# NATIONAL QUALITY FORUM

National Voluntary Consensus Standards for Nursing Homes 2010

**Measure Number/Title:** NH-003-10: Physical Therapy for New Balance Problem

**Description:** Percantage of nursing home patients 65 years old or older who have a new balance problem who receive physical therapy or nursing rehabilitation/restorative care

**Numerator Statement:** Patients in the denominator who received physical therapy or nursing rehabilitation/restorative

**Denominator Statement:** Nursing home patients 65 years or older with a new balance problem

**Level of Analysis:** Facility/Agency, Health Plan, Integrated delivery system, Multi-site/corporate chain, Population: national, Population: regional/network, Population: states, Population: counties or cities, Program: QIO

**Data Source:** Electronic administrative data/claims

**Measure developer:** RAND Corporation

**Type of Endorsement (full or time-limited):** Full

**Attachments:** NH FALLS 5 Reference Document

# NATIONAL QUALITY FORUM

**Measure Evaluation 4.1**
**December 2009**

This form contains the measure information submitted by stewards. Blank fields indicate no information was provided. Attachments also may have been submitted and are provided to reviewers. The subcriteria and most of the footnotes from the evaluation criteria are provided in Word comments within the form and will appear if your cursor is over the highlighted area. Hyperlinks to the evaluation criteria and ratings are provided in each section.

**TAP/Workgroup** (if utilized)**:** Complete all yellow highlighted areas of the form. Evaluate the extent to which each subcriterion is met. Based on your evaluation, summarize the strengths and weaknesses in each section.

Note: *If there is no TAP or workgroup, the SC also evaluates the subcriteria (yellow highlighted areas).*

**Steering Committee:** Complete all pink highlighted areas of the form. Review the workgroup/TAP assessment of the subcriteria, noting any areas of disagreement; then evaluate the extent to which each major criterion is met; and finally, indicate your recommendation for the endorsement. Provide the rationale for your ratings.

Evaluation ratings of the extent to which the criteria are met
C = Completely (unquestionably demonstrated to meet the criterion)
P = Partially (demonstrated to partially meet the criterion)
M = Minimally (addressed BUT demonstrated to only minimally meet the criterion)
N = Not at all (NOT addressed; OR incorrectly addressed; OR demonstrated to NOT meet the criterion)
NA = Not applicable (only an option for a few subcriteria as indicated)

| (for NQF staff use) **NQF Review #:** NH-003-10 **NQF Project:** Nursing Homes 2010 |
|---|
| **MEASURE DESCRIPTIVE INFORMATION** |
| De.1 **Measure Title:** Physical Therapy for New Balance Problem |
| De.2 **Brief description of measure***:* Percantage of nursing home patients 65 years old or older who have a new balance problem who receive physical therapy or nursing rehabilitation/restorative care |
| 1.1-2 **Type of Measure:** Process<br>De.3 **If included in a composite or paired with another measure, please identify composite or paired measure** |
| De.4 **National Priority Partners Priority Area:** Safety<br>De.5 **IOM Quality Domain**: Safety<br>De.6 **Consumer Care Need:** |

| **CONDITIONS FOR CONSIDERATION BY NQF** | |
|---|---|
| Four conditions must be met before proposed measures may be considered and evaluated for suitability as voluntary consensus standards: | **NQF Staff** |
| **A.** The measure is in the public domain or an intellectual property (measure steward agreement) is signed. *Public domain only applies to governmental organizations. All non-government organizations must sign a measure steward agreement even if measures are made publicly and freely available.*<br>A.1 **Do you attest that the measure steward holds intellectual property rights to the measure and the right to use aspects of the measure owned by another entity (e.g., risk model, code set)?** Yes<br>A.2 **Indicate if Proprietary Measure** (*as defined in measure steward agreement*)**:**<br>A.3 **Measure Steward Agreement:** Agreement will be signed and submitted prior to or at the time of measure submission<br>A.4 **Measure Steward Agreement attached:** | **A**<br>**Y**☐<br>**N**☐ |
| **B.** The measure owner/steward verifies there is an identified responsible entity and process to maintain and update the measure on a schedule that is commensurate with the rate of clinical innovation, but at least | **B**<br>**Y**☐ |

| | |
|---|---|
| every 3 years. Yes, information provided in contact section | N☐ |
| **C.** The intended use of the measure includes both public reporting and quality improvement.<br>►**Purpose:** Public reporting, Internal quality improvement | C<br>Y☐<br>N☐ |
| **D.** The requested measure submission information is complete. Generally, measures should be fully developed and tested so that all the evaluation criteria have been addressed and information needed to evaluate the measure is provided. Measures that have not been tested are only potentially eligible for a time-limited endorsement and in that case, measure owners must verify that testing will be completed within 12 months of endorsement.<br>D.1**Testing:** Yes, fully developed and tested<br>D.2 **Have NQF-endorsed measures been reviewed to identify if there are similar or related measures?**<br>Yes | D<br>Y☐<br>N☐ |
| (for NQF staff use) **Have all conditions for consideration been met?**<br>**Staff Notes to Steward** (*if submission returned*)**:** | Met<br>Y☐<br>N☐ |
| **Staff Notes to Reviewers** (*issues or questions regarding any criteria*)**:** | |
| **Staff Reviewer Name(s):** | |

| | |
|---|---|
| **TAP/Workgroup Reviewer Name:** | |
| **Steering Committee Reviewer Name:** | |
| **1. IMPORTANCE TO MEASURE AND REPORT** | |
| Extent to which the specific measure focus is important to making significant gains in health care quality (safety, timeliness, effectiveness, efficiency, equity, patient-centeredness) and improving health outcomes for a specific high impact aspect of healthcare where there is variation in or overall poor performance.<br>*Measures must be judged to be important to measure and report in order to be evaluated against the remaining criteria.* (evaluation criteria)<br>**1a. High Impact** | Eval Rating |
| (for NQF staff use) Specific NPP goal: | |
| **1a.1 Demonstrated High Impact Aspect of Healthcare:** Leading cause of morbidity/mortality<br>**1a.2**<br><br>**1a.3 Summary of Evidence of High Impact:** Falls and mobility problems are common and serious problems facing older adults in the community and in nursing homes. Accidents are the fifth leading cause of death in older adults, with falls accounting for two-thirds of these accidental deaths (Rubenstein 1994). About one-third of those aged 65 and older living in the community fall at least once a year. This increases to one in two for those aged 80 and older (Blake 1988; O'Loughlin 2993). Although most falls result in no serious injury, in any given year, approximately 5% of these older fallers experience a fracture or require hospitalization (Rubenstein 1994). The related problems of mobility disorders are also prevalent in older adults. Detectable gait abnormalities affect 20% to 40% of individuals aged 65 and older and 40% to 50% of those aged 85 and older (Alexander 1996; Trueblood 1991).<br><br>Falls are generally the result of multiple, diverse, and interacting etiologies. Several cohort studies have identified gait and balance disorders, functional impairment, visual deficits, cognitive impairment, and use of psychotropic medications as the most important risk factors for falling (Tromp 2001; Chu 2005; Tinetti 1988; Campbell 1989). Several studies have shown that the risk of falling increases dramatically as the number of risk factors increases. Three separate studies have reported that 65% to 100% of elderly individuals with three or more risk factors fell in a 12-month observation period, compared with 8% to 12% of persons with no risk factors (Rubenstein 1994); Nevitt 1997; Robbins 1989; Tinetti 1986). | 1a<br>C☐<br>P☐<br>M☐<br>N☐ |

**Comment [KP1]: 1a.** The measure focus addresses:
•a specific national health goal/priority identified by NQF's National Priorities Partners; OR
•a demonstrated high impact aspect of healthcare (e.g., affects large numbers, leading cause of morbidity/mortality, high resource use (current and/or future), severity of illness, and patient/societal consequences of poor quality).

However, the quality of falls care in vulnerable older adults remains suboptimal. One study found that only 34% of recommended care for falls and mobility disorders was completed (Wenger 2003).

**1a.4 Citations for Evidence of High Impact:** Rubenstein LZ, Roggins AG, Josephson KR. Falls in the nursing home. Ann Intern Med 1994;121:442–451.

Blake AJ, Morgan K, Bendall MJ et al. Falls by elderly people at home: Prevalence and associated factors. Age Ageing 1988;17:365–472.

O'Loughlin JL, Robitaille Y, Boivin JF et al. Incidence of and risk factors for falls and injurious falls among the community-dwelling elderly. Am J Epidemiol 1993;137:342–354.

Alexander NB. Gait disorders in older adults. J Am Geriatr Soc 1996;44:434–451.

Trueblood PR, Rubenstein LZ. Assessment of instability and gait in elderly persons. Compr Ther 1991;17:20–29.

Tromp AM, Pluijm SM, Smit JH et al. Fall-risk screening test: A prospective study on predictors for falls in community-dwelling elderly. J Clin Epidemiol 2001;54:837–844.

Chu LW, Chi I, Chiu AY. Incidence and predictors of falls in the Chinese elderly. Ann Acad Med Singapore 2005;34:60–72.

Tinetti ME, Speechley M, Ginter SF. Risk factors for falls among elderly persons living in the community. N Engl J Med 1988;319:1701–1707.

Campbell AJ, Borrie MJ, Spears GF. Risk factors for falls in a community-based prospective study of people 70 years and older. J Gerontol 1989;44:M112–M117.

Nevitt MC. Falls in the elderly: Risk factors and prevention. In: Masdeu JC, Sudarsky L, Wolfson L, eds. Gait Disorders of Aging. Philadelphia: Lippincott-Raven, 1997, pp 13–36.

Robbins AS, Rubenstein LZ, Josephson KR et al. Predictors of falls among elderly people: Results of two population-based studies. Arch Intern Med 1989;149:628–633.

Tinetti ME, Williams TF, Mayewski R. Fall risk index for elderly patients based on number of chronic conditions. Am J Med 1986;80:429–34.

Wenger NS, Solomon DH, Roth CP et al. The quality of medical care provided to vulnerable community-dwelling older patients. Ann Intern Med 2003;139:740–47

**1b. Opportunity for Improvement**

**1b.1 Benefits (improvements in quality) envisioned by use of this measure:** Proactively treating balance problems can lead to a reduction in the number of falls and the related comorbidity and mortality.

**1b.2 Summary of data demonstrating performance gap (variation or overall poor performance) across providers:**
This quality measure was implemented in a population of nursing home patients. The sample included Individuals 65 years and older enrolled in both Medicare and Medicaid continually residing in nursing homes with at least 5 of the last 6 months of 1998 who were residing in 19 counties in California. Patients received Medicaid through the Aged/Blind/Disabled eligibility category. Assessments were made during 1999 through 2000. Data included MDS assessments (1998 to 2000), Medicare and Medicaid eligibility files, and Medicare and Medicaid fee-for-service claims. Of 21,657 dually enrolled nursing home patients 65 years and older living in nursing homes in 19 California counties, 1,219 were eligible for this quality indicator, but only 34% received recommended care.(Zingmond 2009)

**1b**
**C** ☐
**P** ☐
**M** ☐
**N** ☐

**Comment [KP2]: 1b.** Demonstration of quality problems and opportunity for improvement, i.e., data demonstrating considerable variation, or overall poor performance, in the quality of care across providers and/or population groups (disparities in care).

**Comment [k3]:** 1 Examples of data on opportunity for improvement include, but are not limited to: prior studies, epidemiologic data, measure data from pilot testing or implementation. If data are not available, the measure focus is systematically assessed (e.g., expert panel rating) and judged to be a quality problem.

**1b.3 Citations for data on performance gap:**
Zingmond DS, Saliba D, Wilber KH, et al. Measuring the quality of care provided to dually enrolled Medicare and Medicaid beneficiaries living in nursing homes. Med Care 2009;47:536-44

**1b.4 Summary of Data on disparities by population group:**
There are no published data on disparities concerning this measure. However, based on our implementation of the measure, we note that we did not identify differences by gender or age (among an older group): Males 36.8%, Females 33.2% (p=0.26). Age 65-75 35.8%, 75-85 38.4% and >85 33.8% (p=0.80). However, African American elders received lower quality care for this measure than White or Latino patients (21.4% v. 34.6 v. 37.6%, respectively, p<0.01 for comparison between African Americans and White and Latino patients).

