



MDS 3.0 Quality Measures

DRAFT USER'S MANUAL

Part 1

Sample/Record

Selection Methodology and Logical Specifications

(v4.0 9-29-2011)

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Prepared for:
The Centers for Medicare & Medicaid Services
under Contract No. HSM-500-2008-000211.
(RTI Project Number 0211942.001.100.004)

QUALITY MEASURES (QM) SAMPLE AND RECORD SELECTION METHODOLOGY USER'S MANUAL

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Chapter 1

QM Sample and Record Selection Methodology

The purpose of this chapter is to describe the methodology that is used to select the short and long stay samples as well as the key records that are used to compute the QMs for each of those samples. The first section below will present definitions that are used to describe the selection methodology. The second section describes the selection of the two samples. The third and fourth sections describe the selection of the key records within each of the two samples. Section 5 presents issues to date.

The logic presented below depends upon the concepts of stays and episodes. Detailed specifications for the identification of stays and episodes is presented in a separate document¹.

Section 1: Definitions

Target period. The span of time that defines the QM reporting period (e.g., a calendar quarter).

Stay. The period of time between a resident's entry into a facility and either (a) a discharge, or (b) the end of the target period, whichever comes first. A stay is also defined as a set of contiguous days in a facility. The start of a stay is either:

- An admission entry (A0310F = [01] and A1700 = [1]), OR
- A reentry (A0310F = [01] and A1700 = [2]).

The end of a stay is the earliest of the following:

- Any discharge assessment (A0310F = [10, 11]), OR
- A death in facility tracking record (A0310F = [12]), OR
- The end of the target period.

Episode. A period of time spanning one or more stays. An episode begins with an admission (defined below) and ends with either (a) a discharge, or (b) the end of the target period, whichever comes first. An episode starts with:

- An admission entry (A0310F = [01] and A1700 = [1]).

The end of an episode is the earliest of the following:

- A discharge assessment with return not anticipated (A0310F = [10]), OR
- A discharge assessment with return anticipated (A0310F = [11]) but the resident did not return (A0310F = [10]) within 30 days of discharge, OR
- A death in facility tracking record (A0310F = [12]), OR

¹ See MDS 3.0 Episode and Stay Determination Logic.

- The end of the target period.

Admission. An admission entry record (A0310F = [01] and A1700 = [1]) is required when *any one* of the following occurs:

- resident has never been admitted to this facility before; OR
- resident has been in this facility previously and was discharged return not anticipated; OR
- resident has been in this facility previously and was discharged return anticipated and did not return within 30 days of discharge.

Reentry. A reentry record (A0310F = [01] and A1700 = [2]) is required when *all of the following* occurred prior to this entry, the resident was:

- discharged return anticipated, AND
- returned to facility within 30 days of discharge.

Cumulative days in facility (CDIF). The total number of days within an episode during which the resident was in the facility. It is the sum of the number of days within each stay included in an episode. If an episode consists of more than one stay separated by periods of time outside the facility (e.g., hospitalizations), only those days within the facility would count towards CDIF. Any days outside of the facility (e.g., hospital, home, etc.) would not count towards the CDIF total. The following rules are used when computing CDIF:

- When counting the number of days until the end of the episode, counting stops with (a) the last record in the target period if that record is a discharge assessment (A0310F = [10, 11]), (b) the last record in the target period if that record is a death in facility (A0310F = [12]), or (c) the end of the target period is reached, whichever is earlier.
- When counting the duration of each stay within an episode, include the day of entry (A1600) but not the day of discharge (A2000) unless the entry and discharge occurred on the same day in which case the number of days in the stay is equal to 1.
- While death in facility records (A0310F = [12]) end CDIF counting, these records are not used as target records because they contain only tracking information and do not include clinical information necessary for QM calculation.
- **Special rules for the MDS 2.0/MDS 3.0 transition.** The MDS 3.0 QMs will be based entirely on MDS 3.0 data; no MDS 2.0 data will be used for these measures. Therefore, special rules must be used when constructing episodes and counting days that could span the MDS 3.0 implementation date of 10/1/2010.
 - When computing an episode's CDIF, work backwards from the end of the episode, counting CDIF. If CDIF exceeds 100 before reaching 10/1/2010, stop: the resident is long stay.
 - If an admission entry record is encountered before reaching 10/1/2010, stop and classify the resident as long or short stay depending upon the number of days accumulated.

- If 10/1/2010 is encountered, stop counting CDIF. If 101 or more days have been accumulated, then resident is long stay. If CDIF is less than or equal to 100, then the episode is undetermined, and the episode is excluded from analysis.

Short stay. An episode with CDIF less than or equal to 100 days as of the end of the target period.

Long stay. An episode with CDIF greater than or equal to 101 days as of the end of the target period.

Target date. The event date for an MDS record, defined as follows:

- For an entry record (A0310F = [01]), the target date is equal to the entry date (A1600).
- For a discharge record (A0310F = [10, 11]) or death-in-facility record (A0310F = [12]), the target date is equal to the discharge date (A2000).
- For all other records, the target date is equal to the assessment reference date (A2300).

Section 2: Selecting the QM Samples

Two resident samples are selected for computing the QMs: a short-stay sample and a long-stay sample. These samples are selected using the following steps:

1. Select all residents whose latest episode either ends during the target period or is ongoing at the end of the target period. This latest episode is selected for QM calculation.
2. For each episode that is selected, compute the cumulative days in the facility (CDIF).
3. If the CDIF is less than or equal to 100 days, the resident is included in the short-stay sample.
4. If the CDIF is greater than or equal to 101 days, the resident is included in the long-stay sample.

Note that all residents who are selected in Step 1 above will be placed in either the short- or long-stay sample and that the two samples are mutually exclusive. If a resident has multiple episodes within the target period, only the latest episode is used.

Within each sample, certain key records are identified which are used for calculating individual measures. These records are defined in the following sections.

Section 3: Short Stay Record Definitions

ASSESSMENT SELECTED	PROPERTY	SELECTION SPECIFICATIONS
Target assessment	Selection period	Most recent 6 months (the short stay target period).
	Qualifying RFAs ¹	A0310A = [01, 02, 03, 04, 05, 06] or A0310B = [01, 02, 03, 04, 05, 06] or A0310F = [10, 11]
	Selection logic	Latest assessment that meets the following criteria: (a) it is contained within the resident's selected episode, (b) it has a qualifying RFA, and (c) its target date is no more than 120 days ¹ before the end of the episode.
	Rationale	Records with a qualifying RFA contain all of the items needed to define the QMs. The target assessment need not have a target date within the target period, but it must occur within 120 days before the end of the resident's selected episode (either the target date of a discharge assessment or death in facility record that is the last record in the target period or the end of the target period if the episode is ongoing). 120 days allows 93 days between quarterly assessments plus an additional 27 days to allow for late assessments. The target assessment represents the resident's status at the end of the episode.
Initial assessment	Selection period	First assessment following the admission entry record at the beginning of the resident's selected episode.
	Qualifying RFAs	A0310A = [01] or A0310B = [01, 06] or A0310F = [10, 11]
	Selection logic	Earliest assessment that meets the following criteria: (a) it is contained within the resident's selected episode, (b) it has a qualifying RFA, (c) it has the earliest target date that is greater than or equal to the admission entry date starting the episode, and (d) its target date is no more than 130 days prior to the target date of the target record. The initial assessment cannot be the same as the target assessment. If the same assessment qualifies as both the initial and target assessments, it is used as the target assessment and the initial assessment is considered to be missing.
	Rationale	Records with a qualifying RFA contain all of the items needed to define the QMs. The initial assessment need not have a target date within the target period. The initial assessment represents the resident's status as soon as possible after the admission that marks the beginning of the episode. If the initial assessment is more than 130 days prior to the target assessment, it is not used and the initial record is considered to be missing. This prevents the use of an initial assessment for a short stay in which a large portion of the resident's episode was spent outside the facility. 130 days allows for as many as 30 days of a 100-day stay to occur outside of the facility.

(continued)

¹ A short stay episode can span more than 100 calendar days because days outside of the facility are not counted in defining a 100-day or less short stay episode.

Short Stay Record Definitions (continued)

ASSESSMENT SELECTED	PROPERTY	SELECTION SPECIFICATIONS
Lookback Scan	Selection period	Scan all assessments within the current episode.
	Qualifying RFAs	A0310A = [01, 02, 03, 04, 05, 06] or A0310B = [01, 02, 03, 04, 05, 06] or A0310F = [10, 11]
	Selection logic	Include the target assessment and qualifying earlier assessments in the scan. Include an earlier assessment in the scan if it meets all of the following conditions: (a) it is contained within the resident's episode, (b) it has a qualifying RFA, and (c) its target date is on or before the target date for the target assessment. The target assessment and qualifying earlier assessments are scanned to determine whether certain events or conditions occurred during the look-back period. These events and conditions are specified in the definitions of measures that utilize the look-back scan.
	Rationale	Some measures utilize MDS items that record events or conditions that occurred since the prior assessment was performed. The purpose of the look-back scan is to determine whether such events or conditions occurred during the look-back period. All assessments with target dates within the episode are examined to determine whether the event or condition of interest occurred at any time during the episode.

