| eCQM Title | Use of High-Risk Medications in Older Adults | | |
|---|---|---|---|
| eCQM Identifier (Measure Authoring Tool) | 156 | eCQM Version Number | 13.2.000 |
| CBE Number | Not Applicable | GUID | a3837ff8-1abc-4ba9-800e-fd4e7953adbd |
| Measurement Period | January 1, 20XX through December 31, 20XX | | |
| Measure Steward | National Committee for Quality Assurance | | |
| Measure Developer | National Committee for Quality Assurance | | |
| Endorsed By | None | | |
| Description | Percentage of patients 65 years of age and older who were ordered at least two high-risk medications from the same drug class. Three rates are reported. 1. Percentage of patients 65 years of age and older who were ordered at least two high-risk medications from the same drug class. 2. Percentage of patients 65 years of age and older who were ordered at least two high-risk medications from the same drug class, except for appropriate diagnoses. 3. Total rate (the sum of the two numerators divided by the denominator, deduplicating for patients in both numerators). | | |
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| Measure Scoring | Proportion | | |
| Measure Type | Process | | |
| Stratification | None | | |
| Risk Adjustment | None | | |
| Rate Aggregation | None | | |
| 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 older adults (Kaufman, Brodin, & Sarafian, 2005). Potentially inappropriate medication (PIM) 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). Use of specific high-risk medications such as hypnotics, including benzodiazepine receptor agonists, and nonsteroidal anti-inflammatory drugs (NSAIDS) can result in increased risk of delirium, falls, fractures, gastrointestinal bleeding and acute kidney injury (Merel & Paauw, 2017). Long-term use of benzodiazepines in older adults has been associated with increased risk of dementia (Zhong, Wang, Zhang, & Zhao, 2015; Takada et al., 2016). Additionally, the use of antipsychotics can lead to increased risk of stroke and greater cognitive decline in older adults with dementia (Tampi et al., 2016). Among Medicare beneficiaries it is estimated that the prevalence of PIM use was 77% among long-stay nursing home residents (defined as >101 consecutive days in a nursing home). The most common PIMs were benzodiazepines, antipsychotics, and insulin (Riester et al., 2023). Older adults receiving inappropriate medications are more likely to report poorer health status at follow-up, compared to those who receive appropriate medications (Fu, Liu, & 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 (ADEs) are unavoidable, studies estimate that between 30 and 80 percent of ADEs in older adults are preventable (MacKinnon & Hepler, 2003). More recently with the onset of the COVID-19 pandemic, several studies have shown an increase in anxiety, insomnia and depression rates, which could result in an increase in the use of high-risk medications in order to treat these conditions (Agrawal, 2020). 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 older adults 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 ADEs in the Medicare population have been estimated to exceed $800 million (Institute of Medicine, 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 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 older adult population continues to grow, the number of older adults who present with multiple medical conditions for which several medications are prescribed will likely continue to increase, resulting in polypharmacy concerns (Gray & Gardner, 2009). | | |
| Clinical Recommendation Statement | The measure is based on recommendations from the American Geriatrics Society Beers Criteria[R] for Potentially Inappropriate Medication Use in Older Adults (2023). The criteria were developed through key clinical expert consensus processes by Beers in 1997, Zhan in 2001, Fick et al. in 2003, 2012, 2015, and 2019 and, most recently the American Geriatrics Society Beers Criteria Update Expert Panel in 2023. The Beers Criteria identifies lists of drugs that are potentially inappropriate for all older adults, except for those with certain conditions for which some high-risk medications may be warranted, and drugs that are potentially inappropriate in older adults based on various high-risk factors such as dosage, days supply and underlying diseases or conditions. NCQA's Geriatric Measurement Advisory Panel recommended a subset of drugs that should be used with caution in older adults for inclusion in the measure based upon the recommendations in the Beers Criteria. | | |

