DEVICE

BULLETIN

MEDICAL DEVICES AGENCY

Advice on the Safe Use of Bed Rails

HEALTH ESTATES

ESTATE POLICY

An Executive Agency of the Department of Health, Social Services and Public Safety

Áisíneacht Feidhmeannach don Roinn Sláinte, Serbhísí Sóisialta agus Sábháilteacht Phoiblí

DB (NI) 2001/04
OCTOBER 2001

The Medical Devices Agency helps safeguard public health by working with users, manufacturers and lawmakers to ensure that medical devices meet appropriate standards of safety, quality and performance and that they comply with the relevant Directives of the European Union.

Our primary responsibility is to ensure that medical devices achieve their fullest potential to help healthcare professionals give patients and other users the high standard of care they have a right to expect.

The Medical Devices Agency is an Executive Agency of the Department of Health

The key aim of the Northern Ireland Adverse Incident Centre (NIAIC), part of Health Estates, is to record and investigate reported adverse incidents involving Medical Devices and equipment used in Health and Personal Social Services in Northern Ireland and to issue warning notices and guidance to help prevent recurrence and avert patient or user injury. NIAIC has direct links with MDA who co-ordinate across the adverse incident centres in England, Scotland, Wales and Northern Ireland. NIAIC also disseminates safety information in Northern Ireland, including information provided by MDA.

Health Estates is an Executive Agency of the Department of Health, Social Services and Public Safety.

CONTENTS

1. EXECUTIVE SUMMARY

This Device Bulletin:

- highlights the potential dangers associated with the use of bed rails;
- draws attention to the need for full risk assessment (and regular re-assessment) of the suitability of the bed rail;
- highlights the importance of regular maintenance;
- provides general guidance for reducing the risk of entrapment;
- identifies other literature which may be useful for background information or reference material when assessing the potential risk of entrapment;
- provides information which can be used to develop local policy to ensure the safe use of bed rails;
- comments on the use of bed rails in relation to the Medical Devices Regulations 1994, SI 3017.

1.1 Who this document is for

This document is aimed at all professional staff with responsibility for the purchase, supply, use, prescription, maintenance and fitting of bed rails. This includes:

- health and safety officers/advisors;
- NIAIC liaison officers (for onward distribution);
- nurses;
- occupational therapists;
- residential and nursing home managers;
- risk managers;

2. INTRODUCTION

Bed rails are used extensively in hospitals, nursing homes, residential homes and throughout the community to prevent patients from falling from their beds. However, there have been a number of adverse incidents involving bed rails that have led to injury and death. Most of these deaths could have been avoided if thorough risk assessments had been carried out.

2.1 Scope

Injuries can be caused by restless people hitting their head on a bed rail, attempting to climb over it, or by unlatching the device. We know from our investigations that the most serious threat is entrapment of their head or neck; we therefore focus our attentions on this particular risk.
This bulletin identifies areas in which safe practices need to be developed, so that policies and procedures can be put in place including:

- management responsibilities;
- legal requirements;
- training schedules;
- maintenance schedules.

It also identifies areas of concern so that preventative action can be taken:

- ensuring the bed rail is absolutely necessary;
- re-assessing for changing needs of the patient;
- compatibility of the bed rail & bed, mattress & occupant combination;
- correct fitting and positioning of the bed rails;
- maintenance of the bed rails.

2.2 Clinical governance

Healthcare organisations are placing greater emphasis on delivering patient care within a framework of risk management and clinical governance. The purpose is to ensure that the best possible care is provided, particularly when using medical devices. Assessments by healthcare professionals are increasingly being used as a method of identifying, quantifying and addressing risks associated with the use of medical devices. NIAIC recommends that organisations operate risk management procedures.

2.3 Terminology

For the purpose of this document the term **bed rail** will be adopted, although other names are often used, such as: bed side rails, cotsides, side rails, safety sides, bed guards.
Bed rails should not be confused with **bed grab handles** which are designed to aid getting in and out of bed and movement whilst in bed. **Bed grab handles** are **not** designed to prevent patients falling from their bed and should not be used as bed rails.

