

# Utilization of Benzodiazepines and Barbiturates after Medicare Part D Coverage

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## INTRODUCTION

Benzodiazepines (BZD) and barbiturates (BARB) were excluded from Medicare Part D covered drugs from 2006 to 2012. Starting in 2013, the Part D program began to cover BZD for all Part D medically accepted indications and BARB when used in the treatment of epilepsy, cancer or chronic health disorders.

The study objective was to examine the cost and use of these drugs in Medicare beneficiaries since most of these drugs are included by Beers' criteria<sup>1</sup> as potentially inappropriate drugs in older adults.

## METHODS

### Data Source from Chronic Condition Warehouse (CCW)

- 2013 Prescription Drug Event (PDE)
- 2013 Beneficiary Summary
- 2013 Drug Characteristics
- 2013 Prescriber Characteristics
- 2013 Pharmacy Characteristics

### Study Population

Beneficiaries who had ≥1 PDE in 2013 were included in the denominator. The numerator included those with one or more BARB or BZD PDEs.

### Ascertainment of BARB or BZD

- BARB and BZD were defined as having the following 8-digit American Hospital Formulary Service (AHFS) Pharmacologic-Therapeutic Classification codes

Drug type	AHFS Code	Description
Barbiturates	28120400	Barbiturates (Anticonvulsants)
	28240400	Barbiturates (Anxiolytic, Sedative/Hypnotic)
Benzodiazepines	28120800	Benzodiazepines (Anticonvulsants)
	28240800	Benzodiazepines (Anxiolytic, Sedative/Hypnotic)

- Excluded drugs that were previously covered by Medicare Part D program – e.g., Primidone and Butalbital combination drugs for BARB and Chlordiazepoxide combination drugs for BZD

- Final list of drugs included for BARB and BZD

Drug Type	Included Drugs
Barbiturates	Amobarbital, Butabarbital, Mephobarbital, Pentobarbital, Phenobarbital, Secobarbital
Benzodiazepines	Alprazolam, Chlordiazepoxide, Clobazam, Clonazepam, Clorazepate, Diazepam, Estazolam, Flurazepam, Lorazepam, Midazolam, Oxazepam, Quazepam, Temazepam, Triazolam

Bold = Long-acting BZD and Maroon = short or intermediate-acting BZD according to the 2012 Beers' criteria  
Italics = not included in 2012 Beers' criteria but midazolam is a short-acting BZD and clobazam is a long-acting BZD.

## Analysis

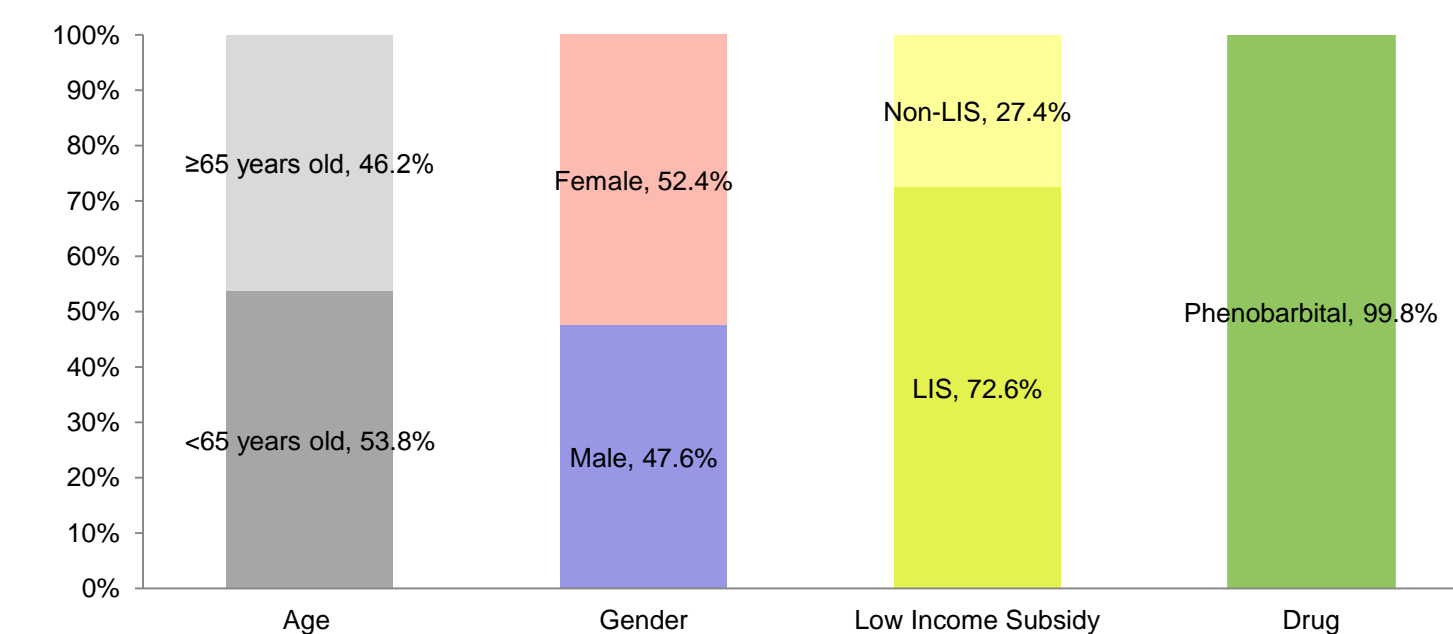
- Overall BARB and BZD PDE use and by
  - Age group (<65 vs. 65 and older)
  - Gender
  - Low income subsidy (LIS) status (based on positive low income cost sharing subsidy amount)
  - Primary pharmacy dispensing type (Retail, Long-Term Care (LTC), Other)
  - Prescriber specialty
- Prevalence of BARB and BZD
- Total prescription cost of BARB and BZD

