

# Cardiovascular Update

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A newsletter from the BayCare Cardiovascular Service Line

## Importance of Frailty Assessment In Cardiovascular Patients

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Frailty is a noun defined by Webster's Dictionary as a condition of being weak and delicate. NIH defines it as a clinical syndrome in older adults that carries an increased risk for poor health outcomes. Although it's associated with aging, it doesn't have a specific pathophysiology. Malnutrition, muscle wasting and inflammation have all been implicated in causing frailty.

As America ages and new technologies are available to treat older patients, identifying patients who'll benefit from the invasive procedures has been a challenge. The last two decades have seen a rise in objective frailty testing. Many cardiovascular procedural registries (Society of Thoracic Surgery for heart surgery and American College of Cardiology-National Cardiovascular Data Registry) now collect patient frailty level as a measure. Analysis of their data clearly shows that severity of frailty correlates with higher morbidity and mortality.

The problem is that there isn't one standard frailty test. The different frailty tests assess different aspects of "weakness" and many have been validated with clinical outcomes. Some only assess physical strength while others look at objective measures such as weight loss and albumin level. Still others include psychosocial parameters.

Physicians frequently use the term "physiologic age" as opposed to chronologic age to subjectively evaluate a patient's "age." The Clinical Frailty Scale from Dalhousie University is a common subjective assessment of frailty.

### Clinical Frailty Scale\*

- 1. Very Fit** – People who are robust, active, energetic and motivated. These people commonly exercise regularly. They are among the fittest for their age.
- 2. Well** – People who have no active disease symptoms but are less fit than those who are "Very Fit." Often, they exercise or are very active occasionally, e.g. seasonally.
- 3. Managing Well** – People whose medical problems are well controlled, but aren't regularly active beyond routine walking
- 4. Vulnerable** – While not dependent on others for daily help, often symptoms limit activities. A common complaint is being "slowed up," and/or being tired during the day.
- 5. Mildly Frail** – These people often have more evident slowing, and need help in high order IADLs (finances, transportation, heavy housework, medications). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation and housework.
- 6. Moderately Frail** – People need help with all outside activities and with keeping house. Inside, they often have problems with stairs, need help with bathing and might need minimal assistance (cuing, standby) with dressing.

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## Upcoming Conference

Saturday, October 12  
8am–3pm

BayCare C.A.S.E. (Cardiovascular, Arrhythmia, Surgery, Endovascular) Symposium

Renaissance Tampa  
International Plaza Hotel  
Tampa

To register:

[BayCareCardioConference.org](http://BayCareCardioConference.org)



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**7. Severely Frail** – Completely dependent for personal care, from whatever cause (physical or cognitive). Even so, they seem stable and not at a high risk of dying (within ~ six months).

**8. Very Severely Frail** – Completely dependent, approaching the end of life. Typically, they couldn't recover even from a minor illness.

**9. Terminally Ill** – Approaching the end of life. This category applies to people with a life expectancy < six months, who are not otherwise evidently frail.

\*1. Canadian Study on Health & Aging, Revised 2008.; 2. K. Rockwood et al. A global clinical measure of fitness and frailty in elderly people. *CMAJ* 2005;173:489-495.

Participating Sites:

Cape Breton District  
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There are over 28 other frailty tests. Though used in research extensively, their clinical utility is limited due to the lack of ease of measurement of physical performance; thus, subjective assessment remains the most commonly used test. The physical performance measures require time and expertise to obtain consistent, reliable data.

The most popular is Fried Frailty Phenotype which has been modified over the years. Frailty is defined by a patient exhibiting three or more of the following:

1. Unintentional weight loss of 4.5 kg over the past year
2. Weakness as defined by low grip strength
3. Fatigue – Self-defined
4. Slow walking speed (5 meters/> 6 seconds)
5. Low physical activity level

The Edmonton Frailty Scale was created for hospitalized patients. It has nine components, and each has a score attached to it:

- |                            |                           |
|----------------------------|---------------------------|
| 1. Cognition               | 6. Polypharmacy           |
| 2. General health status   | 7. Mood                   |
| 3. Self-reported health    | 8. Continence             |
| 4. Functional independence | 9. Functional performance |
| 5. Social support          |                           |

Total score is used to determine frailty status: Not frail (0–5); Vulnerable (6–7); Mildly frail (8–9); Moderately frail (10–11); Severely frail (12–17).

The Frailty Index by Rockwell and Mitnitski adds all the comorbidities, symptoms, diseases, disabilities or any health deficits and divides it by total number of health deficits in the population being studied. A ratio of 0.67 is associated with a terminal condition. It's ideal for an already existing data set rather than a prospective clinical assessment.

The Fatigue, Resistance, Ambulation, Illness, Loss of Weight (FRAIL) Index answers the question of whether the patient is frail or not based on if they have three of the five measures. There's no severity calculation. Fatigue is self-reported, resistance, slow walking speed, illness and 5 percent unintentional weight loss over the past year.

Other frailty tests include Tilburg Frailty Indicator, PRISM-7, Groningen Frailty Indicator, Sherbrooke Postal Questionnaire, Gerontopole Frailty Screening Test, Kihon Checklist, Health Deficits Index, Frailty Risk Score, Vulnerable Elders Survey, Frailty Trail Scale, Frail Nondisabled and Short Physical Performance Battery.

Based on a review of all the above tests, individual performance-based measures may be the best screening tool available. These tests don't require any exercise equipment or advanced training. Plus, they're simple to perform. Gait speed measured two different ways and low grip strength are objective predictors of functional decline and poor outcome. Five-meter walk tests measure how long it takes a patient to walk five meters. If the time is greater than six seconds, they're frail. The Timed Up and Go (TUG) test measures the time it takes for a patient to get up out of a chair, walk three meters, return and sit down again. If it takes longer than 15 seconds, they're frail.

## Conclusion

State of frailty has been validated in different clinical papers as a predictor of outcome in elderly patients. Assessment of frailty using the tools mentioned above will help physicians move away from subjective "eyeball" evaluation of a patient's physiologic age to a more objective, accurate and reproducible appraisal of a patient.

The addition of frailty level to our current clinical predictors of outcomes improves a physician's ability to help patients make an informed, shared decision.

## References:

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