interRAI LTCF

# interRAI LTCF Outcome Scales Reference Guide

2025

interRAI

Canadian Institute for Health Information

Institut canadien d'information sur la santé

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How to cite this document:
Canadian Institute for Health Information. *interRAI LTCF Outcome Scales Reference Guide, 2025*. Ottawa, ON: CIHI; 2025.

Cette publication est aussi disponible en français sous le titre *Guide de référence des échelles de résultats de l'instrument SLD interRAI, 2025*.

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# Introduction

The interRAI LTCF assessment is used to assess persons in residential care facilities. Upon completing the assessment, clinicians build person-centred care plans using embedded clinical outputs that provide evidence-based information.

Each outcome scale describes the person in certain standardized clinical areas, such as depression, cognitive performance and activities of daily living (ADLs). In developing the outcome scales, interRAI validated the scales against gold standard measures, where available. Some of the outcome scales, such as the Depression Rating Scale (DRS) and the Cognitive Performance Scale (CPS), are used in the calculation of the Clinical Assessment Protocols (CAPs).

On admission to a residential care facility, a person's baseline scores are generated from the admission assessment. The scores can be compared quarterly to monitor changes over time and to see whether the interventions put into place have been effective. This information can be used for quality improvement initiatives, program planning and resource allocation.

This document provides the following information for each outcome scale:

- A description;
- Items used in the calculation; and
- An example describing a person with a specific score.

# Aggressive Behaviour Scale

The Aggressive Behaviour Scale (ABS) is a summary scale that provides a measure of aggressive behaviour. Scale scores range from 0 to 12, with higher scores indicating greater frequency and diversity of aggressive behaviour.

4 items are used to calculate the ABS:

- Verbal abuse
- Physical abuse
- Socially inappropriate or disruptive behaviour
- Resists care

The behavioural symptoms are coded according to symptom frequency exhibited in the last 3 days. The codes are summed to give the ABS score. Each item can take a value from 0 to 3. A higher value represents higher aggressiveness.

## Coding

- Code 0 = Not present
- Code 1 = Present but not exhibited in last 3 days
- Code 2 = Exhibited on 1–2 of last 3 days
- Code 3 = Exhibited daily in last 3 days

The following descriptors help users interpret the ABS scores.

| Descriptor | ABS score |
|---|---|
| **No signs of aggression** | 0 |
| **Mild to moderate aggression** | 1–4 |
| **More severe aggression** | 5+ |

## Example

The vignette below is an example of a person whose ABS score is **7 out of 12**.

Mrs. C screamed at the staff when she was lowered into the tub on 2 of the last 3 days. She struck out at another person at the dining table twice yesterday, and she made disruptive sounds every morning in the past 3 days.

| interRAI LTCF items used to calculate the ABS | Coding for Mrs. C | Score |
|---|---|---|
| **Verbal abuse (E3b)** | 2 | Count 2 |
| **Physical abuse (E3c)** | 2 | Count 2 |
| **Socially inappropriate or disruptive behaviour (E3d)** | 3 | Count 3 |
| **Resists care (E3f)** | 0 | — |
| **Score** | | **7 out of 12** |

# Activities of Daily Living Hierarchy Scale

The ADL Hierarchy Scale reflects the disablement process by grouping ADL performance levels into discrete stages of loss. Early-loss ADLs are assigned lower scores than late-loss ADLs. Scale scores range from 0 to 6, with higher scores indicating greater decline (progressive loss) in ADL performance.

4 ADL items are used to calculate the ADL Hierarchy Scale. These items are coded according to self-performance in the last 3 days:

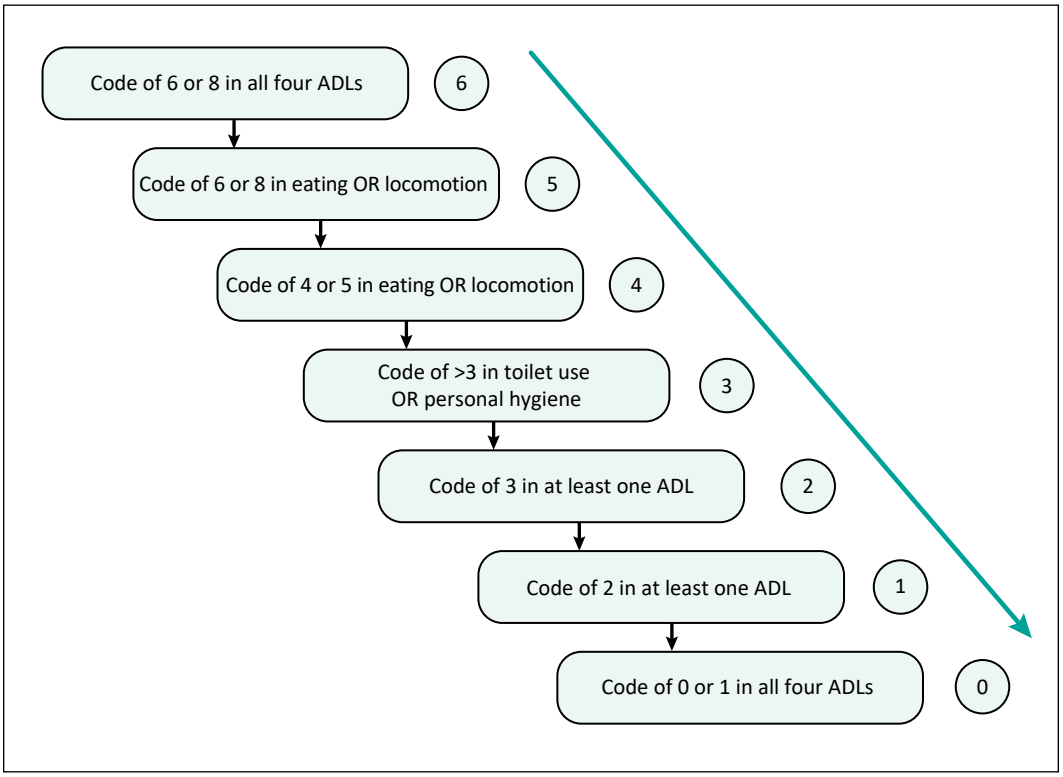
| Early loss | Middle loss | Late loss |
|---|---|---|
| Personal hygiene | Toilet use | Eating |
| — | Locomotion | — |

## Coding

- Code 0 = Independent
- Code 1 = Independent, set-up help only
- Code 2 = Supervision
- Code 3 = Limited assistance
- Code 4 = Extensive assistance
- Code 5 = Maximal assistance
- Code 6 = Total dependence
- Code 8 = Activity did not occur during entire period

The diagram below illustrates how the ADL Hierarchy Scale score is determined.

**Figure 1** How to determine the ADL Hierarchy Scale score




**Source**
Adapted from Morris J, Fries B, Morris S. Scaling ADLs within the MDS. *Journal of Gerontology: Medical Sciences*.

