Measure Information Form

Measure Name

Specifications Tab

Descriptive Information

Measure Name (Measure Title De.2.)

NQF 0555: INR Monitoring for Individuals on Warfarin

Measure Type De.1.

Process

Brief Description of Measure De.3.

Percentage of individuals at least 18 years of age as of the beginning of the measurement period with at least 56 days of warfarin therapy who receive an International Normalized Ratio (INR) test during each 56-day interval with warfarin

If Paired or Grouped De.4.

Not applicable

Subject/Topic Areas De.5.

Cardiovascular: Cardiovascular
Cross Cutting Areas: Safety: Safety, Safety: Medication Safety

Measure Specifications

Measure-Specific Web Page S.1.

Not applicable

If This is an eMeasure S.2a.

This measure has been e-specified. Health Quality Measure Format (HQMF) specifications are available on the Office of the National Coordinator (ONC) Project Tracking System under eCQM Development Project (i.e., MUCD Project): http://jira.oncprojectracking.org/i#browse/MUCD-217

Data Dictionary Code Table S.2b.

National Drug Code (NDC) Table is available in the attached file.

For Endorsement Maintenance S.3.

Date Endorsed: August 5, 2009
During annual coding updates, the age requirement for the target population was changed from 18 years of age or older as of the end of the measurement period to 18 years of age or older as of the beginning of the measurement period to harmonize with other measures in the portfolio. NDCs have been updated annually. The new drugs on the market that are applicable to the measure have been added to the medication list, and drugs that have been discontinued for more than three years have been removed.

Additionally, key changes have been made to the measure as recommended by the Technical Expert Panel to reflect the most current evidence, ensure harmonization with other warfarin related measures, and to improve the overall

measure usability. In addition, the measure has also been specified and tested at the Accountable Care Organization (ACO) level of analysis. Specific key changes to the measure include the following:

1. The measure will be reported as positive (previously the measure was reported as Lack of INR Monitoring).
2. The measure will be reported at the patient level (previously it was reported as an average).
3. The required interval was previously 40 days, and the interval has been extended to 56 days. This interval is aligned with the current performance measure in the Veterans Administration measure set and accommodates extended interval monitoring.
4. Excluding patients on home monitoring, which was previously an optional exclusion, has been made mandatory.
5. An optional exclusion has been added for long-term care patients.

Numerator Statement S.4.

The number of individuals in the denominator who have at least one INR monitoring test during each 56-day interval with active warfarin therapy

Time Period for Data S.5.

The time period of the data is defined as any time during the measurement period (12 consecutive months).

Numerator Details S.6.

Individuals in the denominator who have at least one INR test performed during each 56-day interval with warfarin therapy, or 100% INR monitoring compliance, will be counted in the numerator. Each 56-day interval with an INR test is used to calculate the INR compliance rate for the individual. An interval with a hospitalization of more than 48 hours is considered an interval with an INR test.

INR Test: Prothrombin time, CPT 85610
"Warfarin usage" or "warfarin therapy" is determined by the start date of the first prescription for warfarin up through the start date of the last prescription for warfarin plus the days' supply from the last claim.

Interval: 56 days
The first day of the first 56-day interval is the start date of the first warfarin prescription, and the last day of the first 56-day interval is the start date of the first warfarin prescription + 55. The subsequent 56-day interval starts on the day after the first 56-day interval and ends 56 days following the first 56-day interval, as long as this end date occurs within the warfarin therapy time frame. This process continues until a calculated 56-day interval end date does not occur within the warfarin therapy time frame. If there are fewer than 56 days of warfarin therapy remaining, those remaining days are not counted in any interval in determining the numerator. Only full 56-day intervals are used for calculating the numerator.

For individuals who died during the measurement year, set warfarin therapy end date to be the death date of the individual.

Denominator Statement S.7.

Individuals at least 18 years of age as of the beginning of the measurement period with warfarin therapy for at least 56 days during the measurement period

Target Population Category S.8.

Populations at Risk: Populations at Risk
Senior Care

Denominator Details S.9.

Target population meets the following conditions:

1. Continuously enrolled in Part D with no more than a one-month gap in enrollment during the measurement period;
2. Continuously enrolled in Part A and Part B with no more than a one-month gap in Part A enrollment and no more than a one-month gap in Part B enrollment during the measurement period; and,

3. No more than one month of HMO (Health Maintenance Organization) enrollment during the measurement period.

Active Ingredients by Class
Anticoagulants: warfarin

Note: The active ingredient is limited to oral formulations only.

Denominator Exclusions (NQF Includes "Exceptions" in the "Exclusion" Field) S.10.

