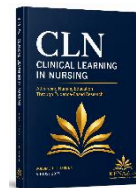


Contents lists available at [Kenazer](https://journal.kenazer.com/index.php/cln/index)

Clinical Learning in Nursing

Journal Homepage: <https://journal.kenazer.com/index.php/cln/index>

Emergency Nursing Care for Patients with Pneumonia Experiencing Ineffective Airway Clearance: A Case Study

Ardila Merina Putri^{1*}, Ratna Feti Wulandari¹

1. Pamenang Institute of Health Sciences, Kediri, East Java, Indonesia

ARTICLE INFO

Article history:

Received 9 July 2026

Received in revised form
15 July 2026

Accepted 29 July 2026

Available online xxxx

Keywords:

Pneumonia; Ineffective
Airway Clearance;
Airway Management;
Emergency Nursing; Case
Study.

ABSTRACT

Background: Pneumonia is a lower respiratory tract infection that causes inflammation of the lung parenchyma and excessive secretion production, often resulting in ineffective airway clearance. This condition may lead to dyspnea, ineffective cough, abnormal breath sounds, and impaired oxygenation, requiring prompt and comprehensive nursing management.

Objective: To describe the implementation of emergency nursing care for patients with pneumonia experiencing ineffective airway clearance and to evaluate changes in respiratory status following nursing interventions in the Intensive Cardiovascular Care Unit (ICVCU).

Methods: A descriptive case study using the nursing process approach was conducted on two patients with pneumonia treated in the ICVCU of Kediri Regency Hospital between December 15 and 18, 2025. Data were collected through interviews, physical examinations, clinical observations, and medical record documentation. Data analysis was performed descriptively through the stages of assessment, nursing diagnosis, intervention, implementation, and evaluation.

Discussion: Both patients presented with dyspnea, ineffective cough, retained secretions, increased respiratory rate, and rhonchi, leading to the nursing diagnosis of ineffective airway clearance. Nursing interventions included airway management, respiratory monitoring, effective coughing exercises, oxygen therapy, semi-Fowler positioning, and collaboration in administering bronchodilators, expectorants, and mucolytics. Following 2–3 days of nursing care, both patients showed reduced dyspnea, improved sputum expectoration, decreased respiratory rate, increased oxygen saturation, and improved respiratory status, although the nursing problem was only partially resolved.

Conclusion: Comprehensive emergency nursing interventions effectively improved airway clearance and respiratory status in patients with pneumonia, supporting better clinical outcomes despite partial resolution of the nursing diagnosis during the observation period.

* Corresponding author: * ardilamerina346@gmail.com (AM, Putri)

@ 2026 The Author(s). Published by Kenazer Inc. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>)

1. Introduction

Pneumonia is an infection of the lower respiratory tract caused by bacteria, viruses, fungi, or parasites. This condition causes inflammation of the lungs, causing the alveoli to fill with fluid or exudate, disrupting oxygen exchange. Common symptoms include coughing, accumulation of secretions, shortness of breath, and decreased oxygen levels, which can lead to serious complications if not properly treated (Wahyu Ilahi, 2024). One common nursing problem in pneumonia patients is ineffective airway clearance due to the accumulation of excess secretions, which obstruct the airway and reduce the ability to cough effectively (Ekowati et al., 2022).

Pneumonia remains a significant health problem in Indonesia. Ministry of Health data shows that the incidence of pneumonia in 2018 and 2019 reached 49.45% and 49.23%, respectively, making it one of the leading causes of death in Indonesia (Ministry of Health of the Republic of Indonesia, 2020). The prevalence of pneumonia also increases in the elderly, especially those over 50 years of age (Astuti et al., 2025). In East Java, approximately 50,320 cases of pneumonia were recorded in 2020 (Fadillah et al., 2023). Meanwhile, medical records from the Kediri Regency Hospital show 48 pneumonia patients treated in the Intensive Care Unit (ICVCU) from October to December 2025.

The accumulation of secretions in pneumonia can cause shortness of breath, rhonchi, increased respiratory rate, use of accessory muscles, and even cyanosis if not promptly treated (Antonio et al., 2020). Therefore, nursing care focused on airway management, effective coughing exercises, and respiratory monitoring is needed to help clear secretions and maintain airway patency (Yuniandita, N., & Hudiawati, 2020). Based on these conditions, the author is interested in conducting a case study regarding emergency nursing care for pneumonia patients with ineffective airway clearance problems in the ICVCU room of Kediri Regency Hospital in 2026.

