Specifications for HH QRP Quality Measures Using Standardized Patient Assessment Data Elements

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Specifications for HH QRP Changes in Skin Integrity Post-Acute Care: Pressure Ulcer/Injury Quality Measure

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1.1 Changes in Skin Integrity Post-Acute Care: Pressure Ulcer/Injury

1.1.1 Quality Measure Description

This quality measure reports the percent of quality episodes in which the patient has one or more Stage 2-4 pressure ulcers, or an unstageable ulcer, present at discharge that are new or worsened since the beginning of the quality episode.[1] The measure is calculated using data from the OASIS. For home health patients, this measure reports the percent of quality episodes with reports of Stage 2-4 pressure ulcers, or unstageable pressure ulcers due to slough/eschar, non-removable dressing/device, or deep tissue injury, that were not present or were at a lesser stage on admission.

1.1.2 Purpose/Rationale for Quality Measure

This quality measure replaces the pressure ulcer measure, Percent of Residents or Patients with Pressure Ulcers That Are New or Worsened (Short Stay) (NQF #0678), in the HH QRP measure set beginning with the CY 2020 HH QRP. The change in the measure name is to reduce confusion about the new modified measure. The modified version differs from the previous version of the measure because it includes new or worsened unstageable pressure ulcers, including deep tissue injuries (DTIs), in the measure numerator. The modified version of the measure also contains updated specifications intended to eliminate redundancies in the assessment items needed for its calculation and to reduce the potential for underestimating the frequency of pressure ulcers. The modified version of the measure satisfies the IMPACT Act domain of "Skin integrity and changes in skin integrity." In order to respond to recommendations provided by a cross-setting pressure ulcer Technical Expert Panel (TEP) and supported by the National Pressure Ulcer Advisory Panel (NPUAP), the previous quality measure modified in two ways. First, the measure has been modified to incorporate the addition of unstageable pressure ulcers due to slough or eschar, unstageable pressure ulcers due to non-removable dressing or device, and unstageable pressure ulcers presenting as deep tissue injuries in the numerator. This measure is included across the PAC settings, including HH, IRF, SNF, and LTCH settings.

Second, the measure calculation has been amended to include M1311 items instead of M1313 items for the HH QRP. This item calculation modification is intended to reduce redundancies in assessment items. To reflect these two changes, the measure was finalized in CY 2018 federal rulemaking as: Changes in Skin Integrity Post-Acute Care: Pressure Ulcer/Injury.

Regardless of setting or provider type, pressure ulcers are recognized as a serious medical condition. Considerable evidence exists regarding the seriousness of pressure ulcers, and the relationship between pressure ulcers and pain, decreased quality of life, and increased mortality in aging populations.[2] [3] [4] [5] Pressure ulcers interfere with activities of daily living and functional gains made during rehabilitation, predispose patients to osteomyelitis and septicemia, and are

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1 For the purposes of payment determination in the Home Health Quality Reporting Program, quality episodes are defined by pairing a SOC/ROC assessment with an end of care (EOC) assessment. EOC assessments include Discharge from Agency, Transfer to an Inpatient Facility and Death at Home.

2 Casey, G. (2013). "Pressure ulcers reflect quality of nursing care." Nurs N Z 19(10): 20-24.

3 Gorzoni, M. L. and S. L. Pires (2011). "Deaths in nursing homes." Rev Assoc Med Bras 57(3): 327-331.

4 Thomas, J. M., et al. (2013). "Systematic review: health-related characteristics of elderly hospitalized adults and nursing home residents associated with short-term mortality." J Am Geriatr Soc 61(6): 902-911.

5 White-Chu, E. F., et al. (2011). "Pressure ulcers in long-term care." Clin Geriatr Med 27(2): 241-258.

strongly associated with longer hospital stays, longer IRF stays, and mortality.[6] [7] [8] Additionally, patients with acute care hospitalizations related to pressure ulcers are more likely to be discharged to long-term care facilities (e.g., a nursing facility, an intermediate care facility, or a nursing home) than hospitalizations for all other conditions.[9] [10]