## Example

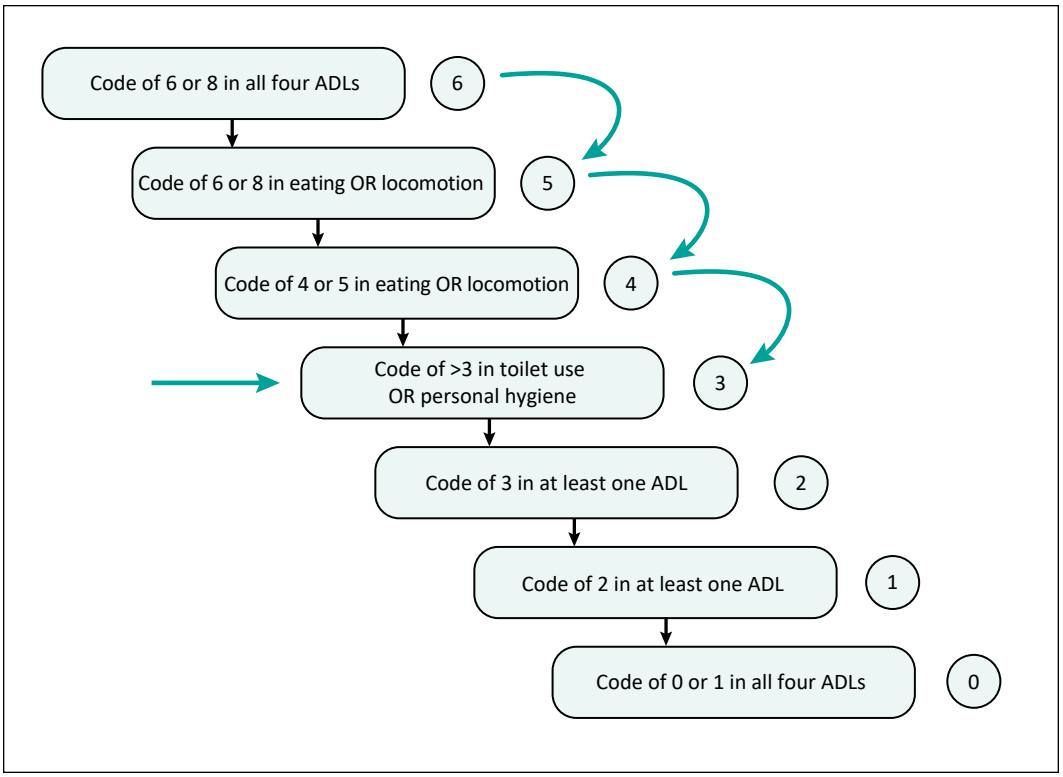
The vignette below is an example of a person whose ADL Hierarchy Scale score is **3 out of 6**.

Mr. D required assistance from staff to comb his hair and brush his teeth each morning over the last 3 days. Mr. D always used a wheelchair to get from his room to the dining room; he required cueing each time he returned to his bedroom from the dining room. He managed eating and drinking independently, requesting assistance only with cutting his meat. When awake, Mr. D used the toilet regularly, requesting assistance only with zipping/unzipping his pants. However, the last 3 nights, due to hip pain, he was unable to get out of bed and was incontinent. 2 nurses provided weight-bearing assistance to help Mr. D change his pyjamas and complete his peri care.

| interRAI LTCF items used to calculate the ADL Hierarchy Scale | Coding for Mr. D |
|---|---|
| **Personal hygiene (G1b)** | 3 |
| **Locomotion (G1f)** | 2 |
| **Toilet use (G1h)** | 5 |
| **Eating (G1j)** | 1 |

Start at the top of the decision tree; the steps represent each score of the scale. Based on the coding of the 4 assessment items for Mr. D, he did not meet the criteria for scores 6, 5 or 4. Score 3 requires Mr. D to meet 1 of 2 criteria: a code of greater than 3 in either toilet use or personal hygiene. The code for toilet use was 5 for Mr. D. Therefore, his ADL Hierarchy Scale score is 3.

**Figure 2** Mr. D's ADL Hierarchy Scale score




**Source**
Adapted from Morris J, Fries B, Morris S. Scaling ADLs within the MDS. *Journal of Gerontology: Medical Sciences*.

# Activities of Daily Living Long Form Scale

The ADL Long Form Scale is a summative scale that provides a measure of a person's ability to perform ADLs. Higher scores indicate more impairment of self-sufficiency in ADL performance. The ADL Long Form Scale is more sensitive to clinical changes than the other ADL scales.

7 ADL items are used to calculate the ADL Long Form Scale:

- Personal hygiene
- Dressing upper body
- Dressing lower body
- Locomotion
- Toilet use
- Bed mobility
- Eating

The items are coded according to self-performance in the last 3 days.

## Coding

- Code 0 = Independent
- Code 1 = Independent, set-up help only
- Code 2 = Supervision
- Code 3 = Limited assistance
- Code 4 = Extensive assistance
- Code 5 = Maximal assistance
- Code 6 = Total dependence
- Code 8 = Activity did not occur during entire period

To calculate the ADL Long Form Scale, the interRAI LTCF codes for Section G1 are transformed from codes of 0 to 6 to codes of 0 to 4. The table below illustrates how the codes are transformed. The **transformed** codes are then summed to give an ADL Long Form Scale score of 0 to 28.

| G1 (ADL Self-Performance) code | G1 transformed code |
|---|---|
| 0, 1 | 0 |
| 2 | 1 |
| 3 | 2 |
| 4, 5 | 3 |
| 6, 8 | 4 |

## Example

The vignette below is an example of a person whose ADL Long Form Scale score is **11 out of 28**.

Mr. D required assistance from staff to comb his hair and brush his teeth each morning over the last 3 days. Mr. D used a wheelchair to get from his room to the dining room; he required cueing each time he returned to his bedroom from the dining room. He managed eating and drinking independently, requesting assistance only with cutting his meat. When awake, Mr. D used the toilet regularly, requesting assistance only with zipping/unzipping his pants. However, the last 3 nights, due to hip pain, he was unable to get out of bed and was incontinent. The nurse had to provide weight-bearing assistance to help Mr. D change his pyjamas and complete his peri care.

Mr. D moved independently in his bed at all times. He transferred from his wheelchair to his bed and vice versa on each of the last 3 days without any assistance. Although very independent, Mr. D received assistance with dressing and undressing for the last 3 days: he required weight-bearing assistance for donning and removing his right leg prosthesis and non-weight-bearing assistance to do up and undo his shirt buttons.

| interRAI LTCF items used to calculate the ADL Long Form Scale | Coding for Mr. D | Transformed code |
|---|---|---|
| **Personal hygiene (G1b)** | 3 | 2 |
| **Dressing upper body (G1c)** | 3 | 2 |
| **Dressing lower body (G1d)** | 4 | 3 |
| **Locomotion (G1f)** | 2 | 1 |
| **Toilet use (G1h)** | 5 | 3 |
| **Bed mobility (G1i)** | 0 | 0 |
| **Eating (G1j)** | 1 | 0 |
| **Score** | | **11 out of 28** |

# Activities of Daily Living Short Form Scale

The ADL Short Form Scale provides a measure of the person's ADL self-performance status based on items that reflect stages of loss (early, middle and late loss). Higher scores indicate more impairment of self-sufficiency in ADL performance.

4 ADL items are used to calculate the ADL Short Form Scale:

- Personal hygiene
- Locomotion
- Toilet use
- Eating

The items are coded according to self-performance in the last 3 days. They are summed to give an ADL Short Form Scale score of 0 to 16.

## Coding

- Code 0 = Independent
- Code 1 = Independent, set-up help only
- Code 2 = Supervision
- Code 3 = Limited assistance
- Code 4 = Extensive assistance
- Code 5 = Maximal assistance
- Code 6 = Total dependence
- Code 8 = Activity did not occur during entire period

To calculate the ADL Short Form Scale, the interRAI LTCF codes for Section G1 are transformed from codes of 0 to 6 to codes of 0 to 4. The table below illustrates how the codes are transformed. The **transformed** codes are then summed to give an ADL Short Form Scale score of 0 to 16.

| G1 (ADL Self-Performance) code | G1 transformed code |
|---|---|
| 0, 1 | 0 |
| 2 | 1 |
| 3 | 2 |
| 4, 5 | 3 |
| 6, 8 | 4 |

## Example

The vignette below is an example of a person whose ADL Short Form Scale score is **6 out of 16**.