¹ RFA: reason for assessment.

² A short stay episode can span more than 100 calendar days because days outside of the facility are not counted in defining a 100-day or less short stay episode.

Section 4: Long Stay Record Definitions

ASSESSMENT SELECTED	PROPERTY	SELECTION SPECIFICATIONS
Target assessment	Selection period	Most recent 3 months (the long stay target period)
	Qualifying RFAs	A0310A = [01, 02, 03, 04, 05, 06] or A0310B = [01, 02, 03, 04, 05, 06] or A0310F = [10, 11]
	Selection logic	Latest assessment that meets the following criteria: (a) it is contained within the resident's selected episode, (b) it has a qualifying RFA, and (c) its target date is no more than 120 before the end of the episode.
	Rationale	Records with a qualifying RFA contain all of the items needed to define the QMs. The target assessment need not have a target date within the target period, but it must occur within 120 days of the end of the resident's episode (either the last discharge in the target period or the end of the target period if the episode is ongoing). 120 days allows 93 days between quarterly assessments plus an additional 27 days to allow for late assessments. The target assessment represents the resident's status at the end of the episode.
Prior assessment	Selection period	Latest assessment that is 46 to 165 days before the target assessment.
	Qualifying RFAs	A0310A = [01, 02, 03, 04, 05, 06] or A0310B = [01, 02, 03, 04, 05, 06] or A0310F = [10, 11]
	Selection logic	Latest assessment that meets the following criteria: (a) it is contained within the resident's episode, (b) it has a qualifying RFA, and (c) its target date is contained in the window that is 46 days to 165 days preceding the target date of the target assessment. If no qualifying assessment exists, the prior assessment is considered missing.
	Rationale	Records with a qualifying RFA contain all of the items needed to define the QMs. The prior assessment need not have a target date within the target period, but it must occur within the defined window. The window covers 120 days, which allows 93 days between quarterly assessments plus an additional 27 days to allow for late assessments. Requiring a 45 day gap between the prior assessment and the target assessment insures that the gap between the prior and target assessment will not be small (gaps of 45 days or less are excluded).

(continued)

Long Stay Record Definitions (continued)

ASSESSMENT SELECTED	PROPERTY	SELECTION SPECIFICATIONS
Lookback Scan	Selection period	Scan all assessments within the current episode that have target dates no more than 275 days prior to the target assessment.
	Qualifying RFAs	A0310A = [01, 02, 03, 04, 05, 06] or A0310B = [01, 02, 03, 04, 05, 06] or A0310F = [10, 11]
	Selection logic	Include the target assessment and all qualifying earlier assessments in the scan. Include an earlier assessment in the scan if it meets all of the following conditions: (a) it is contained within the resident's episode, (b) it has a qualifying RFA, (c) its target date is on or before the target date for the target assessment, and (d) its target date is no more than 275 days prior to the target date of the target assessment. The target assessment and qualifying earlier assessments are scanned to determine whether certain events or conditions occurred during the look-back period. These events and conditions are specified in the definitions of measures that utilize the look-back scan.
	Rationale	Some measures utilize MDS items that record events or conditions that occurred since the prior assessment was performed. The purpose of the look-back scan is to determine whether such events or conditions occurred during the look-back period. These measures trigger if the event or condition of interest occurred any time during a one year period. A 275 day time period is used to include up to three quarterly OBRA assessments. The earliest of these assessments would have a look-back period of up to 93 days which would cover a total of about one year, All assessments with target dates in this time period are examined to determine whether the event or condition of interest occurred at any time during the time interval.

Chapter 2

MDS 3.0 Quality Measures Logical Specifications

Section 1: Short Stay Quality Measures

MDS 3.0 Measure (#0675): The Percentage of Residents on a Scheduled Pain Medication Regimen on Admission Who Self-Report a Decrease in Pain Intensity or Frequency (Short Stay)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
This measure captures the percentage of short-stay residents who can self-report pain, are on a scheduled pain medication regimen at their initial assessment, and who report lowered levels of pain on their target assessment.	<p>Numerator</p> <p>Short-stay residents with both an initial assessment and a subsequent target assessment, AND who can self-report on pain (J0200 = [1]) on both the initial assessment and the target assessment. AND who are on a scheduled pain medication regimen on their initial assessment (J0100A = [1]) , AND who report reduced pain on their target assessment when compared with their initial assessment as indicated by any of the following:</p> <ol style="list-style-type: none"> 1. Resolution of pain with J0300 = [1] (pain present) on the initial assessment AND J0300 = [0] (no pain) on the target assessment. 2. Decrease in pain frequency indicated by J0400=[1,2,3,4] on both the initial and target assessments and J0400 on the target assessment > J0400 on the initial assessment. A score of [1] on J0400 indicates the most frequent pain and a score of [4] indicates the least frequent. 3. Reduced intensity of pain indicated by J0600A=[00,01,02,03,04,05,06,07,08,09,10] on both the initial and target assessments and J0600A on the target assessment < J0600A on the initial assessment. A score of [10] on J0600A indicates the most intense pain and a score of [00] indicates no pain. 4. Reduced intensity of pain indicated by J0600B=[1,2,3,4] on both the initial and target assessments and J0600B on the target assessment < J0600B on the initial assessment. A score of [4] on J0600B indicates the most intense pain and a score of [1] indicates the least intense pain. <p>Denominator</p> <p>Short-stay residents with both an initial assessment and a subsequent target assessment, AND who can self-report on pain (J0200 = [1]) on both the initial assessment and the target assessment. AND who are on a scheduled pain medication regimen (J0100A = [1]) on the initial assessment, except those who meet the exclusion criteria.</p>	Not applicable.

(continued)

MDS 3.0 Measure (#0675): The Percentage of Residents on a Scheduled Pain Medication Regimen on Admission Who Self-Report a Decrease in Pain Intensity or Frequency (Short Stay) (continued)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
	<p>Exclusions</p> <p>Residents are excluded in any of the following cases:</p> <ol style="list-style-type: none"> 1. The resident is not included in the numerator AND the value for J0300 or J0400 is [9] or dash [-] indicating not assessed on either the initial or target assessment. 2. The resident is not included in the numerator AND a valid comparison could not be made between the initial and target assessment on either J0600A or J0600B. In order for a valid comparison to be made, at least one of the following must be true:: <ol style="list-style-type: none"> 2.1 Item J0600A must have a value of [00] through [10] on both the initial and target assessments. 2.2. Item J0600B must have a value of [1] through [4] on both the initial and target assessments. 3. There was no opportunity for the pain levels to improve because pain levels were at their lowest level possible on the initial assessment. This will occur if one of the following is true for the initial assessment: <ol style="list-style-type: none"> 3.1. J0300 = [0] (the resident reports no pain) 3.2. Both the following conditions are true: <ol style="list-style-type: none"> 3.2.1 J0400 = [4] (pain occurs rarely) AND 3.2.2. J0600A = [00, -, ^] (no pain reported) OR J0600B = [1, 9, ^] (no pain reported). 	

MDS 3.0 Measure (#0676): Percent of Residents Who Self-Report Moderate to Severe Pain (Short Stay)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
<p>This measure captures the percent of short stay residents, with at least one episode of moderate/severe pain or horrible/excruciating pain of any frequency, in the last 5 days.</p>	<p>Numerator</p> <p>Short-stay residents with a selected target assessment where the target assessment meets <i>either or both</i> of the following two conditions:</p> <ol style="list-style-type: none"> Condition #1: resident reports daily pain with at least one episode of moderate/severe pain. Both of the following conditions must be met: <ol style="list-style-type: none"> 1.1. Almost constant or frequent pain (J0400=[1,2]) and 1.2. At least one episode of moderate to severe pain (J0600A=[05,06,07,08,09] OR J0600B=[2,3]). Condition #2: resident reports very severe/horrible pain of any frequency (J0600A=[10] OR J0600B=[4]). <p>Denominator</p> <p>All short-stay residents with a selected target assessment, except those with exclusions.</p> <p>Exclusions</p> <p>If the resident is not included in the numerator (the resident did not meet the pain symptom conditions for the numerator) AND any of the following conditions are true:</p> <ol style="list-style-type: none"> The pain assessment interview was not completed (J0200=[0,-,^]). The pain presence item was not completed (J0300=[9,-,^]). For residents with pain or hurting at any time in the last 5 days (J0300 = [1]), any of the following are true: <ol style="list-style-type: none"> 3.1. The pain frequency item was not completed (J0400=[9,-,^]). 3.2. Neither of the pain intensity items was completed (J0600A=[99,^, -] and J0600B=[9,^,-]). 3.3. The numeric pain intensity item indicates no pain (J0600A=[00]). 	<p>Not applicable.</p>

