

FAST FACTS AND CONCEPTS #407
PREOPERATIVE FRAILITY ASSESSMENT

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Background: Frailty is a multidimensional decline in functional status and physiologic reserve associated with increased vulnerability to adverse medical outcomes. While not synonymous with age, frailty is more common in older individuals, with an estimated prevalence of 8-11% for patients over 65 and 25-50% for those over 85 (1-2). In patients being considered for major surgery, frailty has been associated with an increased risk of postoperative complications, prolonged hospitalizations, discharge to a skilled nursing facility, loss of independence, and death (1-5). The risk for these adverse outcomes is elevated in patients with frailty even when undergoing “low-risk” surgeries (3). Frailty is a more powerful predictor of postoperative outcomes than models built on age or comorbidity alone, such as the American Society of Anesthesiology (ASA) physical status score or the Revised Cardiac Risk Index (RCRI) (5). While no consensus definition, measurement, or therapeutic intervention for preoperative frailty exist, this *Fast Fact* discusses the importance of frailty identification and commonly used screening tools.

Importance of patient-centered care planning in patients with frailty: Multiple professional societies, including the American College of Surgeons (ACS), American Geriatrics Society (AGS), and British Geriatric Society (BGS), recommend routine preoperative frailty screening, even among patients younger than 65 (6-8). Patients with frailty are more likely to have unmet palliative care needs; the severity of pain and functional impairment in this patient population is akin to oncology patients. They also have lower rates of social support than patients with other recognized terminal diagnoses and often report preferences for less invasive treatment (9-10). Validated screening, therefore, allows clinicians to devote more attention to palliative care domains and thus improve quality of life and patient-centered care (9-10).

Frailty models: There are over 60 frailty scales utilized in research and clinical settings based on two general models: phenotypic frailty and accumulation of deficits frailty, both of which emphasize functional performance over comorbidity (11). The phenotypic model is based on lean body mass, grip strength, endurance, walking gait speed, and activity level (12). The accumulation of deficits model assesses a wide range of frailty-related variables such as medical comorbidities, functional capabilities, nutritional status, social stressors, and cognitive dysfunction (13). Scoring systems differ in terms of measurement parameters and clinical feasibility. Context specific scales (e.g. trauma-specific scales) are being developed (14). The choice of scale utilized is often based on local culture, time constraints, and resource availability rather than data.

- **Comprehensive Geriatric Assessment:** while considered the “gold standard”, it requires 60-90 minutes with a qualified geriatrician to review relevant history and functional performance (15).
- **Fried-Hopkins Frailty Index:** commonly utilized, particularly in research settings, it requires special equipment (grip dynamometer, stopwatch, walking track) to measure physical function (12).
- **Clinical Frail Scale (CFS):** a single-item assessment involving a 7-point scale grounded by pictograms and descriptions of functional capacities (16). Though feasible, it is dependent on clinical judgment.
- **Robinson Frailty Score (RFS):** involves assessments of cognition, how quickly the patient can stand up from a seated position, falls within 6 months, the Charlson Comorbidity Index, serum albumin levels, and their Katz Index of Independence in Activities of Daily Living (ADL) (17). While comprehensive, it is also cumbersome to incorporate into routine clinical practice.
- **Modified Frailty Index (mFI):** uses 11 variables from the National Surgical Quality Improvement Program, including functional dependence and presence of comorbidities such as diabetes mellitus, congestive heart failure (CHF), hypertension, and chronic obstructive pulmonary disease. Multiple studies have shown that a high mFI correlates with worse postoperative outcomes. It is not a true frailty scale as it does not include measures of functional performance and does not have higher predictive power than comorbidity-based models (12,18-19).
- **Risk Analysis Index (RAI):** evaluates age, sex, weight loss, cognitive decline, malignancy, CHF, dyspnea at rest, renal failure, location of residence, and ADLs (18,20). Externally validated, it takes <2 minutes to complete, and, in our expert opinion, is the most clinically useful (21-22).

Pre- and perioperative care of the patient who is frail and debilitated: While patients with low or non-frail scores can proceed to surgery with standard preoperative management, threshold scores should elicit a “surgical pause” for a frank discussion of surgical outcomes and patient goals (9,11,23). Implementation of the best case/worst case framework, a communication tool that conceptualizes treatment options into “best”, “most likely”, and “worst” possible outcomes, has been shown to increase discussions on surgical alternatives and patient goals (24).

After discussion of these potential outcomes, many patients opt for non-operative care. For patients who choose to move forward with surgery, preoperative rehabilitation improves outcomes in frail patients. Other targeted interventions to consider include: preoperative evaluation by an interdisciplinary review board, palliative care consultation, nutritional improvement, delaying surgery until optimization of disease management, adjustments to the procedure type and anesthetic plan, utilizing less invasive hemodynamic monitoring and fluid resuscitation during surgery, and postoperative vigilance to recognize and treat complications more common among patients who are frail (11,23,25).

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