

**HOME HEALTH AGENCY QUALITY MEASURES:
TECHNICAL DOCUMENTATION OF
OASIS-BASED PATIENT OUTCOME MEASURES**

Department of Health and Human Services
Centers for Medicare & Medicaid Services

Revision 5

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Revision History

Original Publication: May 20, 2011

Revision 1: September, 2011

1. Section entitled “Exclusions Based on Level of Consciousness” on page 29 was eliminated and the pseudo-code for each affected measure was revised to include this logic.

Revision 2: June 2013

1. Title of document changed. Additional claims-based home health outcome measures are documented elsewhere. This document includes only OASIS-based home health outcome measures.
2. Exclusions based on level of consciousness changed to rely on the values of M1700 Cognitive Functioning in addition to M1710 When Confused and M1720 When Anxious. The change applies to the following measures:
Improvement in Grooming, Stabilization in Grooming, Improvement in Upper Body Dressing, Improvement in Lower Body Dressing, Improvement in Bathing, Stabilization in Bathing, Improvement in Toilet Transferring, Stabilization in Toilet Transferring, Improvement in Toileting Hygiene, Stabilization in Toileting Hygiene, Improvement in Bed Transferring, Stabilization in Bed Transferring, Improvement in Ambulation-Locomotion, Improvement in Eating, Improvement in Light Meal Preparation, Stabilization in Light Meal Preparation, Improvement in Phone Use, Stabilization in Phone Use, Improvement in Management of Oral Medications, Stabilization in Management of Oral Medications, Improvement in Pain Interfering with Activity, Improvement in Speech and Language, Stabilization in Speech and Language, Improvement in Urinary Incontinence, Improvement in Bowel Incontinence, Improvement in Confusion Frequency, Stabilization in Cognitive Functioning, Improvement in Anxiety Level, Stabilization in Anxiety Level, Improvement in Behavior Problem Frequency

Revision 3: July 2013

1. Exclusions based on level of consciousness changed to correct an error in the June 2013 revision of the specifications. Exclusions based on M1710 When Confused and M1720 When Anxious were incorrectly specified. Instead of calculating the functional improvement/stabilization measures when either of

these items is coded as “NA”, the measures are not calculated when either of these items are coded as “NA”. The change applies to the following measures:

Improvement in Grooming, Stabilization in Grooming, Improvement in Upper Body Dressing, Improvement in Lower Body Dressing, Improvement in Bathing, Stabilization in Bathing, Improvement in Toilet Transferring, Stabilization in Toilet Transferring, Improvement in Toileting Hygiene, Stabilization in Toileting Hygiene, Improvement in Bed Transferring, Stabilization in Bed Transferring, Improvement in Ambulation-Locomotion, Improvement in Eating, Improvement in Light Meal Preparation, Stabilization in Light Meal Preparation, Improvement in Phone Use, Stabilization in Phone Use, Improvement in Management of Oral Medications, Stabilization in Management of Oral Medications, Improvement in Pain Interfering with Activity, Improvement in Speech and Language, Stabilization in Speech and Language, Improvement in Urinary Incontinence, Improvement in Bowel Incontinence, Improvement in Confusion Frequency, Stabilization in Cognitive Functioning, Improvement in Anxiety Level, Stabilization in Anxiety Level, Improvement in Behavior Problem Frequency

Revision 4: March 2014

1. Field names for several OASIS items have been changed to conform with the latest version of the OASIS data submission specifications., Version 2.10.1 for OASIS-C and Version 2.11.2 for OASIS-C1 / ICD-9 Version, effective October 1, 2014. The following field names have changed:

Old Field Name	New Field Name
M1800_CUR_GROOMING	M1800_CRNT_GROOMING
M1810_CUR_DRESS_UPPER	M1810_CRNT_DRESS_UPPER
M1820_CUR_DRESS_LOWER	M1820_CRNT_DRESS_LOWER
M1840_CUR_TOILTG	M1840_CRNT_TOILTG
M1845_CUR_TOILTG_HYGN	M1845_CRNT_TOILTG_HYGN
M1850_CUR_TRNSFRNG	M1850_CRNT_TRNSFRNG
M1870_CUR_FEEDING	M1870_CRNT_FEEDING
M1880_CUR_PREP_LT_MEALS	M1880_CRNT_PREP_LT_MEALS
M1890_CUR_PHONE_USE	M1890_CRNT_PHONE_USE

Revision 5: December 2016

1. Measures that were removed from the home health quality reporting programs and the home health quality initiative in the CY 2017 final rule (listed below) have been noted with a * in the measure specifications.

