Quality ID #238 (NQF 0022): Use of High-Risk Medications in the Elderly
– National Quality Strategy Domain: Patient Safety
– Meaningful Measure Area: Medication Management

2020 COLLECTION TYPE:
MIPS CLINICAL QUALITY MEASURES (CQMS)

MEASURE TYPE:
Process – High Priority

DESCRIPTION:
Percentage of patients 65 years of age and older who were ordered high-risk medications. Two rates are submitted.

1) Percentage of patients who were ordered at least one high-risk medication.

2) Percentage of patients who were ordered at least two of the same high-risk medications.

INSTRUCTIONS:
This measure is to be submitted a minimum of **once per performance period** for patients seen during the performance period. There is no diagnosis associated with this measure. This measure may be submitted by Merit-based Incentive Payment System (MIPS) eligible clinicians who perform the quality actions described in the measure based on the services provided and the measure-specific denominator coding.

This measure will be calculated with 2 performance rates:
1) Percentage of patients who were ordered at least one high-risk medication
2) Percentage of patients who were ordered at least two of the same high-risk medications

MIPS eligible clinicians should continue to submit the measure as specified, with no additional steps needed to account for multiple performance rates.

Measure Submission Type:
Measure data may be submitted by individual MIPS eligible clinicians, groups, or third party intermediaries. The listed denominator criteria are used to identify the intended patient population. The numerator options included in this specification are used to submit the quality actions as allowed by the measure. The quality-data codes listed do not need to be submitted by MIPS eligible clinicians, groups, or third party intermediaries that utilize this modality for submissions; however, these codes may be submitted for those third party intermediaries that utilize Medicare Part B claims data. For more information regarding Application Programming Interface (API), please refer to the Quality Payment Program (QPP) website.

THERE ARE TWO SUBMISSION CRITERIA FOR THIS MEASURE:
1) Percentage of patients who were ordered at least one high-risk medication

OR

2) Percentage of patients who were ordered at least two of the same high-risk medications

SUBMISSION CRITERIA 1: PERCENTAGE OF PATIENTS WHO WERE ORDERED AT LEAST ONE HIGH-RISK MEDICATION

DENOMINATOR (SUBMISSION CRITERIA 1):
Patients 65 years and older who had a visit during the measurement period

Denominator Criteria (Eligible Cases) 1:
Patients aged ≥ 65 years on date of encounter
AND
Patient encounter during performance period (CPT or HCPCS): 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99341, 99342, 99343, 99344, 99345, 99347, 99348, 99349, 99350, G0438, G0439
AND NOT
DENOMINATOR EXCLUSION:
Patients who use hospice services any time during the measurement period: G9741

NUMERATOR (SUBMISSION CRITERIA 1):
Patients with an order for at least one high-risk medication during the measurement period

Definitions:
The intent of Numerator 1 is to assess if the patient has been prescribed at least one high-risk medication.
Cumulative Medication Duration - an individual's total number of medication days over a specific period; the period counts multiple prescriptions with gaps in between, but does not count the gaps during which a medication was not dispensed.

To determine the cumulative medication duration, determine first the number of the Medication Days for each prescription in the period: the number of doses divided by the dose frequency per day. Then add the Medication Days for each prescription without counting any days between the prescriptions.

Table 1 – High-Risk Medications at any dose or duration

Description	Prescription	
Anticholinergics, first-generation antihistamines	Brompheniramine Carbinoxamine Chlorpheniramine Clemastine Cyproheptadine Dexbrompheniramine Dexchlorpheniramine	Dimenhydrinate Diphenhydramine (oral) Doxylamine Hydroxyzine Meclizine Promethazine Triprolidine
Anticholinergics, anti-Parkinson agents	Benztropine (oral)	Trihexyphenidyl
Antispasmodics	Atropine (exclude ophthalmic) Belladonna alkaloids Clidinium-chloradiazepoxide Dicyclomide	Hyoscyamine Propantheline Scopolamine
Antithrombotics	Dipyridamole, oral short-acting (does not apply to the combination with aspirin)	Ticlopidine
Cardiovascular, alpha agonists, central	Methyldopa	Guanfacine
Cardiovascular, other	Disopyramide	Nifedipine, immediate release

