



## Measure Information

This document contains the information submitted by measure developers/stewards, but is organized according to NQF's measure evaluation criteria and process. The item numbers refer to those in the submission form but may be in a slightly different order here. In general, the item numbers also reference the related criteria (e.g., item 1b.1 relates to sub criterion 1b).

### Brief Measure Information

**NQF #: 0687**

**Corresponding Measures:**

**De.2. Measure Title:** Percent of Residents Who Were Physically Restrained (Long Stay)

**Co.1.1. Measure Steward:** Centers for Medicare & Medicaid Services

**De.3. Brief Description of Measure:** The measure reports the percentage of long-stay residents who were physically restrained on a daily basis during the 7 days prior to the target assessment. This measure is based on data from the Minimum Data Set (MDS) 3.0 OBRA, PPS and/or discharge assessments during the selected quarter. Long-stay nursing facility residents are identified as those who have had 101 or more cumulative days of nursing facility care.

**1b.1. Developer Rationale:** Restraints can pose serious risks for residents. They are used to control behavior for people with disruptive, aggressive, or dangerous behavior, including those with cognitive impairment (Sullivan-Marx et al, 1999; Capezuti et al, 1996; Castle & Mor, 1987).

The use of physical restraints is associated with several adverse outcomes for the physical and mental health of the restrained (Hofman & Hahn, 2013; Castle & Engberg, 2009; Engberg, Castle, & McCaffrey, 2008; Sullivan-Marx, 2001; Capezuti et al 2006; Castle & Mor, 1998; ) and may lead to decreased functional ability (Hofman & Hahn, 2013), poorer oral hygiene (Willumsen et al, 2012), delirium (Boorsma et al, 2012; Voyer et al, 2011) and, in residents with dementia, increased pain (Lin et al, 2011). The benefits of refraining from the use of physical restraints by employing clinically sound interventions to address the causes of falls, wandering, and other behaviors have been well-documented in the long-term care literature. Benefits of refraining from restraint use include improved quality of life, greater autonomy, use of fewer antipsychotic medications, less skin breakdown, and fewer serious injuries resulting from falls (CMS, 2013; Engberg, Castle, & McCaffrey, 2008; Sullivan-Marx, 2001; Capetuzi et al, 1996; CMS, 2002; ). Through multiple clinical trials, case studies, and facility-level intervention studies, research has also shown that restraints do not prevent major adverse consequences for residents. While the number of falls may increase with the removal of physical restraints, studies have consistently found that serious falls resulting in injuries does not (Kopke et al 2012; Gulpers et al 2011; Capetuzi, 2004; Ejaz, Neufeld et al, 1995; Jones, & Rose 1994). Studies have also shown that the risk of serious injury does not increase with decreased use of restraints (Kopke et al 2012; Gulpers et al 2011; Capetuzi, 2004; Neufeld et al, 1995; Ejaz, Jones, & Rose 1994 ). Rather, risk of serious injury may decrease when physical restraints are reduced in conjunction with appropriate education and training (Neufeld et al, 1995; 1999).

Nursing facility staffing has been shown to have a significant role in the use of restraints, with lower levels of restraint use associated not only with increased staffing (Backhaus et al, 2014) but with more favorable staffing characteristics (Castle & Anderson, 2011), greater numbers of medication aides (Walsh, Lane, & Troyer JL, 2013), the use of advance practice nurses (Donald et al, 2013), the development of patient safety cultures (Thomas et al, 2012), and the creation of households within facilities (Chang, Li, & Porock, 2013). Higher levels of restraint use are associated with higher nurse aid absenteeism (Castle & Ferguson-Rome, 2014) and higher LPN-to-RN ratios (Corazzini et al, 2013). Other predictors of restraint use for residents include being black (Cassie & Cassie, 2013) and feeding tube use (Teno et al, 2011).

There is also evidence from prior studies that certification and public reporting of data have led to decreased levels of restraint use. Nursing home accreditation has been associated with lower rates of restraint use (Wagner, McDonald, & Castle, 2012). There is evidence that the use of physical restraints has decreased since the measure has been publicly reported through Nursing Home Compare (Kontezka et al, 2014; Clement, Bazzoli, and Zhao, 2012). However, this may also have led to the unintended consequence of increased use of antipsychotic medication as a form of chemical restraint (Konetzka et al, 2014).

The use of restraints is associated with increased cost of care. One study examining almost 12,000 residents in 276 facilities in seven states found that higher levels of nursing assistant time were consistently provided to restrained residents, resulting in increased staff costs to the facilities (Phillips, Hawes, & Fries, 1993). A 1991 report by the Office of the Inspector General found that nursing homes were able to reduce the use of restraints with no increase in cost of care (Kusserow, 1991). Restraints may also impose additional costs on Medicaid. A 2006 analysis of Medicaid reimbursement data for 525 nursing homes found that residents who had experienced greater use of restraints experienced an increased risk of hospitalization (Carter & Porell, 2006).