2. Method

2.1. Study Design

This study employed a descriptive case study design using the nursing process approach to describe the implementation of emergency nursing care for patients with pneumonia experiencing ineffective airway clearance.

2.2. Setting

The study was conducted in the Intensive Cardiovascular Care Unit (ICVCU) of Kediri Regency Hospital, Indonesia. Nursing care was provided from December 15 to 18, 2025.

2.3. Participants

The participants consisted of two adult patients diagnosed with pneumonia who experienced ineffective airway clearance and were admitted to the ICVCU. Participants were selected using purposive sampling based on the diagnosis and willingness to participate in the study. One patient received nursing care for three days, while the other was observed for two days.

2.4. Instruments

Data were obtained using nursing assessment forms, physical examination sheets, observation records, medical records, and supporting diagnostic examinations, including chest radiography, laboratory results, vital signs, oxygen saturation, respiratory assessment, and sputum observation. Nursing diagnoses, interventions, and outcomes were based on the Indonesian Nursing Diagnosis Standards (SDKI), Indonesian Nursing Intervention Standards (SIKI), and Indonesian Nursing Outcome Standards (SLKI).

2.5.Data Collection

Data were collected through patient interviews, direct clinical observations, physical examinations, and medical record reviews. The collected data included demographic characteristics, clinical manifestations, respiratory status, oxygen therapy, laboratory findings, radiological examinations, and nursing documentation throughout the nursing care process.

2.6.Data Analysis

Data were analyzed descriptively using the nursing process, including assessment, nursing diagnosis, planning, implementation, and evaluation. Patients' responses to nursing interventions were evaluated daily based on changes in respiratory rate, oxygen saturation, breath sounds, sputum expectoration, and subjective complaints to determine the effectiveness of the nursing care provided. Ethical principles were maintained by ensuring patient confidentiality, respecting patient autonomy, promoting beneficence, and preventing harm throughout the study.

3. Result

In Patient 1, Mrs. S is a 58-year-old woman who works as a farmer. The patient was admitted to the ICVCU (Intensive Care Unit) of Kediri Regency Hospital on December 13, 2025, via the Emergency Department (ED), with a medical diagnosis of pneumonia, acute anteroseptal STEMI, and hyperglycemic diabetes mellitus.

During the assessment, the patient complained of shortness of breath for four days before admission. The shortness of breath worsened, especially at night. The patient also complained of a cough that had persisted for about two weeks, but phlegm was difficult to expel. Furthermore, the patient reported feeling weak, limiting her daily activities.

Vital signs revealed a blood pressure of 163/79 mmHg, a pulse rate of 93 beats per minute, a respiratory rate of 24 breaths per minute, a body temperature of 36.5°C, and an oxygen saturation of 96% with oxygen supplemented by a nasal cannula at 4 liters per minute. A respiratory examination revealed an irregular breathing pattern, dyspnea, use of accessory muscles, an ineffective cough, difficulty expelling secretions, and additional breath sounds in the form of rhonchi. A chest X-ray revealed pneumonia.

Patient 2, Mr. A, is a 59-year-old farmer. He was admitted to the Intensive Care Unit (ICVCU) of Kediri Regency Hospital on December 16, 2025, through the Emergency Department, with a medical diagnosis of pneumonia and anteroseptal STEMI.

The patient presented with chief complaints of shortness of breath and a cough with phlegm that was difficult to expel. These complaints had been present for one week before admission. The shortness of breath worsened with activity and was accompanied by weakness and fever. The patient had a history of smoking, but quit after experiencing the illness. During the assessment, blood pressure was 131/82 mmHg, pulse rate 64 beats per minute, respiratory rate 25 breaths per minute, body temperature 37.9°C, and oxygen saturation 96% with oxygen support via nasal cannula at 5 liters per minute. A respiratory examination revealed dyspnea, an irregular breathing pattern, an ineffective cough, difficulty expectorating secretions, and additional breath sounds in the form of rhonchi. Laboratory tests revealed an elevated leukocyte count of $11.56 \times 10^3/\mu\text{L}$, indicating an infectious process. A chest X-ray also showed signs of pneumonia.