**1b.5 Citations for data on Disparities:**

**1c. Outcome or Evidence to Support Measure Focus**

**1c.1 Relationship to Outcomes** (*For non-outcome measures, briefly describe the relationship to desired outcome. For outcomes, describe why it is relevant to the target population*)**:** Substantial evidence supports the relationship between treatment of risk factors for falls – such physical therapy for weakness and balance issues, and stabilization using assistive devices – and reduced falls and fear related to falling. This is detailed below in 1c.2. The outcomes of the proposed measure have not been tested. However, this measure is the administrative version of a chart-based measure that has been tested against a falls-related outcome. When combined with the other 4 implemented ACOVE falls quality measures, the summary score of quality of care for falls was directly related to improvement in the Falls Efficacy Scale (FES). After controlling for age, gender and co-morbidity, an improvement of 10% falls quality of care was related to 0.4 point higher FES score (p=.01). To put the FES score into clinical perspective, in one intensive intervention study of multidisciplinary home visits that reduced risk of falls by 23%, the pre-post difference in FES scores between the intervention and control groups was 1.4 FES points.(Tinetti M 1994)

**1c.2-3. Type of Evidence:** Evidence-based guideline, Randomized controlled trial, Expert opinion, Systematic synthesis of research

**1c.4 Summary of Evidence** (*as described in the criteria; for outcomes, summarize any evidence that healthcare services/care processes influence the outcome*)**:**
There is ample evidence of a significant association between muscle strength and functional gait parameters in various populations, including elderly people (Powers 1996; Powers 1997; Perry 1993; Lord 1995; Bohannon 1996).

Recent systematic analyses suggest that exercise interventions are effective at reducing the risk of falling (RR=0.86, 95% CI=0.75–0.99) (Chang 2004; McMurdo 2000; Day 2002; Steinberg 2000; Crome 2000; Robertson 2001; Rubenstein 2000; Schoenfelder 2000). Another systematic review found that individualized strength and balance retraining by a trained health professional reduced the risk of falls 20% (RR=0.80, 95% CI=0.66–0.98) (Campbell 1997).

These studies support the use of exercise to improve measures of balance and reduce the incidence of falls. It would appear that the use of a multidimensional exercise program that incorporates balance training and strengthening should improve postural stability and reduce the risk of falling in elderly people.

**1c.5 Rating of strength/quality of evidence (***also provide narrative description of the rating and by whom***):**
This quality measure is supported by behavioral interventions studied in RCTs, some in patients in nursing homes (Level Good).

**1c.6 Method for rating evidence:** We rated the level of evidence as "Good" according to the USPTF 3-point scale (good, fair, poor). Ref: U.S. Preventive Services Task Force Ratings: Grade Definitions. Guide to Clinical Preventive Services, Third Edition: Periodic Updates, 2000-2003. Agency for Healthcare Research and Quality, Rockville, MD. http://www.ahrq.gov/clinic/3rduspstf/ratings.htm.

**1c**
**C**☐
**P**☐
**M**☐
**N**☐

**Comment [k4]: 1c.** The measure focus is:
•an outcome (e.g., morbidity, mortality, function, health-related quality of life) that is relevant to, or associated with, a national health goal/priority, the condition, population, and/or care being addressed;
OR
•if an intermediate outcome, process, structure, etc., there is **evidence** that supports the specific measure focus as follows:
oIntermediate outcome – evidence that the measured intermediate outcome (e.g., blood pressure, Hba1c) leads to improved health/avoidance of harm or cost/benefit.
oProcess – evidence that the measured clinical or administrative process leads to improved health/avoidance of harm and
if the measure focus is on one step in a multi-step care process, it measures the step that has the greatest effect on improving the specified desired outcome(s).
oStructure – evidence that the measured structure supports the consistent delivery of effective processes or access that lead to improved health/avoidance of harm or cost/benefit.
oPatient experience – evidence that an association exists between the measure of patient experience of health care and the outcomes, values and preferences of individuals/ the public.
oAccess – evidence that an association exists between access to a health service and the outcomes of, or experience with, care. ... [1]

**Comment [k5]:** 4 Clinical care processes typically include multiple steps: assess → identify problem/potential problem → choose/plan intervention (with patient input) → provide intervention → evaluate impact on health status. If the measure focus is one step in such a multi-step process, the step with the greatest effect on the desired outcome should be selected as the focus of measurement. For example, although assessment of immunization status and recommending immunization are necessary steps, they are not sufficient to achieve the desired impact on health status – patients must be vaccinated to achieve immunity. This does not preclude consideration of measures of preventive screening interventions where there is a strong link with desired outcomes (e.g., mammography) or measures for multiple care processes that affect a single outcome.

**Comment [k6]:** 3 The strength of the body of evidence for the specific measure focus should be systematically assessed and rated (e.g., USPSTF grading system http://www.ahrq.gov/clinic/uspstf07/methods/benefit.htm). If the USPSTF grading system was not used, the grading system is explained including how it relates to the USPSTF grades or why it does not. However, evidence is not limited to quantitative studies and the best type of evidence depends upon the question being studied (e.g., randomized controlled trials appropriate for studying drug efficacy are not well suited for complex system changes). When qualitative studies are used, appropriate qualitative research criteria are used to judge the strength of the evidence.

**1c.7 Summary of Controversy/Contradictory Evidence:** n general, summarization studies show that behavioral interventions result in reduction in falls, although not all studies showed benefit. A study determined if short-term exercise reduces falls and fall-related injuries in the elderly. Two nursing home and five community-dwelling studies included an exercise component for 10 to 36 weeks. The adjusted fall incidence ratio for treatment arms including general exercise was 0.90 (95% confidence limits [CL], 0.81, 0.99) and for those including balance was 0.83 (95% CL, 0.70, 0.98). No exercise component was significant for injurious falls, but power was low to detect this outcome. The study concluded that treatments including exercise for elderly adults reduce the risk of falls.

Province MA, Hadley EC, Hornbrook MC, Lipsitz LA, Miller JP, Mulrow CD, Ory MG, Sattin RW, Tinetti ME, Wolf SL. The effects of exercise on falls in elderly patients. A preplanned meta-analysis of the FICSIT Trials. JAMA. 1995;273(17):1341-7.

**1c.8 Citations for Evidence (***other than guidelines***):** Tinetti ME, Baker DI, McAvay G, et al. A multifactorial intervention to reduce the risk of falling among elderly people living in the community. N Engl J Med. 1994;331: 821-7.

Powers CM, Boyd LA, Fontaine CA et al. The influence of lower-extremity muscle force on gait characteristics in individuals with below-knee amputations secondary to vascular disease. Phys Ther 1996;76:369–377; discussion 378–385.

Powers CM, Perry J, Hsu A et al. Are patellofemoral pain and quadriceps femoris muscle torque associated with locomotor function? Phys Ther 1997;77:1063–1075; discussion 1075–1078.

Perry J, Mulroy SJ, Renwick SE. The relationship of lower extremity strength and gait parameters in patients with post-polio syndrome. Arch Phys Med Rehabil 1993;74:165–169.

Lord SR, Ward JA, Williams P et al. The effect of a 12-month exercise trial on balance, strength, and falls in older women: A randomized controlled trial. J Am Geriatr Soc 1995;43:1198–1206.

Bohannon RW, Andrews AW, Thomas MW. Walking speed: Reference values and correlates for older adults. J Orthop Sports Phys Ther 1996;24:86–90.

Chang JT, Morton SC, Rubenstein LZ et al. Interventions for the prevention of falls in older adults: Systematic review and meta-analysis of randomised clinical trials. BMJ 2004;328:680.

McMurdo ME, Millar AM, Daly F. A randomized controlled trial of fall prevention strategies in old peoples' homes. Gerontology 2000;46:83–87.

Day L, Fildes B, Gordon I et al. Randomised factorial trial of falls prevention among older people living in their own homes. BMJ 2002;325:128.

Steinberg M, Cartwright C, Peel N et al. A sustainable programme to prevent falls and near falls in community dwelling older people: Results of a randomised trial. J Epidemiol Community Health 2000;54:227–232.

Crome P, Hill S, Mossman J, Stockdale P. A randomised controlled trial of a nurse led falls prevention clinic [abstract]. J Am Geriatr Soc 2000;48:S78.

Robertson MC, Devlin N, Gardner MM et al. Effectiveness and economic evaluation of a nurse delivered home exercise programme to prevent falls 1: Randomized controlled trial. BMJ 2001;322:697–701.

Rubenstein LZ, Josephson KR, Trueblood PR et al. Effects of group exercise program on strength, mobility and falls among fall-prone elderly men. J Gerontol A Biol Sci Med Sci 2000;6A:M1–M5.

Schoenfelder DP. A fall prevention program for elderly individuals. Exercise in long-term care settings. J

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| Gerontol Nurs 2000;26:43–51.<br><br>Campbell AJ, Robertson MC, Gardner MM et al. Randomised controlled trial of a general programme of home based exercise to prevent falls in elderly women. BMJ 1997;315:1065–1069.<br><br>**1c.9 Quote the Specific guideline recommendation (***including guideline number and/or page number***):**<br><br>**1c.10 Clinical Practice Guideline Citation:**<br>**1c.11 National Guideline Clearinghouse or other URL:**<br><br>**1c.12 Rating of strength of recommendation (***also provide narrative description of the rating and by whom***):**<br><br>**1c.13 Method for rating strength of recommendation** (*If different from* USPSTF system, *also describe rating and how it relates to USPSTF)***:**<br><br>**1c.14 Rationale for using this guideline over others:** | |
| **TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for** *Importance to Measure and Report?* | **1** |
| **Steering Committee: Was the threshold criterion,** *Importance to Measure and Report***, met?**<br>**Rationale:** | **1**<br>**Y☐**<br>**N☐** |
| **2. 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. (evaluation criteria) | Eval Rating |
| **2a. MEASURE SPECIFICATIONS** | |
| **S.1 Do you have a web page where current detailed measure specifications can be obtained?**<br>**S.2 If yes, provide web page URL:**<br><br>**2a. Precisely Specified** | |
| **2a.1 Numerator Statement (***Brief, text description of the numerator - what is being measured about the target population, e.g. target condition, event, or outcome***):**<br>Patients in the denominator who received physical therapy or nursing rehabilitation/restorative care<br><br>**2a.2 Numerator Time Window (***The time period in which cases are eligible for inclusion in the numerator***):**<br>All patients in the denominator whose quarterly MDS indicates a new balance problem (compared to the prior MDS) and who received physical therapy in the 4 months prior or 1 month after the noted new problem OR nursing rehabilitation/restorative care in the 7 days prior.<br><br>**2a.3 Numerator Details (***All information required to collect/calculate the numerator, including all codes, logic, and definitions***):**<br>Physical therapy (PT):<br>Administrative claim for PT (defined in previously submitted documentation) in the 4 months before or 1 month after the date describing the new balance problem<br>OR<br>MDS 3.0 data (O5f) indicates training and skill practice in walking for at least 15 minutes for at least 1 day in the 7 days prior to the date describing the new balance problem | **2a-specs**<br>**C☐**<br>**P☐**<br>**M☐**<br>**N☐** |

Rating: C=Completely; P=Partially; M=Minimally; N=Not at all; NA=Not applicable



**Comment [k7]:** USPSTF grading system **http://www.ahrq.gov/clinic/uspstf/grades.htm**: **A -** The USPSTF recommends the service. There is high certainty that the net benefit is substantial. **B -** The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial. **C -** The USPSTF recommends against routinely providing the service. There may be considerations that support providing the service in an individual patient. There is at least moderate certainty that the net benefit is small. Offer or provide this service only if other considerations support the offering or providing the service in an individual patient. **D -** The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits. **I -** The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.

**Comment [KP8]: 2a.** The measure is well defined and precisely specified so that it can be implemented consistently within and across organizations and allow for comparability. The required data elements are of high quality as defined by NQF's Health Information Technology Expert Panel (HITEP) .

**2a.4 Denominator Statement (***Brief, text description of the denominator - target population being measured***):**
Nursing home patients 65 years or older with a new balance problem

**2a.5 Target population gender:** Female, Male
**2a.6 Target population age range:** Nursing home patients who are 65 years old or older

**2a.7 Denominator Time Window (***The time period in which cases are eligible for inclusion in the denominator***):**
Nursing home patients 65 years old or older with a new balance problem any time during the study period with 14 months of MDS and administrative claims data.