Pressure ulcers typically result from prolonged periods of uninterrupted pressure on the skin, soft tissue, muscle, or bone.[5] [9] [11] Elderly individuals receiving home health care have a wide range of impairments and/or medical conditions that increase their risk of developing pressure ulcers, including but not limited to, impaired mobility or sensation, malnutrition or under-nutrition, obesity, stroke, diabetes, dementia, cognitive impairments, circulatory diseases, and dehydration. The use of wheelchairs and medical devices (e.g., hearing aid, feeding tubes, tracheostomies), a history of pressure ulcers, or presence of a pressure ulcer at admission are additional factors that increase pressure ulcer risk in elderly patients.[1] [5] [6] [8] [12] [13] [14] [15] [16] [17] [18]

Pressure ulcers are high-cost adverse events across the spectrum of health care settings, from acute hospitals to home health.[5] [8] [10] Pressure ulcer incidence rates vary considerably by clinical setting, ranging from 0.4% to 38% in acute care, 2.2% to 23.9% in skilled nursing facilities [SNFs] and nursing homes [NHs], and 0% to 17% in home health.[8] [9] As reported in the Federal Register, in 2006 the average cost for a hospital stay related to pressure ulcers was $40,381[19] The Advancing Excellence in America's Nursing Homes Campaign reported that it can cost as much as $19,000 to treat a single Stage 4 pressure ulcer.[20] Using data from 2009 and

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6 Bates-Jensen BM. Quality indicators for prevention and management of pressure ulcers in vulnerable elders. Ann Int Med. 2001;135 (8 Part 2), 744-51.

7 Park-Lee E, Caffrey C. Pressure ulcers among nursing home residents: United States, 2004 (NCHS Data Brief No. 14). Hyattsville, MD: National Center for Health Statistics, 2009. Available from http://www.cdc.gov/nchs/data/databriefs/db14.htm.

8 Wang, H., et al. (2014). "Impact of pressure ulcers on outcomes in inpatient rehabilitation facilities." Am J Phys Med Rehabil 93(3): 207-216.

9 Hurd D, Moore T, Radley D, Williams C. Pressure ulcer prevalence and incidence across post-acute care settings. Home Health Quality Measures & Data Analysis Project, Report of Findings, prepared for CMS/OCSQ, Baltimore, MD, under Contract No. 500-2005-000181 TO 0002. 2010.

10 Institute for Healthcare Improvement (IHI). Relieve the pressure and reduce harm. May 21, 2007. Available from http://www.ihi.org/IHI/Topics/PatientSafety/SafetyGeneral/ImprovementStories/FSRelievethePressureandReduceHarm.htm.

11 Russo CA, Steiner C, Spector W. Hospitalizations related to pressure ulcers among adults 18 years and older, 2006 (Healthcare Cost and Utilization Project Statistical Brief No. 64). December 2008. Available from http://www.hcup-us.ahrq.gov/reports/statbriefs/sb64.pdf.

12 Agency for Healthcare Research and Quality (AHRQ). Agency news and notes: pressure ulcers are increasing among hospital patients. January 2009. Available from http://www.ahrq.gov/research/jan09/0109RA22.htm.

13 Cai, S., et al. (2013). "Obesity and pressure ulcers among nursing home residents." Med Care 51(6): 478-486.

14 DeJong, G., et al. (2014). "Factors Associated with Pressure Ulcer Risk in Spinal Cord Injury Rehabilitation." Am J Phys Med Rehabil. 2014 May 29. [Epub ahead of print]

15 MacLean DS. Preventing & managing pressure sores. Caring for the Ages. March 2003;4(3):34-7. Available from http://www.amda.com/publications/caring/march2003/policies.cfm.

16 Michel, J. M., et al. (2012). "As of 2012, what are the key predictive risk factors for pressure ulcers? Developing French guidelines for clinical practice." Ann Phys Rehabil Med 55(7): 454-465.

17 National Pressure Ulcer Advisory Panel (NPUAP) Board of Directors; Cuddigan J, Berlowitz DR, Ayello EA (Eds). Pressure ulcers in America: prevalence, incidence, and implications for the future. An executive summary of the National Pressure Ulcer Advisory Panel Monograph. Adv Skin Wound Care. 2001;14(4):208-15.

18 Reddy, M. (2011). "Pressure ulcers." Clin Evid (Online) 2011.

19 Centers for Medicare & Medicaid Services (CMS). Medicare program; changes to the hospital inpatient prospective payment system and fiscal year 2008 rates. Fed Register. August 22, 2007;72(162):47205.

20 Advancing Excellence in America's Nursing Homes (AEANH). Explore our goals. n.d. Available from https://www.nhqualitycampaign.org/goals.aspx.

