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# Multiple Sclerosis: New Perspectives on the Patient Journey

## Real-World Analysis of Prescription Drug Use and Costs in Medicare Part D

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## INTRODUCTION

This 2017 report is the first in a proposed series that examines the multiple sclerosis (MS) population in Medicare. In this study, we examine the characteristics of 2015 Medicare Part D enrollees obtaining MS disease-modifying therapies (DMTs) and how their cost sharing and therapies differed by demographic and coverage characteristics. This report follows the April 2016 report, *Multiple Sclerosis: New Perspectives on the Patient Journey*, which was also commissioned by Biogen. The 2016 study used commercial insurance claims data to examine MS disability progression and payer system costs.<sup>1</sup>

The 2016 commercial analysis used Truven Health Analytics MarketScan<sup>®</sup> Commercial Databases (2003-2014) and included a 1-year (2013) snapshot analysis and a multiyear (2003-2014) longitudinal analysis.<sup>1</sup> The following were key findings.

### KEY FINDINGS: SNAPSHOT ANALYSIS FROM 2013 COMMERCIAL INSURANCE POPULATION<sup>1</sup>

- MS prevalence in the commercial population peaked at 53 to 57 years of age for women and 58 to 62 years of age for men
- About 1 out of 3 patients with MS did not receive DMT treatment in the year 2013
- Some patients with MS had diverse resource utilization as exhibited by variations in allowed costs, particularly for non-DMT services and drugs
- Hospitalizations, skilled nursing facility stays, and emergency room visits made up nearly a quarter of non-DMT costs

### KEY FINDINGS: LONGITUDINAL ANALYSIS FROM 2003-2014 COMMERCIAL INSURANCE POPULATION<sup>1</sup>

- Indicators of disability and functional impairment were observed in claims for up to 30% of patients before MS diagnosis was established; these indicators increased during the course of disease
- At diagnosis, approximately 75% of patients had  $\geq 1$  indicator of disability (based on the Expanded Disability Status Scale) or related neurological impairment
- Non-DMT costs appeared to peak in the year following MS diagnosis and reduced somewhat thereafter
- Approximately 1 out of 3 newly diagnosed patients with MS did not have claims for DMT treatment within 2 years following diagnosis
- Approximately 1 out of 3 patients switched to a different DMT within 2 years after initiating treatment
- DMT adherence steadily declined during the first 2 years of treatment, with the average medication possession ratio falling below 80% around 18 months after DMT initiation
- DMT use was associated with a reduction in non-DMT costs equivalent to approximately 7% of DMT spend

### FUTURE PROPOSED RESEARCH WILL AIM TO PROVIDE ADDITIONAL INSIGHTS ABOUT THE MEDICARE PART D POPULATION WITH MS

In future reports, we plan to examine DMT use, switching, and adherence in Part D over several years, as well as study patients with MS in an integrated database that contains both medical and prescription drug claims.

## EXECUTIVE SUMMARY

MS is a disabling neurological disease that affects approximately 400,000 to 570,000 people in the United States.<sup>1,2</sup> While MS incidence peaks in young adults, impairments and disability increase with age, as it is a progressive and lifelong disease.<sup>2,3</sup> Although Medicare is generally considered to be medical coverage for Americans aged 65 years and older, it also covers many individuals who are disabled and younger than 65 years, including people with MS who are disabled.<sup>4</sup> A mainstay of treatment for relapsing forms of MS includes DMTs, which are specialty drugs. Specialty drugs have been a major driver of federal spending on Part D in recent years.<sup>5,6</sup>

This analysis examines patients with MS enrolled in the Medicare Part D prescription drug program in 2015 who used DMTs and MS-related non-DMT drugs. The DMTs examined in this report are indicated only for relapsing forms of MS. While DMTs may be oral, injectable, or infusible,<sup>6</sup> this report examines only oral and injectable DMTs, as infusible drugs generally are not covered by Medicare Part D.<sup>a</sup> Milliman's proprietary 2015 Part D Consolidated Database (PDCD), which contains Part D enrollment and claims data for 6.6 million people enrolled in prescription drug plans (PDPs), Medicare Advantage plans with integrated prescription drug plans (MA-PDs), and employer group waiver plans (EGWPs), was used for the analysis.

To our knowledge, this is the first study to examine the characteristics of enrollees obtaining DMTs through Part D and how their cost sharing and therapies may differ by demographic and coverage characteristics.

## PREVALENCE AND CHARACTERISTICS OF 2015 MEDICARE PART D PATIENTS USING DMTs

We estimate that approximately 93,000 Medicare Part D enrollees obtained DMTs from Part D in 2015, for a prevalence of 2.49 DMT users per 1000 Part D enrollees.

