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Metcalfe D, Zogg CK, Judge A, et al. Pay for performance and hip fracture outcomes: an interrupted time series and difference-in-differences analysis in England and Scotland. *Bone Joint J* 2019;101-B:1015-1023.

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Sir,

We read this article with great interest .[1] The authors should be commended for their comprehensive work and their attempt to illustrate methods of improving hip fracture care. This is a key healthcare priority globally given the anticipated epidemic of these injuries in an ageing population.[2]

The authors state that they were not aware of any other event which may have occurred at the same time as the introduction of the National Hip Fracture Database (NHFD) and Best Practice Tariff (BPT) but only affected outcomes in either England or Scotland. There were, however, such significant events within Scotland in 2014, towards the end of their data collection period. These included the introduction of the Scottish Standards of Care for Hip Fracture Patients (SSCHFP),[3] as well as the re-introduction of the Scottish Hip Fracture Audit (SHFA), which had been discontinued in 2008. Previously published data identified a significant deterioration in the quality of care hip fracture patients received in Scotland as a result of discontinuation of the SHFA.[4]

The SSCHFP are a set of evidence-based and nationally agreed care standards for patients with a hip fracture against which hospitals in Scotland have been audited since their introduction (SHFA). Implementation of the SSCHFP has been associated with substantial improvements in terms of time to theatre, length of hospital stay and discharge to previous residence within 30 days.[5] Published evidence has also highlighted an association between adherence to the SSCHFP and reduced mortality, length of stay and a higher likelihood of discharge to a patient's usual home environment.[6] The latest data from both the NHFD and SHFA reports indicate that current 30-day mortality is now similar (6.85% SHFA *versus* 6.9% NHFD)[5, 7]. In addition, since 2012/2013, the SHFA has seen improvements in the median length of stay beyond that shown by the NHFD (18 days *versus* 20 days). The introduction of the SSCHFP and ongoing work of the SHFA have also seen progress in a number of other key performance indicators such as patients receiving a fascia iliaca block in the emergency department, prompt geriatric review, the use of cemented hemiarthroplasty implants, the avoidance of prolonged fasting, as well as improvements in dementia screening and nutritional assessment.

We feel that the introduction of the SSCHFP/SHFA and the significant associated improvement in hip fracture care should be addressed by the authors to ensure an accurate contextual portrayal of the two systems examined by the study given their use of the Scottish population as a "control group".

The implementation of the SSCHFP and its associated benefits would probably negate many of the potential improvements suggested by introduction of the BPT. The projection modelling provided as part of the study is therefore likely to be inaccurate as it does not reflect current and potential future practice in Scotland. This should be addressed within the article.

Unfortunately, given the lack of a direct comparison, it is impossible to know how implementation of financial incentives or government-led audit compares with evidence-based care standards in effectiveness. There are concerns that pay for performance may increase inequalities in care by prioritizing trusts that already perform well financially and have sufficient funds and resources to invest in the BPT. Others may not be able to meet parts of the BPT, for example recruitment of orthogeriatricians, due to regional or geographical factors which are out of the control of healthcare providers. We would be interested to read the authors' experience of how these systems affect care providers differentially and how adherence to the care standards set out in the NHFD changed after the introduction of BPT as a direct marker of the effect of financial incentives on adherence.

Government-led audit of evidence-based care standards may provide similar outcome improvements to those seen with financial incentives while also providing a means to control variations in quality of care at a hospital level. Consequently, calls for an increase in the use of pay-for-performance measures should be met with caution in the absence of clear clinical or financial benefits over other methods.

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1. **Metcalfe D, Zogg CK, Judge A, et al.** Pay for performance and hip fracture outcomes: an interrupted time series and difference-in-differences analysis in England and Scotland. *Bone Joint J* 2019;101-B:1015-1023.
2. **Cooper C, Campion G, Melton LJ III.** Hip fractures in the elderly: a world-wide projection. *Osteoporos Int* 1992;2:285-289.
3. **No authors listed.** Scottish Standard of Care for Hip Fracture Patients. NHS Scotland. Quality Improvement Hub. http://www.qihub.scot.nhs.uk/media/581060/scottish%20standards%20of%20care%20for%20hip%20fracture%20patients%20%20-%20consultation%20version%20-%20may%2014.pdf (date last accessed 2 October 2019).
4. **Ferguson KB, Halai M, Winter A, et al.** National audits of hip fractures: are yearly audits required? *Injury* 2016;47:439-443.
5. **Pavlidis M, Sundvik M, Chen YC, Panula P.** Adaptive changes in zebrafish brain in dominant-subordinate behavioral context. *Behav Brain Res* 2011;225:529-537.

6. **Farrow L, Hall A, Wood AD, et al.** Quality of Care in Hip Fracture Patients: The Relationship Between Adherence to National Standards and Improved Outcomes. *J Bone Joint Surg [Am]* 2018;100-A:751-757.
7. **Nuutinen S, Lintunen M, Vanhanen J, et al.** Evidence for the role of histamine H3 receptor in alcohol consumption and alcohol reward in mice. *Neuropsychopharmacology* 2011;36:2030-2040.

Conflict of Interest: Current chair of the Scottish Hip Fracture Audit Steering Group Research Subcommittee.