Are Emergency Departments Responding to the Aging Demography?

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Emergency departments (ED) are, by definition, fast-paced, dynamic, and responsive care settings. They are also a barometer for system-wide pressures—the canaries in the mines of health and social care systems worldwide. But are they responding to the changing nature of the population presenting for emergency care?

Historically, EDs have been designed to care for people with single-problem presentations and emergencies, including major trauma or other life-threatening scenarios. But increasingly, the population presenting to the emergency care are older, typically presenting with sub-acute and, in particular, nonspecific presentations on a background of multimorbidities.[1] This "new" emergency care population challenges historical care models. This is exemplified by the article by Nissen et al, which shows that existing early warning scores are neither especially sensitive nor specific for inhospital mortality—their primary purpose. However, the addition of age into the early warning score did improve discrimination.

What does this tell us? Well, it points to the physiology of aging, which differs from the cohorts typically studied in the development and validation of early warning scores. For example, older adults are less likely to exhibit hypotension or tachycardia, the principal signs of shock.[2-4] The presenting features may also be masked or the risks for serious illnesses may be exacerbated by common prescriptions such as β blockers, sedatives, and anticoagulants.

Recognizing the multiple, complex, and interacting factors that might predict the risk of inhospital mortality in older people, there is increasing attention being paid to the use of global risk assessment scales, notably the frailty construct. Frailty is defined as "a physiologic syndrome characterized by decreased reserve and diminished resistance to stressors, resulting from cumulative decline across multiple physiologic systems and causing vulnerability to adverse outcomes."[5] Frailty is also a key discriminating factor in older people's health outcomes. Constructs have been validated in numerous community and hospital settings and consistently identify increased risk of adverse outcomes, even after adjusting for age.[6-8] In the emergency setting, studies have shown that frailty interacts synergistically with early warning scores to predict the risk of adverse events.[9-11]

The UK hospitals use the National Health Service Early Warning Scores (NEWS) to trigger an urgent clinical response for people identified as having 6% or more risk of inhospital mortality. Scores are typically calculated automatically when health care workers use apps or software to record patients' vital signs and level of consciousness. EDs often display NEWS on dashboard software screens so that patients with higher scores can be prioritized for clinical review or moved into resuscitation areas. For inpatients with high NEWS, most hospitals now have electronic mechanisms to prompt or automatically alert clinicians or even critical care outreach teams. It would be unusual, although, for hospitals to prioritize people "scored" as having higher frailty burden for urgent review, despite those with Clinical Frailty Score of 6 (moderate frailty) also having a 6% risk of inhospital mortality. For those with Clinical Frailty Score of 8, the risk is 24%.[9] The Clinical Frailty Score can be completed in less than 1 minute—faster than it takes to record a set of vital signs.[12]

If emergency services were to move toward using frailty as part of their risk assessment (already policy in England), the next questions are what difference does it make and how can emergency services better respond to frailty?[13] Although older people without frailty can often be treated just the same way as younger people (typically using protocols and guidelines), those living with frailty are often better served by an early, holistic, person-centered approach to care. Undoubtedly, a unifactorial response to frailty is inadequate—a more multifaceted solution is required.

Within acute hospital settings, there is robust evidence to support the role of Comprehensive Geriatric Assessment to reduce mortality and institutionalization for older people with acute illness.[14] Typically, Comprehensive Geriatric Assessment involves a team undertaking a multidimensional assessment that should include the following:

- Diagnoses (there will usually be multiple interacting comorbidities with associated polypharmacy)
- Physical function (activities of daily living)
- Psychological function (especially confusion and mood)
- Environment in which the individual functions
- Social support networks present or required to maintain ongoing function

There is now a growing body of evidence to support the role of commencing Comprehensive Geriatric Assessment in emergency settings, although the mechanism of delivering this will vary according to the local context and resources.[15-17] Early identification of people with frailty could direct multidisciplinary resources to provide Comprehensive Geriatric Assessment for those with the greatest potential benefit.

And what about outcomes for those who have higher NEWS and age and also have higher frailty scores? Although saving lives has historically been the primary function of emergency care, there is growing awareness now that other outcomes might be as—if not more—important. Emergency care settings report their effectiveness most commonly using service metrics such as waiting time targets or readmission rates. Service metrics lack meaning for older people who may be more concerned about knowing the trajectory of their illness than about changing it.[18,19] Until patient-reported outcome and experience measures are routinely considered in clinical practice, there will always be discordance between the clinicians' interpretation of data and that which are considered important by patients.

The standard NEWS are usefully applied in younger populations to identify people who need urgent interventions directed toward saving their lives. Oldest-old patients included in these databases died when their NEWS were lower, and therefore clinicians must absolutely be cognizant of the greater risks faced by the older people in their care. Shortcomings among older people with the standard NEWS may be addressed using NEWS and age, but the appropriate response to be triggered must also be questioned. Software systems could incorporate an age variable into NEWS with no effect on the burden of recording vital signs, but the opportunity cost on clinical resources may be substantial as large numbers of older people could be identified for urgent clinical response. Many of these people require person-centered, multidisciplinary care rather than the urgent escalation and interventions for which NEWS have been designed. In the continued absence of proven immortality, relentless prevention of death for older people with frailty is an unrealistic and perhaps undesirable outcome. In the meantime, early, personalized management plans based on individuals' preferences and outcome goals are the ambrosia of geriatric emergency medicine.

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DIAGNOSIS:

Amoebic liver abscess. Indirect hemagglutination test for antiamoebic antibodies yielded a positive result, with a titer of 1:2,048. The patient was treated with intravenous metronidazole and oral paromomycin and had completely improved at 3-month follow-up.

Amoebic liver abscess is caused by *Entamoeba histolytica* infection and causes fever and right upper quadrant pain.[1,2] The risk factors include advanced age, immunosuppression, travel to endemic areas, and alcohol misuse.[3] Point-of-care ultrasonography is the best screening tool and may reveal round, well-defined hypoechoic lesions with indistinct peripheral echoes. Patients with this condition are susceptible to amebicides, and percutaneous aspiration or surgical drainage is indicated in patients with high risk of rupture or poor response to medical therapy.[4]

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