Mr. D required assistance from staff to comb his hair and brush his teeth each morning over the last 3 days. Mr. D always used a wheelchair to get from his room to the dining room; he required cueing each time he returned to his bedroom from the dining room. He managed eating and drinking independently, requesting assistance only with cutting his meat. When awake, Mr. D used the toilet regularly, requesting assistance only with zipping/unzipping his pants. However, the last 3 nights, due to hip pain, he was unable to get out of bed and was incontinent. 2 nurses provided weight-bearing assistance to help Mr. D change his pajamas and complete his peri care.

| interRAI LTCF items used to calculate the ADL Short Form Scale | Coding for Mr. D | Transformed code |
|---|---|---|
| **Personal hygiene (G1b)** | 3 | 2 |
| **Locomotion (G1f)** | 2 | 1 |
| **Toilet use (G1h)** | 5 | 3 |
| **Eating (G1j)** | 1 | 0 |
| **Score** | | **6 out of 16** |

# Changes in Health, End-Stage Disease, Signs and Symptoms Scale

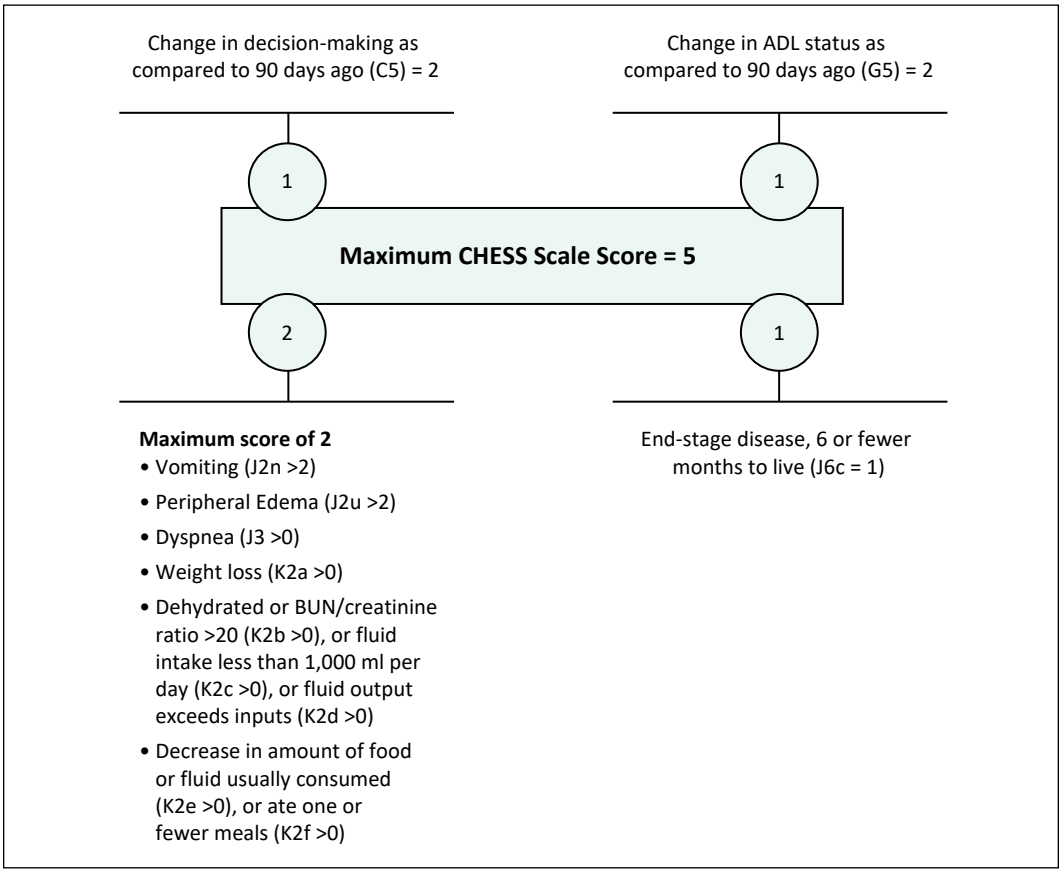
The Changes in Health, End-Stage Disease, Signs and Symptoms (CHESS) Scale detects frailty and health instability and was designed to identify people at risk of serious decline. Higher scores are associated with adverse outcomes such as mortality, hospitalization, pain, caregiver stress and poor self-rated health. The CHESS Scale scores range from 0 to 5.

12 items are used to calculate the CHESS Scale:

- Change in decision making
- Change in ADL status
- Vomiting
- Peripheral edema
- Dyspnea
- End-stage disease, 6 or fewer months to live
- Weight loss
- Dehydrated or BUN/creatinine ratio >20 OR
- Fluid intake less than 1,000 ml per day OR
- Fluid output exceeds input
- Decrease in amount of food or fluids usually consumed
- Ate one or fewer meals

The following diagram illustrates the calculation of the CHESS Scale. As depicted, the CHESS Scale is calculated by adding sign and symptom variables up to a maximum score of 2, and then adding 3 other variables (decline in decision making, decline in ADL status and end-stage disease). Note: Not all sign and symptom items are equally weighted in the calculation.

**Figure 3** Calculation of the CHESS Scale



# Example

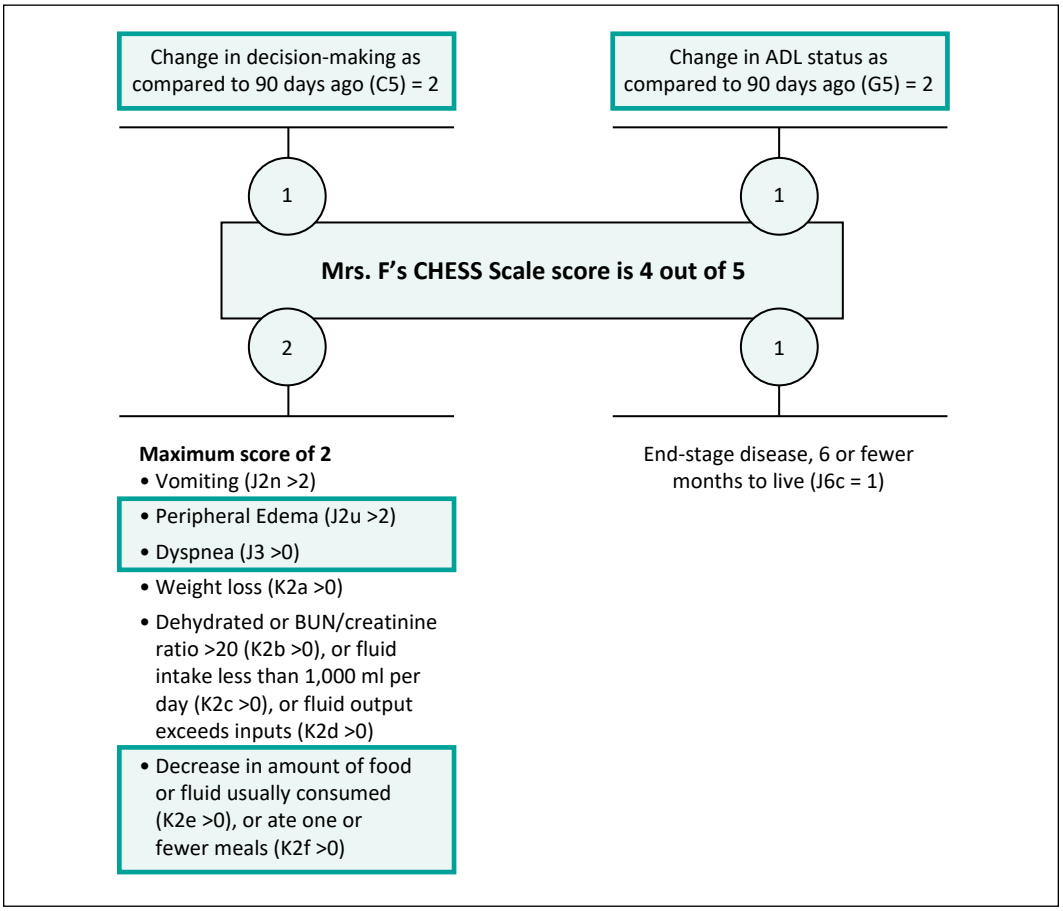
The vignette below is an example of a person whose CHESS Scale score is **4 out of 5**.

