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# Pneumonia in Children (In-Patient)

## Adjudication Guideline

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### Abstract

#### For Members

Pneumonia is an infection of the lungs that causes coughing, fever, and difficulties in breathing and poor feeding. It is a serious illness, especially in young children. Pneumonia can be caused commonly by bacteria or viruses. The most likely cause of pneumonia depends on the child's age.

Pneumonia is caused by a variety of germs (viruses, bacteria, fungi, and parasites). Most cases, though, are caused by viruses. These include adenoviruses, rhinovirus, influenza virus (flu), respiratory syncytial virus (RSV), and para influenza virus (which also can cause croup).

Often, pneumonia begins after an upper respiratory tract infection (an infection of the nose and throat), with symptoms starting after 2 or 3 days of a cold or sore throat. It then moves to the lungs. Fluid, white blood cells, and debris start to gather in the air spaces of the lungs and block the smooth passage of air, making it harder for the lungs to work well. The clinical features of Pneumonia vary with the age of the child. Children with Pneumonia may present with fever, vomiting, cough, and wheeze or chest pain. They may also present with abdominal pain and/or vomiting and may have headache.

#### For Medical Professionals

This guideline aid the clinicians in the care of a child with Pneumonia. They do not represent the only approach to diagnosis and therapy; there is considerable variation among children in the clinical course of paediatric Pneumonia, even with infection caused by the same pathogen.

The goal of these guidelines is to decrease morbidity and mortality rates for Pneumonia in children by presenting recommendations for clinical management that can be applied in individual cases if deemed appropriate by the treating clinician.

The decision to hospitalize a child with Pneumonia is based upon age, underlying medical problems and severity of illness as per the international best practise.

**Approved by:**  
Daman

**Responsible:**  
Medical Standards & Research

**Related Adjudication Guidelines:**  
None

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## Scope

This guideline highlight the management for all children (including neonates) diagnosed with pneumonia in the inpatient settings. It provides the criteria for diagnosis, hospitalization and outline appropriate therapies in order prevent complications.

Congenital pneumonia has been excluded from the scope of the guideline.

## Adjudication Policy

### Eligibility / Coverage Criteria

Daman covers all types of pneumonia including community acquired pneumonia, viral and fungal pneumonia subjected to medical necessity and policy terms and conditions.

### Recommendations for admission criteria

Indicated for 1 or more of the following:

- Hypoxemia
- Hemodynamic instability
- Toxic clinical appearance in child
- Altered mental status that is severe or persistent
- Age 2 months or younger
- Failure of outpatient treatment (worsening or no response in 48 to 72 hours )
- Dehydration or inability to maintain hydration orally or inability to feed an infant
- Retractions (e.g. suprasternal, intercostal, or subcostal).
- Grunting or nasal flaring
- Suspected or documented pneumonia caused by methicillin-resistant Staphylococcus aureus OR other highly virulent pathogen
- Pleural effusion.
- Bacteremia.
- Empyema.

### Recommendations for ICU admission

The decision to treat a child in an intensive care setting is individualized, based upon clinical, laboratory and radiologic findings. Treatment in an intensive care unit is warranted for children whom manifest the below:

- Signs of respiratory Failure
- Need for invasive or Non-invasive ventilation
- Hemodynamic Instability or cardiovascular compromise with progressive tachycardia and/or hypotension that requires or is refractory to fluid management.
- Pulse Oximetry less than 92% on more than 50% inspired Oxygen
- Recurrent apnea or slow irregular respiration
- Altered mental status

## Goal length of Stay:

- Ambulatory Stay in neonate: 6 days
- Ambulatory stay in Children: 2 OR more days

**Note:** *Goal Length of Stay assumes optimal recovery, decision making, and care. Patients may be discharged to a lower level of care (either later than or sooner than the goal) when it is appropriate for their clinical status and care needs.*

## Recommendations for investigations:

*The below is not an inclusive list as management is usually*

- 1. Pulse Oximetry:** Recommended in all children with pneumonia and Suspected Hypoxemia. The presence of Hypoxemia should guide decisions and further diagnostic testing
- 2. Chest X-ray:** Recommended in all patients hospitalized for management of community acquired pneumonia to document the presence, size, and character of parenchymal infiltrates and identify complications of pneumonia that may lead to interventions beyond antimicrobial agents and supportive medical therapy.  
  
Repeated chest radiographs are not routinely required in children who recover uneventfully from an episode of pneumonia.
- 3. Blood Culture:** Recommended in moderate to severe bacterial pneumonia
- 4. Sputum Gram Stain and culture:** Sputum samples for culture and Gram stain should be obtained in hospitalized children who can produce sputum.
- 5. Urinary Antigen Detection Tests:** Not recommended for the diagnosis of pneumococcal pneumonia in children; false positive results are common.