Based on the data grouping, the primary nursing diagnosis was identified, prioritized as Ineffective Airway Clearance related to retained secretions, characterized by shortness of breath and a dry cough. Nursing care was implemented for 2-3 days, according to the following interventions: Table 1. Nursing Actions

In Patient 1, Mrs. S is a 58-year-old woman who works as a farmer. The patient was admitted to the ICVCU (Intensive Care Unit) of Kediri Regency Hospital on December 13, 2025, via the

Emergency Department (ED), with a medical diagnosis of pneumonia, acute anteroseptal STEMI, and hyperglycemic diabetes mellitus.

During the assessment, the patient complained of shortness of breath for four days before admission. The shortness of breath worsened, especially at night. The patient also complained of a cough that had persisted for about two weeks, but phlegm was difficult to expel. Furthermore, the patient reported feeling weak, limiting her daily activities.

Vital signs revealed a blood pressure of 163/79 mmHg, a pulse rate of 93 beats per minute, a respiratory rate of 24 breaths per minute, a body temperature of 36.5°C, and an oxygen saturation of 96% with oxygen supplemented by a nasal cannula at 4 liters per minute. A respiratory examination revealed an irregular breathing pattern, dyspnea, use of accessory muscles, an ineffective cough, difficulty expelling secretions, and additional breath sounds in the form of rhonchi. A chest X-ray revealed pneumonia.

Patient 2, Mr. A, is a 59-year-old farmer. He was admitted to the Intensive Care Unit (ICVCU) of Kediri Regency Hospital on December 16, 2025, through the Emergency Department, with a medical diagnosis of pneumonia and anteroseptal STEMI.

The patient presented with chief complaints of shortness of breath and a cough with phlegm that was difficult to expel. These complaints had been present for one week before admission. The shortness of breath worsened with activity and was accompanied by weakness and fever. The patient had a history of smoking, but quit after experiencing the illness. During the assessment, blood pressure was 131/82 mmHg, pulse rate 64 beats per minute, respiratory rate 25 breaths per minute, body temperature 37.9°C, and oxygen saturation 96% with oxygen support via nasal cannula at 5 liters per minute. A respiratory examination revealed dyspnea, an irregular breathing pattern, an ineffective cough, difficulty expectorating secretions, and additional breath sounds in the form of rhonchi. Laboratory tests revealed an elevated leukocyte count of $11.56 \times 10^3/\mu\text{L}$, indicating an infectious process. A chest X-ray also showed signs of pneumonia.

Based on the data grouping, the primary nursing diagnosis was identified, prioritized as Ineffective Airway Clearance related to retained secretions, characterized by shortness of breath and a dry cough. Nursing care was implemented for 2-3 days, according to the following interventions:

Table 1. Nursing Actions

No. DX	ACTION
1	Airway Management a) Monitor breathing pattern (rate) b) Monitor adventitious breath sounds c) Monitor sputum d) Position the patient in a Fowler's or semi-Fowler's position e) Administer oxygen if necessary f) Teach effective coughing techniques g) Collaborate with the administration of bronchodilators, expectorants, and mucolytics, if necessary.
2	Effective Coughing Exercises a) Identify coughing ability b) Arrange for semi-Fowler's or Fowler's position c) Explain the purpose and procedure for effective coughing d) Encourage deep inhalation through the nose for 4 seconds, holding it for 2 seconds, then exhaling through the mouth with pursed lips for 8 seconds e) Encourage repeating the deep inhalation up to 3 times f) Encourage forceful coughing immediately after the 3rd deep inhalation g) Collaborate with mucolytics or expectorants, if necessary.
3	Respiratory Monitoring a) Monitor respiratory rate, rhythm, depth, and effort

	b) Monitor effective coughing ability c) Auscultate breath sounds d) Monitor oxygen saturation e) Document monitoring results f) Communicate and document monitoring results, if necessary.
--	---

The first day of evaluation for patient 1, Mrs. S, was conducted on December 15, 2025. The patient reported still experiencing shortness of breath, weakness, frequent nighttime awakenings, frequent coughing, and inability to produce phlegm. Respiratory rate: 24x/minute, Spo2: 96%. The patient appeared short of breath, appeared weak, and appeared to be coughing. Nasal oxygen therapy at 4 Lpm was administered, and additional rhonchi were heard. Ineffective airway clearance was related to retained secretions, as indicated by the patient complaining of shortness of breath and a dry cough that had not yet resolved. The intervention was continued. In patient 2, Mr. A, on December 17, 2025, the patient reported slightly reduced shortness of breath, decreased coughing, and was able to produce only a small amount of phlegm. Respiratory rate: 25x/minute, Spo2: 96%; the patient appeared weak and appeared to be coughing. Nasal oxygen therapy at 5 Lpm was administered, and additional rhonchi were heard. Ineffective airway clearance was related to retained secretions, as indicated by the patient complaining of shortness of breath and a dry cough that had partially resolved. The intervention was continued.