**2a.8 Denominator Details (***All information required to collect/calculate the denominator - the target population being measured - including all codes, logic, and definitions***):**
New balance problem:
Consecutive quarterly MDS reports contain measures of Balance During Transitions and Walking: Moving from seated to standing position (G3a) and the second indicates a worsening status from the first. Worsening status = worsening by at least 1 level. [0. Steady at all times; 1. Not steady, but able to stabilize without human assistance; 2. Not steady, only able to stabilize with human assistance]

NOTE: While this item has been somewhat modified in MDS 3.0, the essence of the content remains the same.

MDS 3.0:
Balance during Transitions and Walking
MDS 3.0 item G3a. Moving from seated to standing position [replaces MDS 2.0 Test for Balance G3a (while standing) and G3b (while sitting) per Saliba 2008]

0 = Steady at all times
1 = Not steady, but able to stabilize without human assistance
2 = Not steady, only able to stabilize with human assistance

Saliba D, Buchanan J. Development & Evaluation of a Revised Nursing Home Assessment Tool: MDS 3.0. RAND report, CMS MDS 3.0 Validation Contract No. 500-00-0027/Task Order #2, April 2008

**2a.9 Denominator Exclusions (***Brief text description of exclusions from the target population***):** Patients are excluded from the denominator if they have advanced dementia or a poor prognosis.

**2a.10 Denominator Exclusion Details (***All information required to collect exclusions to the denominator, including all codes, logic, and definitions***):**
Patients are excluded from the denominator for advanced dementia or poor prognosis.
Advanced dementia: MDS-COGS score = 5 (Hartmaier 1994). Scoring is based on 8 MDS items:
Cognitive Patterns:
B2a: Short term memory (0-1; MDS=1, memory problem; MDS-COGS=1)
B2b: Long term memory (0-1; MDS=1, memory problem; MDS-COGS=1)
B3b: Location of own room (0-1; MDS=0, doesn't recall; MDS-COGS=1)
B3d: Knows he/she in a nursing home (0-1; MDS=0, doesn't recall; MDS-COGS=1)
B3e: No orientation recalled (0-1; MDS=1, none recalled; MDS-COGS=1)
B4: Decision making (0-3; MDS/MDS-COGS: 0=independent, 1=modified independence, 2=moderately impaired, 3=severely impaired)

Communication Patterns:
C4: Making self understood [0-1; MDS=understood (0) or usually understood (1) or sometimes understood (2), then MDS-COGS=0; MDS=never/rarely understood (3), then MDS-COGS=1]

Physical Functioning:
G1Ag: Dressing self performance [0-1; MDS=independent (0) or supervision (1) or limited assistance (2) or extensive assistance (3), then MDS-COGS=0; MDS=total dependence (4), then MDS-COGS=1]

**Comment [k9]:** 11 Risk factors that influence outcomes should not be specified as exclusions.
12 Patient preference is not a clinical exception to eligibility and can be influenced by provider interventions.

Hartmaier SL, Sloane PD, Guess HA, et al. The MDS cognition scale: a valid instrument for identifying and staging nursing home residents with dementia using the minimum data set. J Am Geriatr Soc 1994; 42:1173-1179

Poor prognosis: MDS (J5c) indicates end stage disease, 6 or fewer months to live OR Medicare/Medicaid claim for hospice care.

See attached reference document for codes and details.

**2a.11 Stratification Details/Variables (***All information required to stratify the measure including the stratification variables, all codes, logic, and definitions***):**
None

**2a.12-13 Risk Adjustment Type:** No risk adjustment necessary

**2a.14 Risk Adjustment Methodology/Variables (***List risk adjustment variables and describe conceptual models, statistical models, or other aspects of model or method***):**
N/A

**2a.15-17 Detailed risk model available Web page URL or attachment:**

**2a.18-19 Type of Score:** Ratio
**2a.20 Interpretation of Score:**
**2a.21 Calculation Algorithm (***Describe the calculation of the measure as a flowchart or series of steps***):**
1. Identify all nursing home patients 65 years or older
2. Exclude patients with advanced dementia or poor prognosis (based on MDS and administrative claims)
3. Determine patients who have 2 consecutive assessments of balance (MDS Test for Balance) and the second assessment indicates a new balance problem based on a worsening status. Worsening status = worsening by at least 1 level for G3a or G3b. [0. Maintained position as required in test 1. Unsteady, but able to rebalance self without physical support 2. Partial physical support during test or stands (sits) but does not follow directions for test 3. Not able to attempt test without physical help]
4. The first such notation in the study period is the index denominator event
5. For this sample of patients, determine if MDS data (P3f) indicate PT within the 7 days prior to the index event OR administrative data indicates PT in the 4 months before or the 1 month after the index event OR administrative DME claims indicate a cane, walker, or crutch in the 4 months before or in the 1 month after the index event OR MDS data (G5a) indicate use of a cane, walker, or crutch in a patient whose prior assessment indicated none.

**2a.22 Describe the method for discriminating performance** *(e.g., significance testing)***:**

**2a.23 Sampling (Survey) Methodology** *If measure is based on a sample (or survey), provide instructions for obtaining the sample, conducting the survey and guidance on minimum sample size (response rate)*:
All nursing home patients 65 years and older are eligible for the measure.

**2a.24 Data Source (***Check the source(s) for which the measure is specified and tested)*
Electronic administrative data/claims

**2a.25 Data source/data collection instrument (***Identify the specific data source/data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.***):**
Linked Medicare eligibility and claims data, Medicaid eligibility and claims data, and Minimum Data Set (MDS) 2.0

Balance problem sitting: 2.0 G3a = 3.0 G0300A Balance problem seated to standing
Balance problem standing: 2.0 G3b = 3.0 G0300B Balance problem walking
Assistive device: 2.0 G5a = 3.0 G5a = 3.0 G0600A, G0600B
Nursing rehab walking in prior week: 2.0 P3f = 3.0 O0500F

2a.26-28 **Data source/data collection instrument reference web page URL or attachment:** URL
http://www.cms.hhs.gov

2a.29-31 **Data dictionary/code table web page URL or attachment:** Attachment NH FALLS 5 Reference.doc

2a.32-35 **Level of Measurement/Analysis** (*Check the level(s) for which the measure is specified and tested)*
Facility/Agency, Health Plan, Integrated delivery system, Multi-site/corporate chain, Population: national, Population: regional/network, Population: states, Population: counties or cities, Program: QIO

2a.36-37 **Care Settings (***Check the setting(s) for which the measure is specified and tested)*
Nursing home (NH) /Skilled Nursing Facility (SNF)

2a.38-41 **Clinical Services** (*Healthcare services being measured, check all that apply*)
Clinicians: Pharmacist, Clinicians: Nurses, Clinicians: Physicians (MD/DO), Clinicians: PA/NP/Advanced Practice Nurse

**TESTING/ANALYSIS**

**2b. Reliability testing**

2b.1 **Data/sample** *(description of data/sample and size)***:**

2b.2 **Analytic Method** *(type of reliability & rationale, method for testing)***:**

2b.3 **Testing Results** *(reliability statistics, assessment of adequacy in the context of norms for the test conducted)***:**
Reliability (Saliba 2008):
Gold standard-gold standard: Kappa .959
Gold standard-field nurse: Kappa .924

Change targeted to capture activities where assistance and support are most variable and assess activities with highest risk of falls

Saliba D, Buchanan J. Development & Evaluation of a Revised Nursing Home Assessment Tool: MDS 3.0. RAND report, CMS MDS 3.0 Validation Contract No. 500-00-0027/Task Order #2, April 2008

**2b**
**C☐ P☐ M☐ N☐**

**2c. Validity testing**

2c.1 **Data/sample** *(description of data/sample and size)***:**

2c.2 **Analytic Method** *(type of validity & rationale, method for testing)***:**
Validity of the process-outcome link was explicitly evaluated by the ACOVE Nursing Home Panel that reviewed the relevant literature and used a modified Delphi panel method of voting on the validity of the measure. (Saliba 2004)

The relationship between the quality of process-of-care and fear of falling as measured by the Tinetti Falls Efficacy Scale (FES) (Tinetti ME, Richman D, Powell L. Falls efficacy as a measure of fear of falling. J Gerontol. 1990;45: P239-43) was testing using a set of measures including this one as abstracted from medical records of community-based vulnerable elders. Patients receiving the quality indicator recommended care had better FES scores (3.9 v 0.7, p=0.02) after accounting for missed measure eligibility. Across six process-of-care quality indicators including the measure proposed here, after adjustment for covariates including severity of illness, a 10-percentage point increment in quality was associated with a 0.41 FES point increase (p=.01). (Min LC, Reuben DB, Shekelle PG, et al. Unpublished data)

**2c**
**C☐ P☐ M☐ N☐**

**Comment [KP10]: 2b.** Reliability testing demonstrates the measure results are repeatable, producing the same results a high proportion of the time when assessed in the same population in the same time period.

**Comment [k11]:** 8 Examples of reliability testing include, but are not limited to: inter-rater/abstractor or intra-rater/abstractor studies; internal consistency for multi-item scales; test-retest for survey items. Reliability testing may address the data items or final measure score.

**Comment [KP12]: 2c.** Validity testing demonstrates that the measure reflects the quality of care provided, adequately distinguishing good and poor quality. If face validity is the only validity addressed, it is systematically assessed.

**Comment [k13]:** 9 Examples of validity testing include, but are not limited to: determining if measure scores adequately distinguish between providers known to have good or poor quality assessed by another valid method; correlation of measure scores with another valid indicator of quality for the specific topic; ability of measure scores to predict scores on some other related valid measure; content validity for multi-item scales/tests. Face validity is a subjective assessment by experts of whether the measure reflects the quality of care (e.g., whether the proportion of patients with BP < 140/90 is a marker of quality). If face validity is the only validity addressed, it is systematically assessed (e.g., ratings by relevant stakeholders) and the measure is judged to represent quality care for the specific topic and that the measure focus is the most important aspect of quality for the specific topic.

Saliba D, Solomon D, Rubenstein L, Young R, Schnelle J, Roth C, Wenger N. Feasibility of quality indicators for the management of geriatric syndromes in nursing home residents. J Am Med Dir Assoc. 2004;5:310-9.

**2c.3 Testing Results** *(statistical results, assessment of adequacy in the context of norms for the test conducted)*:

**2d. Exclusions Justified**

**2d.1 Summary of Evidence supporting exclusion(s):**
Patients with advanced dementia or poor prognosis are excluded from the denominator.

An axiom of good medical practice is that management of patients' illnesses should be individualized. Even the most firmly established standards for prevention, diagnosis, and treatment cannot be applied to all patients. This is particularly true for patients with advanced illness or those with compromised quality of life (Luchins 1993; Brauner 2000). Thus, an essential step in measuring quality of care, particularly in nursing homes, is to determine whether the benefit from an intervention is so small for patients in the most debilitated condition that a quality indicator is inapplicable. Given this, Solomon 2003, convened a clinical panel of experts to identify indicators that should not be applied in the setting or more-general preferences or for patient in severely debilitated condition. This panel, using a structured method of rating the aims and burdens of care processes, identified the quality indicator proposed here as one that should not be applied to patients with advanced dementia or poor prognosis (anticipated survival < 6 months).

The only study we are aware of that looked at this population revealed no intervention effect on falls prevention (Shaw 2003). In this study, cognitively impaired (median MMSE score intervention 14, control 12; range 6-18 at presentation and persisting 2 weeks after ER/hospital discharge) patients who presented to the ER with a fall were randomly assigned to a multifactorial falls prevention intervention (including physical therapy) or conventional care. The study results showed no significant differences between groups in the primary (at least 1 fall) or secondary (number of falls, time to first fall, injury rates, fall related ER visits/ hospitalizations, and mortality) outcomes. Additionally, 2 recent reviews of the literature focusing on fall prevention in older people with dementia (Shaw 2007) and the effectiveness of physical training in cognitively impaired older persons (Hauer 2006) reveal limited evidence for the effectiveness of these interventions in this population and point to the need for further studies in this area.

**2d.2 Citations for Evidence:**

Brauner DJ, Muir JC, Sachs GA. Treating nondementia illnesses in patients with dementia. JAMA 2000; 283:3230-3235.

