

April 2015

**Inpatient Rehabilitation Facility  
Quality Reporting Program:  
Specifications for the Quality Measures  
Proposed Through the Fiscal Year 2016  
Notice of Proposed Rulemaking**

Prepared for

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INPATIENT REHABILITATION FACILITY QUALITY REPORTING PROGRAM:  
SPECIFICATIONS FOR THE QUALITY MEASURES PROPOSED THROUGH THE  
FISCAL YEAR 2016 NOTICE OF PROPOSED RULEMAKING

RTI International

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## **SECTION 1 BACKGROUND**

Section 3004(b) of the Affordable Care Act amended section 1886(j)(7) of the Act, requiring the Secretary to establish the Inpatient Rehabilitation Facility (IRF) Quality Reporting Program (QRP). This program applies to freestanding IRFs, as well as IRF units affiliated with either acute care facilities or critical access hospitals (CAHs).

Additionally, section 2(a) of the Improving Medicare Post-Acute Care Transformation Act of 2014 (IMPACT Act) (Pub. L. 113-185, enacted on Oct. 6, 2014), amended title XVIII of the Act by adding section 1899B, titled “Standardized Post-Acute Care (PAC) Assessment Data for Quality, Payment and Discharge Planning”. Section 1899B(c)(1) requires that the Secretary specify not later than the applicable specified application date, as defined in section 1899B(a)(2)(E), quality measures on which IRF providers are required to submit standardized patient assessment data described in section 1899B(b)(1) and other necessary data specified by the Secretary. Section 1899B(c)(2)(A) requires, to the extent possible, the submission of the such quality measure data through the use of a PAC assessment instrument and the modification of such instrument as necessary to enable such use; for IRFs, this requirement refers to the Inpatient Rehabilitation Facility – Patient Assessment Instrument (IRF-PAI).

For more information on the statutory history of the IRF QRP, please refer to the FY 2015 IRF PPS final rule (79 FR 45908). More information on the IMPACT Act is available at <https://www.govtrack.us/congress/bills/113/hr4994>.

This document describes the measure specifications for the quality measures proposed in the Proposed Rule: Inpatient Rehabilitation Facility Prospective Payment System for Federal Fiscal Year 2016. The proposed quality measures are:

- (1) All-Cause Unplanned Readmission Measure for 30 Days Post-Discharge from IRFs (NQF #2502);
- (2) an application of Percent of Residents or Patients with Pressure Ulcers That Are New or Worsened (NQF #0678);
- (3) an application of Percent of Residents Experiencing One or More Falls with Major Injury (Long Stay) (NQF #0674);
- (4) an application of Percent of LTCH Patients with an Admission and Discharge Functional Assessment and a Care Plan That Addresses Function (NQF #2631; under review);
- (5) IRF Functional Outcome Measure: Change in Self-Care Score for Medical Rehabilitation Patients (NQF #2633; under review);
- (6) IRF Functional Outcome Measure: Change in Mobility Score for Medical Rehabilitation Patients (NQF #2634; under review);
- (7) IRF Functional Outcome Measure: Discharge Self-Care Score for Medical Rehabilitation Patients (NQF #2635; under review); and
- (8) IRF Functional Outcome Measure: Discharge Mobility Score for Medical Rehabilitation Patients (NQF #2636; under review).

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## SECTION 2 QUALITY MEASURES

### **2.1 Quality Measure: All-Cause Unplanned Readmission Measure for 30 Days Post-Discharge from Inpatient Rehabilitation Facilities (NQF #2502)**

This measure was endorsed by the National Quality Forum (NQF) in December 2014; more detailed measure specifications including results of testing and model validation can be found on the NQF website:

<http://www.qualityforum.org/ProjectTemplateDownload.aspx?SubmissionID=2502>

## **2.2 Quality Measure: Percent of Residents or Patients with Pressure Ulcers That Are New or Worsened (Short-Stay) (NQF #0678)**

### **2.2.1 Quality Measure Description**

This quality measure reports the percent of patients or short-stay residents with Stage 2-4 pressure ulcers that are new or worsened since admission. The measure is calculated using data from the Minimum Data Set (MDS) assessment instrument for skilled nursing facility (SNF)/short-stay nursing home (NH) residents, the Long-Term Care Hospital (LTCH) Continuity Assessment Record & Evaluation (CARE) Data Set assessment instrument for LTCH patients, and the IRF-Patient Assessment Instrument (IRF-PAI) for IRF patients. Data are collected separately in each of the three settings using standardized items that have been harmonized across the MDS, LTCH CARE Data Set, and IRF-PAI. For residents in a SNF/NH, the measure is calculated by examining all assessments during an episode of care for reports of Stage 2-4 pressure ulcers that were not present or were at a lesser stage since admission. For patients in LTCHs and IRFs, this measure reports the percent of patients with reports of Stage 2-4 pressure ulcers that were not present or were at a lesser stage on admission.

Of note, data collection and measure calculation for this measure is conducted separately for each of the three provider settings and will not be combined across settings.

For SNF/NH residents, this measure is restricted to the short-stay population defined as those who have accumulated 100 or fewer days in the SNF/NH as of the end of the measure time window. In IRFs, this measure is restricted to IRF Medicare (Part A and Part C) patients. In LTCHs, this measure includes all patients.

### **2.2.2 Purpose/Rationale for Quality Measure**

This quality measure is being put forth as a cross-setting quality measure to meet the requirements of the IMPACT Act addressing the domain of skin integrity and changes in skin integrity. Data reporting for this measure would affect the payment determination for the FY 2018 and subsequent years for the SNF, LTCH, and IRF Quality Reporting Programs. This measure has previously been successfully adopted in SNF/NHs, LTCHs and IRFs. It has been implemented in the CMS Nursing Home Quality Initiative using the MDS since 2011, and is currently publicly reported on CMS' Nursing Home Compare at: <http://www.medicare.gov/nursinghomecompare/search.html>. In addition, the measure was adopted for the LTCH Quality Reporting Program in the FY 2012 IPPS/LTCH PPS final rule (76 FR 51753 through 51756) for the FY 2014 payment determination and subsequent years, and for IRF Quality Reporting Program in the FY 2012 IRF PPS final rule (76 FR 47876 through 47878) for the FY 2014 payment determination and subsequent years. The measure has been successfully submitted by LTCHs and IRFs (using the LTCH CARE Data Set and IRF-PAI respectively) since October 2012.

This measure is intended to encourage SNF/NHs, LTCHs, and IRFs to prevent pressure ulcer development or worsening, and to closely monitor and appropriately treat existing pressure ulcers.

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.<sup>1,2,3,4</sup> Pressure ulcers interfere with activities of daily living and functional gains made during rehabilitation, predispose patients to osteomyelitis and septicemia, and are strongly associated with longer hospital stays, longer IRF stays, and mortality.<sup>5,6,7</sup> 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 patients with hospitalizations for all other conditions.<sup>8,9</sup>

Pressure ulcers typically result from prolonged periods of uninterrupted pressure on the skin, soft tissue, muscle, or bone.<sup>5,9,10</sup> Elderly individuals in SNFs/NHs, LTCHs, and IRFs have a wide range of impairments or medical conditions that increase their risk of developing pressure ulcers, including but not limited to, impaired mobility or sensation, malnutrition or undernutrition, obesity, stroke, diabetes, dementia, cognitive impairments, circulatory diseases, and dehydration. The use of wheelchairs and medical devices (e.g., hearing aids, feeding tubes, tracheostomies, PEG tubes), a history of pressure ulcers, or presence of a pressure ulcer at

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- 1 Casey, G. (2013). "Pressure ulcers reflect quality of nursing care." *Nurs N Z* 19(10): 20-24.
  - 2 Gorzoni, M. L. and S. L. Pires (2011). "Deaths in nursing homes." *Rev Assoc Med Bras* 57(3): 327-331.
  - 3 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.
  - 4 White-Chu, E. F., et al. (2011). "Pressure ulcers in long-term care." *Clin Geriatr Med* 27(2): 241-258.
  - 5 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.
  - 6 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>.
  - 7 Wang, H., et al. (2014). "Impact of pressure ulcers on outcomes in inpatient rehabilitation facilities." *Am J Phys Med Rehabil* 93(3): 207-216.
  - 8 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.
  - 9 Institute for Healthcare Improvement (IHI). Relieve the pressure and reduce harm. May 21, 2007. Available from <http://www.ihl.org/IHI/Topics/PatientSafety/SafetyGeneral/ImprovementStories/FSRelieveThePressureAndReduceHarm.htm>.
  - 10 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>.

admission are additional factors that increase pressure ulcer risk in elderly patients.<sup>1,5,6,8,11,12,13,14,15, 16,17,18</sup>

Pressure ulcers are high-cost adverse events across the spectrum of health care settings, from acute hospitals to home health.<sup>5,8,10</sup> Pressure ulcer incidence rates vary considerably by clinical setting, ranging from 0.4% to 38% in acute care, 2.2% to 23.9% in SNFs and NHs, and 0% to 17% in home care.<sup>9,19</sup> No national survey of pressure ulcer incidence or prevalence has been conducted in LTCHs or IRFs. However, a study evaluating 2009 Medicare Fee-For-Service (FFS) claims data from post-acute care facilities found 15,995 secondary diagnosis claims of Stage 3 or 4 pressure ulcers in LTCHs; 2,342 secondary diagnosis claims of Stage 3 or 4 pressure ulcers in IRFs; and 9,939 secondary diagnosis claims of Stage 3 or Stage 4 pressure ulcers in SNFs.<sup>20</sup> Additionally, analysis of LTCH CARE Data Set data (for admissions and discharges between October 1, 2012 through March 31, 2014) and IRF-PAI data (for IRF-PAI assessments between October 1, 2012 through March 31, 2014) conducted by CMS's measure development contractor, RTI International, suggests median risk-adjusted incidence of new or worsened pressure ulcers ranging from 1.88% to 2.01% per 12-month measure calculation period in LTCHs, and ranging from 0.73% to 1.02% per 12-month measure calculation period in IRFs.

As reported in the Federal Register, in 2006 the average cost for a hospital stay related to pressure ulcers was \$40,381.<sup>21</sup> The Advancing Excellence in America's Nursing Homes

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<sup>11</sup> 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>.

<sup>12</sup> Cai, S., et al. (2013). "Obesity and pressure ulcers among nursing home residents." *Med Care* 51(6): 478-486.

<sup>13</sup> 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]

<sup>14</sup> 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>.

<sup>15</sup> 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.

<sup>16</sup> 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.

<sup>17</sup> Reddy, M. (2011). "Pressure ulcers." *Clin Evid (Online)* 2011.

<sup>18</sup> Teno, J. M., et al. (2012). "Feeding tubes and the prevention or healing of pressure ulcers." *Arch Intern Med* 172(9): 697-701.

<sup>19</sup> Duncan (new): Duncan KD. Preventing pressure ulcers: The goal is zero. *Jt Comm J Qual Patient Saf*. 2007 Oct;33(10):605-10.

<sup>20</sup> Bernard SL, Dalton K, Lenfestey N F, Jarrett NM, Nguyen KH, Sorensen AV, Thaker S, West ND. Study to support a CMS report to Congress: Assess feasibility of extending the hospital-acquired conditions—present on admission IPPS payment policy to non-IPPS payment environments. Prepared for Centers for Medicare & Medicaid Services. 2011. Available from: <http://innovation.cms.gov/Files/x/HospAcquiredConditionsRTC.pdf>.

<sup>21</sup> 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.

Campaign reported that it can cost as much as \$19,000 to treat a single Stage 4 pressure ulcer.<sup>22</sup> Using data from 2009 and 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.<sup>23</sup>

### **2.2.3 Denominator**

Specific denominator definitions for each setting are provided below.

***SNF/NH Denominator:*** The denominator is the number of short-stay residents with one or more MDS assessments that are eligible for a look-back scan (except those with exclusions). A look-back scan is a review of all qualifying assessments within the resident's current episode to determine whether events 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. Assessment types include: an admission, quarterly, annual, significant change/correction OBRA assessment (A0310A = 01, 02, 03, 04, 05, 06); or a PPS 5-, 14-, 30-, 60-, or 90-day, (A0310B = 01, 02, 03, 04, 05) or discharge with or without return anticipated (A0310F = 10, 11); or SNF PPS Part A Discharge Assessment (A0310H = 1).

***LTCH Denominator:*** The denominator is the number of patients with an admission assessment (A0250=01) and a planned or unplanned discharge assessment (A0250=10, 11), except those who meet the exclusion criteria.

***IRF Denominator:*** The denominator is the number of Medicare patients\* (Part A and Part C) with an IRF-PAI assessment, except those who meet the exclusion criteria.

\*IRF-PAI data are submitted for Medicare patients (Part A and Part C) only.

### **Denominator Exclusions**

Specific denominator exclusions for each setting are provided below.

#### **SNF/NH Denominator Exclusions:**

1. Residents are excluded if none of the assessments that are included in the look-back scan has a usable response for items indicating the presence of new or worsened Stage 2, 3, 4 pressure ulcers since the prior assessment. This situation is identified as follows:
  - 1.1 If data on new or worsened Stage 2, 3, and 4 pressure ulcers is missing (M0800A = [-] and M0800B = [-] and M0800C = [-]) then the assessment is not usable and is discarded.

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<sup>22</sup> Advancing Excellence in America's Nursing Homes (AEANH). Explore our goals. n.d. Available from <https://www.nhqualitycampaign.org/goals.aspx>

<sup>23</sup> Kandilov AMG, Coomer NM, Dalton K. (2014) The impact of hospital-acquired conditions on Medicare program payments. MMRR 4(4): E1-E23.

- 1.2 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.
2. Resident is excluded if there is no initial assessment available to derive data for risk adjustment (covariates).
3. Death in facility tracking records (A0310F = [12]) are excluded from measure calculations.

**LTCH Denominator Exclusions:**

1. Patient stay is excluded if data on new or worsened Stage 2, 3, and 4 pressure ulcers are missing on the planned or unplanned discharge assessment; i.e., M0800A = [-] and M0800B = [-] and M0800C = [-].
2. Patient stay is excluded if the patient died during the LTCH stay; i.e., A0250 = [12].
3. Patient stay is excluded if there is no admission assessment available to derive data for risk adjustment (covariates).

**IRF Denominator Exclusions:**

1. Patient stay is excluded if data on new or worsened Stage 2, 3, and 4 pressure ulcers is missing at discharge; i.e., M0800A = [-] and M0800B = [-] and M0800C = [-].
2. Patient stay is excluded if the patient died during the IRF stay; i.e., Item 44C = [0].
3. Patient stay is excluded if there is no admission risk adjustment data (covariates).

**2.2.4 Numerator**

Specific numerator definitions for each setting are provided below.

**SNF/NH Numerator:** The numerator is the number of short-stay residents with an MDS assessment during the selected time window who have one or more Stage 2-4 pressure ulcers that are new or worsened, based on examination of all assessments in a resident’s episode for reports of Stage 2-4 pressure ulcers that were not present or were at a lesser stage on prior assessment.

- 1) Stage 2 (M0800A) > 0, OR
- 2) Stage 3 (M0800B) > 0, OR
- 3) Stage 4 (M0800C) > 0

Assessments may be discharge, PPS 5-, 14-, 30-, 60-, 90-day, SNF PPS Part A Discharge Assessment or OBRA admission, quarterly, annual or significant change assessments.

**LTCH Numerator:** The numerator is the number of patients with an LTCH CARE Data Set planned or unplanned discharge assessment during the selected time window who have one or more Stage 2-4 pressure ulcers that are new or worsened, compared to admission assessment.

- 1) Stage 2 (M0800A) > 0, OR

- 2) Stage 3 (M0800B) > 0, OR
- 3) Stage 4 (M0800C) > 0

**IRF Numerator:** The numerator is the number of patients with a completed IRF-PAI assessment during the selected time window, who have one or more Stage 2-4 pressure ulcer(s) that are new or worsened at discharge compared to admission.