The Omnibus Budget Reconciliation Act of 1987 (OBRA 87) specifically grants residents the right to freedom from physical restraints (Weiner, Freiman, & Brown, 1987). The associated guideline from the Centers for Medicare & Medicaid Services (CMS) (State Operations Manual, Appendix PP – Guidance to Surveyors for Long Term Care Facilities, section 483.13(a)) states that “The resident has the right to be free from any physical or chemical restraints imposed for the purpose of discipline or convenience, and not required to treat the resident’s medical symptoms” (Castle, 2002). Most nursing facilities have considerably reduced their use of physical restraints since the legislation. In addition, Congress continues to address this issue. The Health Care Fraud Enforcement Act, introduced in 2009, was introduced to strengthen the ability of Civil Rights Division of the Department of Justice to investigate unlawful restraint (United States Senate Special Committee on Aging, 2010).

The use of restraints in nursing facilities is a subject of great interest to the public, and the principle of freedom from physical or pharmacological restraint is generally understood and accepted. In addition to the OBRA 87 mandate and the associated CMS regulations limiting restraints, the Food and Drug Administration (FDA) has guidance for limiting the use of bed rails, reflecting public concern about the safety of restraints (FDA, 2010). Professional and academic organizations such as the National Citizens’ Coalition for Nursing Home Reform (NCCNHR), the Alzheimer’s Association, professional organizations such as the American Physical Therapy Association, and numerous nursing home and academic medical research institutions are involved in limiting the use of restraints (Kendal Outreach, 2010). The Untie the Elderly campaign has been working since 1989 to raise public awareness of restraint abuse, and Advancing Excellence in America’s Nursing Homes has made the reduction of physical restraints one of their major goals (Advancing Excellence in America’s Nursing Homes, 2010; Kendall Outreach, 2010). Advancing Excellence in America’s Nursing Homes promotes the current CMS Quality Measure, as is noted later in this submission.

The main benefit of this measure is to encourage reduction in rates and maintenance of low rates in the use of restraints by facilities caring for long-stay nursing facility residents.

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**S.4. Numerator Statement:** The numerator is the number of long-stay residents in the denominator sample with a selected target assessment who have experienced daily physical restraint usage during the 7 days prior to the selected assessment.

**S.6. Denominator Statement:** The denominator is the total number of all long-stay residents in the nursing facility who have a target OBRA, PPS or discharge assessment during the selected quarter and who do not meet the exclusion criteria.

**S.8. Denominator Exclusions:** A resident is excluded from the denominator if that resident does not qualify for the numerator and the target assessment has missing data in any of the responses to the relevant restraints items (P0100 items).

If the facility sample includes fewer than 20 residents after all other resident-level exclusions are applied, then the facility is suppressed from public reporting because of small sample size.

**De.1. Measure Type:** Process

**S.17. Data Source:** Other

**S.20. Level of Analysis:** Facility

**IF Endorsement Maintenance – Original Endorsement Date:** Mar 03, 2011 **Most Recent Endorsement Date:** Dec 10, 2015

**IF this measure is included in a composite, NQF Composite#/title:**

**IF this measure is paired/grouped, NQF#/title:**

**De.4. IF PAIRED/GROUPED, what is the reason this measure must be reported with other measures to appropriately interpret results?** This is not applicable.

## 1. Evidence, Performance Gap, Priority – Importance to Measure and Report

Extent to which the specific measure focus is evidence-based, important to making significant gains in healthcare quality, and improving health outcomes for a specific high-priority (high-impact) aspect of healthcare where there is variation in or overall less-than-optimal performance. **Measures must be judged to meet all sub criteria to pass this criterion and be evaluated against the remaining criteria.**

### 1a. Evidence to Support the Measure Focus – See attached Evidence Submission Form

[0687\\_RestraintsLS\\_Evidence\\_04102015forUpload.docx](#)

#### 1a.1 For Maintenance of Endorsement: Is there new evidence about the measure since the last update/submission?

Do not remove any existing information. If there have been any changes to evidence, the Committee will consider the new evidence. Please use the most current version of the evidence attachment (v7.1). Please use red font to indicate updated evidence.

### 1b. Performance Gap

Demonstration of quality problems and opportunity for improvement, i.e., data demonstrating:

- considerable variation, or overall less-than-optimal performance, in the quality of care across providers; and/or
- Disparities in care across population groups.

**1b.1. Briefly explain the rationale for this measure (e.g., how the measure will improve the quality of care, the benefits or improvements in quality envisioned by use of this measure)**

*If a COMPOSITE (e.g., combination of component measure scores, all-or-none, any-or-none), SKIP this question and answer the composite questions.*

Restraints can pose serious risks for residents. They are used to control behavior for people with disruptive, aggressive, or dangerous behavior, including those with cognitive impairment (Sullivan-Marx et al, 1999; Capezuti et al, 1996; Castle & Mor, 1987).

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**1b.2. Provide performance scores on the measure as specified (current and over time) at the specified level of analysis.** (*This is required for maintenance of endorsement. Include mean, std dev, min, max, interquartile range, scores by decile. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities include.*) This information also will be used to address the sub-criterion on improvement (4b1) under Usability and Use.

An analysis of MDS 3.0 data indicated that this measure includes nearly one million residents (k=1,164,623) across 15,342 (Q2 2014). Mean facility-level scores for this measure across all available quarters (Q1 2011 – Q2 2014) show a general downward trend (i.e. improvement). This trend does not show substantial periodicity, which suggests there is little influence of seasonal variation (see

Figure A1 in the appendix attached in section A.1 of this form).

