

EXCELLENT SERVICE NURSING CARE MANAGEMENT FOR CHILDREN WITH LEUKEMIA IN THE INTENSIVE CARE UNIT 4 AT H.ADAM MALIK GENERAL HOSPITAL MEDAN NORTH SUMATRA PROVINCE IN 2025

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ABSTRACT

Acute lymphoblastic leukemia (ALL) is the most common type of blood cancer in children, significantly impacting their health status and quality of life. This study aims to evaluate nursing care in pediatric patients with ALL using a comprehensive nursing process approach. The research design is a descriptive case study involving one pediatric patient undergoing inpatient care at a hospital. Data were collected through interviews, observations, and documentation review. The primary nursing problems identified included ineffective peripheral tissue perfusion, activity intolerance, and risk of infection. Interventions focused on hemodynamic monitoring, pain management, and family education. The evaluation revealed clinical improvements and enhanced adaptive responses in the patient. This case study emphasizes the vital role of continuous and targeted nursing care in supporting the healing process and improving the quality of life in children with ALL.

Keywords: *Acute lymphoblastic leukemia, Nursing care*

Introduction

UNICEF plays a key role in supporting the treatment of childhood leukemia through global collaboration to improve access to treatment and health services for children in low- and middle-income countries. (UNICEF Regional Office of South Asia & Centre for Integration Science, 2024). Under the Global Platform for Access to Childhood Cancer Medicines (GPACCM), launched by WHO in 2022, UNICEF acts as a key partner in the procurement and distribution of essential childhood cancer medicines, including those for acute lymphoblastic leukemia (ALL), the most common type of leukemia in children. Based on the Sustainable Development Goals

(SDGs), this goal encompasses 17 key targets designed to be achieved by 2030. (Gupta, 2024). One of these targets, Goal 3: Good Health and Well-being, is closely related to the management of childhood leukemia, which aims to "Ensure healthy lives and promote well-being for all at all ages." (UNICEF Supply, 2025).

The Indonesian government has implemented various programs to address childhood leukemia, including:

1. National Health Insurance (JKN) through BPJS Kesehatan (Social Security Agency for Health). This program covers the costs of cancer treatment, including childhood

- leukemia, from laboratory tests and chemotherapy to inpatient care.
2. National Action Plan for Cancer Control (RAN-PK) Based on Minister of Health Regulation No. 34 of 2015, this program focuses on early detection, health promotion, treatment, and rehabilitation of cancer patients. (Platform and Medicines, 2025)
 3. In a structured education program was introduced for parents from various economic backgrounds, including low-income families, to increase access to information and free chemotherapy. This program includes material delivery through video presentations, guides, DVDs, and audio recordings. (Faridah *et al.*, 2025)

Children are categorized as individuals from the time they are in the womb until they reach the age of 19. Children are unique individuals and cannot be considered smaller versions of adults. Children are not assets or wealth belonging to their parents that can be measured by socioeconomic value, but rather are the nation's future generation who have the right to receive personalized healthcare. Because they still depend on adults and their environment, children need environmental support that can meet their basic needs and foster independence (Jones *et al.*, 2025).

Leukemia is a blood disorder caused by the proliferation of white blood cell-forming tissue. This condition is characterized by the appearance of immature or abnormal white blood cells in the bloodstream. This disease is also associated with impaired hematopoietic cell differentiation and excessive neoplastic cell growth. (Ranta *et al.*, 2021). According to the WHO definition, leukemia is a type of blood malignancy characterized by the abnormal and uncontrolled growth of white blood cells (leukocytes). This condition occurs when

leukocytes undergo abnormal changes and overgrow in the bone marrow (UNICEF Regional Office of South Asia & Centre for Integration Science, 2024)

According to data from Surveillance, Epidemiology, and End Results (SEER), there were an estimated 61,090 new cases of leukemia in 2021, representing approximately 3.2% of all new cancer cases, making leukemia the 10th most common cancer in the United States. Meanwhile, based on data from the North Sumatra Provincial Health Office in 2023, there were 313 cases of leukemia recorded in the region. (Simanullang *et al.*, 2020)