2.4 Background and examples

During recent years the NIAIC has received adverse incident reports involving bed rails that have resulted in serious injury and death. Investigation into these incidents led the to issue of warning notices SAB(94)2, HN(NI)97/13, SN(NI)99/51 and HN(NI)2000/17. The majority of these incidents occurred in community care environments, in particular residential and private nursing homes rather than in hospitals.
Incidents resulted from:

- Insufficient material strength leading to premature mechanical failure.

- Incompatibility or unsuitability of a bed rail for the bed type.

A bed rail intended for use on a divan bed (i.e. having a flat base, the common domestic type of bed) was used on a hospital type bed. A disabled child slipped feet first between the bed rail and the bed. The child was trapped at chest level and died from postural asphyxiation.

- Incorrect or omitted risk assessment and consideration of the physical size of the bed occupant.

A bed rail was provided to the parents of a disabled child being cared for in the community. No assessment of the child's physical size was carried out to determine if an entrapment hazard existed. The child asphyxiated as a result of head entrapment between the bed rail bars.

- Bed occupants attempting to climb over the rails.

- Inappropriate gaps
  - between the end of the bed rail and the headboard;
  - between the mattress and lowest rail of the bed rail device;
  - as a result of the patient's weight compressing the mattress.

- Poor design, e.g. very large spacings between the rails.

A bed rail with a bar width spacing of 170mm was being used for an elderly person being cared for in a nursing home. No assessment was carried out to determine if the device was suitable for use, considering the excessive space between the bars. The person asphyxiated as a result of head entrapment when their body slipped between the bars.

- Movement of the bed rail away from the side of the divan mattress.
- Use of a mattress overlay which reduced the effective height of the device.

A pressure sore overlay system was in use on a bed which had a bed rail fitted. The additional height of the overlay mattress compromised the effectiveness of the bed rail and the bed occupant fell from the bed sustaining a head injury.

- Use of an air mattress which was too light to keep the bed rail assembly in position on the divan bed.
- Bed rails in poor condition from lack of maintenance.

A telescopic type bed rail was used on a divan bed for an elderly patient. One of the bed rails moved away from the side of the bed creating a gap in which the patient became trapped and died as a result. On inspection, the locking mechanism under the mattress to secure the bed rails against the sides of the bed was missing and the incident could have been prevented if regular maintenance checks had been in place.

2.5 Patient clinical conditions

Our adverse incident investigations have shown that some patients' clinical conditions mean they are at greater risk of entrapment in bed rails. Those at risk include the elderly and immobile or people with:

- dementia;
- cerebral palsy;
- micro- or hydrocephalus.

3. RISK ASSESSMENT

There are many different types, designs and sizes of bed rails on the market, having a variety of fitting and operation methods. There is also a wide range of beds on the market: divans, wooden and metal bedsteads, hospital type beds, adjustable beds etc. The possible combinations of bed rails and beds, together with the uniqueness of each bed occupant, means that a careful assessment is necessary if serious incidents are to be avoided.

Determine if alternative equipment may be more appropriate – are bed rails actually required?

This should be considered as early as possible, well before the fitting stage. Often bed rails are used not because the individual needs them, but because of association with the environment, their condition or their age.

- Is the person likely to fall from their bed?
- If so, is a bed rail the most appropriate solution?
- Can an alternative method of bed management be used?
- If a disabled person requires some sort of body positioning device on the bed, can this be used instead of a bed rail?
- Could the use of a bed rail *increase* risk – for example, if an active but disorientated patient tries to climb over it?

Determine if the bed rail is suitable for use in combination with the bed, mattress and occupant

3.1 Selecting a bed rail

- Does the supplier or manufacturer provide enough information for its use?
- Does the manufacturer provide advice on any contra-indications for its use?
- Is the bed rail suitable for the bed to which it will be fitted?
- Is it to be used with a child or a small adult?
- Are there large spacings between the bed rail bars that are an obvious entrapment hazard?
- Does the occupant have an abnormally large or small head?

3.2 Safe fitting

- Has the bed rail been fitted to the bed correctly?
- Is there a gap between the lower bar of the bed rail and the top of the mattress which could cause entrapment?
- Does the mattress compress easily at its edge, creating an entrapment hazard?
- Will the gap between the end of the bed rail and the headboard or wall allow entrapment?
- Is there a gap between the bed rail and the side of the mattress that will allow the occupant’s body to pass through or trap their head?