Improvement in Anxiety Level
Improvement in Urinary Incontinence
Improvement in Behavior Problem Frequency
Improvement in Speech and Language
Improvement in Urinary Tract Infection
Improvement in Grooming
Improvement in Toileting Hygiene
Improvement in Eating
Improvement in Light Meal Preparation
Improvement in Phone Use
Stabilization in Speech and Language
Stabilization in Cognitive Functioning
Stabilization in Anxiety Level
Stabilization in Light Meal Preparation
Stabilization in Phone Use

2. Several OASIS items have been changed to conform to the latest version of the OASIS data submission specifications. OASIS-C2, effective January 1, 2017. Several items have been added in compliance with the IMPACT Act of 2014. The following table lists the new or changed items included in the OASIS C-2.

Old Field Name	New Field Name
n/a	M1028_ Active Diagnoses
n/a	M1060 Height and Weight
M1308_ Current Number of Unhealed Pressure Ulcers at Each Stage or Unstageable:	M1311_ Current Number of Unhealed Pressure Ulcers at Each Stage
M1309 Current Number of Unhealed Pressure Ulcers at Each Stage	M1313 Worsening in Pressure Ulcer Status since SOC/ROC
n/a	M1313 (a-c) Worsening in Pressure Ulcer Status since SOC/ROC (staging)
M1500 Symptoms in Heart Failure Patients	M1501 Symptoms in Heart Failure Patients

Old Field Name	New Field Name
M1510 Heart Failure Follow Up	M1511 Heart Failure Follow Up
n/a	GG0170C (Sect. GG) Functional Status SOC/ROC and discharge goal.
M2000 Drug Regimen Review	M2001 Drug Regimen Review
M2002 Medication Review	M2003 Medication Follow Up
M2004 Medication Intervention	M2005 Medication Intervention
M2015 Patient/Caregiver Drug Education Intervention	M2016 Patient/Caregiver Drug Education Intervention
M2300 Emergent Care	M2301 Emergent Care
M2400 Intervention Synopsis	M2401 Intervention Synopsis

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*Improvement in Urinary Incontinence	17
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HOME HEALTH AGENCY QUALITY MEASURES: TECHNICAL DOCUMENTATION OF OASIS-BASED PATIENT OUTCOME MEASURES

Introduction

This document provides definitions of measures that appear in Home Health Agency Patient Outcome Reports, including detailed specifications for calculating these measures based on OASIS assessment data. It includes specifications for measures that appear on the "All Patients' Risk Adjusted Outcome Report" that is used for Outcome-Based Quality Improvement, A subset of which measures appear on the C M S Home Health Compare web site.

Episodes of Care Included in Patient Outcome Quality Reports

The unit of analysis for both outcome and process quality reports is an episode of care, defined as starting with an admission to home health care (M0100 Reason for assessment = 01 or 02) or resumption of home health care after an inpatient facility stay (M0100 Reason for assessment = 03), and ending with a discharge from home health care, including discharge due to death, or admission to inpatient facility for 24 hours or more (M0100 Reason for assessment = 06, 07, 08, or 09). The data upon which these reports are based consist of OASIS assessments submitted by home health agencies to the states, which are then transmitted to a national OASIS repository residing on a secure database server maintained by C M S. Analysis records corresponding to episodes of care are constructed by matching up assessments for each individual served by a home health agency, sorting those assessments by effective date, then pairing up assessments that mark the beginning and end of an episode of care. Episodes of care for which either the beginning or end assessment is missing, or for which assessments are out of sequence, are not included in these reports.

Creation of Episode of Care Records

The process of building episode-level records, including creating a short-term episode of care indicator, is as follows:

1. Sort assessments by home health agency ID¹, patient ID and effective date, latest to earliest.

¹ When working with assessment records from the OASIS National Repository, home health agency ID is actually a combination of the two position state abbreviation and Facility Internal ID, and Patient ID is a combination of the state abbreviation and Resident Internal ID.

2. For each set of assessments having the same combination of home health agency ID and patient ID, step through the assessments, latest to earliest, until an assessment with M0100_ASSMT_REASON = 06, 07, 08, or 09 is found. Set ST-Episode = 1.
3. Continue stepping through earlier assessments, carrying over the value of ST_Episode and all of the OASIS data items that are used in any of the transformations.
4. If an assessment with M0100_ASSMT_REASON = 06, 07, 08, or 09 is found before an assessment with M0100_ASSMT_REASON = 01 or 03 is found, start over with step 2, discarding any data items carried over.
5. If an assessment with M0100_ASSMT_REASON = 04 or 05 is found before an assessment with M0100_ASSMT_REASON = 01 or 03 is found, set ST_Episode to 0 and continue stepping through earlier assessments, carrying over the value of ST_Episode and the OASIS data items carried over from the assessment selected in Step 2.
6. When an assessment with M0100_ASSMT_REASON = 01 or 03 is found, the episode is complete. Create a completed episode record with home health agency ID, patient ID, beginning assessment ID, ending assessment ID, begin and end dates for the episode, ST_Episode indicator and all outcome measures, using the data from the current assessment and data carried over from the later assessment. If there are more assessments for this patient, start building a new episode beginning with step 2.
7. If no assessment with M0100_ASSMT_REASON = 01 or 03 is found before the assessments for this patient are exhausted, discard the pending episode being built.