Based on the 2018 Basic Health Survey (Riskesdas), the prevalence of childhood leukemia in Indonesia was recorded at around 4.3% per 1,000 population. Meanwhile, Globocan data from 2020 showed 11,156 cases of cancer in children aged 0 to 19, with leukemia being the most common type of cancer, accounting for 3,880 cases, or approximately 34.8% of all cases (Ministry Of Health, 2023). Based on preliminary survey data, the incidence of childhood leukemia at H. Adam Malik General Hospital (RSUP) was 67 in 2023, and 62 in 2024. These figures are based on data obtained from the Pediatric Inpatient Ward, RB 4, H. Adam Malik General Hospital. (Samosir *et al.*, 2023). Based on the incidence of leukemia, nurses have a role in providing nursing care, namely as care givers or providing nursing services as pediatric nurses, as family advocates, disease prevention, as educators or nurses must be able to provide health education, especially in nursing, as counselors, collaboration with other health teams, ethical decision makers, as researchers to improve the quality of pediatric nursing services. (Siti Nurmawan Sinaga, 2022)

Research Method

The type of research used in this scientific paper is a descriptive method with a case study whose purpose is to collect detailed actual information that describes the existing symptoms. This study is entitled Nursing Care for Children with Leukemia at H. Adam Malik General Hospital in 2025. The approach used is a nursing care approach that begins with Assessment, Nursing Diagnosis, Nursing Intervention, Nursing Implementation, Nursing Evaluation. The location of this research was in the Rindu B4 Room of H. Adam Malik General Hospital. Nursing care was provided to An A from April 24 to April 26, 2025. H. Adam Malik General Hospital has been accredited for 16 services. According to research conducted on April 24, 2025, various types of diseases experienced by children, including Leukemia, were found at H. Adam Malik General Hospital. Based on SDGS No. 3, leukemia is a disease that can cause premature death and requires special health services, which is one of the focuses in achieving the target, aiming to reduce the burden of leukemia and improve the quality of life of patients and their families.

Result

Patient named An.A is a 4 years and 10 months old child, born on June 26, 2020. Currently, the patient is studying at the Kindergarten (TK) level, the patient lives with his parents in the Tanjung Balai area. The patient's mother is named Mrs. S, and both of the patient's parents work as traders. An.A is of Javanese ethnicity and is of Indonesian nationality. In their daily lives, this family adheres to the Islamic religion.. The patient presented with complaints of fever, weakness, fatigue, and decreased appetite. The client's mother reported that the fever fluctuated and did not improve, and that she felt fatigued and had decreased appetite.

The child's chief complaint began on April 17, 2025. It appeared gradually without any clear precipitating factors. The patient's parents reported no specific events or changes in activity that could be the initial cause of the symptoms. The characteristic symptom was a fever that fluctuated. The fever was not accompanied by pain, so the location and radiation could not be specifically evaluated. The fever pattern was intermittent, coming and going, with varying durations from day to day. It was found that administering fever-reducing medication (antipyretics) helped lower the patient's body temperature. However, physical activity tended to exacerbate the condition, causing the patient to tire easily and appear uncomfortable. Since the onset of these symptoms, the patient's parents expressed emotional distress in the form of fear, anxiety, and sadness. They were concerned about their child's condition and feared that he would not recover quickly. This indicates a psychological impact on the family that requires attention through a holistic nursing approach. The client had a good prenatal history; the mother experienced no serious health problems or complaints during pregnancy. There was no history of alcohol or drug use. The mother regularly took vitamins and iron supplements during pregnancy and was not exposed to any hazardous chemicals. The client was born in a clinic with a normal, full-term delivery. The baby appeared active after birth and showed no signs of asphyxia, so he did not require intensive care. However, the mother was unaware of the type of medication used during delivery. After birth, the baby was in good condition. His birth weight was 3.8 kg and his body length was 48 cm. There were no complaints of fever, shortness of breath, or seizures during the neonatal period (Telaumbanua *et al.*, 2025)

Although the mother was unaware of her child's APGAR score, the baby was generally considered healthy. The client had previously been hospitalized for leukemia. During this time, the child appeared quiet and cried frequently, especially during medical procedures. The child also showed signs of anxiety and fear. The medication history revealed that the child had only ever used paracetamol, and that only when he had a fever. There was no history of allergies or accidents. Regarding immunization, the mother did not remember the details but she stated that her child had received complete immunizations according to recommendations. The patient was diagnosed with leukemia and has not yet undergone surgery. Medical treatment focuses on administering medications and other supportive measures to improve the patient's condition. The patient was given intravenous fluid therapy, namely IVFD D5% NaCl 0.225%, at a rate of 20 cc/hour. To manage fever and pain, the patient was given Paracetamol 150 mg every 8 hours, while Ranitidine 15 ml every 12 hours was used as a preventive measure against gastrointestinal irritation. This was to prevent infection. The patient received Vancomycin 300 mg every 8 hours, an antibiotic administered intravenously over 1 hour. Nystatin drops were also given to prevent mouth ulcers. In addition, the patient took a 20 mg zinc supplement once daily to support the immune system and accelerate tissue recovery. Because the patient had anemia due to leukemia, a Packed Red Cell (PRC) transfusion was performed to maintain a hemoglobin level of 10 g/dl. This transfusion was administered in several stages: PRC I: 40 cc, PRC II: 40 cc, PRC III: 50 cc, PRC IV: 65 cc, PRC V: 70 cc. The patient also received a 50 cc platelet transfusion (TC I) to prevent or

