SimpleLTC Analytics

Survey Risk

How survey risk is calculated and predicted in SimpleLTC

SIMPLELTC™

A BRIGGS HEALTHCARE COMPANY

Overview

The SimpleLTC Survey Risk report aims to quickly identify high-risk residents, using approximately 100 risk indicators from each comprehensive MDS assessment. These risk indicators are derived from a mix of official CMS Survey reports and SimpleLTC's proprietary Frailty Index.

This tool was specifically developed to identify residents who pose the highest risk of being included in the initial survey pool. However, these clinical risk metrics can also be used for care planning discussions, QAPI meetings, and staffing decisions. Below is a detailed description of the process and indicators used to group each resident into a respective survey risk category.

MDS Indicators

To begin, the SimpleLTC system gathers the item level details from a resident's most recent comprehensive assessments. These indicators are duplicated from CMS survey documentation detailed in the Long Term Care Survey Process Procedure Guide[1] / MDS Indicator Facility Rate Report (Step 11), and Resident Matrix (Step 12). See the table below for details regarding the notations used in each indicator column and their meanings.

Column Name	**Possible Responses** " Y " unless otherwise indicated	**Source** (MDS Indicators or 802 Matrix)
Alzheimer's or Dementia	AL - Alzheimer's DE - Dementia	MI and 802
MD, ID, RC	MD - Mental Disorder ID - Intellectual Disability RC - Related Condition	MI and 802
Medications	I - Insulin ABX - Antibiotic H - Hypnotic AP - Antipsychotic AD - Antidepressant AC - Anticoagulant D - Diuretic O - Opioid AA - Antianxiety RESP - Respiratory	MI and 802
Pressure Ulcers	*Count of highest stage. Append (FA) if facility acquired.*	MI and 802
Weight Loss		MI and 802
Tube Feeding	E - Enteral P - Parenteral	MI and 802
Dehydration		MI and 802
Physical Restraints		MI and 802

[1] CMS, "Long Term Care Survey Process (LTCSP) Procedure Guide", 2021, <https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/GuidanceforLawsAndRegulations/Downloads/LTCSP-Procedure-Guide.pdf>

Falls	F - Falls FI - Falls with Injury FMI - Falls with Major Injury	MI and 802
Catheter	*Append (UTI) if UTI is present.*	MI and 802
Dialysis		MI and 802
Hospice		MI and 802
Palliative Care		802
Tracheostomy		MI and 802
Ventilator		MI and 802
Transmission-Based Precautions		802
IV Therapy		802
Infections	M - MDRO VH - Viral Hepatitis WI - Wound Infection SEP - Sepsis GI - Gastroenteritis COV-2 - COVID TB - Tuberculosis C - Difficile-C UTI - UTI SCA - Scabies SARS - SARS	MI and 802
Rehospitalizations	*Count of rehospitalizations during episode.*	MI
Pain	F - Frequent C - Constant	MI
Depression		MI
Bowel and Bladder		MI
ROM Limitation	U - Upper L - Lower *Append (Therapy) if therapy indicated*	MI
Wandering		MI
Decline in ADLs	*Residents in N028 numerator during most recent QM quarter within active time frame.*	MI

A count of each resident's indicators will serve as the primary sort criteria in the resident table. A secondary sort on the resident Frailty Index will be used to rank those residents with the same number of indicators present.

Frailty Index

The SimpleLTC Frailty Index is a proprietary clinical metric that uses a mix of clinical measures from MDS assessments. These metrics are recalculated with each new comprehensive assessment and compiled to

give each resident a score from 0 - 100. A low score indicates a resident is in relatively good condition and likely to recover well from incidents and events. A high score indicates the resident is at higher risk and is less likely to recover, or will require more caregiver resources to do so.

See below for a detailed description of these clinical metrics.

Barthel Index

The Barthel Index is an ordinal scale (0-100) used to assess functional status based on a resident's ability to perform activities of daily living (ADL). Lower Barthel scores indicate a lower level of resident independence. It is computed by summing the values of ten measurements that can be extracted from MDS Section G:

1. Feeding
    - 0 = unable
    - 5 = needs help cutting, spreading butter, etc., or requires modified diet
    - 10 = independent
2. Bathing
    - 0 = dependent
    - 5 = independent
3. Grooming
    - 0 = needs to help with personal care
    - 5 = independent face/hair/teeth/shaving (implements provided)
4. Dressing
    - 0 = dependent
    - 5 = needs help but can do about half unaided
    - 10 = independent (including buttons, zips, laces, etc.)
5. Bowels
    - 0 = incontinent (or needs to be given enemas)
    - 5 = occasional accident
    - 10 = continent
6. Bladder
    - 0 = incontinent, or catheterized and unable to manage alone
    - 5 = occasional accident
    - 10 = continent
7. Toilet Use
    - 0 = dependent
    - 5 = needs some help, but can do something alone
    - 10 = independent (on and off, dressing, wiping)
8. Transfers (Bed to Chair and Back)
    - 0 = unable, no sitting balance
    - 5 = major help (one or two people, physical), can sit
    - 10 = minor help (verbal or physical)
    - 15 = independent
9. Mobility (On Level Surfaces)
    - 0 = immobile or < 50 yards
    - 5 = wheelchair independent, including corners, > 50 yards

