Risk Adjustment Technical Steps and Risk Factor Specifications

Effective January 1, 2023
Last Updated: February 16, 2024

I.   Background

The Centers for Medicare & Medicaid Services (CMS) maintains, re-evaluates and implements changes to the OASIS data item set and develops, implements, maintains and re-evaluates quality measures that are reflective of quality of care provided by home health agencies (HHAs) in the home setting.
For outcome measures, the re-evaluation process includes evaluating and updating, as needed, the risk adjustment models used to adjust for patient characteristics at admission, to ensure they are adequately robust and allow for valid comparison across providers. OASIS-based home health outcome measures are risk adjusted using OASIS items that are statistically significant and clinically relevant predictors of the outcome.

This document has been updated from the version effective January 1, 2023, to add:

1) risk models for the new Discharge Function Score quality measure, and

2) definitions for risk adjustment terms found in this document.

Note that the risk models, including covariates and coefficients, for the measures other than the new Discharge Function Score measure remain unchanged from the January 1, 2023 version of this document.

There are two sets of risk models described in this document. One set updates the prior risk adjustment models after revising the following risk factors to accommodate changes in OASIS-E:

- Depression Screening (PHQ-2 Score) was replaced with Patient Mood Screening (PHQ-2 to 9)
- Home Care Diagnoses were replaced with CMS-Hierarchical Condition Categories (CMS-HCCs)

All other risk factors remain the same as the January 1, 2021 update.

The latest risk adjustment update is applicable to home health quality episodes with a start of care/resumption care assessment completion date (M0090_ASMT_CMPLT_DT) on or after begin January 1, 2023. The OASIS-based outcome measures for which the updated risk adjustment models apply starting January 1, 2023 are:

- Improvement in Ambulation/Locomotion
- Improvement in Bathing
- Improvement in Bed Transferring
- Improvement in Bowel Incontinence
- Improvement in Confusion Frequency
- Improvement in Dyspnea
- Improvement in Lower Body Dressing
- Improvement in Upper Body Dressing
- Improvement in Management of Oral Medications
- Improvement in Toilet Transferring
- Discharged to Community

The next major update of these risk adjustment models is planned to take effect in CY 2025. During that update, the risk adjustment models will be based on refreshed data, and all risk factors will be re-tested for inclusion.

The second set describes the risk factors for Discharge Function Score (DC Function), which will first be reported in April 2024. For more details on how DC Function is calculated, consult the Discharge Function Score for Home Health (HH) Technical Report dated February 2024 and available in the download section at https://www.cms.gov/medicare/quality/home-health/home-health-quality-measures. The next major update to the risk adjustment model for DC Function is planned for CY 2026. During that update, the risk adjustment and imputation models will be based on refreshed data, and all risk factors will be re-tested for inclusion.

Section II describes the technical steps for calculating risk adjusted measures and describes the development of the risk adjustment models.

Section III contains the detailed specifications for each of the risk factors used in the risk adjustment models.

Section IV contains the detailed specifications for each of the risk factors used in the DC Function models, but not for the other OASIS-based outcome measures.

Appendix Table 1 and **Appendix Table 2** contains the list of risk factors and the estimated covariate coefficients for each measure, respectively. Because DC Function uses a different risk adjustment model and also requires imputation, the risk adjustment and imputation covariate coefficients for DC Function are located in the downloads section at https://www.cms.gov/medicare/quality/home-health/home-health-quality-measures

Definitions

Hierarchical Condition Categories (HCCs) - HCCs are used in the OASIS-based quality measure risk models to reflect patient conditions/diagnoses. HCCs are obtained by mapping the ICD-10-CM diagnoses codes from OASIS items M1021 and M1023. CMS releases midyear final mappings for ICD-10-CM to HCCs every year. The mid-year final version of the HCCs is used in the HHQRP risk models. The HCC mappings in the OASIS-based quality measure risk models are updated each year in the fall, after the mid-year final mapping has been released.

Home Health Quality Reporting Program Measure Calculations and Reporting User's Manual (a.k.a. QM User's Manual) – The Home Health Quality Reporting Program (HH QRP) manual that includes the measure specifications, risk models, and report information for all quality measures included in the HHQRP. An update to the manual is triggered when any significant additions or updates occur to any quality measures included in the HH QRP. A significant update would include the addition of a measure, the re-specification of a measure, or an update to the risk adjustment technical specifications.

Risk (Adjustment) Model – The measure-specific model used to risk adjust a measure. Each risk-adjusted measure has its own unique risk model.

Risk (Adjustment) Model Update – Any update to an individual measure's publicly documented risk model. This could include the addition or removal of a risk factor, updates to coefficients, or any re-calibration of the model. A risk model is considered "updated" whenever publicly available

documentation is required to be revised, in response to measure maintenance/reevaluation. **NOTE:** Updated mapping of HCCs alone (without a change to any coefficients in the model) is not considered a risk model "update").

II.   Technical Approach

Calculating Risk Adjusted Quality Measures

The following steps are used to calculate each quality measure:

A. Calculate the agency observed score **(steps 1 through 3)**

Step 1. Calculate the denominator count:

Calculate the total number of quality episodes that do not meet the exclusion criteria following each measure's specifications.[1]

Step 2. Calculate the numerator count:

Calculate the total number of quality episodes in the denominator whose OASIS assessments indicates meeting numerator criteria for each month, following each measure's specifications.

Step 3. Calculate the agency's observed rate:

Divide the agency's numerator count by its denominator count to obtain the agency's observed rate; that is, divide the result of **step 2** by the result of **step 1**.

B. Calculate the predicted rate for each quality episode **(steps 4 and 5)**

Step 4. Determine presence or absence of the risk factors for each patient (technical specifications for risk factors are in **Section III**):

If dichotomous risk factors are used, assign values, either '0' for condition not present or '1' for condition present, for each quality episode for each of the covariates as reported at SOC/ROC, as described in the section above.

Step 5. Calculate the predicted rate for each quality episode with the following formula:

[1] Episode-level predicted QM rate = $1/[1+e^{-x}]$

Where e is the base of natural logarithms and X is a linear combination of the constant and the logistic regression coefficients times the covariate scores (from Formula [2], below).

[2] Quality measure triggered (yes=1, no=0) = $B_0 + B_1*COV_1 + B_2*COV_2 + ... B_N*COV_N$

Where B_0 is the logistic regression constant, B_1 is the logistic regression coefficient for the first covariate, COV_1 is the episode-level rate for the first covariate, B_2 is the logistic regression coefficient for the second covariate, and COV_2 is the episode-level rate for the second covariate, etc. The regression constant and regression coefficients are provided in **Appendix Table 2**.

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[1] Measure specifications are available in the Downloads section of the Home Health Quality Measures website: https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HomeHealthQualityInits/Home-Health-Quality-Measures.html

C. Calculate the agency predicted rate **(step 6)**

   Step 6. Once a predicted QM rate has been calculated for all quality episodes, calculate the mean agency-level predicted QM rate by averaging all episode-level predicted values for that agency for each month.

D. Calculate national predicted rate **(step 7)**

   Step 7. Calculate the national predicted rate:

   Once a predicted QM value has been calculated for all episodes, calculate the mean national-level predicted QM rate by averaging all episode-level predicted values for each month. Note that the sample will include only those quality episodes with non-missing data for the component covariates.

E. Calculate the agency's risk-adjusted rate **(step 8)**

   Step 8. Calculate the agency-level monthly risk-adjusted rate based on the agency-level monthly observed quality measure rate (**step 3**), agency-level monthly mean predicted quality measure rate **(step 6)**, and national monthly mean predicted QM rate **(step 7)**, using the following formula:

   [3] agency risk adjusted rate = agency observed rate + national predicted rate − agency predicted rate

F. Calculate the agency's 12-month risk adjusted rate (**step 9**)

   Step 9. Calculate the 12-month risk-adjusted rate by averaging the agency's monthly risk-adjusted rate (**step 8**) weighting by the HHA's number of episodes in each month over the 12-month period.

   If the adjusted rate is greater than 100%, the adjusted rate is set to 100%. Similarly, if the result is a negative number, the adjusted rate is set to zero.

Identifying Risk Factors

The risk adjustment model was developed using OASIS national repository data from assessments submitted between January 1, 2021 and December 31, 2021 (~6.2 million episodes of care). The population of 6.2 million episodes for calendar year 2021 was split in half such that 3.1 million episodes were used as a developmental sample and 3.1 million episodes were used as a validation sample. The following process was used to identify unique contributing risk factors to the prediction model:

1. Risk factors were identified based on OASIS items that will remain following the OASIS-E transition. The statistical properties of the items were examined to specify risk factors (e.g., item responses were grouped when there was low prevalence of certain responses). Team clinicians then reviewed all risk factors for clinical relevance and redefined or updated risk factors as necessary. These risk factors were divided into 31 risk factor groups (e.g., functional status, CMS-HCCs). Where possible, risk factors were defined such that they flagged mutually exclusive subgroups within each content focus group. When modelling these risk factors, the exclusion category was set to be either the risk factor flag for most independent or the most frequent within each content focus group.
2. A logistic regression specification was used to estimate coefficients among the full set of candidate risk factors. Those risk factors that are statistically significant at probability <0.0001 are kept for further review.

3. Each risk factor flagged in Step 2 was reviewed to determine which one of the two groups its content focus group resided. Either its content focus group was explicitly tiered by increasing severity or it was not. This classification determined which risk factors covariates were kept and which were dropped from the final risk adjustment specification. For content focus groups that are explicitly tiered by increasing severity, either all risk factors are included within a content focus group or none of them. For example, if response option levels 1 and 2 for M1800 Grooming were statistically significant at probability <0.0001 for a particular outcome, then response option level 3 for M1800 Grooming was added to the list even if it was not statistically significant. If none of the risk factors within an explicitly tiered content focus group are statistically significant at <0.0001, the entire content focus group is removed from the model.

4. A logistic regression was computed on the list of risk factors that had achieved probability <0.0001 in Step 3 above.

5. Goodness of fit statistics (McFadden's R^2, C-statistic, and Intra-Class Correlation) were calculated to measure how well the predicted values generated by the prediction model were related to the actual outcomes. Separate bivariate correlations were constructed between the risk factors and the outcomes to confirm the sign and strength of the estimated coefficients in the logistic model.

6. The initial model was reviewed by a team of at least three experienced home health clinicians. Each risk factor was reviewed for its clinical plausibility. Clinicians were asked about the direction indicated by the coefficient in the risk adjustment model and how it compares to their perceived bivariate relationship given their experience treating patients in the home. Risk factors that were not clinically plausible were revised or eliminated if revisions were not possible.

7. The risk factors that were deemed not clinically plausible were revised or eliminated, and Steps 3, 4, and 5 in this process were repeated. The resulting logistic regression equation was designated as the risk adjustment model for the outcome.

8. The risk adjustment model was applied to the validation sample and goodness of fit statistics were computed. The statistics were similar to the goodness of fit statistics computed with the development sample. As additional testing, HHAs were stratified across several observable characteristics, and the distributions of the risk-adjusted outcomes were checked to confirm that values remained similar across strata.

9. Updated for January 1, 2023 as outlined in **Section I**: Risk adjustment models were re-run after revising two risk factors(i.e., replacing depression screening with patient mood screening and home care diagnoses with HCCs).

III. Risk Factor Technical Specifications

OASIS data items are referred to in this documentation using field names specified in OASIS Data Submission Specifications published by CMS. "[1]" is appended to the field name if the value is taken from the beginning of episode assessment (Start or Resumption of Care), and "[2]" is appended if the value is to be taken from the assessment conducted at the end of the episode (Discharge, Transfer, or Death).

1. Age

IF M0100_ASSMT_REASON[1] = 01
THEN

    IF MONTH(M0030_START_CARE_DT[1]) > MONTH(M0066_PAT_BIRTH_DT[1]) **OR** (MONTH(M0030_START_CARE_DT[1]) = MONTH(M0066_PAT_BIRTH_DT[1]) **AND** DAY(M0030_START_CARE_DT[1]) >= DAY(M0066_PAT_BIRTH_DT[1]))
    THEN
        AGE = YEAR(M0030_START_CARE_DT[1]) – YEAR(M0066_PAT_BIRTH_DT[1])
    ELSE
        AGE = YEAR(M0030_START_CARE_DT[1]) – YEAR(M0066_PAT_BIRTH_DT[1])-1
    END IF

ELSE

    IF MONTH(M0032_ROC_DT[1]) > MONTH(M0066_PAT_BIRTH_DT[1])**OR** (MONTH(M0032_ROC_DT[1]) = MONTH(M0066_PAT_BIRTH_DT[1]) **AND** DAY(M0032_ROC_DT[1]) >= DAY(M0066_PAT_BIRTH_DT[1]))
    THEN
        AGE = YEAR(M0032_ROC_DT[1]) – YEAR(M0066_PAT_BIRTH_DT[1])
    ELSE
        AGE = YEAR(M0032_ROC_DT[1]) – YEAR(M0066_PAT_BIRTH_DT[1])-1
    END IF

END IF

Age: 0-54
IF (AGE >= 18 **AND** AGE <= 54)
THEN
    AGE_0_54 = 1
ELSE
    AGE_0_54 = 0
END IF

Age: 55-59
IF (AGE >= 55 **AND** AGE <= 59)
THEN
    AGE_55_59 = 1
ELSE
    AGE_55_59 = 0
END IF

Age: 60-64
IF (AGE >= 60 **AND** AGE <= 64)
THEN
      AGE_60_64 = 1
ELSE
      AGE_60_64 = 0
END IF

Age: 65-69
IF (AGE >= 65 **AND** AGE <= 69)
THEN
      AGE_65_69 = 1
ELSE
      AGE_65_69 = 0
END IF

Age: 70-74
IF (AGE >= 70 **AND** AGE <= 74)
THEN
      AGE_70_74 = 1
ELSE
      AGE_70_74 = 0
END IF

Age: 75-79
IF (AGE >= 75 **AND** AGE <= 79)
THEN
      AGE_75_79 = 1
ELSE
      AGE_75_79 = 0
END IF

Age: 80-84
IF (AGE >= 80 **AND** AGE <= 84)
THEN
      AGE_80_84 = 1
ELSE
      AGE_80_84 = 0
END IF

Age: 85-89
IF (AGE >= 85 **AND** AGE = 89)
THEN
      AGE_85_89 = 1
ELSE
      AGE_85_89 = 0
END IF

Age: 90-94
IF (AGE >= 90 **AND** AGE <= 94)
THEN
       AGE_90_94 = 1
ELSE
       AGE_90_94 = 0
END IF

Age: 95+
IF (AGE >= 95)
THEN
       AGE_95PLUS = 1
ELSE
       AGE_95PLUS = 0
END IF

2. Gender

IF M0069_PAT_GENDER[1] = 2
THEN
       GENDER = 1
ELSE
       GENDER = 0
END IF

Patient is Female
IF GENDER = 1
THEN
       GENDER_FEMALE = 1
ELSE
       GENDER_FEMALE = 0
END IF

Patient is Male
IF GENDER = 0
THEN
       GENDER_MALE = 1
ELSE
       GENDER_MALE = 0
END IF

3. Payment Source

Payment Source: Medicare FFS only
IF M0150_CPAY_MCARE_FFS[1] = 1 **AND** M0150_CPAY_NONE[1] = 0 **AND**
M0150_CPAY_MCARE_HMO[1] = 0 **AND** M0150_CPAY_MCAID_FFS[1] = 0 **AND**
M0150_CPAY_MCAID_HMO[1] = 0 **AND** M0150_CPAY_WRKCOMP[1] = 0 **AND**

M0150_CPAY_TITLEPGMS[1] = 0 **AND** M0150_CPAY_OTH_GOVT[1] = 0 **AND**
M0150_CPAY_PRIV_INS[1] = 0 **AND** M0150_CPAY_PRIV_HMO[1] = 0 **AND**
M0150_CPAY_SELFPAY[1] = 0 **AND** M0150_CPAY_OTHER[1] = 0 **AND** M0150_CPAY_UK [1] = 0
THEN
      PAY_MCARE_FFS = 1
ELSE
      PAY_MCARE_FFS = 0
END IF

Payment Source: Medicare HMO only
IF M0150_CPAY_MCARE_HMO[1] = 1 **AND** M0150_CPAY_NONE[1] = 0 **AND**
M0150_CPAY_MCARE_FFS[1] = 0 **AND** M0150_CPAY_MCAID_FFS[1] = 0 **AND**
M0150_CPAY_MCAID_HMO[1] = 0 **AND** M0150_CPAY_WRKCOMP[1] = 0 **AND**
M0150_CPAY_TITLEPGMS[1] = 0 **AND** M0150_CPAY_OTH_GOVT[1] = 0 **AND**
M0150_CPAY_PRIV_INS[1] = 0 **AND** M0150_CPAY_PRIV_HMO[1] = 0 **AND**
M0150_CPAY_SELFPAY[1] = 0 **AND** M0150_CPAY_OTHER[1] = 0 **AND** M0150_CPAY_UK[1] = 0
THEN
      PAY_MCARE_HMO = 1
ELSE
      PAY_MCARE_HMO = 0
END IF

