Dr Foster's case notes

CHI ratings and HSMRs: is there a relation?

The measurement of acute hospital performance is an issue of intense political interest. In England, the Department of Health has published star ratings for NHS units based on a range of different indicators. This system, in which higher numbers of stars (up to a maximum of three) are intended to indicate higher quality, has now been extended to cover other NHS organisations. The Commission for Health Improvement (CHI) (now subsumed into the Healthcare Commission) also conducts on-site inspections that give hospitals scores for a variety of issues related to quality of care.

First we analysed whether there is a relation between the star ratings and hospital standardised mortality ratios (HSMRs); then we determined the degree to which the inspection scores correlate with HSMRs. We found no significant relation between HSMRs and star ratings, but did find a significant relationship with inspection scores. This indicates that inspection scores may provide the public with a better guide to quality than star ratings.

The bottom line

- For 2001-3, and over 115 NHS trusts, star ratings and HSMRs were not significantly related
- There was a significant inverse relation between composite inspection scores and HSMRs

For 115 trusts without mergers for which data were available for three years, the observed and the expected numbers of deaths from each trust were combined within each star rating. Star ratings were then plotted against their hospital standardised mortality ratio (adjusted for age, sex, admission method, length of stay, and the 80 diagnoses leading to 80% of all hospital deaths; see bmj.com).

CHI carries out inspections of NHS trusts. Trusts were scored between 1 (bad) and 4 (good) on seven measures: staffing and staff management, education and training, clinical audit, clinical risk assessment, research and effectiveness,

Figure 1
Star rating plotted against hospital standardised mortality ratios
Bars indicate 95% confidence intervals

Figure 2
CHI inspection composite score plotted against hospital standardised mortality ratios for 115 NHS trusts
Regression line is shown

patient involvement, and use of information. A composite score for these areas was calculated for 2001-2 and 2002-3. We used log-linear regression to examine the relation between the CHI inspection scores for 130 trusts over two years and the HSMR for the year of the inspection.

A recent study found no relation between star ratings and adult critical care.¹ Another clinical outcome marker is in-hospital mortality, adjusted to take account of the factors that affect hospital death rates, such as the patient's age and sex. Adjusted hospital standardised mortality ratios have been calculated² using HES data and are published regularly by Dr Foster as a quality of care measure. We found no association between star ratings and clinical

outcomes as measured by HSMRs, but we did find an inverse relation between CHI inspection scores and mortality, suggesting a closer relation to health outcomes than the star ratings.

The basic figures

- 30% of trusts had a star rating of 1 or 0 in 2003
- Poisson regression showed a small, non-significant inverse relation between the star ratings and HSMR; an increase in one star was associated with a 0.4% fall in HSMR ($P = 0.062$)
- Each point increase in the CHI inspection score was associated with a 1.35% decrease in HSMR ($P = 0.004$)

Dr Foster's case notes are compiled by Brian Jarman, Paul Aylin, and Alex Bottle of the Dr Foster Unit at Imperial College. Dr Foster is an independent research and publishing organisation created to examine measures of clinical performance.

References and full methodological details are available on bmj.com