MDS 3.0 Measure (#0678): Percent of Residents With Pressure Ulcers That Are New or Worsened (Short Stay)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
<p>This measure captures the percentage of short-stay residents with new or worsening Stage 2-4 pressure ulcers.</p>	<p>Numerator Short-stay residents for which a look-back scan indicates one or more new or worsening Stage 2-4 pressure ulcers</p> <p>Where on any assessment in the look-back scan:</p> <ol style="list-style-type: none"> 1. Stage 2 (M0800A) > [0] and M0800A ≤ M0300B1, OR 2. Stage 3 (M0800B) > [0] and M0800B ≤ M0300C1, OR 3. Stage 4 (M0800C) > [0] and M0800C ≤ M0300D1. <p>Denominator All residents with one or more assessments that are eligible for a look-back scan, except those with exclusions.</p> <p>Exclusions Residents are excluded if none of the assessments that are included in the look-back scan has a usable response for M0800A, M0800B, or M0800C. This situation is identified as follows:</p> <ol style="list-style-type: none"> 1. Examine each assessment that is included in the look-back scan. For each assessment, do the following: <ol style="list-style-type: none"> 1.1 The response to M0800A is usable if either of the following conditions are true: <ol style="list-style-type: none"> 1.1.1. M0300B1 [0, 1, 2, 3, 4, 5, 6, 7, 8, 9] and M0800A = [0, 1, 2, 3, 4, 5, 6, 7, 8, 9] and M0800A ≤ M0300B1. 1.1.2. M0300B1 = [^] and M0800A = [^]. 1.2 The response to M0800B is usable if either of the following conditions are true: <ol style="list-style-type: none"> 1.2.1. M0300C1 [0, 1, 2, 3, 4, 5, 6, 7, 8, 9] and M0800B = [0, 1, 2, 3, 4, 5, 6, 7, 8, 9] and M0800B ≤ M0300C1. 1.2.2. M0300C1 = [^] and M0800B = [^]. 1.3 The response to M0800C is usable if either of the following conditions are true: <ol style="list-style-type: none"> 1.3.1. M0300D1 [0, 1, 2, 3, 4, 5, 6, 7, 8, 9] and M0800C = [0, 1, 2, 3, 4, 5, 6, 7, 8, 9] and M0800C ≤ M0300D1. 1.3.2. M0300D1 = [^] and M0800C = [^]. 1.4 If none of the three items M0800A, M0800B, and M0800C is usable, then the assessment is not usable and is discarded. 2. If all of the assessments that are eligible for the look-back scan are discarded and no usable assessments remain, then the resident is excluded from the numerator and the denominator. 	<ol style="list-style-type: none"> 1. Indicator of requiring limited or more assistance in bed mobility self-performance dependence on the initial assessment: Covariate = [1] if G0110A1 = [2, 3, 4, 7, 8] Covariate = [0] if G0110A1 = [0, 1, -] 2. Indicator of bowel incontinence at least occasionally on the initial assessment: Covariate = [1] if H0400 = [1, 2, 3] Covariate = [0] if H0400 = [0, 9, -, ^] 3. Have diabetes or peripheral vascular disease on initial assessment: Covariate = [1] if any of the following are true: <ol style="list-style-type: none"> a. I0900 = [1] (checked) b. I2900 = [1] (checked) c. I8000A through I8000J contains any of the following peripheral vascular disease diagnosis codes: [250.7, 440.20, 440.21, 440.22, 440.23, 440.24, 440.29, 440.31, 440.32, 443.81, 443.9]¹. Covariate = [0] if I0900 = [0, -] AND I2900 = [0, -] AND I8000A through I8000J do not contain any of the peripheral vascular disease diagnosis codes listed above. 4. Indicator of Low Body Mass Index, based on Height (K0200A) and Weight (K0200B) on the initial assessment: Covariate = [1] if BMI ≥ [12.0] AND ≤ [19.0] Covariate = [0] if BMI > [19.0] AND ≤ [40.0] Where: BMI = (weight * 703 / height²) = ((K0200B) * 703) / (K0200A²) and the resulting value is rounded to one decimal. Covariate = missing if K0200A = [-] OR K0200B = [-] OR BMI < [12.0] OR BMI > [40.0]. 5. All covariates are missing if no initial assessment is available.

¹ Condition 3c (scanning I0800A through I8000J for a peripheral vascular disease diagnosis codes) will be discontinued for all assessments with a target date on or after April 1, 2012. Scanning will occur only for assessments with target dates on or before March 31, 2012.

MDS 3.0 Measure (#0680): Percent of Residents Who Were Assessed and Appropriately Given the Seasonal Influenza Vaccine (Short Stay)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
<p>The measure reports the percent of short-stay residents who are given, appropriately, the influenza vaccination during the current or most recent influenza season.</p>	<p><i>Numerator</i> Residents meeting any of the following criteria on the selected target assessment::</p> <ol style="list-style-type: none"> 1. resident received the influenza vaccine during the current or most recent influenza season, either in the facility (O0250A = [1]) or outside the facility (O0250C = [2]); or 2. resident was offered and declined the influenza vaccine (O0250C = [4]); or 3. resident was ineligible due to contraindication(s) (O0250C = [3]) (e.g., anaphylactic hypersensitivity to eggs or other components of the vaccine, history of Guillian-Barre Syndrome within 6 weeks after a previous influenza vaccination, bone marrow transplant within the past 6 months). <p><i>Denominator</i> All short-stay residents with a selected target assessment, except those with exclusions.</p> <p><i>Exclusions</i></p> <ol style="list-style-type: none"> 1. O0250C = [1] (resident not in facility during the current or most recent influenza season). 	<p>Not applicable.</p>

**MDS 3.0 Measure (#0680A): Percent of Residents Who Received
the Seasonal Influenza Vaccine (Short Stay)**

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
<p>The measure reports the percent of short-stay residents who received the influenza vaccination during the current or most recent influenza season.</p>	<p><i>Numerator</i> Residents meeting the following criteria on the selected target assessment::</p> <ol style="list-style-type: none"> 1. resident received the influenza vaccine during the current or most recent influenza season, either in the facility (O0250A = [1]) or outside the facility (O0250C = [2]). <p><i>Denominator</i> All short-stay residents with a selected target assessment, except those with exclusions.</p> <p><i>Exclusions</i></p> <ol style="list-style-type: none"> 1. O0250C = [1] (resident not in facility during the current or most recent influenza season). 	<p>Not applicable.</p>

**MDS 3.0 Measure (#0680B): Percent of Residents Who Were Offered and Declined
the Seasonal Influenza Vaccine (Short Stay)**

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
<p>The measure reports the percent of short-stay residents who are offered and declined the influenza vaccination during the current or most recent influenza season.</p>	<p><i>Numerator</i> Residents meeting the following criteria on the selected target assessment::</p> <ol style="list-style-type: none"> 1. resident was offered and declined the influenza vaccine (O0250C = [4]). <p><i>Denominator</i> All short-stay residents with a selected target assessment, except those with exclusions.</p> <p><i>Exclusions</i></p> <ol style="list-style-type: none"> 1. O0250C = [1] (resident not in facility during the current or most recent influenza season). 	<p>Not applicable.</p>

MDS 3.0 Measure (#0680C): Percent of Residents Who Did Not Receive, Due to Medical Contraindication, the Seasonal Influenza Vaccine (Short Stay)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
<p>The measure reports the percent of short-stay residents who did not receive, due to medical contraindication, the influenza vaccination during the current or most recent influenza season.</p>	<p><i>Numerator</i> Residents meeting the following criteria on the selected target assessment::</p> <ol style="list-style-type: none"> 1. resident was ineligible due to contraindication(s) (O0250C = [3]) (e.g., anaphylactic hypersensitivity to eggs or other components of the vaccine, history of Guillian-Barre Syndrome within 6 weeks after a previous influenza vaccination, bone marrow transplant within the past 6 months). <p><i>Denominator</i> All short-stay residents with a selected target assessment, except those with exclusions.</p> <p><i>Exclusions</i></p> <ol style="list-style-type: none"> 1. O0250C = [1] (resident not in facility during the current or most recent influenza season). 	<p>Not applicable.</p>

MDS 3.0 Measure (#0682): Percent of Residents Assessed and Appropriately Given the Pneumococcal Vaccine (Short Stay)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
This measure reports the percent of short-stay residents whose pneumococcal polysaccharide vaccine (PPV) status is up to date during the 12-month reporting period.	<p><i>Numerator</i> Residents meeting any of the following criteria on the selected target assessment:</p> <ol style="list-style-type: none"> 1. PPV status is up to date (O0300A = [1]); or 2. were offered and declined the vaccine (O0300B = [2]); or 3. were ineligible due to medical contraindication(s) (O0300B = [1]) (e.g., anaphylactic hypersensitivity to components of the vaccine; bone marrow transplant within the past 12 months; or receiving a course of chemotherapy within the past two weeks). <p><i>Denominator</i> All short-stay residents with a selected target assessment.</p>	Not applicable.

