Audit

Annual review of fractured neck of femur mortality rates: is this a true picture?

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Background: Annual fractured neck of femur death rates within a region are used by the Department of Health (DoH) as a clinical performance indicator of hospital trusts. Presently trusts and DoH publish performance figures annually but there is significant variability year to year

Objective: Does a 5-year mortality review reflect a truer picture?

Methods: Hospital information services were used to provide the details for all patients who died within 30 days of admission. These were analysed to determine the true fractured neck of femur mortality.

Results: The variations in fractured neck of femur mortality rates between years within the same and between different trusts shows that annual scrutiny is an inappropriate, often skewed, analysis of performance.

Conclusions: A 5-year mortality review would seem more appropriate to visualise true trends and should be performed to remove anomalous results.

Key words: Fractured neck of femur – Mortality – Review frequency

Fractured neck of femurs are a common occurrence, usually secondary to trauma and predominantly in the elderly population. The injury can be a trivial with osteopenic bones fracturing after a simple manoeuvre or violence. Unfortunately, this injury can give rise to significant morbidity and mortality. Annual fractured neck of femur death rates within a region are used by the UK Department of Health (DoH) as a clinical performance indicator of hospital trusts. Presently, hospital trusts and the DoH publish performance figures annually; however, there is significant variability year to year, such that one year a Trust will perform well and another year badly. We wondered if a 5-year mortality review might reflect a truer picture and remove some biases. We also wished to check the accuracy of the DoH figures against our own.

Patients and Methods

Hospital information services were used to provide the details for all patients who died within 30 days of admission. These were analysed to determine the true fractured neck of femur mortality.

Results

The data obtained are summarised in Tables 1–3.

Discussion

As fractured neck of femur death rates hold great importance as hospital performance indicators, it was decided to study those that occurred during the period 1996–2001. A comparison of death rates over 5 years

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Table 1 Fractured neck of femur mortality rates over 5 years within South Manchester University Healthcare Trust (SMUHT)

Year	No. of NOF deaths	Total no. of orthopaedic deaths	No. of NOF cases in trust	NOF mortality
2001	20	25	236	8.47%
2000	26	33	285	9.12%
1999	19	28	293	6.50%
1998	22	33	255	8.63%
1997	14	20	245	5.71%

NOF, Fractured neck of femur.

within South Manchester University Healthcare Trust were compared with DoH figures within the region and six other regions over 5 years.

The DoH stated that an annual fractured neck of femur rate should lie within 9.2–10% in 2001.^{2,3} The Clinical Accountability Service Planning and Evaluation Healthcare Knowledge Systems (CHKS)¹ stated figures of 8.3% for teaching hospitals and 8.0% nationally. The parameters these bodies use differ slightly. The DoH accepts deaths within 30 days of admission, in or out of hospital, and excludes minor interventions. The CHKS accepts deaths within 30 days of admission, within hospitals only. Data over 5 years varied greatly within the same trust and different regions. Often a trust would fulfil DoH criteria over 1 year and fall outside with the next. The reason for this annual and geographic variation is unclear and probably due to many factors. Weather differences between years and differing regional performances as well as pre-injury health, age ranges within the patients and clerical coding. Significantly, in January 2001, the National Statistics Office changed the coding classification of fractured neck of femurs, another source of possible error. Indeed the number of variables that may occur to alter the outcome only strengthen the argument against annual review as a performance indicator.

Variability throughout a 5-year period of a single trust using audited figures showed large variations from year to year, swinging in and out of DoH acceptability (Table 1). Indeed, comparison of the same figures against DoH figures (Table 2) shows wide variability, outlining the possible problems of data collection.

Table 2 Regional variations of Department of Health figures. Self-audited figures in parentheses

	1996/7	1997/8	1998/9	1999/00	2000/01
Tameside	8.56	10.70	11.76	10.36	9.30
Wirral	5.73	7.20	3.85	9.34	6.76
Stockport	9.03	11.21	14.71	8.95	9.22
Bolton	7.25	9.80	11.49	10.04	16.72
Wigan & Leigh	8.85	13.48	13.00	13.19	15.77
Salford	6.28	7.88	10.27	11.49	10.32
SMUHT	4.98 (5.71)	9.33 (8.63)	6.02 (6.55)	9.20 (9.12)	11.62 (8.47)

Table 3 Five-year range, with variation from the mean

Hospital	Range	Mean	SD
Tameside	8.6–11.8%	10.1%	± 0.2–1.6%
Wirral	3.9–9.3%	6.6%	± 0.2–2.7%
Stockport	8.9–14.7%	10.6%	± 0.6–4.1%
Bolton	7.3–16.7%	11.1%	± 0.4–5.7%
SMUHT	5.7–9.1%	7.7%	± 0.9–2.0%
Salford	6.3–11.5%	9.3%	± 1.0–3.0%

The variations in fractured neck of femur mortality rates between years within the same and between different trusts shows that annual scrutiny is an inappropriate, often skewed analysis of performance. Although factors altering these cannot be precisely identified, this strengthens the argument to review such data over a longer time period. Therefore, in order to analyse performance and scrutinise trusts, a 5-year mortality review would seem more appropriate to visualise true trends and remove anomalous results.

References

1. Clinical Accountability Service Planning and Evaluation Healthcare Knowledge Systems (CHKS). A company that compares hospitals' clinical activity with other organisations that are locally relevant. Figures quoted are the property of, and can be viewed upon special request from, South Manchester University Healthcare Trusts' clinical audit department.
2. The National Statistics Office.
<<http://www.statistics.gov.uk/statbase/Product.asp?vlnk=618>>.
3. The Department of Health. <<http://www.doh.gov.uk/>> (general mortality figures can viewed on the internet, more precise figures upon special request).