- 1) Stage 2 (M0800A) > 0, OR
- 2) Stage 3 (M0800B) > 0, OR
- 3) Stage 4 (M0800C) > 0

### **2.2.5 Measure Time Window**

Time windows vary across setting due to considerable variation in facility sizes across the three settings. Specific measure time window descriptions for each setting are provided below.

**SNF/NH Time Window:** The measure is calculated quarterly using a rolling 6 months of data. Public reporting data reflect the weighted average of three rolling 6-month periods. For SNF/NH residents with multiple episodes of care during the 6 months, only the latest episode will be counted. For SNF/NH residents, the numerator is determined based on a look back across all assessments included in a resident episode, so may extend into the prior measurement period (i.e., look back may be as many as 100 days).

**LTCH Time Window:** The measure will be calculated using rolling 12 months of data. All LTCH stays, except those that meet the exclusion criteria, during the 12 months are included in the denominator and are eligible for inclusion in the numerator. For patients with multiple stays during the 12-month time window, each stay is eligible for inclusion in the measure.

**IRF Time Window:** The measure will be calculated using rolling 12 months of data. All IRF records, except those that meet the exclusion criteria, during the 12 months will be included in the denominator and are eligible for inclusion in the numerator. For patients with multiple records during the 12-month time window, each record is eligible for inclusion in the measure.

### **2.2.6 Risk Adjustment Covariates**

Specific covariate definitions for each setting are provided below.

#### **SNF/NH Covariates**

For each resident covariate values are assigned, either '0' for covariate condition not present or '1' for covariate condition present, as reported on the initial assessment.

1. Indicator of requiring limited or more assistance in bed mobility self-performance on the initial assessment:

Covariate = [1] (yes) if G0110A1 = [2, 3, 4, 7, 8] (2 – Limited assistance, 3 – Extensive assistance, 4 – Total dependence, 7 – activity occurred only once or twice, 8 – Activity did not occur)

Covariate = [0] (no) if G0110A1 = [0, 1, -] (0 – Independent, 1 – Supervision, ‘-’ – no response)

2. Indicator of bowel incontinence at least occasionally on the initial assessment:

Covariate = [1] (yes) if H0400 = [1, 2, 3] (1 – Occasionally incontinent, 2 – Frequently incontinent, 3 – Always incontinent)

Covariate = [0] (no) if H0400 = [0, 9, -, ^] (0 – Always continent, 9 – Not rated, ‘-’ – No response available, ‘^’ – Valid skip)

3. Have diabetes or peripheral vascular disease on initial assessment:

Covariate = [1] (yes) if any of the following are true:

- a. Active peripheral vascular disease (PVD) or peripheral arterial disease (PAD) in the last 7 days (I0900 = [1] (checked))
- b. Active diabetes mellitus (DM) in the last 7 days (I2900 = [1] (checked))

Covariate = [0] (no) if I0900 = [0, -, ‘-’] AND I2900 = [0, -]

4. Indicator of Low Body Mass Index (BMI), based on Height (K0200A) and Weight (K0200B) on the initial assessment:

Covariate = [1] (yes) if BMI  $\geq$  [12.0] AND  $\leq$  [19.0]

Covariate = [0] (no) if BMI  $>$  [19.0]

Covariate = [0] (no) if K0200A = [-] OR K0200B = [-] OR BMI  $<$  [12.0], (‘-’ = No response available)

Where: BMI = (weight \* 703 / height<sup>2</sup>) = ((K0200B) \* 703) / (K0200A<sup>2</sup>) and the resulting value is rounded to one decimal.

## LTCH Covariates

For each patient stay covariate values are assigned, either ‘0’ for covariate condition not present or ‘1’ for covariate condition present, as reported on the initial assessment.

1. Indicator of supervision/touching assistance or more for the functional mobility item Lying to Sitting on Side of Bed on the admission assessment:

Covariate = [1] (yes) if GG0160C = [01, 02, 03, 04, 07, 09, 88] (01 - Dependent, 02 - Substantial/maximal assistance, 03 - Partial/moderate assistance, 04 - Supervision or

touching assistance, 07 - Patient refused, 09 - Not applicable, 88 – activity not attempted due to medical condition or safety concerns)

Covariate = [0] (no) if GG0160C = [05, 06, -, ^] (05 -Setup or clean-up assistance, 06 - Independent, ‘-’ – No response available, ‘^’ – Valid skip)

2. Indicator of bowel incontinence at least occasionally on the admission assessment:

Covariate = [1] (yes) if H0400 = [01, 02, 03] (1 – Occasionally incontinent, 2 – Frequently incontinent, 3 – Always incontinent)

Covariate = [0] (no) if H0400 = [0, 09, -, ^] (0 – Always continent, 9 – Not rated, ‘-’ – No response available, ‘^’ – Valid skip)

3. Have diabetes or peripheral vascular disease on admission assessment:

Covariate = [1] (yes) if any of the following are true:

a. I0900 = [01] (checked)

b. I2900 = [01] (checked)

Covariate = [0] (no) if I0900 = [0, -] AND I2900 = [0, -]

4. Indicator of Low Body Mass Index, based on Height (K0200A) and Weight (K0200B) on the admission assessment:

Covariate = [1] (yes) if  $BMI \geq [12.0]$  AND  $\leq [19.0]$

Covariate = [0] (no) if  $BMI > [19.0]$

Covariate = [0] (no) if K0200A = [-] OR K0200B = [-] OR  $BMI < [12.0]$ , (‘-’ = No response available)

Where:  $BMI = (\text{weight} * 703 / \text{height}^2) = ([K0200B] * 703) / (K0200A^2)$  and the resulting value is rounded to one decimal.

## **IRF Covariates**

For each patient stay, covariate values are assigned, either ‘0’ for covariate condition not present or ‘1’ for covariate condition present, as reported on the initial assessment.

1. Indicator of requiring minimal or more assistance for the FIM<sup>®</sup> Item (39I) Transfers: Bed, Chair, and Wheelchair on admission:

Covariate = [1] (yes) if 39I FIM Levels = [0, 1, 2, 3, 4] (0 - Activity does not occur, 1 - Total Assistance (Subject less than 25%), 2 - Maximal Assistance (Subject = 25% or more), 3 - Moderate Assistance (Subject = 50% or more), 4 - Minimal Assistance (Subject = 75% or more))

Covariate = [0] (no) if 39I FIM Levels = [7, 6, 5, -, ^] (7 - Complete Independence (Timely, Safely), 6 - Modified Independence (Device), 5 - Supervision (Subject = 100%), ‘-’ – No response available, ‘^’ – Valid skip)

2. Indicator of bowel incontinence at least occasionally on admission:

Covariate = [1] (yes) if Item 32= [1,2,3,4,5] (1 - Five or more accidents in the past 7 days, 2 - Four accidents in the past 7 days, 3 - Three accidents in the past 7 days, 4 - Two accidents in the past 7 days, 5 - One accident in the past 7 days)

Covariate = [0] (no) if Item 32 = [6, 7, -, ^] (6 - No accidents; uses device such as a ostomy, 7 - No accidents, ‘-’ – No response available, ‘^’ – Valid skip)

3. Have diabetes or peripheral vascular disease on assessment:

Covariate = [1] (yes) if any of the following are true:

a. I0900 = [01] (checked)

c. I2900 = [01] (checked)

Covariate = [0] (no) if I0900 = [0, -] AND I2900A = [0, -]

4. Indicator of Low Body Mass Index, based on Height (25A) and Weight (26A) on the assessment:

Covariate = [1] (yes) if BMI  $\geq$  [12.0] AND  $\leq$  [19.0]

Covariate = [0] (no) if BMI > [19.0]

Covariate = [0] (no) if 25A = [-] OR 26A = [-] OR BMI < [12.0] (‘-’ = No response available)

Where: BMI = (weight \* 703 / height<sup>2</sup>) = ([26A] \* 703) / (25A)<sup>2</sup> and the resulting value is rounded to one decimal.]

### **2.2.7 Quality Measure Calculation**

The following steps are used to calculate the measure:

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

Step 1. Calculate the denominator count:

In the SNF/NH setting, calculate the total number of short-stay residents with a selected target MDS assessment in the measure time window, who do not meet the exclusion criteria.

In the LTCH setting, calculate the total number of patients with both an admission and discharge LTCH CARE Data Set assessment in the measure time window, who do not meet the exclusion criteria.

In the IRF setting, calculate the total number of patients with an IRF-PAI assessment in the measure time window, who do not meet the exclusion criteria.

Step 2. Calculate the numerator count:

In the SNF/NH setting, calculate the total number short-stay residents in the denominator with selected target or look-back assessment that indicates one or more new or worsened pressure ulcers.

In the LTCH setting, calculate the total number of patients whose discharge assessment indicates one or more new or worsened pressure ulcers compared to the admission assessment.

In the IRF setting, calculate the total number of patients whose IRF-PAI assessment indicates one or more new or worsened pressure ulcers at discharge compared to admission.

Step 3. Calculate the facility's observed score:

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

B. Calculate the expected score for each resident/patient (steps 4 and 5)

Step 4. Determine presence or absence of the pressure ulcer covariates for each resident/patient:

Assign covariate values, either '0' for covariate condition not present or '1' for covariate condition present, for each resident or patient for each of the four covariates as reported on the initial assessment for the SNF/NH setting or the admission assessment for the LTCH and IRF settings, as described in the section above.

Step 5: Calculate the expected score for each resident/patient with the following formula:

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

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 [2], below).

$$[2] \text{ QM triggered (yes=1, no=0)} = B_0 + B_1 * COV_A + B_2 * COV_B + \dots B_N * COV_N$$

Where  $B_0$  is the logistic regression constant,  $B_1$  is the logistic regression coefficient for the first covariate (where applicable),  $COV_A$  is the resident or patient-level score for the first covariate,  $B_2$  is the logistic regression coefficient for the second covariate, and  $COV_B$  is the resident or patient level score 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 calculated separately for each facility type (SNF/NH, LTCH, and IRF) and are updated each reporting period.*

C. Calculate the facility expected score (step 6)

Step 6. Once an expected QM score has been calculated for all residents for the SNF/NH setting or all patient stays for the LTCH and IRF settings, calculate the facility-level expected QM score by averaging all resident/patient-level expected scores.

D. Calculate the facility-level adjusted score (step 7)

Step 7. Calculate the facility-level adjusted score based on the:

facility-level observed QM score (step 3),

facility-level average expected QM score (step 6), and

\*national average observed QM score.

*\*The national observed QM means are updated separately for each facility type (SNF/NH, LTCH, and IRF) each reporting period.*

The calculation of the adjusted score uses the following equation:

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

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

Ln indicates a natural logarithm.

e is the base of natural logarithms

## **2.3 Quality Measure: Application of Percent of Residents Experiencing One or More Falls with Major Injury (Long Stay) (NQF #0674)**

### **2.3.1 Quality Measure Description**

The quality measure addressing the incidence of major falls is an application of the NQF-endorsed Percent of Residents Experiencing One or More Falls with Major Injury (Long Stay) (NQF #0674).

This quality measure reports the percentage of patients or residents who experience one or more falls with major injury (e.g., bone fractures, joint dislocations, closed head injuries with altered consciousness, or subdural hematoma) during the SNF, IRF, or LTCH stay/episode.

The data for the measure would be submitted via the MDS assessment instrument of SNF residents, the IRF-PAI for IRF patients, and the LTCH CARE Data Set assessments of LTCH patients.

The quality measure would be calculated using data reported for two items: 1) any falls since admission/entry (or reentry or prior assessment); and 2) number of falls with: a) no injury, b) injury (except major), and c) major injury. Because the IRF and LTCH measures are based on discharge assessments only, the items for the IRF-PAI and LTCH CARE Data Set only ask for falls since admission.

### **2.3.2 Purpose/Rationale for Quality Measure**

This quality measure is intended for use as a cross-setting quality measure to meet the requirements of the IMPACT Act addressing the domain of major falls. The Department of Health and Human Services included injury prevention, which incorporates falls prevention, as one of the 10 leading health indicators in the Healthy People 2020 initiative.<sup>24</sup> Falls represent a significant cost burden to the entire health care system, with injurious falls accounting for 6% of medical expenses among adults aged 65 and older.<sup>25</sup> Research indicates that fall-related injuries are the most common cause of accidental death in older people, responsible for approximately 41% of accidental deaths annually.<sup>26</sup> Rates increase to 70% of accidental deaths among individuals aged 75 and older.<sup>27</sup> In addition to death, falls can lead to fracture, soft tissue or head injury, fear of falling, anxiety, and depression.<sup>28</sup>

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<sup>24</sup> DHHS. Healthy People 2020 Leading Health Indicators: Injury and Violence. March 2015. Available at <http://www.healthypeople.gov/2020/leading-health-indicators/2020-lhi-topics/Injury-and-Violence/>

<sup>25</sup> Tinetti ME, Williams CS. The effect of falls and fall injuries on functioning in community-dwelling older persons. *J Gerontol A Biol Sci Med Sci*. 1998 Mar;53(2):M112-9.

<sup>26</sup> Currie LM. Fall and injury prevention. *Annu Rev Nurs Res*. 2006;24:39-74

<sup>27</sup> Fuller GF. Falls in the elderly. *Am Fam Physician*. Apr 1 2000;61(7):2159-2168, 2173-2154.

<sup>28</sup> Love K, Allen J. Falls: why they matter and what you can do. *Geriatr Nurs*, 2011; 32(3): 206-208.

Approximately 75% of nursing facility residents fall at least once a year, twice the rate of their counterparts in the community.<sup>29</sup> Further, it is estimated that 10 to 25% of nursing facility resident falls result in fractures and/or hospitalization.<sup>30</sup>

A study of 5,062 IRF patients found 367 patients (7%) had 438 falls. Among these 438 falls, 129 (30%) resulted in an injury, of which 25 (19%) were serious.<sup>31</sup> A separate study of 754 stroke patients in an IRF reported 117 patients (16%) experienced 159 falls. Among these 159 falls, 13 (8% resulted in a minor injury and 3 (2%) resulted in a serious injury.<sup>32</sup>

### **2.3.3 Denominator**

Specific denominator definitions for each setting are provided below.

***SNF Denominator:*** The denominator is the number of SNF residents with one or more assessments that are eligible for a look-back scan (except those with exclusions). A look-back scan is an examination of all eligible assessments in a resident's stay. Eligible assessment types include: an admission, quarterly, annual, significant change/correction OBRA assessment (A0310A = 01, 02, 03, 04, 05, 06); or a PPS 5-, 14-, 30-, 60-, or 90-day, (A0310B = 01, 02, 03, 04, 05) or OBRA discharge with or without return anticipated (A0310F = 10, 11); or SNF PPS Part A Discharge Assessment (A0310H = 1). This measure is applicable for Medicare FFS beneficiaries only.

***LTCH Denominator:*** The denominator is the number of patients with a discharge assessment (A0250=10, 11), except those who meet the exclusion criteria.

***IRF Denominator:*** The denominator is the number of Medicare patients\* (Part A and Part C), except those who meet the exclusion criteria.

\*IRF-PAI data are submitted only for Medicare patients (Part A and Part C).

### **Denominator Exclusions**

A patient/resident is excluded from the denominator if missing data precludes calculation of the measure. Specific denominator exclusions for each setting are provided below.

***SNF Denominator Exclusions:*** Residents are excluded if none of the assessments that are included in the look-back scan has a usable response for items indicating the presence of a

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<sup>29</sup> Rubenstein LZ, Josephson KR, Robbins AS. Falls in the nursing home. *Ann Intern Med.* 1994 Sep 15; 121(6):442-51. -6.

<sup>30</sup> Vu MQ, Weintraub N, Rubenstein LZ. Falls in the nursing home: are they preventable? *J Am Med Dir Assoc.* 2004 Nov-Dec; 5(6):401

<sup>31</sup> Frisina PG, Guellnitz R, Alverzo J. A time series analysis of falls and injury in the inpatient rehabilitation setting. *Rehab Nurs.* 2010; 35(4):141-146.

