INDOGENIUS

ISSN 2828-1365

Volume 5, Issue 1 : 278 - 291

The Impact of Nursing Service Quality on Length of Hospital Stay in Children with Pneumonia: A Literature Review

Gloria Angelika Waruwu[1], Angela Meicilia [1], Permaida [1*], Mariam Dasat [1]
[1]*Universitas Kristen Krida Wacana, Jakarta, Indonesia*

Article Info

Keywords :
Children, Pneumonia, Quality of nursing care, Length of stay

Corresponding Author :
Permaida
E-mail :
permaida.simanjuntak@ukrida.ac.id

ABSTRACT

Background & Objective: Pneumonia is one of the serious diseases that occurs in the lower respiratory tract. This disease is one of the causes of death among children, especially those under five years of age. This condition is of great concern to health workers, especially nurses, because proper treatment can help reduce mortality rates. Therefore, quality and comprehensive nursing care is needed so that the healing process runs optimally. This study aims to determine how the quality of nursing care can affect the length of hospital stay in children with pneumonia. **Method:** This study used a literature review approach by searching Google Scholar for publications from 2020 to 2025. The keywords used were "children with pneumonia," "nursing care," "length of stay," and synonyms such as "pneumonia in children," "quality of nursing care for children," and "duration of hospitalization." **Result:** Six articles that met the inclusion criteria were found. The analysis showed that 83.3% (n=5) of these articles proved that the quality of nursing care had an effect on reducing the length of hospital stay, while 16.7% (n=1) of the articles highlighted the importance of a non-pharmacological approach to reducing children's anxiety during treatment. Nurses play a central role in every stage of nursing care, from observation, education, and therapy to interprofessional collaboration. **Conclusion:** These findings confirm that comprehensive nursing care focused on children's needs can accelerate the healing process and reduce the length of hospital stays. Therefore, the quality of nursing care needs to be continuously improved in order to have a positive impact on the quality of life and safety of pediatric patients in healthcare facilities.

DOI: https://doi.org/10.56359/igj.v5i1.940

Introduction

Pneumonia is an infectious disease that occurs in the lower respiratory tract caused by the bacteria Streptococcus pneumoniae and Haemophilus influenzae (Apriliana, 2024). Pneumonia often occurs in children aged 29 days to 11 months because their immune systems are still developing, making it easy for microbacteria to attack the body (Jenderal & Yani, 2022). Symptoms may include chest pain when breathing or coughing, which can cause fatigue, fever, sweating, tremors, nausea, vomiting, or diarrhea, as well as difficulty breathing. If this infection is not treated promptly, it can cause damage to lung function and be life-threatening (Sri Rezeki et al., 2025). From an epidemiological perspective, pneumonia remains a major cause of death in children under five years of age globally, with more than 700,000 children dying in 2023 (UNICEF 2025). In Indonesia, there was an increase in cases among toddlers from 386,724 cases in 2022 to 416,435 cases in 2023, with 522 deaths recorded (Indonesian Ministry of Health, 2024). These figures confirm that pneumonia remains an urgent public health issue that requires preventive measures and improved quality of care. (Arifin, 2025)

However, the outcome of treating children with pneumonia is not only determined by medical therapy, but also by the quality of nursing care during the treatment process in the hospital (Rahmania, 2024). Good quality nursing care contributes to stabilizing the child's condition, accelerating clinical improvement, and reducing the length of hospital stay (Liu et al., 2021).

Consistent nursing care based on scientific evidence, such as rapid and accurate airway assessment, positioning that supports lung expansion, administration of antibiotics according to medical indications, and psychosocial support for families, has been shown to play a role in accelerating clinical symptom improvement and shortening the duration of care for children with pneumonia (Wu et al., 2023; Liu et al., 2021). Optimal nursing care not only has a positive impact on the clinical condition of patients, but also helps reduce the emotional and psychological burden on families, lowers parents' anxiety levels, reduces the risk of complications, and provides a sense of security and comfort. The average length of hospital stay for children with pneumonia is reported to be around five days, and prolonging the hospital stay and increasing stress on children also adds to the economic and psychosocial burden on families (Nagy Mohamed., 2021).

