

# BED RAIL SAFETY CONSIDERATIONS

Bed rails are utilized in a variety of care settings to create a supportive and assistive sleeping environment. While these devices aid many patients, the U.S. Consumer Product Safety Commission (CPSC) and the U.S. Food and Drug Administration (FDA) have reported deaths and injuries from patients becoming trapped, entangled or strangled by bed rails (FDA, 2018).

Organizations that work with patients utilizing hospital beds, or beds equipped with portable bed rails may wish to carefully examine these devices to help reduce the instances of injury or death associated with their use. This bulletin provides information to healthcare organizations on the risks, benefits and safe use of bed rails.

## TYPES OF BED RAILS

**There are two main types of bed rails.**

### Hospital Bed Rails

Hospital bed rails are either part of or an accessory to a hospital bed or other FDA-regulated bed. They are considered medical devices, and as such, are regulated by the FDA. These devices may be quite complex, and to be familiar with their operation, it's important that healthcare professionals be specifically trained.



### Portable Bed Rails

Portable bed rails are not designed as part of the bed by the bed manufacturer. Portable bed rails are primarily used to reduce the risk of a fall from bed, assist in transition into or out of the bed and/or assist in repositioning while in bed.

### Proper Patient Selection

Many patients have conditions that can heighten the risk of falls from their bed, such as incontinence, instability while walking unaided or cognitive impairment. While some patients present a heightened fall risk, the FDA has stated most patients can be in bed safely without bed rails and notes the following potential benefits and associated risks of bed rail use (2017).

## Potential Benefits

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

## Risks

- Strangulation, suffocation, bodily injury, death
- Fall injuries from climbing over rails
- Skin tears, bruising, scrapes
- Increased agitation, feelings of restraint
- Isolation and prevention of getting up

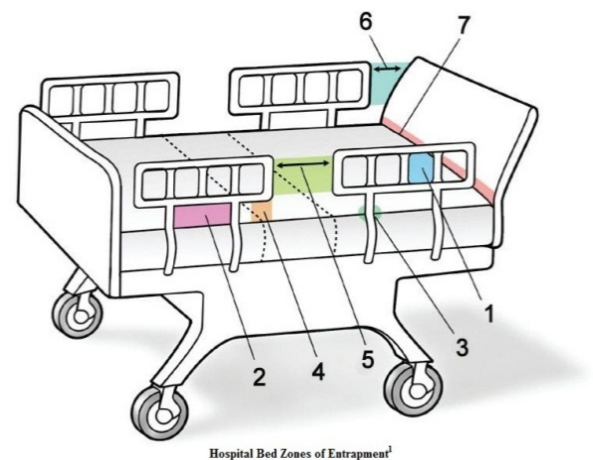
It is considered a best practice for organizations to develop specific policies for the selection of patients who may need bed rails. The policies may be developed by reviewing publications such as [“A Guide to Bed Safety, Bed Rails in Hospitals, Nursing Homes and Home Health Care: The Facts”](#) (FDA, 2017) and in consultation with the organization’s medical director or the patient’s personal physician(s).

## Bed Rail Entrapment

The FDA has identified seven potential “zones of entrapment” in beds that are fitted with bed rails. Consider these areas of high susceptibility to determine if a patient is at risk for entrapment. Entrapped body parts with a greater risk for severe injury include the head, neck and chest (2017).

## Zones of Entrapment

1. Within the rail
2. Under the rail, between the rail supports or next to a single rail support
3. Between the rail and the mattress
4. Between the rail, at the ends of the rail
5. Between split bed rails
6. Between the end of the rail and the side edge of the head or foot board
7. Between the head or foot board and the mattress end



As with any incident, if an entrapment occurs, complete an incident report and a root cause analysis. The analysis can be used to evaluate the plan of care and to make revisions addressing additional entrapment prevention strategies that may be needed. Keep in mind, these incidents may need to be reported to a state or local regulatory agency.

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## **Bed Safety Risk Assessment**

The Hospital Bed Safety Workgroup (HBSW) has developed a [Bed Safety Entrapment Kit](#) containing information and tools to help healthcare administrators and providers assess the risk of entrapment in hospital beds. Any decision regarding bed rail use or removal should be made based on the individual patient or resident assessments. If a bed rail has been determined to be necessary, steps should be taken to reduce the known risks associated with its use.

## **Hospital Bed Fire Safety**

In addition to concerns related to the zones of entrapment, hospital beds equipped with electrical power have been involved in fires resulting in patient injury or death (Braun & Bruley, 2006).

These fires were associated with the following causes:

- Failed motor starting capacitors
- Overheated motors
- Arcing from ill-fitting or damaged plugs
- Missing ground pins
- Fluid leaks that damaged the circuit boards
- Missing components in the wiring
- Poor maintenance
- Failure to heed manufacturers' warnings

The risk of electrical fire may be reduced by regular inspection of electrical parts. Regular inspection and documentation of electrical safety is encouraged. It is recommended that both clinical and maintenance staff work to reduce the incidence of hospital bed fires.

Clinical staff can ensure electrically powered beds are only plugged directly into wall outlets and power cords are not frayed, pinched, crushed or otherwise obstructed. Covering power cords with items such as rugs or carpets can impede air flow and lead to overheating. Keep the areas surrounding the power outlet and the motor free of dust and debris, which can lead to overheating of the motor and may cause fire.

Organizations can consult with the manufacturer's guidelines in order to determine appropriate preventative maintenance timeframes. These guidelines can help organizations determine when preventative maintenance may be needed and be used as a guide to document maintenance.

## **Sale and Rental of Hospital Beds as Durable Medical Equipment**

It is important to note some medical beds are regulated by the FDA as medical devices (beds most commonly designed with rails and electrical functions) but other beds with some hospital bed characteristics (raising or lowering height, position adjustment) are regulated by the CPSC. Both the FDA and CPSC provide guidance on manufacturing standards associated with beds within their areas of oversight.

The sale, rental or loaning of new or used medical beds (whether a medical device or a consumer product) and bed rails is an undertaking to approach with caution. Consider having the bed or rail evaluated and certified by a bio-medical technician or manufacturer's authorized representative in order to certify the bed is in an acceptable condition for re-sale or between use by different patients (if equipment is rented or loaned).

## Summary

Developing sound bed safety practices can help organizations reduce the risk of patient injury or death. Policies and procedures relating to hospital bed safety can be enhanced by developing checklists based on manufacturer's guidelines for specific hospital bed models, resources available from the FDA and guidance from a bio-medical technician familiar with hospital beds. Checklists are also a good way to document proper hospital bed safety practices are in place. Educate both clinical and maintenance staff of hospital bed safety considerations and frequently review proper procedures to further enhance risk reduction strategies.

Please refer to the Centers for Medicare and Medicaid Services' (CMS) [State Operations Manual Appendix PP - Guidance to Surveyors for Long Term Care Facilities](#) for additional guidance on:

Bed Rails [42 C.F.R. 483.25(n), F-700]

Resident Beds [42 C.F.R. 483.90(d)(3), F-909]

Respect and Dignity [42 C.F.R. 483.12(a)(2), F-604]

## REFERENCES

- Braun, J. A., & Bruley, M. E. (2006). Bed Safety: Preventing Fires Caused by Hospital Beds. Retrieved from: <https://www.iadvanceseniorcare.com/bed-safety-preventing-fires-caused-by-hospital-beds/>
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