Payment Source: Medicare and Medicaid
IF ((M0150_CPAY_MCARE_FFS[1] = 1 **AND** M0150_CPAY_MCAID_FFS[1] = 1) **OR**
(M0150_CPAY_MCARE_FFS[1] = 1 **AND** M0150_CPAY_MCAID_HMO[1] = 1) **OR**
(M0150_CPAY_MCARE_HMO[1] = 1 **AND** M0150_CPAY_MCAID_FFS[1] = 1) **OR**
(M0150_CPAY_MCARE_HMO[1] = 1 **AND** M0150_CPAY_MCAID_HMO[1] = 1) **OR**
(M0150_CPAY_MCARE_FFS[1] = 1 **AND** M0150_CPAY_MCARE_HMO[1] = 1 **AND**
M0150_CPAY_MCAID_FFS[1] = 1) **OR** (M0150_CPAY_MCARE_FFS[1] = 1 **AND**
M0150_CPAY_MCARE_HMO[1] = 1 **AND** M0150_CPAY_MCAID_HMO[1] = 1) **OR**
(M0150_CPAY_MCARE_FFS[1] = 1 **AND** M0150_CPAY_MCAID_FFS[1] = 1 **AND**
M0150_CPAY_MCAID_HMO[1] = 1) **OR** (M0150_CPAY_MCARE_HMO[1] = 1 **AND**
M0150_CPAY_MCAID_FFS[1] = 1 **AND** M0150_CPAY_MCAID_HMO[1] = 1)) **AND**
M0150_CPAY_NONE[1] = 0 **AND** M0150_CPAY_WRKCOMP[1] = 0
THEN
      PAY_MCAREANDMCAID = 1
ELSE
      PAY_ MCAREANDMCAID = 0
END IF

Payment Source: Medicaid Only
IF (M0150_CPAY_MCAID_FFS[1] = 1 **OR** M0150_CPAY_MCAID_HMO[1] = 1) **AND**
M0150_CPAY_NONE[1] = 0 **AND** M0150_CPAY_MCARE_FFS[1] = 0 **AND**
M0150_CPAY_MCARE_HMO[1] = 0 **AND** M0150_CPAY_WRKCOMP[1] = 0 **AND**
M0150_CPAY_TITLEPGMS[1] = 0 **AND** M0150_CPAY_OTH_GOVT[1] = 0 **AND**
M0150_CPAY_PRIV_INS[1] = 0 **AND** M0150_CPAY_PRIV_HMO[1] = 0 **AND**
M0150_CPAY_SELFPAY[1] = 0 **AND** M0150_CPAY_OTHER[1] = 0 **AND** M0150_CPAY_UK[1] = 0
THEN

PAY_MCAID_ONLY = 1
ELSE
PAY_MCAID_ONLY = 0
END IF

Payment Source: Other Combinations
IF PAY_MCARE_FFS = 0 **AND** PAY_MCARE_HMO = 0 **AND** PAY_MCAREANDMCAID = 0 **AND** PAY_MCAID_ONLY = 0
THEN
PAY_OTHER_COMBO = 1
ELSE
PAY_OTHER_COMBO = 0
END IF

4. SOC/ROC and Admission Source

Discharged from facility in past 14 days
IF (M1000_DC_IPPS_14_DA[1] = 01 **OR** M1000_DC_SNF_14_DA[1] = 01 **OR** M1000_DC_IRF_14_DA[1] = 01 **OR** M1000_DC_LTC_14_DA[1] = 01 **OR** M1000_DC_LTCH_14_DA[1] = 01 **OR** M1000_DC_PSYCH_14_DA[1] = 01)
THEN
INPT_FACILITY = 1
ELSE
INPT_FACILITY = 0
END IF

Start of Care - Further visits planned: Discharged from facility in past 14 days
IF (M0100_ASSMT_REASON[1] = 01 **AND** INPT_FACILITY = 1)
THEN
SOC_INPT = 1
ELSE
SOC_INPT = 0
END IF

Start of Care - Further visits planned: Not Discharged from facility in past 14 days
IF (M0100_ASSMT_REASON[1] = 01 **AND** INPT_FACILITY = 0)
THEN
SOC_COMM = 1
ELSE
SOC_COMM = 0
END IF

Resumption of care (after inpatient stay)
IF (M0100_ASSMT_REASON[1] = 03)
THEN
ROC = 1
ELSE
ROC = 0

END IF

5. Post-Acute Facility Admission Source

Not discharged from post-acute facility past 14 days
IF M1000_DC_SNF_14_DA[1] = 1 **OR** M1000_DC_IRF_14_DA[1] = 1 **OR** M1000_DC_NF_14_DA[1] = 1 **OR**
M1000_DC_LTCH_14_DA[1] = 1 **OR** M1000_DC_PSYCH_14_DA[1] = 1
THEN
      INPT_NOPOSTACUTE = 0
ELSE
      INPT_NOPOSTACUTE = 1
END IF

Discharged from post-acute facility past 14 days
IF M1000_DC_SNF_14_DA[1] = 1 **OR** M1000_DC_IRF_14_DA[1] = 1 **OR** M1000_DC_NF_14_DA[1] = 1 **OR**
M1000_DC_LTCH_14_DA[1] = 1 **OR** M1000_DC_PSYCH_14_DA[1] = 1
THEN
    INPT_POSTACUTE = 1
ELSE
    INPT_POSTACUTE = 0
END IF

6. Risk of Hospitalization

Risk of Hospitalization: History of falls in past 12 months
IF M1033_HOSP_RISK_HSTRY_FALLS[1] = 1
THEN
      RISK_HSTRY_FALLS = 1
ELSE
      RISK_HSTRY_FALLS = 0
END IF

Risk of Hospitalization: Unintentional weight loss in past 12 months
IF M1033_HOSP_RISK_WEIGHT_LOSS[1] = 1
THEN
      RISK_WEIGHTLOSS = 1
ELSE
      RISK_WEIGHTLOSS = 0
END IF

Risk of Hospitalization: Multiple hospitalizations in past 6 months
IF M1033_HOSP_RISK_MLTPL_HOSPZTN[1] = 1
THEN
      RISK_MLTPL_HOSPZTN = 1
ELSE
      RISK_MLTPL_HOSPZTN = 0
END IF

Risk of Hospitalization: Multiple ED visits in past 6 months
IF M1033_HOSP_RISK_MLTPL_ED_VISIT[1] = 1
THEN
      RISK_ED = 1
ELSE
      RISK_ED = 0
END IF

Risk of Hospitalization: Recent decline mental/emotional decline in past 3 months
IF M1033_HOSP_RISK_MNTL_BHV_DCLN[1] = 1
THEN
      RISK_RCNT_DCLN = 1
ELSE
      RISK_RCNT_DCLN = 0
END IF

Risk of Hospitalization: Difficulty complying with medical instruction in past 3 months
IF M1033_HOSP_RISK_COMPLIANCE[1] = 1
THEN
      RISK_COMPLY = 1
ELSE
      RISK_COMPLY = 0
END IF

Risk of Hospitalization: Taking five or more medications
IF M1033_HOSP_RISK_5PLUS_MDCTN[1] = 1
THEN
      RISK_5PLUS_MDCTN = 1
ELSE
      RISK_5PLUS_MDCTN = 0
END IF

Risk of Hospitalization: Reports Exhaustion
IF M1033_HOSP_RISK_CRNT_EXHSTN[1] = 1
THEN
      RISK_EXHAUST = 1
ELSE
      RISK_EXHAUST = 0
END IF

Risk of Hospitalization: Other unlisted risk factors
IF M1033_HOSP_RISK_OTHR_RISK[1] = 1
THEN
      RISK_OTHR = 1
ELSE
      RISK_OTHR = 0
END IF

Risk of Hospitalization: None of the Above
IF M1033_HOSP_RISK_NONE_ABOVE[1] = 1
THEN
      RISK_NONE = 1
ELSE
      RISK_NONE = 0
END IF

7. Availability of Assistance

Availability of Assistance
Around the clock
IF M1100_PTNT_LVG_STUTN[1] = 01 **OR** M1100_PTNT_LVG_STUTN[1] = 06 **OR**
M1100_PTNT_LVG_STUTN[1] = 11
THEN
      ASSIST_ARND_CLOCK = 1
ELSE
      ASSIST_ARND_CLOCK = 0
END IF

Regular daytime
IF M1100_PTNT_LVG_STUTN[1] = 02 **OR** M1100_PTNT_LVG_STUTN[1] = 07 **OR**
M1100_PTNT_LVG_STUTN[1] = 12
THEN
      ASSIST_REGDAY = 1
ELSE
      ASSIST_REGDAY = 0
END IF

Regular nighttime
IF M1100_PTNT_LVG_STUTN[1] = 03 **OR** M1100_PTNT_LVG_STUTN[1] = 08 **OR**
M1100_PTNT_LVG_STUTN[1] = 13
THEN
      ASSIST_REGNITE = 1
ELSE
      ASSIST_REGNITE = 0
END IF

Occasional/None
IF M1100_PTNT_LVG_ STUTN[1] = 04 **OR** M1100_PTNT_LVG_STUTN[1] = 05 **OR**
M1100_PTNT_LVG_STUTN[1] = 09 **OR** M1100_PTNT_LVG_STUTN[1] = 10 **OR**
M1100_PTNT_LVG_STUTN[1] = 14 **OR** M1100_PTNT_LVG_STUTN[1] = 15
THEN
      ASSIST_OCC_NONE = 1
ELSE
      ASSIST_OCC_NONE = 0

END IF

Living Arrangement
Lives alone
IF M1100_PTNT_LVG_STUTN[1] = 01 **OR** M1100_PTNT_LVG_STUTN[1] = 02 **OR**
M1100_PTNT_LVG_STUTN[1] = 03 **OR** M1100_PTNT_LVG_STUTN[1] = 04 **OR**
M1100_PTNT_LVG_STUTN[1] = 05
THEN
      LIV_ALONE = 1
ELSE
      LIV_ALONE = 0
END IF

Lives with Others
IF M1100_PTNT_LVG_STUTN[1] = 06 **OR** M1100_PTNT_LVG_STUTN[1] = 07 **OR**
M1100_PTNT_LVG_STUTN[1] = 08 **OR** M1100_PTNT_LVG_STUTN[1] = 09 **OR**
M1100_PTNT_LVG_STUTN[1] = 10
THEN
      LIV_OTHERS = 1
ELSE
      LIV_OTHERS = 0
END IF

Lives in a Congregate Situation
IF M1100_PTNT_LVG_STUTN[1] = 11 **OR** M1100_PTNT_LVG_STUTN[1] = 12 **OR**
M1100_PTNT_LVG_STUTN[1] = 13 **OR** M1100_PTNT_LVG_STUTN[1] = 14 **OR**
M1100_PTNT_LVG_STUTN[1] = 15
THEN
      LIV_CONGREGATE = 1
ELSE
      LIV_CONGREGATE = 0
END IF

8. Pressure Ulcers

None or Stage I Present
IF M1306_UNHLD_STG2_PRSR_ULCR[1] = 00 **AND**
(M1322_NBR_PRSULC_STG1[1] = 00 **OR** M1322_NBR_PRSULC_STG1[1] = 01 **OR**
M1322_NBR_PRSULC_STG1[1] = 02 **OR** M1322_NBR_PRSULC_STG1[1] = 03 **OR**
M1322_NBR_PRSULC_STG1[1] = 04)
THEN
      PU_NONE_STG1ONLY = 1
ELSE
      PU_NONE_STG1ONLY = 0
END IF

Stage II or Higher and Unstageable Present
IF M1311_NBR_PRSULC_STG2_A1[1] > 0 **OR** M1311_NBR_PRSULC_STG3_B1[1] > 0 **OR**
M1311_NBR_PRSULC_STG4_C1[1] > 0 **OR** M1311_NSTG_DRSG_D1[1] > 0 **OR**
M1311_NSTG_CVRG_E1[1] > 0 **OR** M1311_DEEP_TSUE _F1[1] > 0
THEN
      PU_STG2PLUS_UNSTG = 1
ELSE
      PU_STG2PLUS_UNSTG = 0
END IF

9. Stasis Ulcers

Stasis Ulcer: No observable stasis ulcers
IF M1330_STAS_ULCR_PRSNT[1] = 00 **OR** M1330_STAS_ULCR_PRSNT[1] = 03
THEN
      STAS_ULCR_NONE = 1
ELSE
      STAS_ULCR_NONE = 0
END IF

Stasis Ulcer: 1 observable stasis ulcer only
IF M1332_NBR_STAS_ULCR[1] = 1
THEN
      STAS_ULCR_OBS_1 = 1
ELSE
      STAS_ULCR_OBS_1 = 0
END IF

Stasis Ulcer: Multiple observable stasis ulcers
IF M1332_NBR_STAS_ULCR[1] = 2 **OR** M1332_NBR_STAS_ULCR[1] = 3 **OR** M1332_NBR_STAS_ULCR[1] = 4
THEN
      STAS_ULCR_OBS_2PLUS = 1
ELSE
      STAS_ULCR_OBS_2PLUS = 0
END IF

10. Surgical Wounds

Status of Surgical Wound: None
IF M1342_STUS_PRBLM_SRGCL_WND[1] = MISSING
THEN
      SRG_WND_OBS_NONE = 1
ELSE
      SRG_WND_OBS_NONE = 0
END IF

Status of Surgical Wound: Newly Epithelialized
IF M1342_STUS_PRBLM_SRGCL_WND[1] = 00
THEN
      SRG_WND_OBS_EPI = 1
ELSE
      SRG_WND_OBS_EPI = 0
END IF

Status of Surgical Wound: Fully granulating or early/partial granulation
IF M1342_STUS_PRBLM_SRGCL_WND[1] = 01 **OR** M1342_STUS_PRBLM_SRGCL_WND[1] = 02
THEN
      SRG_WND_OBS_GRAN = 1
ELSE
      SRG_WND_OBS_GRAN = 0
END IF

Status of Surgical Wound: Not healing
IF M1342_STUS_PRBLM_SRGCL_WND[1] = 03
THEN
      SRG_WND_OBS_NOHEAL = 1
ELSE
      SRG_WND_OBS_NOHEAL = 0
END IF

11. Dyspnea

Dyspnea: Not short of breath
IF (M1400_WHEN_DYSPNEIC[1] = 00)
THEN
      DYSP0 = 1
ELSE
      DYSP0 = 0
END IF

Dyspnea: Walking more than 20 feet, climbing stairs
IF (M1400_WHEN_DYSPNEIC[1] = 01)
THEN
      DYSP1 = 1
ELSE
      DYSP1 = 0
END IF

Dyspnea: Moderate exertion
IF (M1400_WHEN_DYSPNEIC[1] = 02)
THEN
      DYSP2 = 1
ELSE

```
        DYSP2 = 0
END IF
```

Dyspnea: Minimal to no exertion
IF (M1400_WHEN_DYSPNEIC[1] = 03 **OR** M1400_WHEN_DYSPNEIC[1] = 04)
THEN
```
        DYSP34 = 1
```
ELSE
```
        DYSP34 = 0
```
END IF

12. Urinary Status

Urinary incontinence/catheter: None
IF M1610_UR_INCONT[1] = 00
THEN
```
        URINCONT_NONE = 1
```
ELSE
```
        URINCONT_NONE = 0
```
END IF

Urinary incontinence/catheter: Incontinent
IF M1610_UR_INCONT[1] = 01
THEN
```
        URINCONT_INCONT = 1
```
ELSE
```
        URINCONT_INCONT = 0
```
END IF

Urinary incontinence/catheter: Catheter
IF M1610_UR_INCONT[1] = 02
THEN
```
        URINCONT_CATH = 1
```
ELSE
```
        URINCONT_CATH = 0
```
END IF

13. Bowel Incontinence

Bowel incontinence Frequency: Never or Very Rare
IF M1620_BWL_INCONT[1] = 00 **OR** M1620_BWL_INCONT[1] = UK
THEN
```
        BWL_NONE_UK = 1
```
ELSE
```
        BWL_NONE_UK = 0
```
END IF

Bowel incontinence Frequency: Less than once a week
IF M1620_BWL_INCONT[1] = 01
THEN
      BWL_FR1 = 1
ELSE
      BWL_FR1 = 0
END IF

Bowel incontinence Frequency: One to Three times a week
IF M1620_BWL_INCONT[1] = 02
THEN
      BWL_FR2 = 1
ELSE
      BWL_FR2 = 0
END IF

Bowel incontinence Frequency: Four to six times a week or more
IF M1620_BWL_INCONT[1] = 03 **OR** M1620_BWL_INCONT[1] = 04 **OR** M1620_INCONT[1] = 05
THEN
      BWL_FR345 = 1
ELSE
      BWL_FR345 = 0
END IF