2010, severe (Stage 3 and 4) pressure ulcers acquired during a hospital stay were estimated to have increased CMS payments across 90-day episodes of care by at least $18.8 million a year.[21]

The terminology and definitions developed by the National Pressure Ulcer Advisory Panel (NPUAP) for the care of pressure ulcers are often used to inform the PAC patient and resident assessment instruments and corresponding assessment manuals, specifically the IRF-PAI, the LTCH CARE Data Set, the MDS for SNFs, and the OASIS for HHAs. Considering the recent updates made by the NPUAP to their Pressure Ulcer Staging System, CMS intends to continue the adaptation of NPUAP terminology for coding the patient and resident assessment instruments. CMS will provide guidance which emphasizes that terminology related to these wounds may include injuries, as well as pressure ulcers, while retaining current holistic assessment instructions definitions and terminology. Further guidance and information on adaptation of the NPUAP guidelines, and definitions, and terminology, via assessment manuals and assessment instruments will be posted on the Web site at: https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/IRF-Quality-Reporting/IRF-PAI-and-IRF-QRP-Manual.html.

1.1.3 Denominator

The denominator is the number of quality episodes, except those that meet the exclusion criteria. HH quality episodes are defined by pairing assessments completed at the start or resumption of care with assessments completed at discharge.

1.1.4 Denominator Exclusions

1. Episodes that end in a death at home or transfer to an inpatient facility are excluded from this measure as OASIS data collection that occurs at these time points does not contain the items needed to compute this measure.
2. Episodes without an assessment completed at the start or resumption of care and an assessment completed at discharge are excluded.
3. Episodes are excluded if the discharge assessment does not have a usable response for M1311a, M1311b, M1311c, M1311d, M1311e and M1311f. Specifically, episodes are excluded if:

(M1311A1 = '-' and/or M1311A2 = '-'), and
(M1311B1 = '-' and/or M1311B2 = '-'), and
(M1311C1 = '-' and/or M1311C2 = '-'), and
(M1311D1 = '-' and/or M1311D2 = '-'), and
(M1311E1 = '-' and/or M1311E2 = '-'), and
(M1311F1 = '-'and/or M1311F2 = '-')

Episodes with skipped responses ('^') are *included* in the denominator.

[21] Kandilov AMG, Coomer NM, Dalton K. (2014) The impact of hospital-acquired conditions on Medicare program payments. MMRR 4(4): E1-E23

1.1.5 Numerator

The numerator is the number of completed quality episodes for patients whose assessment at discharge indicates one or more new or worsened Stage 2-4 or unstageable pressure ulcers compared to the start or resumption of care assessment.

Where on any discharge assessment:

1. Stage 2 (M1311A1) - (M1311A2) > 0, OR
2. Stage 3 (M1311B1) - (M1311B2) > 0, OR
3. Stage 4 (M1311C1) - (M1311C2) > 0, OR
4. Unstageable – Non-removable dressing/device (M1311D1) - (M1311D2) > 0, OR
5. Unstageable – Slough and/or eschar (M1311E1) - (M1311E2) > 0, OR
6. Unstageable – Deep tissue injury (M1311F1) - (M1311F2) > 0

If one or more (but not all) item pair(s) contain at least one dash value ('-') the item pair(s) is/are ignored and the remaining item pair(s) is/are evaluated.

1.1.6 Items Included in the Quality Measure

- **M1311A1**. Number of Stage 2 pressure ulcers, **M1311A2**. Number of these Stage 2 pressure ulcers that were present at most recent SOC/ROC
- **M1311B1**. Number of Stage 3 pressure ulcers, **M1311B2.** Number of these Stage 3 pressure ulcers that were present at most recent SOC/ROC
- **M1311C1**. Number of Stage 4 pressure ulcers, **M1311C2.** Number of these Stage 4 pressure ulcers that were present at most recent SOC/ROC
- **M1311D1**. Number of unstageable pressure ulcers/injuries due to non-removable dressing/device, **M1311D2**. Number of these unstageable pressure ulcers/injuries that were present at most recent SOC/ROC
- **M1311E1.** Unstageable: Slough and/or eschar, **M1311E2.** Number of these unstageable pressure ulcers that were present at most recent SOC/ROC
- **M1311F1**. Unstageable: Deep tissue injury, **M1311F2.** Number of these unstageable pressure injuries that were present at most recent SOC/ROC

1.1.7 Risk Adjustment Factors

This measure will be risk-adjusted based on an evaluation of potential risk factors and their statistically significant impact on the outcome. Risk factor covariates include:

