MDS Tip Sheet:

Fracture Risk Scale (FRS)

Description:

The ***Fracture Risk Scale (FRS)*** is a validated tool for predicting fractures for LTC residents over a 1-year time period using risk factors that are directly relevant for LTC residents such as prior fractures, dementia, and falls.

The Fracture Risk Scale (FRS) was developed by interRAI and validated for use in Canada with the support of the Canadian Institute for Health Information (CIHI). The FRS is embedded with the RAI-MDS 2.0 (Resident Assessment Instrument Minimum Data Set), automatically generating a FRS score without the need for additional assessments.

The score range is 1–8, with higher scores indicating a higher risk for hip fractures within 1 year of assessment.

	LOW RISK			HIGH RISK				
Risk Scores	1	2	3	4	5	6	7	8
Yearly Hip Fracture Incidents	0.6%	1.8%	2.5%	**3.1%**	**5.0%**	**6.8%**	**7.8%**	**12.6%**

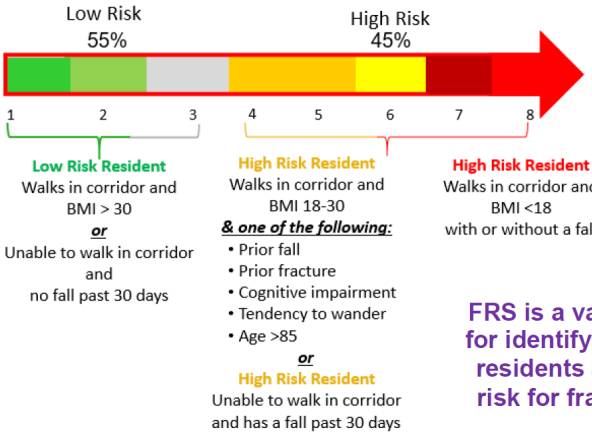
Fracture Risk Scale (FRS) compared to the Fracture Risk Assessment Tool (FRAX) or Canadian Association of Radiologists and Osteoporosis Canada Risk Assessment Tool (CAROC):

FRS	FRAX or CAROC
Validated in LTC residents	Not validated in the LTC population
Does not require bone mineral density testing	Require bone mineral density testing
1-year fracture prediction (average LTC length of stay is 18 months)	10 year fracture prediction
Risk factors include: prior fractures, dementia, and falls	Missing risk factors applicable for the LTC population
High risk residents may be appropriate for treatment	FRAX overpredicts LTC residents requiring treatment

Calculation:

The FRS score is calculated individually on each resident upon completion of the RAI-MDS 2.0 assessment. The following RAI-MDS demographic and assessment findings are included in the calculation:

- Age at assessment
- Body mass index
  - ◊ Height (iK1ab)
  - ◊ Weight (iK1bb)
- Cognitive Performance Scale (CPS) score
  - ◊ Daily Decision Making (iC1)
  - ◊ Short-Term Memory (iC2a)
  - ◊ Making Self Understood (iD1)
  - ◊ ADL Eating (iG2j)
- Wandering (E4aA)
- Walk in corridor self-performance (G1dA)
- Transfer self-performance (G1bA)
- Fell in past 30 days (J4a)
- Fell in past 31–180 days (J4b)
- Hip fracture in last 180 days (J4c)
- Other fracture in last 180 days (J4d)



FRS is a valid tool for identifying LTC residents at high risk for fractures

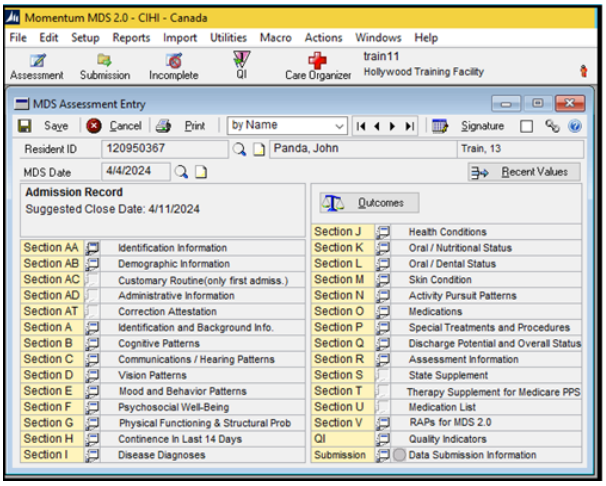
The FRS can be used to identify residents at high risk of fracture within the next year. If their life expectancy is greater than 1 year, **osteoporosis treatment** can be considered if consistent with the resident's goals of care.

