Proposed Changes to Existing Measure for HEDIS® Measurement Year (MY) 2023: Deprescribing of Benzodiazepines in Older Adults (DBO)

NCQA seeks comments on proposed modifications to the HEDIS measure Deprescribing of Benzodiazepines in Older Adults (DBO). NCQA proposes to update the measure logic to account for members achieving 100% discontinuation without an intermediate taper of ≥20% in the numerator.

Background

DBO assesses the percentage of Medicare older adults with routine, inappropriate benzodiazepine use who experienced a ≥20% reduction in dose during the MY. Literature suggests it is important to slowly decrease benzodiazepine dose rather than abruptly stop use of the drug, to minimize potential withdrawal symptoms.\(^1\) The measure was introduced in HEDIS MY 2022 to incentivize appropriate and safe deprescribing for patients with inappropriate use.

Initially, NCQA did not include an explicit 100% reduction threshold, in order to avoid potential patient risk from unintended consequences due to rapid tapers or stopping medication use. With support from expert advisory panels, NCQA proposed a single, moderate tapering threshold of ≥20% that was practical and achievable for all patients. The intent was that patients achieving 100% discontinuation would still meet the numerator criteria when deprescribed appropriately (e.g., through tapered dose reduction, or if patient starts with a low dose and discontinues use within the MY).

Some stakeholders raised questions about how measure logic might account for different member trajectories toward 100% discontinuation. To address these questions, NCQA conducted testing to further explore measure performance and evaluate the frequency and characteristics of members with 100% immediate benzodiazepine discontinuation.

Methods

NCQA conducted testing using OptumLabs® Data Warehouse, a large Medicare Advantage (MA) administrative claims database.\(^3\) The database includes data for 67 simulated MA plans covering over 4 million MA plan members from the 2019 calendar year. A member was identified with 100% discontinuation if their last observed prescription occurred at least 60 days before the end of the MY.

Findings

Overall, 15,494 members were identified with 100% discontinuation during the MY. This represents 13% of all members falling into the measure denominator (N = 118,801). NCQA also explored the overlap between members achieving 100% discontinuation and those captured in the current measure numerator (≥20% reduction). Testing revealed that a large proportion of these members are not currently captured in the measure. Of the 15,494 members achieving 100% discontinuation, 1,779 also meet the ≥20% reduction threshold; the remaining 13,715 members achieve discontinuation without experiencing an intermediate ≥20% reduction in daily dose and thus are not in the numerator.

Further analyses confirmed that members achieving 100% discontinuation without an intermediate ≥20% reduction in dose were doing so in a safe and appropriate manner. Testing investigated the starting and ending doses, as well as duration of benzodiazepine use for 1.) members achieving 100% discontinuation without an intermediate ≥20% reduction in dose, 2.) members achieving 100% discontinuation with an

\(^1\)HEDIS® is a registered trademark of the National Committee for Quality Assurance (NCQA).


\(^3\)Data for this analysis was obtained from the OptumLabs Data Warehouse, a database of health claims, clinical, demographic and other data elements. Study data were accessed using techniques compliant with the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and, because this study involved analysis of pre-existing, de-identified data, it was exempt from Institutional Review Board approval.
intermediate $\geq 20\%$ reduction in dose (and therefore captured in the current numerator) and 3.) members meeting only the numerator of $\geq 20\%$ reduction without 100% discontinuation. Duration of use was defined by identifying the PDC, the count of unique scripts and the count of 2-week supply equivalents in the treatment period. Table 1 summarizes the characteristics of benzodiazepine use for these three groups.

**Table 1. Benzodiazepine Use Characteristics by Numerator Compliance**

<table>
<thead>
<tr>
<th>Rate Description</th>
<th># of Members</th>
<th>Average Starting Dose (DME*)</th>
<th>Average Ending Dose (DME)</th>
<th>Duration of Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% reduction only</td>
<td>13,715</td>
<td>5.14</td>
<td>6.03</td>
<td>66</td>
</tr>
<tr>
<td>100% reduction (through $\geq 20%$ reduction)</td>
<td>1,779</td>
<td>9.91</td>
<td>2.52</td>
<td>69</td>
</tr>
<tr>
<td>$\geq 20%$ reduction only</td>
<td>9,472</td>
<td>9.90</td>
<td>2.53</td>
<td>79</td>
</tr>
</tbody>
</table>

* Diazepam milligram equivalent. The dose of oral diazepam that is the equivalent of a given dose of another benzodiazepine.

Results show that members with 100% discontinuation without an intermediate $\geq 20\%$ reduction in dose generally are starting on lower, steady doses and have shorter duration of benzodiazepine use during the MY, compared with those who meet the measure numerator (with or without 100% discontinuation). Approximately 62% (N = 9,670) of members with 100% discontinuation (with or without an intermediate $\geq 20\%$ reduction in dose) fall into the measure denominator with a qualifying ITE in the first 2 months of the MY. These attributes appear to reflect members who were on benzodiazepines in the prior year and are potentially closer to the end of the tapering process, or who were originally on low-enough doses to safely stop treatment without tapering.