<sup>32</sup> Rabadi MH, Rabadi FM, Peterson M. An analysis of falls occurring in patients with stroke on an acute rehabilitation unit. *Rehab Nurs.* 2008; 33(3):104-109.

fall with major injury (i.e., information on falls with major injury is missing [J1900C = [-]] on all assessments in a resident's stay).

***LTCH Denominator Exclusions:*** Patient stay is excluded if falls with major injury data is missing (J1900C = [-]) on the unplanned or planned discharge or expired assessment.

***IRF Denominator Exclusions:*** Patient stay is excluded if falls with major injury data is missing (J1900C = [-]) on the IRF-PAI assessment.

#### **2.3.4 Numerator**

The numerator for this quality measure is the number of patients or residents who experienced one or more falls that resulted in major injury during the stay. Specific numerator definitions for each setting are provided below.

***SNF Numerator:*** The numerator is the number of FFS Medicare patients or residents who experienced one or more falls that resulted in major injury during the stay. Assessments may be OBRA discharge, PPS 5-, 14-, 30-, 60-, 90-day, SNF PPS Part A Discharge Assessment or OBRA admission, quarterly, annual or significant change assessments.

***LTCH Numerator:*** The numerator is the number of patients with an LTCH CARE Data Set planned or unplanned discharge or expired assessment during the selected time window who experienced one or more falls that resulted in major injury during the stay.

***IRF Numerator:*** The numerator is the number of Medicare (Part A and Part C) patients during the selected time window who experienced one or more falls that resulted in major injury during the stay.

#### **2.3.5 Items Included in the Quality Measure**

The items used for this measure collect data about whether any fall took place, and if so, the number of falls in each of the following categories:

- **Injury Related to Fall:** Any documented injury that occurred as a result of, or was recognized within a short period of time (e.g., hours to a few days) after, the fall and attributed to the fall.
- **Major Injury:** Includes bone fractures, joint dislocations, closed-head injuries with altered consciousness, and subdural hematoma.
- **Injury (Except Major):** Includes skin tears, abrasions, lacerations, superficial bruises, hematomas, and sprains; or any fall-related injury that causes the patient to complain of pain.

Only the number of falls resulting in major injury would be pertinent to this measure. Details on the items included in the quality measure are described separately below for each setting.

**SNF:** For SNFs, the item is collected on the MDS 3.0 assessments included in a SNF resident's stay, which may be OBRA discharge, PPS 5-, 14-, 30-, 60-, 90-day, SNF PPS Part A Discharge Assessment or OBRA admission, quarterly, annual or significant change assessments. Because the SNF measure includes assessments occurring between admission to the facility and discharge the MDS items are written to ask providers to identify falls since admission/entry or reentry or prior assessment, whichever is more recent.

**LTCH:** For LTCHs, the item is collected on the LTCH CARE Data Set unplanned and planned discharge or expired assessment and looks back to the time of admission.

**IRF:** For IRFs, the item is collected on the IRF-PAI assessment and looks back to the time of admission.

### **2.3.6 Risk Adjustment**

This measure is not risk-adjusted or stratified.

### **2.3.7 Quality Measure Calculation Algorithm**

The following steps are used to calculate the measure. Since this measure is not risk-adjusted or stratified, only the facility observed score is computed.

#### ***Calculate the facility observed score (steps 1 through 3)***

**Step 1.** Calculate the denominator count:

- In the SNF setting, calculate the total number of SNF residents with one or more assessments that are eligible for a look-back scan, except those who meet the exclusion criteria.
- In the LTCH setting, calculate the number of patients with a discharge assessment (A0250=10, 11), except those who meet the exclusion criteria.
- In the IRF setting, calculate the number of Medicare patients (Part A and Part C), except those who meet the exclusion criteria.

**Step 2.** Calculate the numerator count:

- In the SNF setting, calculate the number of FFS Medicare patients or residents who experienced one or more falls that resulted in major injury during the stay. Assessments may be OBRA discharge, PPS 5-, 14-, 30-, 60-, 90-day, SNF PPS Part A Discharge Assessment or OBRA admission, quarterly, annual or significant change assessments.
- In the LTCH setting, calculate the number of patients with an LTCH CARE Data Set planned or unplanned discharge or expired assessment during the selected time window who experienced one or more falls that resulted in major injury during the stay.

- In the IRF setting, calculate the number of Medicare patients during the selected time window who experienced one or more falls that resulted in major injury during the stay.

**Step 3.** Calculate the facility's observed score:

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

## **2.4 Quality Measure: Application of Percent of Long-Term Care Hospital Patients With an Admission and Discharge Functional Assessment and a Care Plan that Addresses Function (NQF #2631; under review)**

### **2.4.1 Quality Measure Description**

The cross-setting function quality measure is a process measure that is an application of the quality measure Percent of Long-Term Care Hospital Patients with an Admission and Discharge Functional Assessment and a Care Plan that Addresses Function (NQF #2631; under NQF review). This quality measure reports the percent of patients/residents with an admission and a discharge functional assessment and a treatment goal that addresses function. The treatment goal provides evidence that a care plan with a goal has been established for the patient/resident.

This process quality measure requires the collection of admission and discharge functional status data by clinicians using standardized clinical assessment items or data elements that assess specific functional activities, that is, self-care and mobility activities. The self-care and mobility function items are coded using a 6-level rating scale that indicates the patient's or resident's level of independence with the activity. A higher score indicates greater independence. If an activity is not attempted, the reason that the activity did not occur is coded. For this quality measure, documentation of a discharge goal for one of the function items reflects that the patient's or resident's care plan addresses function. The functional goal is recorded at admission for at least one of the standardized self-care or mobility function items using the 6-level rating scale. Subsequent to the admission assessment, goal setting and establishment of a care plan to achieve the goal, at the time of discharge the self-care and mobility functional performance is reassessed using the same 6-level rating scale, enabling the ability to re-assess the resident's functional abilities

The quality measure is calculated using data from the MDS assessment instrument for SNF residents, the LTCH CARE Data Set assessment instrument for LTCH patients, and the IRF-PAI for IRF patients. Data will be collected separately in each of the three settings using standardized items that have been harmonized across the MDS, LTCH CARE Data Set, and IRF-PAI.

Of note, data collection and measure calculation for this functional status measure will be conducted separately for each of the three provider settings.

### **2.4.2 Purpose/Rationale for Quality Measure**

Section 1899B(c)(1) of the Act directs the Secretary to specify quality measures on which PAC providers are required under the applicable reporting provisions to submit standardized patient assessment data and other necessary data specified by the Secretary with respect to five quality domains, one of which is functional status, cognitive function, and changes in function and cognitive function. To satisfy these requirements, we are proposing to specify an application of the quality measure Percent of Long-Term Care Hospital Patients with an Admission and Discharge Functional Assessment and a Care Plan that Addresses Function (NQF #2631; under NQF review) as a cross-setting quality measure that addresses the domain of functional status, cognitive function, and changes in function and cognitive function. This quality measure reports

the percent of patients with an admission and a discharge functional assessment and a goal that addresses function.

The National Committee on Vital and Health Statistics, Subcommittee on Health<sup>33</sup>, noted: “[i]nformation on functional status is becoming increasingly essential for fostering healthy people and a healthy population. Achieving optimal health and well-being for Americans requires an understanding across the life span of the effects of people's health conditions on their ability to do basic activities and participate in life situations, that is, their functional status.” This statement is supported by research showing that patient functioning is associated with important patient outcomes such as discharge destination and length of stay in inpatient settings,<sup>34</sup> as well as the risk of nursing home placement and hospitalization of older adults living in the community.<sup>35</sup> Functioning is important to patients/residents and their family members.<sup>36, 37, 38</sup>

The majority of patients/residents who receive post-acute care (PAC) services, such as care provided by SNFs, HHAs, IRFs and LTCHs, have functional limitations, and many of these patients/residents are at risk for further decline in function due to limited mobility and ambulation.<sup>39</sup> The patient/resident populations treated by SNFs, HHAs, IRFs and LTCHs vary in terms of their functional abilities at the time of the PAC admission and their goals of care. For IRF patients and many SNF residents, treatment goals may include fostering the patient’s or resident’s ability to manage his or her daily activities so that the patient or resident can complete self-care and/or mobility activities as independently as possible, and if feasible, return to a safe, active, and productive life in a community-based setting. Lastly, in addition to having complex medical care needs for an extended period of time, LTCH patients often have limitations in functioning because of the nature of their conditions, as well as deconditioning due to prolonged bed rest and treatment requirements (for example, ventilator use). The clinical practice guideline Assessment of Physical Function<sup>40</sup> recommends that clinicians should document functional status at baseline and over time to validate capacity, decline, or progress. Therefore, assessment of functional status at admission and discharge and establishing a functional goal for discharge as

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<sup>33</sup> Subcommittee on Health National Committee on Vital and Health Statistics, "Classifying and Reporting Functional Status" (2001).

<sup>34</sup> Reistetter TA, Graham JE, Granger CV, Deutsch A, Ottenbacher KJ. Utility of Functional Status for Classifying Community versus Institutional Discharges after Inpatient Rehabilitation for Stroke. *Archives of Physical Medicine and Rehabilitation*, 2010; 91:345-350.

<sup>35</sup> Miller EA, Weissert WG. Predicting Elderly People’s Risk for Nursing Home Placement, Hospitalization, Functional Impairment, and Mortality: A Synthesis. *Medical Care Research and Review*, 57; 3: 259-297.

<sup>36</sup> Kurz, A. E., Saint-Louis, N., Burke, J. P., & Stineman, M. G. (2008). Exploring the personal reality of disability and recovery: a tool for empowering the rehabilitation process. *Qual Health Res*, 18(1), 90-105.

<sup>37</sup> Kramer, A. M. (1997). Rehabilitation care and outcomes from the patient's perspective. *Med Care*, 35(6 Suppl), JS48-57.

<sup>38</sup> Stineman, M. G., Rist, P. M., Kurichi, J. E., & Maislin, G. (2009). Disability meanings according to patients and clinicians: imagined recovery choice pathways. *Quality of Life Research*, 18(3), 389-398.

<sup>39</sup> Kortebein P, Ferrando A, Lombebeida J, Wolfe R, Evans WJ. Effect of 10 days of bed rest on skeletal muscle in health adults. *JAMA*; 297(16):1772-4.

<sup>40</sup> Kresevic DM. Assessment of physical function. In: Boltz M, Capezuti E, Fulmer T, Zwicker D, editor(s). Evidence-based geriatric nursing protocols for best practice. 4th ed. New York (NY): Springer Publishing Company; 2012. p. 89-103.

part of the care plan (i.e., treatment plan) is an important aspect of patient/resident care for all of these PAC providers.

Given the variation in patient/resident populations across the PAC providers, the functional activities that are typically assessed by clinicians for each type of PAC provider may vary. For example, the activity of rolling left and right in bed is an example of a functional activity that may be most relevant for low-functioning patients and residents who are chronically critically ill. However, certain functional activities, such as eating, oral hygiene, moving from lying to sitting on the side of the bed, toilet transfers, and walking or wheelchair mobility, are important activities for patients/residents in each PAC provider.

Although functional assessment data are currently collected in SNFs, IRFs and LTCHs, this data collection has employed different assessment instruments, scales, and items. The data collected cover similar topics, but are not standardized across PAC settings. Further, the different sets of functional assessment items are coupled with different rating scales, making communication about patient or resident functioning challenging when patients or residents transition from one type of provider to another. Collection of standardized functional assessment data across SNFs, IRFs and LTCHs, using standardized data items, would establish a common language for patient or resident functioning, which may facilitate communication and care coordination as patients or residents transition from one type of provider to another. The collection of standardized functional status data may also help improve patient or resident functioning during an episode of care by ensuring that basic daily activities are assessed at the start and end of each episode of care with the aim of determining whether at least one functional goal is established.

The functional assessment items included in the functional status quality measure were originally developed and tested as part of the Post-Acute Care Payment Reform Demonstration (PAC PRD) version of the CARE Item Set, which was designed to standardize assessment of patient's or resident's status across acute and post-acute providers, including SNFs, HHAs, IRFs and LTCHs. The functional status items on the CARE Item Set are daily activities that clinicians typically assess at the time of admission and/or discharge to determine patients' needs, evaluate patient or resident progress and prepare patients or residents and families for a transition to home or to another provider.

The development of the CARE Item Set and a description and rationale for each item is described in a report entitled "The Development and Testing of the Continuity Assessment Record and Evaluation (CARE) Item Set: Final Report on the Development of the CARE Item Set: Volume 1 of 3."<sup>41</sup> Reliability and validity testing were conducted as part of CMS' Post-Acute Care Payment Reform Demonstration, and we concluded that the functional status items have acceptable reliability and validity. A description of the testing methodology and results are available in several reports, including the report entitled "The Development and Testing of the Continuity Assessment Record And Evaluation (CARE) Item Set: Final Report On Reliability Testing: Volume 2 of 3"<sup>42</sup> and the report entitled "The Development and Testing of The

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<sup>41</sup> Barbara Gage et al., "The Development and Testing of the Continuity Assessment Record and Evaluation (CARE) Item Set: Final Report on the Development of the CARE Item Set" (RTI International, 2012).

<sup>42</sup> Ibid.

Continuity Assessment Record And Evaluation (CARE) Item Set: Final Report on Care Item Set and Current Assessment Comparisons: Volume 3 of 3."<sup>43</sup> The reports are available at: <http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Post-Acute-Care-Quality-Initiatives/CARE-Item-Set-and-B-CARE.html>.

### **2.4.3 Denominator**

Specific denominator definitions for each setting are provided below. There are no denominator exclusion criteria for this measure.

***IRF Denominator:*** The denominator is the number of Medicare (Part A and Part C) patients.

***LTCH Denominator:*** The denominator is the number of LTCH patients.

***SNF Denominator:*** The denominator is the number of Medicare fee-for-service residents.

### **2.4.4 Numerator**

The numerator for this quality measure is the number of patients/residents with functional assessment data for each self-care and mobility activity and at least one self-care or mobility goal.

To the extent that a patient has an incomplete stay (for example, for the purpose of being admitted to an acute care facility), collection of discharge functional status data might not be feasible. Therefore, for patients with incomplete stays, admission functional status data and at least one treatment goal would be required; discharge functional status data would not be required to be reported.

Patients or residents with complete and incomplete stays are included in the numerator for this quality measure.

#### **For patients or residents with complete stays:**

For patients or residents with a complete stay, all three of the following are required for the patient to be counted in the numerator:

1. A valid numeric score indicating the patient's or resident's functional status, or a valid code indicating the activity was not attempted or could not be assessed for each of the functional assessment items on the admission assessment;
2. A valid numeric score, which is a discharge goal indicating the patient's or resident's expected level of independence, for at least one self-care or mobility item on the admission assessment; and
3. A valid numeric score indicating the patient's or resident's functional status, or a valid code indicating the activity was not attempted or could not be assessed, for each of the functional assessment items on the discharge assessment.

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<sup>43</sup> Ibid.

### **For patients or residents with incomplete stays:**

For patients or residents who have an incomplete stay, discharge functional assessment data are not required to be reported. Patients or residents who have incomplete stays are defined as those patients or residents: (1) with incomplete stays due to a medical emergency, (2) who leave the IRF, LTCH, SNF against medical advice, or (3) who die while in the IRF, LTCH, SNF. Discharge functional status data are not required to be reported for these patients or residents because these data might not be feasible to collect at the time of the medical emergency, if the patient/resident dies, or if the patient/resident leaves against medical advice.

The following are required for the patients or residents who have an incomplete stay to be counted in the numerator:

1. A valid numeric score indicating the patient's or resident's functional status, or a valid code indicating the activity was not attempted or could not be assessed for each of the functional assessment items on the admission assessment; and
2. A valid numeric score, which is a discharge goal indicating the patient's or resident's expected level of independence, for at least one self-care or mobility item on the admission assessment.