MDS 3.0 Measure (#0682A): Percent of Residents Who Received the Pneumococcal Vaccine (Short Stay)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
This measure reports the percent of short-stay residents who received the pneumococcal polysaccharide vaccine (PPV) during the 12-month reporting period.	<p>Numerator Residents meeting the following criteria on the selected target assessment:</p> <ol style="list-style-type: none">1. PPV status is up to date (O0300A = [1]). <p>Denominator All short-stay residents with a selected target assessment.</p>	Not applicable.

MDS 3.0 Measure (#0682B): Percent of Residents Who Were Offered and Declined the Pneumococcal Vaccine (Short Stay)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
This measure reports the percent of short-stay residents who were offered and declined the pneumococcal polysaccharide vaccine (PPV) during the 12-month reporting period.	<p>Numerator Residents meeting the following criteria on the selected target assessment:</p> <ol style="list-style-type: none">1. were offered and declined the vaccine (O0300B = [2]). <p>Denominator All short-stay residents with a selected target assessment.</p>	Not applicable.

MDS 3.0 Measure (#0682C): Percent of Residents Who Did Not Receive, Due to Medical Contraindication, the Pneumococcal Vaccine (Short Stay)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
This measure reports the percent of short-stay residents who did not receive, due to medical contraindication, the pneumococcal polysaccharide vaccine (PPV) during the 12-month reporting period.	<p>Numerator</p> <p>Residents meeting the following criteria on the selected target assessment:</p> <ol style="list-style-type: none">1. were ineligible due to medical contraindication(s) (O0300B = [1]) (e.g., anaphylactic hypersensitivity to components of the vaccine; bone marrow transplant within the past 12 months; or receiving a course of chemotherapy within the past two weeks). <p>Denominator</p> <p>All short-stay residents with a selected target assessment.</p>	Not applicable.

Section 2: Long Stay Quality Measures

MDS 3.0 Measure (#0674): Percent of Residents Experiencing One or More Falls with Major Injury (Long Stay)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
This measure reports the percent of long-stay residents who have experienced one or more falls with major injury reported in the target period.	<p>Numerator</p> <p>Long-stay residents with one or more look-back scan assessments that indicate one or more falls that resulted in major injury (J1900C = [1, 2]).</p> <p>Denominator</p> <p>All long-stay nursing home residents with a one or more look-back scan assessments except those with exclusions.</p> <p>Exclusions</p> <p>Resident is excluded if one of the following is true for all of the look-back scan assessments:</p> <ol style="list-style-type: none"> 1. The occurrence of falls was not assessed (J1800 = [-]), OR 2. The assessment indicates that a fall occurred (J1800 = [1]) AND the number of falls with major injury was not assessed (J1900C = [-]). 	Not applicable.

MDS 3.0 Measure (#0677): Percent of Residents Who Self-Report Moderate to Severe Pain (Long Stay)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
<p>This measure captures the percent of long-stay residents who report either (1) almost constant or frequent moderate to severe pain in the last 5 days or (2) any very severe/horrible in the last 5 days.</p>	<p>Numerator Long-stay residents with a selected target assessment where the target assessment meets <i>either or both</i> of the following two conditions:</p> <ol style="list-style-type: none"> Condition #1: resident report almost constant or frequent moderate to severe pain in the last 5 days. Both of the following conditions must be met: <ol style="list-style-type: none"> 1.1. Almost constant or frequent pain (J0400=[1,2]), and 1.2. At least one episode of moderate to severe pain: (J0600A=[05,06,07,08,09] OR J600B=[2,3]). Condition #2: resident reports very severe/horrible pain of any frequency (J0600A=[10] OR J0600B=[4]). <p>Denominator All long-stay residents with a selected target assessment, except those with exclusions.</p> <p>Exclusions</p> <ol style="list-style-type: none"> The target assessment is an admission assessment, a PPS 5-day assessment, or a PPS readmission/return assessment (A0310A=[01] or A0310B=[01,06]). The resident is not included in the numerator (the resident did not meet the pain symptom conditions for the numerator) AND any of the following conditions are true: <ol style="list-style-type: none"> 2.1. The pain assessment interview was not completed (J0200=[0,-,^]). 2.2. The pain presence item was not completed (J0300=[9,-,^]). 2.3. For residents with pain or hurting at any time in the last 5 days (J0300 = [1]), any of the following are true: <ol style="list-style-type: none"> 2.3.1. The pain frequency item was not completed (J0400=[9,-,^]). 2.3.2. Neither of the pain intensity items was completed (J0600A=[99,^, -] and J0600B=[9,^,-]). 2.3.3. The numeric pain intensity item indicates no pain (J0600A=[00]). 	<p>Independence or modified independence in daily decision making on the prior assessment</p> <p>Covariate = 1 if C1000 = [0, 1] or if (C0500 ≥ [13] and C0500 ≤ [15])</p> <p>Covariate = 0 if C1000 = [2, 3] or if (C0500 ≥ [00] and C0500 ≤ [12]).</p> <p>Covariate = missing if <i>either</i> of the following are true:</p> <ol style="list-style-type: none"> C0500 = [99,-,^] and C1000 = [-,^]. No prior assessment is available.

MDS 3.0 Measure (#0679): Percent of High-Risk Residents With Pressure Ulcers (Long Stay)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
<p>This measure captures the percentage of long-stay, high-risk residents with Stage II-IV pressure ulcers.</p>	<p><i>Numerator</i></p> <p>All residents with a selected target assessment that meets both of the following conditions:</p> <ol style="list-style-type: none"> Condition #1: There is a high risk for pressure ulcers, where “high-risk” is defined in the denominator definition below. Condition #2: Stage II-IV pressure ulcers are present, as indicated by any of the following three conditions: <ol style="list-style-type: none"> M0300B1 = [1, 2, 3, 4, 5, 6, 7, 8, 9] or M0300C1 = [1, 2, 3, 4, 5, 6, 7, 8, 9] or M0300D1 = [1, 2, 3, 4, 5, 6, 7, 8, 9], or Any of additional active diagnoses is a Stage II-IV ulcer ICD-9 (I8000 = [707.22, 707.23, 707.24]). <p><i>Denominator</i></p> <p>All residents with a selected target assessment who meet the definition of high risk, except those with exclusions. Residents are defined as high-risk if they meet one or more of the following three criteria on the target assessment:</p> <ol style="list-style-type: none"> Impaired bed mobility or transfer indicated, by either or both of the following: <ol style="list-style-type: none"> Bed mobility, self-performance (G0110A1) = [3, 4, 7, 8]. Transfer, self-performance (G0110B1) = [3, 4, 7, 8]. Comatose (B0100 = [1]) Malnutrition or at risk of malnutrition (I5600 = [1]) (checked). <p><i>Exclusions</i></p> <ol style="list-style-type: none"> Target assessment is an admission assessment (A0310A = [01]) or a PPS 5-day or readmission/return assessment (A0310B = [01, 06]). If the resident is not included in the numerator (the resident did not meet the pressure ulcer conditions for the numerator) AND any of the following conditions are true: <ol style="list-style-type: none"> M0300B1 = [-] M0300C1 = [-] M0300D1 = [-]. 	<p>Not applicable.</p>

MDS 3.0 Measure (#0681): Percent of Residents Assessed and Appropriately Given the Seasonal Influenza Vaccine (Long Stay)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
The measure reports the percent of long-stay residents who are given, appropriately, the influenza vaccination during the current or most recent influenza season.	<p>Numerator Residents meeting any of the following criteria on the selected target assessment:</p> <ol style="list-style-type: none"> 1. Resident received the influenza vaccine during the current or most recent influenza season, either in the facility (O0250A = [1]) or outside the facility (O0250C = [2]); or 2. Resident was offered and declined the influenza vaccine (O0250C = [4]); or 3. Resident was ineligible due to contraindication(s) (O0250C = [3]) (e.g., anaphylactic hypersensitivity to eggs or other components of the vaccine, history of Guillian-Barre Syndrome within 6 weeks after a previous influenza vaccination, bone marrow transplant within the past 6 months). <p>Denominator All long-stay residents with a selected target assessment, except those with exclusions.</p> <p>Exclusions Resident was not in facility during the current or most recent influenza season (O0250C = [1]).</p>	Not applicable.

**MDS 3.0 Measure (#0681A): Percent of Residents Who Received
the Seasonal Influenza Vaccine (Long Stay)**

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
<p>The measure reports the percent of long-stay residents who received the influenza vaccination during the current or most recent influenza season.</p>	<p><i>Numerator</i> Residents meeting the following criteria on the selected target assessment::</p> <ol style="list-style-type: none"> 1. resident received the influenza vaccine during the current or most recent influenza season, either in the facility (O0250A = [1]) or outside the facility (O0250C = [2]). <p><i>Denominator</i> All long-stay residents with a selected target assessment, except those with exclusions.</p> <p><i>Exclusions</i></p> <ol style="list-style-type: none"> 1. O0250C = [1] (resident not in facility during the current or most recent influenza season). 	<p>Not applicable.</p>

**MDS 3.0 Measure (#0681B): Percent of Residents Who Were Offered and Declined
the Seasonal Influenza Vaccine (Long Stay)**

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
The measure reports the percent of long-stay residents who are offered and declined the influenza vaccination during the current or most recent influenza season.	<p>Numerator Residents meeting the following criteria on the selected target assessment::</p> <ol style="list-style-type: none">1. resident was offered and declined the influenza vaccine (O0250C = [4]). <p>Denominator All long-stay residents with a selected target assessment, except those with exclusions.</p> <p>Exclusions</p> <ol style="list-style-type: none">1. O0250C = [1] (resident not in facility during the current or most recent influenza season).	Not applicable.