Hauer K, Becker C, Lindemann U, et al. Effectiveness of physical training on motor performance and fall prevention in cognitively impaired older persons: a systematic review. Am J Phys Med Rehab 2006;85:847-857.

Luchins DJ, Hanrahan P. What is appropriate health care for end-stage dementia? J Am Geriatr Soc 1993; 41:25-30.

Shaw FE. Prevention of alls in older people with dementia. J Neural Transm 2007;114:1259-1264.

Shaw FE, Bond J, Richardson DA, et al. Multifactorial intervention after a fall in older people with cognitive impairment and dementia presenting to the accident and emergency department: randomised controlled trial. BMJ 2003;326:pp73.

Solomon DH, Wenger NS, Saliba D, et al. Appropriateness of quality indicators for older patients with advanced dementia and poor prognosis. J Am Geriatr Soc 2003;51:902-907.

**2d**
**C**☐
**P**☐
**M**☐
**N**☐
**NA**☐

**2d.3 Data/sample** *(description of data/sample and size)*: These exclusions were applied to a sample of 21,657 individuals 65 years and older, residing in 19 counties in California, enrolled in both Medicare and Medicaid and residing in a nursing home at least 5 of the last 6 months of 1998. Patients received Medicaid through the Aged/Blind/Disabled eligibility category. Assessments were made during 1999 and 2000 using

**Comment [KP14]: 2d.** Clinically necessary measure exclusions are identified and must be:
•supported by evidence of sufficient frequency of occurrence so that results are distorted without the exclusion;
AND
•a clinically appropriate exception (e.g., contraindication) to eligibility for the measure focus;
AND
•precisely defined and specified:
–if there is substantial variability in exclusions across providers, the measure is specified so that exclusions are computable and the effect on the measure is transparent (i.e., impact clearly delineated, such as number of cases excluded, exclusion rates by type of exclusion);
if patient preference (e.g., informed decision-making) is a basis for exclusion, there must be evidence that it strongly impacts performance on the measure and the measure must be specified so that the information about patient preference and the effect on the measure is transparent (e.g., numerator category computed separately, denominator exclusion category computed separately).

**Comment [k15]:** 10 Examples of evidence that an exclusion distorts measure results include, but are not limited to: frequency of occurrence, sensitivity analyses with and without the exclusion, and variability of exclusions across providers.

MDS, Medicare and Medicaid eligibility files, and Medicare and Medicaid fee-for-service claims.

**2d.4 Analytic Method** *(type analysis & rationale)*:
After implementing the quality indicators, patients with advanced dementia and poor prognosis (anticipated survival < 6 months) were identified (see Measure Specifications 2.a.10, above) and the proposed quality indicator was excluded from application. We computed the number and proportion of patients excluded and the passing rate among these excluded patients.

**2d.5 Testing Results** *(e.g., frequency, variability, sensitivity analyses)*:
Among the 4410 individuals eligible for the proposed quality indicator, 3191 (72%) were excluded due to advanced dementia or poor prognosis. The 3191 excluded patients passed the quality indicator 30% of the time (compared to 34% for those not excluded).(Zingmond 2009)

Zingmond DS, Saliba D, Wilber KH, et al. Measuring the quality of care provided to dually enrolled Medicare and Medicaid beneficiaries living in nursing homes. Med Care. 2009;47:536-44.

There is not statistical difference for the specific QI, although there was an overall difference for all QIs in the full study.

**2e. Risk Adjustment for Outcomes/ Resource Use Measures**

**2e.1 Data/sample** *(description of data/sample and size)*:

**2e.2 Analytic Method** *(type of risk adjustment, analysis, & rationale)*:

**2e.3 Testing Results** *(risk model performance metrics)*:

**2e.4 If outcome or resource use measure is not risk adjusted, provide rationale:**

**2e**
C☐
P☐
M☐
N☐
NA☐

**2f. Identification of Meaningful Differences in Performance**

**2f.1 Data/sample from Testing or Current Use** *(description of data/sample and size)*:

**2f.2 Methods to identify statistically significant and practically/meaningfully differences in performance** *(type of analysis & rationale)*:

**2f.3 Provide Measure Scores from Testing or Current Use** *(description of scores, e.g., distribution by quartile, mean, median, SD, etc.; identification of statistically significant and meaningfully differences in performance)*:

**2f**
C☐
P☐
M☐
N☐

**2g. Comparability of Multiple Data Sources/Methods**

**2g.1 Data/sample** *(description of data/sample and size)*:

**2g.2 Analytic Method** *(type of analysis & rationale)*:

**2g.3 Testing Results** *(e.g., correlation statistics, comparison of rankings)*:

**2g**
C☐
P☐
M☐
N☐
NA☐

**2h. Disparities in Care**

**2h.1 If measure is stratified, provide stratified results** *(scores by stratified categories/cohorts)*:

**2h.2 If disparities have been reported/identified, but measure is not specified to detect disparities, provide follow-up plans:**

**2h**
C☐
P☐
M☐
N☐
NA☐

Rating: C=Completely; P=Partially; M=Minimally; N=Not at all; NA=Not applicable



**Comment [KP16]: 2e.** For outcome measures and other measures (e.g., resource use) when indicated:
•an evidence-based risk-adjustment strategy (e.g., risk models, risk stratification) is specified and is based on patient clinical factors that influence the measured outcome (but not disparities in care) and are present at start of care;[Error! Bookmark not defined.] OR rationale/data support no risk adjustment.

**Comment [k17]:** 13 Risk models should not obscure disparities in care for populations by including factors that are associated with differences/inequalities in care such as race, socioeconomic status, gender (e.g., poorer treatment outcomes of African American men with prostate cancer, inequalities in treatment for CVD risk factors between men and women). It is preferable to stratify measures by race and socioeconomic status rather than adjusting out differences.

**Comment [KP18]: 2f.** Data analysis demonstrates that methods for scoring and analysis of the specified measure allow for identification of statistically significant and practically/clinically meaningful differences in performance.

**Comment [k19]:** 14 With large enough sample sizes, small differences that are statistically significant may or may not be practically or clinically meaningful. The substantive question may be, for example, whether a statistically significant difference of one percentage point in the percentage of patients who received smoking cessation counseling (e.g., 74% v. 75%) is clinically meaningful; or whether a statistically significant difference of $25 in cost for an episode of care (e.g., $5,000 v. $5,025) is practically meaningful. Measures with overall poor performance may not demonstrate much variability across providers.

**Comment [KP20]: 2g.** If multiple data sources/methods are allowed, there is demonstration they produce comparable results.

**Comment [KP21]: 2h.** If disparities in care have been identified, measure specifications, scoring, and analysis allow for identification of disparities through stratification of results (e.g., by race, ethnicity, socioeconomic status, gender);OR rationale/data justifies why stratification is not necessary or not feasible.

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| | |
| **TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for** *Scientific Acceptability of Measure Properties?* | **2** |
| **Steering Committee: Overall, to what extent was the criterion,** *Scientific Acceptability of Measure Properties*, **met?**<br>**Rationale:** | *2*<br>**C☐**<br>**P☐**<br>**M☐**<br>**N☐** |
| **3. USABILITY** | |
| Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making. (evaluation criteria) | Eval Rating |
| **3a. Meaningful, Understandable, and Useful Information**<br><br>3a.1 **Current Use:** Not in use but testing completed<br><br>3a.2 **Use in a public reporting initiative (disclosure of performance results to the public at large)** (*If used in a public reporting initiative, provide name of initiative(s), locations, Web page URL(s). If not publicly reported, state the plans to achieve public reporting within 3 years*)**:**<br><br>3a.3 **If used in other programs/initiatives (***If used in quality improvement or other programs/initiatives, name of initiative(s), locations, Web page URL(s). If not used for QI, state the plans to achieve use for QI within 3 years***):**<br>This quality indicator has been used in measurement efforts in the community and the nursing home, (Zingmond 2007, Zingmond 2009) and in several quality improvement initiatives in community-based settings using medical record data, including one program in conjunction with the American College of Physicians (Wenger 2009). But the measure has not been implemented in quality improvement in the nursing home setting.<br><br>Zingmond DS, Wilber KH, Maclean CH, Wenger NS. Measuring the quality of care provided to community dwelling vulnerable elders dually enrolled in Medicare and Medicaid. Med Care. 2007;45:931-8.<br><br>Zingmond DS, Saliba D, Wilber KH, et al. Measuring the quality of care provided to dually enrolled Medicare and Medicaid beneficiaries living in nursing homes. Med Care. 2009;47:536-44.<br><br>Wenger NS, Roth CP, Shekelle PG, et al. A practice-based intervention to improve primary care for falls, urinary incontinence, and dementia. J Am Geriatr Soc. 2009;57:547-55.<br><br>Wenger NS, Roth CP, Hall W, et al. A primary care practice redesign intervention improves quality of care for older patients with urinary incontinence and high risk of falls: A controlled trial. J Gen Intern Med, 2009. 24(Suppl 1):S141-2.<br><br>**Testing of Interpretability** (*Testing that demonstrates the results are understood by the potential users for public reporting and quality improvement*)<br>3a.4 **Data/sample** *(description of data/sample and size)***:**<br><br>3a.5 **Methods** *(e.g., focus group, survey, QI project)***:**<br><br>3a.6 **Results** *(qualitative and/or quantitative results and conclusions)***:** | **3a**<br>**C☐**<br>**P☐**<br>**M☐**<br>**N☐** |
| **3b/3c. Relation to other NQF-endorsed measures**<br><br>3b.1 **NQF # and Title of similar or related measures:** | |

**Comment [KP22]: 3a**. Demonstration that information produced by the measure is meaningful, understandable, and useful to the intended audience(s) for both public reporting (e.g., focus group, cognitive testing) and informing quality improvement (e.g., quality improvement initiatives). An important outcome that may not have an identified improvement strategy still can be useful for informing quality improvement by identifying the need for and stimulating new approaches to improvement.

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|---|---|
| Existing endorsed measures target assessment of falls/fall risk (#0101 Falls: Screening for fall risk; #0537 Multifactor fall risk assessment conducted in patients 65 and older), frequency of falls (#0141 Patient fall rate; #0202 Falls with injury), falls as a medication risk factor (#0624 Atrial fibrillation – warfarin therapy), patient report of a discussion of fall risk with a health care provider (#0035 Fall risk management in older adults: a. discussing fall risk, b. managing fall risk), or proportion of patients with a functional decline (#0195 Residents with a decline in their ability to move about in their room and the adjacent hall). None of these measures (other than the last) is directed to nursing home patients and none (including those in the National Voluntary Consensus Standards for Nursing Home Care) addresses the provision of an intervention as does the proposed indicator. | |
| (for NQF staff use) **Notes on similar/related** endorsed **or submitted measures:** | |
| **3b. Harmonization**<br>If this measure is related to measure(s) already endorsed by NQF (e.g., same topic, but different target population/setting/data source or different topic but same target population):<br>3b.2 **Are the measure specifications harmonized? If not, why?** | **3b**<br>C☐<br>P☐<br>M☐<br>N☐<br>NA☐ |
| **3c. Distinctive or Additive Value**<br>3c.1 **Describe the distinctive, improved, or additive value this measure provides to existing NQF-endorsed measures:**<br><br>5.1 **If this measure is similar to measure(s) already endorsed by NQF (i.e., on the same topic and the same target population), Describe why it is a more valid or efficient way to measure quality:** | **3c**<br>C☐<br>P☐<br>M☐<br>N☐<br>NA☐ |
| **TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for** *Usability?* | **3** |
| **Steering Committee: Overall, to what extent was the criterion,** *Usability*, **met?**<br>**Rationale:** | **3**<br>C☐<br>P☐<br>M☐<br>N☐ |
| **4. FEASIBILITY** | |
| Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement. (evaluation criteria) | Eval Rating |
| **4a. Data Generated as a Byproduct of Care Processes**<br><br>4a.1-2 **How are the data elements that are needed to compute measure scores generated?**<br>Coding/abstraction performed by someone other than person obtaining original information (E.g., DRG, ICD-9 codes on claims, chart abstraction for quality measure or registry) | **4a**<br>C☐<br>P☐<br>M☐<br>N☐ |
| **4b. Electronic Sources**<br><br>4b.1 **Are all the data elements available electronically?** (*elements that are needed to compute measure scores are in defined, computer-readable fields, e.g., electronic health record, electronic claims*)<br>No<br><br>4b.2 **If not, specify the near-term path to achieve electronic capture by most providers.** | **4b**<br>C☐<br>P☐<br>M☐<br>N☐ |
| **4c. Exclusions**<br><br>4c.1 **Do the specified exclusions require additional data sources beyond what is required for the numerator and denominator specifications?**<br>No | **4c**<br>C☐<br>P☐<br>M☐<br>N☐<br>NA☐ |

Rating: C=Completely; P=Partially; M=Minimally; N=Not at all; NA=Not applicable



**Comment [KP23]: 3b.** The measure specifications are harmonized with other measures, and are applicable to multiple levels and settings.

