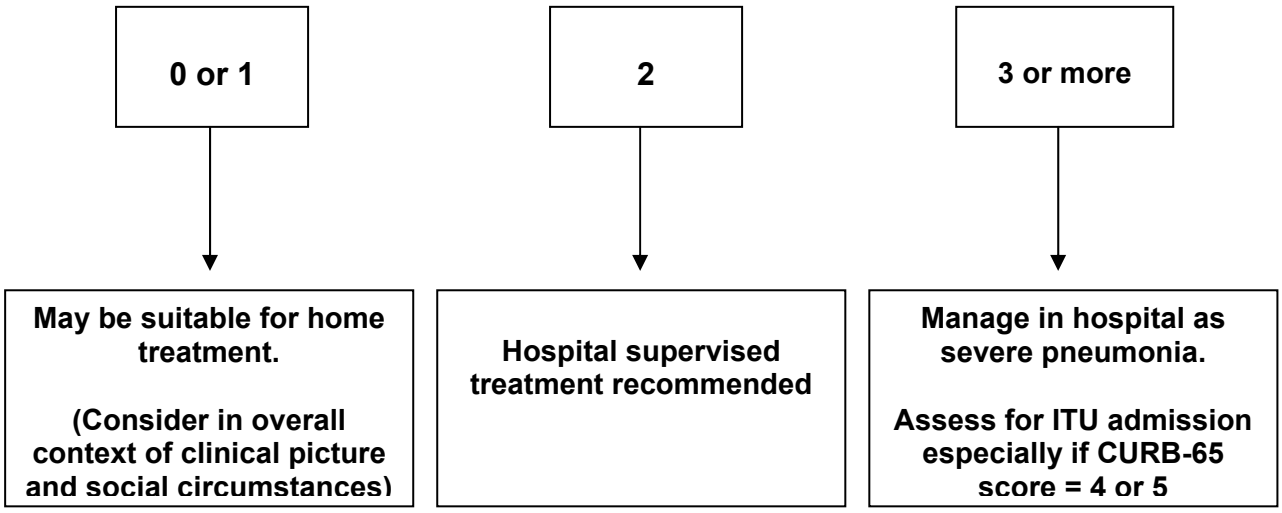
➢ Clinical management

After clerking and basic investigations, severity should be assessed using the CURB-65 criteria:

Any of:

- **Confusion : AMTS <8 or new disorientation in time/place/person**
- **Urea : > 7 mmol/l**
- **Respiratory rate: ≥ 30/min**
- **Blood pressure: (SBP < 90mmHg or DBP ≤ 60mmHg)**
- **Age: ≥ 65 years**

Score 1 point for each feature present



Other markers of severity include bilateral consolidation and hypoxia (oxygen saturations, SaO_2<94% on air) which when present may, with clinical judgment, be used to override a low CURB score in planning safe care.

Patients with SaO_2<94% should have an arterial blood gas done and oxygen prescribed for the appropriate target range. It is good practice to **prescribe oxygen** on a '**what saturation range if needed**' basis for **all** patients admitted with pneumonia **(for management of hypoxia please see oxygen guidelines).**

Patients with pneumonia and respiratory failure needing additional ventilatory support should be discussed with the Critical Care Outreach Team/Intensive Care Team. Their treatment escalation plan should have been discussed with a senior clinician.

Guidelines recommend that antimicrobials should be delivered **within four hours** and ideally within one hour of arrival in Emergency Department to achieve best clinical outcome. It is the clinician's responsibility to ensure that drugs prescribed are given within this time frame. This may be achieved by prescribing the first dose on the 'stat' section of the prescription chart, handing it directly to the responsible nurse and checking later that they have been given.

NB: Those patients who have sepsis in association with pneumonia should receive antibiotics **within one hour** as per the **Sepsis Guideline** (see **Sepsis – Acute Adult Severe Sepsis Pathway** on intranet under Common Medical Emergencies).