When we included logic to allow 100% discontinuation without an intermediate taper to count toward the numerator, performance for the total rate increases from 10.6% to 23.9% (10th percentile: 18.1%; 90th percentile: 32.3%). For members with a GAD diagnosis, performance increases from 11.7% to 24.3% (10th percentile: 18.7%; 90th percentile: 32.5%). For members without a GAD diagnosis, performance increases from 9.3% to 23.2% (10th percentile: 16.3%; 90th percentile: 32.3%). In general, the impact of adding logic for 100% discontinuation was similar across all rates.

Overall, advisory panels members expressed support for including these discontinuations in the measure rate, noting that the data on dose and duration aligned with an assumption of appropriate (as opposed to unsafe) deprescribing.

NCQA seeks feedback on the following questions:

1. Do you agree with updating the measure logic to account for members achieving 100% discontinuation without an intermediate taper of $\geq 20\%$ in the numerator?
2. Are there unintended consequences of this measure update?

Supporting documents include the current measure specification and evidence workup.

**Measure Status for MY 2022**

Given the proposed measure update’s likely significant impact on measure performance, DBO will not be collected for MY 2022 reporting. The measure specifications, value sets and medication lists will be removed from *HEDIS MY 2022 Volume 2: Technical Specifications for Health Plans* in the *MY 2022 Technical Update*, which will be released March 31. If approved, DBO will be a first-year measure for MY 2023.

NCQA acknowledges the contributions of the Geriatric Measurement Advisory Panel and the Care Coordination Work Group.
Deprescribing of Benzodiazepines in Older Adults (DBO)

SUMMARY OF CHANGES TO HEDIS MY 2023

- Added a direct reference code for palliative care.
- Added the Rules for Allowable Adjustments of HEDIS section.
- Added language to clarify numerator compliance for members achieving 100% discontinuation.
- Added step to “Calculating number of days covered” definition for prescriptions dispensed on different days without overlapping days supply.
- Added note that the same assumptions from “Calculating number of days covered” definition apply to “DME daily dose” and “average starting DME” calculations.
- Added instructions for rounding to “Ending DME” and “PDC” definitions.

Description

The percentage of members 67 years of age and older who were dispensed benzodiazepines and achieved a 20% decrease or greater in benzodiazepine dose (diazepam milligram equivalent [DME] dose) during the measurement year.

Definitions

Calculating number of days covered

Use the following steps to identify and calculate covered days.

**Step 1**

Identify dispensing events where multiple prescriptions for the same medication are dispensed on the same day. Identify start and end dates for each dispensing event individually. The start date is the dispense date. The end date is the start date plus days supply minus one. The start date through the end date are considered covered days.

*Note: This step assumes the member will take the medications concurrently.*

**Step 2**

For all other dispensing events (multiple prescriptions for the same or different medication dispensed on different days, with or without overlapping days supply), sum the days supply.

Identify the start and end dates: The start date is the date of service of the earliest dispensing event and the end date is the start date plus the summed days supply minus one. The start date through the end date are considered covered days. For example:

- If there are three 7-days supply dispensing events for three different medications on January 1, the start date is January 1 and the end date is January 21. Covered days include January 1–21.
- If there are three 7-days supply dispensing events for different medications on January 1, a 7-days supply dispensing event on January 20 and a 7-days supply dispensing event on January 28, the start date is January 1 and the end date is February 4. Covered days include January 1–February 4.
Step 3 For multiple prescriptions for the same or different medication dispensed on different days without overlapping days supply, identify the start and end dates for each dispensing event individually. The start date is the date of service of the dispensing event and the end date is the start date plus the days supply minus one. The start date through the end date are considered covered days.

Note: This step assumes that the member will take one prescription at a time (and start taking the next prescription after exhausting the previous prescription).

Identifying same or different drugs
To identify same or different drugs, use the medication lists specified for the measure in the Oral Benzodiazepine Medications table below. The table includes a “Medication Lists” column that identifies the “same” medications by grouping them on the same row. For example, all medications listed in the “Alprazolam” row in the Oral Benzodiazepine Medications table are considered the “same” medication.

ITE
Index treatment episode. The first 30 covered days, with no gaps allowed, of a benzodiazepine prescription occurring during January 1 and September 1 of the measurement year. The ITE start date is the date of the earliest benzodiazepine prescription dispense date between January 1 and September 1 of the measurement year that is followed by ≥29 consecutive covered days with no gaps. The end date is the start date plus 29 days.

Note: The ITE may comprise multiple dispensing events, as long as there is no gap in covered days between prescriptions.

DME
Diazepam milligram equivalent. The dose of oral diazepam that is the equivalent of a given dose of another benzodiazepine (refer to the Oral Benzodiazepine Medications table for conversion factors).

Benzodiazepine Dosage Units
For each dispensing event, use the following calculation to determine the benzodiazepine Dosage Units per day.

\[
\text{# of Benzodiazepine Dosage Units per day} = \frac{\text{benzodiazepine quantity dispensed}}{\text{benzodiazepine days supply}}
\]

DME Daily Dose
For each dispensing event, use the following calculation to determine the DME Daily Dose. Convert each medication into the DME using the appropriate conversion factor and strength associated with the benzodiazepine product of the dispensing event (refer to the Oral Benzodiazepine Medications table for DME conversion factor and strength).

\[
\text{DME Daily Dose} = (\# \text{ of benzodiazepine dosage units}) \times (\text{strength [e.g., mg, mcg]}) \times (\text{DME conversion factor})
\]

Note: When calculating DME daily dose, the same assumptions from “Calculating number of days covered” apply.