Compared with 3 months ago, Mrs. F's ability to complete her ADLs has deteriorated. Staff noticed that her short-term memory was not as good and that she had more difficulty making decisions about her daily routine. In the last 3 days, staff noticed that she was short of breath when walking even short distances and doing normal daily activities; for the past 4 or 5 days, there has been swelling in both of her lower legs. The nursing staff noticed a decrease in Mrs. F's overall food consumption over the last 3 days: Mrs. F ate all of her breakfast and lunch meals, but she left about a third of her supper meals uneaten.

| interRAI LTCF items used to calculate the CHESS Scale | Coding for Mrs. F | Score |
|---|---|---|
| **Change in decision making as compared to 90 days ago (C5)** | 2 (Declined) | Count 1 |
| **Change in ADL status as compared to 90 days ago (G5)** | 2 (Declined) | Count 1 |
| **End-stage disease, 6 or fewer months to live (J6c)** | 0 (No) | — |
| **Vomiting (J2n)** | 0 (Not present) | Count 2 |
| **Peripheral edema (J2u)** | 4 (Exhibited daily in last 3 days) | |
| **Dyspnea (J3)** | 2 (Absent at rest, but present when performed normal day-to-day activities) | |
| **Weight loss of 5% or more in last 30 days or 10% or more in last 180 days (K2a)** | 0 (No) | |
| **Dehydrated or BUN/creatinine ratio >20 (K2b)** | 0 (No) | |
| **or** | | |
| **Fluid intake <1,000 ml per day (K2c)** | 0 (No) | |
| **or** | | |
| **Fluid output exceeds input (K2d)** | 0 (No) | |
| **Decrease in amount of food or fluid usually consumed (K2e)** | 1 (Yes) | |
| **or** | | |
| **Ate one or fewer meals on AT LEAST 2 OF LAST 3 DAYS (K2f)** | 0 (No) | |
| **Score** | | **4 out of 5** |

Using the decision tree, note that the score is 4 out of 5 for Mrs. F. C5 and G5 are assigned 1 point each, as Mrs. F's cognition and ADL status have declined. J2u, J3 and K2e are assigned 2 points, because she showed symptoms of peripheral edema, dyspnea and a decrease in the amount of food or fluid usually consumed.

**Figure 4** Mrs. F's CHESS Scale score



# Cognitive Performance Scale

The Cognitive Performance Scale (CPS) is a hierarchical index used to rate a person's cognitive status. The scale scores range from 0 to 6, with higher scores indicating more severe impairment.

4 items are used to calculate the CPS:

- Cognitive Skills for Daily Decision Making
- Short-term memory OK
- Making Self Understood
- Eating

To calculate the CPS score, an *impairment* count of 0 to 3 is calculated first:

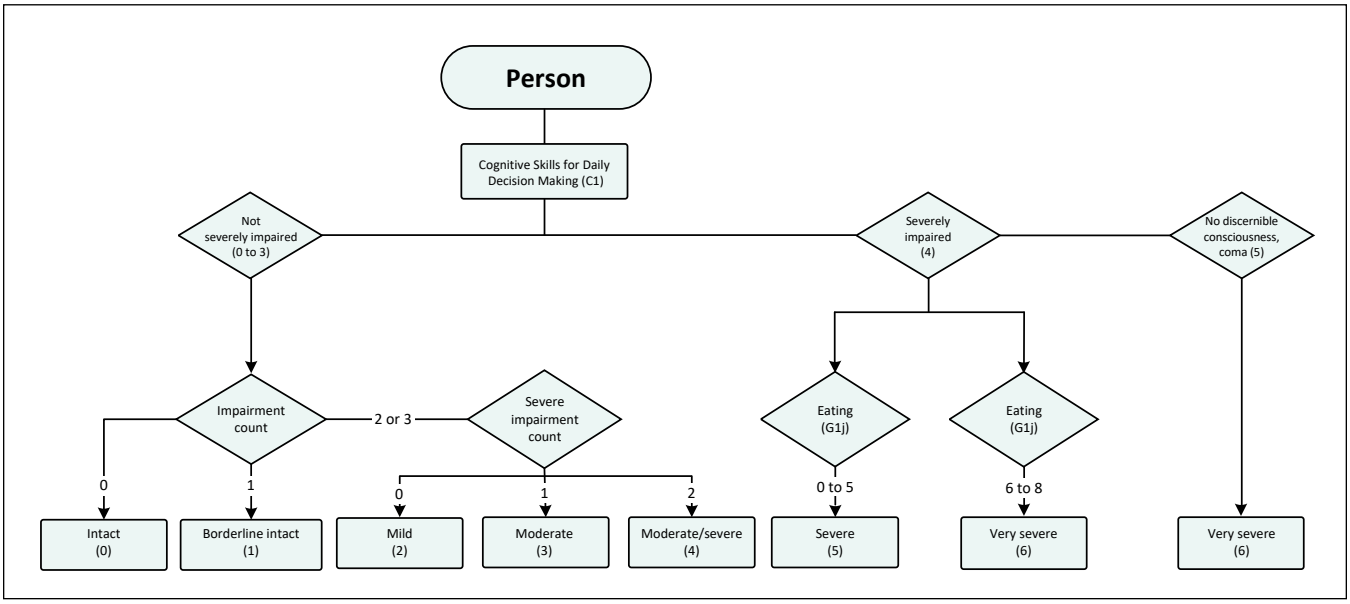
- 1 point is assigned if Cognitive Skills for Daily Decision Making = 1, 2 or 3.
- 1 point is assigned if Making Self Understood = 1, 2, 3 or 4.
- 1 point is assigned if Short-term memory OK = 1.

If the impairment count is greater than 1, a *severe impairment* count of 0 to 2 is then calculated:

- 1 point is assigned if Cognitive Skills for Daily Decision Making = 3.
- 1 point is assigned if Making Self Understood = 3 or 4.

The following decision tree illustrates how the CPS score is determined:

**Figure 5** How to determine the Cognitive Performance Scale score




**Source**

Morris JN, Fries BE, Mehr DR, Hawes C, Philips C, Mor V, Lipsitz L. MDS Cognitive Performance Scale. *Journal of Gerontology*.

The CPS has been validated against the Mini Mental State Examination (MMSE) and the Test for Severe Impairment (TSI).

The chart below illustrates how CPS scores relate to MMSE scores:

| CPS score | Description | MMSE equivalent average |
|---|---|---|
| **0** | Intact | 25 |
| **1** | Borderline intact | 22 |
| **2** | Mild impairment | 19 |
| **3** | Moderate impairment | 15 |
| **4** | Moderate/severe impairment | 7 |
| **5** | Severe impairment | 5 |
| **6** | Very severe impairment | 1 |

## Example

The vignette below is an example of a person whose CPS score is **2 out of 6**.

