Measure Information Form

Measure Name

Specifications Tab

Descriptive Information

Measure Name (Measure Title De.2.)

NQF 0556: INR for Individuals Taking Warfarin and Interacting Anti-Infective Medications

Measure Type De.1.

Process

Brief Description of Measure De.3.

Percentage of episodes with an International Normalized Ratio (INR) test performed three to seven days after a newly started interacting anti-infective medication for individuals receiving warfarin

If Paired or Grouped De.4.

Not applicable

Subject/Topic Areas De.5.

Cardiovascular: Cardiovascular
Safety: Safety
Safety: Medication Safety

Measure Specifications

Measure-Specific Web Page S.1.

Not applicable

If This is an eMeasure S.2a.

Not applicable

Data Dictionary Code Table S.2b.

ICD-9 to ICD-10 Crosswalk and National Drug Code (NDC) Table are available in the attached file.

For Endorsement Maintenance S.3.

Date Endorsed: August 5, 2009
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. ICD-9-CM Codes, ICD-10-CM Codes, and 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 agents that have been discontinued for more than three years have been removed. The drug selection criteria have been simplified, and the optional exclusion for individuals monitoring INR at home is now a required exclusion.

Release Notes
Statement of intent for the selection of ICD-10 codes: The goal was to convert this measure to a new code set, fully

consistent with the intent of the original measure.

2011 Updates
- Clarified unit of analysis and added optional physician group attribution algorithm.
- Updated NDCs as of October 28, 2011.
- Updated ICD-9-CM Diagnosis Codes with 2011 changes (V10.9 updated with V10.90, V10.91).
- Updated interacting anti-infective medications.
- Added: kanamycin, dicloxacillin, amoxicillin, cloxacillin, oxytetracycline, peginterferon alfa-2b.
- Removed: miconazole, cefazolin, ceftriaxone.

2012 Updates
- Updated NDCs as of October 31, 2012.
- See Codes Table attachment for NDC Updates and ICD-9-CM to ICD-10-CM Crosswalk.
- Modified age requirement to at least 18 years of age as of the beginning of the measurement period.

2013 Updates
- Updated NDCs as of November 6, 2013.
- See Codes Table attachment for NDC Updates and ICD-9-CM to ICD-10-CM Crosswalk.
- Added: miconazole, amoxicillin/clavulanic acid, and isoniazid.
- Removed: kanamycin, amprenavir, cloxacillin, drotrecogin alfa, and peginterferon alfa-2b.
- Removed the denominator exclusion of Individuals with a diagnosis of cancer.
- Physician group attribution methodology has been removed from the measure logic section, since the measure is no longer recommended to be stratified by physician group.

Numerator Statement S.4.

Number of episodes in the denominator with an INR test performed three to seven days after the start date of an anti-infective medication

Time Period for Data S.5.

Numerator Time Window: Three to seven days after the start of an anti-infective medication
Denominator Time Window: The first 358 days of the measurement period

Numerator Details S.6.

Hospitalizations of more than 48 hours are counted as an INR test.

Table 1. Codes Used to Identify INR Monitoring
Prothrombin time CPT: 85610

Source: American Medical Association (2009).

Denominator Statement S.7.

Number of episodes with a newly started interacting anti-infective medication with an overlapping days' supply of warfarin

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

period; and,

4. Individuals must have at least two claims for warfarin on different dates of service.
    a. If more than one prescription for warfarin with the same date of service overlaps an interacting anti-infective medication, then keep the prescription with the greatest days' supply.
    b. If more than one prescription for warfarin with different dates of service overlaps an interacting anti-infective medication, then keep the episode with the greatest number of overlapping days.

Table 2. Anti-Infective Medications

Aminoglycosides
Active ingredients: neomycin, paromomycin
Anticoagulant effect: Increased

Antifungal Agents
Active ingredients: fluconazole, voriconazole, miconazole
Anticoagulant effect: Increased

Active ingredients: griseofulvin
Anticoagulant effect: Decreased

Active ingredients: itraconazole, ketoconazole
Anticoagulant effect: Increased

Active ingredients: terbinafine
Anticoagulant effect: Increased/decreased

Antiviral
Active ingredients: interferon-alfa, interferon-beta
Anticoagulant effect: Increased

Active ingredients: ribavirin
Anticoagulant effect: Decreased

Active ingredients: oseltamivir
Anticoagulant effect: Increased

Active ingredients: atazanavir, darunavir, fosamprenavir, indinavir, nelfinavir, ritonavir, saquinavir, tipranavir
Anticoagulant effect: Increased/decreased

Active ingredients: nevirapine
Anticoagulant effect: Decreased

Cephalosporins
Active ingredients: cefotetan
Anticoagulant effect: Increased

Fluoroquinolones
Active ingredients: ciprofloxacin, levofloxacin, moxifloxacin, norfloxacin, ofloxacin,
Anticoagulant effect: Increased

Macrolides
Active ingredients: azithromycin, clarithromycin, erythromycin
Anticoagulant effect: Increased

Penicillin

Active ingredients: nafcillin, dicloxacillin
Anticoagulant effect: Decreased

Active ingredients: ampicillin, oxacillin, penicillin G, piperacillin, ticarcillin, amoxicillin, amoxicillin/clavulanic acid
Anticoagulant effect: Increased