Average Starting DME
The average DME Daily Dose for all benzodiazepines dispensed during the ITE.

Calculate the DME Daily Dose for each dispensing event in the ITE. To calculate the Average Starting DME, multiply the dispensing event’s DME Daily Dose by its days supply, then divide by 30 (the length of the ITE).
If multiple dispensing events contribute to the ITE, multiply the days supply of each dispensing event by the corresponding DME daily dose, then sum the results. Count the days supply until the end of the ITE; the total number of days supply across all dispensing events should not exceed 30. Do not round when calculating average DME daily dose.

**Note:** When calculating average starting DME, the same assumptions from “Calculating number of days covered” apply.

**Example A**  
ITE with a single dispensing event: A prescription for a 45-days supply of lorazepam containing 40 pills, 2.5 mg each pill. The benzodiazepine Dosage Unit is 0.8889. The DME daily dose is 0.4445. The average starting DME is \((0.4445 \times 30) / 30 = 0.4445\).

**Example B**  
ITE with multiple consecutive dispensing events: The first dispensing event in the ITE is a 7-days supply of diazepam containing 7 pills, 2 mg each pill. The second dispensing event in the ITE is a 60-days supply of diazepam containing 30 pills, 10 mg each pill.

The benzodiazepine Dosage Unit for the first dispensing event is 1 and the DME daily dose is 2. The benzodiazepine Dosage Unit for the second dispensing event is 0.5 and the DME daily dose is 5.

The average starting DME is: \([(2 \times 7) + (5 \times 23)] / 30 = 4.3\).

**Treatment Period**  
The period beginning the day after the ITE end date through the last covered day in the measurement year.

**Ending DME**  
The DME daily dose for the final dispensing event(s) of the treatment period.

For overlapping dispensing events, use the last covered day of the treatment period to calculate the ending DME. Do not round when calculating DME daily dose.

If the member has no pharmacy claims for a benzodiazepine medication for at least 60 days within the MY after the last covered day of the treatment period, assume the member has achieved 100% discontinuation and set the ending DME to 0.

**Note:** When calculating the number of benzodiazepine Dosage Units per day for the ending DME, include any days supply that extends beyond December 31 of the measurement year. For example, if on December 28 a member is dispensed a 30-days supply of benzodiazepine (quantity 30), then the number of benzodiazepine dosage units per day is 1.

**PDC**  
Proportion of days covered. The number of days a member is covered by at least one benzodiazepine medication prescription, divided by the number of days in the treatment period. Multiply by 100 and round (using the .5 rule) to the nearest whole number.

**Eligible Population**

<table>
<thead>
<tr>
<th>Product line</th>
<th>Medicare.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stratification</td>
<td>Report the following two stratifications and a total:</td>
</tr>
</tbody>
</table>
• Members with a diagnosis of generalized anxiety disorder (Generalized Anxiety Disorder Value Set) on or between January 1 of the year prior to the measurement year and the ITE start date.
• Members without a diagnosis of generalized anxiety disorder (Generalized Anxiety Disorder Value Set) on or between January 1 of the year prior to the measurement year and the ITE start date.
• Total.

Note: The stratifications are mutually exclusive and the sum of both stratifications is the total population.

<table>
<thead>
<tr>
<th>Age</th>
<th>67 years and older as of December 31 of the measurement year.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous enrollment</td>
<td>The measurement year and the year prior to the measurement year.</td>
</tr>
<tr>
<td>Allowable gap</td>
<td>No more than one gap in enrollment of up to 45 days during the year prior to the measurement year and no gap during the measurement year.</td>
</tr>
<tr>
<td>Anchor date</td>
<td>None.</td>
</tr>
<tr>
<td>Benefits</td>
<td>Medical and pharmacy.</td>
</tr>
<tr>
<td>Event/diagnosis</td>
<td>Follow the steps below to identify the eligible population.</td>
</tr>
<tr>
<td>Step 1</td>
<td>Identify members with two or more benzodiazepine dispensing events on different dates of service (refer to the Oral Benzodiazepine Medications table below for medication lists for identifying benzodiazepine dispensing events) during the measurement year.</td>
</tr>
<tr>
<td>Step 2</td>
<td>Of the members identified in step 1, identify those with a qualifying ITE.</td>
</tr>
<tr>
<td>Step 3</td>
<td>Of the members identified in step 2, identify those with continuous days covered during the measurement year as defined by PDC $\geq 50%$ during the treatment period.</td>
</tr>
<tr>
<td>Step 4: Required exclusions</td>
<td>Of the members identified in step 3, exclude those members who met any of the following criteria:</td>
</tr>
<tr>
<td></td>
<td>• Members with a diagnosis of seizure disorders (Seizure Disorders Value Set); rapid eye movement sleep behavior disorder (REM Sleep Behavior Disorder Value Set); benzodiazepine withdrawal (Benzodiazepine Withdrawal Value Set); or ethanol withdrawal (Alcohol Withdrawal Value Set) on or between January 1 of the year prior to the measurement year and the ITE start date.</td>
</tr>
<tr>
<td></td>
<td>• Members in hospice or using hospice services any time during the measurement year. Refer to General Guideline 17: Members in Hospice.</td>
</tr>
<tr>
<td></td>
<td>• Members receiving palliative care (Palliative Care Assessment Value Set; Palliative Care Encounter Value Set; Palliative Care Intervention Value Set; ICD-10-CM code Z51.5) any time during the measurement year.</td>
</tr>
</tbody>
</table>

Administrative Specification

Denominator The eligible population.
**Numerator**

The percentage of members who achieved a 20% decrease or greater in DME daily benzodiazepine dosage. Follow the steps below to identify numerator compliance.