Bowel incontinence Frequency: Ostomy for bowel elimination
IF M1620_BWL_INCONT[1] = NA
THEN
      BWL_OSTOMY = 1
ELSE
      BWL_OSTOMY = 0
END IF

14. Cognitive function

Cognitive Functioning: Alert and focused
IF M1700_COG_FUNCTION[1] = 00
THEN
      COGN0 = 1
ELSE
      COGN0 = 0
END IF

Cognitive Functioning: Requires prompting under stress
IF M1700_COG_FUNCTION[1] = 01
THEN
      COGN1 = 1
ELSE

COGN1 = 0
END IF

Cognitive Functioning: Requires assist in special circumstances
IF M1700_COG_FUNCTION[1] = 02
THEN
COGN2 = 1
ELSE
COGN2 = 0
END IF

Cognitive Functioning: Requires considerable assist/totally dependent
IF M1700_COG_FUNCTION[1] = 03 **OR** M1700_COG_FUNCTION[1] = 04
THEN
COGN34 = 1
ELSE
COGN34 = 0
END IF

15. Confusion

Confused: Never
IF M1710_WHEN_CONFUSED[1] = 0 **OR** M1710_WHEN_CONFUSED[1] = NA
THEN
CONF0 = 1
ELSE
CONF0 = 0
END IF

Confused: In new or complex situations
IF M1710_WHEN_CONFUSED[1] = 01
THEN
CONF1 = 1
ELSE
CONF1 = 0
END IF

Confused: Sometimes
IF M1710_WHEN_CONFUSED[1] = 02 **OR** M1710_WHEN_CONFUSED[1] = 03
THEN
CONF23 = 1
ELSE
CONF23 = 0
END IF

Confused: Constantly
IF M1710_WHEN_CONFUSED[1] = 04

THEN

      CONF4 = 1

ELSE

      CONF4 = 0

END IF

16. Anxiety

Anxiety: None of the time
IF M1720_WHEN_ANXIOUS[1] = 00 **OR** M1720_WHEN_ANXIOUS[1] = NA
THEN

      ANX0 = 1

ELSE

      ANX0 = 0

END IF

Anxiety: Less often than daily
IF M1720_WHEN_ANXIOUS[1] = 01
THEN

      ANX1 = 1

ELSE

      ANX1 = 0

END IF

Anxiety: Daily, but not constantly
IF M1720_WHEN_ANXIOUS[1] = 02
THEN

      ANX2 = 1

ELSE

      ANX2 = 0

END IF

Anxiety: All of the time
IF M1720_WHEN_ANXIOUS[1] = 03
THEN

      ANX3 = 1

ELSE

      ANX3 = 0

END IF

17. Patient Mood Screening (PHQ-2to9)

Patient Mood Screening (PHQ-2to9): Patient meets criteria for further evaluation
IF D0150_A2[1] = 02 **OR**
  D0150_A2[1] = 03 **OR**
  D0150_B2[1] = 02 **OR**
  D0150_B2[1] = 03

THEN

       PHQ2_TO9_MEET = 1

ELSE

       PHQ2_TO9_MEET = 0

Patient Mood Screening (PHQ-2to9): Patient does not meet criteria for further evaluation
IF (D0150_A2[1] = 00 **OR** D0150_A2[1] = 01) **AND** (D0150_B2[1] = 00 **OR** D0150_B2[1] = 01)
THEN

       PHQ2_TO9_NOTMEET = 1

ELSE

       PHQ2_TO9_NOTMEET = 0

Patient Mood Screening (PHQ-2to9): Patient was not screened
IF ((D0150_A2[1] = ^ **AND** (D0150_B2[1] = 00 **OR** D0150_B2[1] = 01 **OR** D0150_B2[1] = ^)) **OR**
  ((D0150_B2[1] = ^ **AND** (D0150_A2[1] = 00 **OR** D0150_A2[1] = 01 **OR** D0150_A2[1] = ^))
THEN

       PHQ2_TO9_NA = 1

ELSE

       PHQ2_TO9_NA = 0

18. Behavioral Symptoms

Behavioral: None
IF M1740_BD_NONE[1] = 01
THEN

       BEHAV_NONE = 1

ELSE

       BEHAV_NONE = 0

END IF

Behavioral: Memory Deficit
IF M1740_BD_MEM_DEFICIT[1] = 01
THEN

       BEHAV_MEM_DEFICIT = 1

ELSE

       BEHAV_MEM_DEFICIT = 0

END IF

Behavioral: Impaired decision making
IF M1740_BD_IMP_DECISN[1] = 01
THEN

       BEHAV_IMPR_DECISN = 1

ELSE

       BEHAV_IMPR_DECISN = 0

END IF

Behavioral: Verbally disruptive, physical aggression, disruptive, or delusional
IF M1740_BD_VERBAL[1] = 01 **OR** M1740_BD_PHYSICAL[1] = 01 **OR**
M1740_BD_SOC_INAPPRO[1] = 01 **OR** M1740_BD_DELUSIONS[1] = 01
THEN
      BEHAV_OTHR = 1
ELSE
      BEHAV_OTHR = 0
END IF

19. Disruptive Behavior Frequency

Frequency of Disruptive Behavior: Never
IF M1745_BEH_PROB_FREQ[1] = 00
THEN
      BEHPFR0 = 1
ELSE
      BEHPFR0 = 0
END IF

Frequency of Disruptive Behavior: Once a month or less
IF M1745_BEH_PROB_FREQ[1] = 01 **OR** M1745_BEH_PROB_FREQ[1] = 02
THEN
      BEHPFR12 = 1
ELSE
      BEHPFR12 = 0
END IF

Frequency of Disruptive Behavior: Several times a month
IF M1745_BEH_PROB_FREQ[1] = 03
THEN
      BEHPFR3 = 1
ELSE
      BEHPFR3 = 0
END IF

Frequency of Disruptive Behavior: Several times a week
IF M1745_BEH_PROB_FREQ[1] = 4
THEN
      BEHPFR4 = 1
ELSE
      BEHPFR4 = 0
END IF

Frequency of Disruptive Behavior: At least once daily
IF M1745_BEH_PROB_FREQ[1] = 5
THEN
      BEHPFR5 = 1

ELSE

      BEHPFR5 = 0

END IF

20. Grooming

Grooming: Able to groom self unaided

IF M1800_CRNT_GROOMING[1] = 00

THEN

      GROOM0 = 1

ELSE

      GROOM0 = 0

END IF

Grooming: Grooming utensils must be placed within reach

IF M1800_CRNT_GROOMING[1] = 01

THEN

      GROOM1 = 1

ELSE

      GROOM1 = 0

END IF

Grooming: Assistance needed

IF M1800_CRNT_GROOMING[1] = 02

THEN

      GROOM2 = 1

ELSE

      GROOM2 = 0

END IF

Grooming: Entirely dependent upon someone else

IF M1800_CRNT_GROOMING[1] = 03

THEN

      GROOM3 = 1

ELSE

      GROOM3 = 0

END IF

21. Upper Body Dressing

Ability to Dress Upper Body: No help needed

IF M1810_CRNT_DRESS_UPPER[1] = 00

THEN

      UPPER0 = 1

ELSE

      UPPER0 = 0

END IF

Ability to Dress Upper Body: Needs clothing laid out
IF M1810_CRNT_DRESS_UPPER[1] = 01
THEN
      UPPER1 = 1
ELSE
      UPPER1 = 0
END IF

Ability to Dress Upper Body: Needs assistance needed putting on clothing
IF M1810_CRNT_DRESS_UPPER[1] = 02
THEN
      UPPER2 = 1
ELSE
      UPPER2 = 0
END IF

Ability to Dress Upper Body: Entirely dependent upon someone else
IF M1810_CRNT_DRESS_UPPER[1] = 03
THEN
      UPPER3 = 1
ELSE
      UPPER3 = 0
END IF

22. Lower Body Dressing

Ability to Dress Lower Body: No help needed
IF M1820_CRNT_DRESS_LOWER[1] = 00
THEN
      LOWER0 = 1
ELSE
      LOWER0 = 0
END IF

Ability to Dress Lower Body: Needs clothing/shoes laid out
IF M1820_CRNT_DRESS_LOWER[1] = 01
THEN
      LOWER1 = 1
ELSE
      LOWER1 = 0
END IF

Ability to Dress Lower Body: Assist needed putting on clothing
IF M1820_CRNT_DRESS_LOWER[1] = 02
THEN
      LOWER2 = 1
ELSE
      LOWER2 = 0

END IF

Ability to Dress Lower Body: Entirely dependent upon someone else
IF M1820_CRNT_DRESS_LOWER[1] = 03
THEN
       LOWER3 = 1
ELSE
       LOWER3 = 0
END IF

23. Bathing

Bathing: Independently in shower/tub
IF M1830_CRNT_BATHING[1] = 00
THEN
       BATH0 = 1
ELSE
       BATH0 = 0
END IF

Bathing: With the use of devices in shower/tub
IF M1830_CRNT_BATHING[1] = 01
THEN
       BATH1 = 1
ELSE
       BATH1 = 0
END IF

Bathing: With intermittent assistance in shower/tub
IF M1830_CRNT_BATHING[1] = 02
THEN
       BATH2 = 1
ELSE
       BATH2 = 0
END IF

Bathing: Participates with supervision in shower/tub
IF M1830_CRNT_BATHING[1] = 03
THEN
       BATH3 = 1
ELSE
       BATH3 = 0
END IF

Bathing: Independent at sink, in chair, or on commode
IF M1830_CRNT_BATHING[1] = 04
THEN
       BATH4 = 1

ELSE

       BATH4 = 0

END IF

Bathing: Participates with assist at sink, in char, or commode
IF M1830_CRNT_BATHING[1] = 05
THEN

       BATH5 = 1

ELSE

       BATH5 = 0

END IF

Bathing: Unable to participate; bathed totally by another
IF M1830_CRNT_BATHING[1] = 06
THEN

       BATH6 = 1

ELSE

       BATH6 = 0

END IF

24. Toilet Transferring

Toilet Transferring: No assistance needed
IF M1840_CRNT_TOILTG[1] = 00
THEN

       TLTTRN0 = 1

ELSE

       TLTTRN0 = 0

END IF

Toilet Transferring: To/from/on/off toilet with human assist
IF M1840_CRNT_TOILTG[1] = 01
THEN

       TLTTRN1 = 1

ELSE

       TLTTRN1 = 0

END IF

Toilet Transferring: Able to self-transfer to bedside commode
IF M1840_CRNT_TOILTG[1] = 02
THEN

       TLTTRN2 = 1

ELSE

       TLTTRN2 = 0

END IF

Toilet Transferring: Unable to transfer to/from toilet or commode
IF M1840_CRNT_TOILTG[1] = 03 **OR** M1840_CRNT_TOILTG[1] = 04

THEN

      TLTTRN34 = 1

ELSE

      TLTTRN34 = 0

END IF

25. Toilet Hygiene

Toilet Hygiene Assistance: None needed
IF M1845_CRNT_TOILTG_HYGN[1] = 00
THEN

      TLTHYG0 = 1

ELSE

      TLTHYG0 = 0

END IF

Toilet Hygiene Assistance: Needs supplies laid out
IF M1845_CRNT_TOILTG_HYGN[1] = 01
THEN

      TLTHYG1 = 1

ELSE

      TLTHYG1 = 0

END IF

Toilet Hygiene Assistance: Needs assistance
IF M1845_CRNT_TOILTG_HYGN[1] = 02
THEN

      TLTHYG2 = 1

ELSE

      TLTHYG2 = 0

END IF

Toilet Hygiene Assistance:
IF M1845_CRNT_TOILTG_HYGN[1] = 03
THEN

      TLTHYG3 = 1

ELSE

      TLTHYG3 = 0

END IF

26. Transferring

Transferring: No assistance needed
IF M1850_CRNT_TRNSFRNG[1] = 00
THEN

      TRNFR0 = 1

ELSE

TRNFR0 = 0
END IF

Transferring: With minimal human assist or with device
IF M1850_CRNT_TRNSFRNG[1] = 01
THEN
TRNFR1 = 1
ELSE
TRNFR1 = 0
END IF

Transferring: Bears weight and pivots only
IF M1850_CRNT_TRNSFRNG[1] = 02
THEN
TRNFR2 = 1
ELSE
TRNFR2 = 0
END IF

Transferring: Unable or bedfast
IF M1850_CRNT_TRNSFRNG[1] = 03 **OR** M1850_CRNT_TRNSFRNG[1] = 04 **OR**
M1850_CRNT_TRNSFRNG[1] = 05
THEN
TRNFR345 = 1
ELSE
TRNFR345 = 0
END IF

27. Ambulation

Ambulation/Locomotion: Walk Independently
IF M1860_CUR_AMBLTN[1] = 00
THEN
AMB0 = 1
ELSE
AMB0 = 0
END IF

Ambulation/Locomotion: One-handed device on all surfaces
IF M1860_CUR_AMBLTN[1] = 01
THEN
AMB1 = 1
ELSE
AMB1 = 0
END IF

Ambulation/Locomotion: Two-handed device/human assist on steps
IF M1860_CUR_AMBLTN[1] = 02
THEN
      AMB2 = 1
ELSE
      AMB2 = 0
END IF

Ambulation/Locomotion: Walks only with supervision or assist
IF M1860_CUR_AMBLTN[1] = 03
THEN
      AMB3 = 1
ELSE
      AMB3 = 0
END IF

Ambulation/Locomotion: Chairfast or bedfast
IF M1860_CUR_AMBLTN[1] = 04 **OR** M1860_CUR_AMBLTN[1] = 05 **OR** M1860_CUR_AMBLTN[1] = 06
THEN
      AMB456 = 1
ELSE
      AMB456 = 0
END IF

28. Feeding or Eating

Eating: Independent
IF M1870_CRNT_FEEDING[1] = 0
THEN
      EAT0 = 1
ELSE
      EAT0 = 0
END IF

Eating: Requires set up, intermittent assist or modified consistency
IF M1870_CRNT_FEEDING[1] = 1
THEN
      EAT1 = 1
ELSE
      EAT1 = 0
END IF

Eating: Unable to feed self and must be assisted throughout meal
IF M1870_CRNT_FEEDING[1] = 2
THEN
      EAT2 = 1
ELSE

EAT2 = 0
END IF

Eating: Requires tube feedings, or no nutrients orally or via tube
IF M1870_CRNT_FEEDING[1] = 03 **OR** M1870_CRNT_FEEDING[1] = 04 **OR** M1870_CRNT_FEEDING[1] = 05
THEN
        EAT345 = 1
ELSE
        EAT345 = 0
END IF

29. Oral Medication Management

Management of Oral Meds: Independent
IF M2020_CRNT_MGMT_ORAL_MDCTN[1] = 00
M2020_CRNT_MGMT_ORAL_MDCTN[1] = NA **OR**
M2020_CRNT_MGMT_ORAL_MDCTN[1] = ^ **OR**
M2020_CRNT_MGMT_ORAL_MDCTN[1] = MISSING
THEN
        ORMED0 = 1
ELSE
        ORMED0 = 0
END IF

Management of Oral Meds: Advance dose prep/chart needed
IF M2020_CRNT_MGMT_ORAL_MDCTN[1] = 01
THEN
        ORMED1 = 1
ELSE
        ORMED1 = 0
END IF

Management of Oral Meds: Reminders needed
IF M2020_CRNT_MGMT_ORAL_MDCTN[1] = 02
THEN
        ORMED2 = 1
ELSE
        ORMED2 = 0
END IF

Management of Oral Meds: Unable
IF M2020_CRNT_MGMT_ORAL_MDCTN[1] = 03
THEN
        ORMED3 = 1
ELSE
        ORMED3 = 0
END IF

30. Supervision and Safety Assistance

None needed
IF M2102_CARE_TYPE_SRC_SPRVSN[1] = 00
THEN
>   SPRVSN_ NONE_NEEDED = 1
ELSE
>   SPRVSN_ NONE_NEEDED = 0
END IF

Caregiver currently provides
IF M2102_CARE_TYPE_SRC_SPRVSN[1] = 01
THEN
>   SPRVSN_CG_PROVIDES = 1
ELSE
>   SPRVSN_CG_PROVIDES = 0
END IF

Caregiver training needed
IF M2102_CARE_TYPE_SRC_SPRVSN[1] = 02
THEN
>   SPRVSN_NEED_TRAINING = 1
ELSE
>   SPRVSN_NEED_TRAINING = 0
END IF

Uncertain/unlikely to be provided
IF M2102_CARE_TYPE_SRC_SPRVSN[1] = 03 **OR** M2102_CARE_TYPE_SRC_SPRVSN[1] = 04 **OR**
M2102_CARE_TYPE_SRC_SPRVSN[1] = MISSING
THEN
>   SPRVSN_CG_UNCERTAIN_NONE = 1
ELSE
>   SPRVSN_CG_UNCERTAIN_NONE = 0
END IF

31. Hierarchical Condition Categories

Note: Several intermediate variables are calculated for use in the calculation of these risk factors.