The second day of evaluation for patient 1, Mrs. S on December 16, 2025. The patient reported that the shortness of breath had slightly decreased, the cough had decreased, and phlegm could be expelled but was small and difficult. Respirations: 23x/minute, Spo2: 96%. The patient appeared weak; nasal O2 was installed at 4 Lpm, and additional breath sounds were heard: rhonchi. The problem of ineffective airway clearance related to retained secretions was indicated by the patient complaining of shortness of breath, and a dry cough was partially resolved; nursing interventions were continued. In patient Mr. A on December 18, 2025. The patient reported that the complaint of shortness of breath was reduced, the cough was reduced, and phlegm was able to be expelled; the patient reported that the complaint of weakness was decreasing. Respirations: 22x/minute, Spo2: 97%. The patient appeared calm; nasal O2 was installed at 4 Lpm; additional breath sounds were heard, rhonchi. The problem of ineffective airway clearance related to retained secretions was indicated by the patient complaining of shortness of breath, and a dry cough was partially resolved; nursing interventions were continued, and the patient was moved to Anggrek.

Evaluation on the third day of patient 1, Mrs. S, on December 17, 2025. The patient said that the shortness of breath had decreased, phlegm could come out, and sleep began to be comfortable. With breathing: 21x/minute, Spo2: 97%, the patient still looked weak; nasal O2 4 Lpm was installed, and additional breath sounds of rhonchi were still heard. The problem of ineffective airway clearance related to retained secretions was indicated by the patient complaining of shortness of breath and a dry cough, which was partially resolved; nursing interventions were continued, and the patient was moved to Bougainvillea.

The first day of evaluation for patient 1, Mrs. S, was conducted on December 15, 2025. The patient reported still experiencing shortness of breath, weakness, frequent nighttime awakenings, frequent coughing, and inability to produce phlegm. Respiratory rate: 24x/minute, Spo2: 96%. The patient appeared short of breath, appeared weak, and appeared to be coughing. Nasal oxygen therapy at 4 Lpm was administered, and additional rhonchi were heard. Ineffective airway clearance was related to retained secretions, as indicated by the patient complaining of shortness of breath and a dry cough that had not yet resolved. The intervention was continued. In patient 2, Mr. A, on December 17, 2025, the patient reported slightly reduced shortness of breath, decreased coughing, and was able to produce only a small amount of

phlegm. Respiratory rate: 25x/minute, Spo2: 96%; the patient appeared weak and appeared to be coughing. Nasal oxygen therapy at 5 Lpm was administered, and additional rhonchi were heard. Ineffective airway clearance was related to retained secretions, as indicated by the patient complaining of shortness of breath and a dry cough that had partially resolved. The intervention was continued.

The second day of evaluation for patient 1, Mrs. S on December 16, 2025. The patient reported that the shortness of breath had slightly decreased, the cough had decreased, and phlegm could be expelled but was small and difficult. Respirations: 23x/minute, Spo2: 96%. The patient appeared weak; nasal O2 was installed at 4 Lpm, and additional breath sounds were heard: rhonchi. The problem of ineffective airway clearance related to retained secretions was indicated by the patient complaining of shortness of breath, and a dry cough was partially resolved; nursing interventions were continued. In patient Mr. A on December 18, 2025. The patient reported that the complaint of shortness of breath was reduced, the cough was reduced, and phlegm was able to be expelled; the patient reported that the complaint of weakness was decreasing. Respirations: 22x/minute, Spo2: 97%. The patient appeared calm; nasal O2 was installed at 4 Lpm; PII additional breath sounds were heard, rhonchi. The problem of ineffective airway clearance related to retained secretions was indicated by the patient complaining of shortness of breath, and a dry cough was partially resolved; nursing interventions were continued, and the patient was moved to Anggrek.

Evaluation on the third day of patient 1, Mrs. S, on December 17, 2025. The patient said that the shortness of breath had decreased, phlegm could come out, and sleep began to be comfortable. With breathing: 21x/minute, Spo2: 97%, the patient still looked weak; nasal O2 4 Lpm was installed, and additional breath sounds of rhonchi were still heard. The problem of ineffective airway clearance related to retained secretions was indicated by the patient complaining of shortness of breath and a dry cough, which was partially resolved; nursing interventions were continued, and the patient was moved to Bougainvillea.