**Step 1** Identify the **Average Starting DME**:
1. Identify the ITE.
2. Calculate benzodiazepine dosage units during the ITE.
3. Calculate average starting DME daily dose.

**Step 2** Identify the **Ending DME**:
1. Identify the final benzodiazepine dispensing event(s) during the treatment period.
2. Calculate benzodiazepine dosage units for the final dispensing event(s).
3. Calculate ending DME daily dose.

**Step 3** Calculate the percentage change between the **Average Starting DME** and the **Ending DME** using the formula below.

\[
\left( \frac{\text{Average Starting DME} - \text{Ending DME}}{\text{Average Starting DME}} \right) \times 100
\]

**Step 4** Determine numerator compliance. The member is numerator compliant if either of the following conditions are met:

- If the member’s percent reduction is ≥20%, the member is numerator compliant.
- The member achieves 100% discontinuation with an ending DME of 0 and has no pharmacy claims for a benzodiazepine medication for at least 60 days within the MY after the last covered day of the treatment period.
### Oral Benzodiazepine Medications

<table>
<thead>
<tr>
<th>Type of Benzodiazepine</th>
<th>Medication Lists</th>
<th>Strength</th>
<th>DME Conversion Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alprazolam (oral)</td>
<td>Alprazolam 0.25 MG Medications List</td>
<td>0.25 mg</td>
<td>0.1</td>
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<td></td>
<td>Alprazolam 0.5 MG Medications List</td>
<td>0.5 mg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Alprazolam 1 MG Medications List</td>
<td>1 mg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Alprazolam 1 MGPM Medications List</td>
<td>1 mg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Alprazolam 2 MG Medications List</td>
<td>2 mg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Alprazolam 3 MG Medications List</td>
<td>3 mg</td>
<td></td>
</tr>
<tr>
<td>Chlordiazepoxide (oral)</td>
<td>Chlordiazepoxide 5 MG Medications List</td>
<td>5 mg</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>Chlordiazepoxide 10 MG Medications List</td>
<td>10 mg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chlordiazepoxide 25 MG Medications List</td>
<td>25 mg</td>
<td></td>
</tr>
<tr>
<td>Clonazepam (oral)</td>
<td>Clonazepam 0.125 MG Medications List</td>
<td>0.125 mg</td>
<td>0.1</td>
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<td></td>
<td>Clonazepam 0.25 MG Medications List</td>
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<td>Clonazepam 0.5 MG Medications List</td>
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<td>Clonazepam 1 MG Medications List</td>
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<td></td>
<td>Clonazepam 2 MG Medications List</td>
<td>2 mg</td>
<td></td>
</tr>
<tr>
<td>Clorazepate (oral)</td>
<td>Clorazepate 3.75 MG Medications List</td>
<td>3.75 mg</td>
<td>1.5</td>
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<tr>
<td></td>
<td>Clorazepate 5 MG Medications List</td>
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<td>Clorazepate 7.5 MG Medications List</td>
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<td>Clorazepate 15 MG Medications List</td>
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<tr>
<td>Diazepam (oral)</td>
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<td></td>
<td>Diazepam 2 MG Medications List</td>
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<td>Diazepam 10 MG Medications List</td>
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<tr>
<td>Estazolam (oral)</td>
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<td>Flurazepam (oral)</td>
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<tr>
<td>Lorazepam (oral)</td>
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<td>Lorazepam 2 MG Medications List</td>
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<td>Lorazepam 2 MGPM Medications List</td>
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<td>Lorazepam 2.5 MG Medications List</td>
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<tr>
<td>Midazolam (oral)</td>
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<tr>
<td></td>
<td>Midazolam 7.5 MG Medications List</td>
<td>7.5 mg</td>
<td></td>
</tr>
<tr>
<td>Oxazepam (oral)</td>
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<td>10 mg</td>
<td>3</td>
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<tr>
<td></td>
<td>Oxazepam 15 MG Medications List</td>
<td>15 mg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oxazepam 30 MG Medications List</td>
<td>30 mg</td>
<td></td>
</tr>
<tr>
<td>Quazepam (oral)</td>
<td>Quazepam 15 MG Medications List</td>
<td>15 mg</td>
<td>2</td>
</tr>
<tr>
<td>Type of Benzodiazepine</td>
<td>Medication Lists</td>
<td>Strength</td>
<td>DME Conversion Factor</td>
</tr>
<tr>
<td>-----------------------</td>
<td>------------------</td>
<td>----------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Temazepam (oral)</td>
<td>Temazepam 7.5 MG Medications List</td>
<td>7.5 mg</td>
<td>2</td>
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<td></td>
<td>Temazepam 10 MG Medications List</td>
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<td></td>
<td>Temazepam 15 MG Medications List</td>
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<td>Temazepam 20 MG Medications List</td>
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<td></td>
<td>Temazepam 30 MG Medications List</td>
<td>30 mg</td>
<td></td>
</tr>
<tr>
<td>Triazolam (oral)</td>
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<td></td>
<td>Triazolam 0.25 MG Medications List</td>
<td>0.25 mg</td>
<td></td>
</tr>
</tbody>
</table>

**Note**

- Although denied claims are not included when assessing the numerator, all claims (paid, suspended, pending and denied) must be included when identifying the eligible population.
- Do not include supplemental data when identifying the eligible population or assessing the numerator. Supplemental data can be used for only required exclusions for this measure.
- Medication lists used for this measure contain any applicable combination products.