Home Health Outcome Measures

Outcome Measures are referred to as follows:

<u>Measure Domain & Descriptive Measure Name</u>	<u>Short Measure Name</u>
End Result Outcomes –Functional	
*Improvement in Grooming.....	Imprv_Grooming
Stabilization in Grooming	Stablz_Grooming
Improvement in Upper Body Dressing	Imprv_Upper_Dress
Improvement in Lower Body Dressing.....	Imprv_Lower_Dress
Improvement in Bathing.....	Imprv_Bathing
Stabilization in Bathing.....	Stablz_Bathing

<u>Measure Domain & Descriptive Measure Name</u>	<u>Short Measure Name</u>
Improvement in Toilet Transferring	Imprv_Toilet_Transfer
Stabilization in Toilet Transferring	Stablz_Toilet_Transfer
*Improvement in Toileting Hygiene.....	Imprv_Toilet_Hygeine
Stabilization in Toileting Hygiene.....	Stablz_Toilet_Hygeine
Improvement in Bed Transferring	Imprv_Bed_Transfer
Stabilization in Bed Transferring.....	Stablz_Bed_Transfer
Improvement in Ambulation-Locomotion	Imprv_Ambulation
*Improvement in Eating	Imprv_Eating
*Improvement in Light Meal Preparation.....	Imprv_Light_Meal
*Stabilization in Light Meal Preparation.....	Stablz_Light_Meal
*Improvement in Phone Use.....	Imprv_Phone
*Stabilization in Phone Use	Stablz_Phone
Improvement in Management of Oral Medications.....	Imprv_Oral_Meds
Stabilization in Management of Oral Medications	Stablz_Oral_Meds
End Result Outcomes –Health/Disease Status	
Improvement in Dyspnea.....	Imprv_Dyspnea
Improvement in Pain Interfering with Activity	Imprv_Pain
*Improvement in Speech and Language	Imprv_Speech
*Stabilization in Speech and Language	Stablz_Speech
Improvement in Status of Surgical Wounds.....	Imprv_Status_Wounds
*Improvement in Urinary Tract Infection	Imprv_UTI
*Improvement in Urinary Incontinence	Imprv_Incont
Improvement in Bowel Incontinence.....	Imprv_Bowel_Incont
Improvement in Confusion Frequency	Imprv_Confusion
*Stabilization in Cognitive Functioning	Stablz_Cognitive
*Improvement in Anxiety Level.....	Imprv_Anxiety
*Stabilization in Anxiety Level	Stablz_Anxiety
*Improvement in Behavior Problem Frequency	Imprv_Behavior
Utilization Outcomes	
Emergency Department Use without Hospitalization.....	Util_ED_Use_No_Hosp
Emergency Department Use with Hospitalization.....	Util_ED_Use_W_Hosp
Acute Care Hospitalization.....	Util_Hosp
Discharged to community	Util_DC_Comm

Assumptions and Conventions

The following transformations result in measures with numeric values. For process and outcome measures, "1" indicates that the outcome event occurred or the process was followed, while "0" indicates the outcome event did not occur or the process was not followed. When the instructions indicate that a measure is to be set to "MISSING", the case is excluded from analysis for that particular measure, either because the measure is not applicable or because a data item on which that measure is based has been indicated as "unknown".

OASIS data items are referred to in this documentation using field names specified in OASIS Data Submission Specifications published by C M S. "[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).

End Result Outcome Measures Data Transformation Pseudo-Code

Improvement/Stabilization in Functional Abilities

Improvement in Ambulation-Locomotion

```
IF M0100_ASSMT_REASON[2] = 09 AND M1700_COG_FUNCTION[1] <> 04
  AND M1710_WHEN_CONFUSED[1] <> NA
  AND M1720_WHEN_ANXIOUS[1] <> NA
THEN
  IF M1860_CRNT_AMBLTN[1] > 00
  THEN
    IF M1860_CRNT_AMBLTN[2] < M1860_CRNT_AMBLTN[1]
    THEN
      Imprv_Ambulation = 1
    ELSE
      Imprv_Ambulation = 0
    END IF
  ELSE
    Imprv_Ambulation = MISSING
  END IF
ELSE
  Imprv_Ambulation = MISSING
END IF
```

Improvement in Upper Body Dressing

```
IF M0100_ASSMT_REASON[2] = 09 AND M1700_COG_FUNCTION[1] <> 04
  AND M1710_WHEN_CONFUSED[1] <> NA AND M1720_WHEN_ANXIOUS[1]
  <> NA
THEN
  IF M1810_CRNT_DRESS_UPPER[1] > 00
  THEN
    IF M1810_CRNT_DRESS_UPPER[2] < M1810_CRNT_DRESS_UPPER[1]
    THEN
      Imprv_Upper_Dress = 1
    ELSE
      Imprv_Upper_Dress = 0
    END IF
  ELSE
    Imprv_Upper_Dress = MISSING
  END IF
```

```
        Imprv_Upper_Dress = MISSING
    END IF
ELSE
    Imprv_Upper_Dress = MISSING
END IF
```