4. Discussion

Based on the assessment of both patients, similar signs and symptoms were found, suggesting ineffective airway clearance. Mrs. S had complained of shortness of breath four days before admission, worsening at night. She had a dry cough for two weeks, difficulty producing phlegm, and weakness. A physical examination revealed a respiratory rate of 24 breaths per minute, an irregular breathing pattern, use of accessory muscles, and rhonchi as additional breath sounds. Meanwhile, Mr. A had complained of shortness of breath and a cough with phlegm that was difficult to produce since one week before admission. The patient also complained of weakness and fever. The examination revealed a respiratory rate of 25 breaths per minute, an irregular breathing pattern, dyspnea, and rhonchi as additional breath sounds. Furthermore, laboratory results showed an elevated leukocyte count of $11.56 \times 10^3/\mu\text{L}$, indicating an infectious process. Both patients also had chest X-rays that concluded they had pneumonia.

These data indicate that both patients experienced respiratory system disorders due to an infectious process that caused increased secretion production. According to the theory, pneumonia is an inflammation of the lung parenchyma that causes the alveoli to fill with fluid and secretions, thus disrupting pulmonary ventilation. The accumulation of secretions that cannot be effectively expelled will cause airway obstruction, characterized by ineffective coughing, shortness of breath, increased respiratory rate, and the appearance of additional

breath sounds in the form of rhonchi. This condition is consistent with the data found in both patients, so the established nursing diagnosis is ineffective airway clearance related to retained secretions.

The nursing diagnoses for both patients were based on subjective data, including shortness of breath, cough, and difficulty producing phlegm. Supporting objective data included increased respiratory rate, irregular breathing patterns, rhonchi, use of oxygen therapy, and radiological examination findings suggestive of pneumonia. According to the Indonesian Demographic and Health Survey (IDHS), ineffective airway clearance is the inability to clear secretions or obstructions to maintain a patent airway. Therefore, the established diagnoses were consistent with the clinical conditions of both patients.

To address these issues, researchers provided nursing interventions in the form of airway management, effective coughing exercises, and respiratory monitoring. Airway management included monitoring breathing patterns, adventitious breath sounds, and sputum production, positioning patients in a semi-Fowler's or Fowler's position, administering oxygen therapy, teaching effective coughing techniques, and collaborating on administering bronchodilators, expectorants, and mucolytics as indicated. The semi-Fowler's position was established to facilitate lung expansion, thus facilitating breathing. Oxygen therapy was also administered to help meet the oxygen needs of patients experiencing ventilation impairment due to pneumonia.

In addition, effective coughing exercises are performed to help mobilize and expel trapped secretions in the respiratory tract. This technique begins with positioning the patient in a semi-Fowler's or Fowler's position. The patient is then taught to inhale deeply through the nose, hold the breath for a few seconds, and exhale slowly before coughing forcefully. Effective coughing exercises are important because they can help clear the airway, improve lung ventilation, and reduce shortness of breath caused by accumulated secretions.

During the nursing care, the two patients showed different developments. In Mrs. S's case, the first day's evaluation indicated that the problem had not been resolved, as the patient continued to complain of shortness of breath, coughing, weakness, and sputum production. On the second day, her condition began to improve, as evidenced by a decrease in shortness of breath and the production of sputum, although still small amounts. On the third day, the patient reported that her shortness of breath had decreased, sputum production was possible, and she was sleeping more comfortably. The respiratory rate also decreased from 24 breaths per minute to 21 breaths per minute, while oxygen saturation increased from 96% to 97%. However, crackles were still audible, indicating that the problem was partially resolved.

Meanwhile, Mr. A's condition appeared to improve more quickly. On the first day of the evaluation, the patient reported that his shortness of breath had begun to decrease and he was able to produce a small amount of phlegm. On the second day, the patient reported that his shortness of breath had decreased, his coughing had subsided, his phlegm was more easily produced, and he felt stronger. His respiratory rate decreased from 25 breaths per minute to 22 breaths per minute, and his oxygen saturation increased to 97%. The patient's improving condition prompted him to be transferred to the intensive care unit for continued therapy.