In addition, we found that:

- Compared to all Part D enrollees, DMT users were disproportionately young (aged <65 years), disabled, and receiving the low-income subsidy (LIS)
- Among the Part D DMT users, younger enrollees were much more likely to use oral DMTs, while older enrollees were more likely to use injectable DMTs
- Adherence to DMTs varied substantially by age and between LIS and non-LIS enrollees; LIS enrollees had lower adherence at all ages

## COST SHARING WITH DMTs

The cost-sharing structure of Medicare Part D is complex. Due to the cost of DMTs, beneficiaries not receiving the LIS or employer-sponsored coverage may have to pay large out-of-pocket (OOP) amounts. The analysis found that, on average:

- Medicare Part D DMT users who were eligible for the LIS paid about \$7 a month for DMTs
- Medicare Part D DMT users who were covered under employer-sponsored plans paid about \$50 a month for DMTs
- Medicare Part D DMT users who were not considered low-income and were not covered under an employer-sponsored plan, even though they may have had limited resources, would have paid about \$5500 in 2015 if they filled 12 monthly DMT prescriptions. Approximately one-third of this amount was paid to fill the first DMT prescription
- For non-EGWP enrollees, the second 30-day (\$5700) DMT prescription always fell partially or fully in the Part D catastrophic coverage phase

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<sup>a</sup>Infusible drugs are most often covered by Medicare Parts B or C rather than Part D and will be examined in a subsequent study.

## **COST SHARING FOR MS-RELATED NON-DMT DRUGS**

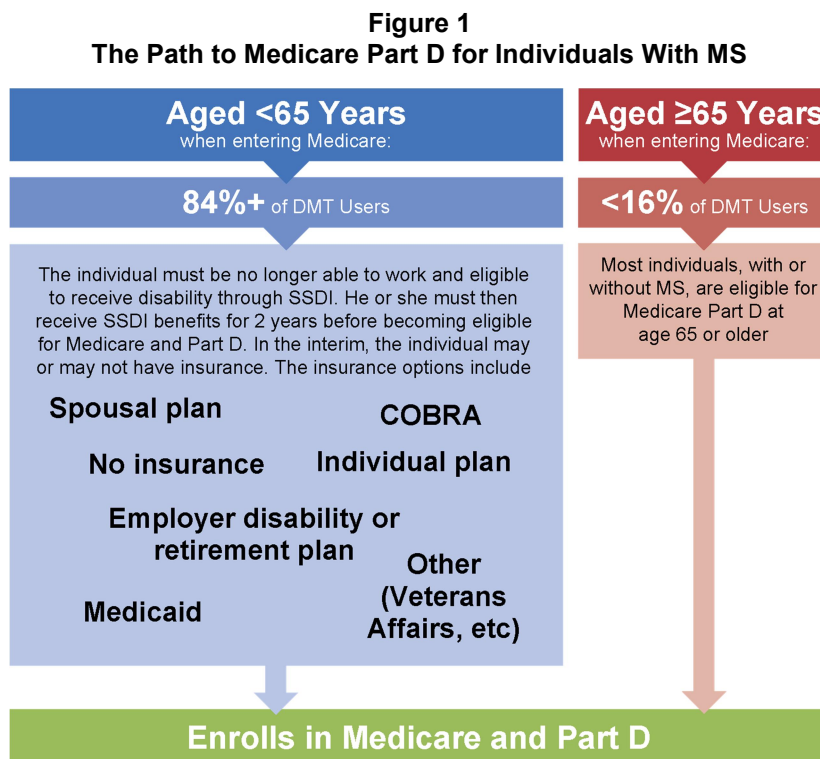
We examined the use of drugs other than DMTs that may be used to treat MS-related conditions (MS-related, non-DMT drugs) among DMT users and found that:

- The most commonly used MS-related drug categories for conditions were for depression/cognition, pain, and spasticity/walking
- On average, DMT users filled prescriptions for drugs from 2.8 different MS-related drug categories, which may represent distinct MS-related conditions
- LIS enrollees used the most categories of different MS-related drugs, suggesting that, on average, low-income individuals have more MS-related conditions than higher-income, non-LIS enrollees

This report was commissioned by Biogen, which creates products that can be used to treat relapsing MS. The findings reflect the research of the Milliman authors; Milliman does not intend to endorse any product or organization. This report was developed with the intent to provide insight to financial and medical decision-makers within payer organizations. If this report is reproduced, it should be reproduced in its entirety, as pieces taken out of context can be misinterpreted. Our analysis is based on 2015 data, and the characteristics of other years will differ. Future experience will vary from the estimates presented in this report for many reasons, including systematic change and random fluctuation. As with any economic or actuarial analysis, it may not be possible to capture all factors that may have significant impact on drug utilization and cost, and interpretations of these data may vary. Because we present national average data, the findings should be considered carefully before they are applied to any particular situation, since there could be significant variation among subsets of the population. The authors are employed by Milliman and 2 of the coauthors, Tia Goss Sawhney and Bruce Pyenson, are members of the American Academy of Actuaries and meet its qualification standards for this work.