Improvement in Lower Body Dressing

```
IF M0100_ASSMT_REASON[2] = 09 AND M1700_COG_FUNCTION[1] <> 04
    AND M1710_WHEN_CONFUSED[1] <> NA AND M1720_WHEN_ANXIOUS[1]
    <> NA
THEN
    IF M1820_CRNT_DRESS_LOWER[1] > 00
    THEN
        IF M1820_CRNT_DRESS_LOWER[2] < M1820_CRNT_DRESS_LOWER[1]
        THEN
            Imprv_Lower_Dress = 1
        ELSE
            Imprv_Lower_Dress = 0
        END IF
    ELSE
        Imprv_Lower_Dress = MISSING
    END IF
ELSE
    Imprv_Lower_Dress = MISSING
END IF
```

*Improvement in Grooming / Stabilization in Grooming

```
IF M0100_ASSMT_REASON[2] = 09 AND M1700_COG_FUNCTION[1] <> 04
    AND M1710_WHEN_CONFUSED[1] <> NA AND M1720_WHEN_ANXIOUS[1]
    <> NA
THEN
    IF M1800_CRNT_GROOMING[1] > 00
    THEN
        IF M1800_CRNT_GROOMING[2] < (M1800_CRNT_GROOMING[1]
        THEN
            Imprv_GROOMING = 1
        ELSE
            Imprv_GROOMING = 0
```

```

        END IF
    ELSE
        Imprv_GROOMING = MISSING
    END IF
    IF M1800_CRNT_GROOMING[1] < 03
    THEN
        IF M1800_CRNT_GROOMING[2] <= M1800_CRNT_GROOMING[1]
        THEN
            Stblz_GROOMING = 1
        ELSE
            Stblz_GROOMING = 0
        END IF
    ELSE
        Stblz_GROOMING = MISSING
    END IF
ELSE
    Imprv_GROOMING = MISSING
    Stblz_GROOMING = MISSING
END IF

```

Improvement in Bathing / Stabilization in Bathing

```

IF M0100_ASSMT_REASON[2] = 09 AND M1700_COG_FUNCTION[1] <> 04
    AND M1710_WHEN_CONFUSED[1] <> NA AND M1720_WHEN_ANXIOUS[1]
    <> NA
THEN
    IF M1830_CRNT_BATHG[1] > 00
    THEN
        IF M1830_CRNT_BATHG[2] < M1830_CRNT_BATHG[1]
        THEN
            Imprv_Bathing = 1
        ELSE
            Imprv_Bathing = 0
        END IF
    ELSE
        Imprv_Bathing = MISSING
    END IF
    IF M1830_CRNT_BATHG[1] < 06
    THEN
        IF M1830_CRNT_BATHG[2] <= M1830_CRNT_BATHG[1]

```

```

        THEN
            Stablz_Bathing = 1
        ELSE
            Stablz_Bathing = 0
        END IF
    ELSE
        Stablz_Bathing = MISSING
    END IF
ELSE
    Imprv_Bathing = MISSING
    Stablz_Bathing = MISSING
END IF

```

*Improvement in Eating

```

IF M0100_ASSMT_REASON[2] = 09 AND M1700_COG_FUNCTION[1] <> 04
    AND M1710_WHEN_CONFUSED[1] <> NA AND M1720_WHEN_ANXIOUS[1]
    <> NA
THEN
    IF M1870_CRNT_FEEDING[1] > 00
    THEN
        IF M1870_CRNT_FEEDING[2] < M1870_CRNT_FEEDING[1]
        THEN
            Imprv_Eating = 1
        ELSE
            Imprv_Eating = 0
        END IF
    ELSE
        Imprv_Eating = MISSING
    END IF
ELSE
    Imprv_Eating = MISSING
END IF

```

Improvement in Toilet Transferring / Stabilization in Toilet Transferring

```

IF M0100_ASSMT_REASON[2] = 09 AND M1700_COG_FUNCTION[1] <> 04
    AND M1710_WHEN_CONFUSED[1] <> NA AND M1720_WHEN_ANXIOUS[1]
    <> NA
THEN

```

```

IF M1840_CRNT_TOILTG[1] > 00
THEN
    IF M1840_CRNT_TOILTG[2] < M1840_CRNT_TOILTG[1]
    THEN
        Imprv_Toilet_Transfer = 1
    ELSE
        Imprv_Toilet_Transfer = 0
    END IF
ELSE
    Imprv_Toilet_Transfer = MISSING
END IF
IF M1840_CRNT_TOILTG[1] < 04
THEN
    IF M1840_CRNT_TOILTG[2] <= M1840_CRNT_TOILTG[1]
    THEN
        Stablz_Toilet_Transfer = 1
    ELSE
        Stablz_Toilet_Transfer = 0
    END IF
ELSE
    Stablz_Toilet_Transfer = MISSING
END IF
ELSE
    Imprv_Toilet_Transfer = MISSING
    Stablz_Toilet_Transfer = MISSING
END IF