## Recommendations for treatment:

The initial treatment of children who are hospitalized with pneumonia is empiric. Factors that must be considered include the spectrum of likely pathogens, antimicrobial susceptibility, simplicity, tolerability and safety.

- Supportive care
- Antipyretics and analgesia
- Fluid management for children who cannot maintain adequate fluid intake because of breathlessness, fatigue or risk of aspiration
- Anti-microbial management

In most cases, pneumonia is caused by a virus that does not require antibiotics; however, pneumonia caused by bacteria is treated with antibiotics. The type of antibiotic used depends on the type of bacteria thought to have caused the pneumonia

*Chest physiotherapy is not beneficial for children with uncomplicated community acquired pneumonia as had no effect on length of hospital stay, duration of fever, or radiographic resolution*

## Requirements for Coverage

ICD and CPT codes must be coded to the highest level of specificity

## Non-Coverage

Daman does not cover services considered to be experimental, investigational or non-aligning with best practice and evidence based medicine.

## Payment and Coding Rules

Please apply HAAD payment rules and regulations and relevant coding manuals for ICD, CPT, etc

## Denial Code

Code description
Service is not clinically indicated based on good clinical practice
Service is not clinically indicated based on good clinical practice, without additional supporting diagnoses/activities
Prior approval is required and was not obtained
Diagnosis is inconsistent with the patient's gender

## Appendices

### A. References

1. <http://www.aafp.org/afp/2012/0715/p196.html>
2. <https://www.uptodate.com/contents/pneumonia-in-children-inpatient-treatment>
3. <http://emedicine.medscape.com/article/967822-overview#a4>
4. [http://meapp.mapofmedicine.com/mom/1/page.html?department-id=4&specialty-id=1019&pathway-id=3167&page-id=7710&pathway-prov-cert=/attachments/19326\\_provcert.pdf](http://meapp.mapofmedicine.com/mom/1/page.html?department-id=4&specialty-id=1019&pathway-id=3167&page-id=7710&pathway-prov-cert=/attachments/19326_provcert.pdf)
5. <https://careweb.careguidelines.com/ed21/index.html>
6. <http://bmcpediatr.biomedcentral.com/articles/10.1186/s12887-016-0651-5>
7. <https://academic.oup.com/cid/article-lookup/doi/10.1086/511159#5405490>
8. <https://www.brit-thoracic.org.uk/document-library/clinical-information/pneumonia/paediatric-pneumonia/bts-guidelines-for-the-management-of-community-acquired-pneumonia-in-children-update-2011/>
9. [https://www.idsociety.org/uploadedFiles/IDSA/Guidelines-Patient\\_Care/PDF\\_Library/2011%20CAP%20in%20Children.pdf](https://www.idsociety.org/uploadedFiles/IDSA/Guidelines-Patient_Care/PDF_Library/2011%20CAP%20in%20Children.pdf)
10. [http://www.idsociety.org/Guidelines/Patient\\_Care/IDSA\\_Practice\\_Guidelines/Infections\\_By\\_Organ\\_System-81567/Lower/Upper\\_Respiratory/Community-Acquired\\_Pneumonia\\_\(CAP\)\\_in\\_Infants\\_and\\_Children/](http://www.idsociety.org/Guidelines/Patient_Care/IDSA_Practice_Guidelines/Infections_By_Organ_System-81567/Lower/Upper_Respiratory/Community-Acquired_Pneumonia_(CAP)_in_Infants_and_Children/)
11. <http://emedicine.medscape.com/article/360090-overview>
12. <https://www.radiologyinfo.org/en/info.cfm?pg=pneumonia>
13. <http://www.who.int/mediacentre/factsheets/fs331/en/>
14. <https://academic.oup.com/cid/article-lookup/53/7/e25#74161560>
15. <http://www.choc.org/health-topics/sign-symptoms-pneumonia/>
16. <https://www.researchgate.net/search?q=Pneumonia>