## BACKGROUND

Medicare is available to nearly all Americans at age 65; people who are disabled may qualify for Medicare before 65 years of age.<sup>7,8</sup> The primary disability-based path to Medicare requires total disability, sufficient work history to qualify for Social Security Disability Income (SSDI), and 2 years of receiving SSDI benefits.<sup>7,8,a</sup> For people with MS or most other conditions, the path from possibly being covered through an employer health insurance plan to obtaining Medicare requires at least 2 years of total disability (inability to work) as a result of physical and/or cognitive impairments. The period of disability prior to Medicare may involve switches in insurance coverage among employer plans, employer COBRA<sup>b</sup> plans, spousal plans, individual plans, Medicaid, or no insurance. This period may deplete the financial resources of the patient with MS and their family. Medicare is an insurance “landing pad” for patients with MS, providing lifelong insurance, often after years of insurance and financial instability. When surveyed, one-third of people with MS stated that Medicare was their insurer.<sup>9,c</sup>



**Note:** While the 2-year SSDI to Medicare waiting period is waived under certain circumstances, the circumstances are seldom relevant to patients with MS.

This report examines patients with MS obtaining DMTs through Medicare Part D, which provides prescription drug benefits for approximately 70% of all Medicare beneficiaries.<sup>5</sup> Medicare Part D is provided through 2 types of plans: stand-alone PDPs and MA-PDs.<sup>10</sup> EGWPs are sponsored by some employers for their disabled and retired employees and operate through PDPs or MA-PDs.<sup>11</sup> Enrollees in PDPs and MA-PDs may qualify for Part D premium and cost-sharing reductions through the Part D LIS; if so, they pay low copayments and, sometimes, small deductibles for Part D drugs.<sup>12,13</sup>

Please note that the DMTs used in this analysis are US Food and Drug Administration (FDA) approved for relapsing forms of MS, and most have not been clinically studied in people 65 years and older.

<sup>a</sup>There are other paths, including having end-stage renal disease or amyotrophic lateral sclerosis, or being the disabled widow(er) of a worker.

<sup>b</sup>COBRA=Consolidated Omnibus Budget Reconciliation Act of 1985.

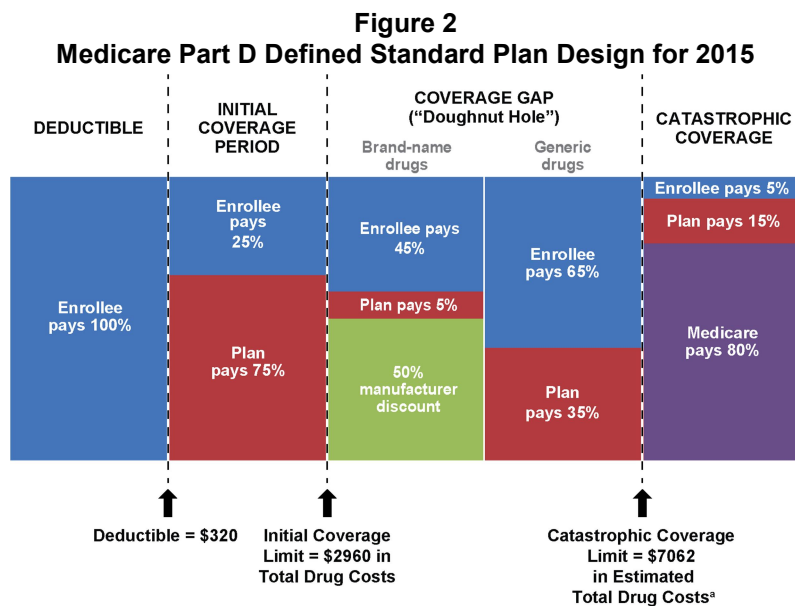
<sup>c</sup>Based on a 2009 telephone survey from the National Multiple Sclerosis Society’s mailing list. There was a total of 2361 participants (unweighted n=2306).<sup>9</sup>