**Data Elements for Reporting**

Organizations that submit HEDIS data to NCQA must provide the following data elements.

**Table DBO-3: Data Elements for Deprescribing of Benzodiazepines in Older Adults**

<table>
<thead>
<tr>
<th>Metric</th>
<th>Diagnosis</th>
<th>Data Element</th>
<th>Reporting Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>BenzodiazepinesInOlderAdults</td>
<td>WithGAD</td>
<td>Benefit</td>
<td>Metadata</td>
</tr>
<tr>
<td></td>
<td>WithoutGAD</td>
<td>EligiblePopulation</td>
<td>For each Stratification</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>ExclusionAdminRequired</td>
<td>For each Stratification</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NumeratorByAdmin</td>
<td>For each Stratification</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rate</td>
<td>(Percent)</td>
</tr>
</tbody>
</table>
Deprescribing of Benzodiazepines in Older Adults (DBO)
Measure Workup

**Measure Description**

The Deprescribing of Benzodiazepines in Older Adults (DBO) measure assesses the percentage of Medicare members 67 years of age and older who were dispensed benzodiazepines and achieved a 20% decrease or greater in benzodiazepine dose (diazepam milligram equivalent [DME] dose) during the measurement year.

The deprescribing measure is complementary to the Use of High-Risk Medications in Older Adults (DAE) measure. The DAE measure assesses potentially inappropriate use of benzodiazepines in the Medicare population by measuring “any dispensing” of benzodiazepines (defined as at least two dispensing events) in the measurement year. The DBO measure provides a metric to support safe transition off of benzodiazepines for those members referenced in DAE who are currently and routinely using them.

**Topic Overview**

**Prevalence of Benzodiazepine Use and Prescribing**

Use of prescription medications and concurrent use of interacting medications have significantly increased over time, especially in the older adult population (Kantor et al., 2015; Qato et al., 2016). In older adults, certain medications, including benzodiazepines, pose significant risks to patients and are considered potentially inappropriate for this population. Older adults are prescribed benzodiazepines at the highest rate and are most at risk of adverse events among all U.S. adults (Guina & Merrill, 2018; D. T. Maust et al., 2018).

Between 1996 and 2013, the number of adults filling a benzodiazepine prescription in the U.S. increased from 8 million to nearly 14 million. The amount of benzodiazepine medicine found in prescriptions also doubled over this period (Bachhuber et al., 2016). Evidence suggests that in the older adult population, benzodiazepine users are more likely to be female, have a low level of education, have a lower income and have several chronic physical diseases (Baandrup et al., 2018).

In 2015, CMS reported that 17.6% of all Medicare Part D enrollees were dispensed benzodiazepines (Centers for Medicare & Medicaid Services [CMS], 2016). After the expansion of Medicare coverage for prescription benzodiazepines in 2013, the prevalence of benzodiazepine use increased (D. Maust et al., 2019; Zimlich, 2016). This increase in prevalence was found to have potentially contributed to both an increase in fall-related injuries and an increase in medication poisoning among older adults (D. Maust et al., 2019).

**Risks of Benzodiazepine Use**

Benzodiazepines such as alprazolam are indicated for anxiety and panic disorders (Food and Drug Administration [FDA], 2011). When prescribed at a low dosage for a brief time (less than 30 days), benzodiazepines can effectively treat generalized anxiety disorders, panic disorders and sleep disorders (Dell'osso & Lader, 2013; Salzman, 1991; Vinkers & Olivier, 2012). They are also used for anesthesia and to treat alcohol or benzodiazepine withdrawal, seizures and insomnia (Greller & Gupta, 2017; Guina & Merrill, 2018). However, the use of benzodiazepines in older adults is associated with serious risks.
Benzodiazepines have class-level warnings for users that include dependence and withdrawal reactions, such as seizures, central nervous system depression and impaired performance (FDA, 2011). Benzodiazepines induce sedation, which causes drowsiness, delayed reaction times and impaired balance (Donnelly et al., 2017). This can result in increased risk of hip fractures, falls and fall-related injuries in older adults prescribed short- and long-acting benzodiazepines (Bakken et al., 2014; de Vries et al., 2013; Donnelly et al., 2017; Woolcott et al., 2009; Xing et al., 2014). Although benzodiazepines are indicated for short-term treatment of generalized anxiety disorder (Davidson, 2001; Gorman, 2003; Lydiard et al., 2010), there is risk of continued long-term use in older adults, as many chronic users are rarely encouraged to discontinue the medication (Paquin et al., 2014; Sivertsen et al., 2006).