## RESULTS

Table 1. Utilization and Total Prescription Cost for BARB and BZD among 2013 PDEs

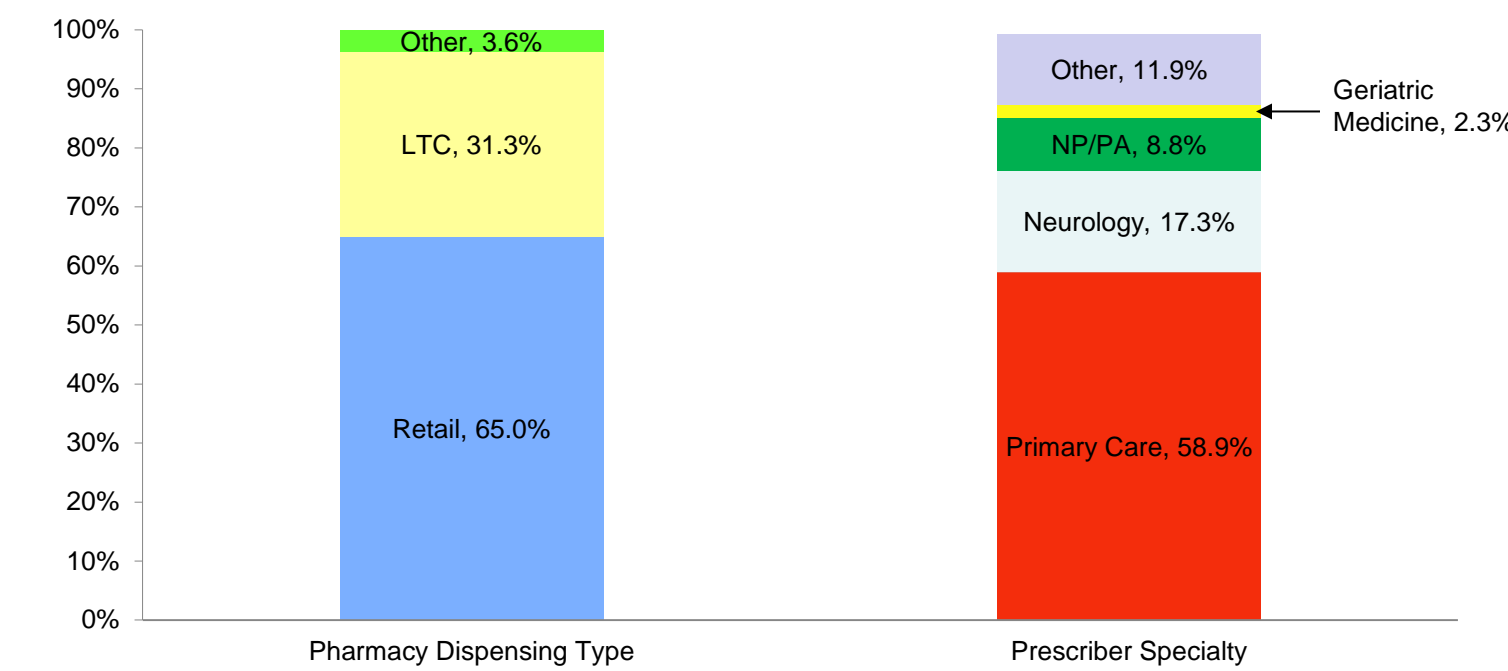
	2013 PDEs	BARB	BZD
<b>All ages</b>			
Number of PDEs	1,371,650,000	682,313 (0.05%)	39,506,319 (2.88%)
Number of LIS PDEs	570,325,613	495,120 (0.09%)	17,917,600 (3.14%)
Total prescription cost (million)	\$103,724.6	\$12.1 (0.01%)	\$391.1 (0.38%)
Number of users	35,109,239	78,273 (0.22%)	6,953,278 (19.80%)
<b>Aged 65 or older</b>			
Number of PDEs	1,048,902,580	315,492 (0.03%)	24,365,608 (2.32%)
Number of LIS PDEs	337,692,235	177,184 (0.05%)	7,763,277 (2.30%)
Total prescription cost (million)	\$71,086.9	\$5.2 (0.007%)	\$232.7 (0.33%)
Number of users	28,853,611	40,224 (0.14%)	4,905,445 (17.00%)