EGWP sponsors may pay much of Part D's cost sharing for their enrollees, which may lower individual patient cost-sharing amounts.<sup>14</sup> Non-LIS, non-EGWP enrollees, however, may have significant patient cost sharing, particularly before reaching Part D's catastrophic phase.<sup>15</sup>

Medicare enrollees who are also Medicaid enrollees (dual eligible) have the lowest income among LIS enrollees and are automatically enrolled in LIS. Those who have resources in excess of their state's Medicaid limit, but less than the LIS limit, may apply for the LIS.<sup>13</sup> Any LIS enrollees who do not actively select a Part D plan are automatically assigned to PDPs with premiums below a regional benchmark. These plans may achieve lower premiums, in part, by limiting formularies.<sup>12,16</sup> Almost all plans have the Part D standard plan cost sharing for the coverage gap and catastrophic phases.

The Part D benefit and financing structures are complex and highly regulated. The standard benefit structure has 4 cost-sharing phases, including a catastrophic phase for members with high annual spending. Where an enrollee falls in the benefit structure for any particular prescription depends on the enrollee's cumulative spending on prescription drugs, from the beginning of the calendar year until the date that particular prescription is filled (see Figure 2).<sup>15</sup> Medicare reimburses payers for a portion of plan payments: 80% of the catastrophic phase costs and the difference between the cost sharing an LIS enrollee actually paid and the amount they would have paid had they been a non-LIS enrollee. Under Medicare's rules, certain variations to the standard benefit design are permitted, provided the overall level of coverage is not any lower than the standard benefit.<sup>16</sup> MA-PDs usually offer more generous benefits than PDPs, and EGWPs may be even more generous.<sup>14,16</sup>

Specialty drugs (a category that includes DMTs) have been a major driver of federal spending on Part D in recent years,<sup>5</sup> and 2 of the DMTs included in this study ranked among the top 10 drugs for federal spending on Part D.<sup>17</sup> Although there is awareness that Part D cost sharing can be burdensome, there have been few recent studies examining specialty drug patient cost burden or its potential impact on drug use and health.<sup>18</sup>



<sup>a</sup>Amount represents the estimated catastrophic coverage limit for non-LIS enrollees (\$6680 for LIS enrollees). This amount corresponds to the True Out-of-Pocket (TrOOP) spending of \$4700, which is the amount used to determine when an enrollee reaches the catastrophic coverage threshold.

**Note:** Amounts rounded to nearest dollar.

Adapted from Kaiser Family Foundation Illustration of standard Medicare drug benefit for 2015 (standard benefit parameter update from the Centers for Medicare & Medicaid Services, 2014).

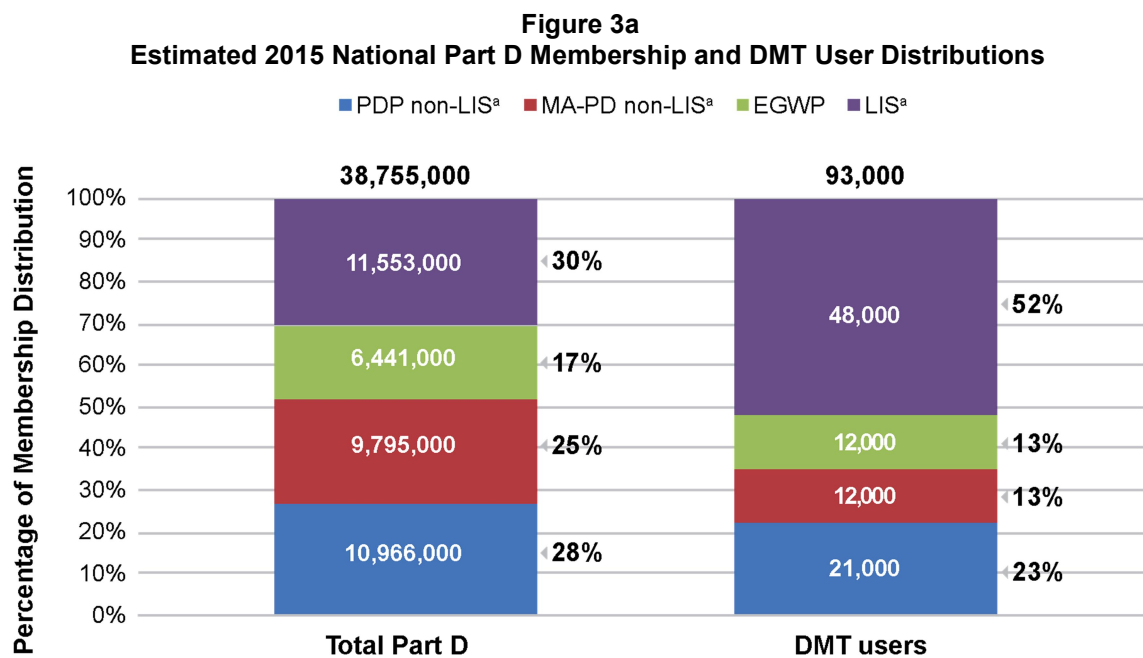
## DEMOGRAPHICS AND DMT USE IN MEDICARE PART D