**Comment [k24]:** 16 Measure harmonization refers to the standardization of specifications for similar measures on the same topic (e.g., *influenza immunization* of patients in hospitals or nursing homes), or related measures for the same target population (e.g., eye exam and HbA1c for *patients with diabetes*), or definitions applicable to many measures (e.g., age designation for children) so that they are uniform or compatible, unless differences are dictated by the evidence. The dimensions of harmonization can include numerator, denominator, exclusions, and data source and collection instructions. The extent of harmonization depends on the relationship of the measures, the evidence for the specific measure focus, and differences in data sources.

**Comment [KP25]: 3c.** Review of existing endorsed measures and measure sets demonstrates that the measure provides a distinctive or additive value to existing NQF-endorsed measures (e.g., provides a more complete picture of quality for a particular condition or aspect of healthcare, is a more valid or efficient way to measure).

**Comment [KP26]: 4a.** For clinical measures, required data elements are routinely generated concurrent with and as a byproduct of care processes during care delivery. (e.g., BP recorded in the electronic record, not abstracted from the record later by other personnel; patient self-assessment tools, e.g., depression scale; lab values, meds, etc.)

**Comment [KP27]: 4b.** The required data elements are available in electronic sources. If the required data are not in existing electronic sources, a credible, near-term path to electronic collection by most providers is specified and clinical data elements are specified for transition to the electronic health record.

**Comment [KP28]: 4c. Exclusions** should not require additional data sources beyond what is required for scoring the measure (e.g., numerator and denominator) unless justified as supporting measure validity.

**4c.2 If yes, provide justification.**

**4d. Susceptibility to Inaccuracies, Errors, or Unintended Consequences**

**4d.1 Identify susceptibility to inaccuracies, errors, or unintended consequences of the measure and describe how these potential problems could be audited. If audited, provide results.**

This measure is susceptible to inaccuracies to the extent that all patient-level administrative data is susceptible to data-entry errors and does not capture instances when services are recommended by the clinician but refused.

Regarding the MDS, DAVE 2, the second phase of the Data Assessment and VErification (DAVE) program, came to a close September 30, 2007. The primary focus of DAVE 2 was to assure accuracy and reliability of MDS assessment data.

The DAVE 2 contract, which was awarded to Abt Associates in September 2005, consisted of onsite visits to nursing homes by trained nurse reviewers who examined resident records and conducted independent resident assessments to evaluate the accuracy of MDS assessments. They also provided educational support to nursing home staff.

CMS is continuing to work with Abt Associates on MDS 2.0 initiatives under the MDS Technical Support Contract. It also continues to develop training materials, based on the DAVE 2 findings, in order to improve MDS coding guidelines in the RAI User's Manual and to support nursing home staff in improving MDS data accuracy.

The DAVE projects developed MDS coding Tip Sheets for various sections of the MDS found to have higher discrepancy rates upon onsite accuracy review. There are currently four downloadable TIP Sheets on proper coding for the MDS Sections including Section G on Self Performance, Section P on Physician Visits (P7) and Physician Orders (P8), Section P on Therapies (P1b), and Section K on Parenteral/IV (K5a). The MDS Technical Support project plans to develop additional Tip Sheets in the coming year.

From: http://www.cms.hhs.gov/NursingHomeQualityInits/20_NHQIMDS20.asp

New updated coding for the to-be-released MDS 3.0 will be developed for the proposed indicator by the developer.

For MDS 3.0: Reported pilot results indicate that 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.

Saliba D, Buchanan J. Development & Evaluation of a Revised Nursing Home Assessment Tool: MDS 3.0. RAND report, CMS MDS 3.0 Validation Contract No. 500-00-0027/Task Order #2, April 2008

**4d**
**C☐ P☐ M☐ N☐**

**4e. Data Collection Strategy/Implementation**

**4e.1 Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data/missing data, timing/frequency of data collection, patient confidentiality, time/cost of data collection, other feasibility/ implementation issues:**

**4e.2 Costs to implement the measure** (*costs of data collection, fees associated with proprietary measures*)**:**

**4e**
**C☐ P☐ M☐ N☐**

**Comment [KP29]: 4d.** Susceptibility to inaccuracies, errors, or unintended consequences and the ability to audit the data items to detect such problems are identified.

**Comment [KP30]: 4e.** Demonstration that the data collection strategy (e.g., source, timing, frequency, sampling, patient confidentiality, etc.) can be implemented (e.g., already in operational use, or testing demonstrates that it is ready to put into operational use).

| | |
|---|---|
| **4e.3 Evidence for costs:**<br><br>**4e.4 Business case documentation:** | |
| **TAP/Workgroup: What are the strengths and weaknesses in relation to the subcriteria for *Feasibility*?** | **4** |
| **Steering Committee: Overall, to what extent was the criterion, *Feasibility*, met?**<br>**Rationale:** | **4**<br>**C☐**<br>**P☐**<br>**M☐**<br>**N☐** |
| **RECOMMENDATION** | |
| (for NQF staff use) **Check if measure is untested and only eligible for time-limited endorsement.** | **Time-limited ☐** |
| **Steering Committee: Do you recommend for endorsement?**<br>**Comments:** | **Y☐**<br>**N☐**<br>**A☐** |

**CONTACT INFORMATION**

**Co.1 Measure Steward (Intellectual Property Owner)**
**Co.1 Organization**
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**Co.2 Point of Contact**
Carol, Roth, RN, MPH, roth@rand.org, 310-393-0411-6425

**Measure Developer If different from Measure Steward**
**Co.3 Organization**
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**Co.4 Point of Contact**
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**Co.5 Submitter If different from Measure Steward POC**
Carol, Roth, RN, MPH, roth@rand.org, 310-393-0411-6425, RAND Corporation

**Co.6 Additional organizations that sponsored/participated in measure development**

**ADDITIONAL INFORMATION**

**Workgroup/Expert Panel involved in measure development**
**Ad.1 Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.**
ACOVE-3 EXPERT PANEL MEMBERS:

Joseph S. Alpert, MD - Cardiology
University of Arizona Health Sciences Center, Tucson, AZ

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Hyman B. Muss, MD - Oncology
Vermont Cancer Center at University of Vermont, Burlington, VT

James L. Naughton, MD - Internal Medicine
Alliance Medical Group, Pinole, CA

Cheryl Phillips, MD - Geriatric Medicine
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Michael W. Rich, MD - Cardiology
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University of Pittsburgh School of Medicine, Pittsburgh, PA

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John Wayne Cancer Institute, Saint John's Health Center, Santa Monica, CA
Valley Radiotherapy Associates Medical Group, El Segundo, CA

Joe Verghese, MD - Neurology
Albert Einstein College of Medicine, Bronx, NY

Belinda A. Vicioso, MD - General Internal Medicine
University of Texas Southwestern Medical Ctr., Dallas, TX

Kristine Yaffe, MD - Neurology
University of California, San Francisco, San Francisco, CA

Role of Expert Panel: Expanded and updated the Assessing Care of Vulnerable Elders (ACOVE) quality indicators via literature review, face-to-face discussion, and 2 rounds of anonymous ratings to evaluate whether the QIs were valid measures of quality of care using a process that is an explicit combination of scientific evidence and professional consensus.

ACOVE-3 CLINICAL COMMITTEE MEMBERS:

Alpesh N. Amin, MD - Hospitalist
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Mark A. Grunwald, MD - Family Practitioner
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Ira R. Katz, MD, PhD - Psychiatrist
University of Pennsylvania, Philadelphia, PA

Paul R. Katz, MD - Geriatrician
Monroe Community Hospital, Rochester, NY

Dalane W. Kitzman, MD - Geriatric Cardiologist
Wake Forest University School of Medicine, Winston-Salem, NC

Rosanne M. Leipzig, MD, PhD - Geriatrician
Mount Sinai School of Medicine, New York, NY

Ronnie A. Rosenthal, MD - Surgeon
Yale University School of Medicine, New Haven, CT

Role of Clinical Committee: Evaluated the coherence of the complete set of QIs that the experts rated as valid as well as determined exclusions for advanced dementia and poor prognosis.

| |
|---|
| Wenger NS, Roth CP, Shekelle P, and the ACOVE Investigators. Introduction to the Assessing Care of Vulnerable Elders-3 quality indicator measurement set. J Am Geriatr Soc 2007;55(S2):S247-S487 |
| **Ad.2 If adapted, provide name of original measure:**<br>**Ad.3-5 If adapted, provide original specifications URL or attachment** |
| **Measure Developer/Steward Updates and Ongoing Maintenance**<br>**Ad.6 Year the measure was first released:** 2001<br>**Ad.7 Month and Year of most recent revision:** 10, 2007<br>**Ad.8 What is your frequency for review/update of this measure?** Every 3-5 years<br>**Ad.9 When is the next scheduled review/update for this measure?** |
| **Ad.10 Copyright statement/disclaimers:** |
| **Ad.11 -13 Additional Information web page URL or attachment:** |
| **Date of Submission** (*MM/DD/YY*)**:** 07/09/2010 |

**Page 4: [1] Comment [k4]** **Karen Pace** **10/5/2009 8:59:00 AM**

**1c.** The measure focus is:

- an outcome (e.g., morbidity, mortality, function, health-related quality of life) that is relevant to, or associated with, a national health goal/priority, the condition, population, and/or care being addressed;

OR

- if an intermediate outcome, process, structure, etc., there is **evidence** that supports the specific measure focus as follows:
  - Intermediate outcome – evidence that the measured intermediate outcome (e.g., blood pressure, Hba1c) leads to improved health/avoidance of harm or cost/benefit.
  - Process – evidence that the measured clinical or administrative process leads to improved health/avoidance of harm and
    if the measure focus is on one step in a multi-step care process, it measures the step that has the greatest effect on improving the specified desired outcome(s).
  - Structure – evidence that the measured structure supports the consistent delivery of effective processes or access that lead to improved health/avoidance of harm or cost/benefit.
  - Patient experience – evidence that an association exists between the measure of patient experience of health care and the outcomes, values and preferences of individuals/ the public.
  - Access – evidence that an association exists between access to a health service and the outcomes of, or experience with, care.
  - Efficiency – demonstration of an association between the measured resource use and level of performance with respect to one or more of the other five IOM aims of quality.

