

by the academic units deals with topics of the utmost importance and is carried out to the highest academic standards. The units deserve better funding.

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Severity scoring in intensive care

Intensive care is demanding in both human and financial terms. Ethical considerations, common sense, and economic concerns all require that expensive resources should be concentrated on patients with potentially recoverable disease and not squandered on those with a manifestly hopeless prognosis—or used unnecessarily to “monitor” patients who are no more than at risk of developing a critical, life threatening illness.^{1,2} These categories are difficult to define precisely, and there is an understandable reluctance to withhold or—more difficult—withdraw treatment when there seems the slightest chance of ultimate recovery. The temptation to strive for survival at all costs is difficult to resist, even when there is no precedent for recovery,³ and unproved, extravagant remedies are likely to be tried as a last resort.

Clinicians faced with these difficult decisions may be helped by guidelines based on careful analysis of results achieved in comparable groups treated by different means—an approach as valid for intensive care as for other disciplines. Accurate comparisons are difficult, however, because multi-system disease and rapid change are common.

Various methods of prediction have been devised to deal with these difficulties. Some are applicable only to specific conditions,^{4,7} while others require the collection of very detailed information.⁸ One of the most widely used is the Glasgow coma scale, calculated from simple variables determined by clinical examination.⁹ Prognostic information has been derived from a data bank of more than 1000 patients with head injury by relating the severity of the initial insult to subsequent outcome,¹⁰ and this information has then been used to compare the results of different forms of treatment.¹¹ Similar methods were used by Levy *et al* to predict outcome from non-traumatic coma¹² and, more recently, to suggest individual prognosis after cardiac arrest.¹³

Specific scoring systems provide a means for comparing results and ensuring consistent standards,¹⁴ but they are applicable to only a few patients. A more general indication of severity of illness and consumption of resources is given by the therapeutic intervention scoring system, which is calculated from the frequency with which certain procedures and treatments are performed for each patient^{15,16}; but its value is diminished by differences in medical practice among centres and within one centre with time.

Knaus and his colleagues suggested that the severity of acute disease could be assessed by measuring the degree of abnormality of several physiological variables.¹⁷ They defined an acute physiology score derived from points scored for the extent of abnormality of 34 variables, and combined it with a rating for age and chronic health to formulate the acute physiology and chronic health evaluation (APACHE I) classification. Higher scores, indicating greater severity of

illness, were associated with an increased mortality in hospital. The complexity of calculating the acute physiology score prompted simplifications,^{18,19} most notably by Knaus *et al*, who used the 12 most important and commonly recorded variables to create a shortened scoring system, APACHE II. Application of APACHE II to nearly 6000 patients in 13 American intensive care units showed its reliability for stratifying the degree of risk of subsequent death from a wide range of disorders.²⁰ Similar physiological criteria have been used to define acute organ system failure and, by recording serial data, to relate prognosis to the number of systems affected and the duration of failure of each.²¹

The APACHE score is an index of risk on a population basis. Though it may contribute to decision making,²² it cannot be expected to provide an accurate individual prognosis. The importance of any physiological derangement is influenced by the nature of the underlying condition, and the APACHE score must be weighted by an appropriate factor before disease specific mortality predictions can be even contemplated. Acquisition of a large data bank is necessary for the assessment of specific risk, particularly for disorders which are rare or associated with a low mortality.

The APACHE scoring system is a powerful tool for clinical audit²³ and for comparing different policies and treatment regimens.²⁴ The decision by the Intensive Care Society to promote its use in the United Kingdom should be welcomed as a means of improving standards, rationalising the use of an expensive commodity, and ensuring that management is appropriate to individual needs and wishes.

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