

How should we adjust patient-reported outcome measures when comparing hospitals?

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Healthcare decision-makers and patients are often interested in comparing the performance of hospitals. In the NHS in England, one way of measuring hospital performance is via patient-reported outcome measures (PROMs). These capture different aspects of health problems such as physical pain, restricted mobility, and feelings of anxiety and depression. PROMs are collected through structured surveys before and after hip or knee replacement surgery to compare hospital performance and identify where care quality can be improved.

To make fair comparisons, PROMs data must be adjusted for the mix of patients each hospital treats. Without this “case-mix adjustment” hospitals treating older or sicker patients might appear to deliver worse care simply because their patients have lower initial health. Standard practice in the NHS aggregates multidimensional PROMs data into summary scores before adjusting for hospital case-mix.

Our research evaluated an alternative ‘domain response’ approach where each aspect of health is adjusted for case-mix separately and summary scores are only calculated afterwards. The domain response approach has several advantages, for example, it retains information that allows clinicians to see more easily where their care falls short such as pain management or dealing with patients’ anxiety/depression.

We conducted a series of simulation studies to compare both methods head-to-head. We found that the new domain response approach performed as good, or better than, the summary score approach in most situations and generated estimates of hospital performance that are closer to their actual true performance. But the differences were small. When we applied each method to a case study using data on NHS knee replacement surgery, both identified the same high- or low-performing hospitals.

Our research concluded that both methods are feasible and that NHS decision-makers do not need to change methodology because of concerns over making unfair comparisons of hospital performance. However, the domain response approach offers a more flexible framework for assessing performance and conveys more detailed information that can be useful to both patients and providers by highlighting the specific aspects of health that differ between providers and those that may require targeted improvement.

[Read the full paper, funding sources and disclaimers in Health Economics.](#)

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