Conversely, suboptimal nursing care can increase the risk of acute respiratory failure and worsen the child's nutritional status. This condition is generally caused by delays in recognizing clinical changes and suboptimal monitoring of the patient's respiratory function and nutritional status. Research conducted by Ainurfaiz Fiqridiyanto (2024) shows that nutritional status has a more significant correlation with the severity of pneumonia, where children with poor nutritional status are at higher risk of experiencing a deterioration in their respiratory condition. Thus, this study aims to determine the extent to which the quality of nursing care affects the length of hospital stay for children with pneumonia as a basis for recommendations to improve the quality of nursing care in health care facilities.

Objective

To examine the extent to which the quality of nursing care affects the length of hospital stay of children with pneumonia by identifying the level of nursing care quality, assessing the average length of stay, analyzing the relationship between the

quality of nursing care and the length of stay, and identifying other factors that influence the length of hospital stay. The quality of nursing care in this study was assessed based on four main aspects, namely the accuracy of patient condition observation, education for parents, implementation of nursing actions, and collaboration with other medical teams.

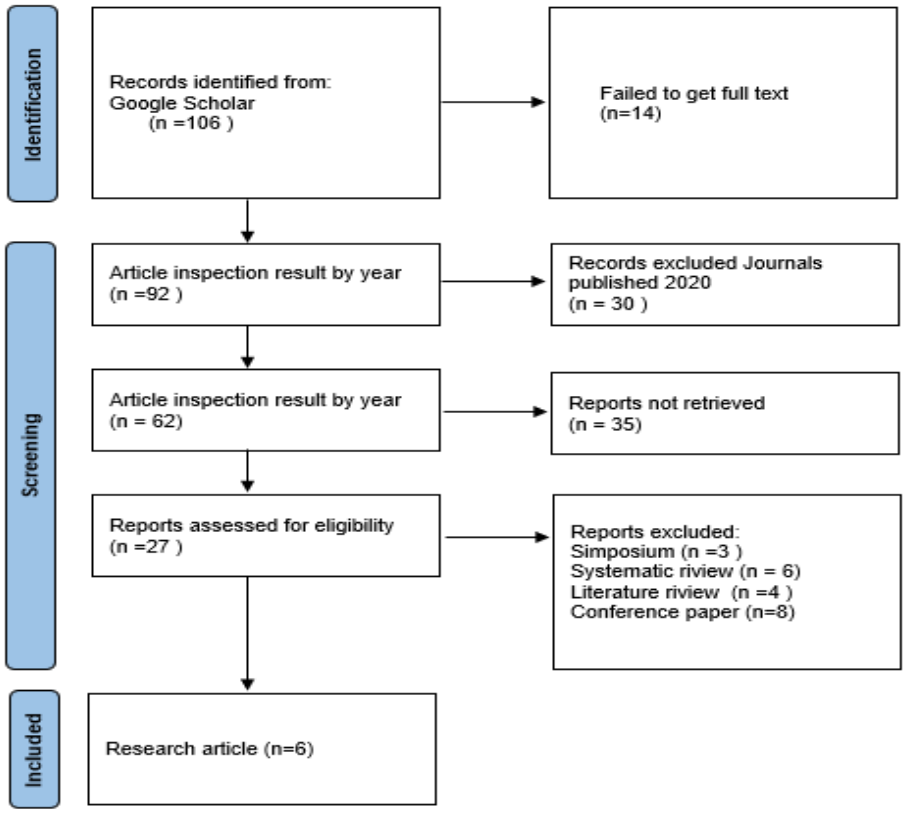
Method

This study used a method of collecting various relevant scientific journals through the PEO approach, namely Population, Exposure, and Outcome. Population (P) refers to children suffering from pneumonia, Exposure (E) refers to the quality of nursing care provided, and Outcome (O) refers to the length of the child's hospital stay, as well as analyzing and presenting the results.

Based on this approach, literature searches were conducted using the keywords "children with pneumonia" AND "nursing care" AND "length of hospital stay" and also synonym variations, namely "pneumonia in children" AND "quality of nursing care" AND "duration in hospital," through the Google Scholar database.

The criteria used in the literature search process for this study were articles relevant to the research topic, written in Indonesian or English, and published in the last five years, namely 2020-2025.