The 25th percentile for this measure was 0.0%, and the 75th percentile was 1.3%, so the interquartile range was 1.3%.

n (facilities): 13,747

k (residents): 1,164,623

mean score: 1.2%

Std dev. : 2.9%

10th percentile: 0.0%

20th percentile: 0.0%

30th percentile: 0.0%

40th percentile: 0.0%

50th percentile: 0.0%

60th percentile: 0.0%

70th percentile: 0.9%

80th percentile: 1.9%

90th percentile: 3.6%

% of facilities with "perfect scores" : 66.9%

Interquartile range: 1.3%

Source: RTI analysis of MDS 3.0 episode file for Quarter 2, 2014 (\quarter\_14\_15\nh\_021\_10.log; DB362)

**1b.3. If no or limited performance data on the measure as specified is reported in 1b2, then provide a summary of data from the literature that indicates opportunity for improvement or overall less than optimal performance on the specific focus of measurement.**

This is not applicable (data are available and described in 1b2).

**1b.4. Provide disparities data from the measure as specified (current and over time) by population group, e.g., by race/ethnicity, gender, age, insurance status, socioeconomic status, and/or disability. (*This is required for maintenance of endorsement. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities included.*) For measures that show high levels of performance, i.e., "topped out", disparities data may demonstrate an opportunity for improvement/gap in care for certain sub-populations. This information also will be used to address the sub-criterion on improvement (4b1) under Usability and Use.**

Race

Analyses of racial/ethnic disparities were conducted at both the resident and facility levels using MDS 3.0 data from Q2 2014. RTI found differences in daily restraint use between racial and ethnic groups of residents. Appendix Table A2 presents the percentage of residents restrained, by racial/ethnic identification. Hispanic and Asian residents had the highest rates of restraint use, at 1.6% and 1.5% respectively, while 1.0 % of Black residents and 1.2% of White residents had daily restraint use. Differences in the rate of restraint by racial/ethnic group were found to be statistically significant (p-value < 0.0001).



RTI analyses of the distribution of facility scores on this measure by race indicate that facilities with different proportions of non-White populations do have different performance scores on this measure. Analyses at the facility level examined differences in the percent of residents who were physically restrained compared across two groups: facilities with proportions of white residents that were greater than or equal to the median proportion (87.0%), and facilities with fewer white residents than the median (see Appendix Table A3). Facilities with a higher proportion of White residents had slightly higher rates of restraint use (1.3% compared to 1.0%). In an additional analysis, we cross-tabulated racial composition (above/below median) with QM score (above/below median) and ran a 2-way Chi-square test for statistical dependence (with one degree of freedom). The results showed that there were statistically significant relationships between racial composition and the QM score (p-value < 0.001).

#### Socioeconomic status

RTI analyses of the distribution of facility scores on this measure by Medicaid eligibility indicate that facilities with different proportions of Medicaid-eligible populations do have different performance scores on this measure, suggesting a relationship between socioeconomic status and incidence of being restrained. Analyses at the facility level examined differences in the percent of residents who were physically restrained compared across two groups: facilities with proportions of Medicaid-eligible residents that were greater than or equal to the median proportion (75.0%), and facilities with fewer Medicaid-eligible residents than the median (see Appendix Table A4). This analysis showed that facilities with the higher proportion of Medicaid eligible residents had a slightly higher rate of restraint use (1.2% versus 0.7%). We cross-tabulated Medicaid eligibility rates (above/below median) with QM score (above/below median) and ran a 2-way Chi-square test for statistical dependence (with one degree of freedom). The results showed that there were statistically significant relationships between proportion of Medicaid eligible residents in a facility and facility QM score (p-value < 0.001).

SOURCE: RTI analysis of Q2 2014 MDS 3.0 data (programming reference: ql/024a/db387\_request\_q1415\_008\_013\_021\_024a\_v1.log)

**1b.5. If no or limited data on disparities from the measure as specified is reported in 1b.4, then provide a summary of data from the literature that addresses disparities in care on the specific focus of measurement. Include citations. Not necessary if performance data provided in 1b.4**

This is not applicable.

## 2. Reliability and Validity—Scientific Acceptability of Measure Properties

Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. **Measures must be judged to meet the sub criteria for both reliability and validity to pass this criterion and be evaluated against the remaining criteria.**

**2a.1. Specifications** The measure is well defined and precisely specified so it can be implemented consistently within and across organizations and allows for comparability. eMeasures should be specified in the Health Quality Measures Format (HQMF) and the Quality Data Model (QDM).

**De.5. Subject/Topic Area** (check all the areas that apply):

**De.6. Non-Condition Specific**(check all the areas that apply):

Safety

**De.7. Target Population Category** (Check all the populations for which the measure is specified and tested if any):

Elderly, Populations at Risk, Populations at Risk : Individuals with multiple chronic conditions

**S.1. Measure-specific Web Page** (Provide a URL link to a web page specific for this measure that contains current detailed specifications including code lists, risk model details, and supplemental materials. Do not enter a URL linking to a home page or to general information.)

<http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/NursingHomeQualityInits/NHQIQualityMeasures.html>;

please see “MDS 3.0 QM User’s Manual” in Downloads section

at the bottom of the page.

**S.2a. If this is an eMeasure**, HQMF specifications must be attached. Attach the zipped output from the eMeasure authoring tool (MAT) - if the MAT was not used, contact staff. (Use the specification fields in this online form for the plain-language description of the specifications)

**This is not an eMeasure Attachment:**

**S.2b. Data Dictionary, Code Table, or Value Sets** (and risk model codes and coefficients when applicable) must be attached. (Excel or csv file in the suggested format preferred - if not, contact staff)

**No data dictionary Attachment:**

**S.2c.** Is this an instrument-based measure (i.e., data collected via instruments, surveys, tools, questionnaires, scales, etc.)? Attach copy of instrument if available.