Mr. G was alert and appeared to recall information from recent conversations. Daily over the past 3 days, he selected his clothes, made his menu choices appropriately and decided on his own to attend bingo and exercise class. The staff reported he has some difficulty making decisions in new situations. They also reported that Mr. G has difficulty finding words when interacting with others.

| interRAI LTCF items used to calculate the CPS | Coding for Mr. G |
|---|---|
| **Cognitive Skills for Daily Decision Making (C1)** | 1 (Modified independence) |
| **Short-term memory OK (C2a)** | 0 (Yes, memory OK) |
| **Making Self Understood (D1)** | 1 (Usually understood) |
| **Eating (G1j)** | 0 (Independent) |

To calculate the CPS score, an *impairment* count of 0 to 3 is calculated first:

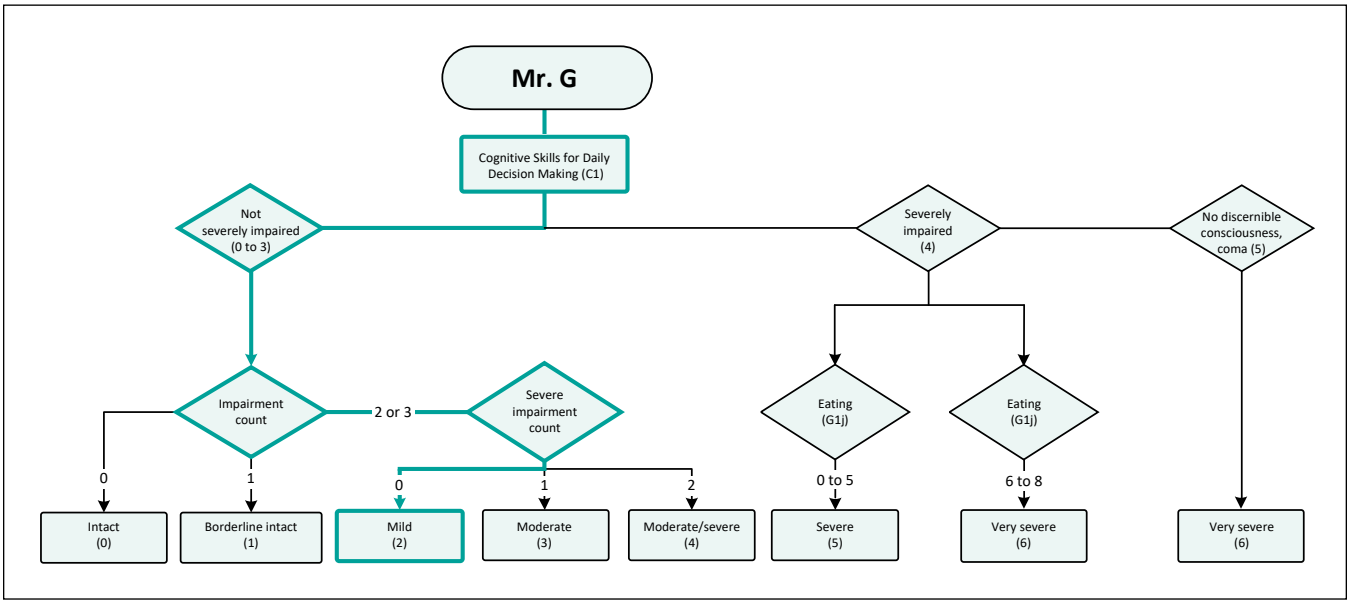
- 1 point is assigned, as Mr. G's Cognitive Skills for Daily Decision Making = 1.
- 0 points are assigned, as Mr. G's Short-term memory OK = 0.
- 1 point is assigned, as Mr. G's Making Self Understood = 1.
- **Impairment count for Mr. G = 2**

Next, a *severe impairment* count is calculated:

- 0 points are assigned, as Mr. G's Cognitive Skills for Daily Decision Making = 1.
- 0 points are assigned, as Mr. G's Making Self Understood = 1.
- **Severe impairment count for Mr. G = 0**

Using the decision tree below, note how Mr. G's CPS score is calculated as **2 out of 6**.

**Figure 6** Mr. G's CPS score




**Source**
Morris JN, Fries BE, Mehr DR, Hawes C, Philips C, Mor V, Lipsitz L. MDS Cognitive Performance Scale. *Journal of Gerontology*.

# Communication Scale

The Communication Scale summarizes a person's ability to communicate with others and comprehend information. Higher scale scores represent poorer communication.

2 items are used to calculate the Communication Scale:

- Making Self Understood
- Ability to Understand Others

The codes for the 2 items are summed to give a Communication Scale score of 0 to 8.

## Coding

- Code 0 = Understood/understands
- Code 1 = Usually understood/understands
- Code 2 = Often understood/understands
- Code 3 = Sometimes understood/understands
- Code 4 = Rarely or never understood/understands

## Example

The vignette below is an example of a person whose Communication Scale score is **4 out of 8**.

The nursing home staff have noticed a decline in Mrs. S's cognitive skills and also in her communication abilities. They have noted in the last few months that she has difficulty finding words and sometimes loses track of what she is saying; the staff regularly have to finish sentences for her. They have also noticed that they have to provide more detailed explanations about daily issues and situations so that she can fully understand the conversation.

| interRAI LTCF items used to calculate the Communication Scale | Coding for Mrs. S |
|---|---|
| **Making Self Understood (D1)** | 2 |
| **Ability to Understand Others (D2)** | 2 |
| **Score** | **4 out of 8** |

# Deafblind Severity Index

The Deafblind Severity Index (DbSI) provides a summary of a person's functional vision and hearing. The scale score ranges from 0 to 5, with higher values indicating a higher degree of impairment in both senses.

2 items are used to calculate the DbSI:

- Hearing
- Vision

## Coding Hearing

- Code 0 = Adequate
- Code 1 = Minimal difficulty
- Code 2 = Moderate difficulty
- Code 3 = Severe difficulty
- Code 4 = No hearing

## Coding Vision

- Code 0 = Adequate
- Code 1 = Minimal difficulty
- Code 2 = Moderate difficulty
- Code 3 = Severe difficulty
- Code 4 = No vision

The following DbSI descriptors help users interpret the scoring values:

| Descriptor | DbSI score |
|---|---|
| **Both senses adequate** | 0 |
| **1 sense adequate and other mild/moderate difficulty** | 1 |
| **1 sense adequate and other severe difficulty** | 2 |
| **Both senses mild/moderate difficulty** | 3 |
| **1 sense mild/moderate difficulty and other severe difficulty** | 4 |
| **Both senses severe difficulty** | 5 |

## Example

The vignette below is an example of a person whose DbSI score is **1 out of 5**.

Mr. L has noticed a decline in his hearing over the last few months. He requires a quiet setting to hear well and finds it helpful when others use a louder tone when speaking to him. Mr. L has enjoyed drinking his coffee while reading his newspaper every morning during the last 3 days. He has no issues seeing fine print as long as he has his glasses on.

| interRAI LTCF items used to calculate the DbSI | Coding for Mr. L | Conditions | Score |
|---|---|---|---|
| **Hearing (D3a)** | 2 | Moderate difficulty | 1 sense intact and other moderately impaired |
| **Vision (D4a)** | 0 | Adequate | |
| **Score** | | | **1 out of 5** |

# Depression Rating Scale

The Depression Rating Scale (DRS) is a summative scale that can be used as a clinical screen for depression. A score of 3 or more may indicate a potential or actual problem with depression.

7 items (indicators of possible depression, anxiety or sad mood) are coded according to symptom frequency in the last 3 days:

- Made negative statements
- Persistent anger with self or others
- Expressions, including non-verbal, of what appear to be unrealistic fears
- Repetitive health complaints
- Repetitive anxious complaints/concerns
- Sad, pained or worried facial expressions
- Crying, tearfulness

## Coding

- Code 0 = Not present
- Code 1 = Present but not exhibited in last 3 days
- Code 2 = Exhibited on 1–2 of last 3 days
- Code 3 = Exhibited daily in last 3 days

To calculate the DRS, the interRAI LTCF codes for Section E1 are transformed from codes of 0 to 3 to codes of 0 to 2. The table below illustrates how the codes are transformed. The **transformed** codes are then summed to give a DRS score of 0 to 14.

| E1 (Indicator) code | E1 transformed code |
|---|---|
| 0 | 0 |
| 1, 2 | 1 |
| 3 | 2 |

## Example

The vignette below is an example of a person whose DRS score is **7 out of 14**.