- Is the bed rail secure – does it seem likely that it will move away from the side of bed and mattress in use, or fall off one end, creating an entrapment hazard?
- Do the dimensions and overall height of the mattress compromise the safety of the bed rail – is an extra height bed rail needed?

3.3 About the bed occupant

- Is their head or body small enough to pass between the bed rail's bars?
- Is their head or body small enough to pass through the gap between the lower bed rail bar and mattress (allowing for compression of the mattress at its edge)?
- Is their head or body small enough to pass through any gap between the bed rail and side of the mattress?
- Are they agitated or confused?
- Will they need to get out of bed during the night?
- Will a bed rail bumper help reduce the risk of entrapment for the occupant?

If either the bed, mattress, occupant or bed rail is changed, the risk assessment should be carried out again.

4. PURCHASE, SELECTION AND USE OF BED RAILS

4.1 Purchase of bed rails

If bed rails are being purchased for stock, for example, in an equipment store, general factors can be considered at the purchase stage:

- the types of bed they are likely to be used on;
- whether they are suitable for children or small adults;
- could the spacing between the bars easily cause entrapment?

The assessment of the bed rail suitability, any contra-indications and the inspection for entrapment hazard must be carried out at the supply stage. Bed rail, bed and mattress combinations that are designed to be used together should be considered before purchasing from separate sources. Adjustable or profiling beds usually have compatible rails available from the manufacturer and these should always be used in preference over other systems.

4.2 Selection of bed rails

In community care environments it is common for beds and bed side rails to have been acquired from different sources. A bed rail that has been designed to be used with, for example, a divan bed will be of a fairly universal design. It is not necessarily tailored for a specific divan bed with exact base and mattress dimensions or a specific mattress density.

What to avoid

As a result of a number of investigations, the NIAIC has identified a number of design issues, which if avoided, will reduce the likelihood of adverse incidents.
For example:

- **avoid** poor bed rail designs with a very large space between the bars which could allow an occupant to slip between them;
- **avoid** gaps between the end of the bed rail and the headboard which could be sufficient to cause entrapment;
- **avoid** using bed rails designed for use with a divan bed on a wooden or metal bedstead; this can create gaps which may entrap the occupant;
- **avoid** using insecure fittings or designs which permit the bed rail to move away from the side of the bed or mattress, creating an entrapment hazard. This has been found to happen with many divan-type bed rails;
- **avoid** using only one side of a pair of bed rails when the other side is against a wall – the single rail may be insecure and move;
- **avoid** using a mattress overlay on top of an existing mattress where the additional height lessens the effectiveness of the bed rail and may permit the occupant to roll over the top. Extra height bed rails are available if mattress overlays are to be used.

4.3 Use of bed rails

Manufacturers intend their bed rails to be used to prevent bed occupants from falling and sustaining injury. They are not designed or intended to limit the freedom of people by preventing them from leaving their beds voluntarily; nor are they intended to restrain people whose condition disposes them to erratic or violent movement.

Bed rails are also not designed to function as bed grab handles, which are aids for getting in and out of bed and moving around when in bed.
Bed rails should be used with care and only after a full, documented risk assessment has been carried out for each bed occupant. This will determine if their use is the most appropriate method of bed management in each case.

5. SPECIAL CONSIDERATIONS

5.1 Using bed rails with children

Most bed rails are to be used only with people over the age of twelve. A risk assessment should always be carried out on the suitability of the bed rail for the individual child or small adult, as bar spacing may need to be smaller.

There are no published standards on bed rails for children. When purchasing or making assessments of bed rails for children, it may be helpful to seek guidance on spacing between the rails by referring to other published standards for products used in similar environments or those which have requirements addressing similar hazards.

For example:

- BS EN 716-1: 1996 Furniture – Children's cots and folding cots for domestic use, Part 1. Safety Requirements. This specifies that the spacing between two structural members (i.e. between bars etc.) shall be 60mm +5/-15mm.

- BS EN 747-1 Furniture – Bunk beds for domestic use, Part 1. Safety Requirements. This standard is intended to minimise the risk of accidents happening to children. It specifies that the top bed safety barrier shall be designed so that the space between two adjacent retaining elements e.g. bands or filling bars does not exceed 75mm and is not less than 60mm.

