# Lower respiratory tract infection outcomes are predicted better by an age >80 years than by CURB-65

*To the Editors:*

In a recent issue of the *European Respiratory Journal*, Bont *et al.* [1] demonstrated that increasing age, previous hospitalisation, heart failure, diabetes, use of oral glucocorticoids, previous use of antibiotics, a diagnosis of pneumonia and an exacerbation of chronic obstructive pulmonary disease were independent predictors of 30-day hospitalisation or death in patients with lower respiratory tract infections (LRTI). They provided a new scoring system using the variables above for the prognostic predictors in the elderly primary-care patients with LRTI [1].

Although some of the predictor variables have been confirmed by other studies, we would like to point out that their results are very important, much more so than previous results.

Age is a well known risk factor for a poor outcome in LRTI. However, most related studies have recommended that an age ≥65 yrs presents the greatest risk for a poor outcome of LRTI or community-acquired pneumonia (CAP) [2–4]. It has been recommended by the British Thoracic Society that a simple clinical prediction rule based on the five clinical features of age, confusion, urea, respiratory rate and blood pressure (the CURB-65 score) may be a practical means of stratifying patients with CAP into low-, intermediate- and high-mortality risk groups [4]. However, the study by Bont *et al.* [1] clearly indicated that an age >80 yrs presents the greatest risk for a poor outcome of LRTI.

We prospectively examined hospitalised pneumonia patients for 3 yrs (fig. 1). Most of the hospitalised pneumonia patients were ≥65 yrs old. In fact, 75% of hospitalised patients with pneumonia were aged >70 yrs; therefore, an age ≥65 y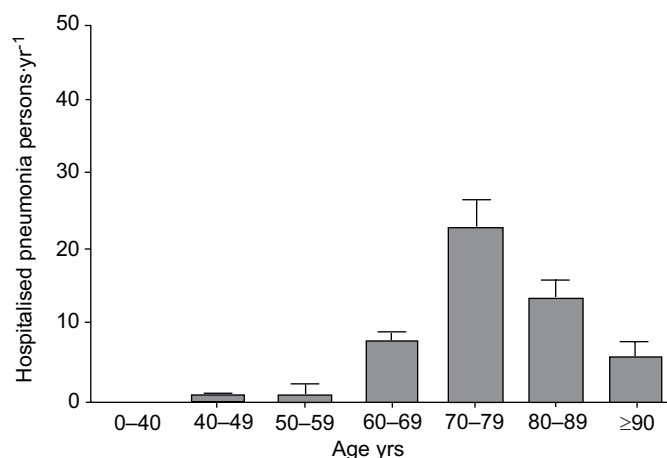rs cannot be a meaningful cut-off level in terms of hospital admission risk and pneumonia risk. A similar phenomenon may occur in all developed countries, since the aged population is growing very rapidly; thus, in developed countries, CURB-65 may not be advantageous in the prediction of poor outcome in hospitalised LRTI or CAP. Unfortunately, most other studies in this area, which include a low number of elderly subjects, do not examine the significance of new age criteria, such as age ≥80 yrs, being a better predictor for poor outcome than the conventional age criteria determined as age ≥65 yrs.

It has been recently suggested that CURB-65 should not be supplanted by systemic inflammatory response syndrome (SIRS) or the standardised early warning score (SEWS) for initial prognostic assessment in CAP. Further research to identify better generic prognostic tools is required [5]. Although the SIRS and SEWS are different from LRTI and CAP, variables of age and pneumonia may be common contributors for the prognosis.

We would like to reinforce the fact that aspiration and silent aspiration are very important mechanisms of aspiration pneumonia in the elderly [6–9]. Since silent aspirations are very common in patients with stroke and frail elderly patients with advancing age, aspiration risk and dysphagia are significant predictors for the development of pneumonia and poor outcome of LRTI. Suspected aspiration is associated with more aggressive antibiotic treatment of suspected pneumonia episodes in nursing home residents dying with advanced dementia [10]

In conclusion, the current authors respect the fact that the CURB-65 score is useful to predict the outcome of patients with lower respiratory tract infections in the general population. However, the age cut-off point should be seriously reconsidered as significant as a good predictor for the outcome in the current clinical settings in aged populations of developed countries.



**FIGURE 1.** The mean±SD values of pneumonia incidence in the different ages for 3 yrs are presented.

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*From the authors:*

We would like to thank S. Teramoto and co-workers for the important issues they raised. While appraising their comments, it is important to make a distinction between the use of severity rules inside and outside hospital settings. Looking at the available literature, we think that the pneumonia severity index (PSI) and CURB-65 (Confusion, Urea $>7$ mmol·L$^{-1}$, Respiratory rate $\geqslant 30$ breaths·min$^{-1}$, Blood pressure (systolic value $<90$ mmHg or diastolic value $\leqslant 60$ mmHg)) are both valid and useful in hospital settings. However, it is an interesting suggestion to improve CURB-65 by introducing more detailed age groups in the score. In primary care, PSI and CURB-65 are less useful for various reasons. Regarding the predictive value of age, the results of our study [1] showed that age $>80$ yrs was a better predictor of outcome than age categories between 65–80 yrs. Probably as there are a lot of healthy individuals aged 65–80 yrs in primary care who have a low risk for poor outcome.

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**STATEMENT OF INTEREST**
None declared.

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# Oral antibiotics prior to hospitalisation for community-acquired pneumonia

*To the Editor:*

SCHAAF *et al.* [1] postulate that antibiotics prior to hospitalisation with community-acquired pneumonia may be protective because of a slightly lower death rate and lower C-reactive protein concentration, leukocyte count and acute physiology score in the 13 out of 105 patients that received them. Since AUSTRIAN and GOLD [2] demonstrated a reduction in mortality from 80 to 17% in bacteraemic pneumococcal infections treated with penicillin, the death rate for this condition has changed little. A 2006 study has suggested that deaths in patients with community-acquired pneumonia are far more likely to be due to host factors rather than antibiotic choices [3].

It is possible that such host factors could lead to some patients having better outcomes, subacute presentations and more time before hospitalisation in which to receive oral antibiotics. Conversely, those patients with worse outcomes may show more acute presentations, removing the option of pre-hospitalisation antibiotics. Information on the number of days that patients were unwell prior to admission may help to answer this in part. Given the inaccuracy with which doctors make the diagnosis of community-acquired pneumonia, this is an important point [4–6], since pharmaceutical companies might be predicted to use potentially misleading conclusions such as this to encourage primary care physicians to prescribe antibiotics to anyone who might have community-acquired pneumonia, with potential for increased levels of antibiotic resistance, unnecessary costs and potential side-effects.

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