- 10 = walks with help of one person (verbal or physical) > 50 yards
- 15 = independent (but may use any aid; for example, stick) > 50 yards

10. Stairs
    - 0 = unable
    - 5 = needs help (verbal, physical, carrying aid)
    - 10 = independent

Comorbidity Index

The comorbidity index used to calculate the rehospitalizations metrics in the SimpleLTC analytics dashboard are derived from two well-known and widely used indices, Charlson and Elixhauser. Details about the weights for each comorbidity category and how they were calculated can be found in this article[2].

A comorbidity index is a method of categorizing comorbidities based on the International Classification of Diseases (ICD) diagnosis codes or from MDS Section I diagnoses. Each comorbidity category has an associated weight (from 1 to 6), determined by the adjusted risk of mortality or resource use. The sum of all the weights results in a single resident comorbidity score. The higher the score, the more likely the predicted outcome will result in mortality or higher resource use.

Mood Severity

The mood severity score, pulled directly from MDS Section D[3], is an indication of depression or other mood disorders. This score can be very helpful when determining the risk of rehospitalization for a resident.

Functional Outcome Group (FOG)

For each MDS assessment, a resident can be placed into one of 22 hierarchical groups known as functional outcome groups. Residents that fall into higher groups have better potential for rehabilitation, whereas residents in lower groups are less likely to rehab well. By measuring a resident's FOG at the start compared to the end of a stay, you can conclude how well the resident rehabilitated during the stay.

Each group is defined based on a combination of a resident's baseline function on:

- Three functional measures
    - Bed mobility
    - Transferring
    - Ambulation
- Potential to improve in function

Rehab potential is characterized by the ability to perform the eating and dressing ADLs on the baseline MDS, using the self-performance scale. The reason for using these ADLs is that they reflect cognitive

[2] Gagne, Joshua J et al. "A combined comorbidity score predicted mortality in elderly patients better than existing scores." *Journal of clinical epidemiology* 64.7 (2011): 749-759.

[3] "Minimum Data Set 3.0 Resident Assessment ... - aanac." 2014. 8 Mar. 2016 <http://www.aanac.org/docs/mds-3.0-rai-users-manual/11119_mds_3-0_chapter_3_-_section_d_v1-10.pdf?sfvrsn=6>

functioning and capture the range of the functional hierarchy from the most basic functions (i.e. eating) to the most advanced functions (i.e. dressing).

The methods used to define each FOG and a guide for how to calculate which group a resident belongs to can be found in this MedPAC report[4]. Improvements to the methodology can be found here[5].

Risk Grouping

The last step is to classify each resident into the appropriate risk grouping. Each resident is first ranked by the number of MDS indicators present and then ranked by the frailty score. The number of current residents is used to define the size of each risk group.

Attachment A of the Long Term Care Survey Process (LTCSP) Procedure Guide will define the expected size of the initial pool of residents based on the facility census. The number of residents in the high-risk group will be equal to 75% of the recommended initial pool size and made up of the highest ranked residents. The number of residents in the medium risk group will be equal to 50% of the recommended initial pool size and made up of the next highest ranked residents. The remainder of the residents will be included in the low risk group.

For example, a facility with a census of 100 will have a recommended initial pool size of 32 residents. The high risk group will be made of the top 24 residents. The medium risk group will include the next 16 highest ranked residents. The remainder of the residents will be included in the low risk group.

Conclusion

The health inspection is the starting point for your facility's Five-Star rating. While a health inspection is an expansive process involving all parts of facility operations, the SimpleLTC Survey Risk report provides meaningful awareness into the initial pool selection.

Furthermore, because CMS surveys are conducted through a complex data-driven process that guides on-site investigation, the Survey Risk report can demonstrate additional valuable insights to prepare for your next survey, and improve quality of care.

[4] Miller, ME. "Development of Potentially Avoidable Readmission and ..." 2014. <https://resources.simpleltc.com/pdf/Mar14_2014_SNFQualityMeasures_CONTRACTOR.pdf>

[5] "Refinement of Community Discharge, Potentially Avoidable ..." 2015. 8 Mar. 2016 <https://www.simpleltc.com/wp-content/uploads/2021/01/refinement-of-community-discharge-potentially-avoidable-readmission-and-functional-outcome-snf-QMs.pdf>