Casemix and process indicators of outcome in stroke

THE ROYAL COLLEGE OF PHYSICIANS MINIMUM DATA SET FOR STROKE

ABSTRACT — The emphasis on outcomes measurement requires that casemix is considered in any comparative studies. In 1996 the Intercollegiate Working Party for Stroke agreed a minimum data set to measure the severity of casemix in stroke. The reasons for its development, the evidence base supporting the items included and the possible uses of the data set are described. It is currently being evaluated in national outcome and process audits to be reported at a later date.

Accurate outcome measurement requires that we understand the extent to which recovery occurs naturally or as a result of treatment. Therefore in evaluating the effectiveness of care, the aspects of casemix that influence the outcome of a particular illness and could confound any meaningful evaluation of outcomes data, should be known. Davenport et al. demonstrated how differences in outcome from different styles of stroke management were minimised as more aspects of casemix were included in the analysis.

Background

In 1995 the Royal College of Physicians set up an Intercollegiate Working Party for Stroke with the prime purpose of improving consistency in the standards of care following stroke. The members of the Working Party were nominees of the professional colleges and associations of the disciplines involved in stroke. Patients were represented by the Stroke Association and the College of Health.

An early task for the working party was to agree a minimum data set to serve as the basis for clinical audit; the variables included were chosen for their proven clinical relevance to stroke outcome. The criteria for their selection were that they be:

• Specific to stroke
• Predictive of outcome
• Easy to collect
• Discrete indicators.

Care was taken to ensure that the terminology was compatible with other coding systems, eg International Classification of Diseases (ICD10), Read Codes, European Stroke Database (ESDB), and EC Biomed. The items and their rationale are listed in Table 1, whilst the minimum data set itself is shown in Fig 1*.

Uses

There are three main uses for the minimum data set:

1. **Overview audit of the quality of care** — Because it contains so few items, the data set can enable a quick overview audit of the key elements of a cohort of admissions. This could be followed by a more in-depth audit where problems are identified. For example, in a project to pilot national outcome measures, one of the sites found that measuring the Barthel prospectively on the cases admitted over a specified time frame demonstrated that too many patients were being catheterised, which led to changes in procedure.

2. **In conjunction with a process audit** — The appropriateness of clinical care can be evaluated if casemix information is cross-tabulated with process items in a clinical audit. For example, the use of aspirin for secondary prevention in ischaemic stroke could be cross-tabulated with the clinical classification to ensure its prescription only in cases of ischaemic stroke.

3. **In conjunction with outcome measurement** — Casemix can inform the interpretation of clinical outcomes data. This is particularly important where the outcomes between units are being compared. If there is no allowance for casemix, units with an egalitarian, open-door admissions policy may find themselves adversely judged against units with selective admissions criteria based on casemix.

Conclusion

As the emphasis on comparing performance between units gathers pace it is crucial that any evaluation based on outcome measures includes the consideration of variations in casemix. The Royal College of Physicians minimum data set for stroke, agreed by the Intercollegiate Working Party, is a simple way of gathering the key data to enable this process. Evaluation of its use is in progress and will be reported at a later date.

*Full membership of the working party and a copy of the minimum data set form is available from the authors on request.

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Table 1. Rationale and evidence base for items.

| Items                                      | Rationale                                                                 |
|--------------------------------------------|---------------------------------------------------------------------------|
| Demography                                 |                                                                           |
| Age                                        | • Age associated with severity of stroke is an important predictive factor for outcome, both in terms of mortality and resulting dependency.^
| Sex                                        | • Men are more likely to suffer a stroke, although gender does not seem to influence individual outcome.^
| Pre-stroke                                 |                                                                           |
| Living accommodation                      | • Living accommodation pre stroke may influence discharge destination. Change in this at discharge may indicate increased dependency.^
| Carer                                      | • Whether or not someone has a carer to look after them may influence their place of discharge and ultimate level of handicap.^
| Functional level (Barthel)                 | • Pre-existing functional disability may limit progress and affect the final outcome of rehabilitation.^
| Acute clinical status following stroke     |                                                                           |
| Worst level of consciousness in first 24 hours | • An indicator of initial disease severity affecting outcome.^
| Side of body affected                      | • Indicates the area of brain affected, which may in turn influence the outcome of rehabilitation.^
| Urinary continence at one week             | • Persisting incontinence is associated with greater disease severity and worse outcome from rehabilitation.^
| Process measures                           |                                                                           |
| Brain scan                                 | • Whether or not this was performed may be an indication of casemix, but also of the facilities available.^
| Multidisciplinary involvement              | • Organised multidisciplinary care can influence outcome.^
| Disease                                    |                                                                           |
| Type of stroke (clinical classification)    | • The type of lesion will affect case fatality, speed of recovery and ultimate outcome.^
| Previous stroke                            | • An indicator of greater disease severity. Residual functional deficits from a previous stroke will affect outcome from subsequent ones.^
| Outcome measures                           |                                                                           |
| Length of stay                             | • Indicator of casemix in association with other factors. Also an indicator of the quality of care and/or local arrangements for discharge in the community.^
| Mortality                                  | • Case fatality can be an indicator of casemix. It will increase with age; will be higher in haemorrhagic stroke, and where there is pre-existing dependency or disease.^
| Functional level (Barthel)                 | • A measure of disability after stroke and the outcome of rehabilitation.^
| Destination on discharge                   | • An indication of the level of dependency at discharge; and/or local care provision.^
| Living with carer after discharge          | • Having a live-in carer after stroke may positively influence discharge destination and ultimate levels of handicap.^

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