17. <http://www.aafp.org/afp/2004/0901/p899.html>
18. <https://intermountainhealthcare.org/ext/Dcmnt%3Fncid%3D522578601>
19. <http://www.clevelandclinicmeded.com/medicalpubs/diseasemanagement/infectious-disease/community-acquired-pneumonia/#s0115>
20. <http://apps.who.int/medicinedocs/documents/s21000en/s21000en.pdf>
21. <https://pneumonia.biomedcentral.com/articles/10.1186/s41479-016-0005-y#CR1>
22. <https://haad.ae/HAAD/LinkClick.aspx?fileticket=cIq6hgdwLQ0%3D&tabid=820>
23. <http://www.mdaap.org/Pneumonia.pdf>
24. [http://cdn.intechopen.com/pdfs/42153/InTech-Pneumonia\\_in\\_children.pdf](http://cdn.intechopen.com/pdfs/42153/InTech-Pneumonia_in_children.pdf)
25. <http://www.archbronconeumol.org/en/community-acquired-pneumonia-new-guidelines-spanish/articulo/S1579212911600086/>
26. <https://www.childrensmn.org/references/lab/microbioviral/strep-pneumoniae-antigen-urine.pdf>
27. <https://www.childrensmn.org/references/lab/microbioviral/nose-culture.pdf>
28. [http://www.bu.edu/sicklecell/files/2009/07/cpt\\_codes.pdf](http://www.bu.edu/sicklecell/files/2009/07/cpt_codes.pdf)
29. <https://www.berkshirehealthsystems.org/documents/Lab%20Outpatient%20Manuals/051.%20INFLUENZA%20A%20%26%20B.pdf>
30. <https://www.childrensmn.org/references/lab/serology/mycoplasma-pneumoniae-igg-igm-antibodies.pdf>
31. <http://www.sciencedirect.com/science/article/pii/S1198743X14631141>
32. [http://www.radmd.com/assets/Clinical%20Guidelines/NIA%20Standard%20Guidelines%202016/Chest%20\(Thorax\)%20CT%20\(no%20lung%20ca%20screening\)%202016.pdf](http://www.radmd.com/assets/Clinical%20Guidelines/NIA%20Standard%20Guidelines%202016/Chest%20(Thorax)%20CT%20(no%20lung%20ca%20screening)%202016.pdf)
33. [https://my.clevelandclinic.org/ccf/media/Files/nursing/2014-dicc-handouts/Session10\\_1030\\_1102\\_Bova.pdf](https://my.clevelandclinic.org/ccf/media/Files/nursing/2014-dicc-handouts/Session10_1030_1102_Bova.pdf)
34. <http://emedicine.medscape.com/article/967822-workup#showall>
35. <https://www.fda.gov/downloads/AdvisoryCommittees/CommitteesMeetingMaterials/MedicalDevices/MedicalDevicesAdvisoryCommittee/MicrobiologyDevicesPanel/UCM529262.pdf>
36. <https://ccforum.biomedcentral.com/articles/10.1186/cc13760>
37. <http://www.effectivehealthcare.ahrq.gov/ehc/products/497/1377/procalcitonin-future-report-140318.pdf>
38. <http://www.webmd.com/lung/tc/pneumonia-other-treatment>
39. [https://www.aarc.org/wp-content/uploads/2014/08/nonpharmacologic\\_2013.pdf](https://www.aarc.org/wp-content/uploads/2014/08/nonpharmacologic_2013.pdf)
40. <http://www.bestbets.org/bets/bet.php?id=1567>
41. Murtagh Kurowski E, et al. Improvement methodology increases guideline recommended blood cultures in children with pneumonia. *Pediatrics* 2015; 135(4):e1052-9. DOI: 10.1542/peds.2014-2077
42. Williams DJ, et al. Antibiotic choice for children hospitalized with pneumonia and adherence to national guidelines. *Pediatrics* 2015; 136(1):44-52. DOI: 10.1542/peds.2014-3047
43. Wilson KM, et al. Hospitalization for community-acquired pneumonia in children: effect of an asthma co-diagnosis. *Hospital Pediatrics* 2015; 5(8):415-22. DOI: 10.1542/hpeds.2015-0007
44. Leyenaar JK, Shieh MS, Lagu T, Pekow PS, Lindenauer PK. Variation and outcomes associated with direct hospital admission among children with pneumonia in the United States. *JAMA Pediatrics* 2014; 168(9):829-36. DOI: 10.1001/jamapediatrics.2014.339.
45. Neuman MI, et al. Readmissions among children previously hospitalized with pneumonia. *Pediatrics* 2014; 134(1):100-9. DOI: 10.1542/peds.2014-0331.
46. National Hospital Discharge Database Analysis, all payers, all applicable states
47. Paludo C, Zhang L, Lincho CS, et al. Chest physical therapy for children hospitalised with acute pneumonia: a randomised controlled trial. *Thorax* 2008; 63:791.

## B. Revision History

Date	Change(s)
11-12-17	Release of V1.0