### Measure Title
Use of High-Risk Medications in the Elderly

<table>
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<th>eMeasure Identifier (Measure Authoring Tool)</th>
<th>eMeasure Version number</th>
<th>5.1.000</th>
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#### Description
Percentage of patients 66 years of age and older who were ordered high-risk medications. Two rates are reported.

a. **Percentage of patients who were ordered at least one high-risk medication.**

b. **Percentage of patients who were ordered at least two different high-risk medications.**

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#### Measure Scoring
Proportion

#### Measure Type
Process

#### Stratification
None

#### Risk Adjustment
None

#### Rate Aggregation
None

#### Rationale
Seniors receiving inappropriate medications are more likely to report poorer health status at follow-up, compared to seniors who receive appropriate medications (Fu, Liu, and Christensen 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 (Rothenberg 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
The measure is based on recommendations from the American Geriatrics Society Beers Criteria for Potentially
**Recommendation Statement**
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 Medication Management expert 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.

Certain medications (MacKinnon 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 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).

**Improvement Notation**
Lower score indicates better quality

**Reference**

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**Definition**
A high-risk medication is identified by either of the following:
- a. A prescription for medications classified as high risk at any dose and for any duration
- b. Prescriptions for medications classified as high risk at any dose with greater than a 90 day supply

**Guidance**
The intent of Numerator 1 of the measure is to assess if the patient has been prescribed at least one high-risk medication. The intent of Numerator 2 of the measure is to assess if the patient has been prescribed at least two different high-risk medications.

The intent of the measure is to assess if the reporting 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 reporting provider also ordered a high-risk medication for them.

**CUMULATIVE MEDICATION DURATION** is 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.
Use of High-Risk Medications in the Elderly

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#### Population Criteria

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<tr>
<th>Transmission Format</th>
<th>TBD</th>
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<tbody>
<tr>
<td><strong>Initial Population</strong></td>
<td>Patients 66 years and older who had a visit during the measurement period</td>
</tr>
<tr>
<td><strong>Denominator</strong></td>
<td>Equals Initial Population</td>
</tr>
<tr>
<td><strong>Denominator Exclusions</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Numerator</strong></td>
<td>Numerator 1: Patients with an order for at least one high-risk medication during the measurement period. Numerator 2: Patients with an order for at least two different high-risk medications during the measurement period.</td>
</tr>
<tr>
<td><strong>Numerator Exclusions</strong></td>
<td>Not Applicable</td>
</tr>
<tr>
<td><strong>Denominator Exceptions</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Supplemental Data Elements</strong></td>
<td>For every patient evaluated by this measure also identify payer, race, ethnicity and sex</td>
</tr>
</tbody>
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**------ Population Criteria 1 ------**

- **Initial Population** =
  - AND: Age>= 66 year(s) at: "Measurement Period"
  - AND: Union of:
    - "Encounter, Performed: Office Visit"
    - "Encounter, Performed: Ophthalmologic Outpatient Visit"
    - "Encounter, Performed: Face-to-Face Interaction"
    - "Encounter, Performed: Preventive Care Services - Established Office Visit, 18 and Up"
    - "Encounter, Performed: Preventive Care Services-Initial Office Visit, 18 and Up"
    - "Encounter, Performed: Annual Wellness Visit"
    - "Encounter, Performed: Home Healthcare Services"
  - during "Measurement Period"

- **Denominator** =
  - AND: Initial Population

- **Denominator Exclusions** =
  - None

- **Numerator** =
  - AND:
    - OR: "Medication, Order: High Risk Medications for the Elderly" during "Measurement Period"
    - OR: Sum> 90 day(s): "Medication, Order: High-Risk Medications With Days Supply Criteria (cumulative medication duration)" during "Measurement Period"

- **Numerator Exclusions** =
  - None

- **Denominator Exceptions** =
  - None

- **Stratification** =
  - None

**------ Population Criteria 2 ------**

- **Initial Population** =
  - AND: Age>= 66 year(s) at: "Measurement Period"
  - AND: Union of:
    - "Encounter, Performed: Office Visit"
    - "Encounter, Performed: Ophthalmologic Outpatient Visit"
    - "Encounter, Performed: Face-to-Face Interaction"
    - "Encounter, Performed: Preventive Care Services - Established Office Visit, 18 and Up"
    - "Encounter, Performed: Preventive Care Services-Initial Office Visit, 18 and Up"
    - "Encounter, Performed: Annual Wellness Visit"
    - "Encounter, Performed: Home Healthcare Services"
  - during "Measurement Period"

- **Denominator** =
AND: Initial Population

- **Denominator Exclusions** = None
- **Numerator** =
  - AND: Count>= 2 : Union of:
    - "Medication, Order: High Risk Medications for the Elderly"
    - "Medication, Order: High-Risk Medications With Days Supply Criteria (cumulative medication duration > 90 day(s))"
    - during "Measurement Period"
- **Numerator Exclusions** = None
- **Denominator Exceptions** = None
- **Stratification** = None

**Data Criteria (QDM Variables)**

- None

**Data Criteria (QDM Data Elements)**

- "Encounter, Performed: Annual Wellness Visit" using "Annual Wellness Visit Grouping Value Set (2.16.840.1.113883.3.526.3.1240)"
- "Encounter, Performed: Face-to-Face Interaction" using "Face-to-Face Interaction Grouping Value Set (2.16.840.1.113883.3.464.1003.101.12.1048)"
- "Encounter, Performed: Office Visit" using "Office Visit Grouping Value Set (2.16.840.1.113883.3.464.1003.101.12.1001)"
- "Encounter, Performed: Ophthalmologic Outpatient Visit" using "Ophthalmologic Outpatient Visit CPT Value Set (2.16.840.1.113883.3.464.1003.101.11.1206)"
- "Encounter, Performed: Preventive Care Services - Established Office Visit, 18 and Up" using "Preventive Care Services - Established Office Visit, 18 and Up Grouping Value Set (2.16.840.1.113883.3.464.1003.101.12.1025)"
- "Encounter, Performed: Preventive Care Services-Initial Office Visit, 18 and Up" using "Preventive Care Services-Initial Office Visit, 18 and Up Grouping Value Set (2.16.840.1.113883.3.464.1003.101.12.1023)"

**Supplemental Data Elements**

- "Patient Characteristic Ethnicity: Ethnicity" using "Ethnicity CDCREC Value Set (2.16.840.1.114222.4.11.837)"
- "Patient Characteristic Payer: Payer" using "Payer SOP Value Set (2.16.840.1.114222.4.11.3591)"
- "Patient Characteristic Race: Race" using "Race CDCREC Value Set (2.16.840.1.114222.4.11.836)"
- "Patient Characteristic Sex: ONC Administrative Sex" using "ONC Administrative Sex AdministrativeGender Value Set (2.16.840.1.113762.1.4.1)"

**Risk Adjustment Variables**

- None

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<th>Measure Set</th>
<th>None</th>
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