Description	Prescription	
Central nervous system, antidepressants	Amitriptyline Clomipramine Amoxapine Desipramine	Imipramine Trimipramine Nortriptyline Paroxetine Protriptyline
Central nervous system, barbiturates	Amobarbital Butabarbital Butalbital	Pentobarbital Phenobarbital Secobarbital
Central nervous system, vasodilators	Ergot mesylates	Isoxsuprine
Central nervous system, other		Meprobamate
Endocrine system, estrogens with or without progestins; include only oral and topical patch products	Conjugated estrogen Estropipate	Estradiol Esterified estrogen
Endocrine system, sulfonylureas, long- duration	Chlorpropamide	Glyburide
Endocrine system, other	Desiccated thyroid	Megestrol
Pain medications, skeletal muscle relaxants	Carisoprodol Chlorzoxazone Cyclobenzaprine	Metaxalone Methocarbamol Orphenadrine
Pain medications, other	Indomethacin Meperidine	Ketorolac, includes parenteral Pentazocine

Table 2 - High-Risk Medications With Days Supply Criteria

Description	Prescription		Days Supply Criteria
Anti-Infectives, other	Nitrofurantoin Nitrofurantoin macrocrystals	Nitrofurantoin macrocrystals-monohydrate	>90 days
Nonbenzodiazepine hypnotics	Eszopiclone Zaleplon	Zolpidem	>90 days

NUMERATOR NOTE: *Some high-risk medications are not included in this specific measure but should be avoided above a specified average daily dose. These medications are listed in Table 3. To calculate an average daily dose multiply the quantity of pills ordered by the dose of each pill and divide by the days supply. For example, a prescription for a 30-days supply of digoxin containing 15 pills, 0.250 mg each pill, has an average daily dose of 1.125 mg.*

Table 3 - High-Risk Medications With Average Daily Dose Criteria

Description	Prescription	Average Daily Dose Criteria
Alpha agonists, central	Reserpine	>0.1 mg/day
Cardiovascular, other	Digoxin	>0.125 mg/day
Tertiary TCAs (as single agent or as part of combination products)	Doxepin	>6 mg/day

Numerator Instructions:

INVERSE MEASURE - A lower calculated performance rate for this measure indicates better clinical care or control. The "Performance Not Met" numerator option for this measure is the representation of the better clinical quality or control. Submitting that numerator option will produce a performance rate that trends closer to 0%, as quality increases. For inverse measures a rate of 100% means all of the denominator eligible patients did not receive the appropriate care or were not in proper control.

A high-risk medication is identified by either of the following:

- A prescription for medications classified as high risk at any dose and for any duration listed in Table 1
- Prescriptions for medications classified as high risk at any dose with greater than a 90 day cumulative medication duration listed in Table 2

Numerator Options:

Performance Met: One high-risk medication ordered **(G9365)**

OR

Performance Not Met: One high-risk medication not ordered **(G9366)**

SUBMISSION CRITERIA 2: PERCENTAGE OF PATIENTS WHO WERE ORDERED AT LEAST TWO OF THE SAME HIGH-RISK MEDICATIONS

DENOMINATOR (SUBMISSION CRITERIA 2):

Patients 65 years and older who had a visit during the measurement period

Denominator Criteria (Eligible Cases) 2:

Patients aged ≥ 65 years on date of encounter

AND

Patient encounter during performance period (CPT or HCPCS): 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99341, 99342, 99343, 99344, 99345, 99347, 99348, 99349, 99350, G0438, G0439

AND NOT

DENOMINATOR EXCLUSION:

Patients who use hospice services any time during the measurement period: G9741

NUMERATOR (SUBMISSION CRITERIA 2):

Patients with at least two orders for the same high-risk medication- on different days during the measurement period

Definitions:

The intent of Numerator 2 is to assess if the patient has either been prescribed at least two of the same high-risk medication in Table 4, received two or more prescriptions on different days, where the sum of days supply exceeds 90 days, for medications in the same medication class in Table 5 The intent of the measure is to assess if the submitting provider ordered the high-risk medication(s). If the patient had a high-risk medication previously prescribed by another provider, they would not be counted towards the numerator unless the submitting provider also ordered a high-risk medication for them.