Individuals who are monitoring INR at home

Optional Exclusion Criteria
Individuals who are in long-term care (LTC) during the measurement period

Denominator Exclusion Details (NQF Includes "Exceptions" in the "Exclusion" Field) S.11.

Table 1. HCPCS Codes for INR Monitoring at Home
G0248 - DEMONSTRATE USE HOME INR MON
G0249 - PROVIDE TEST MATS & EQUIP HOME INR
G0250 - MD INR TEST REVIEW INTER MGMT

Stratification Details/Variables S.12.

Depending on the operational use of the measure, measure results may be stratified by:

- State
- Plan
- ACOs*
- Physician Group**
- Age – Divided into six categories: 18-24, 25-44, 45-64, 65-74, 75-84, and 85+ years
- Race/Ethnicity
- Dual Eligibility Status
- New Warfarin User vs. Continuous Warfarin User: "New" users are defined as those individuals with no warfarin prescriptions during the 180 days prior to the first warfarin prescription in the current measurement period.
- Diagnosis Indications for Warfarin: Atrial Fibrillation, Acute Myocardial Infarction, Venous Thromboembolism, Stroke, Mechanical Heart Valve

*ACO attribution methodology is based on where the beneficiary is receiving the plurality of his/her primary care services and subsequently assigned to the participating providers.
See **Calculation Algorithm/Measure Logic S.18 below for physician group attribution methodology used for this measure.

Risk Adjustment Type S.13.

No risk adjustment or risk stratification

Statistical Risk Model and Variables S.14.

Not applicable

Detailed Risk Model Specifications S.15.

Not applicable

Type of Score S.16.

Rate/proportion

Interpretation of Score S.17.

Better quality = higher score

Calculation Algorithm/Measure Logic S.18.

Target Population: Individuals at least 18 years of age as of beginning of the measurement period who have met the enrollment criteria for Part A, B, and D

Denominator: Individuals at least 18 years of age as of the beginning of the measurement period with warfarin therapy for at least 56 days during the measurement period

Create Denominator:

1. Pull individuals who are at least 18 years of age as of the beginning of the measurement period.
2. Include individuals who were continuously enrolled in Part D coverage during the measurement period, with no more than a one-month gap in enrollment during the measurement period.
3. Include individuals who had no more than a one-month gap in Part A enrollment, no more than a one-month gap in Part B enrollment, and no more than one month of HMO (Health Maintenance Organization) enrollment during the measurement period (fee-for-service [FFS] individuals only).
4. Of the individuals identified in Step 3, include those who had warfarin claims during the measurement period.
5. Of the individuals identified in Step 4, calculate the start date and end date of warfarin therapy for each individual and count the days between the start date and the end date inclusive. *For individuals who die during the measurement period and prior to the calculated end date of warfarin therapy, reset the end date of warfarin therapy to be the death date.*
6. Keep individuals who had at least 56 days of warfarin therapy during the measurement period and calculate the number of 56-day intervals for each individual.
7. Exclude individuals who are monitoring their INR at home during the current measurement period.
8. Calculate using optional denominator exclusion: Identify and delete individuals who were in long-term care during the measurement period.

Long-Term Care

The proportion of beneficiaries in the measure denominator with a target Omnibus Budget Reconciliation Act (OBRA) assessment in 2008 and an assessment 45-165 days prior to the target assessment (i.e., the latest Minimum Dataset [MDS] assessment with qualifying reasons for assessment), were identified. This method of identifying patients in LTC was adapted from the selection criteria for the national nursing home quality measures, which are endorsed by NQF. [1]

[1] ABT Associates. National Nursing Home Quality Measures User's Manual. Cambridge, MA: Centers for Medicare & Medicaid Services; 2004.

Numerator: The number of individuals in the denominator who have at least one INR monitoring test during each 56-day interval with warfarin

Create Numerator:

1. Pull all INR test claims from Part A and Part B claims data for the current measurement period.
2. From the claims identified in Step 1, keep only those INR test claims for the individuals who are included in the denominator.
3. From Part A claims data, identify and pull all inpatient stays of more than 48 hours during the measurement period (calculate and keep stays of at least three days). **Note: To identify inpatient stays in the Part A claims data, confirm the third character in the hsp_id field is a "0" and the nch_clm_type_cd field is either "60" or "61."**
4. From the claims identified in Step 3, keep those that are also included in the denominator.
5. Combine the INR test claims dataset from Step 2 and the hospitalizations of more than 48 hours dataset from Step 4.
6. Using the start date of warfarin therapy identified in the denominator, determine the subsequent start dates for each of the calculated 56-day interval(s) of warfarin therapy and determine the number of the 56-day intervals designated in the denominator for each individual.

