

The Human Cost of Frailty



By *Chuck Dinerstein, MD, MBA* — October 1, 2019



Image by cocoparisienne from Pixabay
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As a vascular surgeon, while having cared for many frail individuals, I was first exposed to the concept of frailty as a syndrome in 2011. Frailty requires special handling, like a prized antique. Frail patients require longer, gentler recovery from necessary healthcare, and that often translates into greater expenditures. Since Medicare pays hospitals, in part, based on the severity of a patient's illness, a new JAMA paper considers incorporating a measure of frailty into Medicare's risk assessment measures.

Frailty is not a disease, with specific findings and qualities; it is a syndrome and like many syndromes is open to some interpretation. Here is a reasonable definition,

“Frailty describes a decline in function across several organ systems, linked to aging, but progressing at different rates in different people; it is characterized by increased risk of poor outcomes in individuals exposed to an apparently innocuous stressor.”

The researchers ask two questions, could frailty be readily measured from already coded diagnostic data to identify patients at risk for adverse outcomes, as standard tests of frailty have been shown to do; and would adding frailty to Medicare's risk assessment improve its performance?

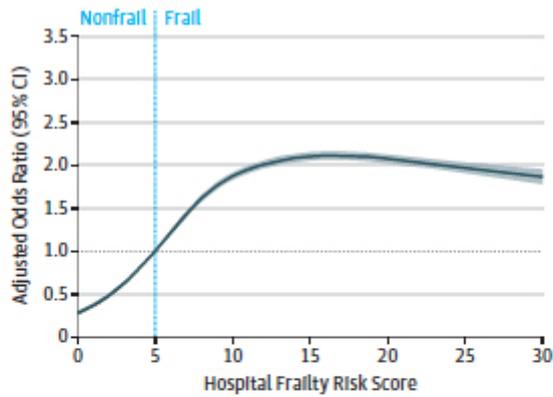
Frailty was measured using a Hospital Frailty Risk Score (HFRS) which was developed using a statistical technique that clustered patients by diagnostic codes, length of stay, and hospital costs. It is scored on a 0 to 80 point basis and is very right-shifted; that is, most patients are not frail; in the study the percentage defined as frail ranged was 11 to 25%.

The dataset included all Medicare beneficiary diagnoses and payments for 2016, resulting in

785,000 hospitalizations specifically for the three top-cost medical problems, acute heart attacks, heart failure, and pneumonia. The outcomes were 30-day all-cause mortality both during hospitalization and after discharge, length of hospital stay, and readmissions. Mean age hovered in the 77-80 year range; women accounted for 44-53% of the surveyed, and 83% of all patients were Caucasian.

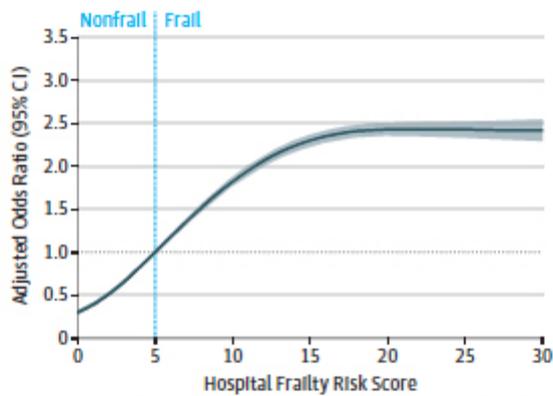
Results

B 30-d Postadmission mortality



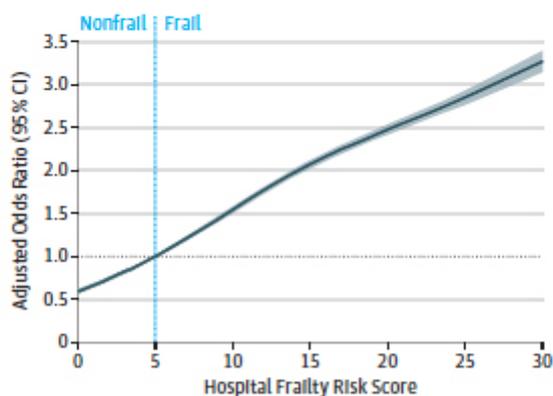
No. of events	12 568	27 725	22 170	12 195	6 525	3 238
No. at risk	268 429	237 859	135 720	70 803	37 927	19 334
Event rate, %	4.7	11.7	16.3	17.2	17.2	16.8

D 30-d Postdischarge mortality



No. of events	8 629	18 186	15 711	9 714	5 470	2 867
No. at risk	263 452	225 677	126 430	66 416	35 782	18 375
Event rate, %	3.3	8.1	12.4	14.6	15.3	15.6

F 30-d Readmission



No. of events	28 375	37 439	28 932	18 283	11 027	6 361
No. at risk	263 452	225 677	126 430	66 416	35 782	18 375
Event rate, %	10.8	16.6	22.9	27.5	30.8	34.6

Patients with higher frailty scores had

higher rates of 30-day mortality both during and after hospitalization, greater lengths of stay, and

more readmissions. No surprises in that finding.

Incorporation of the frailty score into Medicare's risk assessment did improve its predictive value a "modest," statistically significant 3 points from 70 to 73%.

The graphic of the results is to the left. While frailty's impact seems to plateau for mortality, there is a more linear continually increasing relationship for frailty and readmissions.

What to take-away?

One of the underlying drivers of the study is to improve Medicare's risk assessment algorithm to more equitably pay hospitals for care, e.g., increase payments. And I think the researchers have demonstrated once again, that the frail's healthcare costs are more expensive.

My concern is in the use of administrative data. The HFRS was developed because clinical assessment was felt to be too subjective and required individual clinical evaluation, an inefficiency in the world of Big Data and health economics. But, of course, capturing all the requisite diagnostic codes is also somewhat subjective and is performed manually by documentation "specialists." To the extent, that this burden moves from physicians to less expensive data collectors, we might call it a win.

But as they note, HFRS is "... predictive at the group level, the ability of the score to discriminate between individuals with different outcomes was low." Isn't the goal to create personalized, precision medicine?

For me, the paper highlights the fight between the automated efficiencies of population health and bespoke, high touch personalized care. The scoring can improve hospital payments modified by risk assessment, but it adds little to the care of the patient in front of me. But the few minutes that it takes to perform a clinical evaluation of frailty is only inefficient to those who seek to place physicians on an unending treadmill of 15-minute appointments.

The study also shows how frailty impacts the cost of recovery, in this instance, readmissions. As the boomers continue to enter Medicare, and our medical care continues to improve, the percentage of frail will inevitably increase. How will caring for these individuals further increase our healthcare spending? While the dataset utilized in this study does not provide that information, it would be useful to know whether the frail were discharged to home, to home-based care, or nursing facilities so that we can begin to understand how to mitigate their ever-rising readmissions.

Source: Association of Frailty with 3-day Outcomes for Acute Myocardial Infarction, Heart Failure, and Pneumonia Among Elderly Adults JAMA DOI: 10.1001/jama.2019.3511

Development and validation of a Hospital Frailty Risk Score focusing on older people in acute care settings using electronic hospital records. Lancet DOI:10.1016/S0140-6736(18)30668-8

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Links

[1] <https://pixabay.com/photos/human-seniors-old-woman-lame-874979/>