Figure 1. Characteristics of Barbiturate PDEs



- Phenobarbital was the most prevalent barbiturate with butabarbital and secobarbital accounted for the remaining PDEs.
- The mean ± SD number of PDE per BARB user was 8.7±5.9.

Figure 2. Barbiturate PDEs by Pharmacy Dispensing Type and Prescriber Specialty



Primary care includes Internal Medicine, Family Medicine and General Practitioner; NP/PA=Nurse Practitioner/Physician Assistant

Figure 3. Characteristics of Benzodiazepine PDEs

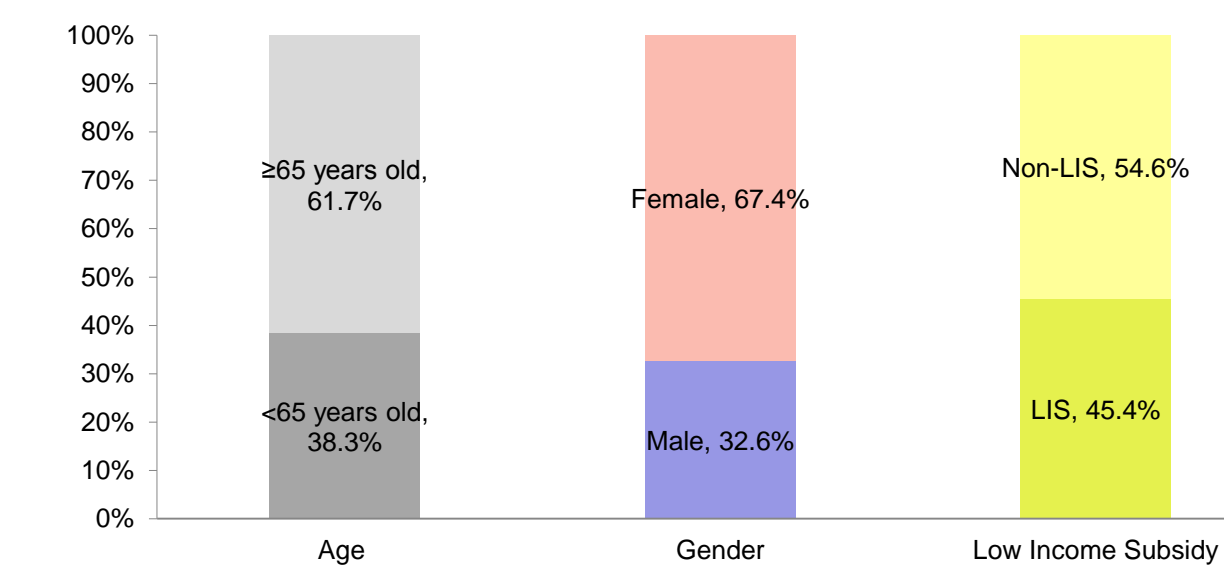


Figure 4. Benzodiazepine PDEs by Pharmacy Dispensing Type and Prescriber Specialty

