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Letter to Editor (Pages: 175-177)

Delayed Referral of Children with Cancer to the Pediatric Intensive Care Unit: The Need for a Shared Care Pathway Between Oncology and Critical Care

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Abstract,

Advances in childhood cancer treatment have substantially improved survival; however, intensive therapies may cause severe infections, organ dysfunction, and rapid clinical deterioration. In these situations, pediatric intensive care units (PICUs) play a crucial role in providing life-sustaining support and enabling the continuation of cancer-directed treatment. Nevertheless, referral of children with cancer to the PICU may be delayed when clinicians perceive the underlying prognosis as poor or consider intensive interventions unlikely to be beneficial. Evidence indicates that many children with cancer survive PICU admission and may subsequently continue curative treatment. This letter highlights the need for a structured, shared care pathway involving pediatric oncology, critical care, infectious diseases, and palliative care teams to facilitate earlier recognition of deterioration and timely PICU referral.

Key Words: Childhood Cancer, Early Referral, Pediatric Intensive Care Unit, Palliative care, Sepsis.

*Please cite this article as: Hesabi A. Delayed Referral of Children With Cancer to the Pediatric Intensive Care Unit: The Need for a Shared Care Pathway Between Oncology and Critical Care. Health Provid 2026; 6(2): 175-77. doi: **10.22034/hp.2026.604792.1099**

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Received date: Jun. 19, 2026; Accepted date: Sep.22, 2026

Dear Editor,

Over recent decades, advances in chemotherapy, targeted therapy, radiotherapy, and hematopoietic stem cell transplantation have substantially improved survival among children with cancer (1). Nevertheless, these treatments can cause profound immunosuppression, severe infections, bleeding, organ dysfunction, and rapid clinical deterioration. In such circumstances, admission to a pediatric intensive care unit (PICU) may be necessary to support vital organ function, manage life-threatening complications, and allow continuation of cancer-directed treatment (2).

Despite the importance of these services, referral of children with cancer to the PICU is delayed in many centers. One important reason is concern about the underlying prognosis. Clinicians may assume that, because a child has advanced cancer or has not responded adequately to treatment, PICU admission will only prolong suffering or result in futile invasive interventions. Consequently, referral may be postponed until the child develops multiorgan failure, respiratory failure, or cardiopulmonary arrest.

This approach is not consistent with current evidence. A study examining three decades of PICU admissions among children with cancer found that mortality has declined and that many children survive PICU admission (3). Studies involving children with cancer and those undergoing hematopoietic stem cell transplantation have also shown that clinical deterioration is often identifiable before irreversible organ failure occurs and that pediatric early warning systems (PEWS) can help identify children at high risk of deterioration (4). Therefore, a poor underlying prognosis alone should not determine whether a child has access to intensive care.

Sepsis and septic shock are among the most important reasons for urgent PICU referral in immunocompromised or neutropenic children with cancer. In these patients, infection can rapidly lead to hypotension, impaired tissue perfusion, and organ dysfunction. International guidelines for the management of septic shock and sepsis-associated organ dysfunction in children emphasize early recognition, timely administration of antibiotics, careful fluid resuscitation, and targeted use of vasoactive medications when needed (5). Delay in recognizing deterioration or in transferring a deteriorating child to intensive care may worsen outcomes. Therefore, oncology wards and pediatric emergency departments require clear criteria for identifying warning signs and initiating timely referral.

PEWS can play an important role in this process. These systems use regular assessment of vital signs, respiratory status, circulation, and level of consciousness to identify clinical deterioration at an early stage. Studies have shown that implementing PEWS in specialized pediatric oncology settings can improve recognition of children who require transfer to intensive care (4). Therefore, these tools should not be limited to large tertiary centers; they should be implemented routinely in all centers treating children with cancer.

Alongside the management of acute deterioration, rational use of antimicrobials is essential. Children with cancer are at high risk of serious infections because of immunosuppression, and prompt initiation of appropriate antibiotics may be lifesaving. However, prolonged and unnecessary use of broad-spectrum antimicrobials can contribute to antimicrobial resistance and hospital-acquired infections. Collaboration among infectious diseases specialists, pediatric oncologists, and critical care teams is therefore needed to select appropriate agents, adjust doses, and discontinue or modify treatment in a timely manner (6). The World Health Organization also recommends antimicrobial stewardship programs to optimize antimicrobial use and reduce the spread of drug-resistant infections (7).

Another important issue is the role of palliative care alongside active treatment. Palliative care does not imply withdrawal of treatment or acceptance of treatment failure. For critically ill children, it can help control pain, reduce anxiety, manage distressing symptoms, and improve communication between the medical team and the family. Early involvement of palliative care teams, alongside oncology and critical care teams, can help families understand treatment goals, the likely benefits and burdens of intensive interventions, and the options available at different stages of illness. This

collaboration is particularly important when families and clinicians face difficult decisions about continuing or limiting intensive treatment (8).

In Iran, implementing such a model faces several challenges. These include limited PICU beds, uneven distribution of specialized services across centers, absence of a clear national referral protocol for critically ill children with cancer, and shortages of trained personnel in critical care and palliative care. In addition, the lack of standardized criteria for early recognition of deterioration in oncology wards may delay transfer of deteriorating children. Therefore, the Ministry of Health and Medical Education should develop a clear referral pathway for children with cancer who require intensive care.

This pathway should include training oncology and emergency teams to recognize warning signs; routine use of PEWS in inpatient wards; clear criteria for contacting the PICU; rapid consultation among oncology, critical care, and infectious diseases teams; and involvement of palliative care in complex decision-making. Quality indicators should also be defined, including time from recognition of deterioration to PICU transfer, rate of uncontrolled infections, use of PEWS, and family satisfaction with the decision-making process.

CONCLUSION

Children with cancer should not be denied timely access to intensive care because of uncertainty or pessimism about their underlying prognosis. Early referral, regular assessment of clinical condition, collaboration among oncology, critical care, infectious diseases, and palliative care teams, and implementation of clear protocols can improve survival and reduce family distress. Establishing a shared care pathway between pediatric oncology and critical care is an important step toward improving the quality and equity of care for children with cancer in Iran.

CONFLICT OF INTEREST: None.

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