MDS 3.0 Measure (#0681C): Percent of Residents Who Did Not Receive, Due to Medical Contraindication, the Seasonal Influenza Vaccine (Long Stay)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
<p>The measure reports the percent of long-stay residents who did not receive, due to medical contraindication, the influenza vaccination during the current or most recent influenza season.</p>	<p><i>Numerator</i> Residents meeting the following criteria on the selected target assessment::</p> <ol style="list-style-type: none"> 1. resident was ineligible due to contraindication(s) (O0250C = [3]) (e.g., anaphylactic hypersensitivity to eggs or other components of the vaccine, history of Guillian-Barre Syndrome within 6 weeks after a previous influenza vaccination, bone marrow transplant within the past 6 months). <p><i>Denominator</i> All long-stay residents with a selected target assessment, except those with exclusions.</p> <p><i>Exclusions</i></p> <ol style="list-style-type: none"> 1. O0250C = [1] (resident not in facility during the current or most recent influenza season). 	<p>Not applicable.</p>

MDS 3.0 Measure (#0683): Percent of Residents Assessed and Appropriately Given the Pneumococcal Vaccine (Long Stay)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
<p>This measure reports the percent of long-stay residents whose pneumococcal polysaccharide vaccine (PPV) status is up to date.</p>	<p><i>Numerator</i> Residents meeting any of the following criteria on the selected target assessment:</p> <ol style="list-style-type: none"> 1. Have an up to date PPV status (O0300A = [1]); or 2. Were offered and declined the vaccine (O0300B = [2]); or 3. Were ineligible due to medical contraindication(s) (e.g., anaphylactic hypersensitivity to components of the vaccine; bone marrow transplant within the past 12 months; or receiving a course of chemotherapy within the past two weeks) (O0300B = [1]). <p><i>Denominator</i> All long-stay residents with a selected target assessment.</p>	<p>Not applicable.</p>

MDS 3.0 Measure (#0683A): Percent of Residents Who Received the Pneumococcal Vaccine (Long Stay)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
This measure reports the percent of long-stay residents who received the pneumococcal polysaccharide vaccine (PPV) during the 12-month reporting period.	<p>Numerator Residents meeting the following criteria on the selected target assessment:</p> <ol style="list-style-type: none">1. PPV status is up to date (O0300A = [1]). <p>Denominator All long-stay residents with a selected target assessment.</p>	Not applicable.

MDS 3.0 Measure (#0683B): Percent of Residents Who Were Offered and Declined the Pneumococcal Vaccine (Long Stay)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
This measure reports the percent of long-stay residents who were offered and declined the pneumococcal polysaccharide vaccine (PPV) during the 12-month reporting period.	<p>Numerator Residents meeting the following criteria on the selected target assessment:</p> <ol style="list-style-type: none">1. were offered and declined the vaccine (O0300B = [2]). <p>Denominator All long-stay residents with a selected target assessment.</p>	Not applicable.

MDS 3.0 Measure (#0683C): Percent of Residents Who Did Not Receive, Due to Medical Contraindication, the Pneumococcal Vaccine (Long Stay)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
<p>This measure reports the percent of long-stay residents who did not receive, due to medical contraindication, the pneumococcal polysaccharide vaccine (PPV) during the 12-month reporting period.</p>	<p><i>Numerator</i> Residents meeting the following criteria on the selected target assessment:</p> <ol style="list-style-type: none"> 1. were ineligible due to medical contraindication(s) (O0300B = [1]) (e.g., anaphylactic hypersensitivity to components of the vaccine; bone marrow transplant within the past 12 months; or receiving a course of chemotherapy within the past two weeks). <p><i>Denominator</i> All long-stay residents with a selected target assessment.</p>	<p>Not applicable.</p>

MDS 3.0 Measure (#0684): Percent of Residents With a Urinary Tract Infection (Long Stay)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
The measure reports the percentage of long stay residents who have a urinary tract infection	<p>Numerator Long-stay residents with a selected target assessment that indicates urinary tract infection within the last 30 days (I2300 = [1]).</p> <p>Denominator All long-stay residents with a selected target assessment, except those with exclusions.</p> <p>Exclusions</p> <ol style="list-style-type: none"> 1. Target assessment is an admission assessment (A0310A = [01]) or a PPS 5-day or readmission/return assessment (A0310B = [01, 06]). 2. Urinary tract infection value is missing (I2300 = [-]). 	Not applicable.

MDS 3.0 Measure (#0685): Percent of Low Risk Residents Who Lose Control of Their Bowel or Bladder (Long Stay)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
<p>The measure reports the percent of long-stay residents who frequently lose control of their bowel or bladder.</p>	<p>Numerator Long-stay residents with a selected target assessment that indicates frequently or always incontinence of the bladder (H0300 = [2, 3]) or bowel (H0400 = [2, 3]).</p> <p>Denominator All long-stay residents with a selected target assessment, except those with exclusions.</p> <p>Exclusions</p> <ol style="list-style-type: none"> 1. Target assessment is an admission assessment (A0310A = [01]) or a PPS 5-day or readmission/return assessment (A0310B = [01, 06]). 2. Resident is not in numerator and H0300 = [-] OR H0400 = [-]. 3. Residents who have any of the following high risk conditions: <ol style="list-style-type: none"> a. Severe cognitive impairment on the target assessment as indicated by (C1000 = [3] and C0700 = [1]) OR (C0500 ≤ [7]). b. Totally dependent in bed mobility self-performance (G0110A1 = [4, 7, 8]). c. Totally dependent in transfer self-performance (G0110B1 = [4, 7, 8]). d. Totally dependent in locomotion on unit self-performance (G0110E1 = [4, 7, 8]). 4. Resident does not qualify as high risk (see #3 above) and both of the following two conditions are true for the target assessment: <ol style="list-style-type: none"> a. C0500 = [99, ^, -], and b. C0700 = [^, -] or C1000 = [^, -]. 5. Resident does not qualify as high risk (see #3 above) and any of the following three conditions are true: <ol style="list-style-type: none"> a. G0110A1 = [-] b. G0110B1 = [-] c. G0110E1E = [-]. 6. Resident is comatose (B0100 = [1]) or comatose status is missing (B0100 = [-]) on the target assessment. 7. Resident has an indwelling catheter (H0100A = [1]) or indwelling catheter status is missing (H0100A = [-]) on the target assessment. 8. Resident has an ostomy (H0100C = [1]) or ostomy status is missing (H0100C = [-]) on the target assessment. 	<p>Not applicable.</p>

MDS 3.0 Measure (#0686): Percent of Residents Who Have/Had a Catheter Inserted and Left in Their Bladder (Long Stay)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
<p>This measure reports the percentage of residents who have had an indwelling catheter in the last 7 days.</p>	<p>Numerator Long-stay residents with a selected target assessment that indicates the use of indwelling catheters (H0100A = [1]).</p> <p>Denominator All long-stay residents with a selected target assessment, except those with exclusions.</p> <p>Exclusions</p> <ol style="list-style-type: none"> 1. Target assessment is an admission assessment (A0310A = [01]) or a PPS 5-day or readmission/return assessment (A0310B = [01, 06]). 2. Target assessment indicates that indwelling catheter status is missing (H0100A = [-]). 3. Target assessment indicates neurogenic bladder (I1550 = [1]) or neurogenic bladder status is missing (I1550 = [-]). 4. Target assessment indicates obstructive uropathy (I1650 = [1]) or obstructive uropathy status is missing (I1650 = [-]). 	<ol style="list-style-type: none"> 1. Frequent bowel incontinence on prior assessment (H0400 = [2, 3]). Covariate = [1] if H0400 = [2, 3] Covariate = [0] if H0400 = [0, 1, 9, -]. 2. Pressure ulcers at stages 2, 3 or 4 on prior assessment: Covariate = [1] if any of the following are true: <ol style="list-style-type: none"> a. M0300B1 = [1, 2, 3, 4, 5, 6, 7, 8, 9], or b. M0300C1 = [1, 2, 3, 4, 5, 6, 7, 8, 9], or c. M0300D1 = [1, 2, 3, 4, 5, 6, 7, 8, 9] Covariate = [0] if M0300B1 = [0, ^] and M0300C1 = [0, ^] and M0300D1 = [0, ^]. Covariate = missing if M0300B1 = [-] AND M0300C1 = [-] AND M0300D1 = [-]. 3. All covariates are missing if no prior assessment is available.