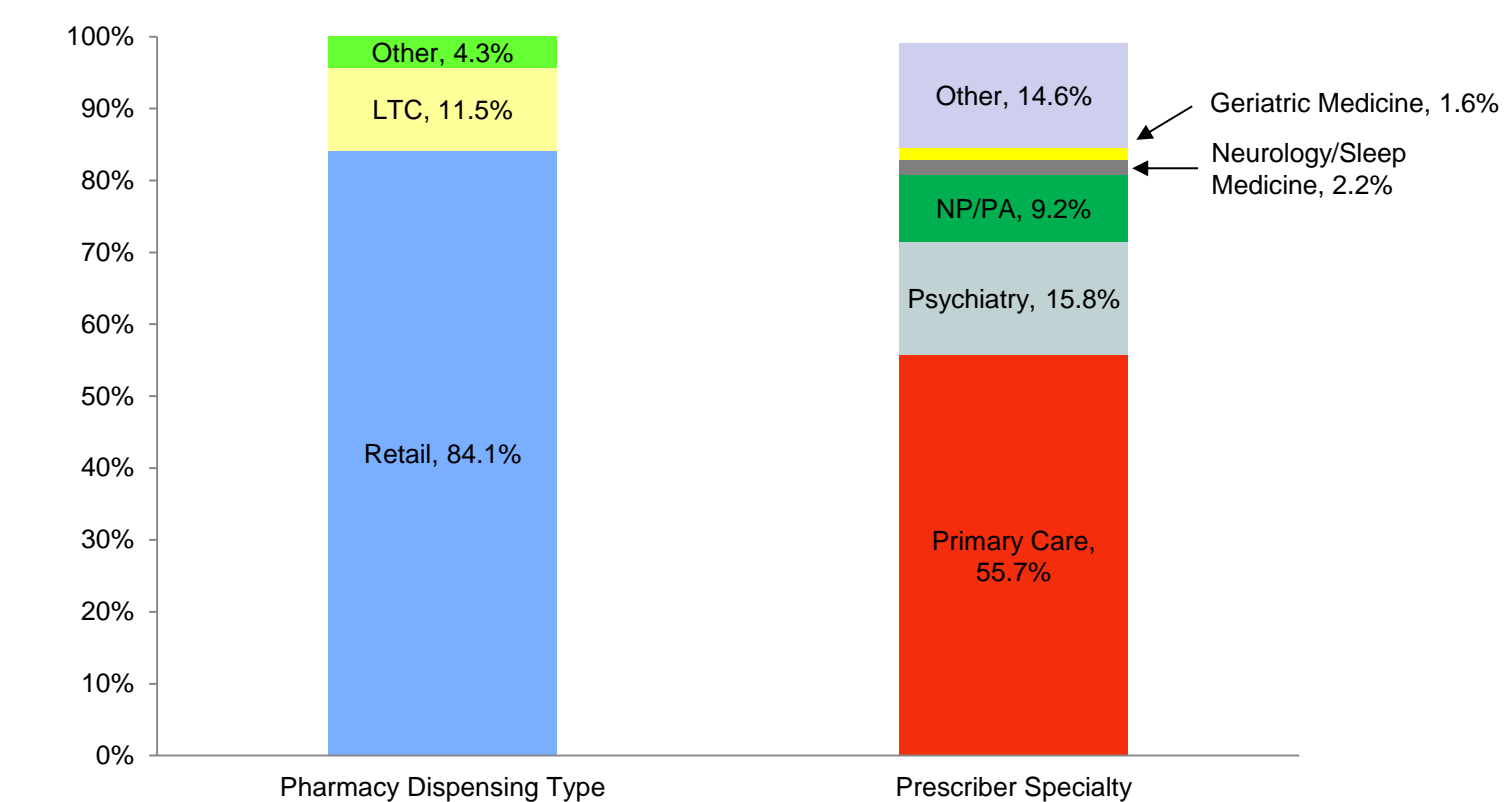
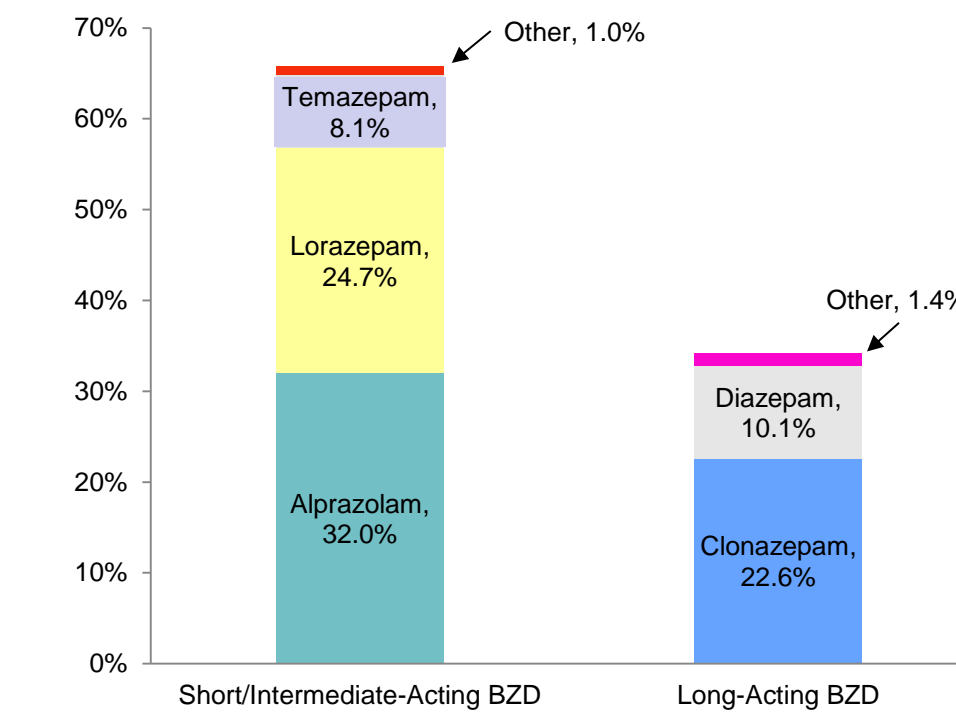
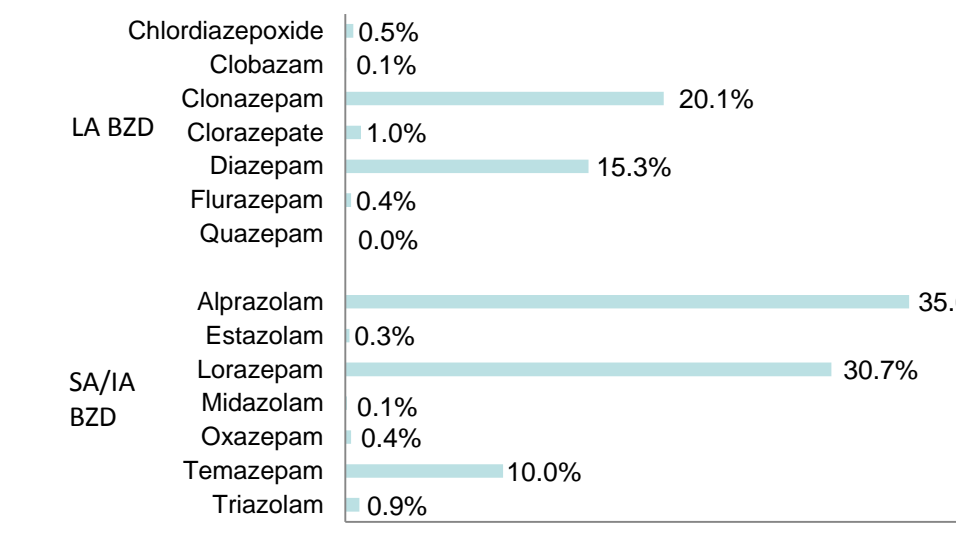


