



# Highlights from this issue

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Caroline Leech<sup>1</sup>

## Diagnostic uncertainty and physician experience

We commonly use chest x-ray (CXR) to diagnose community-acquired pneumonia (CAP) in the Emergency Department. The 2015 ESCAPED study found that in patients without parenchymal infiltrates on CXR, routine thoracic CT scan was positive for CAP in 33% of patients and in those that had a 'positive' CXR, CT scan excluded CAP in 29.8%. In this month's 'Editors Choice', the authors have gone on to assess the impact of early CT thorax on the diagnostic certainty of Emergency Physicians. Not surprisingly, the clinician's diagnosis was strongly influenced by the radiology report. What is more interesting is that the diagnosis and treatment plan were more likely to be changed by less experienced physicians (<10 years EM experience), not because of a worse pre-CT classification, but to a more accurate diagnosis as assessed by an independent adjudication committee. The authors hypothesise this may be due to influence by a more senior reporter, appreciation of technology in clinical practice, or better acceptance of a diagnostic test which differs from normal practice.

## Pre-hospital termination of resuscitation rules

In the UK, the majority of paramedics are required to continue active resuscitation in adult medical cardiac arrest patients, unless there is recorded asystole after 20 min of resuscitation (with the exclusion of special circumstances). In some cases the patient is in PEA or fine VF for a prolonged period and the crew move to hospital where the Emergency Physician can decree futility and cease resuscitation. CPR is difficult to achieve effectively in a moving vehicle and carries risks for ambulance staff during blue-light transfers. Conveying patients with no chance of return of spontaneous circulation (ROSC) increases the workload of the Emergency Department and may cause additional distress or inappropriate hope to relatives. In this month's EMJ, Ebell and colleagues have reviewed

the accuracy of nine Termination of Resuscitation Rules (TORR) in a systematic review of the published literature. The authors found that the BLS TORR had the best accuracy: if there was no ROSC prior to transport, no defibrillation attempted prior to transport, and arrest was not witnessed by ambulance staff. The European Resuscitation Council TORR was also promising but had only been evaluated in one study.

## Communication in a respirator

Imagine 37 Anaesthetists wearing six different full-face respirators and voice projection units, reading a medical script. The FIRCOM-CBRN study assessed the speech intelligibility and loudness of six different respirator systems. These might be necessary for first responders to use in the event of a Chemical Biological Radiological or Nuclear (CBRN) incident. The authors conclude that there is a significant difference in the clarity of communication between products, and this is likely to be magnified in real-life settings.

## Public health ED surveillance: sentinel versus national

Emergency department syndromic surveillance is essential for the identification of public health threats and is currently done on a sentinel (regional) basis in England. This proof of concept study assessed the potential outcomes of increasing the surveillance to all national Emergency Departments using England as an example (increasing the population by a factor of six). Public health incidents of poor air quality, an outbreak of cryptosporidium, an influenza pandemic, and a heat wave in England were simulated and assessed as to whether the pre-set alarm threshold was reached based on historical data. The sentinel and national surveillance models were compared. The study found that national ED surveillance would detect smaller incidents and provide an earlier warning of outbreaks but the downside would be an increase in the rate of false alarm requiring investigation.

## 'Press for five seconds, and then count one, two...'

Capillary refill is widely taught in paediatric emergency medicine for assessment of the circulation but how reliable is it and is it reproducible between clinicians? This Swedish study asked doctors, nurses and secretaries (as a lay group) to watch a set of videos in random order and provide a capillary refill time (CRT) value. This was then compared with polarisation spectroscopy values as the gold standard. Naked eye estimations were always reported in whole seconds rather than half, and tended to overestimate short values while underestimating prolonged times (>5s). Inter-observer agreement between clinical staff was poor (Kappa 0.27) and second estimations of repeated videos were also highly variable. Of note, there was also no obvious difference between the clinical staff and lay secretaries in precision of their assessments. Should we be looking at a more quantitative method of assessing CRT rather than by naked-eye assessment?

## Analgesia for acute minor injuries

In this month's EMJ, you can read a systematic review on the effectiveness of Paracetamol compared with anti-inflammatory analgesia such as Ibuprofen, Diclofenac or Indomethacin. The conclusion is that Paracetamol is as effective as a NSAID or combination of both analgesics, at reducing pain in the first 24 hours. Taking a closer look, some of the studies used very low doses of Paracetamol compared with the standard adult dose that I would use, and the overall level of evidence was poor.

## Recognising bias in diagnostic studies

I might be a bit geeky but I really enjoyed reading this article on how to recognise work-up bias and disease verification bias to critically appraise a diagnostic study. Make sure you read last month's article first, which describes how bias occurs in patient selection, and the Standards for Reporting of Diagnostic Accuracy Studies (STARD) guidelines. Anyone guiding their practice based on the literature should be aware of where potential bias lurks.