and allows us to provide solutions for an ever challenging and increasing demand on our health system. However, it should enhance and support care and not become a poor substitute for expert assessment, the identification of complex care needs and management strategies that protect the dignity of, choice for and empowerment of patients.

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preferred unless a full picture of the costs and outcomes can be ascertained.

Re-imbursement based on diagnosis related groups (DRGs) or health resource groups (HRGs) have limited applicability as they omit the effect of ADL function on immediate care needs and the resource requirements to achieve optimal outcomes. In contrast, Resource Utilisation Groups (RUGs), initially developed in the USA, have value in predicting resource use during an episode of care, particularly longer episodes typical of geriatric rehabilitation services [4]. However, they are relatively complex and may not satisfy other purposes of case-mix, such as predicting outcomes.

To compare the effectiveness of service models or individual services or to audit change of performance over time, case-mix tools with appropriate risk adjustment are urgently needed.

Challiner et al. [5] reported in this journal that inter-hospital differences in institutionalisation rates from UK geriatric rehabilitation wards may be largely accounted for by variations in cognition and ADL. Studies in distinct health care systems have shown fairly similar results, based on assessments made around the time of admission [6, 7]. The majority of previous studies however have been either modest in scale or restricted to one or two hospitals in a local region. The strengths of the study by Campbell et al. [1] include the development work, data collection by trained staff, the inclusion of acute and rehabilitation spells of care up to 90 days and the robust statistical analysis.

How generally applicable are the reported findings?

They studied a mixed group of ‘geriatric’ patients, all over 65 years, but the average age (78 years) and the age bands reported suggest that the patient groups were selected on grounds other than age alone. The authors do not report admission criteria. Although they found that diagnostic group was not influential in predicting outcome, this may depend upon the case-mix selected. Previous studies have shown that diagnosis does affect the predictive value of other parameters. For example, the predictors of mortality and functional recovery after rehabilitation differed between a mixed medical/surgical patient group, hip fracture and stroke patients [8]. For the mixed group, but not the others, depression was also predictive. In a UK NHS-based study, prediction of institutionalisation rates, based on admission case-mix and demographic data, was better for stroke patients than hip fracture patients [9]. ADL post-admission was the only independent predictor of LOS or discharge destination after hospitalisation for stroke in a USA study [10]. The magnitude of functional decline prior to acute admission is also important in prediction of institutionalisation, independently of the prevalent functional level at admission [11, 12]. The cause of cognitive impairment, be it dementia or delirium, may also affect its predictive significance. Thus the diagnostic profile of a cohort of admitted patients might influence the extent to which the putative case-mix tool can reasonably be used to predict clinical outcomes.

Do the clinical outcomes chosen reflect quality of care?

It is of interest that in Campbell’s study, despite international differences in community care systems, etc., the institutionalisation rates were little affected by treatment centre. We have to assume that either the centres were similarly effective for this outcome in relation to the case-mix or that the outcome of institutionalisation is impervious to service centre differences. Treatment centres made a greater contribution to variance in LOS, suggesting that real differences may impact this outcome. Whether these were differences in inpatient care quality or availability of post-discharge services is not clear.

In a very substantial national dataset of UK NHS stroke patients, marked differences between hospitals in stroke care quality was observed. Despite this, insignificant variance was attributable to the individual hospitals in explaining the observed two-fold differences in rates of discharge to an institution, after stroke severity in terms of ADL on admission was taken into account [13], although numbers may have been inadequate to detect clinically significant differences. The validity of using specific outcomes for service comparison also depends on these outcomes having similar ‘desirability’ across cultural or organisational differences. Decision making about using institutional care at discharge from hospital is surely influenced by a variety of factors in addition to the level of individual physical dependency. For example, among a cohort of older patients discharged from hospital in Taiwan, ‘care-givers’ preference was the strongest predictor of institutionalisation [14]. The wishes of principal carers [15] but not of patients [16] were also significantly predictive of institutionalisation among acute medical patients in France, along with the chronic co-morbidity, ADL function, cognition, age and living arrangements. Depending upon the funding arrangements, low income may also be an important predictor of variation [17]. The authors dropped social support from their putative list of predictors because of measurement difficulty but it nevertheless is likely to contribute to clinical outcome differences independently of quality of care [18].

Are the case-mix measures likely to be feasible and reliable?

Since data collection can be expensive, successful implementation will depend on the development of systems that employ ‘routine data’ and simultaneously meet a variety of clinical and administrative functions. The authors estimate 20 minutes for collection of the data from patients’ notes. Ideally, routine recording of ADL and cognition function by clinicians in the medical records could be followed by coding after discharge by records technicians, along with diagnostic coding. Application of this method to day-to-day use would seem ambitious without additional resources, and application without distinction across all older acute hospital patients might create a large burden of unnecessary documentation.

One notable inclusion was the assessment of the contribution of the ‘geriatric giants’ (mobility, falls, incontinence and confusion) to admission. These are acknowledged in the aged care community to be critical syndromes that
influence outcomes for frail older people. Although similar findings have been previously reported [19], they have not been widely studied with a view to application to case-mix systems. Certainly, specialist geriatric assessment and management influence clinical outcomes [20] and its cost-effectiveness probably depends upon appropriate targeting. This would seem routinely feasible if shown to enable cost-effective targeting of patients for specialist geriatric input.

Reliable definition of a geriatric giant being contributory to an acute admission may be problematic. They are not well defined and are not necessarily dichotomous phenomena. Severity matters, but may be inconsistently measured. Adequate clinical recognition and documentation of geriatric giants may indeed be features of more effective services for older patients. Such an association would result in the case-mix measure being compounded by the service quality. The authors constitute a network of experts in the field. If this system was to be employed in comparing systems of care with widely different degrees of involvement of geriatric specialists, then differences in documentation rates as well as prevalence, are likely to exist and thus detract from the reliability of case-mix measurement.

How practical are the measures of ADL and cognition?

To be useful for case-mix purposes, cognition and ADL function should be clearly defined, easy (cheap) to collect and free from cultural bias. Most widely used cognitive assessments do not meet these criteria [21]. In recognition of this problem, Campbell et al. chose the cognitive assessment tool familiar to some readers as a component of the overview assessment EASYCare (www.shef.ac.uk/sisa/easycare). It is not yet widely used.

In summary, this study strengthens the evidence that measurable clinical parameters including cognition and ADL status are strongly associated with acute hospital episode outcomes and costs among older patients. Fair comparisons of performance and equity of reimbursement to health care providers will be an achievable objective if feasible, accurate and reliable methods of assessment and documentation can be developed and their applicability to specific patient groups is demonstrated. A strong international research and development effort is required to realise this vision.

References