| Improvement Notation | Lower score indicates better quality |
|---|---|
| Reference | Reference Type: CITATION<br><br>Reference Text: 'Agrawal, R. (2020). Careful Prescribing of Benzodiazepines during COVID-19 Pandemic: A Review. Journal of Mental Health & Clinical Psychology, 4(4). Retrieved from https://www.mentalhealthjournal.org/articles/careful-prescribing-of-benzodiazepines-during-covid-19-pandemic-a-review.html' |
| Reference | Reference Type: CITATION<br><br>Reference Text: 'Fick, D. M., Semla, T., Beizer, J., et al. (2015). American Geriatrics Society 2015 Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. Journal of the American Geriatrics Society, 63(11), 2227-2246.' |
| Reference | Reference Type: CITATION<br><br>Reference Text: 'Beers, M. H. (1997). Explicit criteria for determining potentially inappropriate medication use by the elderly. Archives of Internal Medicine, 157, 1531-1536.' |
| Reference | Reference Type: CITATION<br><br>Reference Text: 'Fick, D., Semla, T., Beizer, J., et al. (2012). American Geriatrics Society updated Beers criteria for potentially inappropriate medication use in older adults: The American Geriatrics Society 2012 Beers Criteria Update Expert Panel. Journal of the American Geriatrics Society, 60(4), 616.' |
| Reference | Reference Type: CITATION<br><br>Reference Text: 'Fick, D. M., Cooper, J. W., Wade, W. E., et al. (2003). Updating the Beers criteria for potentially inappropriate medication use in older adults. Archives of Internal Medicine, 163(22), 2716-2724.' |
| Reference | Reference Type: CITATION<br><br>Reference Text: 'Fick, D. M., Mion, L. C., Beers, M. H., et al. (2008). Health outcomes associated with potentially inappropriate medication use in older adults. Research in Nursing & Health, 31(1), 42-51.' |
| Reference | Reference Type: CITATION<br><br>Reference Text: 'Fu, A. Z., Liu, G. G., & Christensen, D. B. (2004). Inappropriate medication use and health outcomes in the elderly. Journal of the American Geriatrics Society, 52(11), 1934-1939.' |
| Reference | Reference Type: CITATION<br><br>Reference Text: 'Fu, A. Z., Jiang, J. Z., Reeves, J. H., Fincham, J. E., Liu, G. G., & Perri, M. (2007). Potentially Inappropriate Medication Use and Healthcare Expenditures in the US Community-Dwelling Elderly. Medical Care, 45(5), 472–476. Retrieved from http://www.jstor.org/stable/40221449' |
| Reference | Reference Type: CITATION<br><br>Reference Text: 'Gray, C. L., & Gardner, C. (2009). Adverse drug events in the elderly: An ongoing problem. Journal of Managed Care & Specialty Pharmacy, 15(7), 568-571.' |
| Reference | Reference Type: CITATION<br><br>Reference Text: 'Hagstrom, K., Nailor, M., Lindberg, M., Hobbs, L., & Sobieraj, D. M. (2015). Association Between Potentially Inappropriate Medication Use in Elderly Adults and Hospital-Related Outcomes. Journal of the American Geriatrics Society, 63(1), 185-186.' |
| Reference | Reference Type: CITATION<br><br>Reference Text: 'Institute of Medicine, Committee on Identifying and Preventing Medication Errors. (2007). Preventing medication errors. Aspden, P., Wolcott, J. A., Bootman, J. L., & Cronenwatt, L. R. (Eds.). Washington, DC: National Academy Press.' |
| Reference | Reference Type: CITATION<br><br>Reference Text: 'Kaufman, M. B., Brodin, K. A., & Sarafian, A. (2005, April/May). Effect of prescriber education on the use of medications contraindicated in older adults in a managed Medicare population. Journal of Managed Care & Specialty Pharmacy, 11(3), 211-219.' |
| Reference | Reference Type: CITATION<br><br>Reference Text: 'Lau, D.T., J.D., Kasper, D.E., Potter, & A. Lyles. (2004). Potentially Inappropriate Medication Prescriptions Among Elderly Nursing Home Residents: Their Scope and Associated Resident and Facility Characteristics. Health Services Research, 39(5), 1257-1276.' |
| Reference | Reference Type: CITATION<br><br>Reference Text: 'MacKinnon, N. J., & Hepler, C. D. (2003). Indicators of preventable drug-related morbidity in older adults: Use within a managed care organization. Journal of Managed Care & Specialty Pharmacy, 9(2), 134-141.' |
| Reference | Reference Type: CITATION<br><br>Reference Text: 'Merel, S.E., & Paauw, D.S. Paauw. (2017). Common Drug Side Effects and Drug-Drug Interactions in Elderly Adults in Primary Care. Journal of the American Geriatrics Society, 65(7), 1578-1585.' |
| Reference | Reference Type: CITATION<br><br>Reference Text: 'Rothberg, M. B., Perkow, P. S., Liu, F., et al. (2008). Potentially inappropriate medication use in hospitalized elders. Journal of Hospital Medicine, 3(2), 91-102.' |
| Reference | Reference Type: CITATION<br><br>Reference Text: 'Takada, M., M. Fujimoto, & K. Hosomi. (2016). Association between benzodiazepine use and dementia: data mining of different medical databases. International Journal of Medical Sciences, 13(11), 825-834.' |
| Reference | Reference Type: CITATION<br><br>Reference Text: 'Tampi, R.R., D.J. Tampi, S. Balachandran, & S. Srinivasan. (2016). Antipsychotic use in dementia: a systematic review of benefits and risks from meta-analyses. Therapeutic Advances in Chronic Disease, 7(5), 229-245.' |
| Reference | Reference Type: CITATION<br><br>Reference Text: 'Zhan, C., Sangl, J., Bierman, A. S., et al. (2001). Potentially inappropriate medication use in the community-dwelling elderly. JAMA, 286(22), 2823-2868.' |
| Reference | Reference Type: CITATION<br><br>Reference Text: 'Zhong, G., Wang, Y., Zhang, Y., & Zhao, Y. (2015). Association between benzodiazepine use and dementia: a meta-analysis. PLoS One, 10(5).' |
| Reference | Reference Type: CITATION<br><br>Reference Text: 'Fick, D. M., Semla, T. P., Steinman, M., et al. (2019). American Geriatrics Society 2019 Updated AGS Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. Journal of the American Geriatrics Society, 67(4), 674-694.' |
| Reference | Reference Type: CITATION<br><br>Reference Text: 'Riester, M. R., Goyal, P., Steinman, M. A., et al. (2023). Prevalence of Potentially Inappropriate Medication Prescribing in US Nursing Homes, 2013–2017. Journal of General Internal Medicine, 38(6), 1563-1566.' |
| Reference | Reference Type: CITATION |

| | |
|---|---|
| | Reference Text: 'The 2023 American Geriatrics Society Beers Criteria Update Expert Panel. (2023). American Geriatrics Society 2023 updated AGS Beers Criteria for potentially inappropriate medication use in older adults. Journal of the American Geriatrics Society, 71(7), 2052-2081.' |
| Definition | Index Prescription Start Date (IPSD). The start date of the earliest prescription ordered for a high-risk medication during the measurement period.<br><br>A high-risk medication is identified by any one of the following:<br>a. A prescription for medications classified as high risk at any dose and for any duration.<br>b. A prescription for medications classified as high risk at any dose with greater than a 90 day supply.<br>c. A prescription for medications classified as high risk exceeding average daily dose criteria.<br><br>An order is identified by either a prescription order or a prescription refill. |
| Guidance | The intent of the measure is to assess if the patient has been ordered at least two high-risk medication prescriptions from the same drug class on different days.<br><br>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 from the same drug class for them.<br><br>Calculate average daily dose for each prescription event. To calculate average daily dose, multiply the quantity of pills prescribed by the dose of each pill and divide by the days supply. For example, a prescription for the 30-days supply of digoxin containing 15 pills, 0.25 mg each pill, has an average daily dose of 0.125 mg. To calculate average daily dose for elixirs and concentrates, multiply the volume prescribed by daily dose and divide by the days supply. Do not round when calculating average daily dose.<br><br>This eCQM is a patient-based measure.<br><br>This version of the eCQM uses QDM version 5.6. Please refer to the eCQI resource center (https://ecqi.healthit.gov/qdm) for more information on the QDM. |
| Transmission Format | TBD |
| Initial Population | Patients 65 years and older at the end of the measurement period who had a visit during the measurement period |
| Denominator | Equals Initial Population |
| Denominator Exclusions | Exclude patients who are in hospice care for any part of the measurement period.<br><br>Exclude patients receiving palliative care for any part of the measurement period. |
| Numerator | Rate 1: Patients with at least two orders of high-risk medications from the same drug class on different days.<br>a. At least two orders of high-risk medications from the same drug class.<br>b. At least two orders of high-risk medications from the same drug class with summed days supply greater than 90 days.<br>c. At least two orders of high-risk medications from the same drug class each exceeding average daily dose criteria.<br><br>Rate 2: Patients with at least two orders of high-risk medications from the same drug class (i.e., antipsychotics and benzodiazepines) on different days except for appropriate diagnoses.<br>a. Patients with two or more antipsychotic prescriptions ordered on different days, and who did not have a diagnosis of schizophrenia, schizoaffective disorder, or bipolar disorder on or between January 1 of the year prior to the measurement period and the IPSD for antipsychotics.<br>b. Patients with two or more benzodiazepine prescriptions ordered on different days, and who did not have a diagnosis of seizure disorders, rapid eye movement sleep behavior disorder, benzodiazepine withdrawal, ethanol withdrawal, or severe generalized anxiety disorder on or between January 1 of the year prior to the measurement period and the IPSD for benzodiazepines.<br><br>Total rate (the sum of the two previous numerators, deduplicated). |
| Numerator Exclusions | Not Applicable |
| Denominator Exceptions | None |
| Supplemental Data Elements | For every patient evaluated by this measure also identify payer, race, ethnicity and sex |

