

## **Do nursing stations within bays of hospital wards reduce the rate of inpatient falls? – *An interrupted time series analysis***

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**Objectives:** Falls are a major public health burden for individuals and society. Falls are associated with loss of independence, functional decline and are a contributing reason for subsequent admission to long-term care. The financial burden associated with injurious falls is substantial. This study aims to evaluate whether the introduction of portable nursing stations within bays of hospital wards, has led to a change in trend of the monthly rate of inpatient falls.

**Methods:** Data on inpatient falls from local hospital records (Datix) were collected monthly between April 2014 and March 2017 across 17 wards within two UK hospitals (Stoke Mandeville & Wycombe General). The outcome was the monthly rate of falls per 1000 occupied bed days (OBDs). Using a natural experimental study design, interrupted time series analysis was used to assess whether trends in fall rates changed following the introduction of portable nursing stations in April 2016.

**Results:** A total of 2322 falls were identified in the study period, with 59% being males. The overall median age was 81. The majority of falls (99.3%) were classified as either none, low or moderate harm with only 0.5% resulting in severe harm and less than 0.2% resulting in death. Up to April 2016, the monthly rate of falls were increasing by 0.127 ( $p=0.002$ ). After the intervention was introduced, the monthly rate of falls was decreasing by 0.437 ( $p=0.003$ ). At 12 months post-intervention, the absolute difference in the rate of falls between the estimated post-intervention trend and the pre-intervention projected estimate was 4.59 falls per 1000 OBDs. This was a relative percentage reduction of 46.3%.

**Conclusion:** This study provides evidence that the introduction of SITB was temporally associated with a reduction in the monthly rate of falls. This has the potential to be applied across the NHS and may reduce the number of inpatient falls.

**Key words:** falls prevention, epidemiology, natural experiment, interrupted time series