Figure 5. Prevalence of Benzodiazepine by Drug



- A total of 65.8% and 72.9% of the BZD PDEs were short or intermediate acting (SA/IA) BZDs in all users and the subset of users aged 65 years and older (older users), respectively.
- Alprazolam and clonazepam had the highest percent of SA/IA and LA BZD PDEs, respectively in users of all ages and those who were 65 years and older.
- The mean ± SD number of PDE per BZD user was 5.7±5.2 compared to 5.0±4.7 in older users.

Figure 6. Prevalence of Benzodiazepine among BZD Users



- A total of 86.6% of all BZD users only had one unique drug vs. 88.9% of the older users.
- The prevalence of only SA/IA and LA BZD use was 64.0% and 27.9%, respectively while 8.1% used both types of BZD.
- Compared to all users, a smaller percent of older users had PDEs for either LA BZD only (6.1%) or both BZD types (24.1%).

## CONCLUSIONS

- BARB and BZD constituted almost 3% of all PDEs with the majority being BZD. These PDEs were used by 7 million Medicare beneficiaries, of whom almost 5 million were beneficiaries 65 and older.
- Phenobarbital and SA/IA BZDs were the most common BARB and BZD drugs.
- Although retail pharmacies accounted for the most PDEs, LTC pharmacies accounted for 31.3% and 11.5% of BARB and BZD PDEs.
- The majority of the BARB and BZD PDEs were prescribed by primary care physicians, NPs/PAs followed by neurologists for BARB or psychiatrists for BZD.
- Implication for Policy or Practice: Further investigation is needed to assess if these drugs were used appropriately in the older beneficiaries and if the use of these drugs has an impact on outcomes.

## REFERENCE

<sup>1</sup>The American Geriatrics Society 2012 Beers Criteria Update Expert Panel. American Geriatrics Society Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. J Am Geriatr Soc 2012. DOI: 10.1111/j.1532-5415.2012.03923.x

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