```

Improvement in Bed Transferring / Stabilization in Bed Transferring

```

IF M0100_ASSMT_REASON[2] = 09 AND M1700_COG_FUNCTION[1] <> 04
    AND M1710_WHEN_CONFUSED[1] <> NA AND M1720_WHEN_ANXIOUS[1]
    <> NA
THEN
    IF M1850_CRNT_TRNSFRNG[1] > 00
    THEN
        IF M1850_CRNT_TRNSFRNG[2] < M1850_CRNT_TRNSFRNG[1]
        THEN
            Imprv_Bed_Transfer = 1
        ELSE
            Imprv_Bed_Transfer = 0
        END IF
    END IF

```



```

        END IF
    ELSE
        Imprv_Bed_Transfer = MISSING
    END IF
    IF M1850_CRNT_TRNSFRNG[1] < 05
    THEN
        IF M1850_CRNT_TRNSFRNG[2] <= M1850_CRNT_TRNSFRNG[1]
        THEN
            Stablz_Bed_Transfer = 1
        ELSE
            Stablz_Bed_Transfer = 0
        END IF
    ELSE
        Stablz_Bed_Transfer = MISSING
    END IF
ELSE
    Imprv_Bed_Transfer = MISSING
    Stablz_Bed_Transfer = MISSING
END IF

```

Improvement in Management of Oral Medications / Stabilization in Management of Oral Medications

```

IF M0100_ASSMT_REASON[2] = 09 AND
    M2020_CRNT_MGMT_ORAL_MDCTN[1] IS NOT BLANK AND
    M2020_CRNT_MGMT_ORAL_MDCTN[1] <> NA AND
    M2020_CRNT_MGMT_ORAL_MDCTN[2] <> NA AND
    (M1700_COG_FUNCTION[1] <> 04 AND M1710_WHEN_CONFUSED[1] <> NA
    AND M1720_WHEN_ANXIOUS[1] <> NA)
THEN
    IF M2020_CRNT_MGMT_ORAL_MDCTN[1] > 00
    THEN
        IF M2020_CRNT_MGMT_ORAL_MDCTN[2] <
            M2020_CRNT_MGMT_ORAL_MDCTN[1]
        THEN
            Imprv_Oral_Meds = 1
        ELSE
            Imprv_Oral_Meds = 0
        END IF
    ELSE

```

```

        Imprv_Oral_Meds = MISSING
    END IF
    IF M2020_CRNT_MGMT_ORAL_MDCTN[1] < 03
    THEN
        IF M2020_CRNT_MGMT_ORAL_MDCTN[2] <=
            M2020_CRNT_MGMT_ORAL_MDCTN[1]
        THEN
            Stablz_Oral_Meds = 1
        ELSE
            Stablz_Oral_Meds = 0
        END IF
    ELSE
        Stablz_Oral_Meds = MISSING
    END IF
ELSE
    Imprv_Oral_Meds = MISSING
    Stablz_Oral_Meds = MISSING
END IF

```

**Improvement in Light Meal Preparation / *Stabilization in Light Meal Preparation*

```

IF M0100_ASSMT_REASON[2] = 09 AND M1700_COG_FUNCTION[1] <> 04
    AND M1710_WHEN_CONFUSED[1] <> NA AND M1720_WHEN_ANXIOUS[1]
    <> NA
THEN
    IF M1880_CRNT_PREP_LT_MEALS[1] > 00
    THEN
        IF M1880_CRNT_PREP_LT_MEALS[2] < M1880_CRNT_PREP_LT_MEALS[1]
        THEN
            Imprv_Light_Meal = 1
        ELSE
            Imprv_Light_Meal = 0
        END IF
    ELSE
        Imprv_Light_Meal = MISSING
    END IF
    IF M1880_CRNT_PREP_LT_MEALS[1] < 02
    THEN
        IF M1880_CRNT_PREP_LT_MEALS[2] <=
            M1880_CRNT_PREP_LT_MEALS[1]

```

```

        THEN
            Stablz_Light_Meal = 1
        ELSE
            Stablz_Light_Meal = 0
        END IF
    ELSE
        Stablz_Light_Meal = MISSING
    END IF
ELSE
    Imprv_Light_Meal = MISSING
    Stablz_Light_Meal = MISSING
END IF

