Guidelines in the management of Pneumonia in children aged 1 month-17 years

Indications: Children aged 1 month to 17 years of age

Cautions: Infants under the age of 1 month to be managed according to the sepsis guidelines

Guidelines can be used in conjunction with the Microguide app

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Pneumonia

Recognition and Assessment

- Bacterial pneumonia should be considered when there is a persistent or repetitive fever>38.5 together with chest recession and a raised respiratory rate. (D)
- Up to 35% of lower respiratory tract infections have a single virus as the causative organism
- Inflammation and consolidation of the lung can be caused by bacteria, viral or mycoplasma infection
- Low threshold of suspicion in children with **immunodeficiency, Cystic Fibrosis and Sickle Cell Disease**

Awake and unsettled infants can have a high respiratory rate on a single measurement. Rest and Repeat.

Table 1. WHO definition of tachypnoea

Age	Counted Breath rate
<2 months	**≥ 60/min**
2-11 months	**≥ 50/min**
1-5yr	**≥ 40/min**

Severity assessment

Severity Assessment	Mild	Moderate	Severe
Effort of breathing	Nil-Mild	Moderate increase	Marked respiratory distress
Respiratory rate	Normal PEWS	Amber PEWS	RED PEWS
Circulation	No tachycardia	Tachycardia (amber)	Red PEWS score
Oxygen Saturation	>95% in air	<95% in air	<92% in air or <95% in 6L/min oxygen
Management	**Mild**	**Moderate**	**Severe**
Oxygen	Not required	Oxygen to maintain Sats >95%	High flow oxygen (humidified it possible) Consider Vapotherm Escalate early –if looks tired/septic
Antibiotics	Oral antibiotics	IV if not tolerating oral or vomiting	Iv antibiotics
Hydration	Oral fluids	NG or IV if unable to maintain oral fluids	Iv fluids (2/3rd maintenance)
Social Situation	Family able to provide appropriate care/fluids at home	Family unable to provide appropriate observation, feed, fluids at home	N/A
Investigations	**MIld**	**Moderate**	**Severe**
CXR	No	consider	Yes
Lab tests	No	Consider	Yes
Disposition	**Mild**	**Moderate**	**Severe**
Decision to admit is based on age and clinical/social factors	Outpatient if meet all criteria Admit if<3months or family unable to manage	Consider admissionSenior review (Reg/Consultant) Needs to have clinically improved in 24 hours	Admit Senior review Anaesthetic review

			Inform STRS if concerns

Antibiotic Choices

Mild Community Acquired Pneumonia

- No oxygen requirement
- No respiratory distress
- Not septic
- Tolerating oral fluids and not needing admission

Possible organisms: *Streptococcus pneumoniae, HIB, Mycoplasma pneumonia, Chlamydia pneumonia and viruses*

Over 1 month of age years

1st Line	***Penicillin allergy or atypical pneumia***
Amoxicillin PO (5-7 days) ***If had course of amoxicillin in last 4 weeks or associated with influenza infection*** ***Co-amoxiclav 7-10 days***	***Clarithromycin (5 days)***

Moderate-to severe Community Acquired Pneumonia

- Requiring admission
- Significant respiratory distress
- Oxygen requirement
- Systemic signs of sepsis (in this case give iv treatment)

If able to take oral and not sickle cell, treat with oral antibiotics even if oxygen requirement

***** Sickle cell patients need iv treatment**

1st Line	**Penicllin allergy or atypical pneumonia**
Amoxicillin PO 10 Days + Clarithromycin 5 days	**Clarithromycin 5 days**

If had course of amoxicillin in last 4 weeks ***Co-amoxiclav PO + Clarithromycin 5 days***	

Switch to oral when appropriate

Unable to take oral, signs of sepsis and all sickle cell patients

1st line	**Penicillin or atypical pneumonia**
Co-amoxiclav IV + Clarithromycin IV **Switch to oral when appropriate** **Co-amoxiclav and Clarithromycin when possible**	**Iv Clarithromycin (consider adding Teicoplanin)** **Discuss with microbiology if concerns**

If concern there was significant aspiration pneumonia add metronidazole

Longer courses of antibiotics maybe required for severe disease such as necrotising pneumonia discuss with the Consultant.

Hospital Acquired Pneumonia

Additional Considerations

- If strong data to suggest *Streptococcus Pneumonia infection then use* Benzylpenicillin can be used alone, with oral Amoxicillin to complete the course
- If clinical or microbiological data suggest *Staphylococcus Aureus* infection use Co-amoxiclav
- Change iv to oral within 24hours if possible
- If uncomplicated treat for 7 days
- If complicated or staphylococcal pneumonia treat for 14 and 14-21 days for severe Community Acquired Pneumonia
- Maintain hydration but restrict to 80% maintenance (if iv therapy 0.9%Normal Saline, 5% Dextrose with potassium)
- Monitor electrolytes

Monitoring

- Continuous SATS monitoring
- 1-4 hourly observations depending on severity of the illness
- If no improvement in 24-48 hours review the diagnosis and repeat CXR

Discharge

- Patients requiring follow-up within 6-8 weeks with CXR if:

  -Lobar Collapse

  -Significant Pleural effusion

  -Round Pneumonia on CXR

  -Previous Respiratory Tract infection

  -Failure to thrive

- GP follow up for all others within 6-8 weeks

References

1) **British Thoracic Society guidelines for the management of community acquired pneumonia in children: update 2011** ***(Harris M, Clark J, Coote N et al*** *Thorax 2011;66:ii1-23*
2) **Infants and Children: Acute Management of Community Acquired pneumonia clinical practice guide . http://www0.health.nsw.gov.au/policies/gl/2015/pdf/GL2015_005.pdf**
3) **Up to date: Community Acquired Pneumonia in Children (accessed Jan 2017)**
4) **Paediatric guidelines 2014-16 (Bedside Clinical Guidelines in Partnership) Page 59-60**
5) **Antibiotic guidelines ASPH.**