Child Health Patient Safety Organization®

SAFETY WATCH

Stay aware of these known risks to avoid preventable harm.

Unrecognized clinical deterioration

Unrecognized clinical deterioration is a significant source of preventable harm in hospitalized children. Although a timely and accurate initial diagnosis is imperative, it is just as important to recognize and diagnose any subsequent clinical changes. Children can compensate for circulatory dysfunction by increasing heart rate and venous tone to maintain normal blood pressures despite significantly compromised tissue perfusion. That means they compensate differently and for longer periods than adults do, making deterioration more difficult to recognize. The challenge for the clinician is to recognize shock early before the child develops hypotension.

Causes

Contributing factors may include:

- Signs of clinical deterioration in children occurring over the course of multiple hours.
- Children being unable to verbalize how they are feeling.
- Attributing abnormal vital signs to the initial diagnosis (for example, dehydration rather than hypovolemic shock).
- Poor or non-timely documentation of vital signs, intake, or output.
- Failing to recognize a significant clinical assessment detail or medical history.
- A culture where clinicians don't feel empowered to question decisions.
- Poorly implemented escalation protocols.

Harm

The harm for recent events with unrecognized clinical deterioration ranged from severe temporary harm to death. Early recognition and aggressive treatment within the first few hours after presentation of shock can decrease hospital lengths of stay and mortality rates.

Harm Range

Severe temporary harm to death.

Children's different ways of compensating may mask **deterioration**.

SAFETY WATCH

Unrecognized clinical deterioration

Immediate Recommendations

- Set expectations for providers to communicate expected vital sign ranges to nurses, including when to escalate for concerns.
- Create an escalation pathway that includes when to escalate, how to escalate, to whom to escalate, and timeframe for response.
- Assess your internal communication gaps in the diagnostic process using the Gap Analysis tool.
- Conduct a safety pause for the care team and family to re-evaluate the patient's diagnosis and medical response to treatment using the Team Diagnostic Timeout template. Be aware of potential anchoring bias.
- Create an organizational culture that fosters teamwork, communication, and accountability through psychological safety.
- Ensure electronic alerts are sufficient and present in all care areas.
- Conduct hands-on shock recognition training for nurses, including noting what the patient looks like in addition to vital sign recognition.
- Standardize provider-to-provider handoff and reporting.

Resources

- Diagnostic Safety Toolkit
  - Team Diagnostic Timeout Template
  - Gap Analysis: Diagnostic Safety and Communication Failures
- Improving Communication in the Diagnostic Process Action Alert

References

- Up to Date, Initial Evaluation of Shock in Children, 2024
- Pediatrics, The Need for a Standard Outcome for Clinical Deterioration in Children's Hospitals, 2023

Data for the Safety Watch is compiled from Child Health PSO safety analysis.

Find solutions

Members can find detailed prevention plans in Child Health PSO's Riskonnect Action Plan repository where children's hospitals share deidentified mitigation processes for various issues.

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Over 55 children's hospitals are actively engaged with Child Health PSO, and we are currently enrolling new members. Join the only PSO solely dedicated to children's hospitals.

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Pressure injuries

Pressure injuries occur in 10% to 27% of pediatric cases and frequently progress to a more serious stage of injury after initial detection. Once an injury reaches stage 3, it may become a sentinel event. Risk and location of pressure injuries in children differ from adults due to varying skin maturity and body proportions. By ages 6 to 10, injury locations resemble those of adults, and by age 8 skin formation is comparable to adults. Pressure injuries commonly occur on the head and are often caused by pressure from braids and extensions or devices such as cervical collars, respiratory equipment (e.g., CPAP/BiPAP masks), EEG leads, restraints, and immobilization gear.

Harm Range

Minimal temporary harm to moderate permanent harm.

Causes

Contributing factors may include:

- Lack of clarity around pressure injury guidelines, orders, and care expectations — particularly in medically complex patients.
- Unclear processes for wound team consultation, documentation, and ordering.
- Inadequate and varied cadence of full skin assessments.
- Failing to include the family in the patient's care, specifically during transitions of care.
- Deficient documentation of skin assessments.
- Using equipment and devices without adequate rotation, training, or assessment of the underlying skin.

