series of accident reports in individual hospitals, within regions, or made to national safety agencies. These retrospective surveys, case series and case studies are likely to be affected by under-reporting and reporting bias (Sari et al, 2007) but they may still provide useful circumstantial information.

Five of these studies compared injury rates in falls from bed with and without bedrails in general hospitals. Of these five studies, four showed a lower rate of injury in falls from beds with bedrails (NPSA, 2007a; van Leeuwen et al, 2001; Govier and Kingdom, 2000; Everitt and Bridel-Nixon, 1997).

However, statistical significance was reached only in the larger multi-hospital study (NPSA, 2007a), which also found a significantly lower rate of head injury in falls from beds with bedrails.

One study in a large teaching hospital (Tan et al, 2005) found a higher rate of injury in falls from beds without bedrails. However, with only 12 falls from beds with bedrails over 12 months, this did not reach statistical significance.

One retrospective survey of legal claims after falls from bed (Oliver et al, 2008) found that bedrails were raised in only 2.6% of cases relating to falls from bed. Legal cases are an inherently biased sample, but these cases suggest relatives remain likely to believe that failure to raise bedrails can be negligent and therefore a breach of the duty of care.

The literature review also summarised 12 studies that described direct injury from bedrails or injury in falls after bedrail failure, ranging from fatal entrapment to minor injuries.

Most of these studies are based on incidents in patients’ own homes, nursing homes and hospitals in the US, and several are overlapping studies drawing on different years of the same data collection. Most studies only described the numbers of reports of different injuries. Additional analysis in Hignett and Griffiths (2005) indicated that ‘half rails’ (an outmoded inverted triangle design) were significantly more likely to be associated with death, full rails with non-fatal injury, and split rails with near misses (where a patient was entrapped but released without injury).

The real tragedy of these case reports seems to be that, although the message that bedrail entrapment can kill has been well disseminated, the detail they provide on how this could be avoided appears much less well known (NPSA, 2007a). Good maintenance, correct assembly and eliminating incompatible or outmoded equipment can prevent fatal bedrail entrapment (Medicines and Healthcare products Regulatory Agency, 2006).

Patients’ and carers’ views
The review identified only three studies including patients’ views, two including relatives’ views and one including staff views.

A small qualitative study of 17 patients with bedrails raised (Gallinagh et al, 2001a) found that most of them were positive or indifferent about them, but identified one patient distressed by their bedrails. Interviews with nine of their relatives (Gallinagh et al, 2001b) suggested they saw bedrails as a useful safety measure, but could identify possible risks associated with them if prompted.

In a larger study, bedrails were thought acceptable by 89.5% of inpatients surveyed (Vassallo et al, 2005; 2004), and relatives’ views of bedrails were very similar to those of patients. However, staff were significantly less likely than relatives to think that bedrails were acceptable – perhaps precisely because of the articles discussed earlier in which strong assertions are made implying bedrails are ‘dangerous’ and ‘unethical’.

Findings from two focus groups with former patients suggested the participants believed bedrails could be useful but the term ‘cotside’ was demeaning (NPSA, 2007c).

Additionally, some bedrail reduction studies (Hoffman et al, 2003; Si et al, 1999) or attempts at bedrail reduction studies (Ralphs-Thibodeau et al, 2006) found that patients were reluctant to stop using them.

Other evidence
The literature review (Healey et al, 2008) included only published papers. No articles on bedrail entrapment deaths in UK settings have been published.

The MHRA has received reports of 18 deaths related to bedrail entrapment or bedrail failure in nursing or residential homes or patients’ own homes and three bedrail entrapment deaths in hospitals from 2000–2006.

The bedrail-related entrapment deaths often involved poorly designed equipment (for example not complying with the MHRA’s requirements on maximum spaces between bedrail bars), poorly maintained equipment or ‘hybrid assembly’. Hybrid assembly occurs...