Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL QUALITY MEASURES CLEARINGHOUSE

General

Title

Long-stay nursing home care: percent of residents who were physically restrained.

Source(s)

RTI International. MDS 3.0 quality measures user's manual, v9.0. Baltimore (MD): Centers for Medicare & Medicaid Services (CMS); 2015 Oct 1. 80 p.

Measure Domain

Primary Measure Domain

Clinical Quality Measures: Process

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the percent of long-stay nursing facility residents who were physically restrained on a daily basis.

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, 1998). Second quarter 2008 statewide averages for the current Chronic Care Restraint Quality Measure (QM) range from 0.0% in Puerto Rico and the Virgin Islands to 8.9% in California, with a 4.3% national average (Centers for Medicare and Medicaid Services [CMS], 2008).

The use of physical restraints is associated with several adverse outcomes for the physical and mental health of the restrained (Hofmann & Hahn, 2014; Castle & Engberg, 2009; Engberg, Castle, & McCaffrey, 2008; Sullivan-Marx, 2001; Capezuti et al., 2006; Castle & Mor, 1998) and may lead to decreased

functional ability (Hofmann & Hahn, 2014), 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; they 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; Capezuti 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 do not (Köpke et al. 2012; Gulpers et al., 2011; Capezuti, 2004; Neufeld et al., 1995; Ejaz, Jones, & Rose, 1994). Studies have shown that the risk of serious injury do not increase with decreased use of restraints (Köpke et al., 2012; Gulpers et al., 2011; Capezuti, 2004; Neufeld et al., 1995; Ejaz, Jones, & Rose 1994) and may decrease when physical restraints are reduced in conjunction with appropriate education and training (Neufeld et al., 1995; Neufeld et al., 1999).

The use of restraints also increases the 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 at CMS 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).

Evidence for Rationale

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National Quality Forum measure information: percent of residents who were physically restrained (long stay). Washington (DC): National Quality Forum (NQF); 2015 Feb 19. 32 p.

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Neufeld RR, Libow LS, Foley WJ, Dunbar JM, Cohen C, Breuer B. Restraint reduction reduces serious injuries among nursing home residents. J Am Geriatr Soc. 1999 Oct;47(10):1202-7. PubMed

Phillips CD, Hawes C, Fries BE. Reducing the use of physical restraints in nursing homes: will it increase costs. Am J Public Health. 1993 Mar;83(3):342-8. PubMed

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Primary Health Components

Nursing home; long-stay; physical restraints

Denominator Description

All long-stay residents with a target assessment, except those with exclusions (see the related "Denominator Inclusions/Exclusions" field)

Numerator Description

Long-stay residents with a selected target assessment that indicates daily physical restraints, where:

Trunk restraint used in bed, *or*
Limb restraint used in bed, *or*
Trunk restraint used in chair or out of bed, *or*
Limb restraint used in chair or out of bed, *or*
Chair prevents rising used in chair or out of bed

See the related "Numerator Inclusions/Exclusions" field.

Evidence Supporting the Measure

Type of Evidence Supporting the Criterion of Quality for the Measure

A clinical practice guideline or other peer-reviewed synthesis of the clinical research evidence

A formal consensus procedure, involving experts in relevant clinical, methodological, public health and organizational sciences

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Additional Information Supporting Need for the Measure

Race

Analyses of racial/ethnic disparities were conducted at both the resident and facility levels using Minimum Data Set (MDS) 3.0 data from Q2 2014. RTI found differences in daily restraint use between racial and ethnic groups of residents. 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 less than 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. 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, the developer cross-tabulated racial composition (above/below median) with quality measure (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 less than 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. 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%). The developer 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 less than 0.001).

Evidence for Additional Information Supporting Need for the Measure

National Quality Forum measure information: percent of residents who were physically restrained (long stay). Washington (DC): National Quality Forum (NQF); 2015 Feb 19. 32 p.

RTI International. RTI analysis of MDS 3.0 data (Quarter 2, 2014). Baltimore (MD): Centers for Medicare and Medicaid Services (CMS); 2014.

Extent of Measure Testing

A joint RAND/Harvard team engaged in a deliberate iterative process to incorporate provider and consumer input, expert consultation, scientific advances in clinical knowledge about screening and assessment, Centers for Medicare & Medicaid Services (CMS) experience, and intensive item development and testing by a national Veteran's Health Administration (VHA) consortium. This process allowed the final national testing of Minimum Data Set (MDS) 3.0 to include well-developed and tested items.

The national validation and evaluation of the MDS 3.0 included 71 community nursing homes (NHs) (3,822 residents) and 19 VHA NHs (764 residents), regionally distributed throughout the United States. The evaluation was designed to test and analyze inter-rater agreement (reliability) between gold-standard (research) nurses and between facility and gold-standard nurses, validity of key sections, response rates for interview items, anonymous feedback on changes from participating nurses, and time to complete the MDS assessment.

Analysis of the test results showed that MDS 3.0 items had either excellent or very good reliability even when comparing research nurse to facility-nurse assessment. In most instances these were higher than those seen in the past with MDS 2.0. In addition, for the cognitive, mood and behavior items, national testing included collection of independent criterion or gold-standard measures. These MDS 3.0 sections were more highly matched to criterion measures than were MDS 2.0 items.

Improvements incorporated in MDS 3.0 produced a more efficient assessment: better quality information was obtained in less time. Such gains should improve identification of resident needs and enhance resident-focused care planning. In addition, including items recognized in other care settings is likely to enhance communication among providers. These significant gains reflect the cumulative effect of changes across the tool, including use of more valid items, direct inclusion of resident reports, improved clarity of retained items, deletion of poorly performing items, form redesign, and briefer assessment periods for clinical items.