## Table of Contents

## Population Criteria

### ◢ Population Criteria 1

#### ◢ Initial Population

```
AgeInYearsAt(date from
  end of "Measurement Period"
) >= 65
  and exists ( "Qualifying Encounters" )
```

#### ◢ Denominator

```
"Initial Population"
```

#### ◢ Denominator Exclusions

```
Hospice."Has Hospice Services"
  or PalliativeCare."Has Palliative Care in the Measurement Period"
```

#### ◢ Numerator

```
exists ( "Same High Risk Medications Ordered on Different Days" )
  or ( "Two High Risk Medications with Prolonged Duration" )
  or ( "High Risk Medications with Average Daily Dose Criteria" )
```

#### ◢ Numerator Exclusions

None

#### ◢ Denominator Exceptions

None

#### ◢ Stratification

None

#### ◢ Population Criteria 2

##### ◢ Initial Population

AgeInYearsAt(date from
  end of "Measurement Period"
) >= 65
  and exists ( "Qualifying Encounters" )

##### ◢ Denominator

"Initial Population"

##### ◢ Denominator Exclusions

Hospice."Has Hospice Services"
  or PalliativeCare."Has Palliative Care in the Measurement Period"

##### ◢ Numerator

( "More than One Antipsychotic Order"
   and ( not exists ( ( ["Diagnosis": "Schizophrenia"]
      union ["Diagnosis": "Bipolar Disorder"] ) AntipsychoticTreatedDiagnoses
      where AntipsychoticTreatedDiagnoses.prevalencePeriod overlaps Interval[start of "Measurement Period" - 1 year, "Antipsychotic Index Prescription Start Date"]
   )
   )
)
  or ( "More than One Benzodiazepine Order"
   and ( not exists ( ( ["Diagnosis": "Seizure Disorder"]
      union ["Diagnosis": "REM Sleep Behavior Disorder"]
      union ["Diagnosis": "Benzodiazepine Withdrawal"]
      union ["Diagnosis": "Alcohol Withdrawal"]
      union ["Diagnosis": "Generalized Anxiety Disorder"] ) BenzodiazepineTreatedDiagnoses
      where BenzodiazepineTreatedDiagnoses.prevalencePeriod overlaps Interval[start of "Measurement Period" - 1 year, "Benzodiazepine Index Prescription Start
Date"]
   )
   )
 )

##### ◢ Numerator Exclusions

None

##### ◢ Denominator Exceptions

None

##### ◢ Stratification

None

#### ◢ Population Criteria 3

##### ◢ Initial Population

AgeInYearsAt(date from
  end of "Measurement Period"
) >= 65
  and exists ( "Qualifying Encounters" )

##### ◢ Denominator

"Initial Population"

##### ◢ Denominator Exclusions

Hospice."Has Hospice Services"
  or PalliativeCare."Has Palliative Care in the Measurement Period"

##### ◢ Numerator

"Numerator 2"
  or ( "Numerator 1"
   and not "Numerator 2"
 )

##### ◢ Numerator Exclusions

None

##### ◢ Denominator Exceptions

None

##### ◢ Stratification

None

## Definitions

#### ◢ Antipsychotic Index Prescription Start Date

First(["Medication, Order": "Potentially Harmful Antipsychotics for Older Adults"] AntipsychoticMedication
  where AntipsychoticMedication.authorDatetime during "Measurement Period"
  return AntipsychoticMedication.authorDatetime
  sort asc
)

#### ◢ Benzodiazepine Index Prescription Start Date

First(["Medication, Order": "Potentially Harmful Benzodiazepines for Older Adults"] BenzodiazepineMedication
  where BenzodiazepineMedication.authorDatetime during "Measurement Period"
  return BenzodiazepineMedication.authorDatetime
  sort asc
)

#### ◢ Denominator

"Initial Population"

## ◢ Denominator Exclusions

Hospice."Has Hospice Services"
  or PalliativeCare."Has Palliative Care in the Measurement Period"

## ◢ High Risk Medications with Average Daily Dose Criteria

exists ( "More Than One Order"(["Medication, Order": "Digoxin Medications"] DigoxinOrdered
    where "Average Daily Dose"(DigoxinOrdered) > 0.125 'mg/d'
  )
)
  or exists ( "More Than One Order"(["Medication, Order": "Doxepin Medications"] DoxepinOrdered
      where "Average Daily Dose"(DoxepinOrdered) > 6 'mg/d'
  )
)

## ◢ Hospice.Has Hospice Services

exists ( ["Encounter, Performed": "Encounter Inpatient"] InpatientEncounter
    where ( InpatientEncounter.dischargeDisposition ~ "Discharge to home for hospice care (procedure)"
      or InpatientEncounter.dischargeDisposition ~ "Discharge to healthcare facility for hospice care (procedure)"
    )
      and InpatientEncounter.relevantPeriod ends during day of "Measurement Period"
)
  or exists ( ["Encounter, Performed": "Hospice Encounter"] HospiceEncounter
    where HospiceEncounter.relevantPeriod overlaps day of "Measurement Period"
  )
  or exists ( ["Assessment, Performed": "Hospice care [Minimum Data Set]"] HospiceAssessment
    where HospiceAssessment.result ~ "Yes (qualifier value)"
      and Global."NormalizeInterval" ( HospiceAssessment.relevantDatetime, HospiceAssessment.relevantPeriod ) overlaps day of "Measurement Period"
  )
  or exists ( ["Intervention, Order": "Hospice Care Ambulatory"] HospiceOrder
    where HospiceOrder.authorDatetime during day of "Measurement Period"
  )
  or exists ( ["Intervention, Performed": "Hospice Care Ambulatory"] HospicePerformed
    where Global."NormalizeInterval" ( HospicePerformed.relevantDatetime, HospicePerformed.relevantPeriod ) overlaps day of "Measurement Period"
  )
  or exists ( ["Diagnosis": "Hospice Diagnosis"] HospiceCareDiagnosis
    where HospiceCareDiagnosis.prevalencePeriod overlaps day of "Measurement Period"
  )