#### **2.4.5 Items Included in the Quality Measure**

An important consideration when measuring functional status is that certain activities may not be relevant or feasible to assess for all patients or residents in all types of settings. For example, walking may not occur on admission in a PAC setting because it is not safe for a patient or resident to ambulate. In this situation, a clinician would code that a functional activity was not attempted because it was not safe or feasible for the patient/resident to perform the activity.

**The following functional status items are included in this measure:**

#### **Self-Care Items**

**Eating:** The ability to use suitable utensils to bring food to the mouth and swallow food once the meal is presented on a table/tray. Includes modified food consistency.

**Oral hygiene:** The ability to use suitable items to clean teeth. [Dentures (if applicable): The ability to remove and replace dentures from and to the mouth, and manage equipment for soaking and rinsing them.]

**Toileting hygiene:** The ability to maintain perineal hygiene; ability to adjust clothes before and after using the toilet, commode, bedpan or urinal. If managing an ostomy, include wiping the opening but not managing equipment.

#### **Mobility Items**

**Sit to lying:** The ability to move from sitting on side of bed to lying flat on the bed.

**Lying to sitting on side of bed:** The ability to safely move from lying on the back to sitting on the side of the bed with feet flat on the floor, and with no back support.

**Sit to stand:** The ability to safely come to a standing position from sitting in a chair or on the side of the bed.

**Chair/bed-to-chair transfer:** The ability to safely transfer to and from a bed to a chair (or wheelchair).

**Toilet transfer:** The ability to safely get on and off a toilet or commode.

*For patients or residents who are walking, complete the following items:*

**Walk 50 feet with two turns:** Once standing, the ability to walk 50 feet and make two turns.

**Walk 150 feet:** Once standing, the ability to walk at least 150 feet (45 meters) in a corridor or similar space.

*For patients or residents who use a wheelchair, complete the following items:*

**Wheel 50 feet with two turns:** The ability to wheel 50 feet and make two turns once seated in wheelchair/scooter.

**Indicate the type of wheelchair/scooter used.**

- 0. Manual
- 1. Motorized

**Wheel 150 feet:** Once seated, can wheel at least 150 feet (45 meters) in a corridor or similar space.

**Indicate the type of wheelchair/scooter used.**

- 0. Manual
- 1. Motorized

### **Self-Care and Mobility Rating Scale: Codes and Code Definitions**

**06. Independent**—Patient/resident completes the activity by himself/herself with no assistance from a helper.

**05. Setup or clean-up assistance**—Helper SETS UP or CLEANS UP; patient/resident completes activity. Helper assists only prior to or following the activity.

**04. Supervision or touching assistance**—Helper provides VERBAL CUES or TOUCHING/ STEADYING assistance as patient/resident completes activity. Assistance may be provided throughout the activity or intermittently.

**03. Partial/moderate assistance**—Helper does LESS THAN HALF the effort of the activity. Helper lifts, holds, or supports patient's/resident's trunk or limbs, but provides less than half the effort.

- 02. Substantial/maximal assistance**—Helper does MORE THAN HALF the effort of the activity. Helper lifts, holds or supports patient’s/resident’s trunk or limbs and provides more than half the effort.
- 01. Dependent**—Helper does ALL of the effort. Patient/resident does none of the effort to complete the activity. Or, the assistance of 2 or more helpers is required for the patient/resident to complete the activity.

*If activity was not attempted, code:*

**07. Patient/resident refused**

**09. Not applicable**

**88. Not attempted due to medical condition or safety concerns**

#### **2.4.6 Quality Measure Calculation Algorithm**

The following steps are used to calculate the measure:

1. For each provider, the stay records of patients or residents meeting the inclusion criteria (i.e., denominator) discharged during the 12 month target time period are identified and counted. This count is the denominator.
2. The records of patients or residents with complete stays are identified and the number of these patient/resident stays with complete admission functional assessment data (codes 1 through 6 or 7, 9 or 88) AND at least one self-care or mobility goal (codes 1 through 6) AND complete discharge functional assessment data (codes 1 through 6 or 7, 9 or 88) is counted.
3. The records of patients or residents with incomplete stays are identified, and the number of these patient/resident records with complete admission functional status data (codes 1 through 6 or 7, 9 or 88) AND at least one self-care or mobility goal (codes 1 through 6) is counted.
4. The counts from step 2 (complete stays) and step 3 (incomplete stays) are summed. The sum is the numerator count.
5. The numerator count is divided by the denominator count to calculate this quality measure.

#### **2.4.7 Risk Adjustment**

This quality measure is a process measure and is not risk adjusted. Completion of a functional assessment, which includes the use of use of “activity not attempted” codes, is not affected by the medical and functional complexity of the patient/resident; therefore, risk adjustment of this quality measure is not warranted.

## **2.5 Quality Measure: IRF Functional Outcome Measure: Change in Self-Care Score for Medical Rehabilitation Patients (NQF #2633; under review)**

### **2.5.1 Quality Measure Description**

This quality measure estimates the risk-adjusted mean change in self-care score between admission and discharge among IRF patients. This measure is currently under review by the NQF.

This outcome measure requires the collection of admission and discharge functional status data by clinicians using standardized clinical assessment items, or data elements that assess specific self-care activities (for example, eating and oral hygiene). The self-care function items are coded using a 6-level rating scale that indicates the patient's level of independence with the activity; higher scores indicate greater independence. In addition, this measure requires the collection of risk adjustor data at the time of admission, such as patient functioning prior to the current illness, exacerbation, or injury; bladder continence; communication ability and cognitive function.

The three self-care items included in the cross-setting function quality measure, the application of the Percent of LTCH Patients with an Admission and Discharge Functional Assessment and a Care Plan that Addresses Function (NQF #2631; under review), are included in this quality measure.

A summary of the measure specifications can be accessed on the NQF website: <http://www.qualityforum.org/qps/2633>. Detailed specifications for this quality measure can be accessed at: <http://www.qualityforum.org/ProjectTemplateDownload.aspx?SubmissionID=2633>.

### **2.5.2 Purpose/Rationale for Quality Measure**

During an inpatient rehabilitation stay, treatment goals include fostering the patient's ability to manage his or her daily activities so that the patient can complete self-care and mobility activities as independently as possible and if feasible, return to a safe, active, and productive life in a community-based setting.

Given that the primary goal of rehabilitation is improvement in function, IRF clinicians have traditionally assessed and documented patients' functional status at admission and at discharge to evaluate the effectiveness of the rehabilitation care provided to individual patients, as well as the effectiveness of the rehabilitation unit or hospital overall.

In describing the importance of functional status, the National Committee on Vital and Health Statistics, Subcommittee on Health<sup>44</sup>, noted,

“[i]nformation on functional status is becoming increasingly essential for fostering healthy people and a healthy population. Achieving optimal health and well-being for Americans requires an understanding across the life span of the

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<sup>44</sup> World Health Organization. International Classification of Functioning, Disability and Health. 2001; Available at: <http://apps.who.int/classifications/icfbrowser> Accessed 1/20/2014.

effects of people’s health conditions on their ability to do basic activities and participate in life situations, in other words, their functional status.”

Research has shown differences in IRF patients’ functional outcomes by geographic region, insurance type, and race/ethnicity after adjusting for key patient demographic characteristics and admission clinical status, which supports the need to monitor IRF patients’ functional outcomes. For example, Reistetter<sup>45</sup> examined discharge motor function and functional gain among IRF patients with stroke and found statistically significant differences in functional outcomes by U.S. geographic region, insurance type, and race ethnicity group after risk adjustment. O’Brien<sup>46</sup> found differences in functional outcomes across race/ethnicity groups in her analysis of Medicare assessment data for patients with stroke after risk adjustment. O’Brien<sup>47</sup> also noted that the overall IRF length of stay decreased 1.8 days between 2002 and 2007, and that shorter IRF stays were associated with lower function at discharge.

Rehabilitation programs have traditionally conceptualized functional status in terms of the need for assistance from another person. This is the conceptual basis for the FIM<sup>®</sup><sup>48</sup> instrument (used in IRFs); the MDS function items (used in nursing homes), and the Outcome and Assessment Information Set (OASIS) function items (used in home health). In a patient-centered health care system, there is a need for standardized terminology and assessment items because patients often receive care from more than one provider. The use of standardized items and terminology facilitates clinicians speaking a common language that can be understood across clinical disciplines and practice settings.

The functional assessment items used to calculate the four IRF function quality measures are from the CARE Item Set, which was designed to standardize assessment of patients’ status across acute and post-acute settings, including IRFs, LTCHs, SNFs, and home health agencies (HHAs). The CARE Item Set was developed and tested as part of the PAC-PRD. The functional status items on the CARE Item Set include daily activities that clinicians typically assess at the time of admission and/or at discharge to determine patient needs, evaluate patient progress, and prepare patients and families for a transition to home or another setting.

The development of the CARE Item Set and a description and rationale for each item is described in a report titled *The Development and Testing of the Continuity Assessment Record*

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<sup>45</sup> Reistetter, T. A., Karmarkar, A. M., Graham, J. E., Eschbach, K., Kuo, Y. F., Granger, C. V., . . . Ottenbacher, K. J. (2014). Regional variation in stroke rehabilitation outcomes. *Archives of Physical Medicine and Rehabilitation*, 95(1), 29-38.

<sup>46</sup> O’Brien, S. R., Xue, Y., Ingersoll, G., & Kelly, A. (2013). Shorter length of stay is associated with worse functional outcomes for Medicare beneficiaries with stroke. *Physical Therapy*, 93(12), 1592-1602.

<sup>47</sup> Ibid.

<sup>48</sup> FIM<sup>®</sup> is a trademark of Uniform Data System for Medical Rehabilitation, a division of UB Foundation Activities, Inc.

*and Evaluation (CARE) Item Set: Final Report on the Development of the CARE Item Set: Volume 1 of 3.*<sup>49</sup>

Results of the reliability and validity testing conducted as part of the PAC-PRD found the functional status items to have acceptable reliability and validity in the acute and post-acute patient populations. A description of the testing methodology and results are available in several reports, including *The Development and Testing of the Continuity Assessment Record and Evaluation (CARE) Item Set*. Volume 2 of the series is the *Final Report on Reliability Testing*<sup>50</sup> and Volume 3 is the *Final Report on CARE Item Set and Current Assessment Comparisons*.<sup>51</sup> These reports are available at <http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Post-Acute-Care-Quality-Initiatives/CARE-Item-Set-and-B-CARE.html>. A summary of the reliability and validity testing of the CARE functional status items is provided in *Appendix A* of this document.

### 2.5.3 Population

This measure includes IRF patients who are at least 21 years of age, Medicare beneficiaries, are not independent in all of the self-care activities at the time of admission, and have complete stays.

**Quality Measure Exclusions:** This quality measure has 6 exclusion criteria:

1. Patients with incomplete stays.  
Rationale: It can be challenging to gather accurate discharge functional status data for patients who experience incomplete stays. Patients with incomplete stays include patients who are unexpectedly discharged to an acute care setting (Short-stay Acute Hospital, Critical Access Hospital, Inpatient Psychiatric Facility, or Long-term Care Hospital), because of a medical emergency; patients who die or leave an IRF against medical advice; patients discharged directly to another IRF; and patients with a length of stay less than 3 days.
2. Patients who are independent with all self-care activities at the time of admission.  
Rationale: Patients who are independent with all self-care items at the time of admission are assigned the highest score on all self-care items, and thus, would not be able to show functional improvement on this same set of items at discharge.
3. Patients with the following medical conditions: coma; persistent vegetative state; complete tetraplegia; locked-in syndrome; severe anoxic brain damage, cerebral edema, or compression of brain.  
Rationale: These patients are excluded because they may have limited or less predictable improvement with the selected self-care items.

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<sup>49</sup> Gage B, Constantine R, Aggarwal J, et al. *The Development and Testing of the Continuity Assessment Record and Evaluation (CARE) Item Set: Final Report on the Development of the CARE Item Set Volume 1 of 3*. RTI International; 2012.

<sup>50</sup> Gage B, Smith L, Ross J, et al. *The Development and Testing of the Continuity Assessment Record and Evaluation (CARE) Item Set: Final Report on Reliability Testing Volume 2 of 3*. RTI International; 2012.

<sup>51</sup> Gage B, Deutsch A, Smith L, et al. *The Development and Testing of the Continuity Assessment Record and Evaluation (CARE) Item Set: Final Report on CARE Item Set and Current Assessment Comparisons Volume 3 of 3*. RTI International; 2012.

4. Patients younger than 21 years.  
Rationale: There is only limited evidence published about functional outcomes for individuals younger than 21 years.
5. Patients discharged to hospice.  
Rationale: Patient goals may change during the IRF stay.
6. Patients who are not Medicare beneficiaries.  
Rationale: IRF-PAI data are submitted for Medicare beneficiaries.

#### **2.5.4 Items Included in the Quality Measure**

For the quality measure, the following functional activities are assessed and rated at the time of admission and discharge:

##### **Self-Care Items**

**Eating:** The ability to use suitable utensils to bring food to the mouth and swallow food once the meal is presented on a table/tray. Includes modified food consistency.

**Oral hygiene:** The ability to use suitable items to clean teeth. [Dentures (if applicable): The ability to remove and replace dentures from and to the mouth, and manage equipment for soaking and rinsing them.]

**Toileting hygiene:** The ability to maintain perineal hygiene, adjust clothes before and after using the toilet, commode, bedpan or urinal. If managing an ostomy, include wiping the opening but not managing equipment.

**Shower/bathe self:** The ability to bathe self in shower or tub, including washing, rinsing, and drying self. Does not include transferring in/out of tub/shower.

**Upper body dressing:** The ability to put on and remove shirt or pajama top; includes buttoning, if applicable.

**Lower body dressing:** The ability to dress and undress below the waist, including fasteners; does not include footwear.

**Putting on/taking off footwear:** The ability to put on and take off socks and shoes or other footwear that is appropriate for safe mobility.

##### **Self-Care Rating Scale: Codes and Code Definitions**

Activities may be completed with or without assistive devices.

**06. Independent** – Patient completes the activity by him/herself with no assistance from a helper.

**05. Setup or clean-up assistance** – Helper SETS UP or CLEANS UP; patient completes activity. Helper assists only prior to or following the activity.

- 04. Supervision or touching assistance** – Helper provides VERBAL CUES or TOUCHING/ STEADYING assistance as patient completes activity. Assistance may be provided throughout the activity or intermittently.
- 03. Partial/moderate assistance** – Helper does LESS THAN HALF the effort. Helper lifts, holds or supports trunk or limbs, but provides less than half the effort.
- 02. Substantial/maximal assistance** – Helper does MORE THAN HALF the effort. Helper lifts or holds patient’s trunk or limbs and provides more than half the effort.
- 01. Dependent** – Helper does ALL of the effort. Patient does none of the effort to complete the activity. Or, the assistance of 2 or more helpers is required for the patient to complete the activity.

*If the activity was not attempted, code reason:*

**07. Patient refused**

**09. Not applicable**

**88. Not attempted due to medical condition or safety concerns**

#### **2.5.5 Risk Adjustment**

Patients treated in IRFs vary in terms of primary diagnosis (i.e., impairment group), demographic characteristics, and co-existing conditions. Patients may have different expected improvement in function on the basis of these factors. Therefore, this outcome measure is risk adjusted. Risk adjustment controls for specific patient characteristics (e.g., age or diagnosis) that may affect patients’ outcomes so that facility data may be compared.