- BS 1694: 1990 Specification for 'Hospital ward cots for children'. This specifies that the spacing between adjacent bars of the drop sides shall be such that there are no gaps between adjacent rails of less than 70mm or more than 78mm.

None of these standards state that they have been completed with any particular age group in mind.

5.2 Air mattress/ pressure sore prevention mattress overlays

Care is needed when using air mattresses or mattress overlays with bed rails because:

- the reduction in the effective height of the bed rail relative to the top of the mattress may allow the occupant to roll over the top of it;

- the hazard of entrapment between the side face of the mattress and the bed rail may be exacerbated due to the soft, easily compressible nature of the mattress edge;

- if the standard mattress is replaced with an air mattress or lightweight foam mattress, the whole bed rail assembly including the mattress and bed occupant can tip off the bed when the occupant rolls against the bed rail since many divan bed rails rely on the weight of a standard, traditional divan mattress to hold the assembly securely in place. The manufacturer should be consulted regarding securing systems, such as straps;

- if an air mattress is intended to be used with a bed rail then the mattress supplier should be contacted for advice. Extra height bed rails are available from several suppliers.

5.3 Adjustable/ profiling beds

Additional vigilance is required when using bed rails with adjustable/profiling beds.
Many beds have a single piece bed rail along each side of the bed; when the bed profile is adjusted entrapment hazards can be created which are not present when the bed is in the all-horizontal position.
Many beds, particularly special care beds such as low air loss beds often have two pairs of bed rails fitted, one pair at the head end and one pair at the foot end. Again, additional vigilance is required when using these types of split bed rails because the space between the head and foot end rails varies according to the bed profile adjustment; therefore entrapment hazards may be created when the bed is adjusted to particular profiles.
Care should be taken to use the rails as instructed by the bed manufacturer e.g. both pairs (at each end of the bed) may be required to be used together when the bed occupant is left unattended.

5.4 Inflatable bed sides

If inflatable bed sides are used, it should be noted that they are not adjustable and may need to be used with a mattress of particular dimensions. When carrying out an assessment on the risk of entrapment, the elasticity (compression and extension) of the material should be taken into account, as the inflatable rails may change shape under load when the bed is occupied. Inflatable bed sides need to be fully inflated to be effective. They may deflate over time so regular checks should be made to ensure this does not happen.

5.5 Footboards and headboards

If bed rails are already fitted, consider carefully whether headboards or footboards should also be provided. Boards with ornamental posts can provide a focus for clothing to become caught and should not be used for bed occupants who may not be in control of their movement.

5.6 Non-metallic materials

Some beds are supplied with timber or composite bed rails. If these are particularly flexible, it may be possible for the rail to deform under force and create an entrapment hazard between the rail and the side of the mattress.

5.7 Accessories

Bed rail bumpers, padded accessories or enveloping covers are primarily used to prevent impact injuries but in some instances they can reduce the potential for entrapment. It must not be taken for granted that this is their intended purpose, as their use will not necessarily reduce the risk of entrapment.

Some covers are not air-permeable and may present a suffocation risk.

5.8 Mattress dimensions

Mattress dimensions should be checked to ensure that they are within the limits specified by the bed manufacturer. If these dimensions are outside limits, the bed rails may not fit the bed properly or entrapment gaps may be created.

5.9 Alternatives

The prescribing, selecting and fitting of bed rails needs considerable care to ensure that the bed occupant is not placed at risk.
Alternative methods of bed care/management should first be considered, such as:

- Tucked in sheets and blankets.
- Beds with variable height used in the lowered position.
- Soft cushioning on the floor to break a person's fall.
- Patient/staff pressure alarm systems (to alert carers that a person has moved from their normal position).
- Body positioning devices (used to position occupants with specific clinical conditions, such as cerebral palsy).