## ◢ Initial Population

AgeInYearsAt(date from
  end of "Measurement Period"
) >= 65
  and exists ( "Qualifying Encounters" )

## ◢ More than One Antipsychotic Order

exists ( "More Than One Order"(["Medication, Order": "Potentially Harmful Antipsychotics for Older Adults"]) )

## ◢ More than One Benzodiazepine Order

exists ( "More Than One Order"(["Medication, Order": "Potentially Harmful Benzodiazepines for Older Adults"]) )

## ◢ Numerator 1

exists ( "Same High Risk Medications Ordered on Different Days" )
  or ( "Two High Risk Medications with Prolonged Duration" )
  or ( "High Risk Medications with Average Daily Dose Criteria" )

## ◢ Numerator 2

( "More than One Antipsychotic Order"
  and ( not exists ( ( ["Diagnosis": "Schizophrenia"]
        union ["Diagnosis": "Bipolar Disorder"] ) AntipsychoticTreatedDiagnoses
        where AntipsychoticTreatedDiagnoses.prevalencePeriod overlaps Interval[start of "Measurement Period" - 1 year, "Antipsychotic Index Prescription Start Date"]
    )
  )
)
  or ( "More than One Benzodiazepine Order"
    and ( not exists ( ( ["Diagnosis": "Seizure Disorder"]
        union ["Diagnosis": "REM Sleep Behavior Disorder"]
        union ["Diagnosis": "Benzodiazepine Withdrawal"]
        union ["Diagnosis": "Alcohol Withdrawal"]
        union ["Diagnosis": "Generalized Anxiety Disorder"] ) BenzodiazepineTreatedDiagnoses
        where BenzodiazepineTreatedDiagnoses.prevalencePeriod overlaps Interval[start of "Measurement Period" - 1 year, "Benzodiazepine Index Prescription Start
Date"]
    )
  )
)

## ◢ Numerator 3

"Numerator 2"
  or ( "Numerator 1"
    and not "Numerator 2"
  )

## ◢ PalliativeCare.Has Palliative Care in the Measurement Period

exists ( ["Assessment, Performed": "Functional Assessment of Chronic Illness Therapy - Palliative Care Questionnaire (FACIT-Pal)"] PalliativeAssessment
    where Global."NormalizeInterval" ( PalliativeAssessment.relevantDatetime, PalliativeAssessment.relevantPeriod ) overlaps day of "Measurement Period"
)
  or exists ( ["Diagnosis": "Palliative Care Diagnosis"] PalliativeDiagnosis
    where PalliativeDiagnosis.prevalencePeriod overlaps day of "Measurement Period"
  )
  or exists ( ["Encounter, Performed": "Palliative Care Encounter"] PalliativeEncounter
    where PalliativeEncounter.relevantPeriod overlaps day of "Measurement Period"
  )
  or exists ( ["Intervention, Performed": "Palliative Care Intervention"] PalliativeIntervention
    where Global."NormalizeInterval" ( PalliativeIntervention.relevantDatetime, PalliativeIntervention.relevantPeriod ) overlaps day of "Measurement Period"
  )

## ◢ Qualifying Encounters

( ["Encounter, Performed": "Office Visit"]
  union ["Encounter, Performed": "Ophthalmological Services"]
  union ["Encounter, Performed": "Preventive Care Services Established Office Visit, 18 and Up"]
  union ["Encounter, Performed": "Discharge Services Nursing Facility"]
  union ["Encounter, Performed": "Nursing Facility Visit"]
  union ["Encounter, Performed": "Care Services in Long Term Residential Facility"]

```
        union ["Encounter, Performed": "Preventive Care Services Initial Office Visit, 18 and Up"]
        union ["Encounter, Performed": "Annual Wellness Visit"]
        union ["Encounter, Performed": "Home Healthcare Services"]
        union ["Encounter, Performed": "Telephone Visits"]
        union ["Encounter, Performed": "Virtual Encounter"]
        union ["Encounter, Performed": "Office or other outpatient visit for the evaluation and management of an established patient that may not require the presence of a
    physician or other qualified health care professional"] ) ValidEncounters
        where ValidEncounters.relevantPeriod during "Measurement Period"
```

### ◢ Same High Risk Medications Ordered on Different Days

```
    "More Than One Order"(["Medication, Order": "Potentially Harmful Antihistamines for Older Adults"])
        union "More Than One Order"(["Medication, Order": "Potentially Harmful Antiparkinsonian Agents for Older Adults"])
        union "More Than One Order"(["Medication, Order": "Potentially Harmful Gastrointestinal Antispasmodics for Older Adults"])
        union "More Than One Order"(["Medication, Order": "Dipyridamole Medications"])
        union "More Than One Order"(["Medication, Order": "Guanfacine Medications"])
        union "More Than One Order"(["Medication, Order": "Nifedipine Medications"])
        union "More Than One Order"(["Medication, Order": "Potentially Harmful Antidepressants for Older Adults"])
        union "More Than One Order"(["Medication, Order": "Potentially Harmful Barbiturates for Older Adults"])
        union "More Than One Order"(["Medication, Order": "ergoloid mesylates, USP 1 MG Oral Tablet"])
        union "More Than One Order"(["Medication, Order": "Meprobamate Medications"])
        union "More Than One Order"(["Medication, Order": "Potentially Harmful Estrogens for Older Adults"])
        union "More Than One Order"(["Medication, Order": "Potentially Harmful Sulfonylureas for Older Adults"])
        union "More Than One Order"(["Medication, Order": "Desiccated Thyroid Medications"])
        union "More Than One Order"(["Medication, Order": "Potentially Harmful Nonbenzodiazepine Hypnotics for Older Adults"])
        union "More Than One Order"(["Medication, Order": "Potentially Harmful Skeletal Muscle Relaxants for Older Adults"])
        union "More Than One Order"(["Medication, Order": "Potentially Harmful Pain Medications for Older Adults"])
        union "More Than One Order"(["Medication, Order": "Megestrol Medications"])
        union "More Than One Order"(["Medication, Order": "Meperidine Medications"])
```

### ◢ SDE Ethnicity

```
    ["Patient Characteristic Ethnicity": "Ethnicity"]
```

### ◢ SDE Payer

```
    ["Patient Characteristic Payer": "Payer Type"]
```

### ◢ SDE Race

```
    ["Patient Characteristic Race": "Race"]
```

### ◢ SDE Sex

```
    ["Patient Characteristic Sex": "ONC Administrative Sex"]
```

### ◢ Two High Risk Medications with Prolonged Duration

```
    Sum(("More Than One Order"(["Medication, Order": "Potentially Harmful Antiinfectives for Older Adults"])) AntiInfectives
        let DaysSupply: Coalesce(AntiInfectives.daysSupplied, AntiInfectives.supply.value /(AntiInfectives.dosage.value * CMD.ToDaily(AntiInfectives.frequency))) *(1 +
    Coalesce(AntiInfectives.refills, 0))
        return all DaysSupply
    ) > 90
```

