Hospital mortality league tables: influence of place of death
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League tables that rank hospitals according to their death rates are now regularly published in England. The rationale for publication is that differences in death rates may indicate differences in quality of hospital care. Yet a hospital is not only a place for treatment and cure, it is also a place for care of the dying. Currently, 55% of all deaths in England occur in NHS hospitals. Provision and use of different facilities for the care of the dying varies geographically. We investigated how this variation might influence the scale and ranking of hospital death rates.

Method and results
Dr Foster Ltd has published in-hospital death rates for 167 acute NHS hospital trusts (hereafter termed hospitals) in England over the three year period April 1999 to March 2002. The denominators were the number of episodes of admission to each hospital, as recorded in the hospital episode statistics system, and the numerators were the number of these episodes that ended in death. The rates were standardised by age, sex, source of admission, length of stay, and diagnosis, expressed relative to the rate for all hospitals combined, multiplied by 100, and termed hospital standardised mortality ratios (HSMRs). The report highlighted 15 hospitals with the highest and 15 with the lowest mortality ratios. The investigators showed that the probability of these being in the top or bottom 15 was not attributable to random error. We used data on these hospitals for our analysis but excluded London hospitals because of difficulty in determining their catchment areas. This left 11 hospitals with high ratios and nine with low ratios.

Statistics on place of death (NHS hospital, hospice, home etc) of residents of different areas are published routinely. These were available for two of the three years on which the published hospital league tables were based (1999 and 2000). We used hospital episode statistics to identify the individual health authorities that corresponded most closely to the catchment area of the 20 selected hospitals, and we used the published figures on place of death to calculate the percentage of deaths of residents of each catchment area that occurred in NHS hospitals. We then adjusted the published HSMRs to allow for geographic differences in the percentages of deaths occurring in hospital in the hospitals’ catchment areas. We did this by scaling down the values when proportionately more deaths of residents occurred in NHS hospitals compared with England as a whole and scaling up those when proportionately fewer deaths occurred in hospital. For instance, for every 1000 deaths of residents of Walsall Health Authority, on average 623 occurred in NHS hospitals. For England overall, the average was 546. We reduced the published HSMR for the Walsall hospitals, 126, by the scaling factor 0.88 (546/623), which gave an adjusted HSMR of 110. The percentages of deaths of residents of health authorities that occurred in NHS hospitals varied from less than 45% in Plymouth and West Sussex to over 60% in Walsall and Sandwell (figure, and see table on bmj.com). In most cases the adjustment brought the HSMRs closer together and closer to 100. It also changed the rankings.

Comment
Geographical differences in the provision of facilities for the dying are a plausible explanation for some of the differences between hospitals in their in-hospital death rates. Calculation of in-hospital death rates, aggregated across a wide clinical spectrum, including a mixture of admissions for treatment, cure, and palliative and terminal care, gives rates that are difficult to interpret as quality measures.

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A table showing rates for places of death is on bmj.com
Percentages of deaths occurring in NHS hospitals for catchment areas of hospitals (vertical line is percentage for England) and hospital standardised mortality ratios (HSMRs) as published (black) and after adjustment (red). Hospitals are plotted in ranking order of published HSMRs.