



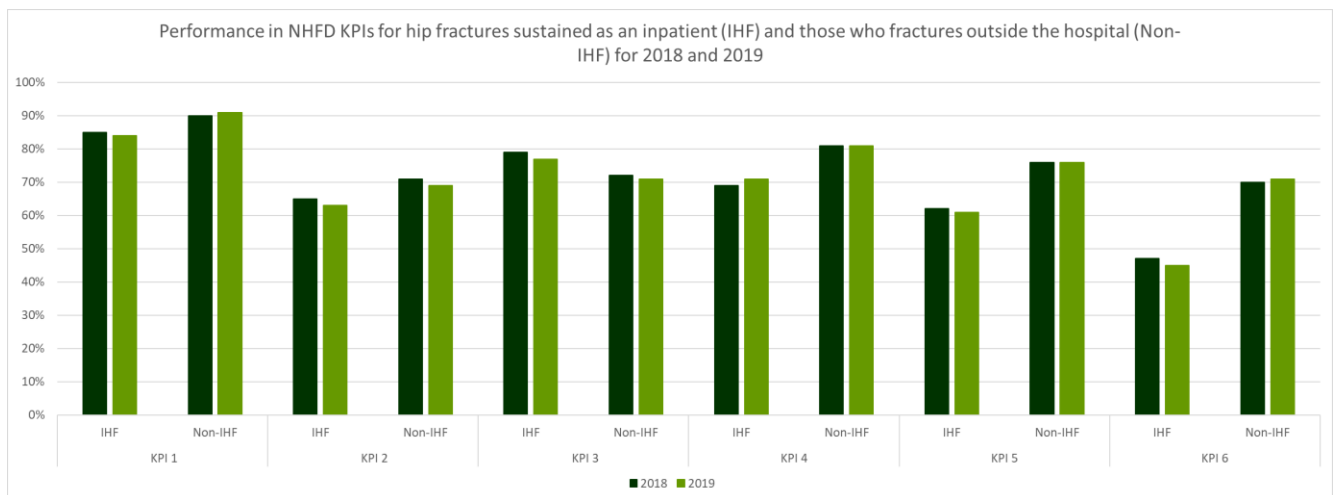
Appendix: The impact of NICE-compliant immediate post-fall management on hip fracture outcomes and processes

Introduction

In the previous two National Audit of Inpatient Falls (NAIF) reports^{1,2} we analysed the difference between outcomes and processes for those who fractured their hip as an inpatient (IHF) compared with hip fractures sustained in non-inpatient settings (Non-IHF) using data collected by [The National Hip Fracture Database \(NHFD\)](#) in 2018 and 2019. The NHFD collects data that describes the process, quality and outcome of care provided to people with hip fracture at hospitals in England and Wales.

This analysis highlighted significant differences in 30-day mortality and performance on NHFD Key Performance Indicators (KPIs) between the two groups. Those with IHF were more than twice as likely to die within 30 days (13.6%) compared to Non-IHFs (6.3%). Moreover, IHFs were significantly less likely to have prompt surgery or orthogeriatric assessment, mobilise the day after surgery, be free of delirium and return to previous place of residence than Non-IHFs (see figure 1).

Figure 1: NHFD Key Performance Indicators for hip fractures sustained in an inpatient setting (IHF) compared to those sustained in non-inpatient settings (non-IHF).



The reasons for these differences are not fully understood but there are possible explanations. Inpatients are likely be frailer and also more acutely unwell at the time of the fracture than those who fall outside of the hospital, leading to worse outcomes. For example, inpatients may require additional medical stabilisation leading to delayed surgery, have poorer baseline mobility reducing the chance of getting up the day after surgery and a higher susceptibility to developing delirium. However, the quality of immediate post-fall management in the inpatient setting may also be a reason for poorer outcomes.

Effective immediate post-fall management for inpatients is defined in [NICE Quality Standard 86³](#) as:

- > a post-fall check before moving from the floor that identifies an injury (NICE QS86: 4)
- > movement from the floor using flat lifting equipment (NICE QS86: 5)
- > assessment by a medically qualified professional within 30 minutes of falling (NICE QS86 :6)

Failure to meet these standards could lead to delayed diagnosis with longer waits for appropriate treatment such as access to analgesia and prompt surgery, increasing the likelihood of adverse outcomes.