### DEMOGRAPHICS

Our analysis examines Milliman’s proprietary 2015 PDCD, which contains Part D enrollment and claims data for 6.6 million PDP, MA-PD, and EGWP enrollees. This is approximately 17% of all Part D enrollees (see Table A in the Appendix). We normalized the PDCD enrollment to estimate national Part D enrollment by plan type and subsidy status (see Table A2 in the Appendix) and found the following:

- Approximately 93,000 people obtained prescriptions for DMTs through Part D
- More than 84% of DMT users in Part D originally earned their Medicare eligibility through disability before they reached 65 years of age
- 52% of DMT users in Part D received the LIS, which appeared to dramatically lower their cost sharing compared to non-LIS enrollees. Only 30% of all Part D enrollees received the LIS
- Non-LIS DMT users were less likely than the total Part D population to be in MA-PDs (plans that often offer lower cost sharing and have the most potential to integrate medical and pharmacy benefits)
- Patients receiving DMTs in this analysis were more likely to be female and to live in northern regions compared to all Part D enrollees, both of which are consistent with MS epidemiology<sup>2,19</sup>

Figure 3a summarizes the distribution of 2015 total Part D membership and those who filled one or more DMT prescriptions in that year.



<sup>a</sup>Excluding EGWP.

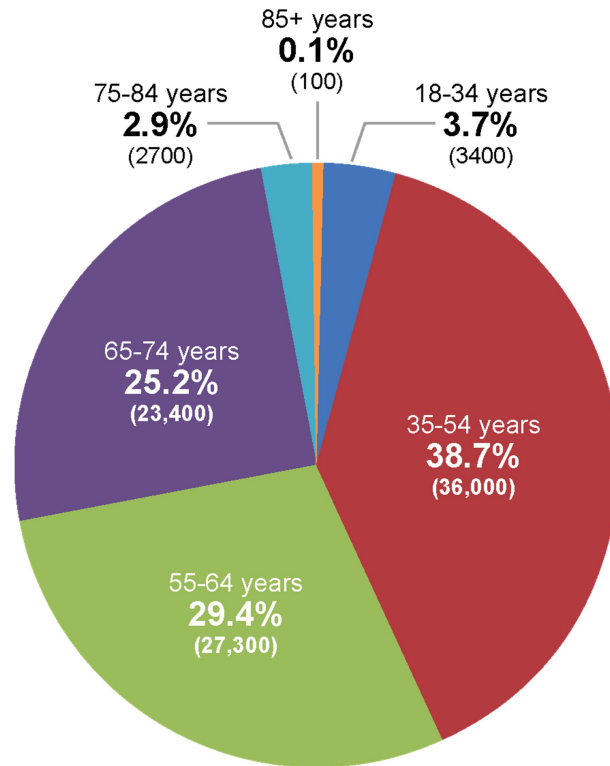
**Note:** Estimated number of enrollees has been rounded to the nearest thousand, so percentages may not add to 100.

Source: Milliman analysis.



The number of patients with MS receiving DMTs (DMT users) declined rapidly after 65 years of age. The high percentage (84%) of these patients who entered Medicare Part D prior to 65 years of age through disability appears to support the MS epidemiology of younger onset and consistent disease progression with increasing disability.<sup>2,3</sup> Part D data do not allow us to identify patients diagnosed with MS who may not be DMT users. We plan to examine the percentage of patients diagnosed with MS using DMTs by age in a future report. Figure 3b summarizes the distribution of 2015 Part D membership for DMT users by age group.