**Attachment:**

**S.2d.** Is this an instrument-based measure (i.e., data collected via instruments, surveys, tools, questionnaires, scales, etc.)? Attach copy of instrument if available.

**S.3.1. For maintenance of endorsement:** Are there changes to the specifications since the last updates/submission. If yes, update the specifications for S1-2 and S4-22 and explain reasons for the changes in S3.2.

No

**S.3.2. For maintenance of endorsement,** please briefly describe any important changes to the measure specifications since last measure update and explain the reasons.

No changes to the measure specifications since last submission.

**S.4. Numerator Statement** (Brief, narrative description of the measure focus or what is being measured about the target population, i.e., cases from the target population with the target process, condition, event, or outcome) DO NOT include the rationale for the measure.

*IF an OUTCOME MEASURE, state the outcome being measured. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).*

The numerator is the number of long-stay residents in the denominator sample with a selected target assessment who have experienced daily physical restraint usage during the 7 days prior to the selected assessment.

**S.5. Numerator Details** (All information required to identify and calculate the cases from the target population with the target process, condition, event, or outcome such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b)

*IF an OUTCOME MEASURE, describe how the observed outcome is identified/counted. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).*

Residents are counted if they are long-stay residents, defined as residents who have had 101 or more cumulative days of nursing facility care. Residents who return to the nursing home following a hospital discharge will not have their length of stay reset to zero. The target population includes all long-stay residents with a target assessment (assessments may be an OBRA admission, quarterly, annual or significant change/correction assessment (A0310A = [01, 02, 03, 04, 05, 06]); or PPS 5-, 14-, 30-, 60-, 90-day assessments (A0310B = [01, 02, 03, 04, 05]); or discharge assessment with or without anticipated return (A0310F = [10, 11])), except those with exclusions (specified in S.8 and S.9).

The numerator is the number of long-stay residents in the denominator sample with a selected target assessment that has any of the following items on the target assessment are coded as "2", meaning that the physical restraint was used daily during the 7 days prior to the assessment: P0100B = [2], P0100C = [2], P0100E = [2], P0100F = [2], or P0100G = [2].

For every calendar quarter (3-month period), the Centers for Medicare & Medicaid Services (CMS) select target assessments conducted during that quarter from each nursing facility to calculate the measure. For any resident with multiple episodes of care during the quarter, only the latest episode will be counted.

A target assessment is defined as the latest assessment that meets the following criteria: (a) it contained within the resident's selected episode, (b) it has a qualifying reason for assessment, and (c) its target date is no more than 120 days before the end of the episode.

An episode is defined as a period of time spanning one or more stays. An episode begins with an admission and ends with either (a) a discharge, or (b) the end of the target period, whichever comes first. Data are publicly reported on the Nursing Home Compare website and are weighted on an average of four target periods.

**S.6. Denominator Statement** *(Brief, narrative description of the target population being measured)*

The denominator is the total number of all long-stay residents in the nursing facility who have a target OBRA, PPS or discharge assessment during the selected quarter and who do not meet the exclusion criteria.

**S.7. Denominator Details** *(All information required to identify and calculate the target population/denominator such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b.)*

*IF an OUTCOME MEASURE, describe how the target population is identified. Calculation of the risk-adjusted outcome should be described in the calculation algorithm (S.14).*

Residents are counted if they are long-stay residents defined as residents who have had 101 or more cumulative days of nursing facility care. Residents who return to the nursing home following a hospital discharge will not have their length of stay reset to zero. The target population includes all long-stay residents with a target assessment (assessments may be an OBRA admission, quarterly, annual or significant change/correction assessments (A0310A = [01, 02, 03, 04, 05, 06]) or PPS 5-, 14-, 30-, 60-, or 90-day assessments (A0310B = [01, 02, 03, 04, 05]) or discharge assessment with or without return anticipated (A0310F = [10, 11]), except those with exclusions (specified in S.8 and S.9).

A description of the time period for the data included in this measure is provided in S.5 above.

**S.8. Denominator Exclusions** *(Brief narrative description of exclusions from the target population)*

A resident is excluded from the denominator if that resident does not qualify for the numerator and the target assessment has missing data in any of the responses to the relevant restraints items (P0100 items).

If the facility sample includes fewer than 20 residents after all other resident-level exclusions are applied, then the facility is suppressed from public reporting because of small sample size.

**S.9. Denominator Exclusion Details** *(All information required to identify and calculate exclusions from the denominator such as definitions, time period for data collection, specific data collection items/responses, code/value sets – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format at S.2b.)*

A resident is excluded if the resident does not qualify for the numerator and there are missing values for any of the P0100 items, i.e., P0100B = [-], Trunk restraint used in bed; P0100C = [-], Limb restraint used in bed; P0100E = [-], Trunk restraint used in chair or out of bed; P0100F = [-], Limb restraint used in chair or out of bed; or P0100G = [-], Chair prevents rising used in chair or out of bed.

If the facility sample includes fewer than 20 residents after all other resident-level exclusions are applied, then the facility is suppressed from public reporting because of small sample size.