Whittington Hospital Antimicrobial policy for the treatment of CAP in adults is as follows:

LOW SEVERITY CAP		**Duration**
CURB-65: Score ≤ 1	Amoxicillin 500mg TDS PO **<u>If penicillin allergic</u>** Clarithromycin 500mg BD PO	5-7 days 5-7 days
MODERATE SEVERITY CAP		**Duration**
CURB-65: Score 2 **Unknown organism**	Benzylpenicillin 1.2g-2.4g QDS IV **Plus** Clarithromycin 500mg BD oral (or IV if unable to take orally) *IV to oral switch as soon as clinical improvement occurs and temperature has been normal for 24 hours (Review after 72 hours if has not already occurred), switch to oral amoxicillin 500mg tds and clarithromycin 500mg bd* **<u>If penicillin allergic</u>** Ceftriaxone 2g OD IV **plus** Clarithromycin 500mg BD oral (or IV if unable to take orally) **OR** *if true penicillin anaphylaxis:* Vancomycin 1g BD IV‡ **plus** Clarithromycin 500mg BD oral (or IV if unable to take orally) *(discuss with Microbiology if needed)*	7-10 days

HIGH SEVERITY CAP		**Duration**
CURB-65: Score3 – 5 **Unknown organism** **OR** **Possible aspiration** **OR** **Not improving after 48 hours of benzylpenicillin**	Co-amoxiclav 1.2g TDS IV **Plus** Clarithromycin 500mg BD IV *Review IV to oral switch after 72hours* **<u>If penicillin allergic</u>** Ceftriaxone 2g OD IV **plus** Clarithromycin 500mg BD IV **OR** *if true penicillin anaphylaxis:* Vancomycin 1g BD IV‡ **plus** Clarithromycin 500mg BD IV *(discuss with Microbiology if needed)*	7-10 days
Strep. pneumoniae	Benzylpenicillin 1.2g-2.4g QDS IV *Review IV to oral amoxicillin switch after 72 hours* **<u>If penicillin allergic</u>** Clarithromycin 500mg BD IV/PO	7-10 days
H. influenzae	Co-amoxiclav 1.2g TDS IV *Review IV to oral co-amoxiclav switch after 72 hours* **<u>If penicillin allergic</u>** Contact Microbiology	7-10 days

Legionella	Clarithromycin 500mg BD IV/PO **with or without** Rifampicin 300mg BD IV/PO *NB: Rifampicin has good oral bioavailability (around 100%).*	14 days
Staph. aureus	Flucloxacillin 1-2g QDS IV/PO **with or without** Gentamicin 7mg/kg OD IV *	Following clinical response
Meticillin Resistant Staphylococcus aureus (MRSA)	Vancomycin 1g BD IV‡	Following clinical response

*refer to Whittington Guideline for Gentamicin Dosing in Adults
‡refer to Whittington Guideline for Glycopeptide (Vancomycin & Teicoplanin) Dosing in Adults

➢ Further information

Notes on investigations:

- All patients with Pneumonia should have CXR, blood cultures and urine sent for pneumococcal antigen.
- Those with severe (CURB>3) CAP may require urine for legionella antigen after discussion with Microbiologist.
- Serology for atypical organisms is rarely helpful in the acute setting. Paired serology (acute and convalescent) may be clinically useful. Please discuss with Microbiology.
- If producing purulent sputum send for MC&S. Review sputum culture and discuss with Microbiology/Infection Prevention & Control Team if single room isolation is required.
- A CRP on admission may be helpful, but does not need to be repeated unless the patient is failing to improve at 72 hours.
- Consider HIV counselling and testing in patients with CAP. Bacterial pneumonia is listed as a clinical indicator disease for HIV infection in the latest BASHH guidelines [4].

Notes on further management:

- If prodromal symptoms are longer than usual (1-2 weeks), always consider TB- especially if from high incidence country or immmunosuppressed. These patients should be discussed with Microbiology and urgent sputum sent for acid fast bacilli staining.

