

## Nursing Interventions in Preventing Infection in Children with Leukemia

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### Abstract

Children with leukemia are at an increased risk of infections due to weakened immune systems caused by both the disease and intensive treatments like chemotherapy. Nursing interventions play a vital role in preventing infections for these vulnerable patients. This review outlines effective nursing strategies to reduce infection risks, including strict hand hygiene, careful management of central venous catheters, educating families on infection prevention, closely monitoring for signs of infection, and maintaining a sterile environment for the child. Additionally, emphasizing proper nutrition, regular temperature monitoring, and fostering collaboration among nurses, doctors, and families is essential. By consistently implementing these interventions, infection rates can be decreased, thereby improving the quality of life and increasing survival chances for children fighting leukemia.

**Key Words:** Children, Infection, Lukemia, Nursing Interventions.

\* Please cite this article as: Ghaljaei F, Nourmohammadi J. Nursing Interventions in Preventing Infection in Children with Leukemia. J Ped Perspect 2025; 13 (6):19483-19486. DOI: 10.22038/jpp.2025.87466.5538

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**DEAR EDITOR**

Leukemia is a serious condition that requires complex treatments such as chemotherapy and bone marrow transplants, both of which significantly weaken the immune system (1). Consequently, children with leukemia are highly vulnerable to infections, making infection prevention a crucial aspect of their care (2). Children with leukemia are highly vulnerable to secondary infections due to factors such as chemotherapy-induced neutropenia, compromised skin and mucosal barriers, exposure to hospital-acquired pathogens, and weakened innate immune responses (3). Preventing these infections is essential for enhancing treatment outcomes and improving the patients' quality of life. Therefore, implementing effective care practices and evidence-based nursing interventions is crucial (4).

Nursing interventions in this area include various strategies aimed at reducing infection risks (5). The most important of these is educating both families and healthcare workers about strict hand hygiene and proper sterilization of medical instruments. Additionally, nurses must regularly monitor patients for signs of infection, such as fever or other clinical symptoms, and respond promptly to treat them (6). Adherence to specific infection prevention protocols, including the appropriate use of antibiotics, vaccinations, and personalized supportive care, is also essential (7). Furthermore, providing nutritional and psychological support helps strengthen the immune system and reduce stress in these patients (8). Nurses play a pivotal role in the healthcare team by preventing and managing these infections through strict adherence to infection control protocols, meticulous screening and monitoring for early signs of infection, educating patients and their families, and maintaining high standards of environmental cleanliness (9).

Given the significant impact that secondary infections have on the progression and prognosis of diseases like childhood leukemia, it is scientifically and clinically imperative to carefully evaluate nursing practices and develop robust strategies in this area (10). This article explores effective nursing interventions that are vital for preventing infections in children with leukemia.

**NURSING INTERVENTIONS*****Education on Infection Prevention:***

A fundamental nursing intervention is educating both families and healthcare staff about infection prevention. This includes teaching methods such as hand hygiene and the use of sterilized equipment. It is also important for nurses to inform the healthcare team about the risk of hospital-acquired infections and the necessary preventive measures. These educational efforts should emphasize the importance of hygiene practices and the recognition of early signs of infection (11).

***Environmental Hygiene and Sterilization:***

For children with leukemia, maintaining a clean environment is crucial to prevent the entry of harmful germs and pathogens. Nurses are responsible for diligently maintaining both the hospital setting and the patient's personal space. This involves regular disinfection of surfaces, using sterilized medical tools, and minimizing the patient's exposure to potential sources of infection. Ensuring that medical supplies are individually allocated to each patient also helps reduce the transmission of infections within hospital settings (12).

***Meticulous Hand Hygiene and Personal Cleanliness:***

Proper handwashing is essential in preventing the spread of infections. Nurses must practice diligent hand hygiene themselves and teach patients and their families the correct techniques, including

when to wash hands or use sanitizers. Additionally, the use of protective equipment such as gloves, masks, and medical gowns by both healthcare providers and visiting family members is crucial for reducing infection risks (13).

#### ***Ongoing Patient Monitoring and Evaluation:***

Regular monitoring and assessment of a patient's health status are critical tasks for nurses to quickly identify any signs of infection. These assessments should include checking the patient's temperature, observing for signs of inflammation or unusual discharges, and tracking relevant laboratory test results. If any symptoms of infection are detected, immediate collaboration with the medical team to begin treatment is necessary (14).

#### ***Implementation of Preventative Medications and Guidelines:***

In certain cases, prophylactic treatments such as antibiotics and antivirals can effectively prevent infections in pediatric leukemia patients. These medications are especially crucial during chemotherapy periods when the patient's immune system is weakened. Nurses must administer these drugs carefully to minimize potential adverse effects (15).

#### ***Nutritional Support and Immune Enhancement:***

Proper nutrition plays a vital role in strengthening the immune system of leukemia patients. Nurses should collaborate closely with dietitians to ensure that children's nutritional needs are met, emphasizing diets rich in essential nutrients that boost immune function. Additionally, providing psychological support and managing stress are essential for enhancing the immune response (16).

#### **CONCLUSION**

Nursing practices focused on infection prevention in pediatric leukemia

patients are fundamental to improving quality of life and reducing complications during treatment. Ongoing education for families and medical staff about hygiene, regular patient assessments, adherence to prophylactic protocols, as well as nutritional and psychological support, are key components of effective healthcare strategies. By meticulously implementing these practices, infection rates can be reduced, and recovery outcomes for patients can be significantly improved.

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