**S.10. Stratification Information** *(Provide all information required to stratify the measure results, if necessary, including the stratification variables, definitions, specific data collection items/responses, code/value sets, and the risk-model covariates and coefficients for the clinically-adjusted version of the measure when appropriate – Note: lists of individual codes with descriptors that exceed 1 page should be provided in an Excel or csv file in required format with at S.2b.)*

This is not applicable.

**S.11. Risk Adjustment Type** (Select type. Provide specifications for risk stratification in measure testing attachment)

No risk adjustment or risk stratification

If other:

**S.12. Type of score:**

Rate/proportion

If other:

**S.13. Interpretation of Score** (Classifies interpretation of score according to whether better quality is associated with a higher score, a lower score, a score falling within a defined interval, or a passing score)

Better quality = Lower score

**S.14. Calculation Algorithm/Measure Logic** (Diagram or describe the calculation of the measure score as an ordered sequence of steps including identifying the target population; exclusions; cases meeting the target process, condition, event, or outcome; time period for data, aggregating data; risk adjustment; etc.)

Step 1: Identify the total number of long-stay residents who have a target assessment (OBRA, PPS, or discharge) during the selected target quarter and who did not meet the exclusion criteria (i.e., the assessment is not missing data on any of the P0100 items that indicate use of any type of physical restraint).

Step 2: Starting with the set of residents identified in Step 1, determine the number of long-stay residents with a selected target assessment that meets the numerator inclusion criteria (i.e., those reporting daily incidence of physical restraint use during the 7 days prior to the target assessment).

Step 3: Divide the result of Step 2 by the result of Step 1.

Step 4: Multiply the result of step 3 by 100 to obtain a percent value.

A description of the time period for the data included in this measure is provided in S.5 above

**S.15. Sampling** (If measure is based on a sample, provide instructions for obtaining the sample and guidance on minimum sample size.)

IF an instrument-based performance measure (e.g., PRO-PM), identify whether (and how) proxy responses are allowed.

This is not applicable.

**S.16. Survey/Patient-reported data** (If measure is based on a survey or instrument, provide instructions for data collection and guidance on minimum response rate.)

Specify calculation of response rates to be reported with performance measure results.

This is not applicable.

**S.17. Data Source** (Check ONLY the sources for which the measure is SPECIFIED AND TESTED).

If other, please describe in S.18.

Other

**S.18. Data Source or Collection Instrument** (Identify the specific data source/data collection instrument (e.g. name of database, clinical registry, collection instrument, etc., and describe how data are collected.)

IF instrument-based, identify the specific instrument(s) and standard methods, modes, and languages of administration.

Nursing Home Minimum Data Set 3.0

**S.19. Data Source or Collection Instrument** (available at measure-specific Web page URL identified in S.1 OR in attached appendix at A.1)

Available in attached appendix at A.1

**S.20. Level of Analysis** (Check ONLY the levels of analysis for which the measure is SPECIFIED AND TESTED)

Facility

**S.21. Care Setting** (Check ONLY the settings for which the measure is SPECIFIED AND TESTED)

Nursing Home / SNF

If other:

**S.22. COMPOSITE Performance Measure** - Additional Specifications (Use this section as needed for aggregation and weighting rules, or calculation of individual performance measures if not individually endorsed.)

This is not applicable.

**2. Validity – See attached Measure Testing Submission Form**

0687\_NQF\_Testing\_Restraints\_04092015forUpload.docx

### **2.1 For maintenance of endorsement**

*Reliability testing: If testing of reliability of the measure score was not presented in prior submission(s), has reliability testing of the measure score been conducted? If yes, please provide results in the Testing attachment. Please use the most current version of the testing attachment (v7.1). Include information on all testing conducted (prior testing as well as any new testing); use red font to indicate updated testing.*

### **2.2 For maintenance of endorsement**

*Has additional empirical validity testing of the measure score been conducted? If yes, please provide results in the Testing attachment. Please use the most current version of the testing attachment (v7.1). Include information on all testing conducted (prior testing as well as any new testing); use red font to indicate updated testing.*

### **2.3 For maintenance of endorsement**

*Risk adjustment: For outcome, resource use, cost, and some process measures, risk-adjustment that includes social risk factors is not prohibited at present. Please update sections 1.8, 2a2, 2b1,2b4.3 and 2b5 in the Testing attachment and S.140 and S.11 in the online submission form. NOTE: These sections must be updated even if social risk factors are not included in the risk-adjustment strategy. You MUST use the most current version of the Testing Attachment (v7.1) -- older versions of the form will not have all required questions.*

## **3. Feasibility**

Extent to which the specifications including measure logic, require data that are readily available or could be captured without undue burden and can be implemented for performance measurement.

### **3a. Byproduct of Care Processes**

For clinical measures, the required data elements are routinely generated and used during care delivery (e.g., blood pressure, lab test, diagnosis, medication order).

#### **3a.1. Data Elements Generated as Byproduct of Care Processes.**

Generated or collected by and used by healthcare personnel during the provision of care (e.g., blood pressure, lab value, diagnosis, depression score)

If other:

### **3b. Electronic Sources**

The required data elements are available in electronic health records or other electronic sources. If the required data are not in electronic health records or existing electronic sources, a credible, near-term path to electronic collection is specified.

**3b.1. To what extent are the specified data elements available electronically in defined fields** (i.e., data elements that are needed to compute the performance measure score are in defined, computer-readable fields) Update this field for **maintenance of endorsement**.