MDS 3.0 Measure (#0687): Percent of Residents Who Were Physically Restrained (Long Stay)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
<p>This measure reports the percent of long-stay nursing facility residents who are physically restrained on a daily basis.</p>	<p>Numerator Long-stay residents with a selected target assessment that indicates daily physical restraints, where: trunk restraint used in bed (P0100B = [2]), OR limb restraint used in bed (P0100C = [2]), OR trunk restraint used in chair or out of bed (P0100E = [2]), OR limb restraint used in chair or out of bed (P0100F = [2]), OR chair prevents rising used in chair or out of bed (P0100G) = [2]).</p> <p>Denominator All residents with a target assessment, except those with exclusions.</p> <p>Exclusions Resident is not in numerator and any of the following is true: P0100B = [-], OR P0100C = [-], OR P0100E = [-], OR P0100F = [-], OR P0100G = [-].</p>	<p>Not applicable.</p>

MDS 3.0 Measure (#0688): Percent of Residents Whose Need for Help with Activities of Daily Living Has Increased (Long Stay)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
<p>This measure reports the percent of long-stay residents whose need for help with late-loss Activities of Daily Living (ADLs) has increased when compared to the prior assessment.</p>	<p>Numerator</p> <p>Long-stay residents with selected target and prior assessment assessments that indicate the need for help with late-loss Activities of Daily Living (ADLs) has increased when the selected assessments are compared. The four late-loss ADL items are self-performance bed mobility (G0110A1), self-performance transfer (G0110B1), self-performance eating (G0110H1), and self-performance toileting (G0110I1).</p> <p>An increase is defined as an increase in two or more coding points in one late-loss ADL item or one point increase in coding points in two or more late-loss ADL items. Note that for each of these four ADL items, if the value is equal to [7, 8] on either the target or prior assessment, then recode the item to equal [4] to allow appropriate comparison..</p> <p>Residents meet the definition of increased need of help with late-loss ADLs if either of the following are true</p> <p>1. At least two of the following are true (note that in the notation below, [t] refers to the target assessment, and [t-1] refers to the prior assessment):</p> <ol style="list-style-type: none"> 1. Bed mobility: [Level at target assessment (G0110A1[t]) - [Level at prior assessment (G0110A1[t-1])]] > [0], or 2. Transfer: [Level at target assessment (G0110B1[t]) - [Level at prior assessment (G0110B1[t-1])]] > [0], or 3. Eating: [Level at target assessment (G0110H1[t]) - [Level at prior assessment (G0110H1[t-1])]] > [0], or 4. Toileting: [Level at target assessment (G0110I1[t]) - [Level at prior assessment (G0110I1[t-1])]] > [0], <p>2. At least one of the following is true:</p> <ol style="list-style-type: none"> 1. Bed mobility: [Level at target assessment (G0110A1[t]) - [Level at prior assessment (G0110A1[t-1])]] > [1], or 2. Transfer: [Level at target assessment (G0110B1[t]) - [Level at prior assessment (G0110B1[t-1])]] > [1], or 3. Eating: [Level at target assessment (G0110H1[t]) - [Level at prior assessment (G0110H1[t-1])]] > [1], or 4. Toileting: [Level at target assessment (G0110I1[t]) - [Level at prior assessment (G0110I1[t-1])]] > [1]. 	<p>Not applicable.</p>

(continued)

MDS 3.0 Measure (#0688): Percent of Residents Whose Need for Help with Activities of Daily Living Has Increased (Long Stay) (continued)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
	<p><i>Denominator</i> All residents with a selected target and prior assessment except those with exclusions.</p> <p><i>Exclusions</i></p> <ol style="list-style-type: none"> 1. All four of the late-loss ADL items indicate total dependence on the prior assessment, as indicated by: Bed Mobility (G0110A1) = [4, 7, 8] AND Transferring (G0110B1) = [4, 7, 8] AND Eating (G0110H1) = [4, 7, 8] AND Toileting (G0110I1) = [4, 7, 8]. 2. Three of the late-loss ADLs indicate total dependence on the prior assessment, as in #1 AND the fourth late-loss ADL indicates extensive assistance (value 3) on the prior assessment. 3. If resident is comatose (B0100 = [1, -]) on the target assessment. 4. Prognosis of life expectancy is less than 6 month (J1400 = [1, -]) on the target assessment. 5. Hospice care (O0100K2 = [1, -]) on the target assessment. 6. The resident is not in the numerator AND Bed Mobility (G0110A1) = [-] on the prior or target assessment, OR Transferring (G0110B1) = [-] on the prior or target assessment, OR Eating (G0110H1) = [-] on the prior or target assessment, OR Toileting (G0110I1) = [-] on the prior or target assessment]. 	

MDS 3.0 Measure (#0689): Percent of Residents Who Lose Too Much Weight (Long Stay)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
<p>The measure captures the percentage of long-stay residents who had a weight loss of 5% or more in the last month or 10% or more in the last two quarters who were not on a physician prescribed weight-loss regimen noted in an MDS assessment during the selected quarter.</p>	<p>Numerator</p> <p>Long-stay nursing home residents with a selected target assessment which indicates a weight loss of 5% or more in the last month or 10% or more in the last 6 months who were not on a physician prescribed weight-loss regimen (K0300 = [2].</p> <p>Denominator</p> <p>Long-stay nursing home residents with a selected target assessment except those with exclusions.</p> <p>Exclusions</p> <ol style="list-style-type: none"> 1. Target assessment is an OBRA admission assessment (A0310A = [01]) OR a PPS 5-day or readmission/return assessment (A0310B = [01, 06]). 2. Weight loss item is missing on target assessment (K0300 = [-]. 	<p>Not applicable.</p>

MDS 3.0 Measure (#0690): Percent of Residents Who Have Depressive Symptoms (Long Stay)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
The measure reports the percentage of long-stay residents who have had symptoms of depression during the 2-week period preceding the MDS 3.0 target assessment date.	<p>Numerator</p> <p>Long-stay residents with a selected target assessment where the target assessment meets either of the following two conditions:</p> <p><i>CONDITION A</i> (The resident mood interview must meet Part 1 and Part 2 below)</p> <p>PART 1:</p> <ul style="list-style-type: none"> Little interest or pleasure in doing things half or more of the days over the last two weeks is equal or greater than two (D0200A2 = [2, 3]) <p>OR</p> <ul style="list-style-type: none"> Feeling down, depressed, or hopeless half or more of the days over the last two weeks (D0200B2 = [2, 3]) <p>PART 2:</p> <p>The resident interview total severity score indicates the presence of depression (D0300 ≥ [10] and D0300 ≤ [27]).</p> <p><i>CONDITION B:</i> (The staff assessment of resident mood must meet Part 1 and Part 2 below)</p> <p>PART 1:</p> <ul style="list-style-type: none"> Little interest or pleasure in doing things half or more of the days over the last two weeks is equal or greater than two (D0500A2 = [2, 3]) <p>OR</p> <ul style="list-style-type: none"> Feeling or appearing down, depressed, or hopeless half or more of the days over the last two weeks (D0500B2 = [2, 3]) <p>PART 2:</p> <p>The staff assessment total severity score indicates the presence of depression (D0600 ≥ [10] and D0600 ≤ [30]).</p>	Not applicable.

(continued)

MDS 3.0 Measure (#0690): Percent of Residents Who Have Depressive Symptoms (Long Stay) (continued)

MEASURE DESCRIPTION	MEASURE SPECIFICATIONS	COVARIATES
	<p><i>Denominator</i> All long-stay residents with a selected target assessment, except those with exclusions.</p> <p><i>Exclusions</i></p> <ol style="list-style-type: none"> 1. Resident is comatose or comatose status is missing (B0100 = [1, -]). 2. Resident is not included in the numerator (the resident did not meet the depression symptom conditions for the numerator) AND both of the following are true: <ol style="list-style-type: none"> a. D0200A2 = [^, -] OR D0200B2 = [^, -] OR D0300=[99, -, ^]. b. D0500A2 = [^, -] OR D0500B2 = [^, -] OR D0600=[-, ^]. 	



MDS 3.0 Quality Measures

DRAFT USER'S MANUAL

APPENDIX A

Technical Details

(v4.0 9-29-2011)

DRAFT

Prepared for:
The Centers for Medicare & Medicaid Services
under Contract No. HSM-500-2008-00021I.
(RTI Project Number 0211942.001.100.004)

Quality Measures (QM) Technical Details

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Section 1

Introduction

This appendix presents technical details regarding the calculation of the nursing home quality measures (QMs), including the methodology used for risk adjustment.

Overview of QM Calculations

The QMs are created from counts of nursing facility long stay residents or short stay residents who have certain conditions or problems (e.g., falls resulting in major injury). For example, facility-level scores for the long stay falls QM are computed by: 1) counting residents in the facility who had a fall resulting in major injury and 2) computing the percent of residents in the facility who had valid MDS data and who experienced such a fall. The detailed logic for defining the resident-level outcomes for each QM is presented in the QM Sample and Record Selection Methodology section and in the Quality Measure Logic Specifications section of this manual. This logic is listed under the "Numerator" entry for each QM.