**Figure 3b**  
**Estimated 2015 National Part D DMT User Age Distributions**



**Note:** Estimated number of DMT users has been rounded to the nearest hundred.  
 Source: Milliman analysis.

**Approximately 93,000 people obtained prescriptions for DMTs through Part D; more than 84% of DMT users originally entered Medicare before 65 years of age due to disability, and 72% were younger than 65 in 2015**

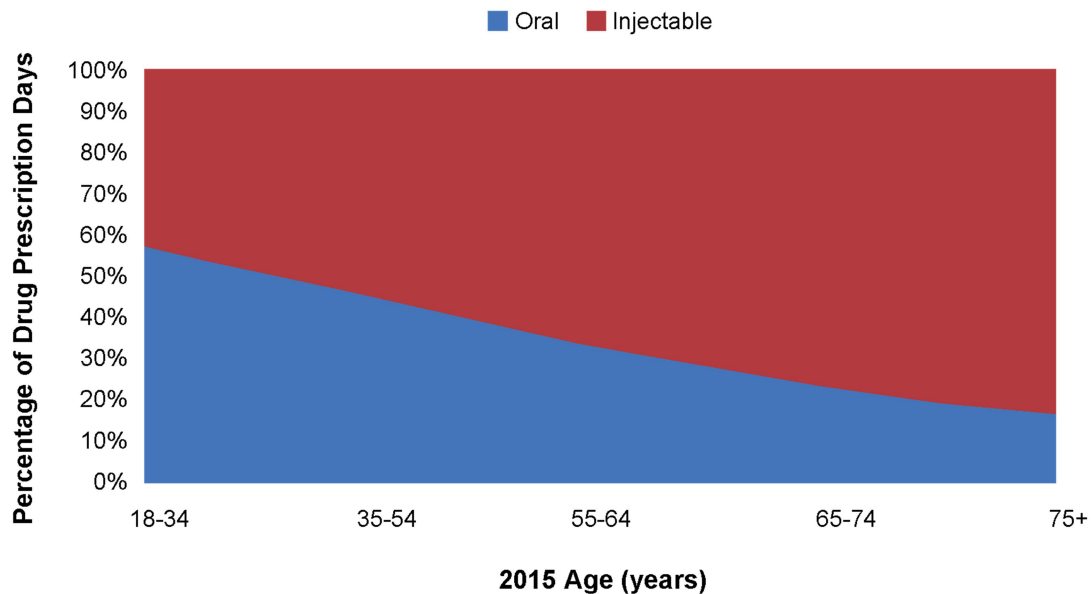
DMT users seem less likely to be in EGWPs or MA-PDs than other Part D enrollees. This may be because health impairment disrupted DMT users' employment history, thereby prohibiting them from achieving the service years required to qualify for an EGWP. The higher PDP enrollment vs MA-PD enrollment among DMT users is more pronounced than in total national figures, but consistent with the fact that DMT users are more likely to be LIS eligible, and LIS enrollees are automatically assigned to PDPs if they do not otherwise choose an MA-PD or PDP.<sup>13</sup>

**52% of DMT users received the LIS, which appeared to dramatically lower their cost sharing; this is significantly higher than the 30% for all Part D enrollees**

## DMT USE

In 2015, injectable DMTs were used by more Part D DMT users than oral DMTs were. However, younger enrollees were much more likely to use oral DMTs than older enrollees (see *Figure 4 below and Table A3 in the Appendix*). These differences do not appear to be related to cost, as average costs per 30-day prescription were consistent across oral and injectable DMTs and plan types (see next section). Since oral DMTs were more recently introduced to the market (in 2010), the difference may be due to some longer-term DMT users continuing with the injectable products they were using before oral drugs entered the market.<sup>20</sup> The choice between an injectable or oral DMT may also be influenced by many factors, such as Part D formularies, including pre-authorization and step-therapy requirements.