This analysis aims to better understand the role of immediate post-fall management on hip fracture outcomes and processes in the 2020 inpatient dataset.

Methods

This deep dive analysed the effect of NICE-compliant immediate post-fall management on 30-day mortality and 3 NHFD key performance indicators (KPIs): prompt surgery (KPI 2), prompt mobilisation (KPI 4), and not delirious post-operation (KPI 5). These 3 KPIs were chosen as they were felt to be most likely to be adversely affected by poor standards of immediate post-fall management.

The 1,357 patient records collected in the 2020 NAIF audit were used in this analysis.

We included one extra immediate post-fall management standard in addition to the three NICE QS 86 standards described above; whether analgesia was administered within 30 minutes of falling.

Immediate post-fall management standards for this analysis:

- > a post-fall check before moving from the floor that identifies an injury (NICE QS86: 4)
- > movement from the floor using flat lifting equipment (NICE QS86: 5)
- > assessment by a medically qualified professional within 30 minutes of falling (NICE QS86 :6)
- > Analgesia administered within 30 minutes of falling

A composite measure to quantify overall immediate post-fall management was calculated using the achievement of each of these four standards; where a score of 4 indicated all four post-fall standards had been met, ranging down to a score of 0 indicating no standards were met.

Impact of immediate post-fall management on 30-day mortality

The 30-day mortality was compared depending on whether each of the 4 immediate post-fall management standards had been met or not. This was repeated for the composite measure.

Impact of post-fall management on selected NHFD Key Performance Indicators

Proportions achieving NHFD KPIs; prompt surgery (KPI 2), prompt mobilisation (KPI 4) and not delirious post-op (KPI 5) were presented based on whether immediate post-fall management standards were met or not and repeated for the composite measure.

Findings

There was no significant difference in 30-day mortality between those who did and didn't receive care that was compliant with the four standards for immediate post-fall management, nor was there any difference when achievement of these standards was considered as a composite measure (see figures 2 and 3).

