

## EDITORIALS

# Screening for grades of frailty using electronic health records: where do we go from here?

Older people and contemporary health care can be an uneasy fit. To do better, this tension needs to be addressed. The commonly felt incompatibility chiefly concerns the mismatch between the many healthcare problems that a lot of elderly people have, and the narrower focus by which much health care is provided [1, 2]. To address this mismatch, two reforms are essential. First, recognising that what cannot readily be measured cannot readily be managed is widespread measurement of frailty. Second is effective provision of more care closer to home, for which coordination with primary care providers is key.

This month's *Age and Ageing* reports an important step towards both those goals. Clegg *et al.* [3] describe the development and validation of an electronic frailty index (eFI). The eFI was calculated based on 36 health deficits derived from electronic health records in two primary care databases. For any individual, the eFI is the number of deficits that he/she might have, divided by the 36 deficits considered. Here for example, someone with one deficit would have an eFI score of  $1/36 = 0.03$ , whereas someone with 15 (the highest recorded in the external validation cohort) would have an eFI = 0.42. With the deficit accumulation approach, the more health deficits that an individual has the frailer they are. Validating that assumption, here, compared with those aged 65–95 with the fewest deficits, (eFI 0–0.12, about half of the cohort) the 3% with eFI scores >0.36 had a five-fold greater 1-year risk of death, emergency hospitalisation and nursing home admission. The C-statistics (0.66–0.76), although short of those for many diagnostic tests in single-disease settings, overlap other primary care FI estimates [4].

As the authors recognise, there are many reasons to measure frailty. One, which sits not entirely comfortably with many care providers, is to identify people who are at an increased risk of adverse health outcomes. The discomfort that many feel is that simply measuring frailty without knowing what to do about it can too easily lead to rationing. Instead, what is needed is rational care for frail older adults. Rational care pays attention to consequences—for example, focussing on the likelihood of an adverse outcome not in some mythical average patient, but on the patient in front of us, with all that they have wrong. The eFI helps quantify that, but we must assume neither that the score is immutable, nor that how we provide care now is the best that can be done. Many frail older adults are harmed by routine hospital care,

with its commonly inadequate attention paid to pain, sleep, mobility, cognition, function, nutrition and use of many medications. That we often get away with it in fitter patients is hardly an endorsement. Here the eFI might have wide usefulness. It makes clear that 'the frail' are not fungible. Feedback loops that relate grades of frailty to patients' outcomes are likely to focus attention on current processes of care. Early candidates might be resource use [5] or potential harm from medications [6]. This could be an important use of the eFI, potentially facilitating better management for everyone.

The eFI is best viewed as a screening tool. We must not forget that the actions that might arise from such screening require assessments and care plans [7]. How best to translate these skills into primary care will be a challenge [8] requiring further developments, including in community/interface geriatrics [9, 10].

Readers of the frailty literature will find much of interest. The eFI is weighted heavily towards co-morbidities, which make up about 2/3 of its deficits. With mean co-morbidity counts of  $\sim 2$ , that is why, although its distribution includes a characteristic long right tail, the frailty limit (of  $\sim 0.5$ ) is lower than what is usually reported ( $\sim 0.7$ ) [11]. So too are the FI levels at which frailty is said to be present. Although mean values were lower still in a Dutch primary care eFI that also used a high proportion of co-morbidities [12], in general, the eFI here fits comfortably in the range of what has been reported in other primary care settings [4]. In short, this eFI, like any FI, must be considered in context. One context is sex. Here, women had higher FI scores than men, which is very common, although a recent report suggests that this might reflect differences in how women report their health [13].

The motivation to measure frailty using the eFI is undoubtedly clinical, but the research opportunities it offers are immense. With the very large number of cases available, these go beyond the many important questions about how frail patients fare, to include fundamental issues about how frailty arises [14], and even about its concrete biological meaning [15].

The narrow focus of much of health care has been a great boon. Specialisation and precision in diagnosis and treatment have allowed heroic progress for many, including many who are now frail. For them, however, we must get to grips with the challenge posed by the complexity of frailty. For this, routine measurement is an essential step in facing up to frailty.

## Key points

- We must get to grips with the challenge posed by the complexity of frailty. For this, routine measurement is an essential step.
- There are many reasons to measure frailty, including identification of people who are at an increased risk of adverse health outcomes. What is needed is rational care for frail older adults with due attention given to the likelihood of adverse outcomes for the individual receiving care.
- The eFI is best viewed as a screening tool. We must not forget that the actions that might arise from such screening require additional assessments and adapted care plans.
- The motivation to measure frailty using the eFI is undoubtedly clinical, but the research opportunities it offers are immense.

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## Conflicts of interest

With Prof. Arnold Mitnitski, I developed the cumulative deficits approach to frailty. Through the Technology Transfer Office at Dalhousie University, I have asserted copyright of the Clinical Frailty Scale which is not discussed here, but which is freely available for educational, research and not-for-profit healthcare use.

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# A good death for the oldest old

People aged over 85 are the fastest growing segment of the population, both in the UK and across all high-income countries. This is also the group of people who are most likely to

die. So it is pertinent to consider how we can ensure that for the oldest old, their deaths, as well as their lives, are as good as we can help them to be.