Studies have found that long-term use of benzodiazepines in older adults is associated with increased risk of dementia (He et al., 2019; Shash et al., 2016; Takada et al., 2016; Zhong et al., 2015). Other harms related to benzodiazepine use include impaired cognition, loss of physical function, depressed mood and suicidal thoughts (Baandrup et al., 2018; Blanco et al., 2018; Greller & Gupta, 2017). Research suggests that benzodiazepines may reduce the efficacy of cognitive behavior therapy in treating anxiety disorders, and experts encourage use of safer treatment alternatives, including serotonin reuptake inhibitor and cognitive behavioral therapy, in the older adult population (Birk 2004; Rothbaum et al., 2014). Benzodiazepines are also known to interact with other medications such as opioids and other sedatives, which may result in an increased risk of opioid-related overdose or death (Hernandez et al., 2018; National Institute on Drug Abuse, 2019). Overdose deaths involving benzodiazepines rose from 1,135 in 1999 to more than 11,537 in 2017, driven by the combination of a benzodiazepine with an opioid (National Institute on Drug Abuse, 2019).

Despite the risks associated with benzodiazepines, these medications are inappropriately prescribed and overused in the older adult population. Since 2003, the use of benzodiazepines in ambulatory care has increased, including co-prescribing with other sedating medications. Evidence shows increased prescribing among primary care physicians in particular, and for conditions other than insomnia and anxiety, such as back and chronic pain (Agarwal & Landon, 2019). Many older patients take benzodiazepines for sleep (Garfinkel & Mangin, 2010). One study found that older adults are more likely to disclose misusing benzodiazepines to help with sleep than younger adults (D. T. Maust et al., 2018). Benzodiazepines are also widely used for long-term treatment of anxiety disorders, although prescribing guidelines recommend benzodiazepine treatment for short-term treatment only, after effective and safer drug alternatives have failed (Canadian Psychiatric Association, 2006; National Institute for Health and Care Excellence, 2011; Paquin et al., 2014). More recently with the onset of the COVID-19 pandemic, several studies have shown an increase in anxiety and insomnia, which could result in an increase in the use of benzodiazepines in order to treat these conditions (Agrawal, 2020).

Financial Impact of Benzodiazepine Use

Use of benzodiazepines is associated with higher health care service use and costs. Research suggests that benzodiazepines are a common drug implicated in ED visits related to nonmedical use of medications in the U.S. (Geller et al., 2019). Nonmedical use is defined as taking the prescribed drug “not in the way, for the reasons, in the amount, or during the time-period prescribed” (Centers for Disease Control and Prevention [CDC], 2021). In 2008, there were about 272,000 emergency department (ED) visits in the U.S. involving nonmedical use of benzodiazepines; in 2011, this increased to approximately 426,000 ED visits (Substance Abuse and Mental Health Services Administration, 2011). A more recent study estimates that about 10% of all ED visits involving adverse medication-related events in 2016 were related to benzodiazepine use (Moro et al., 2020). Specifically, among older adults, it estimated that half of the ED visits involved nonmedical use (Moro et al., 2020). As one study found, patients with moderate pain prescribed a benzodiazepine were more likely to return to the ED compared to those without a benzodiazepine prescription (Chukwulebe et al., 2019). Individuals susceptible to a benzodiazepine-related drug interaction are at even greater risk of hospitalizations, ED visits, outpatient visits and other higher health care costs (Dionne et al., 2013).

Among all potentially inappropriate medications, benzodiazepines were identified as the third largest medication class contributing to total medication costs of older adults living in residential care, following proton-pump inhibitors and antipsychotics (Harrison et al., 2018). Literature suggests there is increased
risk of falls in older adults taking benzodiazepines (Donnelly et al., 2017). According to the CDC, falls among older adults are very costly. Each year, the U.S. spends about $50 billion on non-fatal fall injuries and $754 million on fatal falls. Of the total spent on non-fatal falls, $29 billion is paid by Medicare and $9 billion is paid by Medicaid (CDC, 2019). It is unknown what percentage of falls are attributed to benzodiazepine use, but as the older population grows, it is expected that the number of fall injuries and cost to treat these injuries will also rise (CDC, 2019).

Clinical Recommendations Against Benzodiazepine Use in Older Adults

Given the risks and high prevalence, multiple sources of clinical or other guidance recommend against benzodiazepine use in older adults.

American Geriatrics Society Beers Criteria®

The American Geriatrics Society (AGS) Beers Criteria® (AGS Beers Criteria®) for Potentially Inappropriate Medication (PIM) Use in Older Adults is an explicit list of PIMs that are typically best avoided by older adults in most circumstances or under specific situations, such as in certain diseases or conditions (American Geriatrics Society, 2019). The criteria recommend avoiding benzodiazepines—all short-, intermediate-, and long-acting forms—for all older adults. The criteria’s rationale states: “Older adults have increased sensitivity to benzodiazepines and decreased metabolism of long-acting agents; in general, all benzodiazepines increase risk of cognitive impairment, delirium, falls, fractures, and motor vehicle crashes in older adults.” According to the criteria, only in rare cases may benzodiazepines be appropriate (i.e., for seizure disorders, rapid eye movement sleep behavior disorder, benzodiazepine withdrawal, ethanol withdrawal, severe generalized anxiety disorder and periprocedural anesthesia), most notably for benzodiazepine withdrawal, a particular risk when deprescribing benzodiazepines in older adults.