**Figure 4**  
**Oral and Injectable DMT Use in Part D by Patient Age in 2015**

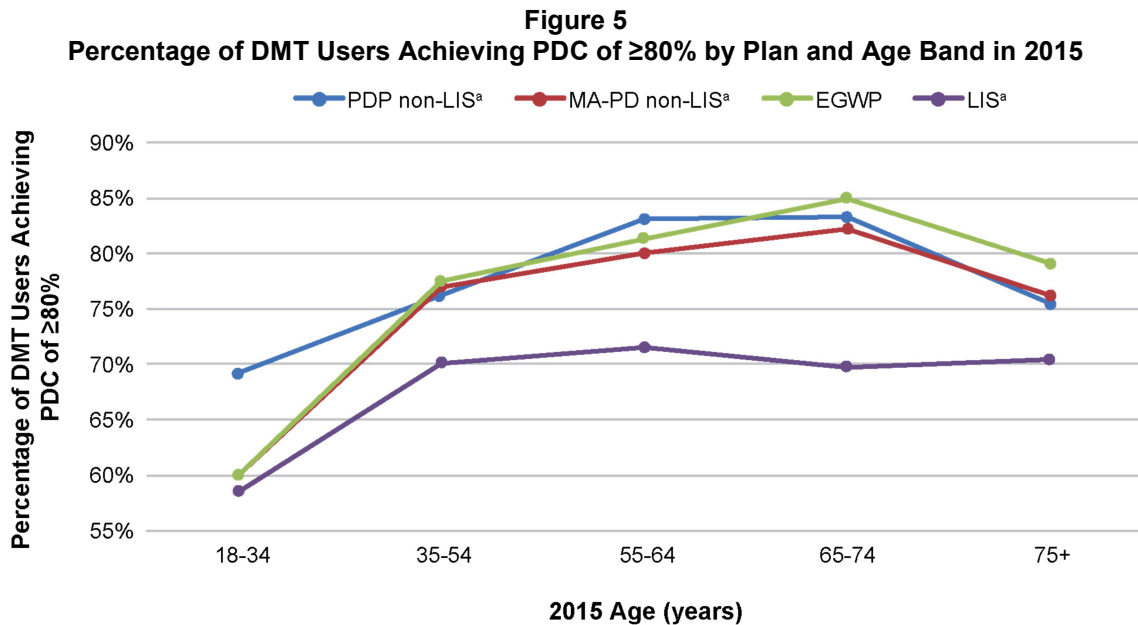


Source: Milliman analysis.

**Younger enrollees obtaining DMTs from Part D appeared to have a higher use of oral DMTs than older enrollees; injectable DMTs were used more overall**

## DMT ADHERENCE

Seventy-five percent of DMT users were adherent during 2015, where an adherent DMT user had a proportion of days covered (PDC) of at least 80% (see Table A4 in the Appendix). Adherence varied substantially by age and plan type, increasing until 75 years of age and then decreasing (see Figure 5). Average adherence was the lowest in the youngest age band (18-34) at 59%, increasing to 71% in the 35-54 age band, and continuing to increase to a peak of 81% in the 65-74 age band (see Table A4 in the Appendix). At all ages, LIS enrollees had the lowest adherence. LIS enrollees had very low cost sharing, which may suggest nonfinancial barriers to adherence. We plan to examine DMT adherence over multiple years in a subsequent study.



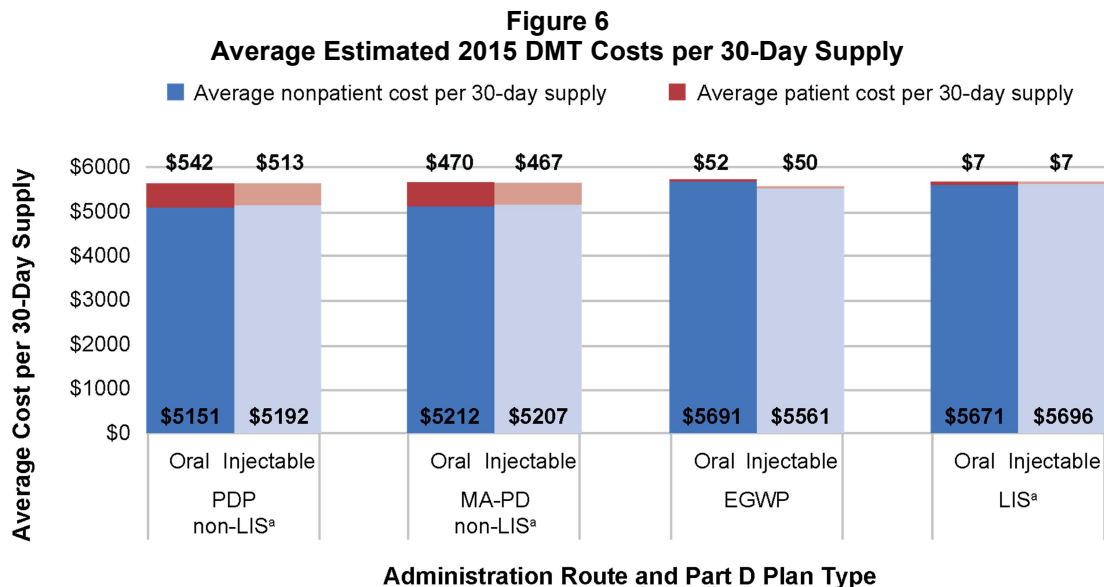
<sup>a</sup>Excluding EGWP.  
Source: Milliman analysis.

Prescription drug adherence measures are often incorporated into the quality of care measures used to evaluate and reward health plan and provider performance. Three non-MS drug adherence measures are currently incorporated in the Medicare Stars Rating System.<sup>21</sup> In December 2016, the Pharmacy Quality Alliance (PQA) endorsed DMT adherence as a performance measure, using the same 80% PDC threshold to define an adherent patient that was used in this study.<sup>22</sup> With time, the PQA-endorsed DMT adherence measure may be incorporated into various health system quality monitoring and incentive programs.