7. From the dataset created in Step 5, create a dataset containing INR test performed and inpatient stays by unique individual and date of service (hse_clm_from_dt in the Part A claims hospitalizations).
8. Determine which 56-day intervals have an INR test completed or have an inpatient stay by comparing each date of service from Step 7 to each 56-day interval for each individual designated in Step 6.
9. From the dataset created in Step 8, calculate the individual's INR monitoring compliance rate as the sum of 56-day intervals with an INR test divided by the total number of 56-day intervals.
10. From the dataset created in Step 9, calculate the measure numerator by counting the number of individuals with a 100% INR monitoring rate.

Physician Group Attribution:
Physician group attribution was adapted from Generating Medicare Physician Quality Performance Measurement Results (GEM) Project: Physician and Other Provider Grouping and Patient Attribution Methodologies (http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/GEM/downloads/GEMMethodologies.pdf). The following is intended as guidance and reflects only one of many methodologies for assigning individuals to a medical group. Please note that the physician group attribution methodology excludes patients who died, even though the overall measure does not.

I. Identify Physician and Medical Groups

1. Identify all Tax Identification Numbers (TINs)/National Provider Identification (NPI) combinations from all Part B claims in the measurement year and the prior year. Keep records with valid NPI. Valid NPIs have 10 numeric characters (no alpha characters).
2. For valid NPIs, pull credentials and specialty code(s) from the CMS provider tables.
3. Create one record per NPI with all credentials and all specialties. A provider may have more than one specialty.
4. Attach TIN to NPI, keeping only those records with credentials indicating a physician (MD or DO), physician assistant (PA), or nurse practitioner (NP).
5. Identify medical group TINs: Medical group TINs are defined as TINs that had physician, physician assistant, or nurse practitioner provider specialty codes on at least 50% of Part B carrier claim line items billed by the TIN during the measurement year or prior year. (The provider specialty codes are listed after Patient Attribution.)
    a. Pull Part B records billed by TINS identified in Step 4 during the measurement year and prior year.
    b. Identify claims that had the performing NPI (npi_prfrmg) in the list of eligible physicians/TINs, keeping those that match by TIN, performing NPI, and provider state code.
    c. Calculate the percentage of Part B claims that match by TIN, npi_prfrmg, and provider state code for each TIN, keeping those TINs with percentages greater than or equal to 50%.
    d. Delete invalid TINs. Examples of invalid TINs are defined as having the same value for all nine digits or values of 012345678, 012345678, 123456789, 987654321, or 87654321.
6. Identify TINs that are not solo practices.
    a. Pull Part B records billed by physicians identified in Step 4 for the measurement year and/or prior year.
    b. Count unique NPIs per TIN.
    c. Keep only those TINs having two or more providers.
    d. Delete invalid TINs. Examples of invalid TINs are defined as having the same value for all nine digits or values of 012345678, 012345678, 123456789, 987654321, or 87654321.
7. Create final group of TINs from Step 5 and Step 6 (TINs that are medical groups and are not solo practices).
8. Create file of TINs and NPIs associated with those TINs. These are now referred to as the medical group TINs.
9. Determine the specialty of the medical group (TIN) to be used in determining the specialty of nurse practitioners and physician assistants. The plurality of physician providers in the medical group determines the specialty of care for nurse practitioners and physician assistants.
    a. From the TIN/NPI list created in Step 8, count the NPIs per TIN/specialty.
    b. The specialty with the maximum count is assigned to the medical group.

II. Identify Individual Sample and Claims

10. Create individual sample.
    a. Pull individuals with 11+ months of Parts A, B, & D during the measurement year.
    b. Verify the individual did not have any months with Medicare as secondary payer. Remove individuals with BENE_PRMRY_PYR_CD not equal to one of the following:

- A = working-age individual/spouse with an employer group health plan (EGHP)
- B = End Stage Renal Disease (ESRD) in the 18-month coordination period with an EGHP
- G = working disabled for any month of the year

c. Verify the individual resides in the U.S., Puerto Rico, Virgin Islands, or Washington D.C.
d. Exclude individuals who enter the Medicare hospice at any point during the measurement year.
e. Exclude individuals who died during the measurement year.

11. For individuals identified in Step 10, pull office visit claims that occurred during the measurement year and in the six months prior to the measurement year.
    a. Office visit claims have CPT codes of 99201-99205, 99211-99215, and 99241-99245.
    b. Exclude claims with no npi_prfrmg.
12. Attach medical group TIN to claims by NPI.