```

**Improvement in Phone Use / *Stabilization in Phone Use*

```

IF M0100_ASSMT_REASON[2] = 09 AND M1890_CRNT_PHONE_USE[1] <> NA AND
    M1890_CRNT_PHONE_USE[2] <> NA AND M1700_COG_FUNCTION[1] <> 04
    AND M1710_WHEN_CONFUSED[1] <> NA AND M1720_WHEN_ANXIOUS[1]
    <> NA
THEN
    IF M1890_CRNT_PHONE_USE[1] > 00
    THEN
        IF M1890_CRNT_PHONE_USE[2] < M1890_CRNT_PHONE_USE[1]
        THEN
            Imprv_Phone = 1
        ELSE
            Imprv_Phone = 0
        END IF
    ELSE
        Imprv_Phone = MISSING
    END IF
    IF M1890_CRNT_PHONE_USE[1] < 05
    THEN
        IF M1890_CRNT_PHONE_USE[2] <= M1890_CRNT_PHONE_USE[1]
        THEN
            Stablz_Phone = 1
        ELSE
            Stablz_Phone = 0
        END IF
    ELSE

```

```

        Stablz_Phone = MISSING
    END IF
ELSE
    Imprv_Phone = MISSING
    Stablz_Phone = MISSING
END IF

```

**Improvement in Toileting Hygiene / Stabilization in Toileting Hygiene*

```

IF M0100_ASSMT_REASON[2] = 09 AND M1700_COG_FUNCTION[1] <> 04
    AND M1710_WHEN_CONFUSED[1] <> NA AND M1720_WHEN_ANXIOUS[1]
    <> NA
THEN
    IF M1845_CRNT_TOILTG_HYGN[1] > 00
    THEN
        IF M1845_CRNT_TOILTG_HYGN[2] < M1845_CRNT_TOILTG_HYGN[1]
        THEN
            Imprv_Toilet_Hygeine = 1
        ELSE
            Imprv_Toilet_Hygeine = 0
        END IF
    ELSE
        Imprv_Toilet_Hygeine = MISSING
    END IF
    IF M1845_CRNT_TOILTG_HYGN[1] < 03
    THEN
        IF M1845_CRNT_TOILTG_HYGN[2] <= M1845_CRNT_TOILTG_HYGN[1]
        THEN
            Stablz_Toilet_Hygeine = 1
        ELSE
            Stablz_Toilet_Hygeine = 0
        END IF
    ELSE
        Stablz_Toilet_Hygeine = MISSING
    END IF
ELSE
    Imprv_Toilet_Hygeine = MISSING
    Stablz_Toilet_Hygeine = MISSING
END IF

```

Improvement/Stabilization in Health/Disease Status

Improvement in Dyspnea

```
IF M0100_ASSMT_REASON[2] = 09
THEN
  IF M1400_WHEN_DYSPNEIC[1] > 00
  THEN
    IF M1400_WHEN_DYSPNEIC[2] < M1400_WHEN_DYSPNEIC[1]
    THEN
      Imprv_Dyspnea = 1
    ELSE
      Imprv_Dyspnea = 0
    END IF
  ELSE
    Imprv_Dyspnea = MISSING
  END IF
ELSE
  Imprv_Dyspnea = MISSING
END IF
```

Improvement in Pain Interfering with Activity

```
IF M0100_ASSMT_REASON[2] = 09 AND M1700_COG_FUNCTION[1] <> 04
  AND M1710_WHEN_CONFUSED[1] <> NA AND M1720_WHEN_ANXIOUS[1]
  <> NA
THEN
  IF M1242_PAIN_FREQ_ACTVTY_MVMT[1] > 00
  THEN
    IF M1242_PAIN_FREQ_ACTVTY_MVMT[2] <
      M1242_PAIN_FREQ_ACTVTY_MVMT[1]
    THEN
      Imprv_Pain = 1
    ELSE
      Imprv_Pain = 0
    END IF
  ELSE
    Imprv_Pain = MISSING
  END IF
```

ELSE

Imprv_Pain = MISSING

END IF

**Improvement in Speech and Language / *Stabilization in Speech and Language*

IF M0100_ASSMT_REASON[2] = 09 **AND** M1700_COG_FUNCTION[1] <> 04
 AND M1710_WHEN_CONFUSED[1] <> NA **AND** M1720_WHEN_ANXIOUS[1]
 <> NA **THEN**

IF M1230_SPEECH[1] > 00

THEN

IF M1230_SPEECH[2] < M1230_SPEECH[1]

THEN

 Imprv_Speech = 1

ELSE

 Imprv_Speech = 0

END IF

ELSE

 Imprv_Speech = MISSING

END IF

IF M1230_SPEECH[1] < 05

THEN

IF M1230_SPEECH[2] <= M1230_SPEECH[1]

