

Safety Advocate informs about incidents or sentinel events that have been reported to public and private health care organisations in NSW, Australia and overseas.

It describes the common underlying causes of the events, suggests steps to prevent occurrences in the future and provides information sources to assist organisations in reviewing and updating their own systems.

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Bed rail safety

Between 1995 and 2001 in the United States, the US Food and Drug Administration received 237 reports of death associated with bed rail entrapment and numerous injuries and near misses associated with collapsing bed rails. Although the number of reported incidents is small relative to the large number of patients and nursing home residents who use hospital beds, appropriate precautions can reduce further incidents.

Factors that may lead to entrapment

All reported entrapments occurred in one of the following ways:

- Through the bars of an individual side rail.
- Through the space between split side rails.
- Between the side rail and mattress.
- Between the headboard or footboard, side rail and mattress.

All deaths involved entrapment of the head, neck, or upper body while most injuries involved fractures, cuts and abrasions to the extremities.

Patients at high risk of entrapment include those with pre-existing conditions such as confusion, restlessness, lack of muscle control, or a combination of these factors. Increased risk also occurs when the patient's size and/or weight are inappropriate for the bed's dimensions. Air mattresses can pose an increased risk as mattress compression can widen the space between the mattress and the rail, or create a ramp that allows the patient to roll off the bed or against the bed rail. However, this risk should be managed, rather than abandoning the use of air mattresses to prevent or treat pressure ulcers.

Patients who have problems with memory, sleeping, incontinence, pain, uncontrolled body movement, or who get out of bed and walk unsafely without assistance, must be carefully assessed for the best ways to keep them from harm, (such as falling). Assessment by the patient's health care team will help to determine how best to keep the patient safe.

Potential benefits of bed rails include:

- aiding in turning and repositioning within the bed
- providing a hand-hold for getting into or out of bed
- providing a feeling of comfort and security
- reducing the risk of patients falling out of bed when being transported
- providing easy access to bed controls and personal care items.

Potential risks of bed rails may include:

- strangling, suffocating, bodily injury or death when patients or part of their body are caught between rails or between the bed rails and mattress
- more serious injuries from falls when patients climb over rails
- feeling isolated or unnecessarily restricted
- preventing patients who are able to get out of bed from performing routine activities such as going to the bathroom or retrieving something from a cupboard.

It is expected that health care organisations will become familiar with and use the information from the **Safety Advocate** to:

Plan

Plan the changes by reviewing and considering the information, if appropriate to the organisation's services.

Do

Test the planned changes when designing or redesigning relevant systems.

Study

Study these systems in light of information in the **Safety Advocate** and the results of the testing.

Act

Act on relevant suggestions or reasonable alternatives or provide a reasonable explanation for taking no action.

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NSW HEALTH
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Strategies to reduce entrapment incidents

To help prevent entrapment deaths associated with bed rails, the US Joint Commission on Accreditation of Healthcare Organisations (JCAHO) recommends that health care organisations take the following precautions:

1. Provide orientation and training to staff about entrapment dangers with bed rails and assessment of patients for entrapment risk, as appropriate to the patient population and the care environment.
2. Assess patients for risk of entrapment, including physical, mental, behavioral or medication impairment.
3. Re-evaluate beds for entrapment potential, including 'gap' measurement and appropriate sizing of mattresses for bed frames.
4. For individual patients at risk for entrapment, implement appropriate changes to beds (for example, the use of retrofit kits, bed rail netting, clear padding, Velcro or anti-skid mats) to reduce the risk of entrapment.
5. When possible, keep patients with risk factors for entrapment under more frequent observation.

Most patients can be in bed safely without bed rails. Consider the following:

- Use beds that can be raised and lowered close to the floor to accommodate both patient and health care worker needs.
- Keep the bed in the lowest position with wheels locked.
- Use transfer or mobility aids.
- Monitor patients frequently.
- Anticipate the reasons patients get out of bed, such as hunger, thirst, going to the bathroom, restlessness and pain and meet these needs ahead of time by offering food and fluids, scheduling ample toileting, and providing calming interventions and pain relief.
- Inspect all hospital bed frames, bed side rails and mattresses as part of a regular maintenance program to identify areas of possible entrapment.
- Regardless of mattress width, length and/or depth, the alignment of the bed frame, bed side rail and mattress should not leave a gap wide enough to entrap a patient's head or body.
- Beware that movement or compression of the mattress can create gaps.
- Be alert to replacement mattresses and bed rails with dimensions that differ from the original equipment supplied or specified by the bed frame manufacturer.

When bed rails are used, perform an on-going assessment of the patient's physical and mental status, and closely monitor high-risk patients. Also, consider the following:

- Lower one or more sections of the bed rail, such as the foot rail.
- Use a proper size mattress or mattress with raised foam edges to prevent patients from being trapped between the mattress and rail.
- Reduce the gaps between the mattress and side rails.
- Take care not to crush tubes and electrical cords when adjusting bed rails and avoid injuries such as amputation of finger tips due to collapsing rails.

Further information

A guide to bed rail safety US Food and Drug Administration, www.fda.gov/cdrh/beds/SentinelEventAlertIssue27 – September 6 2002, 'Bed rail-related entrapment deaths' www.jcaho.org/about+us/news+letters/sentinel+event+alert/sea_27.htm
Joint Commission on Accreditation of Healthcare Organisations

'Collapse of Medcraft electric bed side rails', NSW Department of Health Circular 2002/83