Figure 2: Effect of post-fall management on 30-day mortality

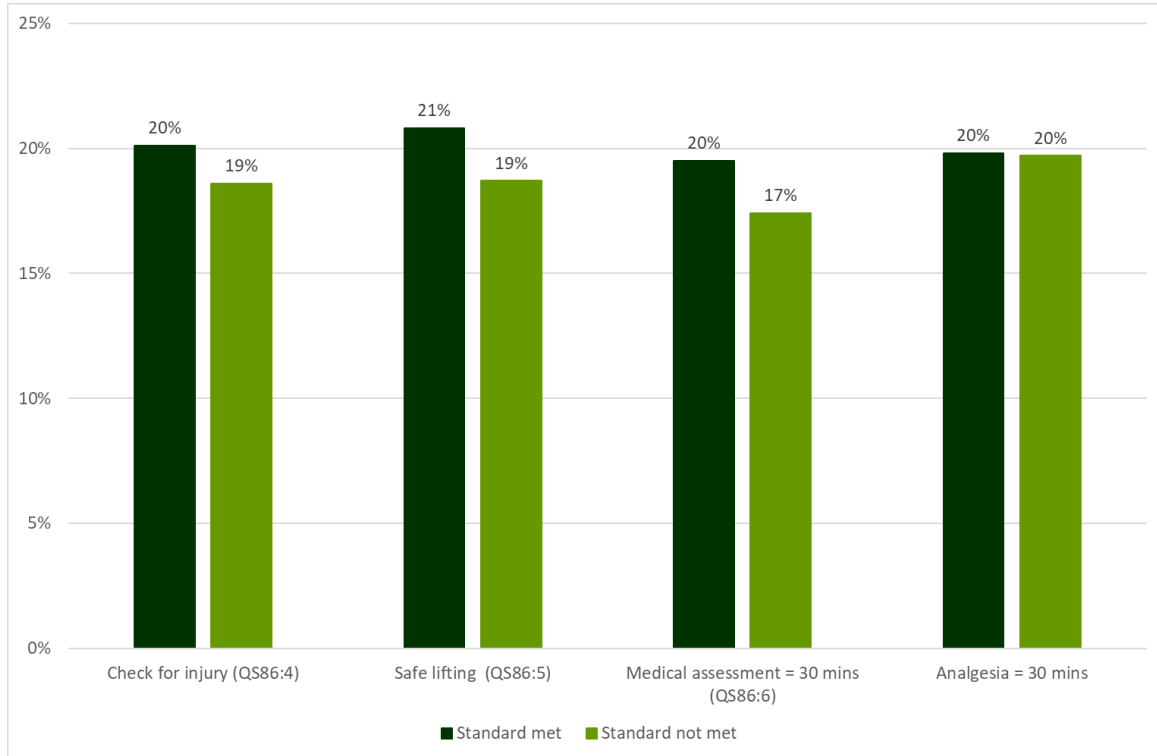
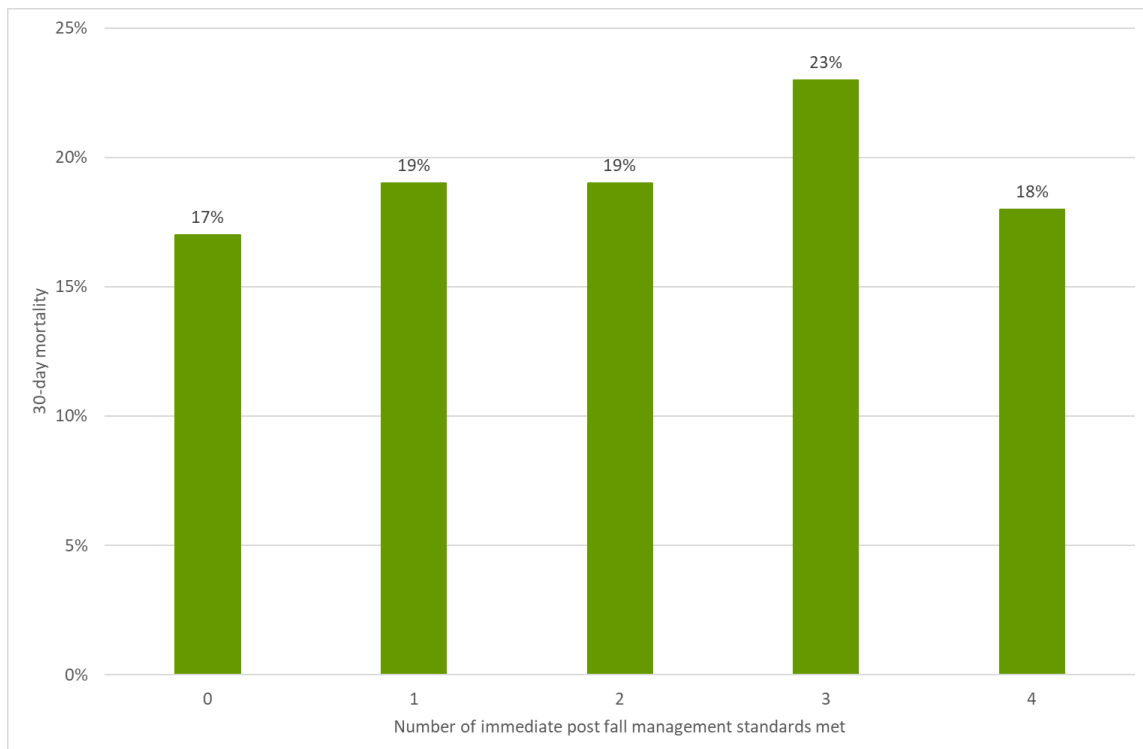