Cumulative Medication Duration – an individual's total number of medication days over a specific period; the period counts multiple prescriptions with gaps in between, but does not count the gaps during which a medication was not dispensed.

To determine the cumulative medication duration, determine first the number of the Medication Days for each prescription in the period: the number of doses divided by the dose frequency per day. Then add the Medication Days for each prescription without counting any days between the prescriptions.

For example, there is an original prescription for 30 days with 2 refills for thirty days each. After a gap of 3 months, the medication was prescribed again for 60 days with 1 refill for 60 days. The cumulative medication duration is (30 x 3) + (60 x 2) = 210 days over the 10 month period.

Table 4 - High-Risk Medications at any dose or duration

Description	Prescription	
Anticholinergics, first-generation antihistamines	Brompheniramine Carbinoxamine Chlorpheniramine Clemastine Cyproheptadine Dexbrompheniramine Dexchlorpheniramine Dimenhydrinate	Diphenhydramine (oral) Doxylamine Hydroxyzine Meclizine Promethazine Triprolidine
Anticholinergics, anti-Parkinson agents	Benztropine (oral)	Trihexyphenidyl
Antispasmodics	Atropine (exclude ophthalmic) Belladonna alkaloids Clidinium-chloradiazepoxide Dicyclomide	Hyoscyamine Propantheline Scopolamine
Antithrombotics	Dipyridamole, oral short-acting (does not apply to the combination with aspirin)	Ticlopidine
Cardiovascular, alpha agonists, central	Methyldopa	Guanfacine
Cardiovascular, other	Disopyramide	Nifedipine, immediate release
Central nervous system, antidepressants	Amitriptyline Clomipramine Amoxapine Desipramine	Imipramine Trimipramine Nortriptyline Paroxetine Protriptyline
Central nervous system, barbiturates	Amobarbital Butabarbital Butalbital	Pentobarbital Phenobarbital Secobarbital
Central nervous system, vasodilators	Ergot mesylates	Isoxsuprine
Central nervous system, other		Meprobamate

Description	Prescription	
Endocrine system, estrogens with or without progestins; include only oral and topical patch products	Conjugated estrogen Estropipate	Estradiol Esterified estrogen
Endocrine system, sulfonylureas, long- duration	Chlorpropamide	Glyburide
Endocrine system, other	Desiccated thyroid	Megestrol
Pain medications, skeletal muscle relaxants	Carisoprodol Chlorzoxazone Cyclobenzaprine	Metaxalone Methocarbamol Orphenadrine
Pain medications, other	Indomethacin Meperidine	Ketorolac, includes parenteral Pentazocine

*The registry version of the measure specifications only indicates the classes of drugs that are considered high-risk and do not include the specific coding of RxNorm. However, this measure aligns with the eCQM measure (CMS 156) and providers may review the RxNorm codes in the applicable eCQM value sets for submission.

Table 5 - High-Risk Medications With Days Supply Criteria

Description	Prescription		Days Supply Criteria
Anti-Infectives, other	Nitrofurantoin Nitrofurantoin macrocrystals	Nitrofurantoin macrocrystals-monohydrate	>90 days
Nonbenzodiazepine hypnotics	Eszopiclone Zaleplon	Zolpidem	>90 days

NUMERATOR NOTE: *Some high-risk medications are not included in this specific measure but should be avoided above a specified average daily dose. These medications are listed in Table 6. To calculate an average daily dose multiply the quantity of pills ordered by the dose of each pill and divide by the days supply. For example, a prescription for a 30-days supply of digoxin containing 15 pills, 0.250 mg each pill, has an average daily dose of 0.125 mg.*