THEN

 Stablz_Speech = 1

ELSE

 Stablz_Speech = 0

END IF

ELSE

 Stablz_Speech = MISSING

END IF

ELSE

 Imprv_Speech = MISSING

 Stablz_Speech = MISSING

END IF

Improvement in Status of Surgical Wounds

IF M0100_ASSMT_REASON[2] = 09

THEN

```

IF M1340_SRGCL_WND_PRSNT[1] = 01 AND
    M1342_STUS_PRBLM_SRGCL_WND[1] > 00 AND
    M1340_SRGCL_WND_PRSNT[2] <> 02
THEN
    IF M1340_SRGCL_WND_PRSNT[2] = 00 OR
        M1342_STUS_PRBLM_SRGCL_WND[2] <
        M1342_STUS_PRBLM_SRGCL_WND[1]
    THEN
        Imprv_Status_Wounds = 1
    ELSE
        Imprv_Status_Wounds = 0
    END IF
ELSE
    Imprv_Status_Wounds = MISSING
END IF
ELSE
    Imprv_Status_Wounds = MISSING
END IF

```

**Improvement in Urinary Tract Infection*

```

IF M0100_ASSMT_REASON[2] = 09 AND M1600_UTI[1] <> UK AND
    M1600_UTI[1] <> NA AND M1600_UTI[2] <> NA
THEN
    IF M1600_UTI[1] > 00
    THEN
        IF M1600_UTI[2] < M1600_UTI[1]
        THEN
            Imprv_UTI = 1
        ELSE
            Imprv_UTI = 0
        END IF
    ELSE
        Imprv_UTI = MISSING
    END IF
ELSE
    Imprv_UTI = MISSING
END IF

```

**Improvement in Urinary Incontinence*

```
IF M0100_ASSMT_REASON[2] = 09 AND M1700_COG_FUNCTION[1] <> 04
  AND M1710_WHEN_CONFUSED[1] <> NA AND M1720_WHEN_ANXIOUS[1]
  <> NA
THEN
  IF M1610_UR_INCONT[1] > 00
  THEN
    IF M1610_UR_INCONT[2] < M1610_UR_INCONT[1]
      OR (M1610_UR_INCONT[2] = 01
        AND M1615_INCNTNT_TIMING[2] < M1615_INCNTNT_TIMING[1])
    THEN
      Imprv_Incont = 1
    ELSE
      Imprv_Incont = 0
    END IF
  ELSE
    Imprv_Incont = MISSING
  END IF
ELSE
  Imprv_Incont = MISSING
END IF
```

Improvement in Bowel Incontinence

```
IF M0100_ASSMT_REASON[2] = 09 AND M1620_BWL_INCONT[1] <> UK AND
  M1620_BWL_INCONT[1] <> NA AND M1620_BWL_INCONT[2] <> NA AND
  M1700_COG_FUNCTION[1] <> 04 AND M1710_WHEN_CONFUSED[1] <> NA
  AND M1720_WHEN_ANXIOUS[1] <> NA
THEN
  IF M1620_BWL_INCONT[1] > 00
  THEN
    IF M1620_BWL_INCONT[2] < M1620_BWL_INCONT[1]
    THEN
      Imprv_Bowel_Incont = 1
    ELSE
      Imprv_Bowel_Incont = 0
    END IF
  ELSE
    Imprv_Bowel_Incont = MISSING
  END IF
```



```
END IF
ELSE
    Imprv_Bowel_Incont = MISSING
END IF
```

Improvement in Confusion Frequency

```
IF M0100_ASSMT_REASON[2] = 09 AND M1710_WHEN_CONFUSED[2] <> NA AND
    M1700_COG_FUNCTION[1] <> 04 AND M1710_WHEN_CONFUSED[1] <> NA
    AND M1720_WHEN_ANXIOUS[1] <> NA
THEN
    IF M1710_WHEN_CONFUSED[1] > 00
    THEN
        IF M1710_WHEN_CONFUSED[2] < M1710_WHEN_CONFUSED[1]
        THEN
            Imprv_Confusion = 1
        ELSE
            Imprv_Confusion = 0
        END IF
    ELSE
        Imprv_Confusion = MISSING
    END IF
ELSE
    Imprv_Confusion = MISSING
END IF
```

**Stabilization in Cognitive Functioning*

```
IF M0100_ASSMT_REASON[2] = 09 AND M1710_WHEN_CONFUSED[1] <> NA AND
    M1720_WHEN_ANXIOUS[1] <> NA
THEN
    IF M1700_COG_FUNCTION[1] < 04
    THEN
        IF M1700_COG_FUNCTION[2] <= M1700_COG_FUNCTION[1]
        THEN
            Stablz_Cognitive = 1
        ELSE
            Stablz_Cognitive = 0
        END IF
    ELSE

```

```

        Stablz_Cognitive = MISSING
    END IF
ELSE
    Stablz_Cognitive = MISSING
END IF