Figure 3: Cumulative effect of post-fall management on 30-day mortality

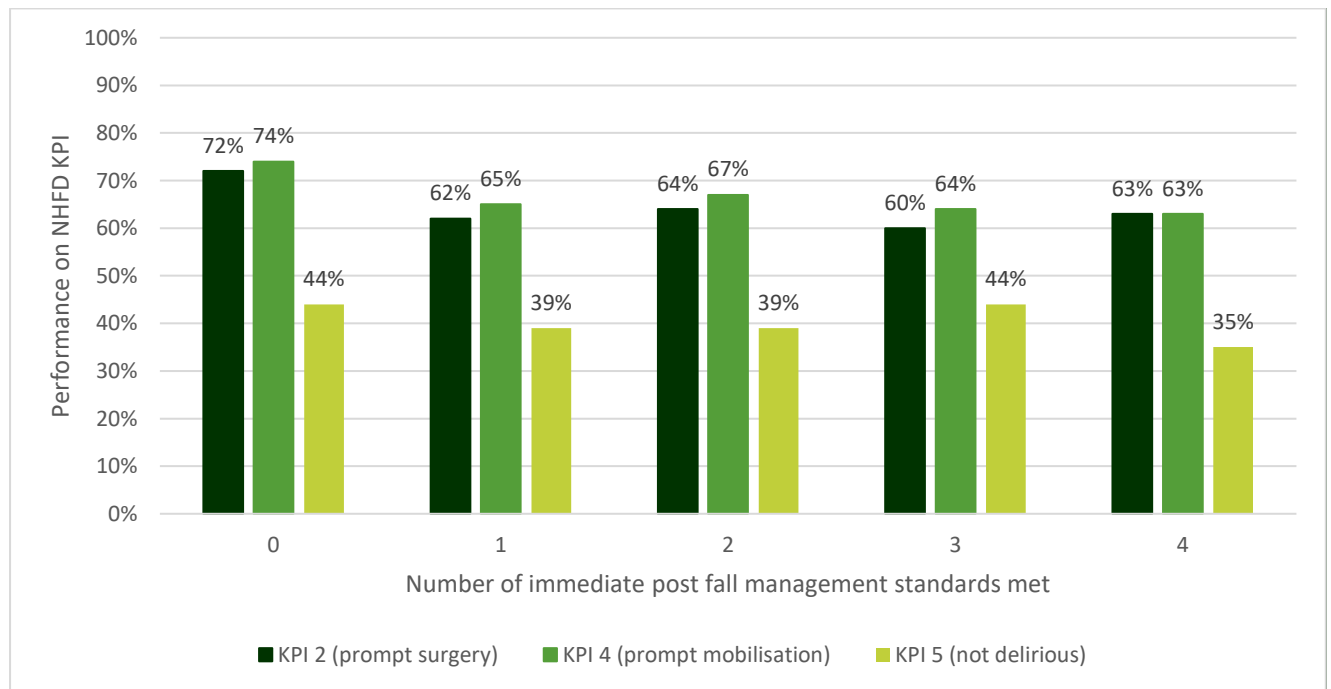


There were also no differences in performance in the 3 selected NHFD KPIs based on whether the 4 immediate post-fall management standards were met or not. Nor were there differences when analysing the composite measure of standards met (see table 1 and figure 4).

Table 1: Effect of post-fall management on achievement of NHFD KPIs

	Post-fall management standard	NHFD KPI 2 Prompt surgery	NHFD KPI 4 Prompt mobilisation	NHFD KPI 5 Not delirious
Post-fall check before moving from the floor that identifies an injury	Met	63%	64%	41%
	Not met	63%	65%	39%
Movement from the floor using flat lifting equipment	Met	59%	61%	40%
	Not met	64%	66%	40%
Assessment by a medically qualified professional within 30 minutes of falling	Met	62%	65%	42%
	Not met	68%	65%	39%
Analgesia administered within 30 minutes of falling	Met	64%	66%	43%
	Not met	63%	66%	39%

Figure 4. Cumulative effect of immediate post-fall management on NHFD Key Performance Indicators



Conclusion

This introductory analysis suggests that effective immediate post-fall management, as measured against NICE quality standard 86 (with an additional analgesia standard) did not influence 30-day mortality, time to surgery, early mobilisation or the likelihood of developing delirium.

It may be that there are other factors associated with post-fall management in the inpatient setting that have a greater impact on outcomes. The next step will be to look for other factors likely to lead to delay commencing hip fracture care as well as aspects relating to patients' health status that may be more important in explaining the differences between IHFs and Non-IHFs.

It is important to reiterate that these immediate post-fall management standards continue to be expected practice, with the first three being NAIF Key performance indicators. It is indisputable that it is in the patient's best interest to identify the injury effectively and promptly, to move the patient from the floor in a way that causes least pain and distress, and that early assessment ensures speedy diagnosis and commencement of hip fracture care. Organisations are encouraged to continue with work to improve performance against these standards.

References

- 1 Royal College of Physicians. *National Audit of Inpatient Falls audit report 2020*. London: RCP, 2020.
- 2 Royal College of Physicians. *National Audit of Inpatient Falls interim annual report. Spring 2021*. London: RCP, 2021.
- 3 National Institute for Health and Care Excellence (NICE). *Quality Standard 86*. London: NICE, 2017.