Risk adjustment variables were selected for this quality measure on the basis of a review of the literature and empirical findings from the PAC-PRD analyses,<sup>52</sup> as well as input from the function TEP convened by RTI. We also incorporated suggestions we received on risk adjustors as part of the public comment process. We conducted regression analyses using the PAC-PRD data to help identify the best set of risk adjustors on the basis of regression coefficients, statistical significance, sample sizes, and other indicators. Data on the reliability of CARE variables used for risk adjustment can be found in the report titled *The Development and Testing of the Continuity Assessment Record and Evaluation (CARE) Item Set: Final Report on Reliability Testing: Volume 2 of 3*.<sup>53</sup>

The list of risk adjustment variables is outlined below. More detailed risk adjustment testing and selection information for this measure can be found on the NQF website at: <http://www.qualityforum.org/ProjectTemplateDownload.aspx?SubmissionID=2633>.

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<sup>52</sup> [http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Reports/Research-Reports-Items/PAC\\_Payment\\_Reform\\_Demo\\_Final.html](http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Reports/Research-Reports-Items/PAC_Payment_Reform_Demo_Final.html)

<sup>53</sup> <http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Post-Acute-Care-Quality-Initiatives/CARE-Item-Set-and-B-CARE.html>

- **Age group at IRF admission**
  - Younger than 35 years
  - 35 to 44 years
  - 45 to 54 years
  - 55 to 64 years
  - 65 to 74 years (reference category)
  - 75 to 84 years
  - 85 to 90 years
  - 90 years or older
- **Admission self-care score: continuous score**
- **Admission self-care score: squared form**
- **Primary IRF Diagnosis Groups:**
  - Stroke
  - Non-traumatic brain dysfunction
  - Traumatic brain dysfunction
  - Non-traumatic spinal cord dysfunction
  - Traumatic spinal cord dysfunction
  - Progressive neurological conditions
  - Other neurological conditions
  - Fractures and other multiple trauma
  - Amputation
  - Hip and knee replacements (reference category)
  - Other orthopedic conditions
  - Debility, Cardiorespiratory conditions
  - Medically complex conditions
- **Interaction of admission self-care score and primary diagnosis group**
- **Surgical prior acute or Long-term Care Hospital diagnosis**
- **Prior Functioning: Self-care**
  - Dependent
  - Some help
- **Prior Functioning: Indoor ambulation**
  - Dependent or some help

- **Prior Mobility Devices** (used before current illness, exacerbation, or injury)
  - Wheelchair or scooter
  - Mechanical Lift
  - Orthotics/Prosthetics
  - Walker
- **Communication Impairment: Understanding verbal content *and* expression of ideas and wants**
  - Moderate to severe communication impairment: Rarely/never understands; or sometimes understands; or rarely/never expresses self; or speech is very difficult to understand; or frequently exhibits difficulty with expression
- **Cognitive abilities: Brief Interview for Mental Status (BIMS) score**
  - Severely impaired
  - Moderately impaired
- **Bladder incontinence**
  - Less than daily or daily incontinence or always incontinent
  - Urinary catheter
- **Bowel incontinence**
  - Always incontinent
  - Less than daily or daily incontinence
- **Presence of stage 2 pressure ulcer(s)**
- **Presence of stage 3, 4 or unstageable pressure ulcer(s)**
- **Swallowing ability**
  - Modified food consistency
  - Tube or parenteral feeding
- **Comorbidities** (hierarchical condition categories)
  - Major Infections: Septicemia, Sepsis, Systemic Inflammatory Response Syndrome/Shock; and Other Infectious Diseases
  - Central Nervous System Infections: Bacterial, Fungal, and Parasitic Central Nervous System Infections; Viral and Late Effects Central Nervous System Infections
  - Metastatic Cancer and Acute Leukemia
  - Diabetes: Diabetes with Chronic Complications; Diabetes without Complication; Type I Diabetes Mellitus
  - Other Significant Endocrine and Metabolic Disorders

- Intestinal Obstruction/Perforation
- Delirium and Encephalopathy
- Dementia: Dementia With Complications; Dementia Without Complications
- Tetraplegia (excluding complete tetraplegia)
- Paraplegia
- Multiple Sclerosis
- Parkinson’s and Huntington’s Diseases
- Mononeuropathy, Other Neurological Conditions/Injuries
- Angina Pectoris
- Coronary Atherosclerosis/Other Chronic Ischemic Heart Disease
- Hypertensive Heart Disease
- Hemiplegia, Other Late Effects of Cerebrovascular Accident: Hemiplegia/Hemiparesis; Late Effects of Cerebrovascular Disease Except Paralysis
- Kidney Transplant status
- Dialysis Status and Chronic Kidney Disease - Stage 5
- Urinary Obstruction and Retention
- Chronic Ulcer of Skin, Excluding Pressure Ulcer
- Amputations: Traumatic Amputations and Complications; Amputation Status, Lower Limb/Amputation Complications; Amputation Status, Upper Limb

### **2.5.6 Calculation Algorithm**

The following steps are used to calculate the measure:

- 1) Sum the scores of the admission self-care items to create an admission self-care score for each patient, after ‘activity not attempted’ values are recoded to 1 (score range: 7 to 42).
- 2) Sum the scores of the discharge self-care items to create a discharge self-care score for each patient, after ‘activity not attempted’ values are recoded to 1 (score range: 7 to 42).
- 3) Identify the records of patients who meet the exclusion criteria and exclude them from analyses.
- 4) Calculate the difference between the admission self-care score (from step 1) and the discharge self-care score (from step 2) for each patient to create a change in self-care score for each patient.

- 5) Calculate an expected change in self-care score for each patient using regression coefficients from national data and each patient's admission characteristics (risk adjustors).
- 6) Calculate an average observed change in self-care score for each IRF. This is the facility-level observed change in self-care score.
- 7) Calculate an average expected change in self-care score for each IRF. This is the facility-level expected change in self-care score.
- 8) Divide the facility-level observed change score by the facility-level expected change score to create an observed to expected ratio. A ratio value that is 1 indicates the observed and expected scores are equal. A ratio value that is higher than 1 indicates that the observed change scores are higher (better) than expected. A ratio value that is less than 1 indicates that the observed change scores are less (worse) than expected.
- 9) Multiply each IRF's ratio by the national average change in self-care score. This is the risk-adjusted mean self-care score.

## **2.6 Quality Measure: IRF Functional Outcome Measure: Change in Mobility Score for Medical Rehabilitation Patients (NQF #2634; under review)**

### **2.6.1 Quality Measure Description**

This quality measure estimates the risk-adjusted mean change in mobility score between admission and discharge among IRF patients. This measure is currently under review by NQF.

This outcome measure requires the collection of admission and discharge functional status data by clinicians using standardized clinical assessment items, or data elements that assess specific functional mobility activities (for example, toilet transfer and walking). The mobility function items are coded using a 6-level rating scale that indicates the patient's level of independence with the activity; higher scores indicate more independence. In addition, this measure requires the collection of risk adjustor data at the time of admission, such as patient functioning prior to the current illness, exacerbation, or injury; history of falls; bladder continence; communication ability and cognitive function.

Seven of the mobility items included in the cross-setting function quality measure, the application of the Percent of LTCH Patients with an Admission and Discharge Functional Assessment and a Care Plan that Addresses Function (NQF #2631; under review), are included in this quality measure.

A summary of this quality measure can be accessed on the NQF website: <http://www.qualityforum.org/gps/2634>. More detailed specifications for this quality measure can be accessed at: <http://www.qualityforum.org/ProjectTemplateDownload.aspx?SubmissionID=2634>.

### **2.6.2 Purpose/Rationale for Quality Measure**

As noted in Section 2.5.2, IRFs provide intensive rehabilitation services to patients with a goal of improving patient functioning.

### **2.6.3 Population**

This measure includes IRF patients who are at least 21 years of age, Medicare beneficiaries, are not independent in all of the mobility activities at the time of admission, and have complete stays.

**Quality Measure Exclusions:** This quality measure has 6 exclusion criteria:

1. Patients with incomplete stays.  
Rationale: It can be challenging to gather accurate discharge functional status data for patients who experience incomplete stays. Patients with incomplete stays include patients who are unexpectedly discharged to an acute care setting (Short-stay Acute Hospital, Critical Access Hospital, Inpatient Psychiatric Facility, or Long-term Care Hospital) because of a medical emergency; patients who die or leave an IRF against medical advice; patients discharged directly to another IRF; and patients with a length of stay less than 3 days.

2. Patients who are independent with all mobility activities at the time of admission.  
Rationale: Patients who are independent with CARE mobility items at the time of admission are assigned the highest score on all the mobility items, and thus, would not be able to show functional improvement on this same set of items at discharge.
3. Patients with the following medical conditions: coma, persistent vegetative state; complete tetraplegia; locked-in syndrome; severe anoxic brain damage, cerebral edema, or compression of brain.  
Rationale: These patients are excluded because they may have limited or less predictable improvement with the selected mobility items.
4. Patients younger than 21 years.  
Rationale: There is only limited evidence published about functional outcomes for individuals younger than 21.
5. Patients discharged to hospice.  
Rationale: Patient goals may change during the IRF stay.
6. Patients not covered by the Medicare program.  
Rationale: IRF-PAI data are submitted for Medicare beneficiaries.

#### **2.6.4 Items Included in the Quality Measure**

For the quality measure, the following functional activities are assessed and rated at the time of admission and at discharge:

##### **Mobility Items**

**Roll left and right:** The ability to roll from lying on back to left and right side, and return to lying on back.

**Sit to lying:** The ability to move from sitting on side of bed to lying flat on the bed.

**Lying to sitting on side of bed:** The ability to safely move from lying on the back to sitting on the side of the bed with feet flat on the floor, and with no back support.

**Sit to stand:** The ability to safely come to a standing position from a sitting in a chair or on the side of the bed.

**Chair/bed-to-chair transfer:** The ability to safely transfer to and from a bed to a chair (or wheelchair).

**Toilet transfer:** The ability to safely get on and off a toilet or commode.

**Car transfer:** The ability to transfer in and out of a car or van on the passenger side. Does not include the ability to open/close door or fasten seat belt.

*For patients who are walking, complete the following items:*

**Walk 10 feet:** Once standing, the ability to walk at least 10 feet in room, corridor or similar space.

**Walk 50 feet with two turns:** Once standing, the ability to walk 50 feet and make two turns.

**Walk 150 feet:** Once standing, the ability to walk at least 150 feet in a corridor or similar space.

**Walking 10 feet on uneven surfaces:** The ability to walk 10 feet on uneven or sloping surfaces, such as grass or gravel.

**1 step (curb):** The ability to step over a curb or up and down one step.

**4 steps:** The ability to go up and down four steps with or without a rail.

**12 steps:** The ability to go up and down 12 steps with or without a rail.

**Picking up object:** The ability to bend/stoop from a standing position to pick up a small object, such as a spoon, from the floor.

### **Mobility Rating Scale: Codes and Code Definitions**

Activities may be completed with or without assistive devices.

**06. Independent** – Patient completes the activity by him/herself with no assistance from a helper.

**05. Setup or clean-up assistance** – Helper SETS UP or CLEANS UP; patient completes activity. Helper assists only prior to or following the activity.

**04. Supervision or touching assistance** –Helper provides VERBAL CUES or TOUCHING/ STEADYING assistance as patient completes activity. Assistance may be provided throughout the activity or intermittently.

**03. Partial/moderate assistance** – Helper does LESS THAN HALF the effort. Helper lifts, holds, or supports trunk or limbs, but provides less than half the effort.

**02. Substantial/maximal assistance** – Helper does MORE THAN HALF the effort. Helper lifts or holds trunk or limbs and provides more than half the effort.

**01. Dependent** – Helper does ALL of the effort. Patient does none of the effort to complete the activity. Or, the assistance of 2 or more helpers is required for the patient to complete the activity.

*If activity was not attempted, code reason:*

**07. Patient refused**

**09. Not applicable**

**88. Not attempted due to medical condition or safety concerns**

### **2.6.5 Risk Adjustment**

The rationale for risk adjustment and the methods used to select the risk adjustment variables are described in Section 2.5.5.

The list of risk adjustment variables is outlined below. More detailed risk adjustment testing and selection information for this measure can be found on the NQF website at: <http://www.qualityforum.org/ProjectTemplateDownload.aspx?SubmissionID=2634>

- **Age group at IRF admission**
  - Younger than 35 years
  - 35 to 44 years
  - 45 to 54 years
  - 55 to 64 years
  - 65 to 74 years (reference category)
  - 75 to 84 years
  - 85 to 90 years
  - 90 years or older
- **Admission mobility score: continuous score**
- **Admission mobility score: squared form**
- **Primary IRF Diagnosis Groups:**
  - Stroke
  - Non-traumatic brain dysfunction
  - Traumatic brain dysfunction
  - Non-traumatic spinal cord dysfunction
  - Traumatic spinal cord dysfunction
  - Progressive neurological conditions
  - Other neurological conditions
  - Fractures and other multiple trauma
  - Amputation

- Hip and knee replacements (reference category)
- Other orthopedic conditions
- Debility, Cardiorespiratory conditions
- Medically complex conditions
- **Interaction of admission mobility score and primary diagnosis group**
- **Surgical prior acute or Long-term Care Hospital diagnosis**
- **Prior Functioning: Indoor Ambulation**
  - Dependent
  - Some help
- **Prior Functioning: Stairs**
  - Dependent
  - Some help
- **Prior Functioning: Functional Cognition**
  - Dependent
- **Prior Mobility Devices** (used before current illness, exacerbation, or injury)
  - Wheelchair/scooter
  - Mechanical Lift
  - Orthotics/Prosthetics
  - Walker
- **Communication Impairment: Understanding verbal content *and* expression of ideas and wants**
  - Moderate to severe communication impairment: Rarely/never understands; or sometimes understands; or rarely/never expresses self; or speech is very difficult to understand; or frequently exhibits difficulty with expression
  - Mild communication impairment: Usually understands ; or some difficulty with expression
- **Cognitive abilities: Brief Interview for Mental Status (BIMS) score**
  - Severely impaired
  - Moderately impaired
- **Bladder incontinence**
  - Less than daily or daily incontinence, or always incontinent
- **Bowel incontinence**
  - Always incontinent

- Less than daily or daily incontinence
- **Presence of stage 2 pressure ulcer(s)**
- **Presence of 3, 4, or unstageable pressure ulcer(s)**
- **Swallowing ability: Tube or parenteral feeding**
- **Total parenteral nutrition treatment**
- **History of falls in the past year:** history of two or more falls or any fall with injury in the past year
- **Comorbidities (hierarchical condition categories):**
  - Major Infections: Septicemia, Sepsis, Systemic Inflammatory Response Syndrome/Shock
  - Central nervous system (CNS) Infections: Bacterial, Fungal, and Parasitic Central Nervous System Infections; Viral and Late Effects Central Nervous System Infections
  - Other Infectious Diseases
  - Metastatic Cancer and Acute Leukemia
  - Lung and Other Severe Cancers
  - Lymphoma and Other Cancers
  - Other Major Cancers: Colorectal, Bladder, and Other Cancers; Other Respiratory and Heart Neoplasms; Other Digestive and Urinary Neoplasms; Other Neoplasms
  - Diabetes: Diabetes with Chronic Complications; Diabetes without Complication; Type I Diabetes Mellitus
  - Severe Hematological Disorders
  - Delirium and Encephalopathy
  - Dementia: Dementia With Complications; Dementia Without Complications
  - Mental Health Disorders: Schizophrenia; Major Depressive, Bipolar, and Paranoid Disorders; Reactive and Unspecified Psychosis; Personality Disorders
  - Tetraplegia (excluding complete tetraplegia)
  - Paraplegia
  - Multiple Sclerosis
  - Mononeuropathy, Other Neurological Conditions/Injuries
  - Angina Pectoris
  - Coronary Atherosclerosis/Other Chronic Ischemic Heart Disease
  - Hypertensive Heart Disease

- Hemiplegia/Other Late Effects of Cerebrovascular Accident: Hemiplegia/Hemiparesis; Late Effects of Cerebrovascular Disease Except Paralysis
- Atherosclerosis of the Extremities with Ulceration or Gangrene
- Aspiration, Bacterial, and Other Pneumonias: Aspiration and Specified Bacterial Pneumonias; Pneumococcal Pneumonia, Empyema, Lung Abscess
- Legally Blind
- Dialysis Status and Chronic Kidney Disease - Stage 5
- Chronic Kidney Disease - Stages 1-4, Unspecified: Chronic Kidney Disease, Severe (Stage 4); Chronic Kidney Disease, Moderate (Stage 3); Chronic Kidney Disease, Mild or Unspecified (Stages 1-2 or Unspecified)
- Chronic Ulcer of Skin, Excluding Pressure Ulcer
- Hip Fracture/Dislocation
- Major Fracture, Except of Skull, Vertebrae, or Hip
- Amputations: Traumatic Amputations and Complications; Amputation Status, Lower Limb/Amputation Complications; Amputation Status, Upper Limb
- Transplant Status: Kidney Transplant Status; Major Organ Transplant or Replacement Status; Other Organ Transplant Status/Replacement

### **2.6.6 Calculation Algorithm**

The following steps are used to calculate the measure:

- 1) Sum the scores of the admission mobility items to create an admission mobility score for each patient, after ‘activity not attempted’ values are recoded to 1 (score range: 15 to 90).
- 2) Sum the scores of the discharge mobility items to create a discharge mobility score for each patient, after ‘activity not attempted’ values are recoded to 1 (score range: 15 to 90).
- 3) Identify the records of patients who meet the exclusion criteria and exclude them from analyses.
- 4) Calculate the difference between the admission mobility score (from step 1) and the discharge mobility score (from step 2) for each patient to create a change in mobility score for each patient.
- 5) Calculate an expected change in mobility score for each patient using regression coefficients from national data and each patient’s admission characteristics (risk adjustors).