Data from each article was then analyzed descriptively to identify patterns of relationships between the quality of nursing care for children with pneumonia in hospitals.



Flowchart of PRISMA Steps: The Impact of Nursing Service Quality on Length of Hospital Stay in Children with Pneumonia: A Literature Review

Results

The characteristics of all articles (n=6) describe the entire nursing process for children with pneumonia. It is known that 16.7% (n=1) of these articles describe the implementation of nursing care in children with pneumonia with gas exchange disorders, 16.7% (n=1) of articles describe nursing care in meeting oxygenation needs, and 16.7% (n=1) describe nursing care that enhances the effectiveness of airway clearance, 16.7% (n=1) of articles discussed nursing care for anxiety in children with pneumonia, 16.7% (n=1) discussed nursing care for patients with ineffective breathing patterns, and 16.7% (n=1) discussed nursing care for pneumonia in children with LCH.

It is known that 16.7% (n=1) of these articles explain that nursing care needs to be thorough to completely overcome pneumonia problems. In comparison, 66.6% (n=4) of these articles prove that quality nursing care can overcome pneumonia problems in children. In comparison, 16.7% (n=1) stated that quality nursing care can overcome pneumonia problems in children. In comparison, 16.7% (n=1) stated that nursing care should not only focus on pharmacological but also non-pharmacological aspects to prevent anxiety in children. The researchers analyzed four main points of delivery from all the articles reviewed, namely: (1) implementation of observation, (2) implementation of education, (3) implementation of therapy, and (4) implementation of collaboration.

Implementation of Observation

All articles explained how to conduct nursing observations of the patient's physical condition comprehensively. It was found that 100% (n=6) and 66.6% (n=4) of observations were of the patient's psychological condition.

Educational Implementation

It is known that 16.7% (n=1) of articles describe puzzle therapy for children and parents. A total of 16.7% (n=1) explain to clients the types of drugs, the reasons for administering drugs, and the effects that occur.

Therapeutic Implementation

All articles 100% (n=6) describe therapeutic actions for children with pneumonia. Meanwhile, 50% (n=3) of articles explained that the semi-Fowler position was most consistently used to aid ventilation, 33% (n=2) of articles performed chest physiotherapy procedures, 33.3% (n=2) of articles performed super bubble techniques, 16.6% (n=1) of articles used puzzle play therapy to reduce anxiety in children, 16.6% (n=1) of articles used oxygen administration.

Collaborative Implementation

It is known that 33.3% (n=2) administered nebulizer therapy, 33.3% (n=2) administered bronchodilators, 16.75% (n=1) administered antibiotics, and 16.7% (n=1) administered antipyretics.

Table 1 Literature search with PEO

Search title: The effect of nursing service quality on the length of hospital stay in children with pneumonia

Research question: How does nursing service quality affect the duration or length of hospital stay in children with pneumonia.

Components	P (Population)		E (Exposure)		O (Outcome)
Keyword terms	Children with pneumonia	AND	Quality of nursing care	AND	Length of stay
Alternative terms	Lower respiratory infection, pediatric	OR	Nursing care	OR	Duration of stay
Alternative terms	-	OR	Quality of nursing service	OR	Length of care
Alternative terms	-	OR	Nursing practice	OR	Duration in hospital

Table 2 Target articles

No.	(Author)	(Research Objective)	(Treatment Duration)	(Result)
1.	Herina, Sutarmi, Erni (2021)	To determine and describe the implementation of care for children with pneumonia experiencing impaired gas exchange.	4 days	Nursing care carried out over three days showed that the problems were well managed.
2.	Alfiana dan Endang (2022)	To determine the implementation of nursing care for children with pneumonia in meeting oxygenation needs using super bubbles blowing therapy (lips breathing).	3 days	After 3 days of therapy, respiratory rate decreased from 40x/min and SpO2 increased from 96% to 98%. Improved oxygenation and reduced shortness of breath occurred.