Table 6 - DAE-C: High-Risk Medications With Average Daily Dose Criteria

Description	Prescription	Average Daily Dose Criteria
Alpha agonists, central	Reserpine	>0.1 mg/day
Cardiovascular, other	Digoxin	>0.125 mg/day
Tertiary TCAs (as single agent or as part of combination products)	Doxepin	>6 mg/day

Numerator Instructions:

INVERSE MEASURE - A lower calculated performance rate for this measure indicates better clinical care or control. The "Performance Not Met" numerator option for this measure is the representation of the better clinical quality or control. Submitting that numerator option will produce a performance rate that trends closer to 0%, as quality increases. For inverse measures a rate of 100% means all of the denominator eligible patients did not receive the appropriate care or were not in proper control.

A high-risk medication is identified by either of the following:

- A prescription for medications classified as high risk at any dose and for any duration listed in Table 4
- Prescriptions for medications classified as high risk at any dose with greater than a 90 day cumulative medication duration listed in Table 5

Numerator Options:

Performance Met: At least two orders for the same high-risk medication **(G9367)**

OR

Performance Not Met: At least two orders for the same high-risk medications not ordered **(G9368)**

RATIONALE:

Certain medications (MacKinnon & Hepler, 2003) are associated with increased risk of harm from drug side-effects and drug toxicity and pose a concern for patient safety. There is clinical consensus that these drugs pose increased risks in the elderly (Kaufman, Brodin, & Sarafian, 2005). Studies link prescription drug use by the elderly with adverse drug events that contribute to hospitalization, increased length of hospital stay, increased duration of illness, nursing home placement and falls and fractures that are further associated with physical, functional and social decline in the elderly (AHRQ 2009). Potentially Inappropriate Medication use in older adults has been connected to significantly longer hospital stay lengths and increased hospitalization costs (Hagstrom et al., 2015) as well as increased risk of death (Lau et al. 2004).

Older adults receiving inappropriate medications are more likely to report poorer health status at follow-up, compared to those who receive appropriate medications (Lau et al. 2004). A study of the prevalence of potentially inappropriate medication use in older adults found that 40 percent of individuals 65 and older filled at least one prescription for a potentially inappropriate medication and 13 percent filled two or more (Fick et al. 2008). While some adverse drug events are not preventable, studies estimate that between 30 and 80 percent of adverse drug events in the elderly are preventable (MacKinnon and Hepler 2003).

Reducing the number of inappropriate prescriptions can lead to improved patient safety and significant cost savings. Conservative estimates of extra costs due to potentially inappropriate medications in the elderly average $7.2 billion a year (Fu et al. 2007). Medication use by older adults will likely increase further as the U.S. population ages, new drugs are developed, and new therapeutic and preventive uses for medications are discovered (Rothberg et al. 2008). The annual direct costs of preventable adverse drug events (ADEs) in the Medicare population have been estimated to exceed $800 million (IOM, 2007). By the year 2030, nearly one in five U.S. residents is expected to be aged 65 years or older; this age group is projected to more than double in number from 38.7 million in 2008 to more than 88.5 million in 2050. Likewise, the population aged 85 years or older is expected to increase almost four-fold, from 5.4 million to 19 million between 2008 and 2050. As the elderly population continues to grow, the number of older adults who present with multiple medical conditions for which several medications are prescribed continues to increase, resulting in polypharmacy (Gray and Gardner 2009).

CLINICAL RECOMMENDATION STATEMENTS:

The measure is based on recommendations from the American Geriatrics Society Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. The criteria were developed through key clinical expert consensus processes by Beers in 1997, Zahn in 2001 and an updated process by Fick in 2003, 2012 and 2015. The Beers Criteria identifies lists of drugs that are potentially inappropriate for all older adults and drugs that are potentially inappropriate in the elderly based on various high-risk factors such as dosage, days' supply and underlying diseases or conditions. NCQA's Geriatric Measurement Advisory Panel selected a subset of drugs that should be used with caution in the elderly for inclusion in the proposed measure based upon the recommendations in the Beers Criteria.