Treatment Considerations								Considerations for medication use
LOW RISK			HIGH RISK					
1	2	3	4	5	6	7	8	
• **Vitamin D:** 800-2000IU • **Calcium:** 1200mg (daily total diet & supplement) • **Exercise:** functional strength & balance			• **Vitamin D:** 800-2000IU • **Calcium:** 1200mg (daily total diet & supplement) • **Exercise:** functional strength & balance • **Osteoporosis medications** • **Hip protectors**					• Fracture risk – residents at high risk should be treated • Residents' preferences and goals forcare • Life expectancy (> 1 year) • Kidney function (creatinine clearance) • Swallowing issues (dysphagia)

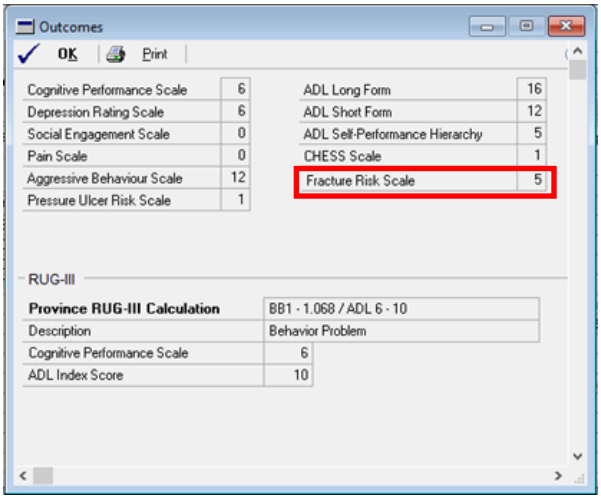
Where to find the Fracture Risk Scale (FRS) in the Momentum/Civica MDS Application

The Momentum/Civica MDS Application can calculate the FRS and other RAI-MDS outcome scales after the RAI-MDS assessment has been completed. Specifically, all 26 sections of the MDS assessment must be reviewed, questions answered, and each section electronically signed.

To view the Outcome Scales of a resident, log into the MDS application and perform the following steps:



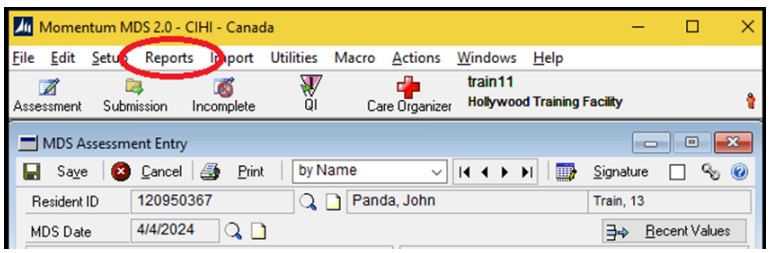
1. Ensure Resident of interest identified
2. Ensure MDS Date field indicates a valid date. This indicates the date of the assessment from which the outcome scale (eg, FRS will be calculated).
3. If the Outcomes button presents in colour, all sections of the MDS have been completed and Outcome Scales can be calculated.
4. Depressing (ie, left mouse click) the Outcomes button will cause the system to calculate and present the outcome measures for the resident. *See image below.*

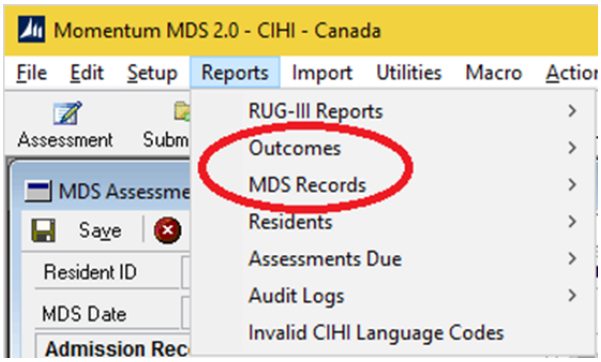


1) The MDS application provides two reports specific to resident Outcome Scales. To access the reports, log into the RAI-MDS application and locate the 'Reports' menu option.

2) Outcome Scales reports are available for selection within both the 'Outcomes' and 'MDS Records' submenus.

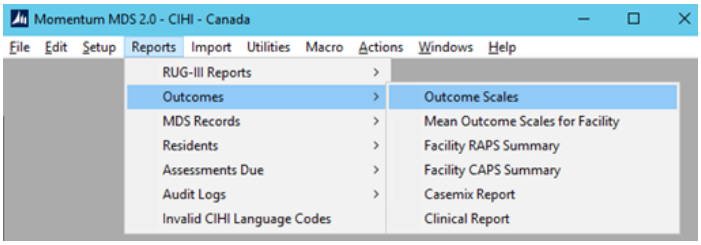
2a) The **'Outcome Scales' report** will provide a printed report on Outcome Scales calculated from a single MDS assessment. This report is good if the desire is a simple snapshot of the Outcome Scales derived from the most current MDS Assessment. It provides essentially the same information as if you were to 'View' the Outcome Scales as shown above.