5.10 Maintenance

NIAIC adverse incident investigations have shown many serious and fatal incidents with bed rails that have been caused by a simple lack of maintenance. Bed rails are rarely included in planned preventative maintenance (PPM) schemes, such as hospital beds would be. This is partly due to their use in residential and nursing home environments.
Adjusters, clamps and fixings can wear, work loose or be missing completely. Telescopic components can also become jammed, discouraging correct adjustment. Unfortunately these types of problem are often only discovered after an incident has occurred. It is also possible that material fatigue can occur. Plastic components need particular attention as they can degrade due to age, exposure to light and some cleaning chemicals.
Bed rail assemblies must be **traceable**, such as labelling with an in-house number, and **inspected** on a regular basis to ensure that they are maintained

in a satisfactory condition. Records should be kept of inspections and maintenance and suppliers of the bed rails should be contacted for advice and replacement parts.

6. LEGISLATION

6.1 Health and Safety at Work Order (NI) 1978

People responsible for making decisions on the provision of bed rails and the care of people for whom they have been provided need to be aware of their duties under relevant health and safety legislation.

The Health and Safety at Work Order (NI) 1978 places duties on:

Employers and self-employed persons – to avoid exposing those not in their employment (e.g. members of the public and patients) to health and safety risks; and
Employees – to take reasonable care for the health and safety of themselves and others affected by their acts, and to co-operate with their employer on health and safety obligations.

6.2 The management of Health and Safety at Work Regulations (NI) 1992

These Regulations require, amongst other things, that employers and the self-employed should make a suitable and sufficient assessment of the risks to the health and safety of persons not in their employment which arise out of or in connection with their undertaking. Advice on the issues that need to be taken into account, when assessing the risks from bed rails, is contained in Section 3.
Employers also need to ensure that all employees who are responsible, for example, for selecting, fitting and checking bed rails have received appropriate training.

6.3 The Medial Devices Regulations 1994

Under most circumstances, the intended purpose of bed rails does not fall within the definition of a medical device as defined in the Medical Devices Regulations (i.e. the bed rails do not “treat” a patient, but prevent injury). However, a supplier of a hospital, adjustable or special care profiling bed may also supply a bed rail intended for use as an accessory to their bed. In this circumstance it would be reasonable to consider the bed rail as an accessory to the medical device (i.e. the bed is the medical device) and therefore the bed rail could fall within the scope of the Regulations.

Accessories to medical devices are treated as medical devices in their own right and must carry the CE marking accordingly.

The MDA obtained a list of suppliers of bed rails from the Disabled Living Foundation Hamilton Index. The suppliers were asked to inform MDA of the intended purpose of their bed rails; the majority stated that they had no medical function and were solely intended to prevent people from falling from their beds. This is the reason why the majority of bed rails do not carry the CE marking.

7. BIBLIOGRAPHY

7.1 Legislation

The Health & Safety at Work Order (NI) 1978, Sections 2 & 3.

The Management of Health & Safety at Work Regulations (NI) 1992, SR No. 459.

Provision and Use of Work Equipment Regulations (NI) 1999, SR No. 305.

RIDDOR, Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (NI) 1997, SR No. 455.

Medical Devices Regulations 1994, SI 1994 3017.

7.2 NIAIC publications

Device Bulletin DB 9904 (NI), July 1999. Medical Device and Equipment Management for Hospital and Community-based Organisations.

Device Bulletin DB 9904 (NI) Supplement 1, March 2001. Checks and tests for newly-delivered medical devices.

Device Bulletin DB 2000/2 (NI), November 2000. Medical Devices and Equipment Management: Repair and Maintenance Provision.

Safety Notice SN (NI) 2001/01, January 2001. Medical Devices – Reporting Adverse Incidents and Disseminating Safety Warnings relating to Medical Devices, non-medical equipment, buildings and plant.

Device Bulletin DB(NI) 2000/6, November 2000. Equipped to Care.

Safety Action Bulletin SAB(94)2, January 1994. Use of Hospital Bed Safety Sides and Side Rails' (Appendix A).

Hazard Notice HN (NI) 97/13, August 1997. Bed Side Rails (cotsides) – Risk of Entrapment' (Appendix B).

Safety Notice SN (NI) 99/51, October 1999. Bed Side Rails (cotsides) Fitted With Telescoping Crossbars – Risk of Movement and Subsequent Patient Injury' (Appendix C).

