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Acute Medicine

Guest Editorial

Bad NEWS: standing still is risky for patients admitted to hospital (even with normal vital signs)

CP Subbe

Acute Physicians care for acutely unwell patients. Recognising and prioritising those at greatest risk of death is therefore at the heart of our specialty. The risk of catastrophic deterioration in the Acute Medical Unit is usually quantified through the measurement of vital signs. These are being summarised into the National Early Warning Score or similar instruments. Those with higher Early Warning Scores are usually prioritised by clinicians in and out of hospital^{1,2} and being seen before those with lower grades of abnormalities and preferably assessed by a more senior clinician.

The prioritisation through physiology is widely used and appropriate for nearly all conditions cared for in the Acute Medical Unit.³⁻⁶ There are notable exceptions of conditions that carry a higher risk of imminent death but that are not characterised by abnormal vital signs: Patients suffering an acute Myocardial Infarction, or a Stroke can present with normal vital signs. Their triage does therefore require additional steps and modification in algorithms based on vital signs.

Acute Medicine is hence preoccupied with the safe and efficient care of acutely unwell patients presenting to hospital and thereby to prevent death, mortality and prolonged hospital stay assuming that the better the recognition of risk of death at the front door the less patients are expected to die.

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This issue of the *Acute Medicine* contains two papers that might help to broaden the perspective of Acute Physicians: While we care for patients with acute complaints it is also evident that an increasing proportion of patients suffer with chronic conditions⁷ and the proportion of hospital inpatients who are frail is increasing.⁸ Comparatively minor fluctuations in severity of chronic conditions might trigger presentations to hospital. Or the terminal decline of a patient with a chronic condition might be the reason for a referral. Both scenarios are a good rationale for reviewing outcomes of hospital admissions beyond the hyperacute phase cared for in the Acute Medical Unit or the Emergency Department.

Arnold and colleagues compare two tools:⁹ The Emergency Severity Index is a tool that uses a small number of questions to categorise patients presenting to Emergency Departments.¹⁰ Category one includes patients who require immediate lifesaving interventions (i.e. cardio-pulmonary resuscitation or ventilation), category II includes patients from 'high risk situations' or those with impaired level of consciousness or in pain, category III is defined through physiological parameters and categories IV and V by the need for interventions. The ESI is used in many countries but requires training and has low accuracy.¹¹ The SUHB mobility scale categorises patients into four groups: stable gait, unstable gait, needing help (by someone) to walk and bedridden.¹² The categorisation aided by simple pictograms requires minimal training. When used to compare the outcomes of patients presenting to an urban Swiss Emergency Department the super simple SUHB was better at discriminating between those at risk to die than the sophisticated ESI a year after presentation.

While the result sounds surprising they might not be: the ESI is calibrated to detect conditions that will kill patients in minutes or hours. Using it saves patients' lives for the coming days or weeks. Poor mobility is a surrogate for ageing and more specifically frailty.¹³ They might hence not be useful to compare. But the approach from Arnold and colleagues could be beneficial in other ways: As Acute or Emergency Physicians we are trained to save those who will suffer immediate harm without prompt assessment and treatment, but many who present to hospitals in 2023/24 are frail patients in the final phase of their lives: Frail patients who have been treated aggressively and successfully at the time of presentation will still deteriorate and one in five will die in the 12 months after admission.^{14,15} Saving their lives at the hospital front door is only one limited part of a holistic approach to care and focusing on 'What matters most'¹⁶ in the intermediate term is just as pressing for those with only limited life expectancy.

In the second paper Holland and colleagues presents UK data from Salford.¹⁷ The authors review evidence of physiological instability quantified by the National Early Warning Score (NEWS) and the risk to die during hospital admission. They contrast acute physiology on admission with groups of diagnoses as coded by the International Classification of Diseases (ICD) 10 at discharge. A NEWS of 3 or more was associated with an eight-fold increased risk of death. But: nearly half of all death occurs in the six times larger group of patients with near normal vital signs, often after longer hospital stays. An increased risk of death was limited to few diagnostic groups: respiratory, circulatory, and infective conditions. As in Arnolds paper the authors draw our attention to the fact that physiology reigns supreme in the prediction of short-term catastrophic events but is much less powerful to describe a person in the wider context of their life story. Those with normal physiology on admission might suffer from cancer and have come to hospital to die. The fact that they haven't got a high NEWS score on admission while reassuring at the time of presentation does not mean that prognoses and long-term treatment aims don't need to be discussed.

Both studies convey a common important message: they emphasise the fact that while timely care of acutely unwell and unstable patients at the front door of the hospital is an important science it is also our duty and gift to look beyond the first minutes, hours or days of a patient with an acute illness and put the acute illness in perspective of the longer narrative of a life. This could help to shape a framework for assessment of risk during acute care: Those with high NEWS scores and good mobility are at risk during a short period of acute illness. Those with low NEWS score and poor mobility are at risk during and after their acute stay. Those with high NEWS And poor mobility are probably never far from risk (Table 1).

The learning from the two studies in this edition of the *Journal* emphasises that staffing and work-force planning need to reflect the make-up of teams caring for patients in the deadliest diagnostic groups and the needs of the less mobile high-risk patients.

More research is needed into the implementation of the novel SUHM mobility scale: The present study is an observational piece of data from a single urban academic centre. And while the prognostic value of the SUHM scale is evident it is unclear whether intervention by physiotherapists and occupational therapists that improve mobility might also improve prognosis in patients in the most vulnerable categories. The National Health Service and other health care providers have created powerful and work-intensive frameworks around the monitoring of vital signs and acute physiology with Rapid Response Systems and Critical Care Outreach teams responding to pre-

Table 1. Physiology, mobility and risk. The size of the fields might correspond to the proportion of patients admitted to hospital.

	Poor mobility	Good mobility
High NEWS / ESI group I, II, III (15%)	High risk acutely and long-term	High risk only short term
Low NEWS / ESI group IV or V (85%)	High risk long-term	Low risk

defined abnormalities with effective interventions that improve outcomes at scale.¹⁸ Poor mobility is often documented at hospital admission, but systems of documentation, monitoring and interventions seem anaemic in comparison. The insight that a patient who needs help with mobility might require ‘intensive care’ to improve functional status and clinical outcomes deserves further investigations. There is evidence

that mobility is not a static but a dynamic risk-factor amenable to treatment.¹⁹

Given the increasing frailty of patients admitted to hospital this would seem an area in acute care that requires urgent attention by clinicians, researchers, policy makers and funders to determine interventions are effective, efficient, safe, cost-effective and supported by patients in this setting.

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