- 6) Calculate an average observed change in mobility score for each IRF (using the patient data calculated in step 4). This is the facility-level observed change in mobility score.
- 7) Calculate an average expected change in mobility score for each IRF (using the patient data from step 5). This is the facility-level expected change in mobility score.
- 8) Divide the facility-level observed change score by the facility-level expected change score to create an observed to expected ratio. A ratio value that is 1 indicates the observed and expected scores are equal. A ratio value that is higher than 1 indicates that the observed change scores are higher (better) than expected. A ratio value that is less than 1 indicates that the observed change scores are less (worse) than expected.
- 9) Multiply each IRF's ratio by the national average change in mobility score. This is the risk-adjusted mean mobility score.

## **2.7 IRF Functional Outcome Measure: Discharge Self-Care Score for Medical Rehabilitation Patients (NQF #2635; under review)**

### **2.7.1 Quality Measure Description**

This quality measure estimates the percentage of IRF patients who meet or exceed an expected discharge self-care score. This measure is under review by NQF.

This outcome measure requires the collection of admission and discharge functional status data by clinicians using standardized clinical assessment items, or data elements that assess specific self-care activities (that is, eating, oral hygiene, and dressing). The self-care function items are coded using a 6-level rating scale that indicates the patient's level of independence with the activity; higher scores indicate more independence. In addition, this measure requires the collection of risk factors data, such as patient functioning prior to the current illness, injury or exacerbation; bladder continence; communication ability and cognitive function, at the time of admission.

The data collection required for this measure is the same data required to the measure: IRF Functional Outcome Measure: Change in Self-Care Score for Medical Rehabilitation Patients (NQF #2633; under review).

A summary of this quality measure can be accessed on the NQF website at <http://www.qualityforum.org/qps/2635>. More detailed specifications for the quality measure can be accessed at <http://www.qualityforum.org/ProjectTemplateDownload.aspx?SubmissionID=2635>.

### **2.7.2 Purpose/Rationale for Quality Measure**

As noted in Section 2.5.2, IRFs provide intensive rehabilitation services to patients with a goal of improving patient functioning.

### **2.7.3 Population**

This measure includes IRF patients who are at least 21 years of age, Medicare beneficiaries and have complete stays.

**Denominator Exclusions:** This quality measure has 5 exclusion criteria:

1. Patients with incomplete stays.  
Rationale: It can be challenging to gather accurate discharge functional status data for patients who experience incomplete stays. Patients with incomplete stays include patients who are unexpectedly discharged to an acute care setting (Short-stay Acute Hospital, Critical Access Hospital, Inpatient Psychiatric Facility, or Long-term Care Hospital), because of a medical emergency; patients who die or leave an IRF against medical advice; patients discharged directly to another IRF and patients with a length of stay less than 3 days.

2. Patients with the following medical conditions: coma; persistent vegetative state; complete tetraplegia; locked-in syndrome; or severe anoxic brain damage, cerebral edema, or compression of the brain.  
Rationale: These patients are excluded because they may have limited or less predictable improvement with the selected self-care items.
3. Patients younger than age 21.  
Rationale: There is only limited evidence published about functional outcomes for children.
4. Patients discharged to hospice.  
Rationale: Patient goals may change during the IRF stay.
5. Patients not covered by the Medicare program.  
Rationale: IRF-PAI data are submitted for Medicare Beneficiaries.

#### **2.7.4 Items Included in the Quality Measure**

For this quality measure, the following functional activities are assessed and rated at the time of admission and at discharge:

##### **Self-Care Items**

**Eating:** The ability to use suitable utensils to bring food to the mouth and swallow food once the meal is presented on a table/tray. Includes modified food consistency.

**Oral hygiene:** The ability to use suitable items to clean teeth. [Dentures (if applicable): The ability to remove and replace dentures from and to the mouth, and manage equipment for soaking and rinsing them.]

**Toileting hygiene:** The ability to maintain perineal hygiene, adjust clothes before and after using the toilet, commode, bedpan or urinal. If managing an ostomy, include wiping the opening but not managing equipment.

**Shower/bathe self:** The ability to bathe self in shower or tub, including washing, rinsing, and drying self. Does not include transferring in/out of tub/shower.

**Upper body dressing:** The ability to put on and remove shirt or pajama top; includes buttoning, if applicable.

**Lower body dressing:** The ability to dress and undress below the waist, including fasteners; does not include footwear.

**Putting on/taking off footwear:** The ability to put on and take off socks and shoes or other footwear that is appropriate for safe mobility.

## Self-Care Rating Scale: Codes and Code Definitions

Activities may be completed with or without assistive devices.

- 06. Independent** – Patient completes the activity by him/herself with no assistance from a helper.
- 05. Setup or clean-up assistance** – Helper SETS UP or CLEANS UP; patient completes activity. Helper assists only prior to or following the activity.
- 04. Supervision or touching assistance** –Helper provides VERBAL CUES or TOUCHING/ STEADYING assistance as patient completes activity. Assistance may be provided throughout the activity or intermittently.
- 03. Partial/moderate assistance** – Helper does LESS THAN HALF the effort. Helper lifts, holds, or supports trunk or limbs, but provides less than half the effort.
- 02. Substantial/maximal assistance** – Helper does MORE THAN HALF the effort. Helper lifts or holds trunk or limbs and provides more than half the effort.
- 01. Dependent** – Helper does ALL of the effort. Patient does none of the effort to complete the activity. Or, the assistance of 2 or more helpers is required for the patient to complete the activity.

*If activity was not attempted, code reason:*

- 07. Patient refused**
- 09. Not applicable**
- 88. Not attempted due to medical condition or safety concerns**

### 2.7.5 Risk Adjustment

The rationale for risk adjustment and the methods used to select the risk adjustment variables are described in Section 2.5.5.

The current list of risk adjustment variables is outlined below. More detailed risk adjustment testing and selection information for this measure can be found on the NQF website: <http://www.qualityforum.org/ProjectTemplateDownload.aspx?SubmissionID=2635>.

The risk adjustors used for this quality measure are the following:

- **Age group at IRF admission**
  - Younger than 35 years
  - 35 to 44 years
  - 45 to 54 years
  - 55 to 64 years
  - 65 to 74 years (reference category)
  - 75 to 84 years
  - 85 to 90 years
  - 90 years of age or older
- **Admission self-care score: continuous score**
- **Admission self-care score: squared form**
- **Primary IRF Diagnosis Groups:**
  - Stroke
  - Non-traumatic brain dysfunction
  - Traumatic brain dysfunction
  - Non-traumatic spinal cord dysfunction
  - Traumatic spinal cord dysfunction
  - Progressive neurological conditions
  - Other neurological conditions
  - Fractures and other multiple trauma
  - Amputation
  - Hip and knee replacements (reference category)
  - Other orthopedic conditions
  - Debility, Cardiorespiratory conditions
  - Medically complex conditions
- **Interaction of admission self-care score and primary diagnosis group**
- **Surgical prior acute or Long-term Care Hospital diagnosis**
- **Prior Functioning: Self-care**
  - Dependent
  - Some help

- **Prior Functioning: Indoor ambulation**
  - Dependent or some help
- **Prior Mobility Devices** (used before current illness, exacerbation, or injury)
  - Wheelchair or scooter
  - Mechanical Lift
  - Orthotics/Prosthetics
  - Walker
- **Communication Impairment: Understanding verbal content *and* expression of ideas and wants**
  - Moderate to severe communication impairment: Rarely/never understands; or sometimes understands; or rarely/never expresses self; or speech is very difficult to understand; or frequently exhibits difficulty with expression
- **Cognitive abilities: Brief Interview for Mental Status (BIMS) score**
  - Severely impaired
  - Moderately impaired
- **Bladder incontinence**
  - Less than daily or daily incontinence or always incontinent
  - Urinary catheter
- **Bowel incontinence**
  - Always incontinent
  - Less than daily or daily incontinence
- **Presence of stage 2 pressure ulcer(s)**
- **Presence of stage 3, 4, or unstageable pressure ulcer(s)**
- **Swallowing ability**
  - Modified food consistency
  - Tube or parenteral feeding
- **Comorbidities** (hierarchical condition categories)
  - Major Infections: Septicemia, Sepsis, Systemic Inflammatory Response Syndrome/Shock; and Other Infectious Diseases
  - Central Nervous System Infections: Bacterial, Fungal, and Parasitic Central Nervous System Infections; Viral and Late Effects Central Nervous System Infections
  - Metastatic Cancer and Acute Leukemia

- Diabetes: Diabetes with Chronic Complications; Diabetes without Complication; Type I Diabetes Mellitus
- Other Significant Endocrine and Metabolic Disorders
- Intestinal Obstruction/Perforation
- Delirium and Encephalopathy
- Dementia: Dementia With Complications; Dementia Without Complications
- Tetraplegia (excluding complete tetraplegia)
- Paraplegia
- Multiple Sclerosis
- Parkinson’s and Huntington’s Diseases
- Mononeuropathy, Other Neurological Conditions/Injuries
- Angina Pectoris
- Coronary Atherosclerosis/Other Chronic Ischemic Heart Disease
- Hypertensive Heart Disease
- Hemiplegia, Other Late Effects of Cerebrovascular Accident: Hemiplegia/Hemiparesis; Late Effects of Cerebrovascular Disease Except Paralysis
- Kidney Transplant status
- Dialysis Status and Chronic Kidney Disease - Stage 5
- Urinary Obstruction and Retention
- Chronic Ulcer of Skin, Excluding Pressure Ulcer
- Amputations: Traumatic Amputations and Complications; Amputation Status, Lower Limb/Amputation Complications; Amputation Status, Upper Limb

### **2.7.6 Calculation Algorithm**

The following steps are used to calculate the measure:

- 1) Sum the scores of the discharge self-care items to create a discharge self-care score for each patient, after ‘activity not attempted’ codes are recoded to 1 (score range: 7 to 42). This is the patient’s observed discharge score.
- 2) Calculate an expected discharge self-care score for each IRF patient using a statistical model that estimates the average effect of the risk adjustors (patient demographic and admission clinical characteristics) across all IRFs.
- 3) Identify the records of patients who meet the exclusion criteria and exclude them from analyses.

- 4) Compare each patient's observed and expected discharge self-care score and classify the difference as
  - a) Observed discharge score is equal to or higher than the expected discharge score, or
  - b) Observed discharge score is lower than the expected discharge score.
- 5) Sum the number of patients whose observed discharge score is the same as or higher than the expected discharge score. This is the numerator.
- 6) The denominator is the total number of patients in the IRF who do not meet the exclusion criteria.
- 7) The percent is calculated as the numerator divided by the denominator and then multiplied by 100.

## **2.8 IRF Functional Outcome Measure: Discharge Mobility Score for Medical Rehabilitation Patients (NQF #2636; under review)**

### **2.8.1 Quality Measure Description**

This quality measure estimates the percentage of IRF patients who meet or exceed an expected discharge mobility score. This measure is currently under review by NQF.

This outcome measure requires the collection of admission and discharge functional status data by trained clinicians using standardized clinical assessment items, or data elements that assess specific functional mobility activities (that is, bed mobility and walking). The mobility function items are coded using a 6-level rating scale that indicates the patient's level of independence with the activity; higher scores indicate more independence. In addition, this measure requires the collection of risk factors data, such as patient functioning prior to the current illness, injury or exacerbation; history of falls; bladder continence; communication ability and cognitive function.

The data collection required for this measure is the same data required to the measure: IRF Functional Outcome Measure: Change in Mobility Score for Medical Rehabilitation Patients (NQF #2634; under review).

A summary of this quality measure can be accessed on the NQF website: <http://www.qualityforum.org/qps/2636>. More detailed specifications for this quality measure can be accessed at <http://www.qualityforum.org/ProjectTemplateDownload.aspx?SubmissionID=2636>.

### **2.8.2 Purpose/Rationale for Quality Measure**

As noted in Section 2.5.2, IRFs provide intensive rehabilitation services to patients with a goal of improving patient functioning.

### **2.8.3 Population**

This measure includes IRF patients who are at least 21 years of age, Medicare beneficiaries and have complete stays.

**Denominator Exclusions:** This quality measure has 5 exclusion criteria:

1. Patients with incomplete stays.

Rationale: It can be challenging to gather accurate discharge functional status data for patients who experience incomplete stays. Patients with incomplete stays include patients who are unexpectedly discharged to an acute care setting (Short-stay Acute Hospital, Critical Access Hospital, Inpatient Psychiatric Facility, or Long-term Care Hospital) because of a medical emergency; patients who die; patients who leave an IRF against medical advice; patients discharged directly to another IRF; and patients with a length of stay less than 3 days.

2. Patients with the following medical conditions on admission: coma; persistent vegetative state; complete tetraplegia; locked-in syndrome; or severe anoxic brain damage, cerebral edema, or compression of brain.  
Rationale: These patients are excluded because they may have limited or less predictable improvement with the selected mobility items.
3. Patients younger than 21 years.  
Rationale: There is only limited evidence published about functional outcomes for individuals younger than 21.
4. Patients discharged to hospice.  
Rationale: Patient goals may change during the IRF stay.
5. Patients who are not Medicare beneficiaries.  
Rationale: IRF-PAI data are submitted for Medicare beneficiaries.

#### **2.8.4 Items Included in the Quality Measure**

For this quality measure, the following functional activities are assessed and rated at the time of admission and at discharge:

##### **Mobility Items**

**Roll left and right:** The ability to roll from lying on back to left and right side, and return to lying on back.

**Sit to lying:** The ability to move from sitting on side of bed to lying flat on the bed.

**Lying to sitting on side of bed:** The ability to safely move from lying on the back to sitting on the side of the bed with feet flat on the floor, and with no back support.

**Sit to stand:** The ability to safely come to a standing position from a sitting in a chair or on the side of the bed.

**Chair/bed-to-chair transfer:** The ability to safely transfer to and from a bed to a chair (or wheelchair).

**Toilet transfer:** The ability to safely get on and off a toilet or commode.

**Car transfer:** The ability to transfer in and out of a car or van on the passenger side. Does not include the ability to open/close door or fasten seat belt.

*For patients who are walking, complete the following items:*

**Walk 10 feet:** Once standing, the ability to walk at least 10 feet in room, corridor or similar space.

**Walk 50 feet with two turns:** Once standing, the ability to walk 50 feet and make two turns.

**Walk 150 feet:** Once standing, the ability to walk at least 150 feet in a corridor or similar space.

**Walking 10 feet on uneven surfaces:** The ability to walk 10 feet on uneven or sloping surfaces, such as grass or gravel.