Every morning, Mrs. H expressed concern about her bowels and anticipated she would experience some nausea after eating her breakfast. She cried and stated that she was ready to “leave this world” on 2 of the last 3 days. Staff noticed a difference in her mood last week when she had visitors; even her face looked less sad than it always looks. The staff noted Mrs. H frequently requires reassurance with regards to meal times, what to wear and the times of recreation events, but in the last 3 days that anxiety had not been present.

| interRAI LTCF items used to calculate the DRS | Coding for Mrs. H | Transformed code |
|---|---|---|
| **Made negative statements (E1a)** | 2 | 1 |
| **Persistent anger with self or others (E1b)** | 0 | 0 |
| **Expressions, including non-verbal, of what appear to be unrealistic fears (E1c)** | 0 | 0 |
| **Repetitive health complaints (E1d)** | 3 | 2 |
| **Repetitive anxious complaints/concerns (E1e)** | 1 | 1 |
| **Sad, pained or worried facial expressions (E1f)** | 3 | 2 |
| **Crying, tearfulness (E1g)** | 2 | 1 |
| **Score** | | **7 out of 14** |

# Fracture Risk Scale

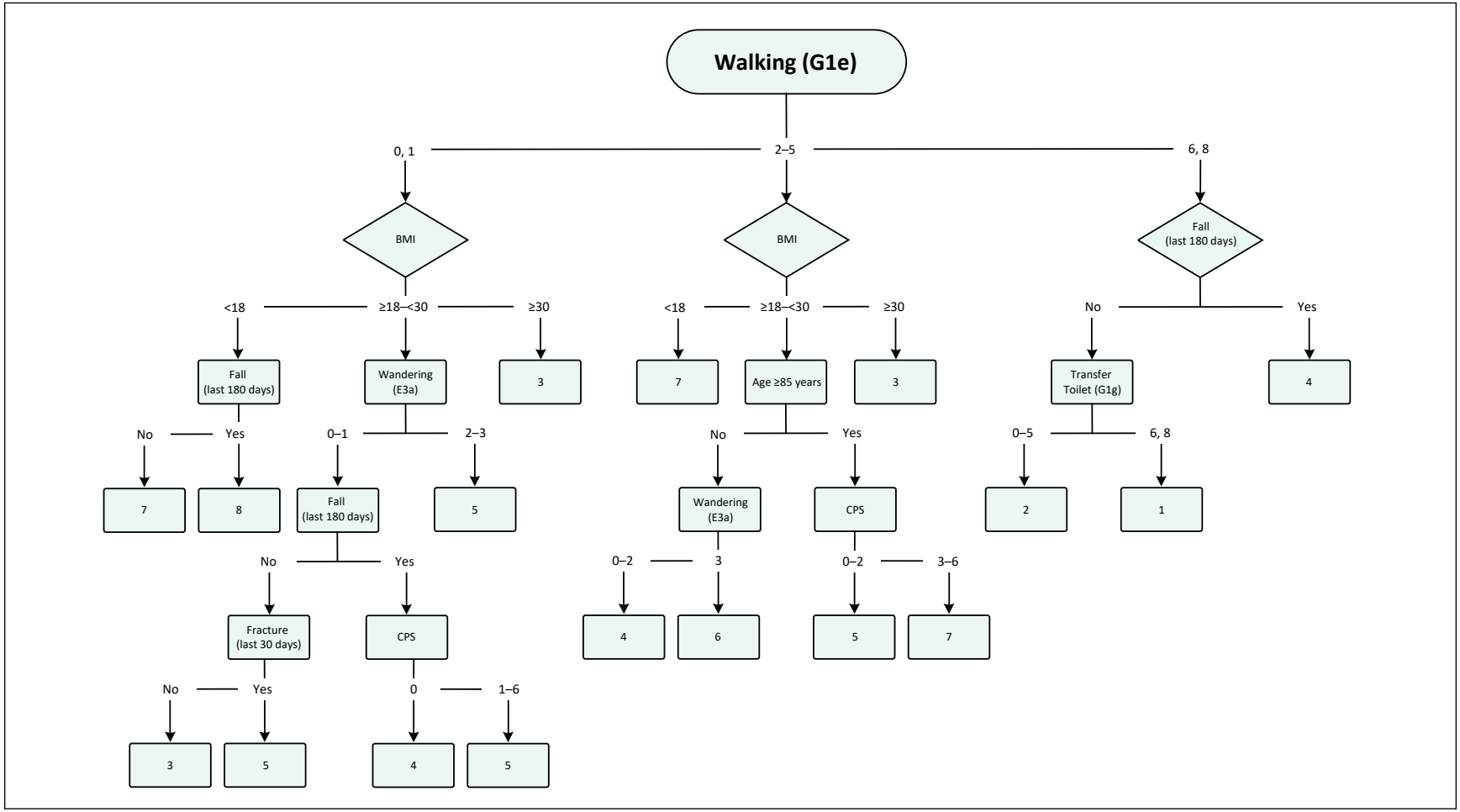
The Fracture Risk Scale (FRS) identifies a person at risk for hip fractures and other fractures related to falls within 1 year. The scale score ranges from 1 to 8, with higher scores indicating higher risk for fractures within 1 year of assessment.

9 criteria are used to calculate the FRS:

- Walking
- Hip fracture during last 30 days (or since last assessment if less than 30 days)
- Wandering
- Body mass index
- Falls
- Transfer Toilet
- Other fracture during last 30 days (or since last assessment if less than 30 days)
- Age at assessment
- Cognitive Performance Scale

The following decision tree illustrates how the FRS score is determined.

## **Figure 7** How to determine the Fracture Risk Scale score




**Note**

Fracture (last 30 days): Includes any fracture in the last 30 days.

**Source**

Adapted from Ioannidis G, et al. Development and validation of the Fracture Risk Scale (FRS) that predicts fracture over a 1-year time period in institutionalised frail older people living in Canada: An electronic record-linked longitudinal cohort study. *BMJ Open*. September 2017.

# Example

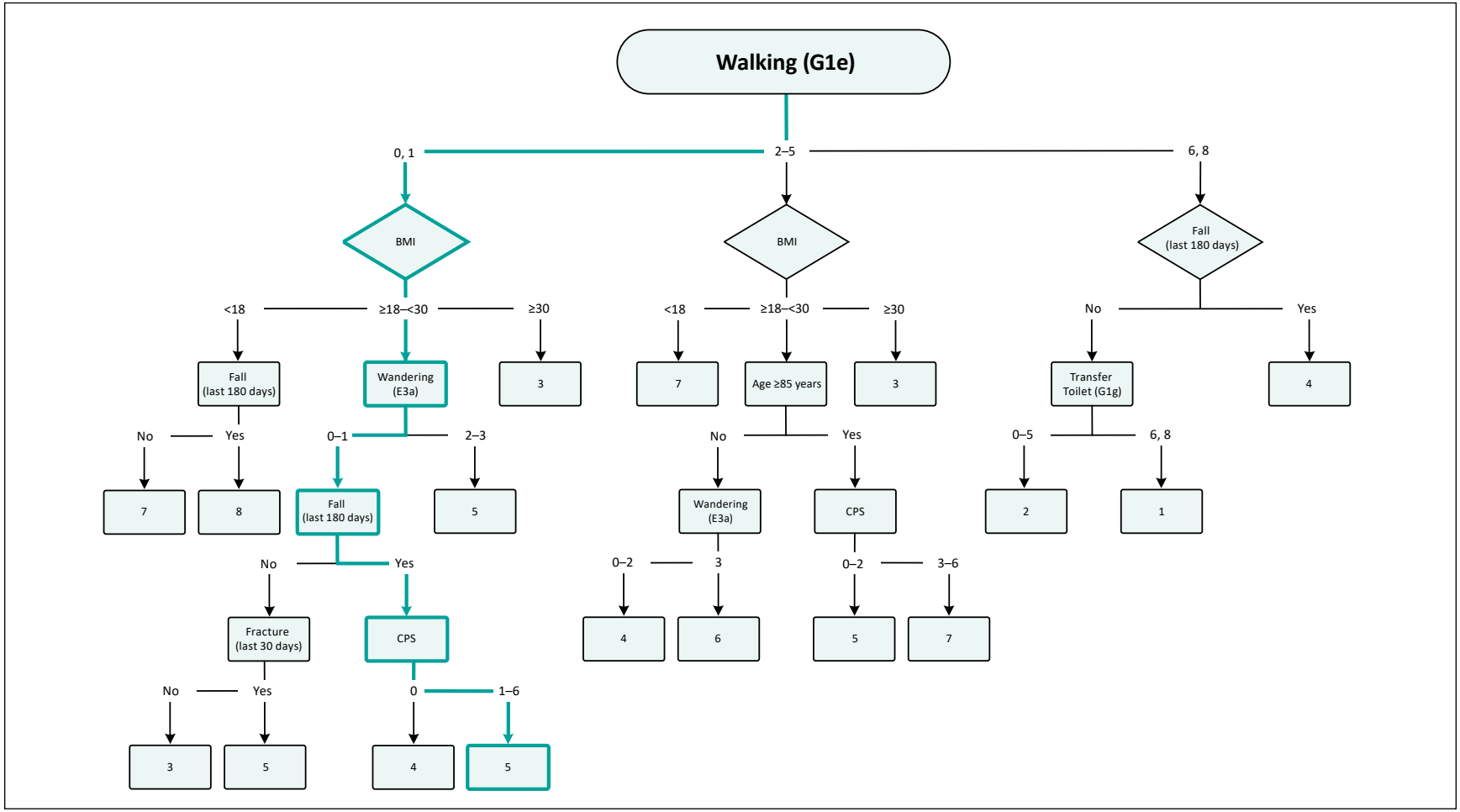
The vignette below is an example of a person whose FRS score is **5 out of 8**.