The following modified version of the 2021 Midyear Final Model Version 24 Software is used to convert ICD-10-CM codes into CMS-Hierarchical Condition Categories (CMS-HCCs) for each quality episode that begins in 2023.[2] The HCC risk factors will always be created with software lagged by two years. For

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[2] Going forward, the risk adjustment models for OASIS-based quality measures will be updated annually. CMS updates its CMS-HCC model annually and provides software for replicating risk adjustment estimation.

example, quality episodes beginning in 2023 will use 2021 software. For the below pseudo-code, references to {YYYY-2} and {YY-2} translate into the quality episode {YYYY} year minus 2. If the quality episode year {YYYY} is 2023, then {YYYY-2} equals 2021 and {YY-2} equals 21.

Assign ICD-10-CM codes to Condition Categories

Import F24{YY-2}P1M.TXT as a crosswalk between ICD-10-CM codes (column 1) and the 86 Condition Categories (CCs) in the payment model (column 2). The crosswalk contains duplicates because a single ICD-10-CM code can be associated with up to three Condition Categories (e.g., E1052 matches to CCs 18, 106, and 108). The third column contains a duplicate flag equal to "D" if the record is a duplicate and blank otherwise.

Divide F24{YY-2}P1M.TXT into three datasets. Each dataset will have two columns: HC_DIAG and CC.
1) Save all ICD-10-CMs that are unique and the first record for each duplicate ICD-10-CM in dataset XWALK1.
2) Save the second record for each duplicate ICD-10-CM in dataset *XWALK2*.
3) Save the third record, if one exists, for each duplicate ICD-10-CM in dataset *XWALK3*.

Create six diagnosis variables

Load quality episodes that begin on or after January {YYYY} in dataset *MAIN* and create six diagnosis variables (HC_DIAG1-HC_DIAG6):

Primary Diagnosis:
HC_DIAG1 = UPCASE(TRIM(M1021_PRMRY_DGNS10_CD_1)
IF HC_DIAG1 = 00
    THEN
    HC_DIAG1 = BLANK

IF SUBSTRING(HC_DIAG1, 1, .) = . **OR** SUBSTRING(HC_DIAG1, 1, .) = ^
THEN
    HC_DIAG1 = HC_DIAG1, REMOVE(. **OR** ^)

Secondary Diagnosis #1:
HC_DIAG2 = UPCASE(TRIM(M1023_OTHR_DGNS10_1 _CD_1)
IF HC_DIAG2 = 00
THEN
    HC_DIAG2 = BLANK

IF SUBSTRING(HC_DIAG2, 1, .) = . **OR** SUBSTRING(HC_DIAG2, 1, .) = ^
THEN
    HC_DIAG2 = HC_DIAG2, REMOVE(. **OR** ^)

Secondary Diagnosis #2:
 HC_DIAG3 = UPCASE(TRIM(M1023_OTHR_DGNS10_2 _CD_1)

IF HC_DIAG3 = 00
THEN

      HC_DIAG3 = BLANK

IF SUBSTRING(HC_DIAG3, 1, .) = . **OR** SUBSTRING(HC_DIAG3, 1, .) = ^
THEN

      HC_DIAG3 = HC_DIAG3, REMOVE(. **OR** ^)

Secondary Diagnosis #3:
HC_DIAG4 = UPCASE(TRIM(M1023_OTHR_DGNS10_3 _CD_1)
IF HC_DIAG4 = 00
THEN

      HC_DIAG4 = BLANK
IF SUBSTRING(HC_DIAG4, 1, .) = . **OR** SUBSTRING(HC_DIAG4, 1, .) = ^
THEN

      HC_DIAG4 = HC_DIAG4, REMOVE(. **OR** ^)

Secondary Diagnosis #4:
HC_DIAG5 = UPCASE(TRIM(M1023_OTHR_DGNS10_4 _CD_1)
IF HC_DIAG5 = 00
THEN

      HC_DIAG5 = BLANK

IF SUBSTRING(HC_DIAG5, 1, .) = . **OR** SUBSTRING(HC_DIAG5, 1, .) = ^
THEN

      HC_DIAG5 = HC_DIAG5, REMOVE(. **OR** ^)

Secondary Diagnosis #5:
HC_DIAG6 = UPCASE(TRIM(M1023_OTHR_DGNS10_5 _CD_1)
IF HC_DIAG6 = 00
THEN

      HC_DIAG6 = BLANK

IF SUBSTRING(HC_DIAG6, 1, .) = . **OR** SUBSTRING(HC_DIAG6, 1, .) = ^
THEN

      HC_DIAG6 = HC_DIAG6, REMOVE(. **OR** ^)

Create arrays for Condition Categories and Hierarchical Condition Categories

In the *MAIN* dataset, create two arrays: "C" for CCs, "HCC" for CMS-HCCs. Set all elements in C and HCC to zero. Then, flag each element in C if one of the CC#_# columns contains a CC value. Set each HCC element equal to each element in C.

LET N_CC = 204 /* MACRO EQUALING MAXIMUM NUMBER OF HCCS. MACRO INITIALIZED AS *%N_CC.*/

ARRAY C = CC1-CC%N_CC
ARRAY HCC = HCC1- HCC%N_CC

DO I = 1 **TO** %N_CC
 C(I) = 0

```
     HCC(I) = 0
 DO J = 1 TO 6
  IF CC1_(J) = I THEN C(I) = 1
  IF CC2_(J) = I THEN C(I) = 1
  IF CC3_(J) = I THEN C(I) = 1
 END
 HCC(I) = C(I)
END
```

Impose Hierarchies

Impose hierarchy using Table 3 in the Appendix. For certain HCC indicators (CC_HCC in Table 3), if other lower hierarchy HCC indicators (CC_ZERO1-CC_ZERO5 in Table 3) are also flagged, then recode those lower hierarchy HCC indicators to zero. Below is an example for imposing hierarchies for neoplasm.

Neoplasm 1
IF HCC8 = 1 AND (HCC9 = 1 OR HCC10 =1 OR HCC11 = 1 OR HCC12 = 1)
THEN
> HCC9 = 0
> HCC10 = 0
> HCC11 = 0
> HCC12 = 0
END

Neoplasm 2
IF HCC9 = 1 AND (HCC10 = 1 OR HCC11 = 1 OR HCC12 = 1), **THEN DO**
> HCC10 = 0
> HCC11 = 0
> HCC12 = 0
END

Neoplasm 3
IF HCC10 = 1 AND (HCC11 = 1 OR HCC12 = 1), **THEN DO**
> HCC11 = 0
> HCC12 = 0
END

Neoplasm 4
IF HCC11 = 1 AND (HCC12 = 1), **THEN**
> HCC12 = 0

Note: Please refer to **Appendix Table 3** in the Appendix for the complete list of hierarchies that need to be recoded. HCCs not listed in Table 3 do not need to be recoded (e.g., HCC1 for HIV/AIDS). Execution of this step must be performed in linear order from the first record in Table 3 to the second record and so on. If done correctly, Neoplasm 2 through Neoplasm 4 cannot be flagged if Neoplasm 1 is flagged, and likewise for other disease categories.

The above steps create indicators for 204 HCC columns, but there are only 86 CMS-HCCs. Assign labels for these 86 HCCs and remove unlabeled HCC columns (e.g., keep HCC1 and HCC2 and remove HCC3, HCC4, and HCC5). Labels are listed in **Appendix Table 4** in the Appendix.

```
DO I=1 TO %N_CC
  IF HCC(I) HAS LABEL THEN ASSIGN LABEL
    ELSE DELETE HCC(I)
END
```

The final output file contains unique quality episode identifiers and 86 CMS-HCC flags (1=yes, 0=no) ranging from HCC1 to HCC189.

IV. Functional Discharge Score Risk Factor Technical Specifications

OASIS data items are referred to in this documentation using field names specified in OASIS Data Submission Specifications published by CMS. "[1]" is appended to the field name if the value is taken from the beginning of episode assessment (Start or Resumption of Care), and "[2]" is appended if the value is to be taken from the assessment conducted at the end of the episode (Discharge, Transfer, or Death).

1. SOC/ROC Source

These covariates indicate whether the patient was admitted from the community at SOC or from a facility at SOC/ROC. Use definition found in Section III.4 and Section III.5.

2. History of Falls

This covariate indicates a history of falls prior to SOC/ROC. Use definition found in Section III.6.

3. Risk for Hospitalization

These covariates indicate multiple hospitalizations, multiple ER visits, decline in status, non-compliance, or polypharmacy. Used as a proxy for Primary Diagnosis Group. Use definition found in Section III.6.

4. Availability of Assistance and Living Arrangements

These covariates indicate the patient's residential circumstance and availability of assistance. Use definition found in Section III.7.

5. Bladder Incontinence

These covariates indicate the patient's level of bladder incontinence. Use definition found in Section III.12.

6. Medication Management Needs

These covariates indicate whether the patient needs medication management assistance for oral medication. Use definition found in Section III.29.

7. Hierarchical Condition Categories

Comorbidities are obtained from Items M1021 and M1023 in OASIS. Use definition found in Section III.31.

8. Age

Calculate AGE using algorithm defined in Section III.1 of "Risk Adjustment Technical Steps and Risk Factor Specifications."

Age: 0-34
IF AGE < 35
THEN
  AGEGRP = 1
  AGE_LT35 = 1
END IF

Age: 35-44
ELSE IF 35 <= AGE <= 44
THEN
  AGEGRP = 2
  AGE_3544 = 1
END IF

Age: 45-54
ELSE IF 45 <= AGE <= 54
THEN
  AGEGRP = 3
  AGE_4554 = 1
END IF

Age: 55-64
ELSE IF 55 <= AGE <= 64
THEN
  AGEGRP = 4
  AGE_5564 = 1
END IF

Age: 65-74
ELSE IF 65 <= AGE <= 74
THEN

```
                AGEGRP = 5
                AGE_6574 = 1
        END IF


        Age: 75-84
        ELSE IF 75 <= AGE <= 84
        THEN
                AGEGRP = 6
                AGE_7584 = 1
        END IF


        Age: 85-90
        ELSE IF 85 <= AGE <= 90
        THEN
                AGEGRP = 7
                AGE_8590 = 1
        END IF


        Age: 90+
        ELSE IF AGE > 90
        THEN
                AGEGRP = 8
                AGE_91UP = 1
        END IF
```

9. Wheelchair Need

```
IF (GG0170I[1] NOT IN("01","02","03","04","05","06")  AND
    GG0170I[2] NOT IN("01","02","03","04","05","06"))
  AND (GG0170R[1] IN("01","02","03","04","05","06") OR GG0170S[1] IN("01","02","03","04","05","06") OR
        GG0170R[2] IN("01","02","03","04","05","06") OR GG0170S[2] IN("01","02","03","04","05","06"))
THEN
        MOBILITY_FLAG = 1
ELSE
```

MOBILITY_FLAG = 0
END IF

10. SOC/ROC Function Score

For calculated imputed values of the GG items used in calculation of admission function score, consult the attached "Imputation_Memo_20231012.docx."

Admission Mobility: Continuous Form
IF MOBILITY_FLAG = 0
THEN
      ADMSN_MOBILITY_SCORE = SUM(IMPTD_GG0130A[1], IMPTD_GG0130B[1], IMPTD_GG0130C[1], IMPTD_GG0170A[1], IMPTD_GG0170C[1], IMPTD_GG0170D[1], IMPTD_GG0170E[1], IMPTD_GG0170F[1], IMPTD_GG0170I[1], IMPTD_GG0170J[1])
ELSE
THEN
      ADMSN_MOBILITY_SCORE = SUM(IMPTD_GG0130A[1], IMPTD_GG0130B[1], IMPTD_GG0130C[1], IMPTD_GG0170A[1], IMPTD_GG0170C[1], IMPTD_GG0170D[1], IMPTD_GG0170E[1], IMPTD_GG0170F[1], IMPTD_GG0170R[1], IMPTD_GG0170R[1])
END IF
Admission Mobility: Squared Form
ADMSN_MOBILITY_SCORE2 = ADMSN_MOBILITY_SCORE * ADMSN_MOBILITY_SCORE

11. Prior Surgery

PR_SURG = 0 *REFERENCE*
IF "Z40" <= UPPERCASE(SUBSTRING(M1021_PRMRY_DGNS10_CD[1], 1, 3)) <= "Z53"
THEN
      PR_SURG = 1
END IF
IF "Z40" <= UPPERCASE(SUBSTRING(M1023_OTHR_DGNS10_1_CD[1], 1, 3)) <= "Z53"
THEN
      PR_SURG = 1
END IF
IF "Z40" <= UPPERCASE(SUBSTRING(M1023_OTHR_DGNS10_2_CD[1], 1, 3)) <= "Z53"
THEN
      PR_SURG = 1

END IF
IF "Z40" <= UPPERCASE(SUBSTRING(M1023_OTHR_DGNS10_3_CD[1], 1, 3)) <= "Z53"
THEN
    PR_SURG = 1
END IF
IF "Z40" <= UPPERCASE(SUBSTRING(M1023_OTHR_DGNS10_4_CD[1], 1, 3)) <= "Z53"
THEN
    PR_SURG = 1
END IF
IF "Z40" <= UPPERCASE(SUBSTRING(M1023_OTHR_DGNS10_5_CD[1], 1, 3)) <= "Z53"
THEN
    PR_SURG = 1
END IF

12. Prior Function/Device Use

A. **SELF-CARE**

Self-Care Dependent
IF GG0100A_SELF_CARE_CD[1] = "1"
THEN
    PR_FUNC_SC_DEP = 1
ELSE
    PR_FUNC_SC_DEP = 0
END IF

Self-Care Some Help
IF GG0100A_SELF_CARE_CD[1] = "2"
THEN
    PR_FUNC_SC_SMH = 1
ELSE
    PR_FUNC_SC_SMH = 0
END IF

Self-Care Independent (Reference)

IF GG0100A_SELF_CARE_CD[1] = "3"
THEN
       PR_FUNC_SC_IND = 1
ELSE
       PR_FUNC_SC_IND = 0
END IF

B. **INDOOR AMBULATION**
Indoor Ambulation Dependent
IF GG0100B_INDR_MBLTY_CD[1] IN("1", "9")
THEN
       PR_FUNC_AMB_DEP = 1
ELSE
       PR_FUNC_AMB_DEP = 0
END IF

Indoor Ambulation Some Help
IF GG0100B_INDR_MBLTY_CD[1] = "2"
THEN
       PR_FUNC_AMB_SMH = 1
ELSE
       PR_FUNC_AMB_SMH = 0
END IF

Indoor Ambulation Independent (Reference)
IF GG0100B_INDR_MBLTY_CD[1] = "3"
THEN
       PR_FUNC_AMB_IND = 1
ELSE
       PR_FUNC_AMB_IND = 0
END IF

C. **STAIR NEGOTIATION**
Stair Negotiation Dependent

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IF GG0100C_STR_CD[1] IN("1", "9")
THEN
      PR_FUNC_STR_DEP = 1
ELSE
      PR_FUNC_STR_DEP = 0
END IF

Stair Negotiation Some Help
IF GG0100C_STR_CD[1] = "2"
THEN
      PR_FUNC_STR_SMH = 1
ELSE
      PR_FUNC_STR_SMH = 0
END IF

Stair Negotiation Independent (Reference)
IF GG0100C_STR_CD[1] = "3"
THEN
      PR_FUNC_STR_IND = 1
ELSE
      PR_FUNC_STR_IND = 0
END IF

D. **FUNCTIONAL COGNITION**
Cognition Dependent
IF GG0100D_FNCTNL_CGNTN_CD[1] = "1"
THEN
      PR_FUNC_COG_DEP = 1
ELSE
      PR_FUNC_COG_DEP = 0
END IF

E. **PRIOR MOBILITY DEVICE/AID**
Walker

IF GG0110D_WLKR_CD[1] = "1"
THEN
    PR_MOBDEV_WLKR = 1
ELSE
    PR_MOBDEV_WLKR = 0
END IF

Wheelchair
IF GG0110A_MNL_WLCHR_CD[1] = "1" **OR** GG0110B_MTR_WLCHR_CD[1] = "1"
THEN
    PR_MOBDEV_WLCHR = 1
ELSE
    PR_MOBDEV_WLCHR = 0
END IF

Mechanical Lift
IF GG0110C_MCHNCL_LFT_CD[1] = "1"
THEN
    PR_MOBDEV_LIFT = 1
ELSE
    PR_MOBDEV_LIFT = 0
END IF

Orthotics/Prosthetics
IF GG0110E_PRSTHTC_CD[1] = "1"
THEN
    PR_MOBDEV_PRSTHTC = 1
ELSE
    PR_MOBDEV_PRSTHTC = 0
END IF

