

letters to the editor

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Early warning scores and chronic respiratory disease

Editor – The article by O'Driscoll *et al* (*Clin Med* February 2012 pp79–81)¹ describes some of the challenges of providing an early warning score (EWS) based on vital signs observation for use in all adult patients in acute hospital settings, given the specific physiology of patients with chronic respiratory disease.

The VitalPAC Early Warning Score (ViEWS),² which has been used as the template for the National Early Warning Score (NEWS) by the Royal College of Physicians, allocates points both for SpO₂ values below 96% and for the use of supplementary oxygen therapy. However, O'Driscoll *et al* criticise ViEWS because it 'would subject COPD patients to potential risk as an SpO₂ above the target range of 88–92% is associated with increased risk of death in COPD'.

The title of the ViEWS paper² and the text itself clearly indicates that ViEWS was the first point along a journey *towards* the development of a validated EWS. Additionally, the limitations of the study, including that all patients were unselected, acute medical admissions in a single hospital, and that there is no guarantee that similar results would be obtained in other locations, clinical settings or patient groups, were made clear in the paper. Indeed, subsequent, as yet unpublished, work demonstrates that the sensitivity and specificity values of ViEWS and NEWS for patients with respiratory disease are lower than those of the unselected medical group upon which ViEWS was first tested, although they are still higher than for any other published EWS. Therefore, we have no doubt that NEWS will require future modification and that changes are probably necessary in order to make it entirely suit-

able for use in patients with chronic respiratory disease.

However, any EWS that is going to be truly useful has to ensure that it does not disadvantage any patients, irrespective of whether they have chronic respiratory disease or not. Although the higher end of the target range for SpO₂ is currently 92% for patients at risk of hypercapnic respiratory failure, all patients are likely to be harmed if they become hypoxic (ie SpO₂ falls below their 'normal' target range). O'Driscoll *et al* describe the trialling of an EWS in which three points are allocated for SpO₂ values above or below the British Thoracic Society target ranges (88–92% for patients at risk of hypercapnic respiratory failure and 94–98% for all others).³ We think that this simple approach may prove to be too unrefined, as we have shown an increase in hospital mortality in patients admitted with initial SpO₂ values of <96%.⁴ Consequently, we suggest that an EWS that can be used for all patients with or without chronic respiratory disease might need to have separate SpO₂ weighting scales for patients with or without a risk of hypercapnic respiratory failure. However, further work is required to confirm this.

Declaration of potential conflict of interest

Professor Smith is a member of the Royal College of Physicians' National Early Warning Score Development and Implementation Group (NEWSDIG). VitalPAC is a collaborative development of The Learning Clinic Ltd (TLC) and Portsmouth Hospitals NHS Trust (PHT). PHT has a royalty agreement with TLC to pay for the use of PHT intellectual property within the VitalPAC product. Professor Prytherch and Drs Schmidt, Featherstone

and Meredith are employed by PHT. Professor Smith was an employee of PHT until 31 March 2011. Dr Schmidt and the wives of Professors Smith and Prytherch are shareholders in TLC. Professors Smith and Prytherch, and Dr Schmidt are unpaid research advisors to TLC. Professors Smith and Prytherch have received reimbursement of travel expenses from TLC for attending symposia in the UK.

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- 1 O'Driscoll BR, Murphy P, Turkington PM. Acute monitoring of patients with chronic respiratory disease during hospital admission. *Clin Med* 2012;12:79–81.
- 2 Prytherch DR, Smith GB, Schmidt PE, Featherstone PI. ViEWS – towards a national early warning score for detecting adult inpatient deterioration. *Resuscitation* 2010;81:932–7.
- 3 O'Driscoll BR, Howard LS, Davison AG, British Thoracic Society. BTS guideline for emergency oxygen use in adult patients. *Thorax* 2008;63(Suppl 6):vi1–68.

- 4 Smith GB, Prytherch DR, Watson D *et al*. S_pO_2 values in acute medical admissions breathing air – implications for the British Thoracic Society guideline for emergency oxygen use in adult patients? *Resuscitation*. Submitted for publication.

Response

We thank Professor Smith and colleagues for their interest in our paper. We note with interest that their unpublished work has confirmed our hypothesis that the sensitivity and specificity of existing early warning systems (EWS) are reduced amongst patients with underlying respiratory disease compared with unselected medical patients. We agree that further refinements to our proposed modified scoring system that allocates EWS points based on oxygen saturation will be required. We are currently testing a few different models of EWS oxygen scoring for respiratory patients and general medical patients, and we look forward to working with the Royal College of Physicians team and with Professor Smith and colleagues on developing evidence-based EWS models that will enhance the care and safety of patients with chronic respiratory disease who require hospital admission.

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Interventional procedures: physician involvement enhances clinical coding

Editor – The study by Hogarth *et al* (*Clin Med* April 2012 pp189) demonstrates marked improvement in coding and financial outcomes by better collaboration between clinicians and coders in the setting

of electrophysiology and device procedures.¹ This is also generalisable to other interventional procedures, particularly as they tend to attract higher tariff and are typically performed in high volume as they generally require expertise in particular centres with sufficient patient flow, and hence the potential for financial disparity if these are miscoded is much higher. The principal requirement for success here is for better collaboration between clinicians and coders, although this can be achieved in different ways.

Indeed there is an unmet need for this, as the Audit Commission has noted that coding inaccuracies seem to be particularly prevalent in interventional specialties with significant national variation between 0.3% and 52% across acute trusts in England.² In the field of interventional pulmonology, endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) is performed in high volume in a number of centres. EBUS-TBNA attracts a far higher specific tariff than conventional fiberoptic bronchoscopy: nearly seven times more (£3404 (E63.2 + T87.4) versus £504 respectively).³

We (as well as the Audit Commission) have also previously demonstrated significant inaccuracies in coding in the field of interventional pulmonology, with >15% coding inaccuracy in a single centre for EBUS-TBNA and >68% inaccuracy for local anaesthetic thoracoscopy, with estimated financial discrepancies of at least £65,000 for one procedure in one centre annually.^{4,5} We have managed to prevent all EBUS-TBNA coding errors by electronically notifying all procedures anonymously to a key member of the coding team after each procedure session, verified by independent cross-checking of the tariff applied and a monthly checklist from the coding team.⁶ This has now resulted in estimated savings of £78,000 for the last 165 EBUS-TBNA procedures (projected from the original error rate and cost saving).

In summary, small changes in collaborative behaviour between clinicians and coders in interventional specialties have the potential to make large cost savings even for one procedure alone, and can reduce financial disparity and are worthy of consideration. We therefore endorse the

intervention by Hogarth *et al* and suggest this may be of particular relevance to other interventional specialties.

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Rocket scientists need not apply

Editor – We wholeheartedly agree with your recent editorial.¹ Like the hospitals studied by Barton *et al*² we fortunately have few serious medication incidents (mainly due to pharmacy intervention), but a good deal of 'low level crime' in terms of legibility and allergy documentation, in addition to other areas. The causes are varied. Clinician training in practical pharmacology (one to two years part time versus five years) is minimal