Frailty has long been feared in primary care; clinicians dread the day they notice their aging patient is beginning to look frail. Primary care physicians worry that frailty is a step toward decline and death. Numerous studies have shown that frailty is associated with poor outcomes, including falls, hospitalization, and death. When asked, experienced clinicians may struggle to explain what they mean by being frail, saying “I recognize it when I see it.” Clinicians recognize frailty by the patient’s appearance, the so-called phenotype of frailty. While being able to recognize frailty in a patient is useful for clinicians, health care systems and researchers need more concrete definitions. Defining frailty allows researchers to assess the epidemiology of frailty and test interventions to improve outcomes. Consequently, a plethora of frailty indices have been developed; one systematic review identified 51 different frailty assessment instruments. Some of these instruments depend on patient-level characteristics that require patient visits; others use administrative data. Based on these definitions of frailty, there have been several interventional studies to improve outcomes, with mixed results. Generally, interventions that are group-based, rather than individual-based, and that improve patients’ physical stamina improve outcomes among frail patients.

Although frailty is potentially associated with adverse surgical outcomes, standard surgical risk stratification instruments do not include frailty. Consequently, Sun and colleagues compared 3 frailty risk assessment tools among 88,456 patients undergoing cardiac surgery to assess how well the tools estimated adverse outcomes over 10 years of follow-up. They compared the Hospital Frailty Risk Score (HFRS), the Preoperative Frailty Index (PFI), and the Johns Hopkins Adjusted Clinical Groups (ACG) frailty indicator. Interestingly, the number of patients identified as frail varied considerably between these instruments, with the ACG labeling 17% of patients as frail compared with 71% and 87% with the HFRS and the PFI, respectively. All 3 instruments estimated poor outcomes, with hazard ratios ranging from 1.1 to 1.8. The HFRS had the highest area under the receiver operating characteristic (ROC) curve and is the instrument the authors suggest incorporating in preoperative risk assessment.

Diagnostic tests and risk stratification tools generally have a trade-off between sensitivity and specificity. Highly specific tests tend to have lower sensitivity and vice versa. ROC curves graphically display the tradeoff between sensitivity and specificity. ROC curves can help determine the optimum cut point for defining a positive test and is useful in comparing different tests. Generally, those with higher areas under the ROC curve are better tests. The HFRS and the PFI were roughly equivalent at all time points (30 days to 10 years), and both were better at estimating poor outcomes than the ACG. However, most of the adverse events in this cohort were not estimated by any of the 3 tools. This is a problem in trying to predict rare events; while adverse outcomes were more common in those with higher scores, most adverse outcomes occurred in those without elevated risk. It is difficult to find the needle in the haystack.

Risk predictors need to be both reliable and valid. Being reliable means that it consistently provides the same answer. Being valid means that the test measures what it intends to measure. It is worrisome that both the HFRS and the PFI labeled most patients as being frail (87% and 71% respectively), when general population studies suggest that 10% of patients are frail. This suggests that these 2 measures are capturing more than just frailty. It would be interesting for researchers to
parse out the relative contribution of the variables to patient postcardiovascular surgical outcomes to determine what construct, beyond frailty, is being captured by these measures.

This study makes a strong case for incorporating frailty into preoperative risk stratification for cardiovascular surgery. The recommended measure has 2 problems: most patients with adverse outcomes will not be identified, and most patients will be identified as being at risk. What is unclear is what the operative team should do with this information. Whether interventions, either with the patient prior to surgery or by the operative team to improve outcomes, is unknown and worthy of study. It is also unclear whether these indices would perform similarly for patients undergoing noncardiovascular surgery.

ARTICLE INFORMATION
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