Refer to *Development & Validation of a Revised Nursing Home Assessment Tool: MDS 3.0.* for additional information.

Evidence for Extent of Measure Testing

Saliba D, Buchanan J. Development & validation of a revised nursing home assessment tool: MDS 3.0. Baltimore (MD): Quality Measurement and Health Assessment Group, Office of Clinical Standards and Quality, Centers for Medicare & Medicaid Services; 2008 Apr. 263 p.

State of Use of the Measure

State of Use

Current routine use

Current Use

not defined yet

Application of the Measure in its Current Use

Measurement Setting

Skilled Nursing Facilities/Nursing Homes

Professionals Involved in Delivery of Health Services

not defined yet

Least Aggregated Level of Services Delivery Addressed

Single Health Care Delivery or Public Health Organizations

Statement of Acceptable Minimum Sample Size

Specified

Target Population Age

All ages

Target Population Gender

Either male or female

National Strategy for Quality Improvement in Health Care

National Quality Strategy Aim

Better Care

National Quality Strategy Priority

Making Care Safer
Prevention and Treatment of Leading Causes of Mortality

Institute of Medicine (IOM) National Health Care Quality Report Categories

IOM Care Need

Living with Illness

IOM Domain

Effectiveness

Safety

Data Collection for the Measure

Case Finding Period

Quarterly

Denominator Sampling Frame

Patients associated with provider

Denominator (Index) Event or Characteristic

Diagnostic Evaluation

Institutionalization

Denominator Time Window

not defined yet

Denominator Inclusions/Exclusions

Inclusions
All long-stay* residents with a valid target assessment, except those with exclusions

*Long-stay: An episode with cumulative days in facility (CDIF) greater than or equal to 101 days as of the end of the target period.

Exclusions
Resident is not in numerator and any of the following is true:

Trunk restraint used in bed is missing (P0100B = [-]), *or*
Limb restraint used in bed is missing (P0100C = [-]), *or*
Trunk restraint used in chair or out of bed is missing (P0100E = [-]), *or*
Limb restraint used in chair or out of bed is missing (P0100F = [-]), *or*
Chair prevents rising used in chair or out of bed is missing (P0100G = [-]).

Note: Refer to the original measure documentation for details.

Exclusions/Exceptions

not defined yet

Numerator Inclusions/Exclusions

Inclusions
Long-stay residents with a selected target assessment that indicates daily physical restraints, where:

Trunk restraint used in bed, *or*
Limb restraint used in bed, *or*
Trunk restraint used in chair or out of bed, *or*
Limb restraint used in chair or out of bed, *or*
Chair prevents rising used in chair or out of bed

Note: Refer to the original measure documentation for details.

Exclusions
Unspecified

Numerator Search Strategy

Institutionalization

Data Source

Administrative clinical data

Type of Health State

Does not apply to this measure

Instruments Used and/or Associated with the Measure

Center for Medicare & Medicaid Services (CMS) Minimum Data Set (MDS) - Resident Assessment Instrument (Version 3.0)

Computation of the Measure

Measure Specifies Disaggregation

Does not apply to this measure

Scoring

Rate/Proportion

Interpretation of Score

Desired value is a lower score

Allowance for Patient or Population Factors

not defined yet

Standard of Comparison

not defined yet

Identifying Information

Original Title

Percent of residents who were physically restrained (long-stay).

Measure Collection Name

Nursing Home Quality Initiative Measures

Measure Set Name

Long-stay Quality Measures

Submitter

Centers for Medicare & Medicaid Services - Federal Government Agency [U.S.]

Developer

Centers for Medicare & Medicaid Services - Federal Government Agency [U.S.]

RTI International - Nonprofit Research Organization

Funding Source(s)

United States (U.S.) Government

Composition of the Group that Developed the Measure

United States (U.S.) Government Staff, Clinical Experts, Researchers, and Statisticians

Financial Disclosures/Other Potential Conflicts of Interest

No conflicts of interest exist.

Endorser

National Quality Forum - None

NQF Number

not defined yet

Date of Endorsement

2015 Dec 10

Measure Initiative(s)

Nursing Home Compare

Adaptation

This measure was not adapted from another source.

Date of Most Current Version in NQMC

2015 Oct

Measure Maintenance

Annual and (every three years) endorsement

Date of Next Anticipated Revision

Quarter 2 2016

Measure Status

This is the current release of the measure.

This measure updates a previous version: RTI International. MDS 3.0 quality measures user's manual. v8.0. Baltimore (MD): Center for Medicare & Medicaid Services (CMS); 2013 Apr 15. 80 p.

Measure Availability

Source available from the Centers for Medicare & Medicaid Services (CMS) Web site .

For more information, refer to the CMS Web site at www.cms.gov .

Companion Documents

The following are available:

Saliba D, Buchanan J. Development & validation of a revised nursing home assessment tool: MDS 3.0. Baltimore (MD): Quality Measurement and Health Assessment Group, Office of Clinical Standards and Quality, Centers for Medicare & Medicaid Services; 2008 Apr. 263 p. Available from the Centers for Medicare & Medicaid Services (CMS) Web site .

Nursing Home Compare. [internet]. Baltimore (MD): Centers for Medicare & Medicaid Services (CMS). 2000- [updated 2012 Nov 15]; [cited 2012 Nov 27]. This tool is available from the Medicare Web site .

NQMC Status

The NQMC summary was completed by ECRI on July 22, 2004. The information was verified by the measure developer on August 30, 2004.

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This NQMC summary was updated by ECRI Institute on August 15, 2013. The information was verified by the measure developer on December 3, 2013.

This NQMC summary was updated again by ECRI Institute on May 31, 2016. The information was not verified by the measure developer.

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Production

Source(s)

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