**Code to Compute Falls Nursing Home Quality Indicator**

```
/**
SHORT MACRO FOR COMPARING REPORTED ICD9 AND CPT CODES TO OUR LIST OF CODES IN
THE SAS FORMAT STATEMENT.
**/

%MACRO ID_PROC_08_03(CODE, VARNAME);
      IF PUT (&CODE, &VARNAME..) EQ 'Y' THEN DO;
            &VARNAME          = 'Y';
            OUTREC ='Y';
      END;
%MEND;

/** FORMAT FOR PHYSICAL THERAPY CPT CODES **/
/** PHYSICAL THERAPY **/
PROC FORMAT;
VALUE $PT_PT
      '97001',    '97002',
      '97003',    '97004',
      '97005',    '97006',
      '97010',    '97012',
      '97014',    '97016',
      '97018',    '97020',
      '97022',    '97024',
      '97026',    '97028',
      '97032',    '97033',
      '97034',    '97035',
      '97036',    '97039',
      '97110',    '97112',
      '97113',    '97116',
      '97122',    '97124',
      '97139',    '97140',
      '97150',    '97250',
      '97260',    '97261',
      '97265',    '97500',
      '97504',    '97520',
      '97521',    '97530',
      '97532',    '97533',
      '97535',    '97537',
      '97540',    '97541',
      '97542',    '97545',
      '97546'
          = 'Y';
RUN;

/***
IF A PATIENT HAS A CHANGE IN GAIT, THEN THEY SHOULD RECEIVE PHYSICAL THERAPY
OR AN ASSISTIVE DEVICE.

***/
%MACRO FALLS_NQF_02_11_10(ENCOUNTERS, ALL_ENCOUNT, UTIL_ARC,
                              MEDLIST, MEDCOUNT, DEMO,
                     MDS_DIAGS, PREV_DIAGS, MDS_RX,
                     outdsn);

TITLE1 "ACOVE - CLAIMS QI - SNF FALLS";
```

```
/** IDENTIFY WORSENING GAIT FROM THE MDS **/
/** CAPTURE ALL GAIT ASSESSMENTS **/
DATA MDS_GAIT_MEASURE;
  SET &MDS_RX (WHERE =  ((G3A_BALANCE_STAND     GE '0'                   AND
                                  G3A_BALANCE_STAND      LE '3')
      OR
                             (G3B_BALANCE_SIT  GE '0'                   AND
                                  G3B_BALANCE_SIT  LE '3')));

  KEEP MCDID MDS_EVAL_DATE G3A_BALANCE_STAND G3B_BALANCE_SIT;
RUN;

/** SORT GAIT ASSESSMENTS BY PERSON AND DATE **/
PROC SORT DATA=MDS_GAIT_MEASURE;
  BY MCDID MDS_EVAL_DATE;
RUN;

/** KEEP ONE ASSESSMENT PER DATE **/
DATA MDS_GAIT_MEASURE_BASE;
  SET MDS_GAIT_MEASURE;
  BY MCDID MDS_EVAL_DATE;
  IF FIRST.MDS_EVAL_DATE;
RUN;

/** NUMBER THE ASSESSMENTS **/
DATA MDS_GAIT_MEASURE_BASE;
  SET MDS_GAIT_MEASURE_BASE;
  BY MCDID;
  RETAIN SNF_RECORD;

  IF FIRST.MCDID
  THEN SNF_RECORD = 0;

  SNF_RECORD = SNF_RECORD + 1;
RUN;

/** SORT ASSESSMENTS BY ASSESSMENT NUMBER **/
PROC SORT DATA=MDS_GAIT_MEASURE_BASE;
  BY MCDID SNF_RECORD;
RUN;

DATA MDS_GAIT_MEASURE_PRIOR;
  SET MDS_GAIT_MEASURE_BASE;

  SNF_RECORD = SNF_RECORD + 1;

  RENAME G3A_BALANCE_STAND    = PRIOR_STAND_EVAL;
  RENAME G3B_BALANCE_SIT      = PRIOR_SIT_EVAL;
  RENAME MDS_EVAL_DATE        = PRIOR_EVAL_DATE;
RUN;

PROC SORT DATA=MDS_GAIT_MEASURE_PRIOR;
  BY MCDID SNF_RECORD;
RUN;

/** COMBINE EACH ASSESSMENT WITH THE ASSESSMENT THAT PRECEEDED IT. **/
/** CHECK AND SEE WHETHER THERE WAS A CHANGE BETWEEN THE CURRENT AND PRECEEDING
ASSESSMENT. **/
```

```
/** OUTPUT ALL ASSESSMENTS FOR WHICH THE GAIT WORSENED. **/
DATA MDS_GAIT_MEASURE_CHANGE;
  MERGE
    MDS_GAIT_MEASURE_BASE     (IN=IN1)
      MDS_GAIT_MEASURE_PRIOR  (IN=IN2);
    BY MCDID SNF_RECORD;
      IF IN1 AND IN2;

      TIME_TO_CHANGE = MDS_EVAL_DATE - PRIOR_EVAL_DATE;

      IF (G3A_BALANCE_STAND   GE '0'      AND
        G3A_BALANCE_STAND     LE '3'      AND
            PRIOR_STAND_EVAL  GE '0'      AND
            PRIOR_STAND_EVAL  LE '3')
      THEN DO;
        IF (G3A_BALANCE_STAND - PRIOR_STAND_EVAL)     GE 1
        THEN BALANCE_CHANGE = 'Y';
      END;

    ELSE
      IF (G3B_BALANCE_SIT     GE '0'      AND
        G3B_BALANCE_SIT LE '3'      AND
            PRIOR_SIT_EVAL    GE '0'      AND
            PRIOR_SIT_EVAL    LE '3')
      THEN DO;
        IF G3B_BALANCE_SIT    - PRIOR_SIT_EVAL  GE 1
        THEN BALANCE_CHANGE = 'Y';
      END;

      IF BALANCE_CHANGE EQ 'Y'
      THEN OUTPUT;
RUN;

/** KEEP THE FIRST WORSENING GAIT ASSESSMENT CHANGE PER PATIENT. **/
/** THIS REPRESENTS THE INDEX ASSESSMENT FOR WHICH AN INTERVENTION SHOULD HAVE
OCCURRED. **/
DATA MDS_GAIT_MEASURE_CHANGE (RENAME = (MDS_EVAL_DATE = GAIT_CHANGE_DATE));
  SET MDS_GAIT_MEASURE_CHANGE (WHERE = (&BEGDT LE MDS_EVAL_DATE LE &ENDDT));
  BY MCDID;
  IF FIRST.MCDID;

  KEEP MCDID MDS_EVAL_DATE BALANCE_CHANGE;
RUN;

/** IDENTIFY INTERVENTIONS FROM THE MDS **/
/** NEW CANE/WALKER/CRUTCH **/
DATA MDS_GAIT_ASSISTANCE;
  SET &MDS_RX
      (WHERE =  ((P3F_NR_WALKING    GE '1'                  AND
                          P3F_NR_WALKING  LE '7')                OR
                         (G5A_CANE_CRUTCH IN ('1', '0'))));

  KEEP MCDID MDS_EVAL_DATE P3F_NR_WALKING G5A_CANE_CRUTCH;
RUN;

DATA MDS_CANE;
  SET MDS_GAIT_ASSISTANCE (KEEP = MCDID MDS_EVAL_DATE G5A_CANE_CRUTCH);
RUN;
```

```
/** COMBINE RECEIPT OF AN ASSISTIVE DEVISE (REPORTED IN THE MDS) **/
/** WITH THE WORSENING GAIT ASSESSMENT.  A WIDE WINDOW WAS CHOSEN FOR MATCHING
PURPOSES. **/
PROC SQL;
  CREATE TABLE MDS_NEW_CANE  as
  SELECT A.*, B.*
  FROM MDS_CANE                          as A
       JOIN
       MDS_GAIT_MEASURE_CHANGE      as B
     on A.MCDID               EQ B.MCDID
       WHERE B.GAIT_CHANGE_DATE - 120 LE A.MDS_EVAL_DATE LE B.GAIT_CHANGE_DATE +
120
  ORDER BY MCDID, MDS_EVAL_DATE;
QUIT;

/** IDENTIFY WHICH MEASURES REPORT VALID DATA AND DISCRIMINATE BETWEEN RECEIPT
OF **/
/** A CANE BEFORE, DURING, OR AFTER THE CHANGE IN GAIT.**/
DATA MDS_CANE_PRIOR;
  SET MDS_NEW_CANE (WHERE = (GAIT_CHANGE_DATE - 120 LE MDS_EVAL_DATE <
GAIT_CHANGE_DATE));
  BY MCDID;
  IF LAST.MCDID;

  IF G5A_CANE_CRUTCH IN ('1', '0')
  THEN DO;
    PRIOR_CANE = G5A_CANE_CRUTCH + 0;
    OUTPUT;
  END;

  KEEP MCDID MDS_EVAL_DATE GAIT_CHANGE_DATE PRIOR_CANE;
RUN;

DATA MDS_CANE_CURRENT;
  SET MDS_NEW_CANE (WHERE = (GAIT_CHANGE_DATE EQ MDS_EVAL_DATE));
  BY MCDID;
  RETAIN CURRENT_CANE;
  IF FIRST.MCDID
  THEN CURRENT_CANE = 0;

  IF G5A_CANE_CRUTCH EQ '1'
  THEN CURRENT_CANE = 1;

  IF LAST.MCDID
  THEN OUTPUT;

  KEEP MCDID CURRENT_CANE;
RUN;

DATA MDS_CANE_AFTER;
  SET MDS_NEW_CANE (WHERE = (GAIT_CHANGE_DATE < MDS_EVAL_DATE LE
GAIT_CHANGE_DATE + 120));
  BY MCDID;
  RETAIN NEW_CANE;

  IF FIRST.MCDID
  THEN NEW_CANE = 0;
```

```
  IF G5A_CANE_CRUTCH EQ '1'
  THEN NEW_CANE = 1;

  IF LAST.MCDID
  THEN OUTPUT;

  KEEP MCDID MDS_EVAL_DATE GAIT_CHANGE_DATE NEW_CANE;
RUN;

/** COMBINE THE MDS-IDENTIFIED INTERVENTIONS. **/
DATA MDS_NEW_DEVICE;
  MERGE
    MDS_CANE_PRIOR           (IN=IN1     KEEP = MCDID PRIOR_CANE)
      MDS_CANE_CURRENT  (IN=IN2     KEEP = MCDID CURRENT_CANE)
      MDS_CANE_AFTER          (IN=IN3 KEEP = MCDID NEW_CANE);
  BY MCDID;

  IF PRIOR_CANE   EQ 0  AND
     CURRENT_CANE EQ 1
  THEN NEW_DEVICE = 'Y';

  ELSE
  IF PRIOR_CANE   EQ 0  AND
     NEW_CANE           EQ 1
  THEN NEW_DEVICE = 'Y';

  ELSE
  IF CURRENT_CANE       EQ 0  AND
     NEW_CANE           EQ 1
  THEN NEW_DEVICE = 'Y';


  IF CURRENT_CANE EQ 1  OR
     NEW_CANE           EQ 1
  THEN ANY_DEVICE = 'Y';

  LABEL
    PRIOR_CANE    = 'Cane, etc. in 4 mths before gait change'
    CURRENT_CANE= 'Cane, etc. at gait change'
    NEW_CANE      = 'Cane, etc. in 4 mths after gait change'
      NEW_DEVICE  = 'New cane, etc. at time of gait change or after'
      ANY_DEVICE  = 'Any cane, etc. at time of gait change or after'
      ;

RUN;

/** USE THE FFS CLAIMS TO IDENTIFY ALL NEW DME CLAIMS FOR ASSISTIVE DEVICES **/
/** AT THE TIME OF NEW GAIT CHANGE **/

DATA ASSISTIVE_DEVICE;
  SET &UTIL_ARC (KEEP   =     MCDID PROCCODE FROMDATE
                 WHERE  =     ('E0100'    LE SUBSTR(LEFT(PROCCODE), 1, 5)     LE
      'E0105'     OR
                                          'E0110'    LE SUBSTR(LEFT(PROCCODE),
1, 5) LE    'E0118'     OR
                                          'E0130'    LE SUBSTR(LEFT(PROCCODE),
1, 5) LE    'E0149'));
```

```
  FORMAT DME $5.;
  DME = SUBSTR(LEFT(PROCCODE), 1, 5);

  IF 'E0100'      LE DME      LE    'E0105'
  THEN DEVICE = 1;
  ELSE
  IF 'E0110'      LE DME      LE    'E0118'
  THEN DEVICE = 2;
  ELSE
  IF 'E0130'      LE DME      LE    'E0149'
  THEN DEVICE = 3;

  RENAME FROMDATE = CLAIM_DATE;
RUN;

DATA NEW_DEVICE_CLAIM;
  MERGE
    ASSISTIVE_DEVICE          (IN=IN1)
      MDS_GAIT_MEASURE_CHANGE (IN=IN2);
  IF IN1 AND IN2;

  IF GAIT_CHANGE_DATE -14 LE CLAIM_DATE LE GAIT_CHANGE_DATE + 120
  THEN DO;
    NEW_DEVICE_CLAIM = 'Y';
      OUTPUT;
  END;
RUN;

/** IDENTIFY PHYSICAL THERAPY AROUND THE TIME OF GAIT WORSENING. **/
/** ALL OCCURRENCES WHERE ANY PT IS RECEIVED - MDS. **/
DATA MDS_GAIT_TRAINING;
  SET MDS_GAIT_ASSISTANCE
      (WHERE =  ((P3F_NR_WALKING    GE '1'                  AND
                          P3F_NR_WALKING  LE '7')));

  KEEP MCDID MDS_EVAL_DATE P3F_NR_WALKING;
RUN;

DATA MDS_GAIT_CHANGE_AND_HELP;
  MERGE
    MDS_GAIT_MEASURE_CHANGE   (IN=IN1)
    MDS_GAIT_TRAINING         (IN=IN2 RENAME = (MDS_EVAL_DATE = MDS_PT_DATE));
  BY MCDID;
  IF IN1;

  IF GAIT_CHANGE_DATE LE MDS_PT_DATE LE GAIT_CHANGE_DATE + 120
  THEN MDS_PT = 'Y';

  IF MDS_PT EQ 'Y'
  THEN OUTPUT;

  LABEL
    MDS_PT  = 'MDS Gait training for worsening gait'
      ;

  KEEP MCDID MDS_PT MDS_PT_DATE;

RUN;
```

```
DATA MDS_GAIT_CHANGE_AND_HELP;
  SET MDS_GAIT_CHANGE_AND_HELP;
  BY MCDID;
  IF FIRST.MCDID;
  KEEP MCDID MDS_PT;
RUN;


/** CLAIMS FOR PHYSICAL THERAPY **/
/** IDENTIFY PT CLAIMS FROM THE FEE-FOR-SERVICE CLAIMS **/
DATA FALLSDATA2 (DROP = OUTREC );
  SET &UTIL_ARC (KEEP = MCDID FROMDATE PROCCODE);
  FORMAT FROMDATE MMDDYY10.;

  CODE = SUBSTR(LEFT(PROCCODE), 1, 5);
  IF SUBSTR(CODE, 1, 1) NE 'Y'
  THEN DO;
      %ID_PROC_08_03(CODE, PT_PT);
  END;

  IF OUTREC EQ 'Y'
  THEN OUTPUT;

  LABEL
    PT_PT         = 'Pt received Physical Therapy'
      ;

  DROP PROCCODE;
RUN;

PROC SORT DATA=FALLSDATA2;
  BY MCDID FROMDATE;
RUN;

/** RETAIN CLAIMS THAT OCCUR AROUND THE TIME OF THE GAIT CHANGE **/
DATA FALLSDATA2_REV;
  MERGE
    FALLSDATA2                      (IN=IN1)
      MDS_GAIT_MEASURE_CHANGE (IN=IN2);
  BY MCDID;

  IF GAIT_CHANGE_DATE - 14 LE FROMDATE LE GAIT_CHANGE_DATE + 120
  THEN DO;
    GAIT_PT_CLAIM = 'Y';
    OUTPUT;
  END;

  KEEP MCDID GAIT_PT_CLAIM FROMDATE GAIT_CHANGE_DATE;
RUN;

/** KEEP ONE RECORD PER PATIENT **/
DATA FALLSDATA2_REV;
  SET FALLSDATA2_REV;
  BY MCDID;
  IF FIRST.MCDID;

  KEEP MCDID GAIT_PT_CLAIM;
```

```
RUN;

/** COMBINE THE MDS-BASED AND CLAIMS-BASED MEASURES. **/
/** &DEMO IS THE PATIENT DEMOGRAPHICS FILE DERIVED FROM THE ELIGIBLITY FILES.
**/
DATA &OUTDSN;
  MERGE
    &DEMO                              (IN=IN1)
      MDS_GAIT_MEASURE_CHANGE       (IN=IN2)
      MDS_GAIT_CHANGE_AND_HELP      (IN=IN3)
      MDS_NEW_DEVICE                     (IN=IN4)
      FALLSDATA2_REV                     (IN=IN5)
      NEW_DEVICE_CLAIM              (IN=IN6)
    ;
  BY MCDID;
  IF IN1;

  ********************************************************;
** NHQI #6 - IF PATIENT HAS DECREASED BALANCE, THEN GET PT OR ASSISTIVE DEVICE
**;
  ********************************************************;

  IF BALANCE_CHANGE     EQ 'Y'
  THEN DO;
    NHSV6_6A      = 1;

      IF GAIT_PT_CLAIM  EQ' Y'
      THEN NHSV6_6B1    = 1;
      ELSE NHSV6_6B1    = 0;

      IF MDS_PT               EQ 'Y'
      THEN NHSV6_6B2    = 1;
      ELSE NHSV6_6B2    = 0;

      IF NEW_DEVICE           EQ 'Y'
      THEN NHSV6_6B3    = 1;
      ELSE NHSV6_6B3    = 0;

      IF NEW_DEVICE_CLAIM     EQ 'Y'
      THEN NHSV6_6B4    = 1;
