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LETTER

# Aspects to Consider for a More Useful, Discriminative Predictive Tool for CAP Mortality in T2DM [Letter]

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## Dear editor

I read with great interest the paper by Ma et al[1] which explored the sensitivity and specificity of using CURB-65 and the PSI scoring systems to predict mortality in type 2 diabetes mellitus (T2DM) patients with community-acquired pneumonia (CAP). The study importantly identified the need for a more specific prediction model in T2DM cohorts. CAP accompanied with T2DM commonly presents in both primary care and the ED and as a 5th-year medical student I would like to highlight other factors which should be discussed when considering the conclusion and aid the development of a more useful, discriminative tool for the diagnosis and prognosis of CAP in T2DM.

I would like to commend the study on underlining the significant difference in mortality based on age in both the diabetic and non-diabetic cohort. This is understood to be due to weakened immune systems and worsening lung function in older patients, which is further affected by other comorbidities. However, the purpose of the paper was to compare the effectiveness of the scoring systems and studies have shown that the PSI overvalues the age variable.[2] Furthermore, the study used a cohort aged 66.6 ± 17.3 years, which is a substantial age range. This may not be useful in identifying whether mortality prediction was solely affected by the diabetes or the difference between age groups; retrospective studies have shown that in general there is a significant increase in mortality and worse outcomes in patients ≥65 with CAP and a further increase of 29.7% in patients ≥85 years.[3] In a longitudinal study, the paper may wish to use a cohort with a smaller variation in age.

The paper correctly highlighted that COPD and asthma are factors to be considered when looking at CAP outcomes. However, the study did not consider other respiratory pathology which could affect outcomes in pneumonia including other acute infections (eg, TB) or more chronic illnesses (eg, sarcoid or CF). Other immunodeficiency's and previous hospitalisations of CAP were not excluded, which could be confounding.

The study did not identify the specific strains of CAP the patients had or whether patients had resistance to certain antibiotics, which could all affect their mortality. Furthermore, a reason why the predictive tools may be less discriminative in the T2DM cohort is because CAP may have more atypical presentations in these patients, which was not considered.

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In conclusion, a more useful system would take into account factors such as glycaemic control, where studies have shown that hyperglycaemia significantly increases pneumonia-related mortality.[4] A new predictive model for CAP in T2DM should put more weighting on risk factors associated with greater mortality in the disease such as renal disease and ischaemic heart disease. T2DM patients also have an increased risk of microvascular complications such as peripheral nephropathies and these can significantly increase the risk of bacteraemia and sepsis, which should also be taken into account when developing a new predictive scoring system for pneumonia.

## Disclosure

The author reports no conflicts of interest in this communication.

## References


1. Ma C, Wang N, Su Q, Yan Y, Yin F. The performance of CURB-65 and PSI for predicting in-hospital mortality of community-acquired pneumonia in patients with type 2 diabetes compared with the non-diabetic population. *Diabetes Metab Syndr Obes*. 2021;14:1359–1366. doi:10.2147/DMSO.S303124
2. Chen J, Chang S, Liu JJ, et al. Comparison of clinical characteristics and performance of pneumonia severity score and CURB-65 among younger adults, elderly and very old subjects. *Thorax*. 2010;65(11):971–977. doi:10.1136/thx.2009.129627
3. Zhang ZX, Yong Y, Tan WC, Shen L, Ng HS, Fong KY. Prognostic factors for mortality due to pneumonia among adults from different age groups in Singapore and mortality predictions based on PSI and CURB-65. *Singapore Med J*. 2018;59(4):190–198. doi:10.11622/smedj.2017079
4. Kornum JB, Thomsen RW, Riis A, Lervang HH, Schønheyder HC, Sørensen HT. Type 2 diabetes and pneumonia outcomes: a population-based cohort study. *Diabetes Care*. 2007;30(9):2251–2257. doi:10.2337/dc06-2417