No.	(Author)	(Research Objective)	(Treatment Duration)	(Result)
3.	Inayah, Murniawati, Etika (2023)	To explain and evaluate nursing methods (specifically chest physiotherapy techniques) in improving airway clearance effectiveness in children with pneumonia.	3 days	Sputum production improved. Then breathing improved (from 44x/min to normal). Cyanosis decreased (lips and fingertips were no longer bluish).
4.	Sella & Noerma (2024)	To determine the pattern of nursing care for children with pneumonia experiencing anxiety and evaluate the effectiveness of puzzle play therapy in reducing anxiety during hospitalization.	4 days	After puzzle therapy, anxiety scores decreased from 35 (mild anxiety) based on SCAS. Puzzle therapy proved effective in reducing anxiety in hospitalized children with pneumonia.
5.	Tazaka dan Noerma (2024)	To determine the pattern of nursing care for pneumonia patients with ineffective breathing patterns using pursed-lip breathing technique.	3 days	After 3-day intervention, breathing pattern improved: respiratory rate decreased from 43x/min to 24x/min and SpO2 increased from 96% to 99%. The patient no longer experienced shortness of breath.
6.	Lathifah, Ayyu dan Rahayu (2024)	To determine the implementation of pneumonia care in children with LCH.	7 days	After 7 days of care, hyperthermia was resolved and ineffective breathing pattern improved. Interventions included antibiotic therapy, antipyretics, oxygen, chest physiotherapy, semi-fowler position, and fluid monitoring.

Table 3 Overview of Nursing Care for Children with Pneumonia

No.	(Author)	(Observation)	(Education)	(Therapeutic)	(Collaboration)
1.	Herina, Sutarmi, Erni (2021)	**Physiological Observation:** Child's respiratory rate 36x/min, lymphocytes 55.6%, shortness of breath, chest retractions and nasal flaring present, wheezing heard, secretions in airway, dry oral mucosa. **Psychological:** Child appears fussy during procedures.	-	- Building therapeutic relationship with child. - Positioning semi-fowler. - Providing 2-4L/min oxygen therapy. - Administering nebulizer, chest physiotherapy, and suction.	Collaboration in administering nebulizer.
2.	Alfiana dan Endang (2022)	**Physiological Observation:** Shortness of breath, cough for 3 days, runny nose for 2 days. Respiratory rate 40x/min, temperature 37.9°C, SpO2 96%, added breath sounds (wheezing) in right superior anterior lobe. **Psychological:** -	-	- Administering super bubbles blowing therapy for 5 minutes with 15 blows. - Monitoring breathing pattern (rate, depth, effort). - Teaching super	Collaboration in administering bronchodilators, expectorants, mucolytics if needed.

No.	(Author)	(Observation)	(Education)	(Therapeutic)	(Collaboration)
				bubbles blowing technique.	
3.	Inayah, Murniawati, Etika (2023)	**Physiological Observation:** Respiratory rate 44x/min, lung auscultation reveals wheezing, skin color and cyanosis examination, pulse 130x/min.	-	- Chest physiotherapy. - Semi-fowler or half-fowler position to facilitate ventilation.	Collaborative action for nebulizer therapy using Ventolin 2.5 mg and NaCl 5 cc for 30 minutes.

No.	(Author)	(Observation)	(Education)	(Therapeutic)	(Collaboration)
4.	Sella & Noerma (2024)	**Physiological Observation:** Pulse 92x/min, temperature 37.5°C, respiratory rate 44x/min, oxygen saturation 94%. **Psychological Observation:** Fearful, anxious.	Explaining the purpose of puzzle play therapy to child and parents.	- Assembling puzzle into a house shape, duration 15 minutes. - Conducting puzzle play therapy on the second day by assembling animal-shaped puzzles repeatedly and regularly.	-
5.	Tazaka dan Noerma (2024)	**Physiological Observation:** Respiratory rate 43x/min, oxygen saturation 95%, abnormal breathing pattern, wheezing heard. **Psychological Observation:** Child appears weak.	-	- Conducting pursed-lip breathing exercises for 5-10 minutes for 3 consecutive days. - Breathing exercises done repeatedly and regularly.	Collaborating with doctor for bronchodilator administration.