      ELSE NHSV6_6B4    = 0;

      IF    NHSV6_6B1   EQ 1  OR
            NHSV6_6B2   EQ 1  OR
            NHSV6_6B3   EQ 1  OR
            NHSV6_6B4   EQ 1
      THEN NHSV6_6B     = 1;
      ELSE NHSV6_6B     = 0;

  END;

  LABEL
    NHSV6_6A      = 'IF VE has difficulty with maintaining balance (standing)'
      NHSV6_6B    = 'THEN should receive PT (claims + mds) OR assistive device'
      NHSV6_6B1   = 'THEN should receive physical therapy (claims)'
      NHSV6_6B2   = 'THEN should receive physical therapy (mds)'
      NHSV6_6B3   = 'THEN should receive assistive device (mds)'
      NHSV6_6B4   = 'THEN should receive assistive device (claims)'
```

```
      ;

RUN;


PROC FREQ DATA = &outdsn;
  TABLE  NHSV6_6A NHSV6_6B  NHSV6_6B1  NHSV6_6B2      NHSV6_6B3   NHSV6_6B4 /
LIST MISSING;
RUN;
TITLE1;


PROC DATASETS NOLIST;
DELETE FALLSDATA2 FALLSDATA2_REV
       MDS_GAIT_MEASURE MDS_GAIT_MEASURE_BASE MDS_GAIT_MEASURE_PRIOR
MDS_GAIT_MEASURE_CHANGE
         MDS_GAIT_ASSISTANCE MDS_NEW_CANE MDS_CANE_PRIOR MDS_CANE_CURRENT
MDS_CANE_AFTER
         MDS_NEW_DEVICE ASSISTIVE_DEVICE NEW_DEVICE_CLAIM MDS_GAIT_TRAINING
         MDS_GAIT_CHANGE_AND_HELP ;
RUN;
QUIT;

%MEND;
```

```
/**
IDENTIFY EXCLUSIONS - ADVANCED DEMENTIA AND POOR PROGNOSIS
**/

/** MEASURES BASED UPON MDS **/
/** CREATE THE MDS ADVANCED DEMENTIA SCALE **/
/** IF SCALE >= 5, THEN THE PATIENT HAS FEATURES OF ADVANCED DEMENTIA **/
DATA MDS_DEMENTIA_ITEMS;
  SET MDS_DUALS (KEEP = MCDID EFFECTIVE_DATE B2A_ST_MEMORY B2B_LT_MEMORY
B3B_LOC_OWN_ROOM
                        B3D_IN_HOME B3E_NONE_ABOVE B4_DAY_DCSN_MAKING
C4_IS_UNDERSTOOD
                                    G1GA_SELF_DRESS P1AN_ALZHEIMER P1AO_HOSPICE
P1AQ_RESPITE );
RUN;

DATA MDS_DEMENTIA_SCALE;
  SET MDS_DUALS (KEEP = MCDID EFFECTIVE_DATE B2A_ST_MEMORY B2B_LT_MEMORY
B3B_LOC_OWN_ROOM
                        B3D_IN_HOME B3E_NONE_ABOVE B4_DAY_DCSN_MAKING
C4_IS_UNDERSTOOD
                                    G1GA_SELF_DRESS
                         WHERE = ((B2A_ST_MEMORY EQ '1' OR B2A_ST_MEMORY EQ '0')
AND
                           (B3B_LOC_OWN_ROOM EQ '1' OR B3B_LOC_OWN_ROOM EQ
'0')));
  ARRAY MDS_ITEMS(8)    $ B2A_ST_MEMORY B2B_LT_MEMORY B3B_LOC_OWN_ROOM
                          B3D_IN_HOME B3E_NONE_ABOVE B4_DAY_DCSN_MAKING
C4_IS_UNDERSTOOD
                                    G1GA_SELF_DRESS;
  ARRAY MDS_COG_ITEMS(8)  MDS_COG_ITEM1-MDS_COG_ITEM8;

  FORMAT MDS_EVAL_DATE MMDDYY10.;

  MDS_EVAL_DATE = MDY(SUBSTR(EFFECTIVE_DATE, 5, 2),
                    SUBSTR(EFFECTIVE_DATE, 7, 2),
                              SUBSTR(EFFECTIVE_DATE, 1, 4));

  MDS_COGS = 0;
  DO i = 1 TO 8;
    IF i IN (1, 2, 5, 6)      AND
       MDS_ITEMS{i} NOT IN ('-', '*')
      THEN MDS_COG_ITEMS{i} = MDS_ITEMS{i} + 0;
      ELSE
      IF i IN (3, 4)                AND
       MDS_ITEMS{i} NOT IN ('-', '*')
      THEN MDS_COG_ITEMS{i} = 1 - MDS_ITEMS{i};
      ELSE
      IF i EQ 7                     AND
       MDS_ITEMS{i} NE '-'    AND
       MDS_ITEMS{i} NOT IN ('-', '*')
      THEN DO;
        IF MDS_ITEMS{i} EQ '3'
        THEN MDS_COG_ITEMS{i} = 1;
        ELSE MDS_COG_ITEMS{i} = 0;
      END;
      ELSE
      IF i EQ 8
```

```
      THEN DO;
        IF MDS_ITEMS{i} EQ '4'
        THEN MDS_COG_ITEMS{i} = 1;
        ELSE MDS_COG_ITEMS{i} = 0;
      END;
      MDS_COGS = MDS_COGS + MDS_COG_ITEMS{i};
  END;

  IF MDS_COGS GE 5
  THEN SEVERE_DEMENTIA = 1;
  ELSE SEVERE_DEMENTIA = 0;

  LABEL
    MDS_COG_ITEM1 = 'Short term memory'
    MDS_COG_ITEM2 = 'Long term memory'
    MDS_COG_ITEM3 = 'Location of own room'
    MDS_COG_ITEM4 = 'Knows is in NH'
    MDS_COG_ITEM5 = 'No orientation items recalled'
    MDS_COG_ITEM6 = 'Decision making'
    MDS_COG_ITEM7 = 'Making self understood'
    MDS_COG_ITEM8 = 'Dressing self performance'
      MDS_COGS          = 'MDS Cognition Scale'
      SEVERE_DEMENTIA   = 'Severe Dementia (MDS-COGS >= 5)'
      ;

  DROP EFFECTIVE_DATE i;
RUN;

/** IDENTIFY THE HIGHEST AND LOWEST MEASURES ON THE DEMENTIA SCALE **/
PROC SORT DATA=MDS_DEMENTIA_SCALE;
  BY MCDID MDS_EVAL_DATE;
RUN;

DATA MDS_COGS_RANGE;
  SET MDS_DEMENTIA_SCALE;
  BY MCDID;
  RETAIN MDS_COGS_MAX         MDS_COGS_MIN;
  RETAIN MDS_COGS_MAX_DATE    MDS_COGS_MIN_DATE;
  FORMAT MDS_COGS_MAX_DATE    MDS_COGS_MIN_DATE MMDDYY10.;

  IF FIRST.MCDID
  THEN DO;
    MDS_COGS_MAX        = MDS_COGS;
      MDS_COGS_MIN            = MDS_COGS;
      MDS_COGS_MAX_DATE = MDS_EVAL_DATE;
      MDS_COGS_MIN_DATE = MDS_EVAL_DATE;

  END;
  IF MDS_COGS     LE MDS_COGS_MIN
  THEN DO;
    MDS_COGS_MIN        = MDS_COGS;
    MDS_COGS_MIN_DATE   = MDS_EVAL_DATE;
  END;
  IF MDS_COGS     GE MDS_COGS_MAX
  THEN DO;
    MDS_COGS_MAX = MDS_COGS;
    MDS_COGS_MAX_DATE   = MDS_EVAL_DATE;
  END;
```

```
  IF LAST.MCDID
  THEN DO;
    IF MDS_COGS_MAX     GE 5  AND
         MDS_COGS_MIN   GE 5
      THEN ADV_DEMENTIA = 1;
      ELSE
    IF MDS_COGS_MAX     GE 5  AND
         MDS_COGS_MIN   < 5
      THEN ADV_DEMENTIA = 2;
      ELSE
    IF MDS_COGS_MAX     < 5   AND
         MDS_COGS_MIN   GE 5
      THEN ADV_DEMENTIA = 3;
      ELSE
    IF MDS_COGS_MAX     < 5   AND
         MDS_COGS_MIN   < 5
      THEN ADV_DEMENTIA = 4;
    OUTPUT;
  END;

  KEEP MCDID MDS_COGS_MIN MDS_COGS_MAX MDS_COGS_MAX_DATE MDS_COGS_MIN_DATE
ADV_DEMENTIA;
RUN;

/** IDENTIFY ADVANCED DISEASE / POOR PROGNOSIS USING MDS - HOSPICE, OR ESRD **/
DATA MDS_POOR_PROGNOSIS;
  SET MDS_DUALS (KEEP = MCDID EFFECTIVE_DATE P1AO_HOSPICE J5C_END_STG_DISEAS
                        WHERE = (P1AO_HOSPICE EQ '1' OR
                                    J5C_END_STG_DISEAS   EQ '1'));
  FORMAT MDS_PROGNOSIS_DATE MMDDYY10.;

  MDS_PROGNOSIS_DATE = MDY(SUBSTR(EFFECTIVE_DATE, 5, 2),
                   SUBSTR(EFFECTIVE_DATE, 7, 2),
                             SUBSTR(EFFECTIVE_DATE, 1, 4));

  LABEL
      MDS_PROGNOSIS_DATE      = 'Date for poor prognosis'
      ;

    RENAME P1AO_HOSPICE       = HOSPICE;
  RENAME J5C_END_STG_DISEAS   = END_STAGE_DZ;

  DROP EFFECTIVE_DATE;
RUN;

/** IDENTIFY THE FIRST AND LAST DATES FOR THE POOR PROGNOSIS MEASURES **/
DATA MDS_POOR_PROGNOSIS_REV (COMPRESS=YES);
  SET MDS_POOR_PROGNOSIS;
  BY MCDID;
  RETAIN DATE_1ST_HOSPICE DATE_LAST_HOSPICE
         DATE_1ST_ESD DATE_LAST_ESD;
  FORMAT DATE_1ST_HOSPICE DATE_LAST_HOSPICE
         DATE_1ST_ESD DATE_LAST_ESD MMDDYY10.;
  ARRAY PP_DATES(4) DATE_1ST_HOSPICE DATE_LAST_HOSPICE
         DATE_1ST_ESD DATE_LAST_ESD;
  IF FIRST.MCDID
  THEN DO i = 1 TO 6;
    PP_DATES{i} = .;
```

```
  END;

  IF HOSPICE            EQ '1'
  THEN DO;
    IF DATE_1ST_HOSPICE EQ .
    THEN DATE_1ST_HOSPICE     = MDS_PROGNOSIS_DATE;
    DATE_LAST_HOSPICE         = MDS_PROGNOSIS_DATE;
  END;

  IF END_STAGE_DZ       EQ '1'
  THEN DO;
    IF DATE_1ST_ESD     EQ .
    THEN DATE_1ST_ESD   = MDS_PROGNOSIS_DATE;
    DATE_LAST_ESD       = MDS_PROGNOSIS_DATE;
  END;

  IF LAST.MCDID
  THEN OUTPUT;

  LABEL
    DATE_1ST_HOSPICE    = 'Hospice - 1st date'
    DATE_LAST_HOSPICE   = 'Hospice - last date'
    DATE_1ST_ESD        = 'ESD - 1st date'
    DATE_LAST_ESD       = 'ESD - last date'
    ;
  KEEP MCDID DATE_1ST_HOSPICE DATE_LAST_HOSPICE
       DATE_1ST_ESD DATE_LAST_ESD;
RUN;

/** COMBINE TO CREAT THE MDS-BASED MEASURES **/
DATA WORKF.MDS_SNF_EXCLUSIONS (COMPRESS=YES);
  MERGE
    MDS_COGS_RANGE                  (IN=IN1)
      MDS_POOR_PROGNOSIS_REV  (IN=IN2);
  BY MCDID;
  ARRAY PP_DATES(4) DATE_1ST_HOSPICE DATE_LAST_HOSPICE
         DATE_1ST_ESD DATE_LAST_ESD;

RUN;

/** IDENTIFY HOSPICE USE FROM MEDICARE AND MEDICAID DATA **/
/** MONTHLY CLAIMS FOR HOSPICE USE WERE SUMMARIZED BY AN OUTSIDE VENDOR FOR THE
CCLTCI **/
DATA WORKF.HOSPICE_UTILIZATION;
  SET ARCHIVE2.Ca199800perdatbetaenc
      (KEEP = MCDID ihsday1-ihsday36 mcdhosu1-mcdhosu36 mcrhs1-mcrhs36
                    mcdhos1-mcdhos36 mcdhosx1-mcdhosx36);
RUN;

/** RETAIN ONLY INDIVIDUALS 65+ YEARS OLD **/
DATA WORKF.HOSPICE_UTILIZATION2;
  MERGE
    WORKF.HOSPICE_UTILIZATION (IN=IN1)
    ARCHIVE2.Demogr_98_00_dual      (IN=IN2 KEEP = MCDID AGE65_1999 WHERE =
(AGE65_1999 EQ 1));
  BY MCDID;
  IF IN1 AND IN2;
  ARRAY HOSPICE_USE(24)       HOSPICE_USE1-HOSPICE_USE24;
```

```
  ARRAY MCD_PAYMENT(24)       mcdhos13    - mcdhos36;
  ARRAY MCD_XPAYMENT(24)      mcdhosx13   - mcdhosx36;
  ARRAY MCR_PAYMENT(24)       mcrhs13           - mcrhs36;

  DO i = 1 TO 24;
    IF MCD_PAYMENT{i}   > 0   OR
         MCD_XPAYMENT{i}      > 0   OR
         MCR_PAYMENT{i} > 0
      THEN HOSPICE_USE{i}     = 1;
      ELSE HOSPICE_USE{i}     = 0;
  END;

  LABEL
    HOSPICE_USE1  = 'Hospice use (1/1999)'
      HOSPICE_USE2      = 'Hospice use (2/1999)'
      HOSPICE_USE3      = 'Hospice use (3/1999)'
      HOSPICE_USE4      = 'Hospice use (4/1999)'
      HOSPICE_USE5      = 'Hospice use (5/1999)'
      HOSPICE_USE6      = 'Hospice use (6/1999)'
      HOSPICE_USE7      = 'Hospice use (7/1999)'
      HOSPICE_USE8      = 'Hospice use (8/1999)'
      HOSPICE_USE9      = 'Hospice use (9/1999)'
      HOSPICE_USE10     = 'Hospice use (10/1999)'
      HOSPICE_USE11     = 'Hospice use (11/1999)'
      HOSPICE_USE12     = 'Hospice use (12/1999)'
      HOSPICE_USE13     = 'Hospice use (1/2000)'
      HOSPICE_USE14     = 'Hospice use (2/2000)'
      HOSPICE_USE15     = 'Hospice use (3/2000)'
      HOSPICE_USE16     = 'Hospice use (4/2000)'
      HOSPICE_USE17     = 'Hospice use (5/2000)'
      HOSPICE_USE18     = 'Hospice use (6/2000)'
      HOSPICE_USE19     = 'Hospice use (7/2000)'
      HOSPICE_USE20     = 'Hospice use (8/2000)'
      HOSPICE_USE21     = 'Hospice use (9/2000)'
      HOSPICE_USE22     = 'Hospice use (10/2000)'
      HOSPICE_USE23     = 'Hospice use (11/2000)'
      HOSPICE_USE24     = 'Hospice use (12/2000)'
    ;
  KEEP MCDID HOSPICE_USE1--HOSPICE_USE24;
RUN;

/** COMBINE THE MDS AND CLAIMS EXCLUSION FILES **/
DATA ALL_EXCLUSIONS (COMPRESS=YES);
  MERGE
    WORKF.MDS_SNF_EXCLUSIONS  (IN=IN1)
    WORKF.HOSPICE_UTILIZATION2      (IN=IN2);
  BY MCDID;

  ARRAY HOSPICE_USE(24)             HOSPICE_USE1-HOSPICE_USE24;

  DO i = 1 TO 24;
    IF HOSPICE_USE{i}   EQ 1
      THEN HOSPICE_CLAIM      = 1;
  END;

  IF MDS_COGS_MAX             GE 5
  THEN ADVANCED_DEMENTIA = 1;
  ELSE ADVANCED_DEMENTIA = 0;
```

```
  IF DATE_1ST_HOSPICE NE .
  THEN HOSPICE = 1;
  ELSE HOSPICE = 0;

  IF DATE_1ST_ESD NE .
  THEN ESD = 1;
  ELSE ESD = 0;

  IF ESD          EQ 1  OR
     HOSPICE      EQ 1
  THEN ESD_OR_HOSPICE   = 1;
  ELSE ESD_OR_HOSPICE   = 0;

  IF ESD_OR_HOSPICE     EQ 1  OR
     HOSPICE_CLAIM      EQ 1
  THEN ANY_POOR_PROG    = 1;
  ELSE ANY_POOR_PROG    = 0;

  LABEL
    ADVANCED_DEMENTIA   = 'MDS COGS >= 5'
      HOSPICE                    = 'Hospice use reported (MDS)'
      HOSPICE_CLAIM           = 'Hospice use reported (Claims)'
      ESD                        = 'End Stage Disease (MDS)'
      ESD_OR_HOSPICE          = 'End Stage Disease or Hospice use (MDS)'
      ANY_POOR_PROG           = 'End Stage Disease (MDS) or Hospice use (MDS or
Claims)'
      ;
  DROP i HOSPICE_USE1-HOSPICE_USE24;
RUN;

/**
TO IMPLEMENT THE EXCLUSIONS, THE PATIENT QIS ARE SET TO MISSING - THE IF
PORTIONS DO NOT TRIGGER
AND THE THEN PORTIONS ARE NOT MEASURED.
**/

DATA FALLS_QIS_WITH_EXCLUSIONS;
  MERGE
    FALLS_QIS           (IN=IN1)
    ALL_EXCLUSIONS      (IN=IN2);
  BY MCDID;

  ARRAY FALLS_QI(6) NHSV6_6A NHSV6_6B NHSV6_6B1 NHSV6_6B2 NHSV6_6B3 NHSV6_6B4;

  IF ANY_POOR_PROG
  THEN DO i = 1 TO 6;
    FALLS_QI{i} = .;
  END;

  DROP i;
RUN;
```

