

Is your hospital safe for children? Applying home safety principles to the hospital setting

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OBJECTIVES: To review the risks of injury to children in the hospital setting and to provide an overview of the factors which influence the approach to hospital safety, including institutional liability, hospital accreditation, patient safety and risk management issues.

METHODS: Fatal and nonfatal injuries to children in the hospital setting were identified using searches of the published literature and searches of incident, complaint and claims data sources, including regulatory agency databases, litigation and claims data, and medical device hazard databases. Canadian hospital law, accreditation, patient safety and risk management literature was reviewed and summarized.

RESULTS: Injuries occur in over 1% of hospitalized children, and are typically due to falls. Serious injuries are infrequent; however, a significant number of fatal injuries have been reported, mostly involving entrapment in beds and cribs, but also due to choking, strangulation and electrocution. Hospitals are liable for injuries to patients and visitors occurring on their premises. Canadian accreditation standards include provisions for the safety of equipment, supplies, medical devices and space, but do not provide specific guidance for children. Addressing injury hazards to children is an important aspect of the new patient safety movement, and falls within the scope of existing risk management and quality improvement programs.

CONCLUSIONS: Most hazards to children in the hospital setting can be easily corrected by proactively incorporating basic child safety principles. Paediatricians can play an important role in advocating for a safe hospital environment and should encourage administrators to consider child safety in routine hospital operation and policies.

Key Words: *Children; Injury Prevention; Patient Safety*

The hospital is a physical environment where infants and toddlers are exposed to a variety of potential injury hazards every day. To avoid injury, products such as cribs, and risks in the hospital environment such as electrical outlets, present potential hazards and should be addressed. Like in the home, new hazards arise frequently in hospitals and staff must be vigilant for situations that might lead to harm. Although hospitals often provide home safety advice, in many hospitals there are numerous hazards. A quick assessment using a

Votre hôpital est-il sûr pour les enfants? L'application au milieu hospitalier des principes de sécurité à domicile

OBJECTIF : Examiner les risques de blessures pour les enfants en milieu hospitalier et donner un aperçu des facteurs qui influent sur la démarche reliée à la sécurité en milieu hospitalier, y compris la responsabilité de l'établissement, l'accréditation de l'hôpital, la sécurité des patients et les questions relatives à la gestion du risque.

MÉTHODOLOGIE : Les lésions fatales et non fatales que subissent les enfants en milieu hospitalier ont été repérées au moyen de recherches dans la documentation scientifique publiée et de recherches d'incidents, de plaintes et de sources de données de réclamations, y compris les bases de données des organismes de réglementation, les données relatives aux litiges et aux réclamations et les bases de données sur les risques reliés aux instruments médicaux. La documentation sur les lois sur les hôpitaux, l'accréditation, la sécurité des patients et la gestion des risques a également été examinée et résumée.

RÉSULTATS : Plus de 1 % des enfants hospitalisés se blessent, généralement par suite d'une chute. Les blessures graves sont rares, mais un nombre important de blessures fatales a été déclaré, lesquelles découlent surtout de prises au piège dans un lit ou une couchette, mais également d'étouffements, d'étranglements et d'électrocutions. Les hôpitaux sont responsables des blessures aux patients et aux visiteurs qui se produisent sur leurs terrains. Les normes d'accréditation canadiennes incluent des dispositions sur la sécurité du matériel, des fournitures, des instruments médicaux et de l'espace, mais ne comportent pas de lignes directrices particulières à l'égard des enfants. Les dangers de blessures aux enfants représentent un aspect important du nouveau mouvement pour la sécurité des patients et s'inscrivent dans les programmes actuels de gestion des risques et d'amélioration de la qualité.

CONCLUSIONS : La plupart des dangers que courent les enfants en milieu hospitalier peuvent être facilement corrigés par l'intégration proactive de principes de sécurité de base pour les enfants. Les pédiatres peuvent jouer un rôle important pour prôner un milieu hospitalier sûr et inciter les administrateurs à tenir compte de la sécurité des enfants dans l'exploitation et les politiques hospitalières systématiques de l'hôpital.

standard home safety checklist would give most hospitals a failing grade. Making the hospital a safer place is not only a prudent risk management decision, but may provide a tool for demonstrating basic home safety principles to parents.

PEDIATRIC INJURIES IN THE HOSPITAL SETTING

Injury incidents involve over 1% of hospitalized children, with most injuries occurring in children under six years of

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age (1,2). Falls account for 35% to 40% of injuries, but serious injuries, such as fractures, are infrequent (2-4). Children with bleeding disorders or bone pathology are more likely to be injured due to falls (2). Despite the benign nature of most falls, hospitals have been advised to use crib security tops (bubble tops) for infants who can crawl (5). One American hospital was found negligent for failing to do so in a case where a child with viral encephalitis crawled out of the crib and suffered a brain injury (6).

Although most incidents are minor, some children are at risk for life-threatening hazards, mostly involving beds or cribs. Bed-related deaths have occurred due to entrapment between the mattress and the side rails or frame (7). Entrapment has also been reported for a special care bed, resulting in profound asphyxia (8). Other bed-related deaths include five cases of children crushed in electric pedestal-style beds by activating the walk-away control (9,10). Hospital crib-related deaths include two entrapments between the security top and side rail (11) and one near-miss entrapment between the mattress and the rail (12). Crib entrapment is typically due to design issues or poor mattress fit.

The remaining fatalities reported in the literature were due to choking, strangulation or electrocution. Fatal and near-fatal aspiration has been reported for medication syringe caps and for make-shift pacifiers using bottle nipples (13,14). Three children strangled on intravenous tubing (15) and one near-miss strangulation was related to an apnea monitor lead (16). The numerous cases of burns and electrocution due to connecting electrode lead wires and other medical devices into energized line cords or extension cords led to warnings to hospitals in 1987 and 1993, including a recommendation to consider using childproof outlet caps (17,18). Although no fatalities have been reported, several warnings have been issued regarding sparking toys causing fires in patients receiving oxygen (19,20).