No.	(Author)	(Observation)	(Education)	(Therapeutic)	(Collaboration)
6.	Lathifah, Ayyu dan Rahayu (2024)	**Physiological Observation:** Pulse 140x/min, respiratory rate 48-65x/min, temperature 37.8°C, SpO2 98% with 1L nasal cannula. Chest X-ray shows pulmonary edema, bilateral pneumonia, and enlargement of right atrium, left atrium, and left ventricle. **Psychological Observation:** -	Explaining to client the type of medication, reason for administration, and expected effects.	- Semi-fowler position. - Monitoring temperature and vital signs. - Monitoring skin and temperature.	Collaborating with doctor in administering treatment therapy such as Ceftriaxone 400mg/12 hours (IV) and Paracetamol 80 mg/hour (IV).

Discussion

A review of six articles shows that the quality of nursing care has a significant effect on reducing the length of hospital stay for children with pneumonia. Overall, various nursing interventions reported in the study produced similar results, namely a decrease in respiratory rate, an increase in oxygen saturation, a reduction in signs of distress, improved breath sounds, and stable vital signs within approximately 3 to 4 days (Herina et al., 2021; Alfiana et al., 2022; Inayah et al., 2024; Sella et al., 2024; Tazaka et al., 2024).

The quality of nursing care is evident in the nurses' ability to perform accurate assessments, select appropriate interventions, perform actions safely, and provide education and emotional support to children and families (Liu et al., 2021; Jumbri et al., 2023; Purnawati et al., 2023). Observation was the most frequently discussed component in all of the articles analyzed. Breathing patterns were monitored carefully because many patients complained of shortness of breath. Therefore, nurses had to pay attention to breathing frequency, chest wall retractions, and nose flaring. This step is important to assess whether there is an increase in breathing effort, gas exchange disorders, the level of shortness of breath experienced by patients, and to detect changes in conditions that require immediate treatment.

The results of the study also show that several commonly used interventions, such as the semi-Fowler position, nebulizer therapy, chest physiotherapy, and breathing exercises in the form of super bubbles lips breathing, have a positive impact on patients' respiratory conditions. The semi-Fowler position, for example, has been proven to help expand lung capacity and reduce abdominal pressure on the diaphragm, making it easier for patients to breathe (Nursa et al., 2023).

Other interventions such as nebulizer therapy are also widely recommended. By converting medication into a fine mist, this therapy allows the medication to directly reach the airways, enabling it to work more quickly in thinning and expelling secretions. This method is considered safer and more effective than oral medication (Cahyani & Indriyani, 2025). In addition, chest physiotherapy, including postural drainage, percussion, and vibration, plays a role in helping to move mucus so that it can be easily expelled, thereby optimizing the breathing process (Rahmawati & Cahyaningrum, 2025). Several non-pharmacological exercises have also been proven to be beneficial. Pursed lips breathing, deep breathing exercises, blowing balloons, and blowing bamboo fans are known to improve breathing patterns and increase oxygenation in patients with pneumonia and tuberculosis (Ihsaniah, 2019; Irfan et al., 2019). These results are consistent with the research by Widiatmoko & Nur (2018), which found that super bubble play therapy can significantly reduce anxiety in children. Through the activity of blowing soap bubbles, children receive positive distraction that helps reduce tension and makes them more relaxed.

Collaboration is an important aspect in maintaining the quality of nursing services. Good cooperation between nurses, doctors, and other health workers is necessary to ensure that the administration of bronchodilators, antibiotics, and nebulizer therapy is safe, correctly dosed, and appropriate for the patient's clinical condition. With effective coordination, each intervention can support each other, resulting in more optimal care.

Antibiotics are the main treatment for pneumonia caused by bacterial infections. These drugs work by inhibiting or even killing the bacteria that cause the disease so that the infection can be suppressed and the patient's condition gradually

improves (Nanda Faradita, Rika Yulia, & Fauna Herawati, 2022). Meanwhile, bronchodilators help widen the airways, reduce shortness of breath, and slow down rapid breathing. The administration of bronchodilators through a nebulizer is considered effective because the medication can be delivered directly to the lungs and reach the constricted areas, allowing the effects to be felt more quickly (Yuni Sari., 2022).

Overall, the literature review shows that the quality of nursing care plays an important role in promoting the recovery of pediatric patients with pneumonia. Services ranging from accurate observation, appropriate and consistent physical interventions, psychological support that can improve the comfort of pediatric patients, and effective collaboration among health workers can improve a patient's clinical ability, thereby accelerating clinical improvement and potentially shortening the length of hospital stay. The implementation of responsive, evidence-based, and patient-centered nursing care is the key for healthcare providers in delivering safe, comprehensive care that yields optimal clinical outcomes.