'If an effusion is present, an ultrasound guided pleural tap is required to exclude pleural infection. (For more detailed information on management, see separate guideline on 'Management of Unilateral Pleural Effusion including Pleural Infection).

Please refer all cases to the Respiratory Team SpRs bleep 3359/3049 and complete Anglia ICE Respiratory inpatient referral, If Respiratory Team are not available then refer to Radiology.

In general, patients do not need a chest drain out of hours unless in cardiorespiratory compromise due to the effusion (see Pleural Procedures Guideline). Comment on fluid colour. Send for protein, LDH, MCS, AFB and cytology. **Remember to send paired venous samples for protein and LDH.**

Check pH (aspirate fluid in blood gas syringe and take sample urgently to laboratory or ABG machine in ED resus).

If pH below 7.2 or pus aspirated on initial tap, then a chest drain is required.

Initial antibiotic of choice in cases of suspected pleural infection is:

Co-amoxiclav 1.2g IV TDS or, if penicillin allergic: Clindamycin 600mg IV QDS (discuss with Microbiology if needed).

Failure to Improve

Reassess patient including updating CXR. Refer patient to Respiratory Team and Microbiology.

Enhanced recovery for pneumonia

Give patients and carers Community Acquired Pneumonia Leaflet (can print out from CAP bundle on ICE or from Intranet) which advises on mobilisation and diet.

Make every contact count: smoking cessation for all smokers: ask, advise and act – prescribe and refer to smoking cessation advisor (complete smoking assessment on ICE).

Ask and advise re annual ‘flu’ vaccination and usually once in lifetime Pneumococcal vaccination.

Discharge Plans

- After discharge, a **follow up CXR is only routinely indicated if**: current or ex-smoker with > 20 pack-year history of tobacco smoking and/or current or ex-cannabis smoker, over 50 years of age, or suspicious symptoms e.g. weight loss, haemoptysis.
- Patients should be advised to see their GP after discharge and GP should **repeat the CXR if** symptoms or signs persist after 6 weeks in all patients.

➢ Contacts

During working hours (Monday to Friday, 09:00 – 17:00)

Specialist Registrar in Respiratory	bleep 3049/3359
Respiratory Consultant	ext 5353/4 or mobile via switch
Specialist Registrar in Microbiology	ext 5085 or bleep 3069
Consultant Microbiologist	ext 5082 or ext 3894

Out of hours

On-call Specialist Registrar in Microbiology	air call via switchboard
On-call Consultant Physician	air call via switchboard

(who can contact Consultant Respiratory Physician if necessary)

➢ References

1. Guest J.F. "Community Acquired Pneumonia- The Annual Cost to the NHS in The UK." *Eur Respir J*. 1997. 7; 10: 1530-1534

2. Woodhead M et al. Community-acquired pneumonia on the intensive care unit: secondary analysis of 17,869 cases in the ICNARC Case Mix Programme Database. *Critical Care*. 2006, 10 (suppl2):S1

3. Houck PM et al. (2004) "Timing of antibiotic administration and outcomes for Medicare patients hospitalised with Community Acquired Pneumonia." *Arch Intern Med* 22; 164 (6): 637-44

4. UK National Guidelines for HIV testing 2008, British Association of Sexual Health and HIV.

5. British Thoracic Society (2009) Guidelines for the management of community acquired pneumonia in adults: update 2009. *Thorax*, 64 (Suppl 3): iii1 – iii55.