**1 step (curb):** The ability to step over a curb or up and down one step.

**4 steps:** The ability to go up and down four steps with or without a rail.

**12 steps:** The ability to go up and down 12 steps with or without a rail.

**Picking up object:** The ability to bend/stoop from a standing position to pick up a small object, such as a spoon, from the floor.

### **Mobility Rating Scale: Codes and Code Definitions**

Activities may be completed with or without assistive devices.

**06. Independent** – Patient completes the activity by him/herself with no assistance from a helper.

**05. Setup or clean-up assistance** – Helper SETS UP or CLEANS UP; patient completes activity. Helper assists only prior to or following the activity.

**04. Supervision or touching assistance** –Helper provides VERBAL CUES or TOUCHING/ STEADYING assistance as patient completes activity. Assistance may be provided throughout the activity or intermittently.

**03. Partial/moderate assistance** – Helper does LESS THAN HALF the effort. Helper lifts, holds, or supports trunk or limbs, but provides less than half the effort.

**02. Substantial/maximal assistance** – Helper does MORE THAN HALF the effort. Helper lifts or holds trunk or limbs and provides more than half the effort.

**01. Dependent** – Helper does ALL of the effort. Patient does none of the effort to complete the activity. Or, the assistance of 2 or more helpers is required for the patient to complete the activity.

*If activity was not attempted, code reason:*

**07. Patient refused**

**09. Not applicable**

**88. Not attempted due to medical condition or safety concerns**

### **2.8.5 Risk Adjustment**

The rationale for risk adjustment and the methods used to select the risk adjustment variables are described in Section 2.5.5.

The list of risk adjustment variables is outlined below. More detailed risk adjustment testing and selection information for this measure can be found on the NQF website at <http://www.qualityforum.org/ProjectTemplateDownload.aspx?SubmissionID=2636>.

- **Age group at IRF admission**
  - Younger than 35 years
  - 35 to 44 years
  - 45 to 54 years
  - 55 to 64 years
  - 65 to 74 years (reference category)
  - 75 to 84 years
  - 85 to 90 years
  - 90 years or older
- **Admission mobility score: continuous score**
- **Admission mobility score: squared form**
- **Primary IRF Diagnosis Groups:**
  - Stroke
  - Non-traumatic brain dysfunction
  - Traumatic brain dysfunction
  - Non-traumatic spinal cord dysfunction
  - Traumatic spinal cord dysfunction
  - Progressive neurological conditions
  - Other neurological conditions
  - Fractures and other multiple trauma
  - Amputation
  - Hip and knee replacements (reference category)
  - Other orthopedic conditions
  - Debility, Cardiorespiratory conditions
  - Medically complex conditions
- **Interaction of admission mobility score and primary diagnosis group**
- **Surgical prior acute or Long-term Care Hospital diagnosis**
- **Prior Functioning: Indoor Ambulation**
  - Dependent

- Some help
- **Prior Functioning: Stairs**
  - Dependent
  - Some help
- **Prior Functioning: Functional Cognition**
  - Dependent
- **Prior Mobility Devices** (used before current illness, exacerbation, or injury)
  - Wheelchair/scooter
  - Mechanical Lift
  - Orthotics/Prosthetics
  - Walker
- **Communication Impairment: Understanding verbal content *and* expression of ideas and wants**
  - Moderate to severe communication impairment: Rarely/never understands; or sometimes understands; or rarely/never expresses self; or speech is very difficult to understand; or frequently exhibits difficulty with expression
  - Mild communication impairment: Usually understands ; or some difficulty with expression
- **Cognitive abilities: Brief Interview for Mental Status (BIMS) score**
  - Severely impaired
  - Moderately impaired
- **Bladder incontinence**
  - Less than daily or daily incontinence, or always incontinent
- **Bowel incontinence**
  - Always incontinent
  - Less than daily or daily incontinence
- **Presence of stage 2 pressure ulcer(s)**
- **Presence of 3, 4, or unstageable pressure ulcer(s)**
- **Swallowing ability: Tube or parenteral feeding**
- **Total parenteral nutrition treatment**
- **History of falls in the past year:** history of two or more falls or any fall with injury in the past year

- **Comorbidities (hierarchical condition categories):**
  - Major Infections: Septicemia, Sepsis, Systemic Inflammatory Response Syndrome/Shock
  - Central nervous system (CNS) Infections: Bacterial, Fungal, and Parasitic Central Nervous System Infections; Viral and Late Effects Central Nervous System Infections
  - Other Infectious Diseases
  - Metastatic Cancer and Acute Leukemia
  - Lung and Other Severe Cancers
  - Lymphoma and Other Cancers
  - Other Major Cancers: Colorectal, Bladder, and Other Cancers; Other Respiratory and Heart Neoplasms; Other Digestive and Urinary Neoplasms; Other Neoplasms
  - Diabetes: Diabetes with Chronic Complications; Diabetes without Complication; Type I Diabetes Mellitus
  - Severe Hematological Disorders
  - Delirium and Encephalopathy
  - Dementia: Dementia With Complications; Dementia Without Complications
  - Mental Health Disorders: Schizophrenia; Major Depressive, Bipolar, and Paranoid Disorders; Reactive and Unspecified Psychosis; Personality Disorders
  - Tetraplegia (excluding complete tetraplegia)
  - Paraplegia
  - Multiple Sclerosis
  - Mononeuropathy, Other Neurological Conditions/Injuries
  - Angina Pectoris
  - Coronary Atherosclerosis/Other Chronic Ischemic Heart Disease
  - Hypertensive Heart Disease
  - Hemiplegia/Other Late Effects of Cerebrovascular Accident: Hemiplegia/Hemiparesis; Late Effects of Cerebrovascular Disease Except Paralysis
  - Atherosclerosis of the Extremities with Ulceration or Gangrene
  - Aspiration, Bacterial, and Other Pneumonias: Aspiration and Specified Bacterial Pneumonias; Pneumococcal Pneumonia, Empyema, Lung Abscess
  - Legally Blind
  - Dialysis Status and Chronic Kidney Disease - Stage 5

- Chronic Kidney Disease - Stages 1-4, Unspecified: Chronic Kidney Disease, Severe (Stage 4); Chronic Kidney Disease, Moderate (Stage 3); Chronic Kidney Disease, Mild or Unspecified (Stages 1-2 or Unspecified)
- Chronic Ulcer of Skin, Excluding Pressure Ulcer
- Hip Fracture/Dislocation
- Major Fracture, Except of Skull, Vertebrae, or Hip
- Amputations: Traumatic Amputations and Complications; Amputation Status, Lower Limb/Amputation Complications; Amputation Status, Upper Limb
- Transplant Status: Kidney Transplant Status; Major Organ Transplant or Replacement Status; Other Organ Transplant Status/Replacement

### **2.8.6 Calculation Algorithm**

The following steps are used to calculate the measure:

- 1) Sum the scores of the discharge mobility items to create a discharge mobility score for each patient, after ‘activity not attempted’ values are recoded to 1 (score range: 7 to 42). This is the patient’s observed discharge score.
- 2) Calculate an expected discharge mobility score for each IRF patient using a statistical model that estimates the average effect of the risk adjustors (patient demographic and admission clinical characteristics) across all IRFs.
- 3) Identify the records of patients who meet the exclusion criteria and exclude them from analyses.
- 4) Compare each patient’s observed and expected discharge mobility score and classify the difference as
  - a) Observed discharge score is equal to or higher than the expected discharge score, or
  - b) Observed discharge score is lower than the expected discharge score.
- 5) Sum the number of patients whose observed discharge score is the same as or higher than the expected discharge score. This is the numerator.
- 6) The denominator is the total number of patients in the IRF who do not meet the exclusion criteria.
- 7) The percent is calculated as the numerator divided by the denominator and then multiplied by 100.

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## **APPENDIX A: RELIABILITY AND VALIDITY TESTING**

### **A.1 Overview of Reliability and Validity Testing**

The functional assessment items used in the two Long-Term Care Hospitals (LTCHs) functional status quality measures are from the Continuity Assessment Record and Evaluation (CARE) Item Set. The CARE Item Set was designed to standardize assessment of patients' status across acute and post-acute settings, including Inpatient Rehabilitation Facilities (IRFs), LTCHs, Skilled Nursing Facilities (SNFs), and Home Health Agencies (HHAs). The functional status items on the CARE Item Set are daily activities that clinicians assess at the time of admission and/or at discharge to determine patients' needs, evaluate progress, and prepare for a transition home or another setting.

The goal of reliability testing is to ensure that items on an assessment obtain consistent results when administered or used by different clinicians. Validity testing examines whether an item or scale measures what it is intended to measure. The CARE functional status items underwent reliability testing at the item- and scale-level in multiple types of providers in conjunction with the Post-Acute Care Payment Reform Demonstration. Item-level testing included inter-rater reliability testing within facilities and the use of videotaped standardized patients for inter-rater reliability testing across facilities/care settings. Additional testing focused on the items and scales and included internal consistency, factor analysis, and Rasch analysis. A brief summary of this testing is provided below; full reports describing the testing are available at <http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Post-Acute-Care-Quality-Initiatives/CARE-Item-Set-and-B-CARE.html>.

### **A.2 Traditional Inter-rater Reliability Study**

The reliability of the functional items was tested in a subset of 34 providers from each of the five levels of care (acute hospitals, HHAs, IRFs, LTCHs, and SNFs) distributed across 11 geographic areas. Each provider completed a duplicate CARE Item Set (admission or discharge assessment) on 15–20 patients included in the Post-Acute Care Payment Reform Demonstration (10–15 patients in the home health setting), in accordance with the guidelines and protocols.

Providers were asked to enroll a convenience sample of a set number of Medicare patients each month, representing a range of function and acuity. The overall patient sample size for each of the functional items was 450 for self-care items and 449 for mobility items (448 for transfers). After exclusions for missing data (unknown/not attempted/inapplicable), the effective sample sizes for the reliability testing were as follows:

- Eating: 401
- Oral hygiene: 414
- Toilet hygiene: 416
- Upper body dressing: 420
- Lower body dressing: 413
- Lying to sitting on the side of the bed: 412

- Sitting to standing: 387
- Chair/bed to chair transfer: 392
- Toilet transfer: 361
- Walk 150 feet: 68
- Walk once standing: 52
- Wheel in room: 46

The inter-rater reliability study included patients who were assessed by two different clinicians (raters), and the agreement of the clinicians' rating was calculated. Clinicians were instructed to have pairs of raters complete both patient assessments at the same time. Responses to items were obtained by direct observation of the patient by the clinician, and occasionally, supplemented by one or more of the following predetermined, matched methods: patient interviews (with each team member taking turns conducting and observing patient interviews); interviews with relatives/caregivers of the patient for certain items; and/or interviews with staff caring for the patient and/or chart review. Rater pairs were instructed to determine in advance which methods would be used to score the particular CARE items and to have both raters use the same methods. Raters were encouraged to divide hands-on assistance to the patient as evenly as possible for items that required hands-on assistance. Raters were instructed not to discuss item scoring during the assessment, nor to share item scores until the data were entered into the study database and finalized. Providers submitted data via the online CARE application for both assessments in each pair.

For categorical items, kappa statistics (kappa) indicate the level of agreement between raters using ordinal data, taking into account the role of chance agreement. The ranges commonly used to judge reliability based on kappa are as follows:  $\leq 0$  = poor; 0.01–0.20 = slight; 0.21–0.40 = fair; 0.41–0.60 = moderate; 0.61–0.80 = substantial; and 0.81–1.00 = almost perfect.

For categorical items with only two responses available, RTI International calculated only unweighted kappas. For items with more than two responses, RTI calculated both weighted and unweighted kappas. Unweighted kappa assumes the same "distance" between every one-unit difference in response across an ordinal scale. RTI used Fleiss-Cohen weights, or quadratic weights, which approximate the intra-class correlation coefficient and are commonly used for calculating weighted kappas. This choice of weighting is consistent with prior analyses of assessment reliability, where the method for developing weights was specified.<sup>1,2</sup> Fleiss-Cohen weights put lower emphasis on disagreements between responses that fall near each other on an item scale. It should also be noted that the value of kappa can be influenced by the prevalence of the outcome or characteristic being measured. If the outcome or characteristic is rare, the kappa will be low because kappa attributes the majority of agreement among raters to chance. Kappa is also influenced by bias, and if the effective sample size is small, variation may play a role in the

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<sup>1</sup> Hirdes JP, Smith TF, Rabinowitz T, et al. The Resident Assessment Instrument-Mental Health (RAI-MH): inter-rater reliability and convergent validity. *J Behav Health Serv Res.* 29(4):419-432, 2002

<sup>2</sup> Streiner DL, Norman GR. Health measurement scales: a practical guide to their development and use. *Oxford University Press*, 1995.

results. Hence, we report both weighted and unweighted kappas to give the range of agreement found under the two sets of assumptions.

Additionally, RTI calculated a separate set of kappa statistics (unweighted and weighted, where applicable) for items where additional responses outside of an ordinal scale were available (letter codes) and were set to missing.

For the traditional reliability study, kappa statistics indicated substantial agreement among raters. The weighted kappa values for the self-care items range between 0.798 for eating to 0.869 for upper-body dressing. Unweighted kappas ranged from 0.598 for oral hygiene to 0.634 for upper-body dressing. Provider-specific analyses of core self-care items show similar agreement to the overall estimates. The lower-body dressing item had the highest overall weighted kappa (0.855), whereas the eating item had the lowest (0.798). Unweighted overall kappas ranged from 0.636 (toileting) to 0.598 (oral hygiene). Acute hospitals had the highest weighted kappas across all self-care items.

The weighted kappa values for the mobility items ranged between 0.558 for walk 150 feet to 0.901 for sitting to standing and chair/bed to chair transfer. Unweighted kappas ranged from 0.667 for walk once standing to 0.762 for sit to stand. Provider-specific analyses of core mobility items show similar agreement to the overall estimates. The sit-to-stand and chair transfer items both had a weighted kappa of 0.901, whereas the lying to sitting item had a weighted kappa of 0.855. Unweighted overall kappas ranged from 0.693 (lying to sitting) to 0.762 (sitting to standing).

### **A.3 Videotaped Standardized Patients Reliability Study**

For the video reliability study, which was designed to examine the level of clinician agreement across care settings, clinicians in each setting were asked to assess “standardized” patients presented through a videotape of a patient assessment. This ensured that the same information was presented to each clinician and allowed examination of differences in scoring effects among different clinicians examining the “same” patient.

The patient “case studies” in each of the videos varied in terms of medical complexity, functional abilities, and cognitive impairments. The nine videos included patients classified as high, medium, or low ability/complexity for each of these three areas. Each facility or agency received three videos, one of which demonstrated one of the following elements: cognitive impairments, skin integrity problems, a wheelchair-dependent patient, and a variety of mid-level functional activities. The mid-level functional activities were considered to be the most challenging for clinicians to score and are thus of particular interest in establishing reliability. Each clinician involved in the video study watched three videos and assessed the patients according to the study guidelines and protocols. Each video was approximately 20 minutes long and had a corresponding item set arranged in the sequence in which the items appeared in the video.

The sample included 28 providers (550 assessments), which included 3 acute hospitals (15 assessments [3%]); 9 HHAs (118 assessments [22%]); 8 IRFs (237 assessments [43%]); 3 LTCHs (114 assessments [21%]); and 5 SNFs (66 assessments [12%]). Participating providers included case managers (6% of assessments), occupational therapists (14% of assessments),

physical therapists (21% of assessments), registered nurses (47% of assessments), speech therapists (5% of assessments), and others, mostly licensed practical nurses (LPNs; 8% of assessments).