ALL data elements are in defined fields in electronic clinical data (e.g., clinical registry, nursing home MDS, home health OASIS)

**3b.2. If ALL the data elements needed to compute the performance measure score are not from electronic sources, specify a credible, near-term path to electronic capture, OR provide a rationale for using other than electronic sources.** For **maintenance of endorsement**, if this measure is not an eMeasure (eCQM), please describe any efforts to develop an eMeasure (eCQM).

**3b.3. If this is an eMeasure, provide a summary of the feasibility assessment in an attached file or make available at a measure-specific URL. Please also complete and attach the NQF Feasibility Score Card.**

Attachment:

### **3c. Data Collection Strategy**

Demonstration that the data collection strategy (e.g., source, timing, frequency, sampling, patient confidentiality, costs associated with fees/licensing of proprietary measures) can be implemented (e.g., already in operational use, or testing

demonstrates that it is ready to put into operational use). For eMeasures, a feasibility assessment addresses the data elements and measure logic and demonstrates the eMeasure can be implemented or feasibility concerns can be adequately addressed.

**3c.1. Required for maintenance of endorsement.** Describe difficulties (as a result of testing and/or operational use of the measure) regarding data collection, availability of data, missing data, timing and frequency of data collection, sampling, patient confidentiality, time and cost of data collection, other feasibility/implementation issues.

**IF instrument-based,** consider implications for both individuals providing data (patients, service recipients, respondents) and those whose performance is being measured.

The general data collection method for the MDS 3.0 is currently in operational use and mandatory for all Medicare/Medicaid certified nursing facilities.

**3c.2. Describe any fees, licensing, or other requirements to use any aspect of the measure as specified** (e.g., value/code set, risk model, programming code, algorithm).

This is not applicable.

## 4. Usability and Use

Extent to which potential audiences (e.g., consumers, purchasers, providers, policy makers) are using or could use performance results for both accountability and performance improvement to achieve the goal of high-quality, efficient healthcare for individuals or populations.

### 4a. Accountability and Transparency

Performance results are used in at least one accountability application within three years after initial endorsement and are publicly reported within six years after initial endorsement (or the data on performance results are available). If not in use at the time of initial endorsement, then a credible plan for implementation within the specified timeframes is provided.

#### 4.1. Current and Planned Use

NQF-endorsed measures are expected to be used in at least one accountability application within 3 years and publicly reported within 6 years of initial endorsement in addition to performance improvement.

Specific Plan for Use	Current Use (for current use provide URL)
	<p>Public Reporting</p> <p>Nursing Home Quality Reporting System</p> <p><a href="http://www.medicare.gov/nursinghomecompare/search.html">http://www.medicare.gov/nursinghomecompare/search.html</a></p> <p>Quality Improvement (Internal to the specific organization)</p> <p>Nursing Home Quality Reporting System</p> <p><a href="https://www.qtso.com/download/guides/casper/cspr_sec11_mds_prvdr.pdf">https://www.qtso.com/download/guides/casper/cspr_sec11_mds_prvdr.pdf</a></p>

#### 4a1.1 For each CURRENT use, checked above (update for maintenance of endorsement), provide:

- Name of program and sponsor
- Purpose
- Geographic area and number and percentage of accountable entities and patients included
- Level of measurement and setting

##### •Public Reporting:

–Program and sponsor: Nursing Home Compare/Centers for Medicare and Medicaid

–Purpose: Consumer information

–Geographic area and number and percentages of accountable entities and patients included: All United States Nursing Homes with Medicare-eligible long-stay residents. In quarter 2 of 2014 there were 15,718 facilities with MDS records and 1,160,512 long-stay residents with target assessments, and 13,747 facilities (87.4%) had sufficient sample size (30 or more long-stay residents included in the denominator) to report on this measure and 1,159,680 residents (99.9%) were included in the calculation of this measure.

##### •Quality Improvement with Benchmarking (external benchmarking to multiple organizations):

–Program and sponsor: Certification And Survey Provider Enhanced Reports (CASPER) /Centers for Medicare and Medicaid



–Purpose: Quality improvement

–Geographic area and number and percentages of accountable entities and patients included: All United States Nursing Homes with Medicare-eligible long-stay residents regardless of denominator sample size. In quarter 2 of 2014 there were 15,342 eligible facilities and 1,160,512 residents long-stay residents with target assessments.

•Quality Improvement (Internal to the specific organization:

–Program and sponsor: Certification And Survey Provider Enhanced Reports (CASPER) /Centers for Medicare and Medicaid

–Purpose: Quality improvement

–Geographic area and number and percentages of accountable entities and patients included : All United States Nursing Homes with Medicare-eligible long-stay residents regardless of denominator sample size. In quarter 2 of 2014 there were 15,342 eligible facilities and 1,160,512 long-stay residents with target assessments.

**4a1.2. If not currently publicly reported OR used in at least one other accountability application (e.g., payment program, certification, licensing) what are the reasons? (e.g., Do policies or actions of the developer/steward or accountable entities restrict access to performance results or impede implementation?)**

This is not applicable.

**4a1.3. If not currently publicly reported OR used in at least one other accountability application, provide a credible plan for implementation within the expected timeframes -- any accountability application within 3 years and publicly reported within 6 years of initial endorsement. (Credible plan includes the specific program, purpose, intended audience, and timeline for implementing the measure within the specified timeframes. A plan for accountability applications addresses mechanisms for data aggregation and reporting.)**

This is not applicable.