treat platelet deficiency, which can cause bleeding. Nursing actions: Collaborate with physicians in administering medications and blood transfusions. The patient presented in a *compos mentis* state with a fully alert response and a GCS score of E4 V5 M6, indicating good consciousness. Vital signs revealed a blood pressure of 90/60 mmHg, a pulse rate of 112 beats per minute, a respiratory rate of 32 breaths per minute, and a temperature of 38.7°C, indicating fever and possible signs of dehydration or systemic infection. Anthropometrically, the patient was 94 cm tall and weighed 13 kg before the illness, but had recently dropped drastically to 9 kg, indicating significant weight loss that could be a sign of severe malnutrition or wasting. An eye examination revealed anemic conjunctivae with normal pupillary function. The nose appeared clear without edema or lesions. There were no lesions in the mouth, but there were canker sores and a pale tongue, further supporting the finding of anemia. The ears were clean and there were no bleeding. The nape of the neck showed no signs of infection or edema. A chest examination revealed a symmetrical chest shape, balanced respiratory movements, and no deformities or retractions. The abdomen was palpable, with no edema, normal peristalsis, and no lesions. The back was in good condition, with no edema or lesions. A genital examination revealed a clean area without lesions, infection, or discharge. No edema or lesions were seen in the extremities, but the patient appeared weak, which could be attributed to the patient's general deterioration due to infection or malnutrition.

Nursing Diagnosis a. Hyperthermia related to the disease process, as evidenced by the client's fever, which fluctuates and persists. Temperature: 38.7°C, BP: 90/60

mmHg, Hb: 4.1 g/dl, RBCs: 1.60 million/ μ l.
b. Ineffective peripheral perfusion related to decreased hemoglobin concentration, as evidenced by the child's mother's fatigue and weakness, pale skin, capillary refill time >3 seconds, Hb: 4.1 g/dl, platelets 2,000/ μ l.
c. Nutritional Deficiency related to psychological factors (reluctance to eat), as evidenced by the client's mother's refusal to eat and mouth ulcers. Weight before illness: 13 kg, current weight: 9 kg. Implementation: Thursday, April 24, 2025, at 10:00 a.m. WIB, initial diagnosis: Hyperthermia related to disease process

- Identify possible causes of hyperthermia based on medical history and physical examination. Information is obtained that the client has had a fever that has persisted for several days and has not improved.
- Monitor vital signs: Temperature: 38.7°C (axillary), Pulse: 112 beats/minute, Respiration: 32 beats/minute, BP: 90/60 mmHg
- Monitor for complications due to hyperthermia such as skin flushing, dizziness, or seizures (none found).
- Move the client to a cooler room and ensure good ventilation.
- Assist the client in removing thick clothing and replacing it with light, absorbent clothing.
- Encourage the client to drink water in small, frequent sips. Provide approximately 500 ml of warm water every 2 hours.
- Report body temperature and vital signs to the doctor. Obtain an order for intravenous electrolyte fluids (paracetamol drip). Initiate a 500 ml/6-hour NaCl infusion as ordered by the doctor. Initiate a 500 ml/6-hour NaCl infusion.

Thursday, April 24, 2025, at 11:00 a.m. WIB, the second diagnosis was Ineffective Peripheral Perfusion related to decreased hemoglobin concentration.

- Identify risk factors for circulatory disorders.
- Implement infection prevention measures.
- Provide a diet to improve circulation (low in saturated fats, fish, and omega-3).
- Provide information on emergency signs and symptoms that require immediate action (such as pain that persists with rest).
- Monitor blood transfusion administration.

Monitor anti-inflammatory medication admin Thursday, April 24, 2025, at 12:00 PM WIB, the third diagnosis was: Nutritional deficit related to psychological factors (reluctance to eat).

