References

- 1 Regal P. Need for new methods to study delirium. *Intern Med J* 2013;43:1053—4.
- 2 Regal P. Confusion Assessment Method (CAM) indicators when CAM positivity in 647 patients has good outcome. J Am Geriatr Soc 2013;61:173.
- 3 Regal P. Improving the logic and rigour of delirium trials. Intern Med J 2013;43:1260.
- 4 Regal PJ. Delirium admissions in dementia. *JAMA Intern Med* 2013:173:597.
- 5 Regal P. Hearing impairment, amplifiers and digit span. Am J Geriatr Psychiatry 2013;21:929.

Response

Editor – We would like to thank our colleague for his thoughtful comments and would like to respond point by point.

- 1 We regret not mentioning the references for the *Diagnostic Statistical Manual* (DSM) criteria. Although both clinicians and researchers can be expected to be familiar with the formal well defined DSM criteria, it was an error to not put the reference in our reference list. We agree with the fact that acute onset does not mean '1 day', as we adhere to the DSM criteria. Our table did mention 'acute' without defining it. We believe that the speed of onset is dependent on the cause of delirium, with postoperative delirium taking around 2 days and sepsis just a few hours.
- 2 The underdiagnosis of delirium is a frequent problem and might be partly related to the fluctuation of symptoms throughout the day. Missing delirium symptoms could prevent appropriate treatment of the underlying disorder of the patient and could be seen as a medical omission. We agree there is no need for the admission of patients with behavioural and psychological symptoms of dementia (BPSD) to hospital, but this diagnosis is not always easy for a general practitioner (GP) with limited time for observation.
- 3 Our manuscript aimed to give an overview of delirium by summarising the important aspects and presenting some new insights based on important papers of the recent years. Our review is not exhaustive, and more important highlights have been published recently. We believe the meta-analysis of Witlox has the highest level of evidence on survival and delirium, and we expect delirium researchers of the included studies would have been able to discriminate well between BPSD and delirium.² The confusion assessment method (CAM) is not the 'gold standard' test for delirium. The more strict the definition of delirium (according to DSM criteria), the stronger the association with mortality can be expected. This may be an explanation for the lack of association between CAM positive delirium and survival in the Australian cohort.
- 4 We agree that testing of hearing is important for all diseases that use cognitive testing not just for delirium, but also dementia and depression. Importantly, hearing loss is also a risk factor for delirium, and this is often underreported. Additionally, there are other important impairments that can influence performance on cognitive functional testing, such as visual impairment and language problems. In general, one could expect that healthcare workers and researchers involved in delirium research take possible impairments into consideration. ■

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References

- 1 Michaud L, Büla C, Berney A *et al.* Delirium: guidelines for general hospitals. J Psychosom Res 2007;62:371–83.
- Witlox J, Eurelings LS, de Jonghe JF et al. Delirium in elderly patients and the risk of postdischarge mortality, institutionalization, and dementia: a meta-analysis. JAMA 2010;28;304:443–51.

Pulmomary embolism in Bradford, UK: role of endtidal CO₂ as a screening tool

Editor – I read with interest Riaz and Jacob's article on using end-tidal CO_2 as a screening tool for pulmonary embolism (*Clin Med* April 2014 pp 128–33).

I would like to point out that the estimates of the performance of D-dimers and Wells' score presented in the article, including the area under curve (AUC) figures, are severely biased as a positive D-dimer or high Wells' score were used to select patients for inclusion in the cohort in the first place. For example, the reported AUC of 0.52 for the Wells' score should be interpreted as the ability of different values above the threshold to discriminate between patients with pulmonary embolism (PE) compared to those without or, to put it otherwise, whether a threshold different to the current one would be more appropriate. Similarly, the reported performance of end-tidal carbon dioxide (ETCO₂) applies only to patients preselected for a computed tomography pulmonary angiogram (CTPA) on the basis of a positive D-dimer test or elevated Wells' score, but cannot be assumed to apply to the general population of patients presenting to the hospital with suggestive respiratory symptoms.

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Funding of medical education: the need for transparency

Editor – In their reply to Dacre and Walsh's piece on medical education Pereira Gray and Harding (*Clin Med* April 2014 pp 212) could have gone further. Were the providers of clinical attachments – whether hospitals or general practices – to tender competitively for contracts to take students it is our belief that, not only would the price charged more accurately reflect the cost of providing the teaching, but innovation in the way that teaching was provided would flourish too.

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