Mrs. T is an 86-year-old widow recently admitted to a long-term care facility. During the admission assessment, Mrs. T informed the nurse that she fell twice in the last month. The last fall resulted in a hip fracture that required hospitalization. Over the last 3 days, staff reported that Mrs. T was independent with walking once her walker was placed within her reach, and that she required supervision with transferring to the toilet. Staff reported no behavioural issues. Mrs. T's Cognitive Performance Scale score was calculated as 1 and her body mass index as 19.

| interRAI LTCF items used to calculate the FRS | Coding for Mrs. T |
|---|---|
| **Wandering (E3a)** | 0 (Not present) |
| **Walking (G1e)** | 1 (Independent, set-up help only) |
| **Transfer Toilet (G1g)** | 2 (Supervision) |
| **Hip fracture during last 30 days (or since last assessment if less than 30 days) (I1a)** | 1 (Primary diagnosis/diagnosis for current stay) |
| **Other fracture during last 30 days (or since last assessment if less than 30 days) (I1b)** | 0 (Not present) |
| **Age at assessment (A9 – A3)** | 86 |
| **Body mass index (K1b ÷ [K1a × 0.01])2** | 19 |
| **Falls (J1a or J1b or J1c ≥1)** | J1a = 2<br>J1b = 0<br>J1c = 0 |
| **Cognitive Performance Scale (0–6)** | 1 (Borderline intact) |

Using the following decision tree, note how Mrs. T's FRS score is calculated as **5 out of 8**.

## Figure 8 Mrs. T's FRS score




**Note**

Fracture (last 30 days): Includes any fracture in the last 30 days.

**Source**

Adapted from Ioannidis G, et al. Development and validation of the Fracture Risk Scale (FRS) that predicts fracture over a 1-year time period in institutionalised frail older people living in Canada: An electronic record-linked longitudinal cohort study. *BMJ Open*. September 2017.

# interRAI Pressure Ulcer Risk Scale

The interRAI Pressure Ulcer Risk Scale (interRAI PURS) identifies persons at various levels of risk for developing a pressure ulcer with the objective of targeting risk factors for prevention. The interRAI PURS scores range from 0 to 8, with higher values reflecting a higher relative risk of developing a new pressure ulcer.

As an output from an interRAI assessment, the interRAI PURS eliminates the need to duplicate effort with separate pressure ulcer risk scoring.

The following interRAI PURS descriptors help users interpret the scoring values.

| Descriptor | interRAI PURS score |
|---|---|
| **Very low** | 0 |
| **Low** | 1–2 |
| **Moderate** | 3 |
| **High** | 4–5 |
| **Very high** | 6–8 |

7 items are used to calculate the interRAI PURS:

- Walking
- Bed mobility
- Bowel Continence
- Dyspnea (Shortness of breath)
- Frequency with which person complains or show evidence of pain
- Weight loss of 5% or more in last 30 days or 10% or more in last 180 days
- Prior Pressure Ulcer

## Example

The vignette below is an example of a person whose interRAI PURS score is **5 out of 8**.

Since being diagnosed with bone cancer 6 months ago, Mr. M has lost 8.2 kg (10% of his weight). Even with regular administration of analgesics, he reported having back pain every morning when he woke up. Staff noticed that he was more short of breath in the past 3 days when he walked on the unit. Mr. M no longer has a pressure ulcer; it healed 2 months ago.

| interRAI LTCF items used to calculate the interRAI PURS | Coding for Mr. M | Conditions | Score |
|---|---|---|---|
| **Walking (G1e)** | 0 | If coded 4, 5, 6 or 8, count 1 | — |
| **Bed mobility (G1i)** | 0 | If coded 4, 5, 6 or 8, count 1 | — |
| **Bowel Continence (H3)** | 0 | If coded 3, 4, 5 or 8, count 1 | — |
| **Dyspnea (J3)** | 2 | If coded 2 or 3, count 1 | Count 1 |
| **Frequency with which person complains or shows evidence of pain (J5a)** | 3 | If coded 3, count 1 | Count 1 |
| **Weight loss of 5% or more in last 30 days or 10% or more in last 180 days (K2a)** | 1 | If coded 1, count 1 | Count 1 |
| **Prior Pressure Ulcer (L2)** | 1 | If coded 1, count 2 | Count 2 |
| **Score** | | | **5 out of 8** |

# Pain Scale

The Pain Scale summarizes the presence and intensity of pain. Pain Scale scores range from 0 to 4. Higher scores indicate more severe pain.

2 items are used to calculate the Pain Scale:

- Frequency with which person complains or shows evidence of pain
- Intensity of highest level of pain present

The items are coded according to the frequency and intensity of pain over the last 3 days.

## Coding frequency of pain

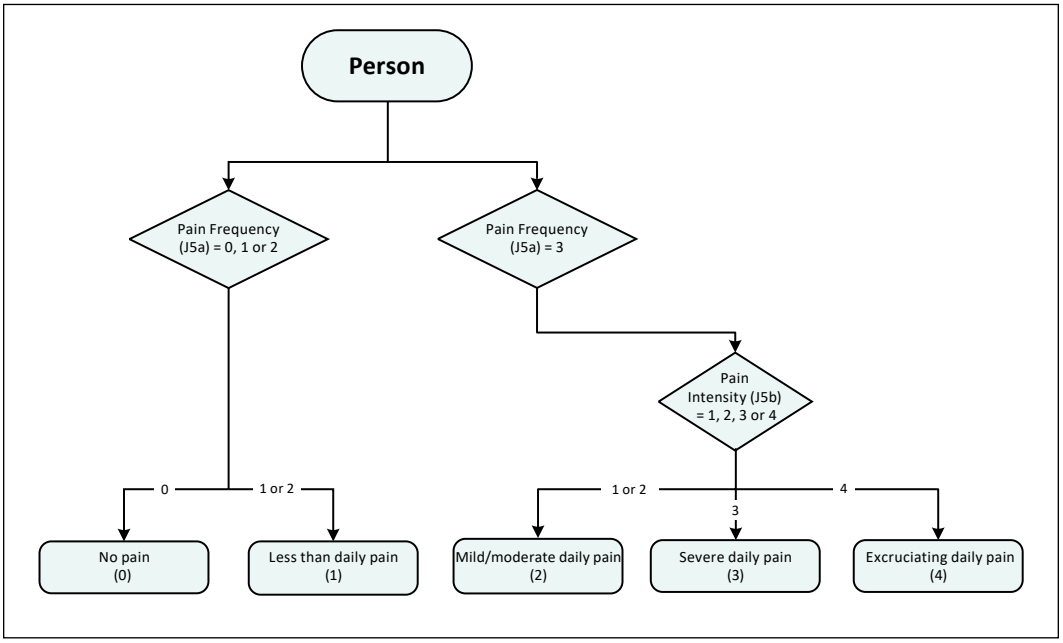
- Code 0 = No pain
- Code 1 = Present but not exhibited in last 3 days
- Code 2 = Exhibited on 1–2 of last 3 days
- Code 3 = Exhibited daily in last 3 days