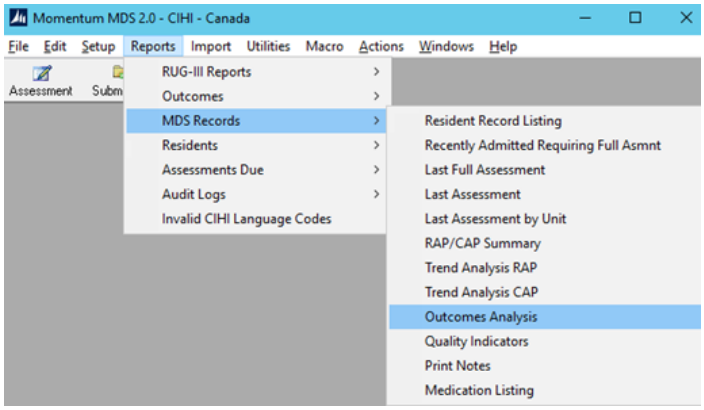




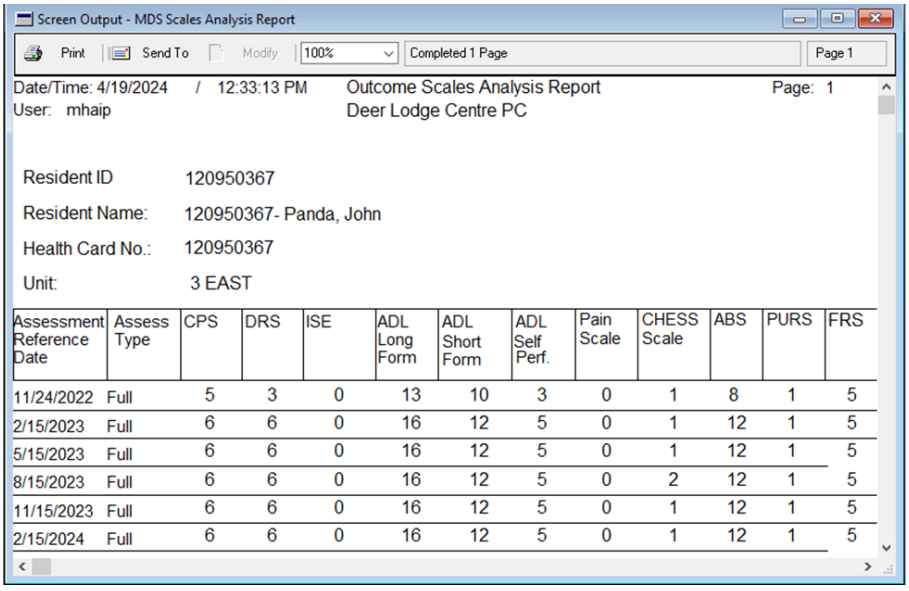
Where to find the Fracture Risk Scale in the Momentum/Civica MDS Application

2b) The **'Outcome Analysis' report** will provide a printed historical report of the Outcome Scales. The report contains a list of all Outcome Scales calculated from all MDS Assessments completed on a resident. The report is useful if you want to see how the Outcome Scales of a resident have trended over time. This report will now be requested by PCH Pharmacy as part of the EDS high cost drug request review process for denosumab (Prolia®).





Sample Outcome Analysis Report:



Assessment Reference Date	Assess Type	CPS	DRS	ISE	ADL Long Form	ADL Short Form	ADL Self Perf.	Pain Scale	CHESS Scale	ABS	PURS	FRS
11/24/2022	Full	5	3	0	13	10	3	0	1	8	1	5
2/15/2023	Full	6	6	0	16	12	5	0	1	12	1	5
5/15/2023	Full	6	6	0	16	12	5	0	1	12	1	5
8/15/2023	Full	6	6	0	16	12	5	0	2	12	1	5
11/15/2023	Full	6	6	0	16	12	5	0	1	12	1	5
2/15/2024	Full	6	6	0	16	12	5	0	1	12	1	5

References:

1. *Integrated interRAI Reporting System Long-Term Care Facilities Output Specifications (2024-2025). Note: This document includes specifications for both the RAI-MDS 2.0 and RAI-LTCF.*
2. *Geras Centre for Aging Research. Fracture Prevention Toolkit. 2024* https://www.gerascentre.ca/fracture-prevention-toolkit/
3. *Ioannidis et al. Development and validation of the Fracture Risk Scale (FRS) that predicts fracture over a 1-year time period in institutionalized frail older people living in Canada: an electronic record-linked longitudinal cohort study. BMJ Open 2017;7e016477.*
4. *McArthur et al. Developing a Fracture Risk Clinical Assessment Protocol for Long-Term Care: A Modified Delphi Consensus Process, JAMDA, Sep 20, 2020 (e-pub ahead of print)*