The difference in response between the two patients was likely influenced by their individual health conditions. Ms. S had a history of diabetes mellitus, which can weaken the immune system, resulting in a slower healing process. In contrast, Mr. A, who did not have any of these comorbidities, showed faster improvement despite his history of smoking. Mr. A's smoking history may be a risk factor for pneumonia because it can interfere with the function of cilia in clearing secretions, but this condition does not significantly impact the recovery process as long as the patient receives adequate therapy.

5. Conclusion

Based on the discussion and observations, it can be concluded that the assessment conducted between December 15 and December 18, 2025, indicated that both patients experienced the same nursing problem: ineffective airway clearance related to retained secretions. This diagnosis was based on subjective data, including shortness of breath, cough, and difficulty expelling phlegm, as well as objective data, including increased respiratory rate, irregular breathing pattern, the presence of rhonchi, and radiological findings suggestive of pneumonia.

Nursing interventions provided included airway management, effective coughing exercises, and respiratory monitoring. These actions were carried out continuously, including monitoring breathing patterns, adventitious breath sounds, sputum production, oxygen saturation, providing a semi-Fowler's position, providing oxygen therapy, and teaching effective coughing techniques to assist in the removal of secretions and maintain a patent airway.

The evaluation results showed improvement in both patients. In Mrs. S experienced a decrease in shortness of breath, phlegm began to be expelled, sleep quality improved, respiratory rate decreased from 24 breaths per minute to 21 breaths per minute, and oxygen saturation increased from 96% to 97%. However, additional rhonchi were still heard, so the problem was declared partially resolved. Mr. A experienced a decrease in shortness of breath and cough; phlegm was more easily expelled, his body condition improved, respiratory rate decreased from 25 breaths per minute to 22 breaths per minute, and oxygen saturation increased to 97%. The patient's improved condition allowed him to be transferred to the advanced care room.

References

- [Antonio, M., Vicasco, N., & Handayani, D. \(2020\). Literature Review : Analisis Faktor Risiko Pneumonia pada Balita.](#)
- [Astuti, W. E., Siwi, A. S., Wahyuni, E. I., Studi, P., Ners, P., & Bangsa, U. H. \(2025\). Penerapan Fisioterapi Dada Pada Pasien Pneumonia Dengan Masalah Bersihan Jalan Napas Di Ruang HCU RSUD Prof . Dr . Margono Soekarjo. 7\(2\), 354–360.](#)
- [Ekowati, K., Santoso, H., & Sumarni, T. \(2022\). Studi Kasus Bersihan Jalan Napas Tidak Efektif Pada Pasien Dengan Penyakit Tuberkulosis Paru. Studi Kasus Bersihan Jalan Napas Tidak Efektif Pada Pasien Pneumonia Di RSUD Ajibarang, 10\(1\), 1–10.](#)
- Fadillah, P., Susyanti, D., Jundapri, K., & Suharto, S. (2023). Asuhan Keperawatan Pada Pasien Pneumonia Dengan Tindakan Latihan Jalan 6 Menit Di Rumah Sakit Tk Ii Putri Hijau Medan. SENTRI: Jurnal Riset Ilmiah, 2(9), 3850–3858. <https://doi.org/10.55681/sentri.v2i9.1549>
- [Wahyu Ilahi. \(2024\). Kebutuhan Dasar Manusia.](#)
- Yuniandita, N., & Hudiyawati, D. (2020). Prosedur Pencegahan Terjadinya Ventilator-Associated Pneumonia (Vap) di Ruang Intensive Care Unit (Icu): A Literature

Review. Jurnal Berita Ilmu Keperawatan, 13(1), 62–74.
<https://doi.org/https://doi.org/10.23917/bik.v13i1.11604>

[Pohan, K., Imayani, S., & Anisya, N. \(2024\). Efektivitas Latihan Batuk Efektif Terhadap Peningkatan Bersihan Jalan Napas Pada Pasien Pneumonia. Jurnal Kesehatan, Teknologi, dan Sains, 3\(1\), 33-41.](#)

Tim Penyusun. (2020). Buku Pedoman Penyusunan Karya Tulis Ilmiah Sekolah Tinggi Ilmu Kesehatan Pamenang. Stikes Pamenang.

[Tim Pokja SDKI DPP PPNI 2017. Standar Diagnosa Keperawatan Indonesia Definisi Dan Indikator Diagnostik Edisi 1. Jakarta: Dewan Pengurus Pusat Ppni.](#)

[Tim Pokja, P. P. N. I. \(2018\). Standar Intervensi Keperawatan Indonesia. Jakarta Selatan: Dewan Pengurus Pusat PPNI.](#)