Conclusion

Good nursing care greatly influences the reduction of hospitalization time for children with pneumonia. This includes proper observation, educating patients and families, performing appropriate therapeutic measures, and collaborating with other medical personnel. To that end, it is necessary to improve the quality of service and the skills of nurses so that they can provide professional, effective care that focuses on the health and comfort of patients.

Acknowledgments

Thank you to the Professional Nursing Education Study Program, Faculty of Medicine & Health Sciences, for your support and facilities in developing the final assignment for the pediatric nursing course into a research paper. We would also like to thank the reviewers who have provided constructive feedback and suggestions, enabling us to improve this paper.

References

Abdullah, R., & Thalib, A. H. S. (2023). Penerapan posisi semi-Fowler terhadap frekuensi napas anak dengan pneumonia. Jurnal Madising Na Maupe, 1, 62–66. https://jurnal.maupe.id/JMM/index

Anggraeni, A. D., & Susilaningsih, Z. (2022). Asuhan keperawatan pada anak pneumonia dalam pemenuhan kebutuhan oksigenasi. https://eprints.ukh.ac.id/id/eprint/3004/1/NASPUB%20ALFIANA.pdf

Aprilia, R., Faisal, F., Irwandi, Suharni, & Efriza (2024). *Tinjauan literatur : Faktor risiko dan epidemiologi pneumonia pada balita*. Retrieved from http://journal.scientic.id/index.php/sciena/issue/view/19

Arifin, N. P. (2025). Hubungan ASI eksklusif dan status gizi kurang terhadap kejadian pneumonia balita di Provinsi Jawa Barat tahun 2022–2024. Jurnal Kesehatan Tambusai, 6(2), 6536–6543. https://doi.org/10.31004/jkt.v6i2.44745

Estyorini, H., Nuryanti, E., & Program Studi DIII Keperawatan Blora. (2020.). Asuhan keperawatan pada anak pneumonia dengan fokus studi pengelolaan pemenuhan kebutuhan oksigenasi di Ruang Wijaya Kusuma RSUD Dr. R. Soetijono Blora. Retrieved from http://ejournal.poltekkes-smg.ac.id/ojs/index.php/J-SiKep

Fahrezi, T. A., & Rizqiea, N. S. (2024). Asuhan keperawatan pada anak pneumonia: Pola napas tidak efektif dengan intervensi pursed lips breathing. https://eprints.ukh.ac.id/id/eprint/7155/

Faradita, N., Yulia, R., & Herawati, F. (2022). Profil penggunaan antibiotik pada pasien pneumonia di komunitas: Tinjauan pustaka. Intisari Sains Medis, 13(2), 340–345. https://doi.org/10.15562/ism.v13i2.1312

Infrastuti, L., Sandhi, A., & Pujilestari, R. (2024). Penerapan asuhan keperawatan pada pasien Langerhans cell histiocytosis dengan pneumonia di Bangsal Onkologi Anak: Studi kasus. Jurnal Keperawatan Klinis dan Komunitas, 8(2), 102. https://doi.org/10.22146/jkkk.95063

Jumbri, M., Setiawan, H., & Rizany, I. (2023). Peran perawat sebagai edukator, kolaborator, dan koordinator dalam integrated discharge planning sesuai SNARS di RSD Idaman Kota Banjarbaru. Nerspedia, 5(3), 48–59. https://doi.org/10.35473/jhhs.v4i1.111

Liu, Y., Ren, H., Guo, J., & Su, D. (2021). Effect of continuous nursing on nursing quality and patient quality of life and satisfaction among children with pneumonia. Journal of International Medical Research, 49(3) https://doi.org/10.1177/0300060521993691

Mohamed, N. N., Eldakhakhny, A. M., & Mohamed, B. M. (2021). Quality of nursing care provided to children with pneumonia. Zagazig Nursing Journal, 17(2). https://doi.org/10.21608/znj.2021.178197

Nouranianasari, E. R., Mawaddah, E., Nurhayati, T., Utama Ningsih, M., & Biswas, H. B. (2025). *The effect of a continuous nursing care program on the qualityof life of toddlers with pneumonia, parental stress levelsand parental sa*https://doi.org/10.32.807/jkp.v19i1.1675