- Identifying nutritional status
- Identifying food allergies and intolerances
- Identifying preferred foods
- Monitoring food intake
- Monitoring body weight
- Performing oral hygiene before meals
- Facilitating dietary guidelines (food pyramid)
- Presenting food attractively
- Providing high-fiber foods to prevent constipation. Providing high-calorie and high-protein food. Providing dietary supplements, if necessary. Encouraging a sitting position, if necessary. Teaching the planned diet. Collaborating with a nutritionist to provide 150 ml of milk.istration.

Evaluation After three days of nursing care implementation, the analysis revealed three diagnoses for the case:

- Hyperthermia related to the disease process has been resolved
- Ineffective Peripheral Perfusion related to decreased hemoglobin concentration that has not been resolved
- Nutritional Deficit related to psychological factors (reluctance to eat) has been partially resolved.

Discussion

After implementing pediatric nursing care for An. A with a hematological system disorder, namely Leukemia, in Room Rindu B 4, H. Adam Malik General Hospital, using the nursing process, namely: Assessment, Nursing Diagnosis, Nursing Care Intervention, Nursing Care Implementation, and Nursing Care Evaluation, consisting of progress notes, the following conclusions can be drawn.

During the assessment of Pediatric Nursing Care for An. A with a circulatory system disorder, namely Leukemia, in Room Rindu B 4, H. Adam Malik General Hospital in 2025, the data obtained were in accordance with the theory.

In preparing the action plan for Pediatric Nursing Care for An. A with a hematological system disorder, namely Leukemia, in Room Rindu B 4, H. Adam Malik General Hospital in 2025, the data partially aligned with the theory.

Conclusion And Suggestion

After implementing pediatric nursing care for A with a hematological system disorder, namely leukemia, in Room B 4, H. Adam Malik General Hospital, using the nursing process, namely: Assessment, Nursing Diagnosis, Nursing Care Intervention, Nursing Care Implementation, and Nursing Care Evaluation, consisting of progress notes, the following conclusions can be drawn:

a. Assessment

During the assessment of Pediatric Nursing Care for A with a circulatory system disorder, namely leukemia, in Room B 4, H. Adam Malik General Hospital in 2025, the data obtained were in accordance with the theory.

b. Nursing Diagnosis

1. Hyperthermia related to the disease process, as evidenced by the client's

mother reporting a fluctuating fever of 38.7°C.

2. Ineffective peripheral perfusion related to decreased hemoglobin concentration, as evidenced by the client's mother reporting fatigue and weakness, pale skin, Capillary Refill Time >3 seconds, HB: 4.1 grams/dl.
3. Nutritional Deficiency related to psychological factors (reluctance to eat), as evidenced by the client's mother reporting a reluctance to eat, excessive hair loss, mouth ulcers, pre-illness weight of 13 kg, and current weight of 9 kg.

c. Nursing Intervention

In preparing the nursing care plan for Child An.A with hematological system disorder, namely Leukemia, in Room B 4, H. Adam Malik General Hospital in 2025, the data partially aligns with the theory.

d. Nursing Care Implementation

1. Assisting the client to remove thick clothing and replace it with thin, absorbent clothing for An.A in the Rindu B4 Room of H. Adam Malik General Hospital in 2025.
2. Recommending proper skin care, for example: moisturizing dry skin on An.A's feet in the Rindu B4 Room of H. Adam Malik General Hospital in 2025.
3. Facilitating dietary guidelines (food pyramid) for An.A in the Rindu B4 Room of H. Adam Malik General Hospital in 2025.

e. Nursing Care Evaluation

After three days of nursing care implementation, the analysis revealed three diagnoses for the case:

1. Hyperthermia related to the disease process, evidenced by the child complaining of a fluctuating fever that persisted and resolved.
2. Ineffective Peripheral Perfusion related to decreased hemoglobin

concentration, evidenced by the client's mother reporting fatigue and weakness, pale skin, CRT >3 seconds, and HB: 4.1 g/dl, which had not been resolved.

3. Nutritional Deficiency related to psychological factors (reluctance to eat), evidenced by An.A's mother reporting a reluctance to eat, excessive hair loss, mouth ulcers, and pre-illness weight of 13 kg and current weight of 9 kg, which had been partially resolved.

Suggestions for students The results of this study are expected to provide experience in implementing nursing care for hematological system disorders: leukemia.

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