# Coding intensity of pain

- Code 0 = No pain
- Code 1 = Mild
- Code 2 = Moderate
- Code 3 = Severe
- Code 4 = Times when pain is horrible or excruciating

The following decision tree illustrates how the Pain Scale score is determined. Note that if J5a (Frequency) is coded 0, 1 or 2, pain intensity is not used to calculate the Pain Scale.

**Figure 9** How to determine the Pain Scale score




**Source**
Fries BE, Simon SE, Morris JN, Flodstrom C, Bookstein FL. Pain in U.S. nursing homes: Validating a pain scale for the Minimum Data Set. *The Gerontologist*.

# Example

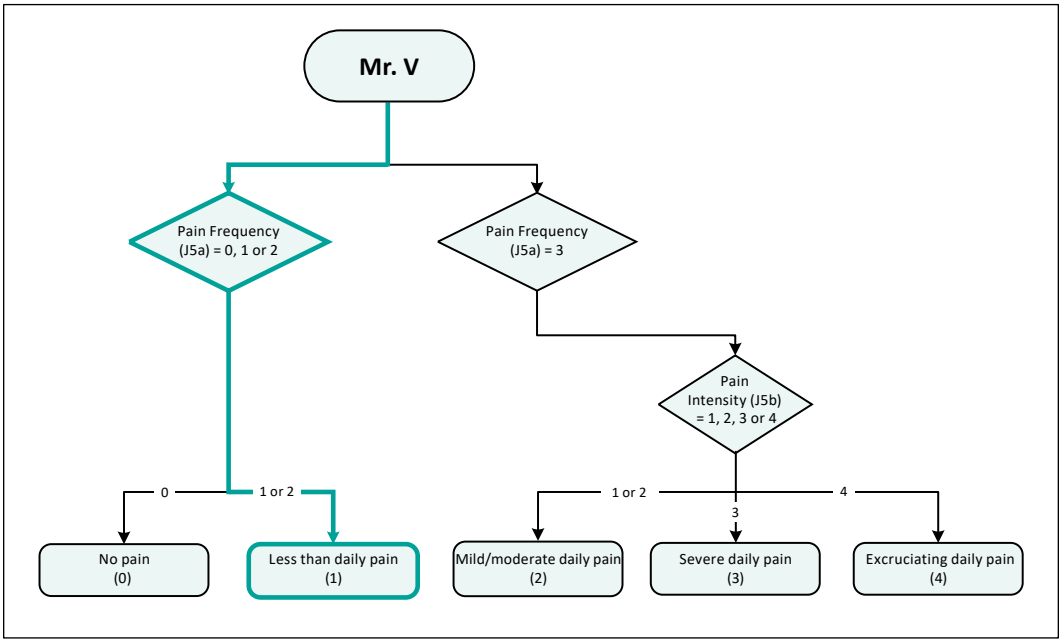
The vignette below is an example of a person whose Pain Scale score is **1 out of 4**.

Mr. V complained of chest pain on 2 of the last 3 days. When asked to describe his pain, he said it was not horrible like the week before, so he would describe it as moderate pain.

| interRAI LTCF items used to calculate the Pain Scale | Coding for Mr. V |
|---|---|
| **Frequency with which person complains or shows evidence of pain (J5a)** | 2 |
| **Intensity of highest level of pain present (J5b)** | 2 |

Using the decision tree below, note how Mr. V's Pain Scale score is calculated as **1 out of 4**.

**Figure 10** Mr. V's Pain Scale score




**Source**
Fries BE, Simon SE, Morris JN, Flodstrom C, Bookstein FL. Pain in U.S. nursing homes: Validating a pain scale for the Minimum Data Set. *The Gerontologist*.

# Revised Index of Social Engagement

The Revised Index of Social Engagement (RISE) is a summative scale that describes a resident's sense of initiative and social involvement within the facility. Higher scores indicate a higher level of social engagement.

6 items in Section F2 (Sense of Involvement) are coded according to frequency in the last 3 days.

- At ease interacting with others
- At ease doing planned or structured activities
- Accepts invitations into most group activities
- Pursues involvement in the life of the facility
- Initiates interaction(s) with others
- Reacts positively to interactions initiated by others

## Coding

- Code 0 = Not present
- Code 1 = Present but not exhibited in last 3 days
- Code 2 = Exhibited on 1–2 of last 3 days
- Code 3 = Exhibited daily in last 3 days

To calculate the RISE, the interRAI LTCF codes for sections F2a to F2f are transformed from codes of 0 to 3 to codes of 0 to 1. The table below illustrates how the codes are transformed. The **transformed** codes are then summed to give a RISE score of 0 to 6.

| F2 (indicator) code | F2 transformed code |
|---|---|
| 0, 1 | 0 |
| 2, 3 | 1 |

## Example

The vignette below is an example of a person whose RISE score is **5 out of 6**.

Mrs. S was observed enjoying being with and around staff and residents at all times. Her husband visited twice in the last 3 days and took her to the bingo game and to watch a movie, both of which she enjoyed. She was also happy to be invited by a volunteer to attend a church service in the chapel yesterday. Mrs. S eagerly participated in other recreational

activities on each of the last 3 days, and it was noted that she reacted positively to those who initiated conversations with her. However, the staff have noted that Mrs. S does not initiate conversations or interactions with others.

| interRAI LTCF items used to calculate the RISE | Coding for Mrs. S | Transformed code |
|---|---|---|
| **At ease interacting with others (F2a)** | 3 | 1 |
| **At ease doing planned or structured activities (F2b)** | 2 | 1 |
| **Accepts invitations into most group activities (F2c)** | 2 | 1 |
| **Pursues involvement in the life of the facility (F2d)** | 3 | 1 |
| **Initiates interaction(s) with others (F2e)** | 0 | 0 |
| **Reacts positively to interactions initiated by others (F2f)** | 3 | 1 |
| **Score** | | **5 out of 6** |

# How outcome scales can be used

The outcome scales can be used to evaluate a person's current clinical status and assist in developing person-centred care plans. Outcome scales data may be used to trend your organization's information over time and to compare with peers and the province/territory. When used at an aggregate level, outcome scales provide information for quality improvement initiatives, program planning and resource allocation.

The outcome scales can also be used to measure the functional status of groups of people. For example, a manager may look at how many people on a specific unit have a CPS score of 3 or higher to better understand the population of the facility. He or she may use this information to plan staff allocation. Reviewing outcome scales scores over time allows care providers and managers to track improvements and deteriorations in conditions, and helps them determine the effectiveness of care plans, thus providing evidence-based information for program planning. For example, a manager who observes an increase in the number of persons with interRAI PURS scores of 3 or higher over a period of time might use this information to determine quality initiatives for the following fiscal year.

Used in conjunction with other interRAI LTCF clinical outputs, like interRAI CAPs, quality indicators and Resource Utilization Groups, outcome scales offer clinicians, managers, policymakers and researchers rich information about persons in residential care in Canada, with the goal of improving quality of life and quality of care.

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