A Note on Risk Adjustment

Risk adjustment refines raw QM scores to better reflect the prevalence of problems that facilities should be able to address. Two complementary approaches to risk adjustment are applied to the QMs.

One approach involves exclusion of residents whose outcomes are not under nursing facility control (e.g., outcome is evidenced on admission to the facility) or the outcome may be unavoidable (e.g., the resident has end-stage disease or is comatose). All of the QMs, except the vaccination QMs, are shaped by one or more exclusions. For each QM, the prevalence of the outcome across all residents in a nursing facility, after exclusions, is the *facility-level observed QM score*.

A second approach involves adjusting QM scores directly, using logistic regression. This method of adjustment employs *resident-level covariates* that are found to increase the risks of an outcome. Detailed specifications for resident-level covariates are presented in the Quality Measure Logical Specifications section of this manual. This approach involves the following steps:

- First, resident-level covariates were used in a logistic regression model to calculate a *resident-level expected QM score* (the probability that the resident will evidence the outcome, given the presence or absence of characteristics measured by the covariates). Section 3 of this Appendix presents the details for calculating expected scores for residents.
- Then, an average of all resident-level expected QM scores for the nursing facility was calculated to create a *facility-level expected QM score*.

- The final *facility-level adjusted QM score* was based on a calculation which combines the *facility-level expected score* and the *facility-level observed score*. The details for calculating facility-level adjusted scores are presented in Section 4 of this Appendix. The parameters used for each release of the QMs are presented in Appendix B.

Only three of the QMs are adjusted using resident level covariates for public reporting:

- SS_0678: Percent of Residents With Pressure Ulcers That Are New or Worsened (Short Stay)
- LS_0677: Percent of Residents Who Self-Report Moderate to Severe Pain (Long Stay)
- LS_0686: Percent of Residents Who Have/Had a Catheter Inserted and Left in Their Bladder (Long Stay)

The remaining QMs are not adjusted using resident-level covariates. For these measures, facility-level observed QM scores are reported.

Section 2

Steps Used In National QM Calculation

Introduction

This section outlines the processing steps used to calculate QMs. The description below uses the Q2 2011 as the target period. The dates associated with these steps would be updated, as appropriate, for subsequent quarterly releases of the QMs. It is important to note two items that recurred throughout the process:

Every step in file construction and QM calculation proceeded in parallel for two samples of residents and facilities: a “Long stay” (LS) sample and a “Short stay” (SS) sample.

Processing Steps:

1. ***MDS Selection.*** All MDS records for U.S. nursing facilities Q1 and Q2 2011 were selected.
2. ***Episode Creation.*** Using the definitions contained elsewhere in this document, episodes were created from the available data. Each episode was classified as either long or short stay depending upon the number of cumulative days in the facility. Only the latest episode was retained for each resident.
3. ***Sampling for LS QMs.*** Nursing facilities and residents were sampled to provide data for LS QM and covariate calculations.
 - a. LS resident sample: residents were included in this sample if they had a long stay episode that ended within the last quarter of the target period (i.e., Q2 2011).
4. ***Sampling for SS QMs.*** Nursing facilities and residents were sampled to provide data for SS QM and covariate calculations.
 - a. SS resident sample: residents were included in this sample if they had a short stay episode that ended within the last two quarters of the target period (i.e., Q4 2010 or Q2 2011).
5. ***Resident-level QM Calculation Files.*** At this point, resident-level QM calculation files were created, separately for LS residents and SS residents, for the two target periods, using the specified target, prior, and initial assessments for each resident record, if available.
6. ***Resident-level QM and Covariate Calculation Files.*** Next, resident-level QM scores were calculated (and covariate values were calculated for the risk-adjusted QMs), separately for each LS resident and SS resident.
 - a. Resident-level QM calculation (all QMs):

- i. Resident exclusions: For each QM, excluded residents were assigned a missing value for that QM. Residents with missing covariate values were also assigned a missing value for that QM.
 - ii. QM values: does the resident “trigger” the QM?
 - 1. If “Yes”, then store a value of 1 for that QM in the resident-level QM calculation record appropriate to that resident for a target period.
 - 2. If “No”, then store a value of 0 for that QM in the resident-level QM calculation record appropriate to that resident for a target period.
 - b. Resident-level covariate calculation (risk-adjusted QMs):
 - i. Resident exclusions: For each QM, excluded residents were assigned a missing value for that QM. Residents with missing covariate values were also assigned a missing value for that QM.
 - ii. Covariate: does the resident “trigger” the covariate?
 - 1. If “Yes”, then store a value of 1 for that covariate in the resident-level QM calculation record appropriate to that resident for a target period.
 - 2. If “No”, then store a value of 0 for that covariate in the resident-level QM calculation record appropriate to that resident for a target period.
7. **Logistic Regressions.** With the resident-level files complete, and all relevant exclusions applied, logistic regressions for the risk-adjusted QMs were estimated using the LS and SS samples.
- a. Input: LS or SS resident-level file.
 - b. Dependent variable: was the QM triggered? (yes = 1, no = 0).
 - c. Predictors: resident-level covariates.
 - d. Calculation of logistic regressions: (See Section 3 in this Appendix).
 - e. Output values: logistic regression constant term and resident-level covariate coefficients for each of the risk-adjusted QMs. The resulting values are given in Table B.1 of Appendix B.
8. **Resident-level Expected QM Scores.** For the QMs that were risk adjusted, resident-level expected QM scores were calculated for each resident for the LS and SS samples. (See Section 3 in this Appendix for calculation formulas).
- a. Input: logistic regression constant term and resident-level covariate coefficients from the previous step for each adjusted QM.
 - b. Output values: resident-level expected QM scores for each resident, for each of the risk-adjusted QMs.

9. **National Mean QMs.** National mean observed QMs were needed for calculating the facility-level adjusted QM scores below. The overall national mean observed QM scores for the LS and SS samples were calculated, for each risk adjusted QM:
 - a. Numerator: for each QM, count the total number of residents that triggered the QM and sum for the nation.
 - b. Denominator: for each QM, count the total number of residents retained after exclusions and sum for the nation. Note that the sample will include only those residents with non-missing data for the component covariates.
 - c. Overall national mean observed QM score: divide the numerator by the denominator.
10. **Facility-level Observed QM Scores.** For all QMs, the facility-level observed QM scores were calculated for the LS and SS samples -- for the QMs that were not risk adjusted, these are the measures that will be publicly reported.
 - a. Numerator: for each QM, count the total number of residents who triggered the QM in each facility and sum for the nursing facility.
 - b. Denominator: for each QM, count the total number of residents retained after exclusions for each facility and sum for the nursing facility. Note that the sample will include only those residents with non-missing data for the component covariates.
 - c. Facility-level observed QM scores: divide the numerator by the denominator for each QM and nursing facility.
11. **Facility-level Expected QM Scores.** For the risk-adjusted QMs, the facility-level expected QM scores are calculated for the LS and SS samples. This is done by averaging the resident-level expected QM scores for each QM within each nursing facility. Note that the sample will include only those residents with non-missing data for the component covariates.
12. **Facility-level Adjusted QM Scores.** Finally, for the risk-adjusted QMs, the facility-level adjusted QM scores were calculated for the LS and SS samples.
 - a. Input -- for each of the risk-adjusted QMs
 - i. Facility-level observed QM scores
 - ii. Facility-level expected QM scores
 - iii. National mean observed QM scores
 - b. Calculation: (See Section 4 of this Appendix for calculation formulas)
 - c. Output: Facility-level adjusted QM scores for the five risk-adjusted QMs
13. **Final Facility-level Output File.** The final facility-level output files for the LS and SS QMs contained the following:
 - a. For all QMs:

- i. Facility numerator counts
 - ii. Facility denominator counts
 - iii. Facility-level observed QM scores (publicly reported for the unadjusted QMs)
- b. For the risk-adjusted QMs: Facility-level adjusted QM scores (publicly reported scores)

Section 3

Calculation of the Expected QM Score

For the QMs adjusted with resident-level covariates, the resident-level expected QM score was calculated as an intermediate step to obtaining an adjusted QM score for the facility. This section describes the technical details referred to in Section 2 of this Technical Appendix.

Calculating Resident-level Expected QM Scores

The resident-level expected score for a QM is an estimate of the risk that a resident will trigger the QM. This estimate is based on consideration of the resident-level covariates associated with the QM.

For each of the risk-adjusted QMs, a resident-level logistic regression was estimated. Data came from the short stay and long stay samples described in the prior section of this appendix. The resident-level observed QM score was the dependent variable. The predictor variables were one or more resident-level covariates associated with the QM. Calculation of the QM and covariate scores is described in Section 2 (Step 5) of this Appendix.

Each logistic regression had the following form:

$$[1] \text{ QM triggered (yes} = 1, \text{ no} = 0) = B_0 + B_1 * \text{COV}_A + B_2 * \text{COV}_B + \dots + B_N * \text{COV}_N$$

where B_0 is the logistic regression constant, B_1 is the logistic regression coefficient for the first covariate, COV_A is the resident-level score for the first covariate, B_2 is the logistic regression coefficient for the second covariate (where applicable), and COV_B is the resident-level score for the second covariate (where applicable), and so on.