```

**Improvement in Anxiety Level / Stabilization in Anxiety Level*

```

IF M0100_ASSMT_REASON[2] = 09 AND M1700_COG_FUNCTION[1] <> 04
    AND M1710_WHEN_CONFUSED[1] <> NA AND M1720_WHEN_ANXIOUS[1]
    <> NA AND M1720_WHEN_ANXIOUS[2] <> NA
THEN
    IF M1720_WHEN_ANXIOUS[1] > 00
    THEN
        IF M1720_WHEN_ANXIOUS[2] < M1720_WHEN_ANXIOUS[1]
        THEN
            *Imprv_Anxiety = 1
        ELSE
            Imprv_Anxiety = 0
        END IF
    ELSE
        Imprv_Anxiety = MISSING
    END IF
    IF M1720_WHEN_ANXIOUS[1] < 03
    THEN
        IF M1720_WHEN_ANXIOUS[2] <= M1720_WHEN_ANXIOUS[1]
        THEN
            Stablz_Anxiety = 1
        ELSE
            Stablz_Anxiety = 0
        END IF
    ELSE
        Stablz_Anxiety = MISSING
    END IF
ELSE
    Imprv_Anxiety = MISSING
    Stablz_Anxiety = MISSING
END IF

```

**Improvement in Behavior Problem Frequency*

```
IF M0100_ASSMT_REASON[2] = 09 AND M1700_COG_FUNCTION[1] <> 04
    AND M1710_WHEN_CONFUSED[1] <> NA AND M1720_WHEN_ANXIOUS[1]
    <> NA
THEN
    IF M1745_BEH_PROB_FREQ[1] > 00
    THEN
        IF M1745_BEH_PROB_FREQ[2] < M1745_BEH_PROB_FREQ[1]
        THEN
            Imprv_Behavior = 1
        ELSE
            Imprv_Behavior = 0
        END IF
    ELSE
        Imprv_Behavior = MISSING
    END IF
ELSE
    Imprv_Behavior = MISSING
END IF
```

Utilization Outcome Measures Data Transformation Pseudo-Code

Emergency Department Use without Hospitalization

```
IF M0100_ASSMT_REASON[2] <> 08
THEN
  IF M2301_EMER_USE_AFTR_LAST_ASMT[2] = 01
  THEN
    Util_ED_Use_No_Hosp = 1
  ELSEIF M2301_EMER_USE_AFTR_LAST_ASMT[2] = 00
    OR M2301_EMER_USE_AFTR_LAST_ASMT[2] = 02
  THEN
    Util_ED_Use_No_Hosp = 0
  ELSEIF M2301_EMER_USE_AFTR_LAST_ASMT[2] = UK
  THEN
    Util_ED_Use_No_Hosp = MISSING
  END IF
ELSE
  Util_ED_Use_No_Hosp = MISSING
END IF
```

Emergency Department Use with Hospitalization

```
IF M0100_ASSMT_REASON[2] <> 08
THEN
  IF M2301_EMER_USE_AFTR_LAST_ASMT[2] = 02
  THEN
    Util_ED_Use_W_Hosp = 1
  ELSEIF M2301_EMER_USE_AFTR_LAST_ASMT[2] = 00
    OR M2301_EMER_USE_AFTR_LAST_ASMT[2] = 01
  THEN
    Util_ED_Use_W_Hosp = 0
  ELSEIF M2301_EMER_USE_AFTR_LAST_ASMT[2] = UK
  THEN
    Util_ED_Use_W_Hosp = MISSING
  END IF
ELSE
  Util_ED_Use_W_Hosp = MISSING
END IF
```

Discharged to Community

```
IF M0100_ASSMT_REASON[2] <> 08
THEN
  IF M0100_ASSMT_REASON[2] = 09 AND (M2420_DSCHRG_DISP[2] = 01
    OR M2420_DSCHRG_DISP[2] = 02)
  THEN
    Util_DC_Comm = 1
  ELSE IF (M0100_ASSMT_REASON[2] = 09 AND M2420_DSCHRG_DISP[2] = 03)
    OR M0100_ASSMT_REASON[2] = 06 OR M0100_ASSMT_REASON[2] = 07
  THEN
    Util_DC_Comm = 0
  ELSE IF M0100_ASSMT_REASON[2] = 09
    AND M2420_DSCHRG_DISP[2] = UK
  THEN
    Util_DC_Comm = MISSING
  END IF
ELSE
  Util_DC_Comm = MISSING
END IF
```

Acute Care Hospitalization

```
IF M0100_ASSMT_REASON[2] <> 08
THEN
  IF (M0100_ASSMT_REASON[2] = 06 OR M0100_ASSMT_REASON[2] = 07)
    AND M2410_INPAT_FACILITY [2]= 01
    AND M2430_HOSP_SCHLD_TRTMT[2] <> 1
  THEN
    Util_Hosp = 1
  ELSEIF M0100_ASSMT_REASON[2] = 09 OR ((M0100_ASSMT_REASON[2] = 06
    OR M0100_ASSMT_REASON[2] = 07) AND
    M2410_INPAT_FACILITY [2] <> 01 OR (M2410_INPAT_FACILITY [2]= 01
    AND M2430_HOSP_SCHLD_TRTMT[2] = 1))
  THEN
    Util_Hosp = 0
  END IF
ELSE
  Util_Hosp = MISSING
```

END IF