Hazard Notice HN (NI) 2000/17, July 2000. Bed Side Rails (cotsides) – Risk of Entrapment and Asphyxiation' (Appendix D).

7.3 Standards

BS EN 1970:2000 'Adjustable Beds for Disabled Persons'. Contains a clause that specifies requirements and dimensions for bed rails. Note that this standard covers beds which are intended for use by people over 12 years old.

BS EN 60601-2-38: 1997, Revision 1, 'Medical Electrical Equipment – Part 2. Particular requirements for the safety of electrically operated hospital beds'. Contains the same clause on the requirements and dimensions for bed rails as published in BS EN 1970:2000.

BS 4886:1988 'Specification for Hospital Bedsteads'. Specifies requirements for bed rails (termed 'safety sides' in the standard) for hospital beds. The only information on dimensions is that the length shall be two-thirds the length of the mattress support frame, and that the height of the sides, when in position shall be 405+/-25mm above the top of the mattress support panel.

APPENDIX A. TEXT OF NIAIC SAFETY ACTION BULLETIN SAB (94) 2

DEPARTMENT OF HEALTH
SCOTTISH OFFCIE HOME AND HEALTH DEPARTMENT
WELSH OFFICE
DEPARTMENT OF HEALTH AND SOCAIL SERVICES (NORTHERN IRELAND)

SAB (94) 2
JANUARY 1994

USE OF HOSPITAL BED SAFETY SIDES AND SIDE RAILS

SUMMARY

Care in the use of bed safety sides and side rails is necessary to avoid the risk of patients becoming trapped.

ACTION

This information should be brought to the attention of all who need to know or be aware of it. This will include all nursing staff, accident and emergency department staff, physiotherapists, occupational therapists, speech and language therapists, safety officers and all staff involved in the fitting and adjustment of bed safety sides and side rails.

Staff should be made aware of the possibility of a patients head becoming trapped between the bars or between the rail and the bed mattress when the safety sides or side rails are in use. If there is a risk of trapping, the use of padded accessories or sides with difference bar spacing should be considered.

BACKGROUND

The Department continues to receive reports of incidents where patients have been trapped by bed safety sides or side rail units. Although these accessories have proved to be generally satisfactory in use over many years, circumstances may arise in which patients may be come trapped, particularly at the head, with consequent risk of injury and death.
A common factor in most of the reported incidents has been the confused and restless state of the patients, either as a result of sedation or due to their clinical condition.
The design details, especially the spacing between the bars, varies between products. The use of mattresses of different thickness and density will alter the spacing between horizontal rails and the mattress top. The size, weight, shape and activity of the patient also need to be considered, along with how the pillows should be positioned to minimize risk, when assessing the risk of trapping, which should be done in each case when using safety sides or side rails.

APPENDIX B. TEXT OF NIAIC HAZARD NOTICE HN (NI) 97/13

FOR ACTION BY:
Chief Executive of each HSS Trust
General Manager/Chief Executive of each HSS Board
General Manager/Chief Executive of each Agency

HN(NI) 97/13
Date: 18 August 1997

Product	:	BED SIDE RAILS (COT SIDES): RISK OF ENTRAPMENT
Manufacturer/ Supplier	:	VARIOUS
Problem	:	POTENTIAL RISK OF DEATH FROM ENTRAPMENT AND ASPHYXIATION OF OCCUPANTS OF BEDS FITTED WITH SIDE RAILS
Action	:	STAFF SHOULD BE AWARE OF THE NEED TO ENSURE THAT THE DEVICES DO NOT PRESENT A RISK OF ENTRAPMENT TO THE BED OCCUPANT

1. ATTENTION CHIEF EXECUTIVES/GENERAL MANAGERS

This notice should be brought to the immediate attention of all who need to know, or be aware of it including those listed below, in accordance with local procedures, and immediate action should be taken as detailed overleaf:

All wards/departments where bedside rails are used including:

- Medical Staff
- Care Staff
- Carers of the Elderly
- Mentally Handicapped Units
- Marie Curie Staff
- Safety Liaison Officers
- Nursing Staff
- Community Care Staff
- Social Services Staff
- Hospices
- Supp
- Risk Manager

Boards/Trusts should ensure that if appropriate, this information is passed to **ALL** persons having the responsibility for premises registered under “THE REGISTERED HOMES (NI) ORDER 1992”.