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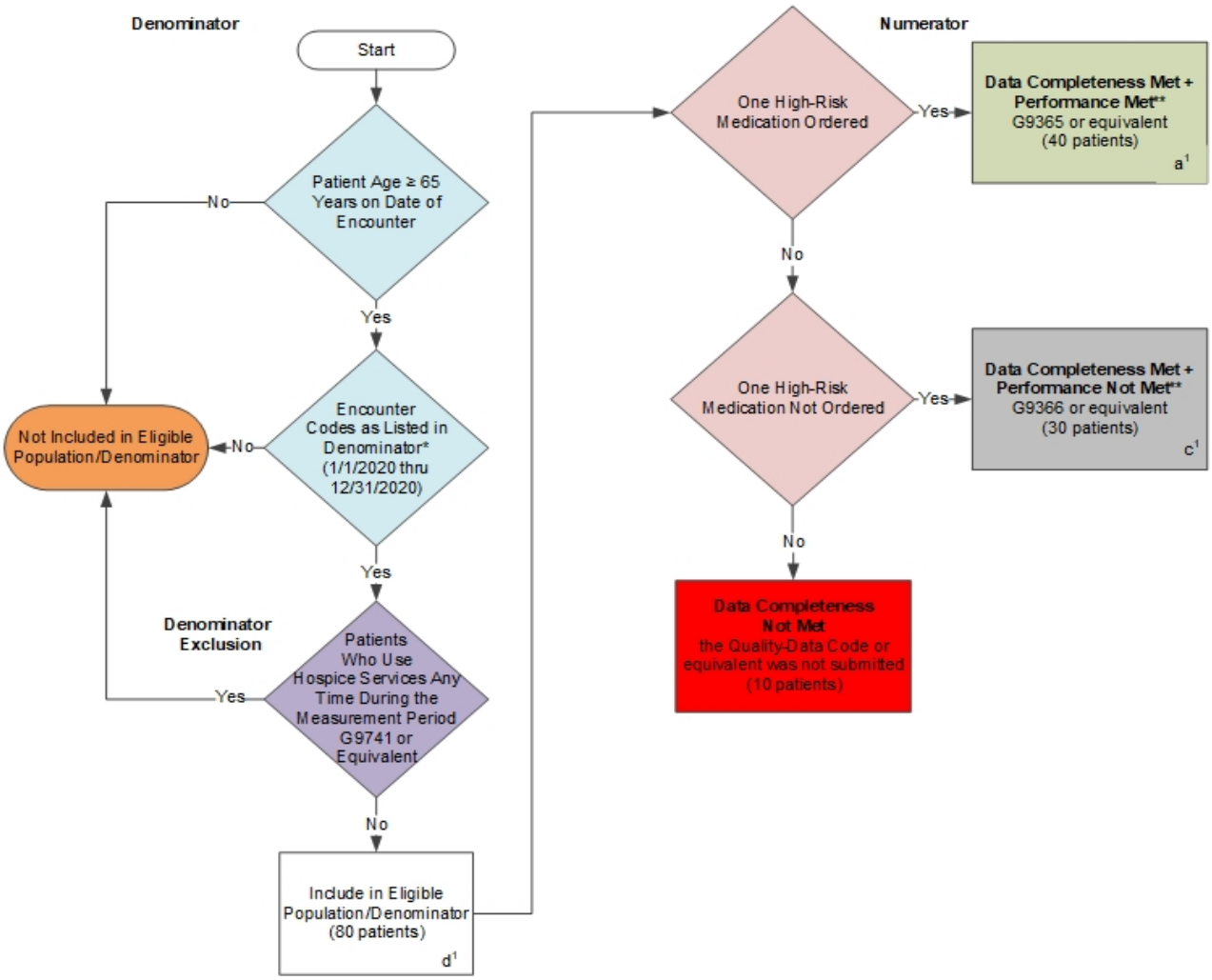
2020 Clinical Quality Measure Flow for Quality ID #238 NQF #0022: Use of High-Risk Medications in the Elderly Submission Criteria One