Pressure injuries occur in **up to 27%** of pediatric cases.

Harm

Development and progression of pressure injuries has resulted in adverse outcomes, including the need for surgical intervention, temporary loss of function or injury, and increased length of recovery.

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Pressure injuries

Immediate Recommendations

- Include order sets, consultations, and the Braden QD scale to identify high-risk patients in the EHR to ensure best practices and decrease human factors.
- Standardize communication between disciplines by using note templates and nurse rounding tools during handoff and multidisciplinary huddles.
- Consider taking a daily photo of the skin concern that includes the location, laterality, measurements, and patient identification as a point of reference.
- Develop clear guidelines, roles, and expectations within teams, particularly related to high-risk patients, wound care consultations, standard skin protection and padding, and authorization of patient mobility and device removal.
- Complete an assessment of equipment, resources, and tools, as well as viable alternatives.
- Integrate patients and families into the care plan and in the identification of high-risk patients.
- Consider developing a care team in collaboration with leadership to review high-risk patients at a designated interval.

Resources

- Solutions for Patient Safety, Pressure Injuries (PI) Operational Definition and Bundle
- Pediatric Learning Solutions Pressure Injury Web-Based Training Course Details
- National Pressure Injury Advisory Panel, Resources

References

- Journal of Tissue Viability, Prevention of pressure injuries in critically ill children: A preliminary evaluation Bargos-Munárriz, 2020
- Journal of Tissue Viability, Analysis of the prevalence and risk factors of pressure injuries in the hospitalized pediatric population: A retrospective study, 2023
- The Joint Commission, Quick safety 25: Preventing pressure injuries, Updated March 2022

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Discharge medication errors

Medication errors are one of the top causes of patient safety events and comprised approximately 28% of events reported in 2024. Pediatric patients are at high risk of medication errors due to age- and weight-based dosing and because some patients may not be able to recognize medication discrepancies. Pediatric medication errors occur in up to a third of hospital discharges.

Causes

Contributing factors may include:

- Difficult coordination of care during the discharge process, particularly in medically complex patients or those with chronic diseases.
- Communication barriers between the health care team and external pharmacies related to system interfaces and communication pathways.
- Inadequate discharge medication reconciliation practices, including the omission of pertinent medications or the incorrect addition of medications due to prescription typos or other errors.
- Unrecognized prior authorization requirements and compounding medication requirements leading to delayed or absent treatment.
- Multiple commercially available medication concentrations.
- Communication and language barriers between the health care team and the patient and family.

Harm

Gaps in the medication process during discharge have led to an increase in patient visits, progression of illness, need for higher levels of care, permanent disability, and the utilization of additional resources.

Pediatric medication errors occur in **up to a third** of hospital discharges.

SAFETY WATCH

Discharge medication errors

Immediate Recommendations

- Communicate with the family using the "teach back" method and medication administration demonstration.
- Provide convenient access to interpreters and direct contact information for post-discharge concerns.
- In the standard discharge process, include review of all medications, rationale, and education; refill information; and verification of accuracy and acquisition of all prescriptions.
- Use a discharge checklist or cognitive aid to ensure all essential discharge steps are completed.
- Leverage technology, such as the use of dose range alerts, medication order templates, and system interfaces, to reduce the risk of medication-related harm.
- Establish a multidisciplinary workgroup that includes frontline staff, pharmacy, and leadership to evaluate discharge medication practices.
- Create a process to assess the patient's insurance requirements for specific medications regarding prior authorizations and cost before discharge.

Resources

- Discharge Checklist, Hospital Discharge and Readmission, Up to Date, Updated 2023
- Designing the Medication Reconciliation Process, AHRQ, Last reviewed 2022

References

- Pediatric Neurology, Incidence of medication-related problems following pediatric epilepsy admissions, 2023
- Up to Date, Prevention of Adverse Drug Events in Hospitals, Updated 2024
- Up to Date, Hospital Discharge and Readmission, Updated 2023

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