None Of The Above
IF GG0110Z_NO_PRIOR_MBLTY_CD[1] = "1"
THEN

PR_MOBDEV_NONE = 1
ELSE
PR_MOBDEV_NONE = 0
END IF

13. Pressure Ulcers

None Or Stage 1 Only
IF M1306_PRSR_ULCR_UNHLD_STG_2_CD[1] = "0"
THEN
PU_NONE_STG1ONLY = 1
ELSE
PU_NONE_STG1ONLY = 0
END IF

Stage 2
IF M1311_NBR_PRSULC_STG2_A1[1] > 0
THEN
PU_STG2 = 1
ELSE
PU_STG2 = 0
END IF

Stage 3 Or Higher, Or Unstageable
IF M1311_NBR_PRSULC_STG3_B1[1] > 0 **OR** M1311_NBR_PRSULC_STG4_C1[1] > 0 **OR** M1311_NSTG_DRSG_D1[1] > 0 **OR** M1311_NSTG_CVRG_E1[1] > 0 **OR** M1311_DEEP_TSUE _F1[1] > 0
THEN
PU_STG34UNSTG = 1
ELSE IF PU_STG34UNSTG IS UNDEFINED
THEN
PU_STG34UNSTG = 0
END IF

14. Cognitive Function

No Impairment (Reference)
IF M1700_CGNTV_FNCTN_CD[1] = "00"
THEN
    COG_NOIMPR = 1
ELSE
    COG_NOIMPR = 0
END IF

Moderately Impaired
IF M1700_CGNTV_FNCTN_CD[1] IN("01", "02")
THEN
    COG_MODIMPR = 1
ELSE
    COG_MODIMPR = 0
END IF

Severely Impaired
IF M1700_CGNTV_FNCTN_CD[1] IN("03", "04")
THEN
    COG_SVRIMPR = 1
ELSE
    COG_SVRIMPR = 0
END IF

15. Bowel Incontinence

Not Incontinent (Reference)
IF M1620_BWL_INCNTNC_FREQ_CD[1] IN("00", "UK")
THEN
    BWL_NONE_UK = 1
ELSE
    BWL_NONE_UK = 0

END IF

Always Incontinent
IF M1620_BWL_INCNTNC_FREQ_CD[1] IN("04", "05", "NA")
THEN
       BWL_ALWAYS = 1
ELSE
       BWL_ALWAYS = 0
END IF

Incontinent Less Than Daily
IF M1620_BWL_INCNTNC_FREQ_CD[1] IN("01", "02", "03")
THEN
       BWL_LESSTHANDAILY = 1
ELSE
       BWL_LESSTHANDAILY = 0
END IF

16. Body Mass Index (BMI)

IF M1060_WT_NUM[1] IN("-", "^")
THEN
       M1060_WT_NUM[1] = ""
END IF

IF M1060_HGT_NUM[1] IN("-", "^")
THEN
       M1060_HGT_NUM[1] = ""
END IF

WEIGHT = M1060_WT_NUM[1]
HEIGHT = M1060_HGT_NUM[1]

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IF WEIGHT NOT MISSING **AND** HEIGHT NOT MISSING **AND** HEIGHT NOT = 0
THEN
      BMI = (WEIGHT/(HEIGHT^2))*703
ELSE
      BMI = MISSING
END IF

Low BMI
IF 12 <= BMI <= 19
THEN
      LOWBMI = 1
ELSE
      LOWBMI = 0
END IF

High BMI
IF BMI > 50 **AND** BMI NOT MISSING
THEN
      HIGHBMI = 1
ELSE
      HIGHBMI = 0
END IF

17. Confusion

Never (Reference)
IF M1710_CNFSD_FREQ_CD[1] = "00"
THEN
      CNFSD_NEVER = 1
ELSE
      CNFSD_NEVER = 0
END IF

Moderate

IF M1710_CNFSD_FREQ_CD[1] IN("01, "02")
THEN
    CNFSD_MOD = 1
ELSE
    CNFSD_MOD = 0
END IF

Severe
IF M1710_CNFSD_FREQ_CD[1] IN("03", "04")
THEN
    CNFSD_SVR = 1
ELSE
    CNFSD_SVR = 0
END IF

18. Vision

Normal Vision (Reference)
IF M0090_ASMT_CMPLT_DT < '01JAN2023'
THEN
    IF M1200_VSN_CD[1] = "00"
    THEN
        VISION_NORMAL = 1
    ELSE
        VISION_NORMAL = 0
    END IF

ELSE
    IF B1000_VSN_CD[1] = "0" OR B1000_VSN_CD[1] = "-"
    THEN
        VISION_NORMAL = 1
    ELSE
        VISION_NORMAL = 0
    END IF

END IF

Partially Impaired
IF M0090_ASMT_CMPLT_DT < '01JAN2023'
THEN
    IF M1200_VSN_CD[1] = "01"
    THEN
        VISION_PARTIAL = 1
    ELSE
        VISION_ PARTIAL = 0
    END IF

ELSE
    IF B1000_VSN_CD[1] = "1" OR B1000_VSN_CD[1] = "2"
    THEN
        VISION_PARTIAL = 1
    ELSE
        VISION_PARTIAL = 0
    END IF
END IF

Severely Impaired
IF M0090_ASMT_CMPLT_DT < '01JAN2023'
THEN
    IF M1200_VSN_CD[1] = "01"
    THEN
        VISION_PARTIAL = 1
    ELSE
        VISION_ PARTIAL = 0
    END IF

ELSE
    IF B1000_VSN_CD[1] = "3" OR B1000_VSN_CD[1] = "4"
    THEN

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```
                VISION_SVRIMPR = 1
        ELSE
                VISION_SVRIMPR = 0
        END IF
    END IF
```

19. Supervision and Safety Sources of Assistance

No Assistance Needed (Reference)
SUPSFT_NO_NEED = (M2102_CARE_ASTNC_SFTY_CD[1] = "00")

Non-agency caregiver(s) currently provide assistance
SUPSFT_CG_PROV_AST = (M2102_CARE_ASTNC_SFTY_CD[1] = "01")

Non-agency caregiver(s) need training/supportive services to provide assistance
SUPSFT_CG_NEED_SPRT = (M2102_CARE_ASTNC_SFTY_CD[1] = "02")

Non-agency caregiver(s) are not likely to provide assistance
SUPSFT_CG_UNLKY_AST = (M2102_CARE_ASTNC_SFTY_CD[1] = "03")

Assistance needed, but no non-agency caregivers available
SUPSFT_CG_NOT_AVAIL = (M2102_CARE_ASTNC_SFTY_CD[1] = "04")

20. Locomotion 1 (used for Imputation only)