**4a2.1.1. Describe how performance results, data, and assistance with interpretation have been provided to those being measured or other users during development or implementation.**

**How many and which types of measured entities and/or others were included? If only a sample of measured entities were included, describe the full population and how the sample was selected.**

Not applicable for this annual maintenance period.

**4a2.1.2. Describe the process(es) involved, including when/how often results were provided, what data were provided, what educational/explanatory efforts were made, etc.**

Not applicable for this annual maintenance period.

**4a2.2.1. Summarize the feedback on measure performance and implementation from the measured entities and others described in 4d.1.**

**Describe how feedback was obtained.**

Not applicable for this annual maintenance period.

**4a2.2.2. Summarize the feedback obtained from those being measured.**

Not applicable for this annual maintenance period.

**4a2.2.3. Summarize the feedback obtained from other users**

Not applicable for this annual maintenance period.

**4a2.3. Describe how the feedback described in 4a2.2.1 has been considered when developing or revising the measure specifications or implementation, including whether the measure was modified and why or why not.**

Not applicable for this annual maintenance period.

#### **Improvement**

Progress toward achieving the goal of high-quality, efficient healthcare for individuals or populations is demonstrated. If not in use for performance improvement at the time of initial endorsement, then a credible rationale describes how the performance results could be used to further the goal of high-quality, efficient healthcare for individuals or populations.

**4b1. Refer to data provided in 1b but do not repeat here. Discuss any progress on improvement (trends in performance results,**

number and percentage of people receiving high-quality healthcare; Geographic area and number and percentage of accountable entities and patients included.)

If no improvement was demonstrated, what are the reasons? If not in use for performance improvement at the time of initial endorsement, provide a credible rationale that describes how the performance results could be used to further the goal of high-quality, efficient healthcare for individuals or populations.

There are many benefits of employing alternative interventions and refraining from the use of physical restraints to address falls, wandering, and other behaviors. These benefits include improved quality of life, greater autonomy, use of fewer antipsychotic medications, less skin breakdown, and fewer serious injuries due to falls. Research has also shown that restraints do not prevent major adverse consequences for residents; while falls may increase with the removal of physical restraints, studies have found that serious falls do not.

#### 4b2. Unintended Consequences

The benefits of the performance measure in facilitating progress toward achieving high-quality, efficient healthcare for individuals or populations outweigh evidence of unintended negative consequences to individuals or populations (if such evidence exists).

##### 4b2.1. Please explain any unexpected findings (positive or negative) during implementation of this measure including unintended impacts on patients.

There is some evidence that decreased use of chair restraints is associated with residents being confined in bed longer, raising the possibility that a facility could be leaving weaker residents in bed as opposed to restraining them in chairs. It should be possible, however, to monitor this kind of lower quality care by watching for any increase in pressure ulcers resulting from the extended time in bed; pressure ulcers are monitored by a different CMS quality measure (Schnelle, et al. 2004). RTI analysis does not support the suggestion that this is a widespread issue, the national mean and median quarterly scores for the NQF # Percent of High Risk Residents with Pressure Ulcers (Long Stay) from January 2011 through March 2014 show a decline over the time period (mean 7.4% to 6.4%; median 6.7% to 5.6%) (RTI, 2015).

Another possible unintended consequence of public reporting of this measure is that chemical restraints may be substituted for physical restraints. In a retrospective analysis of nursing facility clinical assessment data from 1999 to 2008, difference-in-difference estimates show that facilities whose quality measures are reported on Nursing Home Compare had greater decreases in physical restraints use (8.3 percentage points) and greater increases in antipsychotics use (4.5 percentage points) than facilities that are excluded from public reporting on Nursing Home Compare (3.3 percentage point decrease in restraint use and 2.9 percentage point increase in antipsychotics use) due to their small resident populations (Konetzka, et al. 2014). However, CMS has implemented multiple initiatives to reduce unnecessary antipsychotic use, including National Partnership to Improve Dementia Care, in addition to public reporting in April 2012 of two antipsychotic measures on NH Compare: 1) Percent of short-stay residents who newly received an antipsychotic medication and 2) Percent of long-stay residents who received an antipsychotic medication. Descriptive analyses released by CMS in 2014 show a decrease in antipsychotic use of 17.1 percent (23.8 % in Quarter 4, 2011 to 19.8% in Quarter 1, 2014). The Konetzka, et al. paper provides support that this measure's endorsement should be maintained given it provides evidence suggesting that the nation-wide decrease in rates of restraint use in part due to public reporting.