Disclaimer: *Refer to the measure specification for specific coding and instructions to submit this measure.*

Multiple Performance Rates



SAMPLE CALCULATIONS SUBMISSION CRITERIA ONE

Data Completeness=
Performance Met (a^1=40 patients) + Performance Not Met (c^1=30 patients) = 70 patients = **87.50%**
Eligible Population / Denominator (d^1=80 patients) = 80 patients

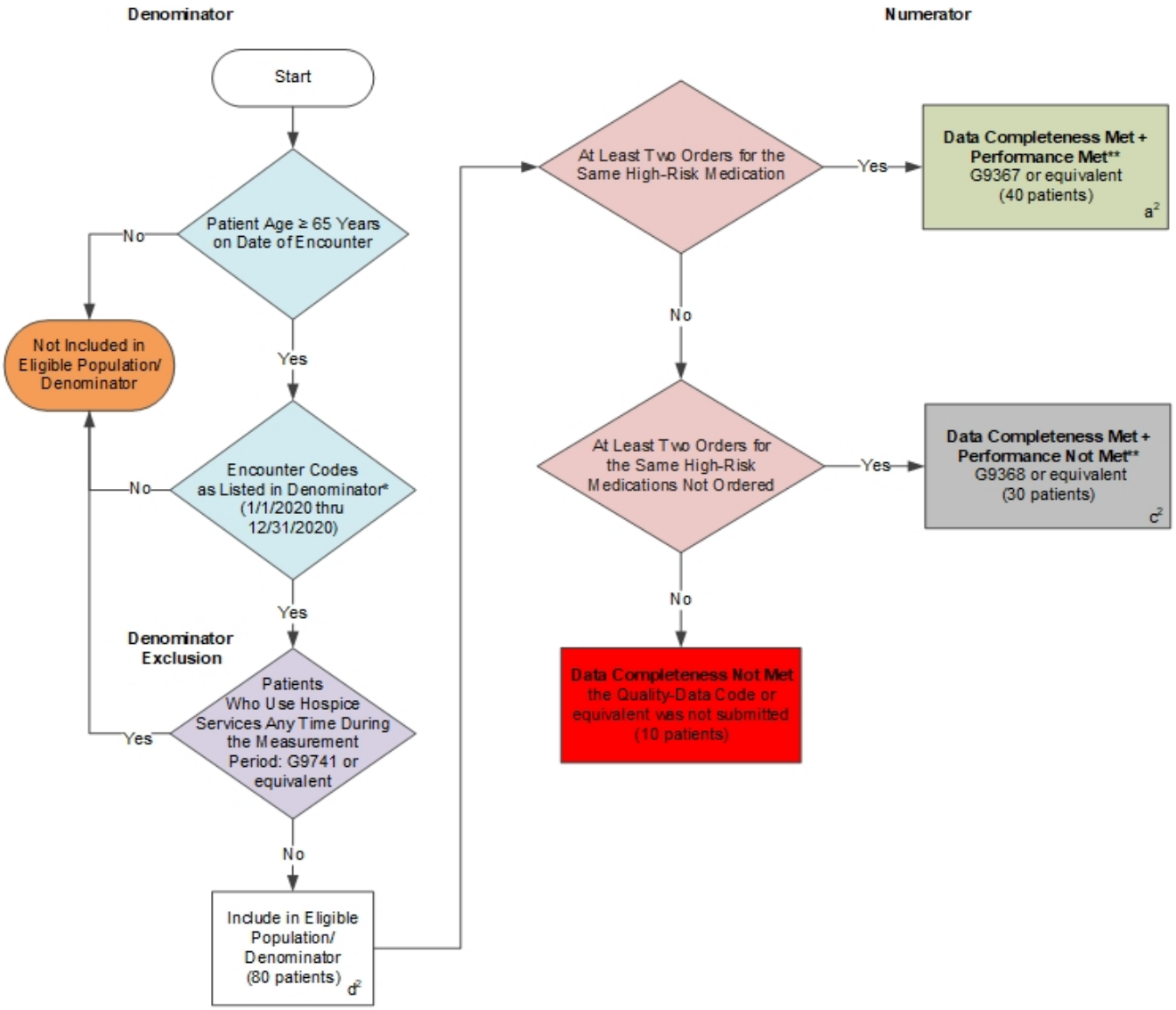
Performance Rate=**
Performance Met (a^1=40 patients) = 40 patients = **57.14%**
Data Completeness Numerator (70 patients) = 70 patients