Each resident's expected QM score could then be calculated with the following formula:

$$[2] \text{ Resident-level expected QM score} = 1 / [1 + e^{-X}]$$

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 [1], above). A covariate score will be 1 if the covariate is triggered for that resident, and 0 if not.

As an example, consider the actual calculation used for the expected score for the LS "Percent of residents who have moderate to severe pain" QM (LS_0677). The covariate for that QM is an indicator of independence in daily decision-making on the prior assessment. The equation used for this QM (with the parameters from Table B.1 for the Q2 2011 is:

$$\text{LS}_{0677} \text{ Score} = 1 / [1 + e^{-(B_0 + B_1 * \text{IndpDec})}]$$

Where B_0 is the logistic regression constant, B_1 is the logistic regression coefficient for IndpDec, and IndpDec is the resident-level covariate indicating independence in daily decision-making.

The LS₀₆₇₇ score for a resident who triggers the independence in decision making covariate (covariate score = 1) is expected to be

$$0.2008 = 1 / [1 + e^{-(-2.43142 + 1.05035 * 1)}]$$

For a resident who does not trigger the independence covariate (covariate score = 0), the LS₀₆₇₇ score is expected to be:

$$0.0808 = 1 / [1 + e^{-(-2.43142 + 1.05035 * 0)}]$$

Thus a resident who is independent in decision making (i.e. covariate = 1) is over twice as likely to report severe pain (20.08 percent, compared to 8.08 percent for a resident who is not independent in decision making).

The parameters used for calculating the resident-level expected QM scores are presented in Table B.1 of Appendix B.

Calculating Facility-level Expected QM Scores

Once an expected QM score has been calculated for all residents at risk, the facility-level expected QM score is simply the average of all resident-level scores for each of the risk-adjusted QMs.

Section 4

Calculation of the Adjusted QM Score

The risk-adjusted QM score is a facility-level QM score adjusted for the specific risk for that QM in the nursing facility. The risk-adjusted QM score can be thought of as an estimate of what the nursing facility's QM rate would be if the facility had residents with average risk.

The facility-level adjusted score is calculated on the basis of

- The facility-level observed QM score,
- The facility-level average expected QM score, and
- The national average observed QM score.

The actual calculation of the adjusted score uses the following equation:

$$[3] \text{ Adj} = 1 / [1 + e^{-y}]$$

where

Adj is the facility-level adjusted QM score, and

$$y = (\text{Ln}(\text{Obs} / (1 - \text{Obs})) - \text{Ln}(\text{Exp} / (1 - \text{Exp})) + \text{Ln}(\text{Nat} / (1 - \text{Nat})))$$

Obs is the facility-level observed QM rate,

Exp is the facility-level expected QM rate,

Nat is the national observed QM rate, and

Ln indicates a natural logarithm.

e is the base of natural logarithms

Note that the adjusted QM rate (**Adj**) is calculated differently in two special cases:

1. When **Obs** equals 0.00, then **Adj** is set to 0.00 (without using the equation).
2. When **Obs** equals 1.00, then **Adj** is set to 1.00 (without using the equation).

The adjusted QM score equation will produce adjusted scores in the range of 0 to 1. These adjusted scores can then be converted to percentages for ease of interpretation.

These adjusted score calculations are applied to QMs that use expected scores based on resident-level covariates (See Section 3 of this Appendix). The national average observed QM rates, required for these calculations, are presented in Appendix B.

Section 5

Data Dictionary for National QM SAS Output

This section presents a data dictionary for the SAS Quality Measure output table generated for the QMs. This table is generated once per quarter and contains one record for each facility. The record for a facility contains the MDS facility ID, which consists of the state code (ST_CODE) and the internal facility ID (FAC_ITL). For each of the QMs for this period, three variables are reported:

1. The numerator (i.e., the number of cases at the facility that triggered the QM), named N_qm-name.
2. The denominator (i.e., the number of cases at the facility that were considered), named D_qm-name.
3. The reported value of the QM, named Q_qm-name.

<qm-name> values used as the SAS variable names are presented in Table A.1. For each QM, this table gives <qm-name> (the SAS name) and “Description” (brief description). Table A.2 describes the contents of the Facility QM Output Table.

Table A.1 QM Name and Label Conventions

<qm-name>	Description
SS_0675	The Percentage of Residents on a Scheduled Pain Medication Regimen on Admission Who Self-Report a Decrease in Pain Intensity or Frequency (short stay)
SS_0676	Percent of Residents Who Self-Report Moderate to Severe Pain (short stay)
SS_0678	Percent of Residents with Pressure Ulcers that are New or Worsened (short stay)
SS_0680	Percent of Nursing Home Residents Who Were Assessed and Appropriately Given the Seasonal Influenza Vaccine (short stay)
SS_0682	Percent of Residents Assessed and Appropriately Given the Pneumococcal Vaccine (short stay)
LS_0674	Percent of Residents Experiencing One or More Falls with Major Injury (long stay)
LS_0677	Percent of Residents who Self-Report Moderate to Severe Pain (long stay)
LS_0679	Percent of High-Risk Residents with Pressure Ulcers (long stay)
LS_0681	Percent of Residents Assessed and Appropriately Given the Seasonal Influenza Vaccine (long stay)

<qm-name>	Description
LS_0683	Percent of Long Stay Residents Assessed and Appropriately Given the Pneumococcal Vaccine (long stay)
LS_0684	Percent of Residents with a Urinary Tract Infection (long stay)
LS_0685	Percent of Low Risk Residents Who Lose Control of their Bowels or Bladder (long stay)
LS_0686	Percent of Residents Who Have/Had a Catheter Inserted and Left in Their Bladder (long stay)
LS_0687	Percent of Residents Who Were Physically Restrained (long stay)
LS_0688	Percent of Residents Whose Need for Help with Activities of Daily Living Has Increased (long stay)
LS_0689	Percent of Residents Who Lose Too Much Weight (long stay)
LS_0690	Percent of Residents Who Have Depressive Symptoms (long stay)

**Table A.2 Facility QM Output Table
(1 Record per Facility)**

SAS Name	Type	Length	SAS Label/Description
Facility Id Codes			
ST_CODE	CHAR	2	SAS Label: STATE ID CODE Description: Facility state
FAC_ITL	CHAR	10	SAS Label: SYSTEM INTERNAL FACILITY ID Description: MDS System unique facility ID code
Facility-Level Measures Repeated for Each of the 14 QMs			
D_<qm-name>	NUM	8	SAS Label: DENOMINATOR,<qm-name> Description: Complete-data QM denominator. Number of residents for QM calculation, after QM exclusions AND exclusion of cases with any missing covariate scores (if applicable).
N_<qm-name>	NUM	8	SAS Label: NUMERATOR,<qm-name> Description: Complete-data QM numerator. Number of residents triggering the QM, after QM exclusions AND exclusion of cases with any missing covariate scores (if applicable).
Q_<qm-name>	NUM	8	SAS Label: QM SCORE,<QM-NAME> Description: Complete-data QM rate. Percent of residents triggering the QM, after QM exclusions AND exclusion of cases with any missing covariate scores (if applicable); risk adjusted if applicable.



MDS 3.0 Quality Measures

DRAFT USER'S MANUAL

APPENDIX B

Parameters Used for Each Quarter

(v4.0 9-29-2011)

DRAFT

Prepared for:
The Centers for Medicare & Medicaid Services
under Contract No. HSM-500-2008-000211.
(RTI Project Number 0211942.001.100.004)

Introduction

This appendix presents the model parameters that were estimated for the risk adjusted QMs. for the following time period:

- The period ending June 30, 2011, referred to as Q2 2011.

The purpose of this document is to present the logistic regression coefficients used in the risk adjustment calculations that were applied to the risk-adjusted QMs. For details regarding the use of these parameters, please refer to Appendix A.

Logistic Regression Coefficients

Three QMs are risk adjusted. The logistic regression coefficients used are presented in Table B.1. Where risk adjustment involves the use of more than one resident-level covariate, coefficients are listed in the order presented in the LS and SS matrices that are presented in the MDS 3.0 Quality Measures Logical Specifications section of this manual.

Table B.1. Logistic Regression Coefficients

QM	Constant (Intercept)	Resident-Level Covariates
SS_0678	-5.20475	1. (Covariate 1) 1.00693 2. (Covariate 2) 0.85625 3. (Covariate 3) 0.35589 4. (Covariate 4) 0.39652
LS_0677	-2.43142	1. (Covariate 1) 1.05035
LS_0686	-3.64325	1. (Covariate 1) 0.52749 2. (Covariate 2) 1.95131

National Observed Means

The national observed QM means are updated for each quarterly release. Table B.2 presents these means for Q2 2011, as an example.

Table B.2. National Observed QM Means

QM	Q2 2011
SS_0678	0.02518
LS_0677	0.12220
LS_0686	0.04246