

LETTERS

Severity-of-illness assessment in community-acquired pneumonia

We believe the authors of the 2009 update of the guidelines for the management of community-acquired pneumonia¹ have confused mortality predictors with severity-of-illness scores. They state 'we have concentrated only on studies that have used mortality as the main outcome measure'. We recognise that there are difficulties in using intensive care admission as an outcome measure because of variation in admission criteria. However, 30-day survival of patients with low mortality predictor scores does not mean they were not severely ill, merely that they were treated aggressively despite their 'low risk of death'.

CURB-65 does not perform well in predicting the need for critical care compared with predicting 30-day mortality.^{2,3} When judged on this outcome it does not perform as well as a modified Early Warning Score.⁴ Although the authors advocate use of CURB-65 in conjunction with clinical judgement, they use as an example: 'the combination of age <50 years, absence of coexisting disease and a CRB65 or CURB65 score of 0 to identify patients with a good prognosis who *should* be suitable for home treatment' (our italics).

We would draw their attention to a hypothetical 30-year-old with legionella pneumonia whose pulse is 140, SaO₂ (arterial oxygen saturation) 90% with Fio₂ (fractional inspired oxygen) 0.8 but whose respiratory rate is only 28 and is compensating so that systolic blood pressure is 94, and is not yet confused or uraemic. This patient is clearly ill, and may meet the criteria for early goal-directed treatment but 'should' be manageable at home. Conversely, many nursing home patients are over 65, chronically confused with chronically raised urea, necessitating, according to the guidance, 'urgent hospital admission' for even the mildest chest infection.

The caveat requiring clinical judgement in addition to CURB-65 must call into question the fitness for purpose of the tool. The guidelines recognise in section 6.2 the multiplicity of physiological and social factors predictive of poor outcome; why then recommend an assessment tool which fails to include these? Most acute hospitals now use some form of Early Warning Score in accordance with National Institute for Health and Clinical Excellence (NICE) guidance on the management of the acutely ill patient, and they have been widely validated in different patient sets.⁵

We recognise the difficulties in constructing guidance to cover a wide range of presentations, but would welcome more insight into the risks of conflating mortality risk with severity of illness.

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Authors' reply

We thank Challen *et al* for their interest in the guidelines and for raising an important discussion point. In describing disease severity, mortality is the main outcome measure used in the majority of studies of community acquired pneumonia (CAP). The largest evidence base therefore relates to this very specific outcome. In contrast, criteria for admission to critical care units vary across units and from country to country and, in practice, only a proportion of patients with CAP are usually considered suitable for admission.

As Challen *et al* suggest, no prognostic model is perfect. The CURB65 score is comparable to more complicated models such as the Pneumonia Severity Index that takes into account 20 different variables. Studies of the CURB65 score in patients from different cohorts and different countries indicate that the score is valid for the majority of patients with CAP, and use of the CURB65 score is included in the Infectious Diseases Society of America/American Thoracic Society CAP guidelines¹ as well as the European Respiratory Society guidelines for CAP.² There will always be situations that fall outside any prognostic model and

examples are given in the guidelines, together with further examples offered by Challen *et al*. The example they give of an elderly patient with mental confusion and chronic renal impairment and a 'mild chest infection' allows us to emphasise again the point that we made so strongly in the guidelines—the BTS CAP guidelines are for the management of patients with pneumonia (which in the hospital setting is confirmed by a chest x-ray) and should not be applied to patients with other respiratory tract infections such as non-pneumonic lower respiratory tract infections or with a vague diagnosis of 'chest infection'.³ If such a patient had pneumonia, existing data indicate that he/she would be at higher risk of death than an age-matched patient without the same comorbid illnesses. The appropriateness of any management decision must take into account a variety of factors. This requires sound clinical judgement by the attending physician and adequate supervision of more junior staff. Guidelines cannot cover every eventuality. In practice, prognostic models offer an objective complementary assessment of disease severity and are not recommended for exclusive use. If a prognostic model matches the clinician's assessment of disease severity, it provides for greater confidence to the decision-making process. When there is a mismatch between a prognostic model and a clinician's assessment, this should serve as a prompt for a closer evaluation of the situation which may include involvement of a second or senior opinion. The exercise of careful clinical judgement does not obviate the value of the prognostic model.

Disease severity assessment is an iterative process keeping pace with changes in a patient's condition. The guidelines uphold the use of 'track and trigger' tools such as the Early Warning Score (EWS) for the monitoring of patients' progress in the hospital setting (section 7.3 of the guidelines, Monitoring in hospital). This is consistent with the fact that the main validation of EWS is in regard to changing situations after hospital admission rather than as a single 'snapshot' at presentation for which disease-specific tools such as the CURB65 score have been shown to be better than generic tools such as the standardised EWS.⁴ Generic track and trigger tools are therefore seen as complementary to disease-specific prognostic models.

Indications for transfer to critical care are given in section 7.4 of the guidelines. These are not proscriptive but reflect general principles. Clinical judgement, preferably by a senior clinician, remains paramount.

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