* See the posted measure specification for specific coding and instructions to submit this measure.
**A lower calculated performance rate for this measure indicates better clinical care or control.
This measure should be calculated with 2 Performance Rates. Review the Sample Calculation to ensure the data completeness and performance rates are calculated accurately.
NOTE: Submission Frequency: Patient-Process

v4

Submission Criteria Two

Multiple Performance Rates



SAMPLE CALCULATIONS SUBMISSION CRITERIA TWO

Data Completeness=

Performance Met (a^2=40 patients) + Performance Not Met (c^2=30 patients) = 70 patients = **87.50%**

Eligible Population / Denominator (d^2=80 patients) = 80 patients

Performance Rate=**

Performance Met (a^2=40 patients) = 40 patients = **57.14%**

Data Completeness Numerator (70 patients) = 70 patients

* See the posted measure specification for specific coding and instructions to submit this measure.
**A lower calculated performance rate for this measure indicates better clinical care or control.
This measure should be calculated with 2 Performance Rates. Review the Sample Calculation to ensure the data completeness and performance rates are calculated accurately.
NOTE : Submission Frequency: Patient-Process

v4

2020 Clinical Quality Measure Flow Narrative for Quality ID #238 NQF #0022: Use of High-Risk Medications in the Elderly

Disclaimer: *Refer to the measure specification for specific coding and instructions to submit this measure.*

This measure will be calculated with 2 Performance Rates and has 2 Submission Options.

Submission Criteria One:

1. Start with Denominator
2. Check Patient Age:
    a. If Patient Age is greater than or equal to 65 Years on Date of Encounter equals No, do not include in Eligible Population. Stop Processing.
    b. If Patient Age is greater than or equal to 65 Years on Date of Encounter equals Yes, proceed to check Encounter Performed.
3. Check Encounter Performed:
    a. If Encounter as Listed in Denominator equals No, do not include in Eligible Population. Stop Processing.
    b. If Encounter as Listed in Denominator equals Yes, proceed to check Patients Who Use Hospice Services Any Time During the Measurement Period.
4. Check Patients Who Use Hospice Services Any Time During the Measurement Period:
    a. If Patients Who Use Hospice Services Any Time During the Measurement Period equals Yes, do not include in Eligible Population. Stop Processing.
    b. If Patients Who Use Hospice Services Any Time During the Measurement Period equals No, include in Eligible Population.
5. Denominator Population:
    a. Denominator Population is all Eligible Patients in the Denominator. Denominator is represented as Denominator in the Sample Calculation listed at the end of this document. Letter d^1 equals 80 patients in the Sample Calculation.
6. Start Numerator
7. Check One High-Risk Medication Ordered:
    a. If One High-Risk Medication Ordered equals Yes, include in Data Completeness Met and Performance Met.
    b. Data Completeness Met and Performance Met letter is represented as Data Completeness and Performance Rate in the Sample Calculation listed at the end of this document. Letter a^1 equals 40 patients in Sample Calculation.
    c. If One High-Risk Medication Ordered equals No, proceed to check One High-Risk Medication Not Ordered.
8. Check One High-Risk Medication Not Ordered:

a. If One High-Risk Medication Not Ordered equals Yes, include in Data Completeness Met and Performance Not Met.

b. Data Completeness Met and Performance Not Met letter is represented as Data Completeness in the Sample Calculation listed at the end of this document. Letter c^1 equals 30 patients in the Sample Calculation.

c. If One High-Risk Medication Not Ordered equals No, proceed to check Data Completeness Not Met.