## Functions

### ◢ Average Daily Dose(MedicationOrder "Medication, Order")

```
    MedicationOrder Order
        let MedicationStrength: "MedicationStrengthPerUnit"(Order.code),
        DaysSupplied: Coalesce(Order.daysSupplied, Order.supply.value /(Order.dosage.value * CMD.ToDaily(Order.frequency)))
        return if DaysSupplied is not null
            and ( MedicationStrength.unit = 'mg'
              or ( MedicationStrength.unit = 'mg/mL'
                and Order.supply.unit = 'mL'
              )
        ) then ( ( Order.supply * MedicationStrength ) / Quantity { value: DaysSupplied, unit: 'd' } )
            else null
```

### ◢ CMD.CodeToDaily(Frequency Code)

```
    case
        when Frequency ~ "Once daily (qualifier value)" then 1.0
        when Frequency ~ "Twice a day (qualifier value)" then 2.0
        when Frequency ~ "Three times daily (qualifier value)" then 3.0
        when Frequency ~ "Four times daily (qualifier value)" then 4.0
        when Frequency ~ "Every twenty four hours (qualifier value)" then 1.0
        when Frequency ~ "Every twelve hours (qualifier value)" then 2.0
        when Frequency ~ "Every thirty six hours (qualifier value)" then 0.67
        when Frequency ~ "Every eight hours (qualifier value)" then 3.0
        when Frequency ~ "Every four hours (qualifier value)" then 6.0
        when Frequency ~ "Every six hours (qualifier value)" then 4.0
        when Frequency ~ "Every seventy two hours (qualifier value)" then 0.33
        when Frequency ~ "Every forty eight hours (qualifier value)" then 0.5
        when Frequency ~ "Every eight to twelve hours (qualifier value)" then 3.0
        when Frequency ~ "Every six to eight hours (qualifier value)" then 4.0
        when Frequency ~ "Every three to four hours (qualifier value)" then 8.0
        when Frequency ~ "Every three to six hours (qualifier value)" then 8.0
        when Frequency ~ "Every two to four hours (qualifier value)" then 12.0
        when Frequency ~ "One to four times a day (qualifier value)" then 4.0
        when Frequency ~ "One to three times a day (qualifier value)" then 3.0
        when Frequency ~ "One to two times a day (qualifier value)" then 2.0
        when Frequency ~ "Two to four times a day (qualifier value)" then 4.0
        else null
    end
```

### ◢ CMD.QuantityToDaily(Frequency Quantity)

```
    case Frequency.unit
        when 'h' then (24.0 / Frequency.value)
        when 'min' then (24.0 / Frequency.value) * 60
        when 's' then (24.0 / Frequency.value) * 60 * 60
        when 'd' then (24.0 / Frequency.value) / 24
        when 'wk' then (24.0 / Frequency.value) / (24 * 7)
        when 'mo' then (24.0 / Frequency.value) / (24 * 30) /* assuming 30 days in month */
        when 'a' then (24.0 / Frequency.value) / (24 * 365) /* assuming 365 days in year */
        when 'hour' then (24.0 / Frequency.value)
        when 'minute' then (24.0 / Frequency.value) * 60
        when 'second' then (24.0 / Frequency.value) * 60 * 60
        when 'day' then (24.0 / Frequency.value) / 24
        when 'week' then (24.0 / Frequency.value) / (24 * 7)
        when 'month' then (24.0 / Frequency.value) / (24 * 30) /* assuming 30 days in month */
        when 'year' then (24.0 / Frequency.value) / (24 * 365) /* assuming 365 days in year */
        when 'hours' then (24.0 / Frequency.value)
        when 'minutes' then (24.0 / Frequency.value) * 60
        when 'seconds' then (24.0 / Frequency.value) * 60 * 60
```

```
        when 'days' then (24.0 / Frequency.value) / 24
        when 'weeks' then (24.0 / Frequency.value) / (24 * 7)
        when 'months' then (24.0 / Frequency.value) / (24 * 30) /* assuming 30 days in month */
        when 'years' then (24.0 / Frequency.value) / (24 * 365) /* assuming 365 days in year */
        else null
      end
```

### ◢ CMD.ToDaily(Frequency Choice<Quantity, Code>)

```
      case
        when Frequency is Quantity then QuantityToDaily(Frequency as Quantity)
        else CodeToDaily(Frequency as Code)
      end
```

### ◢ Global.NormalizeInterval(pointInTime DateTime, period Interval<DateTime>)

```
      if pointInTime is not null then Interval[pointInTime, pointInTime]
        else if period is not null then period
        else null as Interval<DateTime>
```

### ◢ MedicationStrengthPerUnit(Strength Code)

```
      case
        when Strength ~ "digoxin 0.05 MG/ML Oral Solution" then 0.05 'mg/mL'
        when Strength ~ "digoxin 0.0625 MG Oral Tablet" then 0.0625 'mg'
        when Strength ~ "1 ML digoxin 0.1 MG/ML Injection" then 0.1 'mg/mL'
        when Strength ~ "digoxin 0.125 MG Oral Tablet" then 0.125 'mg'
        when Strength ~ "digoxin 0.25 MG Oral Tablet" then 0.25 'mg'
        when Strength ~ "2 ML digoxin 0.25 MG/ML Injection" then 0.25 'mg/mL'
        when Strength ~ "doxepin 3 MG Oral Tablet" then 3 'mg'
        when Strength ~ "doxepin 6 MG Oral Tablet" then 6 'mg'
        when Strength ~ "doxepin 10 MG Oral Capsule" then 10 'mg'
        when Strength ~ "doxepin 10 MG/ML Oral Solution" then 10 'mg/mL'
        when Strength ~ "doxepin 25 MG Oral Capsule" then 25 'mg'
        when Strength ~ "doxepin 50 MG Oral Capsule" then 50 'mg'
        when Strength ~ "doxepin 75 MG Oral Capsule" then 75 'mg'
        when Strength ~ "doxepin 100 MG Oral Capsule" then 100 'mg'
        when Strength ~ "doxepin 150 MG Oral Capsule" then 150 'mg'
        else null end
```