III. Patient Attribution

13. Pull all Part B office claims from Step 12 with specialties indicating primary care, cardiology, oncology, cardiac surgery, or orthopedic surgery (see list of provider specialties and specialty codes below). Attribute each individual to at most one medical group TIN for each measure.
    a. Evaluate specialty on claim (HSE_B_HCFA_PRVDR_SPCLTY_CD) first. If specialty on claim does not match any of the measure-specific specialties, then check additional specialty fields.
    b. If the provider specialty indicates nurse practitioners or physician assistants (code 50 or code 97), then assign the medical group specialty determined in Step9.
14. For each individual, count claims per medical group TIN. Keep only individuals with two or more E&M claims.
15. Attribute individual to the medical group TIN with the most claims. If a tie occurs between medical group TINs, attribute the TIN with the most recent claim.
16. Attach the medical group TIN to the denominator and numerator files by individual.

Provider Specialties and Specialty Codes

Provider specialties and specialty codes include only physician, physician assistants, and nurse practitioners for physician grouping, TIN selection, and patient attribution. The provider specialty codes and the associated provider specialty are shown below:

01—General practice*
02—General surgery
03—Allergy/immunology
04—Otolaryngology
05—Anesthesiology
06—Cardiology*
07—Dermatology
08—Family practice*
09—Interventional pain management
10—Gastroenterology
11—Internal medicine*
12—Osteopathic manipulative therapy
13—Neurology
14—Neurosurgery
16—Obstetrics/gynecology*
18—Ophthalmology
20—Orthopedic surgery*
22—Pathology
24—Plastic and reconstructive surgery
25—Physical medicine and rehabilitation
26—Psychiatry
28—Colorectal surgery
29—Pulmonary disease
30—Diagnostic radiology

33—Thoracic surgery
34—Urology
36—Nuclear medicine
37—Pediatric medicine
38—Geriatric medicine*
39—Nephrology
40—Hand surgery
44—Infectious disease
46—Endocrinology
50—Nurse practitioner*
66—Rheumatology
70—Multi-specialty clinic or group practice*
72—Pain management
76—Peripheral vascular disease
77—Vascular surgery
78—Cardiac surgery*
79—Addiction medicine
81—Critical care (intensivists)
82—Hematology
83—Hematology/oncology
84—Preventive medicine*
85—Maxillofacial surgery
86—Neuropsychiatry
90—Medical oncology*
91—Surgical oncology*
92—Radiation oncology*
93—Emergency medicine
94—Interventional radiology
97—Physician assistant*
98—Gynecologist/oncologist
99—Unknown Physician Specialty
Other—NA
*Provider specialty codes specific to this measure

Calculation Algorithm/Measure Logic Diagram URL or Attachment S.19.

Not applicable

Sampling S.20.

Not applicable; this measure does not use a sample or survey.

Survey/Patient-Reported Data S.21.

Not applicable; this measure does not use a sample or survey.

Missing Data S.22.

To reduce the potential for measure result bias, patients who have warfarin claims with missing days' supply are excluded from the analysis.

Data Source S.23.

Administrative claims
Electronic Clinical Data: Pharmacy
Other: Please see next section for further details

Data Source or Collection Instrument S.24.

For measure calculation, the following Medicare files are required:

- Denominator tables
- Prescription drug benefit (Part D) coverage tables
- Beneficiary file
- Institutional claims (Part A)
- Non-institutional claims (Part B)—physician carrier/non-DME
- Prescription drug benefit (Part D) claims
- Minimum Dataset (MDS)

For ACO attribution, the following are required:

- Denominator tables for Parts A and B enrollment
- Prescription drug benefit (Part D) coverage tables
- Beneficiary file
- Institutional claims (Part A)
- Non-institutional claims (Part B)—physician carrier/non-DME
- Prescription drug benefit (Part D) claims

For physician group attribution, the following are required:

- Non-institutional claims (Part B)—physician carrier/non-DME
- Denominator tables to determine individual enrollment
- Beneficiary file or coverage table to determine hospice benefit and Medicare as secondary payer status
- CMS physician and physician specialty tables

Payer Source

- Medicare fee-for-service (FFS)
- Prescription Drug Plans (PDPs)

Data Source or Collection Instrument (Reference) S.25.

Not applicable

Level of Analysis S.26.

Clinician: Group/Practice
Health Plan
Integrated Delivery System
Population: State

Care Setting S.27.

Ambulatory Care: Clinician Office/Clinic

Composite Performance Measure S.28.

Not applicable

Version Number and Effective Date

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Measure Steward

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