U.S. Food and Drug Administration Black Box Warning

In August 2016, the FDA issued a black box warning about the potentially deadly combination of benzodiazepines and opioids (FDA, 2016). In September 2017, the FDA updated this advisory to include several recommendations for health care professionals, including educating patients about the serious risks of combined use, even when used as prescribed; tapering the benzodiazepine or CNS depressant to discontinuation, if possible; verifying the diagnosis if a patient is receiving prescribed benzodiazepines or other CNS depressants for anxiety or insomnia and considering other treatment options for these conditions; and coordinating with other prescribers to ensure they are aware of the patient’s full medication regimen (FDA, 2017).

The Centers for Disease Control and Prevention (CDC) supports this advisory, issuing their own recommendation in 2018 for prescribers to revise an opioid order when a patient is concurrently prescribed a benzodiazepine medication (Dowell et al., 2016).

STOPP/START Criteria (Version 2)

The STOPP/START criteria for PIM use in older people was originally published in 2008 and updated in 2015 (O’Mahony et al., 2015). Based on expert consensus review of current evidence, the criteria provide a screening tool of older people’s prescriptions (STOPP) and a screening tool to alert to the right treatment (START). The criteria have been used to design patient-safety screening interventions and detect patients at risk of preventable medication-related hospital admissions, among other uses (Barenholtz Levy & Marcus, 2016; Hill-Taylor et al., 2013, p.; van der Stelt et al., 2016). A STOPP criteria for benzodiazepines was added in the 2015 (version 2) update.

STOPP CNS criteria D5 recommends that benzodiazepines should not be taken for ≥4 weeks if there is no indication for longer treatment, due to risk of prolonged sedation, confusion, impaired balance, falls and traffic accidents. The guideline continues, “all benzodiazepines should be withdrawn gradually if taken for >2 weeks as there is a risk of causing a benzodiazepine withdrawal syndrome if stopped abruptly.”
Deprescribing Benzodiazepines Among Older Adults

Clinical guidelines recommend avoidance of benzodiazepines in older adults. To achieve this, new use should be prevented and current users must be transitioned away from benzodiazepines. Immediate discontinuation of benzodiazepines may lead to adverse events and withdrawal symptoms, such as seizures and insomnia, and is not recommended (Hare, 2019; Markota et al., 2016; Reeve et al., 2017); a deprescribing strategy is needed. Deprescribing is the tapering or stopping drugs with the goal of minimizing inappropriate use to improve patient outcomes (Scott et al., 2015). Closely related to the concept of clinical de-intensification (e.g., Choosing Wisely Campaign), deprescribing specifically addresses the steps needed to safely discontinue a medication while avoiding unintended consequences such as withdrawal or adverse events. This includes consideration of other medications the patient may be taking, as well as discussion with the patient to educate on rationale for deprescribing and discuss patient goals. This approach is recommended in older patients receiving high-risk drugs or combinations and may involve multiple steps or components (Scott et al., 2015).

It is important that benzodiazepines are discontinued at a rate that is appropriate and safe for older adults. Rapid tapers can result in higher anxiety levels than those preceding the use of the medication, and possibly seizures (Markota et al., 2016). However, with patient education and close monitoring, older adults can safely reduce their benzodiazepine use (Iyer et al., 2008). Deprescribing success rates (defined as being complete drug-free at end of study) have been found to range from 25% to 85% (Paquin et al., 2014). A randomized trial found a 77% reduction in benzodiazepine use at 6 months, with minimal withdrawal symptoms among long-term users who received education from community pharmacists during the tapering process (Tannenbaum et al., 2014). Successful tapering decreases the risks of adverse events associated with benzodiazepine use, including risk of falls (Markota et al., 2016).

There are several existing interventions related to decreasing benzodiazepine use. Patient and provider education is a common intervention used to target deprescribing efforts at the individual level (Ng et al., 2018). In addition, reimbursement for alternative services, such as behavioral therapy for insomnia or alternative medications for anxiety, give physicians options for common diagnoses that are typically treated with benzodiazepines (Guina & Merrill, 2018). For example, providers can prescribe antidepressants, anticonvulsants or certain antihypertensive agents to patients treated for generalized anxiety disorder with benzodiazepines (Guina & Merrill, 2018; Longo & Johnson, 2000). Initiatives at the state level can also impact deprescribing efforts. In 2019, 20 states required mandatory use of Prescription Drug Monitoring Program (PDMP) data for benzodiazepines (Centers for Disease Control and Prevention, 2020; Liang & Shi, 2019). Providers and plans are encouraged to look at benzodiazepine prescribing practices and monitor PDMP data to avoid a benzodiazepine crisis, particularly during the COVID-19 pandemic as rates of anxiety and insomnia as well as social isolation are expected to increase among older adults (Agrawal, 2020). New Mexico is on the forefront of statewide benzodiazepine deprescribing efforts. The New Mexico Overdose Prevention and Pain Management Advisory Council, established in 2012 under the NM Department of Health, developed guidelines for the use of benzodiazepines in the state (NM Department of Health, 2018) that include prescribing guidance for benzodiazepines and other Z-drugs, as well as tapering instructions for physicians to follow (The New Mexico Overdose Prevention and Pain Management Advisory Council, 2019).