### ◢ More Than One Order(Medication List<"Medication, Order">)

```
      "Medication" OrderMedication1
        with "Medication" OrderMedication2
          such that ( OrderMedication1.authorDatetime during "Measurement Period"
            and OrderMedication1.refills >= 1
          )
          or ( date from OrderMedication1.authorDatetime !~ date from OrderMedication2.authorDatetime
              and OrderMedication1.authorDatetime during "Measurement Period"
              and OrderMedication2.authorDatetime during "Measurement Period"
          )
          or ( date from OrderMedication1.authorDatetime ~ date from OrderMedication2.authorDatetime
              and OrderMedication1.authorDatetime during "Measurement Period"
              and date from start of OrderMedication1.relevantPeriod !~ date from start of OrderMedication2.relevantPeriod
              and start of OrderMedication1.relevantPeriod during "Measurement Period"
              and start of OrderMedication2.relevantPeriod during "Measurement Period"
          )
        return OrderMedication1
```

## Terminology

- code "1 ML digoxin 0.1 MG/ML Injection" ("RXNORM Code (204504)")
- code "2 ML digoxin 0.25 MG/ML Injection" ("RXNORM Code (104208)")
- code "digoxin 0.05 MG/ML Oral Solution" ("RXNORM Code (393245)")
- code "digoxin 0.0625 MG Oral Tablet" ("RXNORM Code (245273)")
- code "digoxin 0.125 MG Oral Tablet" ("RXNORM Code (197604)")
- code "digoxin 0.25 MG Oral Tablet" ("RXNORM Code (197606)")
- code "Discharge to healthcare facility for hospice care (procedure)" ("SNOMEDCT Code (428371000124100)")
- code "Discharge to home for hospice care (procedure)" ("SNOMEDCT Code (428361000124107)")
- code "doxepin 10 MG Oral Capsule" ("RXNORM Code (1000048)")
- code "doxepin 10 MG/ML Oral Solution" ("RXNORM Code (1000054)")
- code "doxepin 100 MG Oral Capsule" ("RXNORM Code (1000058)")
- code "doxepin 150 MG Oral Capsule" ("RXNORM Code (1000064)")
- code "doxepin 25 MG Oral Capsule" ("RXNORM Code (1000070)")
- code "doxepin 3 MG Oral Tablet" ("RXNORM Code (966787)")
- code "doxepin 50 MG Oral Capsule" ("RXNORM Code (1000076)")
- code "doxepin 6 MG Oral Tablet" ("RXNORM Code (966793)")
- code "doxepin 75 MG Oral Capsule" ("RXNORM Code (1000097)")
- code "ergoloid mesylates, USP 1 MG Oral Tablet" ("RXNORM Code (318179)")
- code "Every eight hours (qualifier value)" ("SNOMEDCT Code (307469008)")
- code "Every eight to twelve hours (qualifier value)" ("SNOMEDCT Code (396140003)")
- code "Every forty eight hours (qualifier value)" ("SNOMEDCT Code (396131002)")
- code "Every four hours (qualifier value)" ("SNOMEDCT Code (225756002)")
- code "Every seventy two hours (qualifier value)" ("SNOMEDCT Code (396143001)")
- code "Every six hours (qualifier value)" ("SNOMEDCT Code (307468000)")
- code "Every six to eight hours (qualifier value)" ("SNOMEDCT Code (396139000)")
- code "Every thirty six hours (qualifier value)" ("SNOMEDCT Code (396126004)")
- code "Every three to four hours (qualifier value)" ("SNOMEDCT Code (225754004)")
- code "Every three to six hours (qualifier value)" ("SNOMEDCT Code (396127008)")
- code "Every twelve hours (qualifier value)" ("SNOMEDCT Code (307470009)")
- code "Every twenty four hours (qualifier value)" ("SNOMEDCT Code (396125000)")
- code "Every two to four hours (qualifier value)" ("SNOMEDCT Code (225752000)")
- code "Four times daily (qualifier value)" ("SNOMEDCT Code (307439001)")
- code "Functional Assessment of Chronic Illness Therapy - Palliative Care Questionnaire (FACIT-Pal)" ("LOINC Code (71007-9)")
- code "Hospice care [Minimum Data Set]" ("LOINC Code (45755-6)")
- code "Office or other outpatient visit for the evaluation and management of an established patient that may not require the presence of a physician or other qualified health care professional" ("CPT Code (99211)")
- code "Once daily (qualifier value)" ("SNOMEDCT Code (229797004)")
- code "One to four times a day (qualifier value)" ("SNOMEDCT Code (396109005)")
- code "One to three times a day (qualifier value)" ("SNOMEDCT Code (396108002)")
- code "One to two times a day (qualifier value)" ("SNOMEDCT Code (396107007)")
- code "Three times daily (qualifier value)" ("SNOMEDCT Code (229798009)")
- code "Twice a day (qualifier value)" ("SNOMEDCT Code (229799001)")
- code "Two to four times a day (qualifier value)" ("SNOMEDCT Code (396111001)")
- code "Yes (qualifier value)" ("SNOMEDCT Code (373066001)")
- valueset "Alcohol Withdrawal" (2.16.840.1.113883.3.464.1003.105.12.1209)
- valueset "Annual Wellness Visit" (2.16.840.1.113883.3.526.3.1240)
- valueset "Benzodiazepine Withdrawal" (2.16.840.1.113883.3.464.1003.105.12.1208)
- valueset "Bipolar Disorder" (2.16.840.1.113883.3.67.1.101.1.128)
- valueset "Care Services in Long Term Residential Facility" (2.16.840.1.113883.3.464.1003.101.12.1014)
- valueset "Desiccated Thyroid Medications" (2.16.840.1.113883.3.464.1003.1060)
- valueset "Digoxin Medications" (2.16.840.1.113883.3.464.1003.1065)
- valueset "Dipyridamole Medications" (2.16.840.1.113883.3.464.1003.1051)
- valueset "Discharge Services Nursing Facility" (2.16.840.1.113883.3.464.1003.101.12.1013)
- valueset "Doxepin Medications" (2.16.840.1.113883.3.464.1003.1067)
- valueset "Encounter Inpatient" (2.16.840.1.113883.3.666.5.307)
- valueset "Ethnicity" (2.16.840.1.114222.4.11.837)

