



March 2008

A patient **Safety Notice** strongly advises the implementation of particular recommendations or solutions to improve quality and safety.

We recommend you inform:

- General Managers
- Nursing Unit Managers
- Senior Managers
- Facility Engineering
- Safety and Quality
- Risk Managers
- Supply Managers

Marshall Torrens Electrically Operated Hospital Beds – Patient Safety Issues.

Background

SA Health Safety and Quality Unit have become aware of safety issues concerning Marshall Torrens beds resulting from structural weaknesses and an inherent entrapment potential.

Marshall Torrens electrically operated beds were manufactured by Marshall Furniture (company no longer exists) in South Australia during the 1990's. It is known that many beds are still in-use throughout SA.

Reports received have identified that the beds are subject structural weakness including:

- Metal fatigue at the backrest actuator's mounting point on the backrest, and;
- Weld cracking of the caster mounting stem of some styles of the bed.

The failure of the actuator's mounting point could result in the sudden and unexpected collapse of the backrest injuring the patient.

In addition an ongoing study of the entrapment risk posed by hospital beds has shown that Marshall Torrens beds have a potential for entrapment.

Entrapment is defined as an event in which a patient is caught, trapped or entangled in the spaces in or about the bed rail, mattress or hospital bed frame. Entrapment can result in serious injury or death.

At the time of design and manufacture of the bed Australian Standards were silent on the issue. It is only recently that entrapment has been recognised as a serious risk to patient safety. The soon to be released revision of AS/NZS 3200.2.38:1997¹ specifies side-rail dimensions to prevent entrapment.

Background - Marshall Torrens Electrically Operated Hospital Beds, cont.

Similarly, guidelines issued by the US Food and Drug Administration (FDA)² specified the dimensional criteria for high risk entrapment zones. Although the Australian Standard when released will be about the design of new beds, whereas the FDA guidelines are for the assessment of in-service beds, the dimensional criteria for the side-rail gaps are the same. Based upon the criteria specified by both authorities, the Safety and Quality Unit developed a project to study of the safety of hospital beds within SA.

Study results indicate that the Marshall Torrens bed presents an entrapment risk because:

- The width between of the side-rail vertical bars are greater than the recommended 120mm and therefore could allow head intrusion.

And of the beds examined, it was noted that:

- Often the mattresses fitted had insufficient width so that a gap of greater than 120mm existed between the mattress edge and the side-rail, sufficient to allow a patient's head to become wedged between the mattress and side-rail.

Actions

Bed Frame Inspection

It is recommended that users of Marshall Torrens beds conduct, if not already doing so, a rigorous inspection program of all aspects of bed safety and operation. In view of reports received, particular attention should be given to the structural integrity of the backrest actuator mounting point and the bed caster mountings.

Where evidence of fatigue is found, repairs should be effected to make-good and strengthen. Experiences reported to Safety and Quality indicate that although it is possible to strengthen the area around the backrest mounting, the thickness of the material is such that metal fatigue may re-occur at a point beyond the repaired area. Regular frame inspection is therefore recommended.

Hospitals considering replacing the backrest frame with a strengthened design need to be aware that bed modification will infer manufacturer status on the hospital, along with the associated product liabilities.

A professional report on the structural design and manufacture would be necessary to fulfil liability obligations.

March 2008

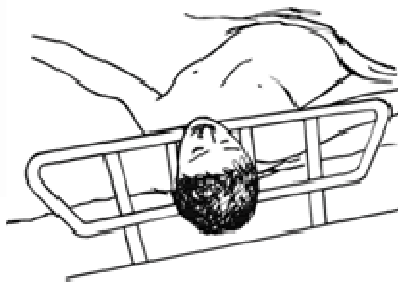
Actions - Marshall Torrens Electrically Operated Hospital Beds, cont.

Side-Rail Entrapment

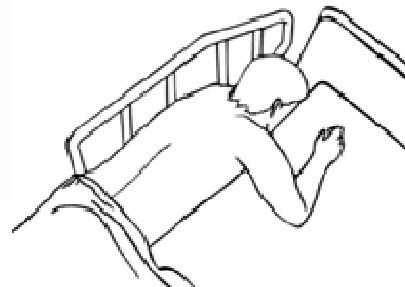
In view of the risk posed by Marshall Torrens beds it is recommended that prior to use the patient is assessed for risk of entrapment including physical, mental, behavioural, or medication impairment.

At-risk patients should not be nursed in a Marshall Torrens bed particularly if there is likelihood that side-rails will be needed. Where use is unavoidable, consider covering the rail with see-through covers and keeping the patient under more frequent observation.

When the side-rails are used, staff should ensure that the bed is fitted with a correctly sized mattress to ensure that the gap between the upright side rail and mattress edge is less than 120mm worst case, i.e. with the mattress pushed hard against the opposite side-rail, to eliminate the risk of entrapment between the mattress and rail. The mattress should be re-positioned into the middle of the bed after checking.



Entrapment between the rail



Entrapment in space between mattress and rail

Mattresses suitable for use with the Marshall Torrens bed need to be greater than 900mm wide and to permit unhindered operation of the side-rail, less than 950mm.

It is recommended that compatible mattresses are labelled to assist future identification.

Where doubt exists about the safety of the bed consideration should be given to purchasing a replacement.

March 2008



Actions - Marshall Torrens Electrically Operated Hospital Beds, cont.

While this Safety Notice specifically identifies the Marshall Torrens bed as having an entrapment hazard, other brands of bed may also be hazardous. Further work is being undertaken by the Safety and Quality Unit to identify bed systems that put patient safety at risk. A comprehensive report will be issued at the completion of investigations.

Action deadlines for the Safety Alert Broadcast System (SABS)

Receipt of Notice

Advice to SA Health Safety and Quality within two days.

For further information and advice to SA Health Safety and Quality email -
HEALTH:SABS@health.sa.gov.au

Report all events

Utilise AIMS for reporting issues concerning entrapment where the patient is caught, trapped or entangled in the spaces in or about the bed rail, mattress or hospital bed frame. When reporting please specify the make and model of bed and where possible the make and model of mattress fitted, as well as the patients experiences and physical characteristics.

Related Documents

SA Health Safety Information notice 2006 *Preventing Bed Entrapment*, available at www.safetyandquality.sa.gov.au

SA Health Safety Information notice SI 05/07 *Safe Use of Hospital Bed Rails*, available at www.safetyandquality.sa.gov.au

References

1. AS/NZS 320.2.38:1997 Particular requirements for safety – Electrically operated hospital beds.
2. Food and Drug Administration (FDA) *Hospital Bed System Dimensional and Assessment Guidance to Reduce Entrapment*.

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