2. IMMEDIATE ACTION

Staff responsible for the purchase, selection for use, positioning and adjusting of side rails should be made aware of the need to ensure that the devices do not present a risk of entrapment to the bed occupant.

Care must be taken when positioning and adjusting side rails to ensure that any spaces between the rails and mattress or parts of the bed will not allow entrapment of the occupant's head or body. In addition, consideration should be given to the size and physiological condition of the occupant and an assessment of the side rails made to ensure that the spacing between the bars of the rails is not wide enough to present a hazard.

Staff need to be aware that increased vigilance is required when nursing patients in beds fitted with side rails.

3. BACKGROUND

The Department issued advice in 1994 under Safety Action Bulletin SAB(94)2, regarding the possibility of entrapment when safety sides or side rails are in use.

A number of deaths from asphyxiation have occurred where bed occupants have become trapped by side rails.

In one instance the head of a person was small enough to become trapped between the bars of the side rail; in another, the space between the lowest bar on the side rail and the mattress was sufficient for a person to slip between them and become trapped by the neck.

APPENDIX C. TEXT OF NIAIC SAFETY NOTICE SN (NI) 99/51

FOR ACTION BY:
Chief Executive of each HSS Trust
General Manager/Chief Executive of each HSS Board
General Manager/Chief Executive of each Agency

SAN(NI) 99/51
Date:12 October 1999

TITLE:

Bed Side Rails (Cotsides) Fitted with Telescoping Crossbars – Risk of Movement and Subsequent Patient Injury

1. SUMMARY

Beds side rails (cotsides) with adjustable telescoping crossbars, which locate under the mattress, can move away from the bed if not correctly positioned or securely locked. Movement of the bed side rail away from the bed presents a risk to the occupant from falling or entrapment.

2. ACTION

The following information should be brought to the attention of all who need to know or be aware of it. This will include:

- Medical, Nursing and Care Staff
- Community Care Staff, including district nursing and occupational therapy services
- Health Visitors
- Diana Community Children's Nursing Teams
- Carers of the Elderly
- Learning Disability Services
- Nursing Homes, Hospices & Community Health Facilities
- Supplies Staff
- Equipment Loan Store Managers
- All Departments where bed side rails are used
- All those involved in the maintenance of beds
- Risk Managers
- Safety Liaison Officers

Boards/Trusts should ensure that if appropriate, this information is passed to **ALL** persons having the responsibility for premises registered under "THE REGISTERED HOMES (NI) ORDER 1992".

Those fitting bed side rails should ensure that the rails are positioned in accordance with the manufacturer's instructions.

The assembly should be regularly inspected to ensure that:

- The locking mechanisms provided on the adjustable crossbars, which locate under the mattress, are properly engaged.

- Crossbars have not rotated under the mattress causing locking mechanisms to press against the bed base or mattress heads etc on the crossbar end attachment plates (that secure the rail clamps) do not impinge on the bed base.

Nursing staff and carers should be informed that bed side rails must not be used as hand-holds when moving beds. If a bed fitted with a bed side rail is moved, or its mattress disturbed or repositioned, the assembly should be inspected as above.

Note: When fitting or repositioning all bed side rails, care must be taken to avoid entrapment hazards.

3. BACKGROUND

The Department has received a report of an incident involving a bed side rail with adjustable crossbars, which moved away from the bed. This type of bed side rail is commonly used in Nursing, Residential homes and in the community with divan beds.

The spring-loaded locking button used for adjustment on one of the crossbars had released allowing the occupant to fall between the bed side rail and bed.

Investigation has shown that locking buttons can be released when the telescoping crossbars are incorrectly positioned (i.e. rotated) with their buttons pressing against the bed base.

Crossbars can be set up in the wrong position or can become incorrectly positioned if the bed side rail is used as a handhold for moving the bed. Crossbars can subsequently become fixed in an incorrect position if a protruding bolt on the inner face of an end plate impinges on the bed.

The rotation of a crossbar from its intended position will also increase the height of the bed side rail above the mattress. This increases the space between the top of the mattress and the lower bar of the bed side rail – increasing the risk of asphyxiation due to entrapment. Hazard Notice HN (NI) 97/13 issued 18 August 1997 provides advice on the risks of entrapment associated with bed side rails.