9. Check Data Completeness Not Met:

a. If Data Completeness Not Met, the Quality Data Code or equivalent was not submitted. 10 patients have been subtracted from Data Completeness Numerator in the Sample Calculation.

SAMPLE CALCULATIONS SUBMISSION CRITERIA ONE

Data Completeness=

Performance Met (a^1=40 patients) + Performance Not Met (c^1=30 patients) / Eligible Population / Denominator (d^1=80 patients) = 70 patients / 80 patients = **87.50%**

Performance Rate=**

Performance Met (a^1=40 patients) / Data Completeness Numerator (70 patients) = 40 patients / 70 patients = **57.14%**

Submission Criteria Two:

1. Start with Denominator
2. Check Patient Age:
    a. If Patient Age is greater than or equal to 65 Years on Date of Encounter equals No, do not include in Eligible Population. Stop Processing.
    b. If Patient Age is greater than or equal to 65 Years on Date of Encounter equals Yes, proceed to check Encounter Performed.
3. Check Encounter Performed:
    a. If Encounter as Listed in Denominator equals No, do not include in Eligible Population. Stop Processing.
    b. If Encounter as Listed in Denominator equals Yes, proceed to check Patients Who Use Hospice Services Any Time During the Measurement Period.
4. Check Patients Who Use Hospice Services Any Time During the Measurement Period:
    a. If Patients Who Use Hospice Services Any Time During the Measurement Period equals Yes, do not include in Eligible Population. Stop Processing.
    b. If Patients Who Use Hospice Services Any Time During the Measurement Period equals No, include in Eligible Population.
5. Denominator Population:
    a. Denominator Population is all Eligible Patients in the Denominator. Denominator is represented as Denominator in the Sample Calculation listed at the end of this document. Letter d^2 equals 80 patients in the Sample Calculation.
6. Start Numerator
7. Check At Least Two Orders for the Same High-Risk Medication:
    a. If At Least Two Orders for the Same High-Risk Medication equals Yes, include in Data Completeness Met and Performance Met.
    b. Data Completeness Met and Performance Met letter is represented as Data Completeness and Performance Rate in the Sample Calculation listed at the end of this document. Letter a^2 equals 40 patients in Sample Calculation.
    c. If At Least Two Orders for the Same High-Risk Medication equals No, proceed to check At Least Two Orders for the Same High-Risk Medications Not Ordered.
8. Check At Least Two Orders for the Same High-Risk Medications Not Ordered:
    a. If At Least Two Orders for the Same High-Risk Medications Not Ordered equals Yes, include in Data Completeness Met and Performance Not Met.

b. Data Completeness Met and Performance Not Met letter is represented as Data Completeness in the Sample Calculation listed at the end of this document. Letter c^2 equals 30 patients in the Sample Calculation.

c. If At Least Two of the Same High-Risk Medications Not Ordered equals No, proceed to check Data Completeness Not Met.

9. Check Data Completeness Not Met:

   a. If Data Completeness Not Met, the Quality Data Code or equivalent was not submitted. 10 patients have been subtracted from Data Completeness Numerator in the Sample Calculation.

SAMPLE CALCULATIONS SUBMISSION CRITERIA TWO

Data Completeness=

$$\frac{\text{Performance Met } (a^2=40 \text{ patients}) + \text{Performance Not Met } (c^2=30 \text{ patients})}{\text{Eligible Population / Denominator } (d^2=80 \text{ patients})} = \frac{70 \text{ patients}}{80 \text{ patients}} = \mathbf{87.50\%}$$

Performance Rate=**

$$\frac{\text{Performance Met } (a^2=40 \text{ patients})}{\text{Data Completeness Numerator (70 patients)}} = \frac{40 \text{ patients}}{70 \text{ patients}} = \mathbf{57.14\%}$$