```
IF MOBILITY_FLAG = 0
THEN
        GG0170I
END IF

IF MOBILITY_FLAG = 1
THEN
        GG0170R
END IF
```

21. Locomotion 2 (used for Imputation only)

IF MOBILITY_FLAG = 0
THEN
    GG0170J
END IF

IF MOBILITY_FLAG = 1
THEN
    GG0170R
END IF

22. Locomotion 3 (used for Imputation only)

IF MOBILITY_FLAG = 0
THEN
    GG0170K
END IF

IF MOBILITY_FLAG = 1
THEN
    GG0170S
END IF

23. Locomotion 4 (used for Imputation only)

IF MOBILITY_FLAG = 0
THEN
    GG0170L
END IF

IF MOBILITY_FLAG = 1

THEN
       GG0170S
END IF

Appendix Table 1: Description of Risk Factors
Effective January 1, 2023

Risk Factor Group #	Risk Factor Group	Risk Factor	Response Notes	OASIS Item	OASIS Item Description	Variable Name	Excluded Category Indicator
1	Age	Age: 0-54	Calculated off birth date	M0066	Birth Date	AGE_0_54	
		Age: 55-59	Calculated off birth date	M0066	Birth Date	AGE_55_59	
		Age: 60-64	Calculated off birth date	M0066	Birth Date	AGE_60_64	
		Age: 65-69	Calculated off birth date	M0066	Birth Date	AGE_65_69	Excluded category
		Age: 70-74	Calculated off birth date	M0066	Birth Date	AGE_70_74	
		Age: 75-79	Calculated off birth date	M0066	Birth Date	AGE_75_79	
		Age: 80-84	Calculated off birth date	M0066	Birth Date	AGE_80_84	
		Age: 85-89	Calculated off birth date	M0066	Birth Date	AGE_85_89	
		Age: 90-94	Calculated off birth date	M0066	Birth Date	AGE_90_94	
		Age: 95+	Calculated off birth date	M0066	Birth Date	AGE_95PLUS	
2	Gender	Patient is female	response 2	M0069	Gender	GENDER_FEMALE	Excluded category
		Patient is male	response 1	M0069	Gender	GENDER_MALE	
3	Payment source	Payment source: Medicare FFS only	response 1 & NOT any other response	M0150	Current Payment Sources for Home Care	PAY_MCARE _FFS	Excluded category
		Payment source: Medicare HMO only	response 2 & NOT any other response	M0150	Current Payment Sources for Home Care	PAY_MCARE_HMO	
		Payment source: Medicare and Medicaid	response (1 or 2) & (3 or 4)	M0150	Current Payment Sources for Home Care	PAY_MCAREANDMCAID	
		Payment Source: Medicaid only	response (3 or 4) & NOT any other response	M0150	Current Payment Sources for Home Care	PAY_MCAID_ONLY	
		Payment Source: Other combinations	Not one of the above four categories	M0150	Current Payment Sources for Home Care	PAY_OTHER_COMBO	
4	SOC/ROC and Admission Source	Start of Care and inpatient admission	M0100 = 1 & M1000 = 1, 2, 3, 4, 5, or 6	M0100, M1000	(M0100) Reason for assessment; (M1000) Admission source	SOC_INPT	Excluded category
		Start of Care and community admission	M0100 = 1 & M1000 NOT 1, 2, 3, 4, 5, or 6	M0100, M1000	(M0100) Reason for assessment; (M1000) Admission source	SOC_COMM	
		Resumption of care (after inpatient stay)	M0100=3	M0100	Reason for assessment	ROC	

Risk Factor Group #	Risk Factor Group	Risk Factor	Response Notes	OASIS Item	OASIS Item Description	Variable Name	Excluded Category Indicator
5	Post-acute facility admission source	Discharged from post-acute facility in past 14 days	response 1, 2, 4, 5, or 6	M1000	Inpatient Facilities	INPT_POSTACUTE	
		Not discharged from post-acute facility	NOT response 1, 2, 4, 5, and 6	M1000	Inpatient Facilities	INPT_NOPOSTACUTE	Excluded category

Risk Factor Group #	Risk Factor Group	Risk Factor	Response Notes	OASIS Item	OASIS Item Description	Variable Name	Excluded Category Indicator
6	Risk of Hospitalization	Risk for Hospitalization: History of falls in past 12 months	response 1	M1033	Risk for Hospitalization	RISK_HSTRY_FALLS	
		Risk for Hospitalization: Unintentional weight loss in past 12 months	response 2	M1033	Risk for Hospitalization	RISK_WEIGHTLOSS	
		Risk for Hospitalization: Multiple hospitalizations in past 6 months	response 3	M1033	Risk for Hospitalization	RISK_MLTPL_HOSPZTN	
		Risk for Hospitalization: Multiple ED visits in past 6 months	response 4	M1033	Risk for Hospitalization	RISK_ED	
		Risk for Hospitalization: Recent mental/emotional decline in past 3 months	response 5	M1033	Risk for Hospitalization	RISK_RCNT_DCLN	
		Risk for Hospitalization: Difficulty complying with medical instruction in past 3 months	response 6	M1033	Risk for Hospitalization	RISK_COMPLY	
		Risk for Hospitalization: Taking five or more medications	response 7	M1033	Risk for Hospitalization	RISK_5PLUS_MDCTN	
		Risk for Hospitalization: Reports exhaustion	response 8	M1033	Risk for Hospitalization	RISK_EXHAUST	
		Risk for Hospitalization: Other unlisted risk factors	response 9	M1033	Risk for Hospitalization	RISK_OTHR	
		None of the above	response 10	M1033	Risk for Hospitalization	RISK_NONE	
7	Availability of Assistance	Around the clock	response 1, 6, or 11	M1100	Patient Living Situation	ASSIST_ARND_CLOCK	
		Regular daytime	response 2, 7, or 12	M1100	Patient Living Situation	ASSIST_REGDAY	
		Regular nighttime	response 3, 8, or 13	M1100	Patient Living Situation	ASSIST_REGNITE	
		Occasional/none	response 4, 5, 9, 10, 14, or 15	M1100	Patient Living Situation	ASSIST_OCC_NONE	Excluded category
	Living Arrangement	Living Arrangement: Lives alone	response 1, 2, 3, 4, or 5	M1100	Patient Living Situation	LIV_ALONE	
		Living Arrangement: Lives with another person	response 6, 7, 8, 9, or 10	M1100	Patient Living Situation	LIV_OTHERS	Excluded category
		Living Arrangement: Lives in congregate situation	response 11, 12, 13, 14, or 15	M1100	Patient Living Situation	LIV_CONGREGATE	

Risk Factor Group #	Risk Factor Group	Risk Factor	Response Notes	OASIS Item	OASIS Item Description	Variable Name	Excluded Category Indicator
8	Pressure Ulcers	Pressure ulcer: None or Stage I only present	M1306 response 0 & M1322 response 0, 1, 2, 3, or 4	M1306 M1322	At least 1 Stage 2 or unstageable PU? Current number of Stage 1 PUs	PU_NONE_STG1ONLY	Excluded category
		Pressure ulcer: Stage II or higher or unstageable present	response A1 > 0 OR B1 > 0 OR C1 > 0 OR D1>0 OR E1>0 OR F1>0	M1311	Number of PUs at each stage	PU_STG2PLUS_UNSTG	
9	Stasis Ulcer	Stasis Ulcer: None	response 0 or 3	M1330	Does this patient have a Stasis Ulcer?	STAS_ULCR_NONE	Excluded category
		Stasis Ulcer: 1 observable stasis ulcer	response 1	M1332	Number of stasis ulcers	STAS_ULCR_OBS_1	
		Stasis Ulcer: Multiple observable stasis ulcers	response 2,3, or 4	M1332	Number of stasis ulcers	STAS_ULCR_OBS_2PLUS	
10	Surgical Wound	Status of Surgical Wound: None	Not response 0, 1, 2, 3	M1342	Status of Most Problematic Surgical Wound that is Observable	SRG_WND_OBS_NONE	Excluded category
		Status of Surgical Wound: Newly epithelialized	response 0	M1342	Status of Most Problematic Surgical Wound that is Observable	SRG_WND_OBS_EPI	
		Status of Surgical Wound: Fully granulating or early/partial granulation	response 1 or 2	M1342	Status of Most Problematic Surgical Wound that is Observable	SRG_WND_OBS_GRAN	
		Status of Surgical Wound: Not healing	response 3	M1342	Status of Most Problematic Surgical Wound that is Observable	SRG_WND_OBS_NOHEAL	
11	Dyspnea	Dyspnea: Not short of breath	response 0	M1400	When is the patient dyspneic or noticeably Short of Breath?	DYSP0	Excluded category
		Dyspnea: Walking more than 20 feet, climbing stairs	response 1	M1400	When is the patient dyspneic or noticeably Short of Breath?	DYSP1	
		Dyspnea: Moderate exertion	response 2	M1400	When is the patient dyspneic or noticeably Short of Breath?	DYSP2	
		Dyspnea: Minimal to no exertion	response 3 or 4	M1400	When is the patient dyspneic or noticeably Short of Breath?	DYSP34	
12	Urinary Status	Urinary incontinence/catheter: None	response 0	M1610	Urinary Incontinence or Urinary Catheter Presence	URINCONT_NONE	Excluded category
		Urinary incontinence/catheter: Incontinent	response 1	M1610	Urinary Incontinence or Urinary Catheter Presence	URINCONT_INCONT	
		Urinary incontinence/catheter: Catheter	response 2	M1610	Urinary Incontinence or Urinary Catheter Presence	URINCONT_CATH	
13	Bowel Incontinence	Bowel Incontinence Frequency: Never or very rare	response 0 and UK	M1620	Bowel Incontinence Frequency	BWL_NONE_UK	Excluded category

Risk Factor Group #	Risk Factor Group	Risk Factor	Response Notes	OASIS Item	OASIS Item Description	Variable Name	Excluded Category Indicator
		Bowel Incontinence Frequency: Less than once a week	response 1	M1620	Bowel Incontinence Frequency	BWL_FR1	
		Bowel Incontinence Frequency: One to three times a week	response 2	M1620	Bowel Incontinence Frequency	BWL_FR2	
		Bowel Incontinence Frequency: Four to six times a week or more	response 3, 4 or 5	M1620	Bowel Incontinence Frequency	BWL_FR345	
		Bowel Incontinence Frequency: Ostomy for bowel elimination	NA	M1620	Bowel Incontinence Frequency	BWL_OSTOMY	

Risk Factor Group #	Risk Factor Group	Risk Factor	Response Notes	OASIS Item	OASIS Item Description	Variable Name	Excluded Category Indicator
14	Cognitive function	Cognitive Functioning: Alert and focused	response 0	M1700	Cognitive Functioning	COGN0	Excluded category
		Cognitive Functioning: Requires prompting under stress	response 1	M1700	Cognitive Functioning	COGN1	
		Cognitive Functioning: Requires assist in special circumstances	response 2	M1700	Cognitive Functioning	COGN2	
		Cognitive Function: Requires considerable assist/totally dependent	response 3 or 4	M1700	Cognitive Functioning	COGN34	
15	Confusion	Confused: never	response 0 or NA	M1710	When Confused (Reported or Observed Within the Last 14 Days)	CONF0	Excluded category
		Confused: In new or complex situations	response 1	M1710	When Confused (Reported or Observed Within the Last 14 Days)	CONF1	
		Confused: Sometimes	response 2 or 3	M1710	When Confused (Reported or Observed Within the Last 14 Days)	CONF23	
		Confused: Constantly	response 4	M1710	When Confused (Reported or Observed Within the Last 14 Days)	CONF4	
16	Anxiety	Anxiety: None of the time	response 0 or NA	M1720	When Anxious (Reported or Observed Within the Last 14 Days)	ANX0	Excluded category
		Anxiety: Less often than daily	response 1	M1720	When Anxious (Reported or Observed Within the Last 14 Days)	ANX1	
		Anxiety: Daily, but not constantly	response 2	M1720	When Anxious (Reported or Observed Within the Last 14 Days)	ANX2	
		Anxiety: All of the time	response 3	M1720	When Anxious (Reported or Observed Within the Last 14 Days)	ANX3	
17	Patient Mood Screening	PHQ-2 to 9: Does not meet criteria for further eval	(D0150A2 response 0 or 1) and (D0150B2 response 0 or 1)	D0150	Patient Mood Interview (PHQ-2 to 9)	PHQ2_TO9_NOTMEET	Excluded category
		PHQ-2 to 9: Meets criteria for further eval	(D0150A2 response 2 or 3) or (D0150B2 response 2 or 3)	D0150	Patient Mood Interview (PHQ-2 to 9)	PHQ2_TO9_MEET	
		PHQ-2 to 9: No Patient Mood Screening	(D0150A2 response "^") and ((D0150B2 response 0, 1, or "^")) or (D0150B2 response "^" and (D0150A2 response 0, 1, or "^"))	D0150	Patient Mood Interview (PHQ-2 to 9)	PHQ2_TO9_NA	

Risk Factor Group #	Risk Factor Group	Risk Factor	Response Notes	OASIS Item	OASIS Item Description	Variable Name	Excluded Category Indicator
18	Behavioral Symptoms	Behavioral: None	response 7	M1740	Cognitive, behavioral, and psychiatric symptoms that are demonstrated at least once a week (Reported or Observed)	BEHAV_NONE	
		Behavioral: Memory deficit	response 1	M1740	Cognitive, behavioral, and psychiatric symptoms that are demonstrated at least once a week (Reported or Observed)	BEHAV_MEM_DEFICIT	
		Behavioral: Impaired decision making	response 2	M1740	Cognitive, behavioral, and psychiatric symptoms that are demonstrated at least once a week (Reported or Observed)	BEHAV_IMPR_DECISN	
		Behavioral: Verbally disruptive, physical aggression, disruptive, or delusional	response 3, 4, 5 or 6	M1740	Cognitive, behavioral, and psychiatric symptoms that are demonstrated at least once a week (Reported or Observed)	BEHAV_OTHR	
19	Disruptive Behavior Frequency	Frequency of Disruptive Behavior: Never	response 0	M1745	Frequency of Disruptive Behavior Symptoms (Reported or Observed)	BEHPFR0	Excluded category
		Frequency of Disruptive Behavior: Once a month or less	response 1 or 2	M1745	Frequency of Disruptive Behavior Symptoms (Reported or Observed)	BEHPFR12	
		Frequency of Disruptive Behavior: Several times a month	response 3	M1745	Frequency of Disruptive Behavior Symptoms (Reported or Observed)	BEHPFR3	
		Frequency of Disruptive Behavior: Several times a week	response 4	M1745	Frequency of Disruptive Behavior Symptoms (Reported or Observed)	BEHPFR4	
		Frequency of Disruptive Behavior: At least once daily	response 5	M1745	Frequency of Disruptive Behavior Symptoms (Reported or Observed)	BEHPFR5	
20	Grooming	Grooming: Able to groom self, unaided	response 0	M1800	Grooming	GROOM0	Excluded category
		Grooming: Grooming utensils must be placed within reach	response 1	M1800	Grooming	GROOM1	
		Grooming: Assistance needed	response 2	M1800	Grooming	GROOM2	
		Grooming: Entirely dependent upon someone else	response 3	M1800	Grooming	GROOM3	

Risk Factor Group #	Risk Factor Group	Risk Factor	Response Notes	OASIS Item	OASIS Item Description	Variable Name	Excluded Category Indicator
21	Upper Body Dressing	Ability to Dress Upper Body: No help needed	response 0	M1810	Ability to Dress Upper Body	UPPER0	Excluded category
		Ability to Dress Upper Body: Needs clothing laid out	response 1	M1810	Ability to Dress Upper Body	UPPER1	
		Ability to Dress Upper Body: Needs assistance putting on clothing	response 2	M1810	Ability to Dress Upper Body	UPPER2	
		Ability to Dress Upper Body: Entirely dependent upon someone else	response 3	M1810	Ability to Dress Upper Body	UPPER3	

Risk Factor Group #	Risk Factor Group	Risk Factor	Response Notes	OASIS Item	OASIS Item Description	Variable Name	Excluded Category Indicator
22	Lower Body Dressing	Ability to Dress Lower Body: No help needed	response 0	M1820	Ability to Dress Lower Body	LOWER0	Excluded category
		Ability to Dress Lower Body: Needs clothing/shoes laid out	response 1	M1820	Ability to Dress Lower Body	LOWER1	
		Ability to Dress Lower Body: Assist needed putting on clothing	response 2	M1820	Ability to Dress Lower Body	LOWER2	
		Ability to Dress Lower Body: Entirely dependent upon someone else	response 3	M1820	Ability to Dress Lower Body	LOWER3	
23	Bathing	Bathing: Independently in shower/tub	response 0	M1830	Bathing: Excludes grooming (washing face, washing hands, and shampooing hair).	BATH0	Excluded category
		Bathing: With the use of devices in shower/tub	response 1	M1830	Bathing: Excludes grooming (washing face, washing hands, and shampooing hair).	BATH1	
		Bathing: With intermittent assistance in shower/tub	response 2	M1830	Bathing: Excludes grooming (washing face, washing hands, and shampooing hair).	BATH2	
		Bathing: Participates with supervision in shower/tub	response 3	M1830	Bathing: Excludes grooming (washing face, washing hands, and shampooing hair).	BATH3	
		Bathing: Independent at sink, in chair, or on commode	response 4	M1830	Bathing: Excludes grooming (washing face, washing hands, and shampooing hair).	BATH4	
		Bathing: Participates with assist at sink, in chair, or commode	response 5	M1830	Bathing: Excludes grooming (washing face, washing hands, and shampooing hair).	BATH5	
		Bathing: Unable to participate; bathed totally by another	response 6	M1830	Bathing: Excludes grooming (washing face, washing hands, and shampooing hair).	BATH6	
24	Toilet Transferring	Toilet Transferring: No assistance needed	response 0	M1840	Toilet Transferring	TLTTRN0	Excluded category
		Toilet Transferring: To/from/on/off toilet with human assist	response 1	M1840	Toilet Transferring	TLTTRN1	

Risk Factor Group #	Risk Factor Group	Risk Factor	Response Notes	OASIS Item	OASIS Item Description	Variable Name	Excluded Category Indicator
		Toilet Transferring: Able to self-transfer to bedside commode	response 2	M1840	Toilet Transferring	TLTTRN2	
		Toilet Transferring: Unable to transfer to/from toilet or commode	response 3 or 4	M1840	Toilet Transferring	TLTTRN34	
25	Toilet Hygiene	Toilet Hygiene Assistance: None needed	response 0	M1845	Toileting Hygiene	TLTHYG0	Excluded category
		Toilet Hygiene Assistance: Needs supplies laid out	response 1	M1845	Toileting Hygiene	TLTHYG1	
		Toilet Hygiene Assistance: Needs assistance	response 2	M1845	Toileting Hygiene	TLTHYG2	
		Toilet Hygiene Assistance: Entirely dependent	response 3	M1845	Toileting Hygiene	TLTHYG3	
26	Transferring	Transferring: No assistance needed	response 0	M1850	Transferring	TRNFR0	Excluded category
		Transferring: With minimal human assist or with device	response 1	M1850	Transferring	TRNFR1	
		Transferring: Bears weight and pivots only	response 2	M1850	Transferring	TRNFR2	
		Transferring: Unable or bedfast	response 3 or 4 or 5	M1850	Transferring	TRNFR345	

Risk Factor Group #	Risk Factor Group	Risk Factor	Response Notes	OASIS Item	OASIS Item Description	Variable Name	Excluded Category Indicator
27	Ambulation	Ambulation/Locomotion: Walk independently	response 0	M1860	Ambulation/Locomotion	AMB0	Excluded category