1. Schnelle J, Bates-Jensen B, Levy-Storms L, Grbic V, Yoshii J, Cadogan M, Simmons S. (2004). The Minimum Data Set prevalence of restraint quality indicator: does it reflect differences in care? *Gerontologist*. 2004;44(2):245-55.
2. Hawes, C. Elder abuse in residential long-term care facilities: what is known about prevalence, causes, and prevention testimony before the U.S. Senate Committee on Finance. June 18, 2002. Available from <http://finance.senate.gov/hearings/testimony/061802chtest.pdf>.
3. SOURCE: RTI analysis of MDS 3.0 episode files for Quarter 1 2011–Quarter 2, 2014  
(\qm\_quarter\_1\_2\complete\nh\_013\_10.log, \qm\_quarter\_2\_3\complete\nh\_013\_10.log  
\qm\_quarter\_3\_4\complete\nh\_013\_10.log, \qm\_quarter\_4\_5\complete\nh\_013\_10.log,  
\qm\_quarter\_5\_6\complete\nh\_013\_10.log, \qm\_quarter\_6\_7\complete\nh\_013\_10.log,  
\qm\_quarter\_7\_8\complete\nh\_013\_10.log, \qm\_quarter\_8\_9\complete\nh\_013\_10.log,  
\qm\_quarter\_9\_10\complete\nh\_013\_10.log, \qm\_quarter\_10\_11\complete\nh\_013\_10.log,  
\qm\_quarter\_11\_12\complete\nh\_013\_10.log, \qm\_quarter\_12\_13\complete\nh\_013\_10.log),  
\qm\_quarter\_13\_14\nh\_013\_10.log, \qm\_quarter\_14\_15\nh\_013\_10.log)
4. Konetzka, R. T., Brauner, D. J., Shega, J., & Werner, R. M. (2014). The effects of public reporting on physical restraints and antipsychotic use in nursing home residents with severe cognitive impairment. *J Am Geriatr Soc*, 62(3), 454-461. doi: 10.1111/jgs.12711.

5. CMS (2014) Data show National Partnership to Improve Dementia Care exceeds goals to reduce unnecessary antipsychotic medications in nursing homes. Fact Sheet available at: <http://www.cms.gov/Newsroom/MediaReleaseDatabase/Fact-sheets/2014-Fact-sheets-items/2014-09-19.html>.

**4b2.2. Please explain any unexpected benefits from implementation of this measure.**

## 5. Comparison to Related or Competing Measures

If a measure meets the above criteria and there are endorsed or new related measures (either the same measure focus or the same target population) or competing measures (both the same measure focus and the same target population), the measures are compared to address harmonization and/or selection of the best measure.

### 5. Relation to Other NQF-endorsed Measures

Are there related measures (conceptually, either same measure focus or target population) or competing measures (conceptually both the same measure focus and same target population)? If yes, list the NQF # and title of all related and/or competing measures.

Yes

#### 5.1a. List of related or competing measures (selected from NQF-endorsed measures)

0203 : Restraint prevalence (vest and limb)

0640 : HBIPS-2 Hours of physical restraint use

#### 5.1b. If related or competing measures are not NQF endorsed please indicate measure title and steward.

### 5a. Harmonization of Related Measures

The measure specifications are harmonized with related measures;

OR

The differences in specifications are justified

#### 5a.1. If this measure conceptually addresses EITHER the same measure focus OR the same target population as NQF-endorsed measure(s):

Are the measure specifications harmonized to the extent possible?

No

#### 5a.2. If the measure specifications are not completely harmonized, identify the differences, rationale, and impact on interpretability and data collection burden.

NQF # 0203 Physical restraint (vest and limb only). While this measure has a similar focus, it is for use in acute care and uses a different definition of restraints. NQF # 0640 HBIPS-2 Hours of physical restraint use. This measure also has as similar focus but is for use in hospital-based inpatient psychiatric setting and is based on patient days. Detailed data on days of restraint use is not currently available on the MDS. The measure #0687 is specified to capture daily restraint use over the 7 days preceding the resident's assessment.

### 5b. Competing Measures

The measure is superior to competing measures (e.g., is a more valid or efficient way to measure);

OR

Multiple measures are justified.

#### 5b.1. If this measure conceptually addresses both the same measure focus and the same target population as NQF-endorsed measure(s):

Describe why this measure is superior to competing measures (e.g., a more valid or efficient way to measure quality); OR provide a rationale for the additive value of endorsing an additional measure. (Provide analyses when possible.)

This is not applicable. There are no competing measures.

## Appendix

**A.1 Supplemental materials may be provided in an appendix.** All supplemental materials (such as data collection instrument or methodology reports) should be organized in one file with a table of contents or bookmarks. If material pertains to a specific submission form number, that should be indicated. Requested information should be provided in the submission form and required attachments. There is no guarantee that supplemental materials will be reviewed.

**Attachment** **Attachment:** [0687\\_NQF\\_Appendix\\_LSRestrains\\_04102015MERGED\\_tlh.pdf](#)

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**Co.3 Measure Developer if different from Measure Steward:** [Centers for Medicare & Medicaid Services](#)

**Co.4 Point of Contact:** [Camillus, Ezeike, Camillus.Ezeike@cms.hhs.gov, 410-786-8614-](#)

## Additional Information

**Ad.1 Workgroup/Expert Panel involved in measure development**

**Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.**

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This technical expert panel met over 2 days in January 2009 to review the environmental scan of the current quality measures and make recommendations regarding the transition from MDS 2.0 to MDS 3.0.

**Measure Developer/Steward Updates and Ongoing Maintenance**

**Ad.2 Year the measure was first released:** 2002

**Ad.3 Month and Year of most recent revision:** 06, 2013

**Ad.4 What is your frequency for review/update of this measure?** Every 3 years

**Ad.5 When is the next scheduled review/update for this measure?** 04, 2015

**Ad.6 Copyright statement:** This is not applicable.

**Ad.7 Disclaimers:** This is not applicable.

**Ad.8 Additional Information/Comments:** This is not applicable.