APPENDIX D. TEXT OF NIAIC HAZARD NOTICE HN (NI) 2000/17

FOR ACTION BY:
Chief Executive of each HSS Trust
General Manager/Chief Executive of each HSS Board
General Manager/Chief Executive of each Agency

HN(NI) 2000/17
Date: 25 July 2000

Product	:	**BED SIDE RAILS (COTSIDES) – RISK OF ENTRAPMENT AND ASPHYXIATION**
Manufacturer/ Supplier	:	VARIOUS
Problem	:	RISK OF DEATH FROM ENTRAPMENT AND ASPHYXIATION OF PEOPLE INBEDS FITTED WITH INCOMPATIBLE SIDE RAILS.
Action	:	ENSURE CORRECT SIDE RAILS ARE SUPPLIED.

1. ATTENTION CHIEF EXECUTIVES/GENERAL MANAGERS

This notice should be brought to the immediate attention of all who need to know, or be aware of it including those listed below, in accordance with local procedures, and immediate action should be taken as detailed aside:

- Liaison Officers (for onward distribution)
- Nursing Executive Directors
- Medical, Nursing and Care Staff
- Carers of the Elderly
- Learning Disability Services
- Social Services staff including Physiotherapists and Occupational Therapists
- Supplies Staff
- Safety Officers
- Risk Managers
- Loan Store managers
- General Practitioners

Boards/Trusts should ensure that if appropriate, this information is passed to ALL persons having the responsibility for premises registered under “THE REGISTERED HOMES (NI) ORDER 1992”.

2. IMMEDIATE ACTION

Those responsible for the purchase, supply and fitting of side rails should ensure that:

- When supplying side rails, due consideration is given to the type of bed they will be fitted to, so that only the correct type of side rails are supplied;

- Side rails in use in the Community are checked for compatibility with the beds they are fitted to and that they do not present a risk of entrapment;

- Procedures are in place to ensure that, at the time of fitting, side rails are assessed in combination with the bed and the occupant to determine if any entrapment hazards exist (consideration should be given to the occupant's physiological size).

3. BACKGROUND

The Department advised in 1997 (Hazard Notice HN(NI)97/3) on the potential risk of entrapment and asphyxiation of people in beds fitted with side rails. The Notice advised that care must be taken when selecting, positioning and adjusting side rails to ensure that any spaces within the rails or between the rails and mattress, or parts of the bed, do not allow entrapment of the occupant's head or body.

Incidents of entrapment continue to occur, particularly with people being cared for in the Community.

The Department has received a report of an incident where a person asphyxiated after slipping through a gap between a side rail and their bed. The side rail was of a type commonly sold for use with divan beds, but in this instance it had been unsuitably used with a hospital metal bedstead.

There is an extensive range of side rails in use and on the market; because there is also an extensive range of beds in use, there is the opportunity for incompatible side rails and beds to be used together. Using side rails on beds for which they were not designed can create entrapment hazards.

DISTRIBUTION

This Device Bulletin should be brought to the attention of all professional staff with responsibility for supply, use and maintenance of bed rails. This will include: loan store managers; risk managers; health and safety managers; occupational therapists; nurses; residential and nursing home managers; and NIAIC liaison officers for onward distribution.

TECHNICAL ENQUIRIES

Enquiries regarding the content of this Device Bulletin should be addressed to:

Mr Brian Godfrey
Northern Ireland Adverse Incident Centre
Health Estates
Estate Policy Directorate
Stoney Road
Dundonald
Belfast
BT16 1US

Tel: 028 9052 3714 email: brian.godfrey@dhsspsni.gov.uk
Fax: 028 9052 3900

FURTHER COPIES

Further copies of this Device Bulletin are free to Health and Social Care providers and may be obtained on written request from:

Northern Ireland Adverse Incident Centre (NIAIC)
Health Estates
Estate Policy Directorate
Stoney Road
Dundonald
Belfast
BT16 1US

Tel: 028 9052 3704 e-mail: NIAIC@dhsspsni.gov.uk
Fax: 028 9052 3900

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