		Ambulation/Locomotion: One-handed device on all surfaces	response 1	M1860	Ambulation/Locomotion	AMB1	
		Ambulation/Locomotion: Two-handed device/human assist on steps	response 2	M1860	Ambulation/Locomotion	AMB2	
		Ambulation/Locomotion: Walks only with supervision or assist	response 3	M1860	Ambulation/Locomotion	AMB3	
		Ambulation/Locomotion: Chairfast or bedfast	response 4 or 5 or 6	M1860	Ambulation/Locomotion	AMB456	
28	Feeding or Eating	Eating: Independent	response 0	M1870	Feeding or Eating	EAT0	Excluded category
		Eating: Requires set up, intermittent assist or modified consistency	response 1	M1870	Feeding or Eating	EAT1	
		Eating: Unable to feed self and must be assisted throughout meal	response 2	M1870	Feeding or Eating	EAT2	
		Eating: Requires tube feedings, or no nutrients orally or via tube	response 3 or 4 or 5	M1870	Feeding or Eating	EAT345	
29	Oral Medication Management	Management of Oral Meds: Independent	response 0 or NA or missing	M2020	Management of Oral Medications: Excludes injectable and IV medications.	ORMED0	Excluded category
		Management of Oral Meds: Advance dose prep/chart needed	response 1	M2020	Management of Oral Medications: Excludes injectable and IV medications.	ORMED1	
		Management of Oral Meds: Reminders needed	response 2	M2020	Management of Oral Medications: Excludes injectable and IV medications.	ORMED2	
		Management of Oral Meds: Unable	response 3	M2020	Management of Oral Medications: Excludes injectable and IV medications.	ORMED3	
30	Supervision and Safety Assistance	None needed	response 0	M2102	Types and Sources of Assistance	SPRVSN_NONE_NEEDED	Excluded category
		Caregiver currently provides	response 1	M2102	Types and Sources of Assistance	SPRVSN_CG_PROVIDES	
		Caregiver training needed	response 2	M2102	Types and Sources of Assistance	SPRVSN_NEED_TRAINING	

Risk Factor Group #	Risk Factor Group	Risk Factor	Response Notes	OASIS Item	OASIS Item Description	Variable Name	Excluded Category Indicator
		Uncertain/unlikely to be provided	response 3 or 4 or missing	M2102	Types and Sources of Assistance	SPRVSN_CG_UNCERTAIN_NONE	
31	Hierarchical Condition Categories	HCC: HIV/AIDS	2023 HCCs were generated based on 2021 Model Software/ICD-10 Mappings. Future HCCs will be generated using software with a two-year lag. For example, 2024 HCCs will be generated based on 2022 software. Source: https://www.cms.gov/medicarehealth-plansmedicareadvtgspecratestatsrisk-adjustors/2021-model-softwareicd-10-mappings	M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC1	
		HCC: Septicemia, sepsis, systemic inflammatory response syndrome/shock		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC2	
		HCC: Opportunistic infections		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC6	
		HCC: Metastatic cancer and acute leukemia		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC8	
		HCC: Lung and other severe cancers		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC9	
		HCC: Lymphoma and other cancers		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC10	
		HCC: Colorectal, bladder, and other cancers		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC11	
		HCC: Breast, prostate, and other cancers and tumors		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC12	
		HCC: Diabetes with acute complications		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC17	
		HCC: Diabetes with chronic complications		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC18	
		HCC: Diabetes without complication		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC19	
		HCC: Protein-calorie malnutrition		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC21	
		HCC: Morbid obesity		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC22	
		HCC: Other significant endocrine and metabolic disorders		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC23	
		HCC: End-stage liver disease		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC27	
		HCC: Cirrhosis of liver		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC28	

Risk Factor Group #	Risk Factor Group	Risk Factor	Response Notes	OASIS Item	OASIS Item Description	Variable Name	Excluded Category Indicator
		HCC: Chronic hepatitis		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC29	
		HCC: Intestinal obstruction/perforation		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC33	
		HCC: Chronic pancreatitis		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC34	
		HCC: Inflammatory bowel disease		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC35	
		HCC: Bone/joint/muscle infections/necrosis		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC39	
		HCC: Rheumatoid arthritis and inflammatory connective tissue disease		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC40	
		HCC: Severe hematological disorders		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC46	
		HCC: Disorders of immunity		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC47	
		HCC: Coagulation defects and other specified hematological disorders		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC48	
		HCC: Dementia with complications		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC51	
		HCC: Dementia without complication		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC52	
		HCC: Substance use with psychotic complications		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC54	
		HCC: Substance use disorder, moderate/severe, or substance use with complications		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC55	
		HCC: Substance use disorder, mild, except alcohol and cannabis		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC56	
		HCC: Schizophrenia		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC57	
		HCC: Reactive and unspecified psychosis		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC58	

Risk Factor Group #	Risk Factor Group	Risk Factor	Response Notes	OASIS Item	OASIS Item Description	Variable Name	Excluded Category Indicator
		HCC: Major depressive, bipolar, and paranoid disorders		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC59	
		HCC: Personality disorders		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC60	
		HCC: Quadriplegia		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC70	
		HCC: Paraplegia		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC71	
		HCC: Spinal cord disorders/injuries		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC72	
		HCC: Amyotrophic lateral sclerosis and other motor neuron disease		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC73	
		HCC: Cerebral palsy		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC74	
		HCC: Myasthenia gravis/myoneural disorders and Guillain-Barre syndrome/inflammatory and toxic neuropathy		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC75	
		HCC: Muscular dystrophy		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC76	
		HCC: Multiple sclerosis		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC77	
		HCC: Parkinson's and Huntington's diseases		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC78	
		HCC: Seizure disorders and convulsions		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC79	
		HCC: Coma, brain compression/anoxic damage		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC80	
		HCC: Respirator dependence/tracheostomy status		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC82	
		HCC: Respiratory arrest		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC83	
		HCC: Cardio-respiratory failure and shock		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC84	

Risk Factor Group #	Risk Factor Group	Risk Factor	Response Notes	OASIS Item	OASIS Item Description	Variable Name	Excluded Category Indicator
		HCC: Congestive heart failure		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC85	
		HCC: Acute myocardial infarction		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC86	
		HCC: Unstable angina and other acute ischemic heart disease		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC87	
		HCC: Angina pectoris		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC88	
		HCC: Specified heart arrhythmias		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC96	
		HCC: Intracranial hemorrhage		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC99	
		HCC: Ischemic or unspecified stroke		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC100	
		HCC: Hemiplegia/hemiparesis		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC103	
		HCC: Monoplegia, other paralytic syndromes		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC104	
		HCC: Atherosclerosis of the extremities with ulceration or gangrene		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC106	
		HCC: Vascular disease with complications		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC107	
		HCC: Vascular disease		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC108	
		HCC: Cystic fibrosis		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC110	
		HCC: Chronic obstructive pulmonary disease		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC111	
		HCC: Fibrosis of lung and other chronic lung disorders		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC112	
		HCC: Aspiration and specified bacterial pneumonias		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC114	
		HCC: Pneumococcal pneumonia, empyema, lung abscess		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC115	

Risk Factor Group #	Risk Factor Group	Risk Factor	Response Notes	OASIS Item	OASIS Item Description	Variable Name	Excluded Category Indicator
		HCC: Proliferative diabetic retinopathy and vitreous hemorrhage		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC122	
		HCC: Exudative macular degeneration		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC124	
		HCC: Dialysis status		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC134	
		HCC: Acute renal failure		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC135	
		HCC: Chronic kidney disease, stage 5		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC136	
		HCC: Chronic kidney disease, severe (stage 4)		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC137	
		HCC: Chronic kidney disease, moderate (stage 3)		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC138	
		HCC: Pressure ulcer of skin with necrosis through to muscle, tendon, or bone		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC157	
		HCC: Pressure ulcer of skin with full thickness skin loss		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC158	
		HCC: Pressure ulcer of skin with partial thickness skin loss		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC159	
		HCC: Chronic ulcer of skin, except pressure		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC161	
		HCC: Severe skin burn or condition		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC162	
		HCC: Severe head injury		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC166	
		HCC: Major head injury		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC167	
		HCC: Vertebral fractures without spinal cord injury		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC169	
		HCC: Hip fracture/dislocation		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC170	
		HCC: Traumatic amputations and complications		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC173	

Risk Factor Group #	Risk Factor Group	Risk Factor	Response Notes	OASIS Item	OASIS Item Description	Variable Name	Excluded Category Indicator
		HCC: Complications of specified implanted device or graft		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC176	
		HCC: Major organ transplant or replacement status		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC186	
		HCC: Artificial openings for feeding or elimination		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC188	
		HCC: Amputation status, lower limb/amputation complications		M1021, M1023	(M1021) Primary Diagnosis & (M1023) Other Diagnoses	HCC189	

Appendix Table 2: Estimated Coefficients

Effective January 1, 2023

Risk Factor Group #	Risk Factor Group	Risk Factor #	Risk Factor Name	Excluded Category Indicator	Amb	Bathing	Bed Transfer	Bowel Incont	Conf	Dyspnea	Lower Dress	Upper Dress	Oral Meds	Toilet Transfer	DTC
1	Age	1	AGE_0_54		-0.1456	-0.1063	-0.0709	-0.1676	-0.0498	-0.0271	-0.1120	-0.1619	-0.1029	-0.1588	-0.1766
		2	AGE_55_59		-0.1524	-0.1198	-0.0997	-0.0590	-0.0536	-0.0980	-0.0965	-0.1325	-0.0838	-0.1196	-0.1320
		3	AGE_60_64		-0.1468	-0.1312	-0.1228	-0.1018	-0.0735	-0.1135	-0.1020	-0.1343	-0.1133	-0.1355	-0.1085
		4	AGE_65_69	Excluded category											
		5	AGE_70_74		0.0027	-0.0032	0.0177	0.0165	-0.0422	0.0246	0.0158	-0.0009	-0.0388	0.0106	0.0189
		6	AGE_75_79		-0.0347	-0.0463	-0.0106	0.0015	-0.1483	-0.0045	-0.0128	-0.0451	-0.1388	-0.0347	0.0029
		7	AGE_80_84		-0.1197	-0.1330	-0.0889	0.0002	-0.2837	-0.0256	-0.0839	-0.1299	-0.2890	-0.1201	-0.0089
		8	AGE_85_89		-0.2078	-0.2358	-0.1781	-0.0360	-0.3881	-0.0494	-0.1698	-0.2312	-0.4187	-0.2039	-0.0240
		9	AGE_90_94		-0.3494	-0.3947	-0.3020	-0.0784	-0.5044	-0.1196	-0.3327	-0.3963	-0.5769	-0.3482	-0.0052
		10	AGE_95PLUS		-0.5530	-0.6350	-0.4972	-0.1539	-0.5947	-0.2309	-0.5782	-0.6447	-0.7774	-0.5495	-0.0256
2	Gender	11	GENDER_FEMALE	Excluded category											
		12	GENDER_MALE		0.0541	0.0624	0.0425			-0.0342			-0.0575	0.0318	-0.0574
3	Payment source	13	PAY_MCARE _FFS	Excluded category											
		14	PAY_MCARE_HMO		-0.0943	-0.0975	-0.0537	0.0448		-0.0074	-0.0532	-0.0611	-0.0298	-0.0087	0.1145
		15	PAY_MCAREANDMCAID		-0.3388	-0.3844	-0.2674	-0.3061		-0.1760	-0.3215	-0.2464	-0.3633	-0.2395	0.0312
		16	PAY_MCAID_ONLY		-0.1492	-0.2279	-0.0932	-0.0882		-0.1128	-0.1519	-0.1563	-0.1775	-0.0560	-0.0464
		17	PAY_OTHER_COMBO		-0.0129	-0.0099	0.1052	0.1803		0.1098	0.0447	0.1179	0.0730	0.2399	0.1480
4	SOC/ROC and Admission Source	18	SOC_INPT	Excluded category											
		19	SOC_COMM		-0.4099	-0.3616	-0.4107	-0.3563	-0.3757	-0.2979	-0.3529	-0.3811	-0.3457	-0.4201	0.2229
		20	ROC		-0.4025	-0.3934	-0.4373	-0.2730	-0.2332	-0.3715	-0.4017	-0.4340	-0.3801	-0.4310	-0.6546
5	Post-acute facility admission source	21	INPT_POSTACUTE		-0.2154	-0.1538	-0.1413		-0.1148	-0.0830	-0.0971	-0.0775	-0.1567	-0.1265	-0.0732
		22	INPT_NOPOSTACUTE	Excluded category											
6	Risk of Hospitalization	23	RISK_HSTRY_FALLS		-0.0572			0.1140	-0.0636					0.0522	-0.0511
		24	RISK_WEIGHTLOSS						0.1032	0.0604		0.0518		0.0436	-0.1174

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		25	RISK_MLTPL_HOSPZTN		-0.0639	-0.0564	-0.0495			-0.0992	-0.0364	-0.0660	-0.0362	-0.0739	-0.2763
		26	RISK_ED					0.0860							-0.1913
		27	RISK_RCNT_DCLN		0.0954	0.1065	0.1673			0.0897	0.0922	0.0712	0.0569	0.0897	-0.0425
		28	RISK_COMPLY		0.0932	0.1003				0.0881	0.0698	0.0938			
		29	RISK_5PLUS_MDCTN						0.0942	-0.0715				0.0871	-0.1623
		30	RISK_EXHAUST		0.0828	0.1071			0.1047		0.1089	0.0940	0.1073	0.0519	
		31	RISK_OTHR					-0.0889				0.0628			0.0407
		32	RISK_NONE		0.2274	0.2396	0.2185		0.2168	0.2068	0.1552	0.1364	0.2412	0.1847	
7	Availability of Assistance	33	ASSIST_OCC_NONE	Excluded category											
		34	ASSIST_REGNITE		-0.0507	-0.1076	-0.0156	-0.0462	-0.0018	-0.0698	-0.0927	-0.0748	-0.1161	-0.0310	
		35	ASSIST_REGDAY		-0.2123	-0.2527	-0.2661	-0.1774	-0.1389	-0.1049	-0.3428	-0.3012	-0.3156	-0.3333	
		36	ASSIST_ARND_CLOCK		-0.2313	-0.2625	-0.2192	-0.1825	-0.1298	-0.1018	-0.3091	-0.2578	-0.3955	-0.2221	
	Living Arrangement	37	LIV_ALONE		0.1168	0.1423	0.1471	0.0409	0.0726		0.2911	0.2192	0.2822	0.2229	
		38	LIV_OTHERS	Excluded category											
		39	LIV_CONGREGATE		-0.1484	-0.0877	-0.0291	-0.3717	-0.4344		-0.0348	-0.0303	-0.7483	-0.0308	
8	Pressure Ulcers	40	PU_NONE_STG1ONLY	Excluded category											
		41	PU_STG2PLUS_UNSTG		-0.4092	-0.5331	-0.4421	-0.3324		-0.3615	-0.4425	-0.4360	-0.3643	-0.4168	-0.4662
9	Stasis Ulcer	42	STAS_ULCR_OBS_NONE	Excluded category											
		43	STAS_ULCR_OBS_1		-0.0652	-0.1280	-0.1751			-0.2211	-0.1885	-0.1280	-0.0461	-0.1475	-0.1596
		44	STAS_ULCR_OBS_2PLUS		-0.2631	-0.3382	-0.3025			-0.3887	-0.3981	-0.3165	-0.1678	-0.2582	-0.5197
10	Surgical Wound	45	SRG_WND_OBS_NONE	Excluded category											
		46	SRG_WND_OBS_EPI		0.3275	0.3605	0.3280	0.2042	0.2166	0.2260	0.2872	0.3201	0.3663	0.3139	0.2113
		47	SRG_WND_OBS_GRAN		0.3175	0.3258	0.2772	0.1544	0.2093	0.1467	0.2757	0.2711	0.3123	0.2682	0.1074
		48	SRG_WND_OBS_NOHEAL		0.4799	0.4503	0.4805	0.3982	0.4376	0.3374	0.4048	0.4607	0.5213	0.4873	0.0744
11	Dyspnea	49	DYSP0	Excluded category											
		50	DYSP1		0.2881	0.2862	0.2763	0.3145	0.1879		0.2889	0.2679	0.2828	0.2411	-0.0412
		51	DYSP2		0.2484	0.3144	0.1580	0.2601	0.1676	0.9754	0.2668	0.2451	0.3647	0.1092	-0.1950