**Measure #/Title/Steward**
NH-003-10: Physical Therapy for New Balance Problem (RAND Corporation)

**Description:** Percantage of nursing home patients 65 years old or older who have a new balance problem who receive physical therapy or nursing rehabilitation/restorative care

**Initial In-Person Vote:**
Recommended for endorsement with conditions – 15
Not recommended for endorsement – 3
Abstained from vote – 1
Not present - 1

| Steering Committee Questions/Conditions for Measure Developer: | Response from Measure Developer |
|---|---|
| • The measure should focus only on the provision of physical therapy for patients with a new balance problem and assistive devices should be removed from the numerator. | • Assistive devices as a treatment modality was removed from the numerator and the title of the measure was revised |
| • Numerator and denominator specifications should be consistent with MDS 3.0. | • The specifications were altered to reflect MDS 3.0 |
| • The exclusions for dementia should be removed unless the developer can present evidence that patients with dementia cannot benefit from physical therapy to improve balance | • Upon further discussion the Steering Committee deemed that this exclusion to be appropriate |
| • Data from reliability and validity testing more clearly stated | • The developer presented the following findings:<br>Reliability (Saliba 2008):<br>Gold standard-gold standard: Kappa .959<br>Gold standard-field nurse: Kappa .924<br><br>Change targeted to capture activities where assistance and support are most variable and assess activities with highest risk of falls<br><br>Saliba D, Buchanan J. Development & Evaluation of a Revised Nursing Home Assessment Tool: MDS 3.0. RAND report, CMS MDS 3.0 Validation Contract No. 500-00-0027/Task Order #2, April 2008 |