Two main analytic approaches were used for assessing the video reliability of the CARE items, adhering closely to the methods used by Fricke et al.<sup>3</sup> in their video reliability study of the FIM<sup>®4</sup> instrument. First, percent agreement with the mode response was calculated for each CARE item included in at least one of the nine videos. Unlike the approach used by Fricke et al., RTI did not consider agreement at one response level above and below the mode, and instead used a stricter approach looking at direct modal agreement only. In the second approach, percent agreement with the internal clinical team's consensus response was also calculated. This second measure not only gives an indication of item reliability, but also reflects training consistency for the providers.

The video reliability study indicated substantial agreement with the mode and clinical team among all items, typically upwards of 70%. The notable exception to this trend exists among the clinicians in the "Other" category (mostly LPNs); they consistently had the lowest levels of agreement among all core self-care items, ranging from 50 to 72%. For the toileting and dressing items, the agreement with the clinical team was lower than with the mode. This occurred because the clinical team response differed from the mode for these three items in either one or two videos. Nonetheless, because the clinical team response and mode were identical on most of the videos, agreement was still quite high for these items. In general, study clinicians had responses on average that agreed with the expert clinical team or were slightly lower.

The video reliability study indicated substantial agreement with the mode and clinical team for the lying-to-sitting, sit-to-stand, chair/bed to chair transfer, and toilet transfer items (greater than 76%). Although rates of agreement with the mode and clinical team response were generally identical, for the toilet transfer item, the clinical team agreement is slightly lower. The items for walking and wheeling distances showed more variable levels of agreement across disciplines, with overall agreement generally in the moderate range (50–78%). For the Walk In Room item, there was a notable decrease in the agreement with the clinical team compared to agreement with the mode. This occurred because in two of the four videos where this item was assessed, the clinical team response differed from the mode.

#### **A.4 Scale-level Reliability Results: Internal Consistency**

In addition to item-level reliability testing, we examined internal consistency, which provides a general assessment of how well the items interrelate within a domain or subscale. Internal consistency is assessed using the Cronbach's alpha coefficient, which is the average correlation of all possible half-scale divisions. Cronbach's alpha is a statistic frequently assessed when instrument or scale psychometrics are published. The Cronbach's alpha reliability estimate ranges from zero to one, with an estimate of zero indicating that there is no consistency of measurement among the items, and one indicating perfect consistency. Many cutoff criteria exist

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<sup>3</sup> Fricke J, Unsworth C, Worrell D. Reliability of the Functional Independence Measure with Occupational Therapists. *Australian Occupational Therapy Journal* 40(1):7-15, 1993.

<sup>4</sup> FIM<sup>®</sup> is a trademark of Uniform Data System for Medical Rehabilitation, a division of UB Foundation Activities, Inc.

to determine whether or not a scale shows good consistency or whether the items “hang together” well. General consensus is that Cronbach’s alpha should be at least 0.70 for an adequate scale for group-level decisions, and alphas closer to 1 indicate a good scale.<sup>5</sup>

Assessments of individual self-care and mobility subscales at both admission and discharge tend to show good reliability statistics (Cronbach’s Alpha of at least 0.80) within their specified subscales. Reliability estimates by provider type show that the functional status items maintain a very high internal consistency. In addition, no one provider type appears to have reliability estimates higher or lower than the rest, indicating similarity of CARE usage with respect to internal consistency.

The following table shows the findings from the Cronbach’s alpha internal consistency evaluation mentioned above.

**Table A-1**  
**CARE functional status internal consistency reliability summary by provider type**

CARE analytic set	Overall alpha	HHA alpha	SNF alpha	IRF alpha	LTCH alpha
Self-Care	0.96	0.94	0.95	0.95	0.96
Mobility	0.96	0.94	0.95	0.96	0.97

#### **A.5 Scale-level Reliability and Validity Testing: Rasch Analysis**

Because we are measuring a latent trait—a concept that is not measured directly, but that relies on activities that can be directly observed—we used the one-parameter Rasch model to gain a better understanding of the functional status activities. More specifically, we examined the order of functional status items (from least challenging to most challenging) that characterize the concepts of the self-care and mobility.

Rasch analysis uses the scores from the functional assessment items to create the equivalent of a functional status “ruler” (i.e., scale). Rasch analysis uses the available data to estimate a person’s location along the “ruler;” therefore, analyses can be conducted if some data are missing. Rasch analysis can also inform the optimal selection of key items in order to construct functional status scales that sufficiently span an entire range of patient functioning, so that both the least able and most able (lowest- and highest-functioning) patients are adequately measured. In addition, Rasch analysis can indicate where items overlap or are redundant in terms of the level of function they capture.

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<sup>5</sup> Aron A, Aron EN *Statistics for Psychology*. 2nd ed. Upper Saddle River, NJ: Prentice Hall, 1999.

Rasch analysis has been used to examine the FIM<sup>®</sup> instrument,<sup>6,7,8,9</sup> the Minimum Data Set (MDS),<sup>10</sup> and the Outcome and Assessment Information Set (OASIS).<sup>11</sup> Rasch analysis has also been used to examine the extent to which existing functional assessment instruments (e.g., the FIM<sup>®</sup> instrument, MDS 2.0) capture the same construct.<sup>12</sup>

Rasch measurement is based on a probabilistic model that describes the association between a person's underlying ability level and probability of a particular item response, and summarizes a patient's position along a "ruler" that represents a latent trait or concept (e.g., self-care or mobility).<sup>13</sup> In essence, the Rasch analysis creates a ruler based on the domain measured (e.g., mobility) that can be used to assess the abilities of the patients. The analysis also provides information on the hierarchy of item difficulty (from easy to hard) that can be used to evaluate the construct validity of a set of items. In addition, the Rasch analysis provides information about the level of challenge associated with each item rating scale ("dependent" through "independent"). For example, an item with a low difficulty estimate (e.g., eating) would be more likely to be completed with little or no help by patient's items that are more challenging (e.g., 12 steps), where most patients would find completing this activity challenging. Finally, the Rasch analysis can provide information on items that do not fit into the single theorized concept through "item misfit" statistics, which may indicate that the item needs further evaluation before it is included on future administrations of the subscale. The infit mean square is an indicator of the degree to which patient responses are similar to what would be expected (i.e., predicted) by the measurement model. The acceptable range is generally 0.6 to 1.4. If the item values are above this range, it reflects that person response patterns are erratic, generally suggesting that the item is not measuring the same construct as other items. Infit mean squares above 1.4 are considered to be unacceptably unexpected<sup>14</sup> and indicate that the item most likely does not reflect the same construct as the other items included in the scale; for example, a need for assistance with self-care.

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6 Granger CV, Hamilton BB, Linacre JM, et al. Performance profiles of the functional independence measure. *Am J Phys Med Rehabil.* 72(2):84-89, 1993.

7 Linacre JM, Heinemann AW, Wright BD, et al. The structure and stability of the Functional Independence Measure. *Archives of Physical Medicine & Rehabilitation.* 75(2):127-132, 1994

8 Wright BD, Linacre JM, Smith RM, et al. FIM measurement properties and Rasch model details. *Scandinavian Journal of Rehabilitation Medicine,* 29(4):267-272, Dec. 1997.

9 Heinemann AW, Linacre JM, Wright BD, et al. Relationships between impairment and physical disability as measured by the functional independence measure. *Arch Phys Med Rehabil.* 74(6):566-573, 1993.

10 Wang YC, Byers KL, Velozo CA. Rasch analysis of Minimum Data Set mandated in skilled nursing facilities. *J Rehabil Res Dev.* 45(9):1385-1399, 2008.

11 Fortinsky RH, Garcia RI, Joseph Sheehan T, et al. Measuring disability in Medicare home care patients: application of Rasch modeling to the outcome and assessment information set. *Med Care.* 41(5):601-615, 2001.

12 Velozo CA, Byers KL, Wang YC, et al. Translating measures across the continuum of care: using Rasch analysis to create a crosswalk between the Functional Independence Measure and the Minimum Data Set. *J Rehabil Res Dev.* 44(3):467-478, 2007.

13 Wright BD, Stone MH. *Best Test Design. Rasch Measurement.* 1979.

14 Wright BD, Linacre JM, Gustafson J, et al. Reasonable mean-square fit values. *Rasch Measurement Transactions.* 8(3):370, 1994.

RTI used Rasch analysis to examine the extent to which the items worked together to define a coherent concept. This was conducted separately for the self-care and mobility items. Item fit statistics were examined as an indication of how well all items work together to describe the overall construct (self-care or mobility). The Rasch analysis provides insight into how the items work together as a subscale, including the hierarchy of item difficulty (ordering from easy to difficult) and item fit to the model.

Examinations of these Rasch analysis results reveal that the mobility and self-care item hierarchies make sense clinically and that the operational definitions of the constructs maintain general stability from admission to discharge. Some items have fit statistics outside the acceptable range (e.g., pick up object from floor), but members of the Technical Expert Panel noted that this is an important assessment given the risk of falls.

RTI examined how well the items selected measure the persons in the data set for both self-care and mobility items. RTI examined the extent to which person response patterns fit the assumptions of the measurement model using the same range of infit statistics identified above. RTI examined the extent to which persons are effectively measured (ceiling and floor effects) in each setting overall and for admission and discharge time points. The mobility and self-care items were found to be well targeted to the range of patient ability sampled within this post-acute care population.

RTI established that the six steps of the CARE rating scale are operating as intended, both overall and for individual items on the self-care and mobility subscales. The probability that a person will be scored on a particular rating scale step varies depending on the functional ability of the person. That is, very able people will be more likely to be scored as “5” and “6” than as “1” and “2.” Looking empirically at these distributions, one should see the transitions from one step to the next (called thresholds) proceed monotonically and distinctly across the range of person abilities. In other words, there should always be some point along the range at which each rating-scale step is more probable than another step. When a rating-scale step is not more probable at any point, it suggests that raters are not able to use that step to consistently distinguish patient ability at that level.

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**APPENDIX B:  
SUPPLEMENTAL INFORMATION TO THE ASSESSMENT ITEMS USED TO  
CALCULATE THE PROPOSED FUNCTION QUALITY MEASURES**

Standardized functional assessment items are included in the *Section GG* of the Quality Indicator section of the Inpatient Rehabilitation Facility Patient Assessment Instrument (IRF-PAI) Corrected Version 1.4 currently proposed for implementation starting October 1, 2016. These standardized items are used to collect data to calculate the proposed quality measures intended to meet the IMPACT Act requirement for measure domain: functional status, cognitive function, and changes in function and cognitive function. The quality measures (an application of Percent of LTCH Patients with an Admission and Discharge Functional Assessment and a Care Plan That Addresses Function (NQF #2631; under review); IRF Functional Outcome Measure: Change in Self-Care Score for Medical Rehabilitation Patients (NQF #2633; under review); IRF Functional Outcome Measure: Change in Mobility Score for Medical Rehabilitation Patients (NQF #2634; under review); IRF Functional Outcome Measure: Discharge Self-Care Score for Medical Rehabilitation Patients (NQF #2635; under review); and (6) Functional Outcome Measure: Discharge Mobility Score for Medical Rehabilitation Patients (NQF #2636; under review) rely on the collection of data using these standardized items derived from the Continuity Assessment Record and Evaluation (CARE) Item Set. The standardized items used to calculate the proposed quality measures will enable CMS to assess functional change in an IRF care setting.

The standardized items included within the IRF-PAI do not duplicate existing items on the IRF-PAI currently in use for data collection on functional assessment. While many of the standardized items have labels that are similar to existing items on the IRF-PAI, there are several key differences between the two sets that may result in variation in the patient assessment results. Key differences include: (1) the data collection and associated data collection instructions; (2) the rating scales used to score a patient's level of independence; and (3) the item definitions.

Supplemental information discussing the standardized items used to calculate the proposed function quality measures is listed below.

1. Data Collection and Data Collection Instructions for the Standardized Function Items:

- The breadth of the standardized items used to assess function reflects the intent to measure function with greater precision for low-functioning patients as well as high-functioning patients.
- For the standardized items, the assessment period is three (3) calendar days. When patient functioning varies, the patient's *usual* performance (rather than *most dependent*) will need to be reported on the standardized items included in the IRF-PAI Version 1.4.
- The standardized function items reflect best practice clinical assessment of daily activities that occur as part of the admission and/or discharge assessment workflow.
  - Activities assessed at admission occur in order to set discharge goals and activities are assessed at discharge in order to optimize a safe transition to home or the next care setting.

- Examples include: “Sit to stand” and “Roll left and right” are bed mobility activities that are often assessed on admission in most IRFs. “Car transfers,” “Walking 10 feet on an uneven surface” and “Picking up an object from a standing position” are activities that are often assessed at discharge.
- *The Brief Interview for Mental Status (BIMS)*, a performance-based assessment that involves interviewing the patient rather than clinical observation and judgment, is used to collect data on memory and recall using standardized items.

## 2. Rating Scales Used to Assess Functional Activities:

- The standardized items include 7 self-care activities and 17 mobility activities that are rated on a 6-level rating scale ranging from “6” meaning “Independent” to “1” that refers to dependent (**Figure 1**).
  - A higher score on the rating scale means greater independence.

**Figure 1.**  
**Rating Scale for Standardized Functional Assessment Items**

<p><b>CODING:</b></p> <p><b>Safety and Quality of Performance</b> - If helper assistance is required because patient's performance is unsafe or of poor quality, score according to amount of assistance provided.</p> <p><i>Activities may be completed with or without assistive devices.</i></p> <p>06. <b>Independent</b> - Patient completes the activity by him/herself with no assistance from a helper.</p> <p>05. <b>Setup or clean-up assistance</b> - Helper SETS UP or CLEANS UP; patient completes activity. Helper assists only prior to or following the activity.</p> <p>04. <b>Supervision or touching assistance</b> - Helper provides VERBAL CUES or TOUCHING/STEADYING assistance as patient completes activity. Assistance may be provided throughout the activity or intermittently.</p> <p>03. <b>Partial/moderate assistance</b> - Helper does LESS THAN HALF the effort. Helper lifts, holds or supports trunk or limbs, but provides less than half the effort.</p> <p>02. <b>Substantial/maximal assistance</b> - Helper does MORE THAN HALF the effort. Helper lifts or holds trunk or limbs and provides more than half the effort.</p> <p>01. <b>Dependent</b> - Helper does ALL of the effort. Patient does none of the effort to complete the activity. Or, the assistance of 2 or more helpers is required for the patient to complete the activity.</p> <p><b>If activity was not attempted, code the reason:</b></p> <p>07. <b>Patient refused</b></p> <p>09. <b>Not applicable</b></p> <p>88. Not attempted due to <b>medical condition or safety concerns</b></p>
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- Three special codes are available to report that a patient did not attempt an activity and to identify the rationale for why a patient did not attempt an activity (e.g., safety concerns, patient refused), which is important information when examining patient outcomes.
- Supervision and touching assistance with *no lifting* assistance is coded at a level 4 on the rating scale. Supervision assistance is coded at a level of 4 to reflect the supervision that is often needed during the entire time of completing an activity.
- The level titled “Dependent” is defined to include only patients who are completely dependent. That is, if a patient is coded “Dependent,” then that patient does not assist with completing an activity.

### 3. Definitions for the Standardized Items:

- The standardized items include assessment and scoring methods to allow for variation. For example, a score is reported for four walking items with different distances (10, 50 and 150 feet) and different types of surfaces (even and uneven surfaces) and includes the capacity for coding two wheelchair items, if applicable.
- The standardized items have specified definitions. For example, the standardized function item for assessing “Eating” does not include tube feeding administration. If an individual is solely receiving nutrition by tube feeding and the staff administers his tube feedings and he does not eat by mouth, the standardized “Eating” item would be coded that the “Activity was not attempted due to medical condition or safety concerns” (code = 88).
- For the assessment of personal hygiene, the standardized items focus on a single activity, such as oral hygiene, which is not intermixed with other grooming activities. This enables the ability to identify activity-specific limitations, areas requiring clinical focus, and set activity-specific goals.