		52	DYSP34		0.3735	0.3893	0.2829	0.4053	0.2794	1.6353	0.3374	0.3029	0.5681	0.2164	-0.3780

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12	Urinary Status	53	URINCONT_NONE	Excluded category											
		54	URINCONT_INCONT		-0.2766	-0.2719	-0.3118	-0.2881	-0.2060	-0.2332	-0.2741	-0.2607	-0.2565	-0.2923	-0.1178
		55	URINCONT_CATH		-0.5689	-0.5877	-0.6072	-0.5210	-0.2041	-0.3626	-0.5621	-0.5682	-0.4438	-0.5979	-0.7638
13	Bowel Incontinence	56	BWL_NONE	Excluded category											
		57	BWL_FR1		-0.1741	-0.1990	-0.1618		-0.0155	-0.1078	-0.1867	-0.1823	-0.1074	-0.1339	-0.0938
		58	BWL_FR2		-0.3316	-0.3699	-0.3477	0.1124	-0.1346	-0.2217	-0.3625	-0.3630	-0.2457	-0.3062	-0.1806
		59	BWL_FR345		-0.5065	-0.5877	-0.5966	0.1750	-0.2301	-0.2900	-0.5814	-0.5992	-0.4157	-0.6541	-0.2073
		60	BWL_OSTOMY		-0.1300	-0.2597	-0.1582	0.0000	-0.0504	-0.0676	-0.1799	-0.2102	-0.1078	-0.2564	-0.4139
14	Cognitive function	61	COGN0	Excluded category											
		62	COGN1		-0.1181	-0.1476	-0.1871	-0.1270	-0.4186	-0.0873	-0.1484	-0.1587	-0.2778	-0.1823	-0.0366
		63	COGN2		-0.1983	-0.2710	-0.2308	-0.2192	-0.6888	-0.0939	-0.2600	-0.2959	-0.4688	-0.2748	-0.0502
		64	COGN34		-0.3252	-0.4478	-0.3449	-0.3101	-0.9922	-0.0720	-0.4392	-0.5126	-0.6760	-0.3881	0.0138
15	Confusion	65	CONF0	Excluded category											
		66	CONF1		-0.1194	-0.1310	-0.1325	-0.0804		-0.0977	-0.1145	-0.1417	-0.2780	-0.1550	-0.0699
		67	CONF23		-0.2141	-0.2406	-0.2167	-0.1551	1.3096	-0.0870	-0.2280	-0.2598	-0.4988	-0.2616	-0.0725
		68	CONF4		-0.4083	-0.4566	-0.3521	-0.2194	1.8660	-0.0153	-0.4357	-0.5206	-0.8084	-0.4397	0.0002
16	Anxiety	69	ANX0	Excluded category											
		70	ANX1		0.0028	-0.0095	-0.0127	0.0013	-0.0270	-0.1187	-0.0111	-0.0023	0.0195	-0.0005	-0.0231
		71	ANX2		0.0401	0.0213	0.0326	0.1536	0.0400	-0.1241	0.0431	0.0561	0.0653	0.0632	-0.0561
		72	ANX3		0.1534	0.1350	0.1702	0.3065	0.1569	-0.0400	0.1533	0.1778	0.1908	0.2157	-0.0320
17	Depression Screening	73	PHQ2_TO9_NOTMEET	Excluded category											
		74	PHQ2_TO9_MEET		-0.1260	-0.1624	-0.1280	-0.0477	-0.0306	-0.1882	-0.1553	-0.1537	-0.1207	-0.1030	-0.1488
		75	PHQ2_TO9_NA		-0.2227	-0.2877	-0.2476	-0.1842	-0.2297	-0.1272	-0.3146	-0.3737	-0.2963	-0.3017	-0.0968
18	Behavioral Symptoms	76	BEHAV_NONE		0.2240	0.2687	0.1888		0.1589	0.1323	0.2273	0.2907	0.3637	0.1944	0.1078
		77	BEHAV_MEM_DEFICIT						-0.2302				-0.0842	-0.0696	0.0652
		78	BEHAV_IMPR_DECISN		-0.0430				-0.1705	-0.1139	-0.0381			-0.0516	
		79	BEHAV_OTHR		-0.2320	-0.2405	-0.2283	-0.2368	-0.2716	-0.1781	-0.2440	-0.2485	-0.2885	-0.2292	-0.1246
19		80	BEHPFR0	Excluded category											

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	Disruptive Behavior Frequency	81	BEHPFR12		0.2049	0.2519	0.1083	0.0169	0.1074	0.1608	0.2087	0.1830	0.2517	0.0460	0.0428
		82	BEHPFR3		0.1810	0.1987	0.1323	0.0418	0.0963	0.1527	0.1853	0.1873	0.2214	0.1240	0.0106
		83	BEHPFR4		0.1836	0.1996	0.1933	0.0900	0.1197	0.2144	0.1984	0.2074	0.2205	0.1995	0.0435
		84	BEHPFR5		0.1866	0.2012	0.2380	0.1531	0.0606	0.2765	0.2149	0.2296	0.1845	0.2497	0.0950
20	Grooming	85	GROOM0	Excluded category											
		86	GROOM1								0.0187	-0.0533		0.0468	-0.0125
		87	GROOM2								-0.0348	-0.2266		-0.0807	-0.0738
		88	GROOM3								-0.2614	-0.6388		-0.2766	-0.1197
21	Upper Body Dressing	89	UPPER0	Excluded category											
		90	UPPER1			0.0711					0.0609		0.0544	0.1143	0.0558
		91	UPPER2			-0.1187					-0.1674	1.3913	-0.1747	-0.1364	-0.0662
		92	UPPER3			-0.2419					-0.3022	2.7888	-0.4250	-0.2224	-0.0660
22	Lower Body Dressing	93	LOWER0	Excluded category											
		94	LOWER1		0.2481	0.1723							0.1643		
		95	LOWER2		0.1469	0.1050					0.9604		0.1861		
		96	LOWER3		0.1168	0.0941					2.7133		0.2389		
23	Bathing	97	BATH0	Excluded category											
		98	BATH1		-0.3104				0.1143	0.0309	-0.0971				0.2316
		99	BATH2		-0.2311	1.0554			0.1429	0.0342	0.0280				0.2606
		100	BATH3		-0.3304	1.8635			0.1690	0.0785	-0.0458				0.2172
		101	BATH4		-0.2710	2.3000			0.1992	0.1120	0.0609				0.2291
		102	BATH5		-0.1907	2.8351			0.3400	0.3334	0.0161				0.2317
		103	BATH6		-0.5194	3.0200			-0.0183	0.0457	-0.4423				0.1418
24	Toilet Transferring	104	TLTTRN0	Excluded category											
		105	TLTTRN1		0.2398	0.2257	0.1285		0.1857	0.1942	0.1418		0.1972		0.1390
		106	TLTTRN2		0.1577	0.2051	0.0012		0.1608	0.1588	0.0996		0.2369	1.9087	0.0441
		107	TLTTRN34		0.2654	0.2315	-0.0994		0.1531	0.1998	0.0993		0.3116	2.3808	0.0007
25	Toilet Hygiene	108	TLTHYG0	Excluded category											

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		109	TLTHYG1		0.0035	-0.0244	-0.0612	0.2388			-0.1023	-0.1508	0.0022	-0.3275	
		110	TLTHYG2		-0.2067	-0.1383	-0.3749	0.0863			-0.2809	-0.3630	-0.1159	-0.5370	
		111	TLTHYG3		-0.4120	-0.3989	-0.7458	-0.4307			-0.6439	-0.7183	-0.3828	-0.7859	
26	Transferring	112	TRNFR0	Excluded category											
		113	TRNFR1		-0.2762	-0.0967			0.0320	0.0192			0.0664	-0.0662	
		114	TRNFR2		-0.0846	0.1528	2.2364		0.2668	0.3004			0.3712	-0.0149	
		115	TRNFR345		-0.1754	0.0153	2.8715		0.2433	0.2712			0.3171	-0.2834	
27	Ambulation	116	AMB0	Excluded category											
		117	AMB1			-0.2624	-0.5265			-0.1522	-0.2026	-0.0697	-0.0372	-0.2071	0.0739
		118	AMB2		0.1031	-0.5863	-0.9988			-0.2658	-0.3367	-0.1681	-0.1952	-0.3394	0.0431
		119	AMB3		1.9729	-0.2801	-0.5887			-0.0021	0.0072	0.2182	0.1436	0.0940	0.1748
		120	AMB456		1.4478	-1.1906	-1.6254			-0.4108	-0.9394	-0.6353	-0.4173	-0.8768	-0.0884
28	Feeding or Eating	121	EAT0	Excluded category											
		122	EAT1		-0.0361	-0.0428	-0.1678	-0.0519	-0.0403		-0.0932	-0.1902	-0.0439	-0.2625	-0.0705
		123	EAT2		-0.1059	-0.1659	-0.3406	-0.2327	-0.0597		-0.2337	-0.4347	-0.2160	-0.4280	-0.0601
		124	EAT345		-0.2458	-0.5826	-0.5647	-0.4969	-0.2219		-0.5538	-0.8000	-0.5694	-0.7949	-0.3668
29	Oral Medication Management	125	ORMED0	Excluded category											
		126	ORMED1		0.1451		0.0481	0.0819		0.1133					-0.1244
		127	ORMED2		0.3199		0.0854	0.1890		0.2211			1.2634		-0.0570
		128	ORMED3		0.3822		0.3121	0.3746		0.3987			1.6797		-0.0273
30	Supervision and Safety Assistance	129	SPRVSN_NONE_NEEDED	Excluded category											
		130	SPRVSN_CG_PROVIDES		-0.1582	-0.1896	-0.1882		-0.2433	-0.0892	-0.1935	-0.2569	-0.3029	-0.2651	-0.0447
		131	SPRVSN_NEED_TRAINING		-0.0290	-0.0066	-0.1006		-0.2019	0.0020	-0.0473	-0.0892	-0.1098	-0.1849	0.0179
		132	SPRVSN_CG_UNCERTAIN_NONE		-0.1936	-0.1842	-0.2426		-0.2272	-0.2171	-0.1735	-0.2559	-0.1326	-0.2637	-0.1746
31	Hierarchical Condition Categories	133	hcc1												
		134	hcc2												-0.1807
		135	hcc6												-0.2973
		136	hcc8		-0.6926	-0.7576	-0.6812	-0.3018	-0.1757	-0.7416	-0.6532	-0.7693	-0.6601	-0.6263	-1.1436

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		137	hcc9		-0.3042	-0.3821	-0.3100		-0.0648	-0.5132	-0.3072	-0.3867	-0.3503	-0.3034	-0.7722
		138	hcc10		-0.2249	-0.2263	-0.2188			-0.2383	-0.2074	-0.2668	-0.2504	-0.1565	-0.7135
		139	hcc11							-0.1548					-0.3956
		140	hcc12							-0.0896		-0.0782			-0.2168
		141	hcc17												-0.2581
		142	hcc18		-0.1341	-0.1027	-0.1468		-0.0393	-0.1533	-0.0957	-0.1071	-0.1249	-0.1583	-0.2594
		143	hcc19											-0.0812	-0.0777
		144	hcc21		-0.1527	-0.1790	-0.1237		-0.1073	-0.1561	-0.0994	-0.1469	-0.2112	-0.1490	-0.2795
		145	hcc22		-0.2609	-0.3291	-0.2272		0.1882	-0.3539	-0.3325	-0.1744		-0.1420	0.1331
		146	hcc23												-0.1997
		147	hcc27		-0.2840	-0.3354	-0.3111		-0.1664	-0.3603	-0.2974	-0.3370	-0.3962	-0.2845	-1.0453
		148	hcc28		-0.2068	-0.2181	-0.1808		-0.1041	-0.2448	-0.1906	-0.2282	-0.2921	-0.1723	-0.6478
		149	hcc29												-0.1561
		150	hcc33												-0.2952
		151	hcc34												-0.5025
		152	hcc35		0.2278	0.1976	0.2034				0.1885	0.1763		0.1557	-0.2977
		153	hcc39		-0.1146	-0.1078	-0.1104							-0.1230	-0.2634
		154	hcc40						0.0653			-0.0669			-0.0610
		155	hcc46		-0.1946					-0.1868		-0.2180		-0.1544	-0.6810
		156	hcc47												-0.2950
		157	hcc48												-0.1462
		158	hcc51		-0.3334	-0.3475	-0.2205	-0.2984	-0.7529		-0.3435	-0.4394	-0.5627	-0.3989	
		159	hcc52		-0.2140	-0.2425	-0.1292	-0.2367	-0.6768	0.0740	-0.2411	-0.3167	-0.4916	-0.3018	0.0435
		160	hcc54						-0.2555				-0.2793		
		161	hcc55												-0.1147
		162	hcc56												
		163	hcc57						-0.3022				-0.4456		-0.3660
		164	hcc58												

Risk Factor Group #	Risk Factor Group	Risk Factor #	Risk Factor Name	Excluded Category Indicator	Amb	Bathing	Bed Transfer	Bowel Incont	Conf	Dyspnea	Lower Dress	Upper Dress	Oral Meds	Toilet Transfer	DTC
		165	hcc59				-0.0884		-0.1325	-0.0641			-0.1214	-0.0831	-0.0625
		166	hcc60										-0.5231		
		167	hcc70		-1.0791	-1.1827	-1.2492	-0.5298			-1.2108	-1.2295	-0.9412	-1.3641	
		168	hcc71		-1.2517	-0.4245	-0.7906	-0.4443			-0.5559	-0.3265	-0.1706	-0.7592	0.1283
		169	hcc72		-0.6073	-0.2782	-0.3501				-0.2844	-0.2592	-0.1680	-0.2947	
		170	hcc73		-1.6164	-1.5456	-1.5024			-1.1146	-1.6512	-1.7862	-1.4899	-1.4186	
		171	hcc74		-0.9118	-0.7945	-0.8181	-0.3391	-0.3593		-0.8240	-0.8623	-0.7450	-0.8214	0.3847
		172	hcc75		-0.1998	-0.1440	-0.1571			-0.1473	-0.1306	-0.1681		-0.1346	-0.0817
		173	hcc76		-1.1144	-0.8187	-1.1053			-0.3647	-0.8869	-0.8722	-0.6423	-0.9499	0.2880
		174	hcc77		-0.7089	-0.4841	-0.6226	-0.2535			-0.5543	-0.4953	-0.3269	-0.5191	
		175	hcc78		-0.4362	-0.3724	-0.3307		-0.1630	-0.0508	-0.4600	-0.4662	-0.3889	-0.3590	-0.0618
		176	hcc79		-0.1529	-0.1597	-0.1281		-0.1944		-0.1128	-0.1692	-0.2552	-0.1650	-0.0720
		177	hcc80		-0.2845	-0.3132			-0.2763				-0.4614	-0.2994	
		178	hcc82			-0.4302				-0.6123	-0.2877	-0.3329	-0.4519		-0.3005
		179	hcc83												
		180	hcc84			-0.0655			0.0913	-0.3892		-0.0761	-0.0782		-0.1428
		181	hcc85		-0.1761	-0.1912	-0.1806	-0.0482	-0.0373	-0.2845	-0.1780	-0.1840	-0.1683	-0.1814	-0.4286
		182	hcc86							-0.0727	0.1126				-0.1860
		183	hcc87												-0.1088
		184	hcc88							-0.1100					-0.0590
		185	hcc96					0.0966	0.0447						-0.1617
		186	hcc99												
		187	hcc100		-0.4052	-0.4270	-0.4065			-0.3411	-0.4253	-0.4905	-0.3891	-0.3904	-0.2084
		188	hcc103		-0.4304	-0.3310	-0.3320	-0.2143	-0.1436		-0.4121	-0.4708	-0.4054	-0.3428	0.0576
		189	hcc104		-0.1988						-0.1539		-0.1673		
		190	hcc106		-0.6090	-0.5298	-0.5617			-0.3773	-0.4312	-0.4800	-0.3128	-0.4886	-1.1894
		191	hcc107							-0.0778					
		192	hcc108		-0.1139						-0.0517	-0.0485		-0.0647	-0.1482

Risk Factor Group #	Risk Factor Group	Risk Factor #	Risk Factor Name	Excluded Category Indicator	Amb	Bathing	Bed Transfer	Bowel Incont	Conf	Dyspnea	Lower Dress	Upper Dress	Oral Meds	Toilet Transfer	DTC
		193	hcc110												
		194	hcc111		-0.1551	-0.1580	-0.1317		-0.0442	-0.4785	-0.1031	-0.1401	-0.1289	-0.1412	-0.2620
		195	hcc112		-0.1177					-0.5441		-0.1286	-0.1223		-0.2207
		196	hcc114		-0.1538	-0.1586	-0.1344				-0.1632	-0.1997	-0.2868	-0.1623	-0.0935
		197	hcc115												
		198	hcc122												
		199	hcc124											0.4038	
		200	hcc134		-0.7258	-0.6931	-0.7056	-0.5213	-0.3791	-0.5043	-0.6120	-0.6946	-0.6666	-0.7931	-0.7957
		201	hcc135							-0.0770					-0.3029
		202	hcc136		-0.5036	-0.4766	-0.4506	-0.2688	-0.1817	-0.2851	-0.3995	-0.4569	-0.4583	-0.4866	-0.6885
		203	hcc137		-0.0805	-0.1050	-0.1009			-0.1097	-0.1056	-0.1188	-0.0716	-0.0972	-0.4063
		204	hcc138												-0.1359
		205	hcc157		-0.6076	-0.4686	-0.6929	-0.4443		-0.3237	-0.5724	-0.5944	-0.3355	-0.7182	-0.7135
		206	hcc158		-0.2622	-0.1793	-0.3303			-0.2590	-0.2658	-0.1070	-0.2962	-0.4394	
		207	hcc159		-0.1399		-0.1601				-0.1410	-0.1529		-0.1649	-0.0859
		208	hcc161		-0.3095	-0.3639	-0.3576			-0.3122	-0.3367	-0.3535	-0.1465	-0.3480	-0.7748
		209	hcc162												
		210	hcc166												
		211	hcc167						-0.2085				-0.2139		
		212	hcc169												
		213	hcc170		-0.2435										
		214	hcc173		-0.6830										
		215	hcc176						0.1824						-0.3216
		216	hcc186		0.3043		0.3267								-0.4329
		217	hcc188												-0.3375
		218	hcc189		-1.0179	-0.3925	-0.4743		-0.1812	-0.1797	-0.2367	-0.2507	-0.2396	-0.3591	-0.3610
32	CONSTANT	219	_CONS		0.9281	0.9135	2.0258	1.3833	0.5920	1.2072	1.8981	2.1937	0.9086	2.6705	2.0724

Appendix Table 3: CMS-HCC Mapping

Effective January 1, 2023

HCC LABEL	CC_HCC	CC_ZERO1	CC_ZERO2	CC_ZERO3	CC_ZERO4	CC_ZERO5
Neoplasm 1	8	9	10	11	12	
Neoplasm 2	9	10	11	12		
Neoplasm 3	10	11	12			
Neoplasm 4	11	12				
Diabetes 1	17	18	19			
Diabetes 2	18	19				
Liver 1	27	28	29	80		
Liver 2	28	29				
Blood 1	46	48				
Cognitive 2	51	52				
SUD 1	54	55	56			
SUD 2	55	56				
Psychiatric 1	57	58	59	60		
Psychiatric 2	58	59	60			
Psychiatric 3	59	60				
Spinal 1	70	71	72	103	104	169
Spinal 2	71	72	104	169		
Spinal 3	72	169				
Arrest 1	82	83	84			
Arrest 2	83	84				
Heart 2	86	87	88			
Heart 3	87	88				
CVD 1	99	100				
CVD 5	103	104				
Vascular 1	106	107	108	161	189	
Vascular 2	107	108				
Lung 1	110	111	112			
Lung 2	111	112				
Lung 5	114	115				
Kidney 3	134	135	136	137	138	
Kidney 4	135	136	137	138		
Kidney 5	136	137	138			
Kidney 6	137	138				
Skin 1	157	158	159	161		
Skin 2	158	159	161			
Skin 3	159	161				
Injury 1	166	80	167			

Appendix Table 4: CMS-HCC Labels

Effective January 1, 2023

HCC	Label
HCC1	HIV/AIDS
HCC2	Septicemia, Sepsis, Systemic Inflammatory Response Syndrome/Shock
HCC6	Opportunistic Infections
HCC8	Metastatic Cancer and Acute Leukemia
HCC9	Lung and Other Severe Cancers
HCC10	Lymphoma and Other Cancers
HCC11	Colorectal, Bladder, and Other Cancers
HCC12	Breast, Prostate, and Other Cancers and Tumors
HCC17	Diabetes with Acute Complications
HCC18	Diabetes with Chronic Complications
HCC19	Diabetes without Complication
HCC21	Protein-Calorie Malnutrition
HCC22	Morbid Obesity
HCC23	Other Significant Endocrine and Metabolic Disorders
HCC27	End-Stage Liver Disease
HCC28	Cirrhosis of Liver
HCC29	Chronic Hepatitis
HCC33	Intestinal Obstruction/Perforation
HCC34	Chronic Pancreatitis
HCC35	Inflammatory Bowel Disease
HCC39	Bone/Joint/Muscle Infections/Necrosis
HCC40	Rheumatoid Arthritis and Inflammatory Connective Tissue Disease
HCC46	Severe Hematological Disorders
HCC47	Disorders of Immunity
HCC48	Coagulation Defects and Other Specified Hematological Disorders
HCC51	Dementia With Complications
HCC52	Dementia Without Complication
HCC54	Substance Use with Psychotic Complications
HCC55	Substance Use Disorder, Moderate/Severe, or Substance Use with Complications
HCC56	Substance Use Disorder, Mild, Except Alcohol and Cannabis
HCC57	Schizophrenia
HCC58	Reactive and Unspecified Psychosis
HCC59	Major Depressive, Bipolar, and Paranoid Disorders
HCC60	Personality Disorders
HCC70	Quadriplegia
HCC71	Paraplegia
HCC72	Spinal Cord Disorders/Injuries
HCC73	Amyotrophic Lateral Sclerosis and Other Motor Neuron Disease
HCC74	Cerebral Palsy
HCC75	Myasthenia Gravis/Myoneural Disorders and Guillain-Barre Syndrome/Inflammatory and Toxic Neuropathy
HCC76	Muscular Dystrophy
HCC77	Multiple Sclerosis
HCC78	Parkinson's and Huntington's Diseases
HCC79	Seizure Disorders and Convulsions
HCC80	Coma, Brain Compression/Anoxic Damage
HCC82	Respirator Dependence/Tracheostomy Status
HCC83	Respiratory Arrest
HCC84	Cardio-Respiratory Failure and Shock
HCC85	Congestive Heart Failure
HCC86	Acute Myocardial Infarction
HCC87	Unstable Angina and Other Acute Ischemic Heart Disease
HCC88	Angina Pectoris
HCC96	Specified Heart Arrhythmias
HCC99	Intracranial Hemorrhage
HCC100	Ischemic or Unspecified Stroke
HCC103	Hemiplegia/Hemiparesis
HCC104	Monoplegia, Other Paralytic Syndromes
HCC106	Atherosclerosis of the Extremities with Ulceration or Gangrene
HCC107	Vascular Disease with Complications

HCC	Label
HCC108	Vascular Disease
HCC110	Cystic Fibrosis
HCC111	Chronic Obstructive Pulmonary Disease
HCC112	Fibrosis of Lung and Other Chronic Lung Disorders
HCC114	Aspiration and Specified Bacterial Pneumonias
HCC115	Pneumococcal Pneumonia, Empyema, Lung Abscess
HCC122	Proliferative Diabetic Retinopathy and Vitreous Hemorrhage
HCC124	Exudative Macular Degeneration
HCC134	Dialysis Status
HCC135	Acute Renal Failure
HCC136	Chronic Kidney Disease, Stage 5
HCC137	Chronic Kidney Disease, Severe (Stage 4)
HCC138	Chronic Kidney Disease, Moderate (Stage 3)
HCC157	Pressure Ulcer of Skin with Necrosis Through to Muscle, Tendon, or Bone
HCC158	Pressure Ulcer of Skin with Full Thickness Skin Loss
HCC159	Pressure Ulcer of Skin with Partial Thickness Skin Loss
HCC161	Chronic Ulcer of Skin, Except Pressure
HCC162	Severe Skin Burn or Condition
HCC166	Severe Head Injury
HCC167	Major Head Injury
HCC169	Vertebral Fractures without Spinal Cord Injury
HCC170	Hip Fracture/Dislocation
HCC173	Traumatic Amputations and Complications
HCC176	Complications of Specified Implanted Device or Graft
HCC186	Major Organ Transplant or Replacement Status
HCC188	Artificial Openings for Feeding or Elimination
HCC189	Amputation Status, Lower Limb/Amputation Complications