- valueset "Generalized Anxiety Disorder" (2.16.840.1.113883.3.464.1003.105.12.1210)
- valueset "Guanfacine Medications" (2.16.840.1.113883.3.464.1003.196.11.1252)
- valueset "Home Healthcare Services" (2.16.840.1.113883.3.464.1003.101.12.1016)
- valueset "Hospice Care Ambulatory" (2.16.840.1.113883.3.526.3.1584)
- valueset "Hospice Diagnosis" (2.16.840.1.113883.3.464.1003.1165)
- valueset "Hospice Encounter" (2.16.840.1.113883.3.464.1003.1003)
- valueset "Megestrol Medications" (2.16.840.1.113883.3.464.1003.1247)
- valueset "Meperidine Medications" (2.16.840.1.113883.3.464.1003.1248)
- valueset "Meprobamate Medications" (2.16.840.1.113883.3.464.1003.1057)
- valueset "Nifedipine Medications" (2.16.840.1.113883.3.464.1003.1053)
- valueset "Nursing Facility Visit" (2.16.840.1.113883.3.464.1003.101.12.1012)
- valueset "Office Visit" (2.16.840.1.113883.3.464.1003.101.12.1001)
- valueset "ONC Administrative Sex" (2.16.840.1.113762.1.4.1)
- valueset "Ophthalmological Services" (2.16.840.1.113883.3.526.3.1285)
- valueset "Palliative Care Diagnosis" (2.16.840.1.113883.3.464.1003.1167)
- valueset "Palliative Care Encounter" (2.16.840.1.113883.3.464.1003.101.12.1090)
- valueset "Palliative Care Intervention" (2.16.840.1.113883.3.464.1003.198.12.1135)
- valueset "Payer Type" (2.16.840.1.114222.4.11.3591)
- valueset "Potentially Harmful Antidepressants for Older Adults" (2.16.840.1.113883.3.464.1003.1054)
- valueset "Potentially Harmful Antihistamines for Older Adults" (2.16.840.1.113883.3.464.1003.1043)
- valueset "Potentially Harmful Antiinfectives for Older Adults" (2.16.840.1.113883.3.464.1003.196.12.1481)
- valueset "Potentially Harmful Antiparkinsonian Agents for Older Adults" (2.16.840.1.113883.3.464.1003.1049)
- valueset "Potentially Harmful Antipsychotics for Older Adults" (2.16.840.1.113883.3.464.1003.196.12.1523)
- valueset "Potentially Harmful Barbiturates for Older Adults" (2.16.840.1.113883.3.464.1003.1055)
- valueset "Potentially Harmful Benzodiazepines for Older Adults" (2.16.840.1.113883.3.464.1003.196.12.1522)
- valueset "Potentially Harmful Estrogens for Older Adults" (2.16.840.1.113883.3.464.1003.1058)
- valueset "Potentially Harmful Gastrointestinal Antispasmodics for Older Adults" (2.16.840.1.113883.3.464.1003.1050)
- valueset "Potentially Harmful Nonbenzodiazepine Hypnotics for Older Adults" (2.16.840.1.113883.3.464.1003.196.12.1480)
- valueset "Potentially Harmful Pain Medications for Older Adults" (2.16.840.1.113883.3.464.1003.1063)
- valueset "Potentially Harmful Skeletal Muscle Relaxants for Older Adults" (2.16.840.1.113883.3.464.1003.1062)
- valueset "Potentially Harmful Sulfonylureas for Older Adults" (2.16.840.1.113883.3.464.1003.1059)
- valueset "Preventive Care Services Established Office Visit, 18 and Up" (2.16.840.1.113883.3.464.1003.101.12.1025)
- valueset "Preventive Care Services Initial Office Visit, 18 and Up" (2.16.840.1.113883.3.464.1003.101.12.1023)
- valueset "Race" (2.16.840.1.114222.4.11.836)
- valueset "REM Sleep Behavior Disorder" (2.16.840.1.113883.3.464.1003.105.12.1207)
- valueset "Schizophrenia" (2.16.840.1.113883.3.464.1003.105.12.1205)
- valueset "Seizure Disorder" (2.16.840.1.113883.3.464.1003.105.12.1206)
- valueset "Telephone Visits" (2.16.840.1.113883.3.464.1003.101.12.1080)
- valueset "Virtual Encounter" (2.16.840.1.113883.3.464.1003.101.12.1089)