1. Indicator of supervision/touching assistance or more at SOC/ROC for functional mobility item Lying to Sitting on Side of Bed (GG0170C):
   Covariate = [1] (yes) if GG0170C = [01, 02, 03, 04, 07, 09, 10, 88]
   Covariate = [0] (no) if GG0170C = [05, 06, -]

2. Indicator of bowel incontinence at least occasionally at SOC/ROC (M1620):
   Covariate = [1] if M1620 = [2, 3, 4, 5]
   Covariate = [0] if M1620 = [0, 1, NA, UK]
3. Have diabetes mellitus, peripheral vascular disease or peripheral arterial disease:
   Covariate = [1] (yes) if any of the following are true at SOC/ROC: M1028 = [1] (checked) or M1028 = [2] (checked)
   Covariate = [0] (no) if M1028 = [3] (checked)
4. Indicator of Low Body Mass Index, based on Height (M1060a) and Weight (M1060b)at SOC/ROC
   Covariate = [1] (yes) if BMI ≥ [12.0] AND ≤ [19.0]
   Covariate = [0] (no) if BMI > [19.0]
   Covariate = [0] (no) if M1060a = [-] OR M1060b = [-] OR BMI < [12.0], ('-'= No response available)

Where: BMI = (weight * 703 / height2) = ((M1060b) * 703) / (M1060a2) and the resulting value is rounded to one decimal.

1.1.8 Quality Measure Calculation Algorithm

The following steps are used to calculate the measure:

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

Step 1. Calculate the denominator count:

Calculate the total number of quality episodes with a selected target OASIS assessment in the measure time window that do not meet the exclusion criteria.

Step 2. Calculate the numerator count:

Calculate the total number of quality episodes in the denominator whose OASIS assessments indicates one or more new or worsened pressure ulcers at discharge compared to start or resumption of care.

Step 3. Calculate the agency's observed rate:

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

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

Step 4. Determine presence or absence of the pressure ulcer risk factors for each patient:

If dichotomous risk factor covariates are used, assign covariate values, either '0' for covariate condition not present or '1' for covariate condition present, for each quality episode for each of the covariates as reported at SOC/ROC, as described in the section above. In some cases, the actual values for a risk factor covariate may be used, e.g., the number of pressure ulcers present at each level at SOC/ROC or the total number of pressure ulcers present across all levels or the number of unstageable pressure ulcers.

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

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

Where e is the base of natural logarithms and X is a linear combination of the constant and the logistic regression coefficients (**Exhibit 1**) times the covariate scores (from Formula [2], below).

[2] QM triggered (yes=1, no=0) = B0 + B1*COV1 + B2*COV2 + … BN*COVN

Where B0 is the logistic regression constant, B1 is the logistic regression coefficient for the first covariate (where applicable), COV1 is the episode-level rate for the first covariate, B2 is the logistic regression coefficient for the second covariate, and COV2 is the episode-level rate for the second covariate (where applicable), etc. The regression constant and regression coefficients* are numbers obtained through statistical logistic regression analysis.

* Regression coefficients and constants are updated each reporting period.

C. Calculate the agency predicted rate (step 6)

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

D. Calculate national observed rate (step 7)

Step 7. Calculate the national observed rate:

Calculate the mean national-level observed QM rate by averaging all episode-level observed values.

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

Step 8. Calculate the agency-level risk-adjusted rate based on the:

agency-level observed QM rate (step 3),
agency-level mean predicted QM rate (step 6), and
*national mean observed QM rate (step 7), using the following formula:
agency risk adjusted rate = agency observed rate + national observed rate – agency predicted rate

If the agency risk adjusted rate is greater than 100%, then set to 100%. If the agency risk adjusted rate is less than 0%, then set to 0%. If the agency observed rate equals 0%, then set to 0%.

**The national observed QM rates are updated each reporting* period.

Exhibit 1. Logistic Regression Coefficients for the Percent of Residents or Patients with Changes in Skin Integrity (CMS ID: 5852-10)

Calculation Date[1]	Constant (Intercept)	Covariate Regression Estimates[2]
July 2, 2019	-6.5498	1. Covariate 1 (Functional Limitation): 1.4218 2. Covariate 2 (Bowel Incontinence): 1.4917 3. Covariate 3 (Diabetes or PVD/PAD): 0.3020 4. Covariate 4 (Low BMI): 0.5046