



Economics of
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Lay Summary

**ADDRESSING MISSING DATA IN PATIENT-REPORTED OUTCOME MEASURES (PROMS):
IMPLICATIONS FOR COMPARING PROVIDER PERFORMANCE**

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It is only recently that patients have been asked about whether hospital treatment improves their health status. The English Patient Reported Outcome Measures (PROMs) programme is the first international attempt to ask patients about their health status before they have surgery and again several months after. The hope is that this information can be used to assess the extent to which treatment improves health status and whether some providers are better than others at improving the health of their patients.

The PROMs programme relies on patients completing standard questionnaires, which have been commonly used in clinical trials. But not all patients complete them. If questionnaires are missing, the impression of provider performance based on those patients that do provide information may be incomplete and inexact.

Missing data creates two problems. First, with fewer completed questionnaires, statistical power is reduced. This means that it will be more difficult to identify those providers that perform well or poorly.

Second, patients that complete their PROM questionnaires may be different from those that do not. They may be younger or have less severe health problems. These differences may determine the effectiveness of treatment. If so, performance assessments that use only completed questionnaires may not reflect the true quality of hospital care.

We explore these problems using a statistical approach known as multiple imputation. This involves filling in the missing questionnaire with the most likely responses, which are predicted – or imputed – on the basis of the observed characteristics of the patient and the provider. Completed and imputed responses are then analysed together to compare providers.

The typical approach to provider performance assessment is based on only those patients with complete questionnaires. We find that this understates the variation in health outcomes experienced by patients treated in English hospitals.

Consequently, we believe that it is important to take account of missing data before drawing conclusions about which providers are better than others at improving the health of their patients.

Full report available at

http://www.york.ac.uk/media/che/documents/papers/researchpapers/CHERP101_PROMs_missing_data_provider_performance.pdf

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