HOSPITAL SAFETY: A FRAMEWORK FOR ACTION

Three principal factors form the rationale for addressing patient safety: institutional liability, hospital accreditation, and the ethical obligation to 'do no harm'. The international patient safety movement has stimulated many institutions to begin to address patient safety comprehensively and proactively. This includes establishing quality and patient safety programs that work together within existing hospital risk management structures. The most fundamental ethical principle underlying hospital-based injury prevention is summarized as 'do no harm' (21,22). The principle includes beneficence – the positive obligation to prevent and remove harm and nonmaleficence – the obligation to refrain from inflicting harm. This phrase applies at every level in the system, from the individual patient, to decision-making at the institutional or regional level (21).

The legal context

The concept of charitable immunity protected hospitals from liability from the mid-nineteenth century until the

mid-twentieth century. Today, hospitals that operate as corporations are liable for the safety of their premises, including facilities and equipment (23,24). "The standard may be set by conduct prevailing in the community, state, or nation, or it may be a standard that is imposed by a statute, ordinance, regulation, safety order, or hospital rule" (25). If a standard is not maintained and is linked to an injury, the hospital may be liable. The hospital is responsible for its corporate decisions and actions, as well as the actions of its employees and contractors. In the case of children's facilities, a higher duty of care is expected (26). As an occupier and owner, a hospital has "premises" or "occupier's" liability (27). Canadian hospitals have been held responsible for injuries sustained by visitors or patients, mostly slips and falls (27-31). For patients, the hospital is responsible for any hazards that could have been discovered by reasonable skill and care by anyone involved in the construction, repair or maintenance of the facility, whereas for visitors, the duty is to provide protection from unusual danger (27).

Hospital accreditation

The Canadian Council on Health Services Accreditation (CCHSA) is a nonprofit, nongovernmental organization that operates the national voluntary accreditation program for hospitals (32). CCHSA "Environment" standards include provisions regarding the safety of equipment, supplies, medical devices and space. The CCHSA Environment module notes that the physical environment should have furniture and equipment suitable for the clients' age and developmental level, but provides no specific guidance about hazards of concern for the paediatric patient (33). Compliance with hospital accreditation standards is voluntary in Canada and there are no legal implications for noncompliance. However, failure to meet these requirements can be used as evidence of negligence. Furthermore, if the hospital provides safety information to parents yet does not comply with that advice and a child is injured, the hospital would have difficulty arguing that the injury was not "reasonably foreseeable."

Patient safety

The Institute of Medicine report, "To err is human: Building a safer health system" (34), proposed a comprehensive approach for improving patient safety following an analysis of errors in health care. Baker and Norton (35,36) summarized international patient safety data and proposed the formation of an expert panel to address the problem in Canada (37). The current Canadian response is summarized in "Building a safer system: A national integrated strategy for improving patient safety in Canadian health care" (38). Position papers by several organizations affirm their commitment to patient safety (32,39). A new National Patient Safety Institute is to be established, legal and regulatory processes are to be improved, and educational strategies will be implemented. The report lists five categories of adverse events and includes injuries under broader system issues.

The focus in patient safety has been on reducing errors in health care (34,40). Unintentional injury has received little attention, although fatal hospital falls have been identified as a "sentinel event" by the Joint Commission on the Accreditation of Healthcare Organizations and bed rail entrapment (of adult patients) is a serious risk management issue (7,41-43). The term patient safety was defined in "To err is human: Building a safer health system" as "freedom from accidental injury" (34). Patient safety in paediatrics is a relatively new area with little published research until recently, and has paid little attention to injury hazards in children's hospitals (44-47).

Hospital risk management

There is much overlap between patient safety, quality assurance, and hospital risk management activities (26,34,48). Risk management processes aim to reduce risk to the organization, which includes ensuring safety for patients, staff and visitors (49). Although children face special risks in hospitals, paediatric risk management has received little attention in standard texts or in the research literature (26,50).

Risk management guidance tools have been developed to assist health care organizations to identify potential safety hazards (51). Several documents make specific reference to children (50,52,53). The Healthcare Insurance Reciprocal of Canada has developed self-appraisal modules that are

used by organizations on a voluntary basis to identify potential risks in targeted areas. Physical safety is noted in several of these modules. Specific unintentional injury content is restricted to falls prevention, the use of bed rails, and the potential for loose yarn or threads of infant mittens and booties to lead to the loss of a digit as a result of a ligature injury (54).

CONCLUSIONS

When you next round on your patients at the local community hospital, complete a home safety checklist and see what you find. Hospitals should be aware of all possible injuries that can occur in the hospital setting. Many of these hazards are easily corrected, and others can be addressed by incorporating child safety principles proactively. Purchasing, maintenance, housekeeping, and patient care decisions and policies should reflect an awareness of injury hazards. Ironically, although safety considerations are well entrenched in occupational health and safety, the needs of children are typically not addressed. Paediatricians can play an important role in advocating for a hospital environment that is as safe for children as it is for staff. By applying basic home safety principles, children's hospitals may be prompted to take action to prevent injuries to their patients and visitors, and by demonstrating and reinforcing recommended safety practices to parents, they will lead by example.

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The number of references was restricted due to journal constraints. Additional references are available from the author.

Co-Editors' note: Refer to <www.safekidscanada.com/ENGLISH/Safety_Tips/ST_Home.html> for a list of household safety tips. While not specific to the hospital setting, this page provides some helpful starting points.