Please see Whittington Hospital NHS Trust Guideline:
'Antibiotics in Bacterial Infections in Adults- Guidelines For Management'

To be completed and attached to any procedural document when submitted to the appropriate committee for consideration and approval

		Yes/No	Comments
1.	**Does the procedural document affect one group less or more favourably than another on the basis of:**		
	Race	No	
	Ethnic origins (including gypsies and travellers)	No	
	Nationality	No	
	Gender	No	
	Culture	No	
	Religion or belief	No	
	Sexual orientation including lesbian, gay and bisexual people	No	
	Age	No	
	Disability - learning disabilities, physical disability, sensory impairment and mental health problems	No	
2.	**Is there any evidence that some groups are affected differently?**	No	
3.	**If you have identified potential discrimination, are any exceptions valid, legal and/or justifiable?**	No	
4.	**Is the impact of the procedural document likely to be negative?**	No	
5.	**If so can the impact be avoided?**	N/A	
6.	**What alternatives are there to achieving the procedural document without the impact?**	N/A	
7.	**Can we reduce the impact by taking different action?**	N/A	

If you have identified a potential discriminatory impact of this procedural document, please refer it to the Director of Human Resources, together with any suggestions as to the action required to avoid/reduce this impact.

For advice in respect of answering the above questions, please contact the Director of Human Resources.

Checklist for the Review and Approval of Procedural Document

To be completed and attached to any procedural document when submitted to the relevant committee for consideration and approval.

	Title of document being reviewed:	Yes/No	Comments
1.	**Title**		
	Is the title clear and unambiguous?	Yes	
	Is it clear whether the document is a guideline, policy, protocol or standard?	Yes	
2.	**Rationale**		
	Are reasons for development of the document stated?	Yes	
3.	**Development Process**		
	Is it clear that the relevant people/groups have been involved in the development of the document?	Yes	
	Are people involved in the development?	Yes	
	Is there evidence of consultation with stakeholders and users?	Yes	
4.	**Content**		
	Is the objective of the document clear?	Yes	
	Is the target population clear and unambiguous?	Yes	
	Are the intended outcomes described?	Yes	
5.	**Evidence Base**		
	Are key references cited in full?	N/A	
	Are supporting documents referenced?	N/A	
6.	**Approval**		
	Does the document identify which committee/ group will approve it?	Yes	
7.	**Dissemination and Implementation**		
	Is there an outline/plan to identify how this will be done?	Yes	
8.	**Document Control**		
	Does the document identify where it will be held?	Yes	
9.	**Process to Monitor Compliance and Effectiveness**		
	Are there measurable standards or KPIs to support the monitoring of compliance with and effectiveness of the document?	Yes	

	Title of document being reviewed:	Yes/No	Comments
	Is there a plan to review or audit compliance with the document?	Yes	
10.	**Review Date**		
	Is the review date identified?	Yes	
	Is the frequency of review identified? If so is it acceptable?	Yes	
11.	**Overall Responsibility for the Document**		
	Is it clear who will be responsible for co-ordinating the dissemination, implementation and review of the document?	Yes	

Executive Sponsor Approval			
If you approve the document, please sign and date it and forward to the author. Procedural documents will not be forwarded for ratification without Executive Sponsor Approval			
Name		Date	
Signature			
Relevant Committee Approval			
The Director of Nursing and Patient Experience's signature below confirms that this procedural document was ratified by the appropriate Governance Committee.			
Name		Date	
Signature			
Responsible Committee Approval – only applies to reviewed procedural documents with minor changes			
The Committee Chair's signature below confirms that this procedural document was ratified by the responsible Committee			
Name		Date	
Name of Committee		Name & role of Committee Chair	
Signature			

Tool to Develop Monitoring Arrangements for Policies and guidelines

What key element(s) need(s) monitoring as per local approved policy or guidance?	Who will lead on this aspect of monitoring? Name the lead and what is the role of the multidisciplinary team or others if any.	What tool will be used to monitor/check/observe/Assess/inspect/ authenticate that everything is working according to this key element from the approved policy?	How often is the need to monitor each element? How often is the need complete a report ? How often is the need to share the report?	What committee will the completed report go to?
Element to be monitored	**Lead**	**Tool**	**Frequency**	**Reporting arrangements**
CAP bundle	Respiratory team	BTS / National Audit tool	Annual	Respiratory team and CAP Bundle Working Group.