Padila, P., J, H., Yanti, L., Setiawati, S., & Andri, J. (2020). Meniup super bubbles dan baling-baling bamboo pada anak penderita pneumonia. Jurnal Keperawatan Silampari, 4(1), 112–119. https://doi.org/10.31539/jks.v4i1.1545

Purwati, N. H., Awaliah, A., Misparsih, M., Fadhillah, H., Purwani, E., Sarini, S., & Amalia, H. (2023). Pemberdayaan perawat mencegah rehospitalisasi pada balita dengan pneumonia melalui pendekatan ASTANIA. Jurnal Pengabdian Masyarakat Indonesia Maju, 4(2), 58–64.https://doi.org/10.33221/jpmim.v4i02.2465

Rahmania, S., & Nursanti, I. (2024). Penerapan model teori Florence Nightingale dalam asuhan keperawatan anak dengan pneumonia. Zahra: Journal of Health

and Medical Research, 4(1), 22–30. https://www.adisampublisher.org/index.php/aisha/article/view/625

Rezeki, S., Wisudariani, E., Sitanggang, H. D., Nasution, H. S., & Fitri, A. (2025). Determinan kejadian pneumonia pada balita (0–59 bulan) di Provinsi Jawa Barat tahun 2023 (Analisis data SKI 2023). Jurnal Ilmiah Kedokteran dan Kesehatan, 4(3), 495–512. https://doi.org/10.55606/klinik.v4i3.4801

Santy, I. A., Murniati, & Cahyaningrum, E. D. (2023, October 5). Studi kasus: Pemberian fisioterapi dada untuk mengatasi masalah bersihan jalan napas tidak efektif pada anak dengan pneumonia. Dalam Seminar Nasional Penelitian dan Pengabdian Kepada Masyarakat (SNPPKM), Purwokerto, Indonesia. https://id.scribd.com/document/732983634/Studi-Kasus-Pemberian-Fisioterapi-Dada-Untuk-Mengatasi-Masalah-Bersihan-Jalan-Napas-Tidak-Efektif-Pada-Anak-Dengan-Pneumonia

Saputra, H., Siregar, R. B., Butar-butar, M. H., Purwana, R., & Asrul. (2023). Efektivitas fisioterapi dada dalam perbaikan kesehatan anak dengan diagnosa pneumonia. Journal Healthy Purpose, 2(2), 117–121. https://doi.org/10.56854/jhp.v2i2.269

Sari, D. P. Y., & Musta'in, M. (2022). Gambaran pengelolaan bersihan jalan napas tidak efektif pada anak dengan pneumonia di Desa Jatihadi Kecamatan Sumber. Journal of Holistics and Health Sciences, 4(1), 41–46 https://nerspedia.ulm.ac.id/index.php/nerspedia/article/view/145

Sasmita, A. A., Rizqiea, N. S., & Universitas Kusuma Husada Surakarta. (2024). Asuhan keperawatan pada anak pneumonia: Ansietas dengan intervensi terapi bermain puzzle. https://eprints.ukh.ac.id/id/eprint/7057/1/NASKAH%20PUBLIKASI%20SELA%20AMELIA.pdf

UNICEF. (2025, November). Pneumonia. UNICEF Data https://data.unicef.org/topic/child-health/pneumonia/?utm_source

Wabang, A. P. Y., Aty, Y. M. V. B., Blasius, G., & Tat, F. (2024). Penerapan terapi inhalasi nebulizer pada pasien dengan bersihan jalan napas tidak efektif akibat community-acquired pneumonia. Sehat Rakyat: Jurnal Kesehatan Masyarakat, 3(1), 31–43. https://doi.org/10.54259/sehatrakyat.v3i1.2429

Wu, S., Zhu, S., Wen, H., Yang, T., Liu, Y., & Peng, Y. (2025). Evaluating the effects of evidence-based nursing on length of hospital stay, duration of mechanical ventilation, symptom relief, and complication rates in children with severe adenoviral pneumonia: A prospective randomized controlled trial. Revista do Instituto de Medicina Tropical de São Paulo, 67, 4-6. https://doi.org/10.1590/S1678-9946202567013