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Multiple Organisational Factors are Associated with Adverse Patient Outcomes Post Hip Fracture in Hospitals in England & Wales
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Introduction
Older adults who sustain a hip fracture require complex multidisciplinary care, which can challenge organisational structures within hospitals. Despite standards and guidelines, substantial variation remains in hip fracture care delivery across the UK. We aimed to determine which hospital-level organisational factors predict adverse patient outcomes in the post injury period.

Methods
A cohort of 178,757 patients aged 60+ years in England and Wales (2016-19) who sustained a hip fracture was examined. Patient-level Hospital Episodes Statistics, National Hip Fracture Database, and mortality data were linked to metrics from 18 hospital-level organisational audits/reports/series. Multilevel models determined the organisational factors, independent of patient case-mix, associated with three patient outcomes: length of hospital stay (LOS), 30-day all-cause mortality, and emergency 30-day readmission.

Results
Overall LOS was mean 21 days (standard deviation, 20); 13,126 (7.3%) died within 30-days; and 25,239 (15.3%) were readmitted. 25 organisational factors independently predicted LOS: for example, a hospital's ability to promptly mobilise ≥90% of patients was associated with a 2-day (95%CI:1.3-2.7) shorter LOS, and hospitals where all patients received orthogeriatric assessment within 72 hours of admission had mean 1.5-day (95%CI:0.6-2.3) shorter LOS. Ten organisational factors independently predicted 30-day mortality: providing prompt surgery (≤36 hours from admission) to >80% patients was associated with the same 10% reduction in mortality (95%CI:4-15%), as was discussion of "patient experience" feedback at clinical governance meetings (95%CI:5-15%). Nine organisational factors independently predicted readmission: knowledge of time from discharge to start of community therapy was associated with 17% (95%CI:9-24%) lower readmission rates. Organisational delivery of clinical governance, surgery, and physiotherapy were associated with all outcomes.

Conclusions
Multiple, potentially modifiable, organisational factors are associated with important patient outcomes post-hip fracture. These factors, if causal, indicate auditable components of hospital care where interventions can be targeted to reduce variability in hip fracture care delivery, to improve patient outcomes.
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