



CLINICAL GUIDELINE

Pneumonia

Scope (Staff):	Nursing and Medical Staff
Scope (Area):	NICU KEMH, NICU PCH, NETS WA

This document should be read in conjunction with this [DISCLAIMER](#)

Neonatal pneumonia can be categorised as follows

1. Vertical transmission
 - a. Trans-placental as part of a generalised congenital infection
 - i. [Herpes virus group](#) (CMV, varicella, simplex etc)
 - ii. Syphilis
 - b. Transmission from genital tract at birth (increased risk with chorioamnionitis and prolonged rupture of membranes) see [sepsis calculator](#)
 - i. [GBS](#)
 - ii. Haemophilus
 - iii. Gram negative bacteria
 - iv. Chlamydia
2. Nosocomial infection
 - a. Ventilation associated pneumonia (VAP)
please see guidelines on VAP prevention and management
 - i. Multiple organisms
 - b. Airborn virus
See [isolation and management protocols](#)
 - i. Common respiratory virus infections, RSV, influenza A,B para influenza, etc
3. Aspiration ([see below](#)).

Diagnosis

In the newborn pneumonia is indistinguishable from other forms of respiratory distress. The main indicator is the chest x-ray which may show areas of collapse and consolidation.

Treatment

Symptomatic management of respiratory distress and respiratory failure.

Antibiotic (antiviral) management should be determined by previous microbiological information. From the mother in early pneumonia and from ET surveillance in ventilated infants.

In severe sepsis consider escalating to meropenem, discuss with microbiology. Blood culture is mandatory before commencing antibiotics. See [Sepsis](#) guideline.

If recurrent consider the possibility of underlying anatomical problems (tracheo-oesophageal fistula, incompetent airway protective reflexes), cystic fibrosis and immune compromise.

Aspiration Pneumonia

Inhalation of milk or other agents, associated with respiratory symptoms. The epidemiology is dependent on the cause of the aspiration.

1. Sucking/swallowing in-coordination caused by:
 - Prematurity.
 - Secondary to structural malformations or neurological disorders, cleft palate, Pierre-Robin syndrome, tracheo-oesophageal fistula, laryngeal cleft, HIE
 - Syndromes with poor sucking e.g. Prader-Willi.
2. Syndromes attributed to Gastro Oesophageal Reflux (GOR).
 - In infants on IPPV – RUL collapse.
 - Apnoeic episodes.
3. Massive regurgitation and inhalation of a feed.

Pathophysiology

The anatomy of the pharynx and larynx is largely responsible for protecting the airway from inhalation. This is aided by 'defensive reflexes'. Material in the pharynx initiates swallowing and reflex breath holding. If the airway is still threatened, additional reflexes are provoked with the aim of protecting the airway. These include more prolonged apnoea, choking, laryngospasm and coughing. These mechanisms are less effective in the neonatal period than in older children and adults.

Clinical Presentation

Coordination of sucking, swallowing and breathing is more difficult at all gestations if the infant is sedated (opiates) or if the infant is tachypnoeic.

Aspiration can be seen in these instances:

- In a term infant who during a breast/bottle feed in the first 48-72 hours of life chokes, splutters and may be transiently apnoeic and blue. Many of these are at the extreme end of normal spectrum in response to feeding.
- Silent aspiration in an ill or convalescent infant, provoking the apnoea alarm.
- Pneumonia following aspiration is more likely in infants with neurological defects, structural malformations or preterm infants.

Investigations

- Chest X-ray may show changes especially in the RUL or RLL. Alternative diagnoses especially infection should be considered.
- If the infant is very unwell-investigate as per general respiratory management.
- A barium swallow may be indicated to examine feeding coordination and to whether aspiration is present.

Management

As pneumonia is possible, we would advise to treat with antibiotics if the infant is clinically very unwell, or the infant has an immune-deficiency. Otherwise treatment is dependent on the extent of pulmonary compromise and the reason for aspiration.

Related CAHS internal policies, procedures and guidelines

Neonatology Guidelines

- [Cytomegalovirus \(CMV\): Neonatal Pathway](#)
- [Neonatal Viral Infections](#)
- [Sepsis Calculator – Assessment of Early Onset Sepsis in Infants ≥ 35 Weeks Gestation](#)
- [Sepsis: Neonatal](#)

References

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