Tetracycline
Active ingredients: demeclocycline, doxycycline, minocycline, tetracycline, oxytetracycline
Anticoagulant effect: Increased

Others
Active ingredients: rifabutin, rifapentine
Anticoagulant effect: Decreased

Active ingredients: rifampin
Anticoagulant effect: Decreased

Anti-Infective Agents – Misc.
Active ingredients: sulfamethoxazole, chloramphenicol, telithromycin, metronidazole, tinidazole
Anticoagulant effect: Increased

Active ingredients: sulfisoxazole, isoniazid
Anticoagulant effect: Increased

Active ingredients: rifaximin
Anticoagulant effect: Decreased

Anti-Malarial
Active ingredients: atovaquone, mefloquine, proguanil
Anticoagulant effect: Increased

Active ingredients: quinine
Anticoagulant effect: Increased

Note: Drugs listed were selected based on a severity rating of either "severe or moderate" and a documentation rating of "Probable, Possible, or Suspected" according to Drug Interaction Facts; excludes the following routes of administration: external (EX), inhalation (IN), irrigation (IR), ophthalmic (OP), otic (OT), mouth/throat preparations (MT), and route does not apply (XX) unless otherwise noted. All other formulations and combination products of the active ingredients listed are included unless otherwise noted. Obsolete drug products are excluded from NDCs with an inactive date more than three years prior to the beginning of the measurement period or look-back period, if applicable. Updated: First Databank and Medi-Span, 2013.

Citations
Drug Facts and Comparisons. Facts & Comparisons [database online]. St. Louis, MO: Wolters Kluwer Health, Inc.; December 2013. Accessed December 13, 2013.

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

We excluded the following individuals from the denominator:

- Individuals who are monitoring INR at home

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

Table 3. INR Monitoring at Home: HCPCS Codes
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
- Accountable Care Organizations (ACOs)
- Age – Divided into six categories: 18-24, 25-44, 45-64, 65-74, 75-84, and 85+ years
- Race/Ethnicity
- Dual Eligibility Status

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 the beginning of the measurement period, have met the enrollment criteria for Part A, B, and D, and have at least two claims for warfarin on different dates of service

Denominator: Number of episodes with a newly started interacting anti-infective medication with an overlapping days' supply of warfarin

Create Denominator:

1. Pull individuals who are 18 years of age or older as of the beginning of the measurement period.
2. Include individuals who were continuously enrolled in Part D coverage during the measurement year, with no more than a one-month gap in enrollment during the measurement year.
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 current measurement year (Fee for Service [FFS] individuals only).
4. Identify and delete individuals who are monitoring INR at home, based on Part A and B claims.
5. Pull all warfarin claims from the Part D claims data for the individuals still eligible in Step 4.
6. From the dataset created in Step 5, include those individuals with at least two claims for warfarin on different dates of service.
7. Using the dataset from Step 6, calculate the warfarin start date and warfarin end date.
8. Pull all anti-infective claims from the Part D claims data.
9. From the dataset in Step 8, keep the anti-infective prescription with the highest days' supply for each unique date for each individual.
10. From the dataset in Step 9, keep only the "newly-started" anti-infectives (no other anti-infective in the prior 30 days).
11. Using the dataset from Step 10, calculate the anti-infective start date and anti-infective end date.
12. Merge the warfarin claims dataset from Step 7 and the anti-infective dataset from Step 11, keeping only the individual episodes where there are overlapping days' supply of warfarin therapy and anti-infective therapy. If there is more than one anti-infective started on the same date, keep the overlap episode with the largest

overlapping period.

Numerator: Number of episodes in the denominator with an INR test performed three to seven days after the start date of an anti-infective medication

Create Numerator:

1. Pull all individuals who had an INR test performed, identified using a CPT code, or who had a hospitalization of more than 48 hours during the measurement period from the Part A and Part B claims data.
2. Of the individuals identified in Numerator Step 1, keep those who are also included in the denominator.
3. Compare start date of anti-infective medication with the INR/hospitalization date.
4. Keep only the claims where the INR/hospitalization date occurred at least three days after the start of the anti-infective therapy.
5. Keep unique episodes of anti-infective date and first occurring INR test/hospitalization.
6. Keep the episodes in which the first INR/hospitalization occurred within three to seven days after the start of the anti-infective.

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 or anti-infective claims with missing days' supply are excluded from the analysis.

Data Source S.23.

Administrative claims
Electronic Clinical Data: Pharmacy

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

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)
- Prescription drug benefit (Part D) claims

Payer Source:

- Medicare Fee for Service (FFS)
- Prescription Drug Plans (PDPs)

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

No data collection instrument provided

Level of Analysis S.26.

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

Version 4.0

January 1, 2013 – December 31, 2013

Measure Steward

Centers for Medicare & Medicaid Services (CMS)
Point of Contact: CMS Measures Management System, CMS.Measures.Inventory@hsag.com
Measure Developer: FMQAI, 5201 W. Kennedy Blvd., Suite 900, Tampa, Florida, 33609

Copyright/Disclaimer