## Data Criteria (QDM Data Elements)

- "Assessment, Performed: Functional Assessment of Chronic Illness Therapy - Palliative Care Questionnaire (FACIT-Pal)" using "Functional Assessment of Chronic Illness Therapy - Palliative Care Questionnaire (FACIT-Pal) (LOINC Code 71007-9)"
- "Assessment, Performed: Hospice care [Minimum Data Set]" using "Hospice care [Minimum Data Set] (LOINC Code 45755-6)"
- "Diagnosis: Alcohol Withdrawal" using "Alcohol Withdrawal (2.16.840.1.113883.3.464.1003.105.12.1209)"
- "Diagnosis: Benzodiazepine Withdrawal" using "Benzodiazepine Withdrawal (2.16.840.1.113883.3.464.1003.105.12.1208)"
- "Diagnosis: Bipolar Disorder" using "Bipolar Disorder (2.16.840.1.113883.3.67.1.101.1.128)"
- "Diagnosis: Generalized Anxiety Disorder" using "Generalized Anxiety Disorder (2.16.840.1.113883.3.464.1003.105.12.1210)"
- "Diagnosis: Hospice Diagnosis" using "Hospice Diagnosis (2.16.840.1.113883.3.464.1003.1165)"
- "Diagnosis: Palliative Care Diagnosis" using "Palliative Care Diagnosis (2.16.840.1.113883.3.464.1003.1167)"
- "Diagnosis: REM Sleep Behavior Disorder" using "REM Sleep Behavior Disorder (2.16.840.1.113883.3.464.1003.105.12.1207)"
- "Diagnosis: Schizophrenia" using "Schizophrenia (2.16.840.1.113883.3.464.1003.105.12.1205)"
- "Diagnosis: Seizure Disorder" using "Seizure Disorder (2.16.840.1.113883.3.464.1003.105.12.1206)"
- "Encounter, Performed: Annual Wellness Visit" using "Annual Wellness Visit (2.16.840.1.113883.3.526.3.1240)"
- "Encounter, Performed: Care Services in Long Term Residential Facility" using "Care Services in Long Term Residential Facility (2.16.840.1.113883.3.464.1003.101.12.1014)"
- "Encounter, Performed: Discharge Services Nursing Facility" using "Discharge Services Nursing Facility (2.16.840.1.113883.3.464.1003.101.12.1013)"
- "Encounter, Performed: Encounter Inpatient" using "Encounter Inpatient (2.16.840.1.113883.3.666.5.307)"
- "Encounter, Performed: Home Healthcare Services" using "Home Healthcare Services (2.16.840.1.113883.3.464.1003.101.12.1016)"
- "Encounter, Performed: Hospice Encounter" using "Hospice Encounter (2.16.840.1.113883.3.464.1003.1003)"
- "Encounter, Performed: Nursing Facility Visit" using "Nursing Facility Visit (2.16.840.1.113883.3.464.1003.101.12.1012)"
- "Encounter, Performed: Office or other outpatient visit for the evaluation and management of an established patient that may not require the presence of a physician or other qualified health care professional" using "Office or other outpatient visit for the evaluation and management of an established patient that may not require the presence of a physician or other qualified health care professional (CPT Code 99211)"
- "Encounter, Performed: Office Visit" using "Office Visit (2.16.840.1.113883.3.464.1003.101.12.1001)"
- "Encounter, Performed: Ophthalmological Services" using "Ophthalmological Services (2.16.840.1.113883.3.526.3.1285)"
- "Encounter, Performed: Palliative Care Encounter" using "Palliative Care Encounter (2.16.840.1.113883.3.464.1003.101.12.1090)"
- "Encounter, Performed: Preventive Care Services Established Office Visit, 18 and Up" using "Preventive Care Services Established Office Visit, 18 and Up (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 (2.16.840.1.113883.3.464.1003.101.12.1023)"
- "Encounter, Performed: Telephone Visits" using "Telephone Visits (2.16.840.1.113883.3.464.1003.101.12.1080)"
- "Encounter, Performed: Virtual Encounter" using "Virtual Encounter (2.16.840.1.113883.3.464.1003.101.12.1089)"
- "Intervention, Order: Hospice Care Ambulatory" using "Hospice Care Ambulatory (2.16.840.1.113883.3.526.3.1584)"
- "Intervention, Performed: Hospice Care Ambulatory" using "Hospice Care Ambulatory (2.16.840.1.113883.3.526.3.1584)"
- "Intervention, Performed: Palliative Care Intervention" using "Palliative Care Intervention (2.16.840.1.113883.3.464.1003.198.12.1135)"
- "Medication, Order: Desiccated Thyroid Medications" using "Desiccated Thyroid Medications (2.16.840.1.113883.3.464.1003.1060)"
- "Medication, Order: Digoxin Medications" using "Digoxin Medications (2.16.840.1.113883.3.464.1003.1065)"
- "Medication, Order: Dipyridamole Medications" using "Dipyridamole Medications (2.16.840.1.113883.3.464.1003.1051)"
- "Medication, Order: Doxepin Medications" using "Doxepin Medications (2.16.840.1.113883.3.464.1003.1067)"
- "Medication, Order: ergoloid mesylates, USP 1 MG Oral Tablet" using "ergoloid mesylates, USP 1 MG Oral Tablet (RXNORM Code 318179)"
- "Medication, Order: Guanfacine Medications" using "Guanfacine Medications (2.16.840.1.113883.3.464.1003.196.11.1252)"
- "Medication, Order: Megestrol Medications" using "Megestrol Medications (2.16.840.1.113883.3.464.1003.1247)"
- "Medication, Order: Meperidine Medications" using "Meperidine Medications (2.16.840.1.113883.3.464.1003.1248)"
- "Medication, Order: Meprobamate Medications" using "Meprobamate Medications (2.16.840.1.113883.3.464.1003.1057)"
- "Medication, Order: Nifedipine Medications" using "Nifedipine Medications (2.16.840.1.113883.3.464.1003.1053)"
- "Medication, Order: Potentially Harmful Antidepressants for Older Adults" using "Potentially Harmful Antidepressants for Older Adults (2.16.840.1.113883.3.464.1003.1054)"
- "Medication, Order: Potentially Harmful Antihistamines for Older Adults" using "Potentially Harmful Antihistamines for Older Adults (2.16.840.1.113883.3.464.1003.1043)"
- "Medication, Order: Potentially Harmful Antiinfectives for Older Adults" using "Potentially Harmful Antiinfectives for Older Adults (2.16.840.1.113883.3.464.1003.196.12.1481)"
- "Medication, Order: Potentially Harmful Antiparkinsonian Agents for Older Adults" using "Potentially Harmful Antiparkinsonian Agents for Older Adults (2.16.840.1.113883.3.464.1003.1049)"
- "Medication, Order: Potentially Harmful Antipsychotics for Older Adults" using "Potentially Harmful Antipsychotics for Older Adults (2.16.840.1.113883.3.464.1003.196.12.1523)"
- "Medication, Order: Potentially Harmful Barbiturates for Older Adults" using "Potentially Harmful Barbiturates for Older Adults (2.16.840.1.113883.3.464.1003.1055)"
- "Medication, Order: Potentially Harmful Benzodiazepines for Older Adults" using "Potentially Harmful Benzodiazepines for Older Adults (2.16.840.1.113883.3.464.1003.196.12.1522)"
- "Medication, Order: Potentially Harmful Estrogens for Older Adults" using "Potentially Harmful Estrogens for Older Adults (2.16.840.1.113883.3.464.1003.1058)"
- "Medication, Order: Potentially Harmful Gastrointestinal Antispasmodics for Older Adults" using "Potentially Harmful Gastrointestinal Antispasmodics for Older Adults (2.16.840.1.113883.3.464.1003.1050)"
- "Medication, Order: Potentially Harmful Nonbenzodiazepine Hypnotics for Older Adults" using "Potentially Harmful Nonbenzodiazepine Hypnotics for Older Adults (2.16.840.1.113883.3.464.1003.196.12.1480)"
- "Medication, Order: Potentially Harmful Pain Medications for Older Adults" using "Potentially Harmful Pain Medications for Older Adults (2.16.840.1.113883.3.464.1003.1063)"
- "Medication, Order: Potentially Harmful Skeletal Muscle Relaxants for Older Adults" using "Potentially Harmful Skeletal Muscle Relaxants for Older Adults (2.16.840.1.113883.3.464.1003.1062)"
- "Medication, Order: Potentially Harmful Sulfonylureas for Older Adults" using "Potentially Harmful Sulfonylureas for Older Adults (2.16.840.1.113883.3.464.1003.1059)"
- "Patient Characteristic Ethnicity: Ethnicity" using "Ethnicity (2.16.840.1.114222.4.11.837)"
- "Patient Characteristic Payer: Payer Type" using "Payer Type (2.16.840.1.114222.4.11.3591)"
- "Patient Characteristic Race: Race" using "Race (2.16.840.1.114222.4.11.836)"
- "Patient Characteristic Sex: ONC Administrative Sex" using "ONC Administrative Sex (2.16.840.1.113762.1.4.1)"

## Supplemental Data Elements

◢ **SDE Ethnicity**

["Patient Characteristic Ethnicity": "Ethnicity"]

◢ **SDE Payer**

["Patient Characteristic Payer": "Payer Type"]

◢ **SDE Race**

["Patient Characteristic Race": "Race"]

◢ **SDE Sex**

["Patient Characteristic Sex": "ONC Administrative Sex"]

## Risk Adjustment Variables

None

| Measure Set | None |
|---|---|