Recommendations Focused on Reducing Benzodiazepine Use When Already Prescribed & Deprescribing Approaches

Although a single consensus guideline for appropriate deprescribing of benzodiazepines has not yet been published, several clinical algorithms have been produced that share common recommendations (National Opioid Use Guideline Group, 2010; Ogbonna & Lembke, 2017; Pottie et al., 2018; VA National Center for PTSD, 2013). These clinical recommendations are summarized in Table 3. Similar guidance is also reflected in various organization-specific guidelines, such as Kaiser of Washington’s Benzodiazepine and Z-Drug Safety Guideline, among others (Kaiser Permanente, 2019; Nebraska Hospital Association, n.d.).
### Table 3: Benzodiazepine Deprescribing Approaches Focused on, or Applicable to, Older Adults

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Target Population</th>
<th>Guidance</th>
<th>Short Citation</th>
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<tbody>
<tr>
<td>Deprescribing Guidelines in the Elderly Project</td>
<td>Adults ≥65 with any benzodiazepine use for treatment of insomnia</td>
<td>Reduce 25% every 2 weeks, switching to 12.5% reductions near end</td>
<td>Pottie et al., 2018</td>
</tr>
<tr>
<td>VA National Center for Post-Traumatic Stress Disorder</td>
<td>Patients with PTSD on benzodiazepines &gt;2 weeks</td>
<td>Switch high-dose or long-term users to long-acting benzodiazepine Reduce 50% in first 2-4 weeks, maintain 1-2 months, then reduce 25% every 2 weeks</td>
<td>VA National Center for PTSD, 2013</td>
</tr>
<tr>
<td>AAFP Curbside Consultation</td>
<td>Adults ≥65 on benzodiazepines &gt;1 month</td>
<td>Initial reduction 5-25%, followed by further 5-25% reduction every 1-4 weeks</td>
<td>Ogbonna and Lembke, 2017</td>
</tr>
<tr>
<td>NOUGG Canadian Guideline for Chronic Non-Cancer Pain</td>
<td>Unspecified</td>
<td>Reduce by 10% every 1-2 weeks until dose is at 20% of original, then taper 5% every 2-4 weeks</td>
<td>National Opioid Use Guideline Group, 2010</td>
</tr>
</tbody>
</table>

Most guidelines for older adults (aged 65 and older) recommend starting with a larger taper amount (between 20% and 25%) every 2–4 weeks, then taper by 5% to 12.5%. Overall, there is agreement that a slower taper is considered better, with a possibility of lasting anywhere from 6–8 months. Most guidelines identify and prioritize specific high-risk populations such as individuals on supratherapeutic doses, using multiple benzodiazepines, or with drug-drug or drug-disease interactions. In almost all guidelines, the older adult population is called out as a specific risk group, with tailored recommendations (Ogbonna & Lembke, 2017; Pottie et al., 2018; VA National Center for PTSD, 2013).

The level of evidence supporting most existing benzodiazepine deprescribing guidelines is unclear; however, “Deprescribing benzodiazepine receptor agonists: Evidence based clinical practice guideline,” was developed based on systematic review under the GRADE framework (Pottie et al., 2018). Recommendations are specific to older adults using benzodiazepines for insomnia and do not apply to use of benzodiazepines for untreated anxiety, depression or other physical or mental health conditions. Created under the Deprescribing Guidelines in the Elderly project and published in 2018, this guideline’s recommendations have been adopted or promoted by multiple clinical organizations, such as the American Academy of Family Physicians and College of Physicians & Surgeons of Alberta (College of Physicians & Surgeons of Alberta, 2016; Ogbonna & Lembke, 2017). Their recommendations generally agree with those of other guidelines, though specific details may vary depending on the particular clinical population under discussion.
Challenges and Opportunities

One challenge identified in the literature is provider and patient pushback. Providers and patients may be uncertain of the benefits and harms of continuing or discontinuing specific drugs (Scott et al., 2015). The uncertainty may be greater in cases where there is not a single guideline or recommendation in place to advise on appropriate deprescribing of specific medications, such as benzodiazepines. Patients may also fear the adverse drug withdrawal effects and decide not to taper off benzodiazepines to avoid these effects (Scott et al., 2015). Limited availability or reimbursement opportunities for alternative treatments may discourage patients and providers from reducing use of benzodiazepines.

NCQA is aware of potential unintended consequences a deprescribing measure can have. If not specified properly, this measure could incentivize inappropriate deprescribing that could result in attendant harm to the patient. In testing, NCQA explored populations where it may not be fitting to deprescribe benzodiazepines and should be excluded from the measure, such as those with a diagnosis that may be appropriate for benzodiazepine treatment. The current measure specifications reflect our findings and exclude populations where benzodiazepine use may be appropriate. Another possible consequence of a deprescribing measure is patients turning to other methods to obtain benzodiazepine prescriptions; for example, paying for benzodiazepines out of pocket (Barnett et al., 2019).

With a deprescribing measure, there is opportunity to promote harm reduction. This measure concept also fills a measurement gap. Currently, measures on benzodiazepine use focus on avoiding all use of benzodiazepines, or avoiding use of benzodiazepines concurrently with other medications, such as opioids. Other existing measures assess the education patients and caregivers receive on high-risk medications and overall polypharmacy of CNS-active medications. Although there is no current measure that incentivizes safely getting older adults off benzodiazepines, there is documented success of reducing benzodiazepine use at the population level (Carr et al., 2019; Davidson et al., 2020; Reeve et al., 2017; Winstanley et al., 2018), and this measure can further the assessment of such progress in patient safety for older adults.

References