**The PQA endorsed DMT adherence as a performance measure in December 2016, using the 80% PDC threshold to define adherence<sup>22</sup>**

## DMT COSTS AND COST SHARING

Figure 6 below shows that average costs per 30-day supply of approximately \$5700 (payments by all sources at point of sale, before rebates) were similar across Part D plan types and income statuses and between oral and injectable drugs. If all DMT users had taken 12 months of drugs, the total DMT 2015 Part D cost would have been \$6.6 billion (96,000 members x \$5700 x 12) before rebates. While EGWP and LIS enrollees paid, on average, modest cost sharing for DMTs (approximately \$50 and \$7 per 30-day supply, respectively), the cost sharing was approximately \$500 per 30-day supply for non-EGWP, non-LIS enrollees. This represents the average monthly cost sharing paid across the entire year, though the amount paid each month varies significantly due to the different Part D benefit phases described earlier. These numbers are further detailed in Table A5 in the Appendix.



<sup>a</sup>Excluding EGWP.  
Source: Milliman analysis.

**While EGWP and LIS enrollees paid, on average, \$50 and \$7 per 30-day supply, respectively, the cost sharing was approximately \$500 per 30-day supply for non-EGWP, non-LIS enrollees**

The average cost sharing for PDP and MA-PD enrollees varies during the year as an enrollee accumulates spending and OOP costs and advances through the Part D coverage phases. Average cost sharing is typically higher in the early months before the enrollee reaches the catastrophic phase. Cost sharing in the initial coverage phase varies by PDP, but plans almost always have specialty cost sharing of 25% if the full deductible applies, or as high as 33% if there is no deductible. For 2015, cost sharing in the coverage gap for brands (net of the coverage gap discount) was 45%. Cost sharing reduces to 5% when the enrollee reaches the catastrophic phase.

In 2015, the catastrophic phase began after approximately \$7000 in total prescription drug spending per patient. The enrollee entered the catastrophic phase after \$4700 in patient OOP spending, inclusive of the coverage gap discount.<sup>15</sup> The coverage gap discount counts toward the TrOOP total that qualifies an enrollee for catastrophic phase coverage, even though it is not paid by the patient. The patient's OOP spending varied with the patient's coverage and mix of generic and brand spending. However, if a DMT user filled a 30-day DMT prescription early in the year before accumulating significant other prescription drug spending, the first \$5700 prescription would fall entirely in the pre-catastrophic phases. Table 1 shows that, in 2015, a prescription falling entirely in the pre-catastrophic phases cost a PDP, non-LIS enrollee about \$1900 on average and cost the MA-PD, non-LIS enrollee about \$1700.

For non-EGWP enrollees, the second 30-day (\$5700) DMT prescription always fell partially or fully in the catastrophic phase. Even without any other prescription drug spending, the third and subsequent prescriptions were always in the catastrophic phase. In 2015, on average, the second and subsequent prescriptions cost patients nearly \$350 per month. Overall, a patient in 2015 who filled 12 monthly DMT prescriptions had total cost sharing of about \$5500, which was somewhat higher for PDP enrollees (\$5723) and somewhat lower for MA-PD enrollees (\$5347). These patients also likely had cost sharing for MS-related or other non-DMT drugs.

**Table 1**  
**2015 Estimated Annual DMT Patient Costs Before and After Entering Catastrophic Phase**

	Patient Costs for 30-Day Prescription	
	PDP non-LIS Cost <sup>a</sup>	MA-PD non-LIS Cost <sup>a</sup>
Average cost of first 30-day prescription (not in catastrophic phase)	\$1926	\$1682
Average cost of subsequent 30-day prescriptions (in catastrophic phase)	\$345	\$333
<b>Estimated Annual Cost for 12 30-day prescriptions<sup>b</sup></b>	<b>\$5723</b>	<b>\$5347</b>
Average cost per 30 days for 12 prescriptions	\$477	\$446

**Notes:** Actual average patient costs varied based on benefit package and other drug spending. Patient costs for subsequent 30-day prescriptions is somewhat more than the 5% patient coinsurance in the catastrophic phase, as there may be one claim that straddles the coverage gap and the catastrophic phase. Patients who have fewer than 12 prescriptions may have a higher average cost per 30 days due to the cost dominance of the first prescription.

<sup>a</sup>Excluding EGWP.

<sup>b</sup>Calculated using the figures in prior rows, assuming 100% adherence: the weighted average of one first prescription and 11 subsequent prescriptions.

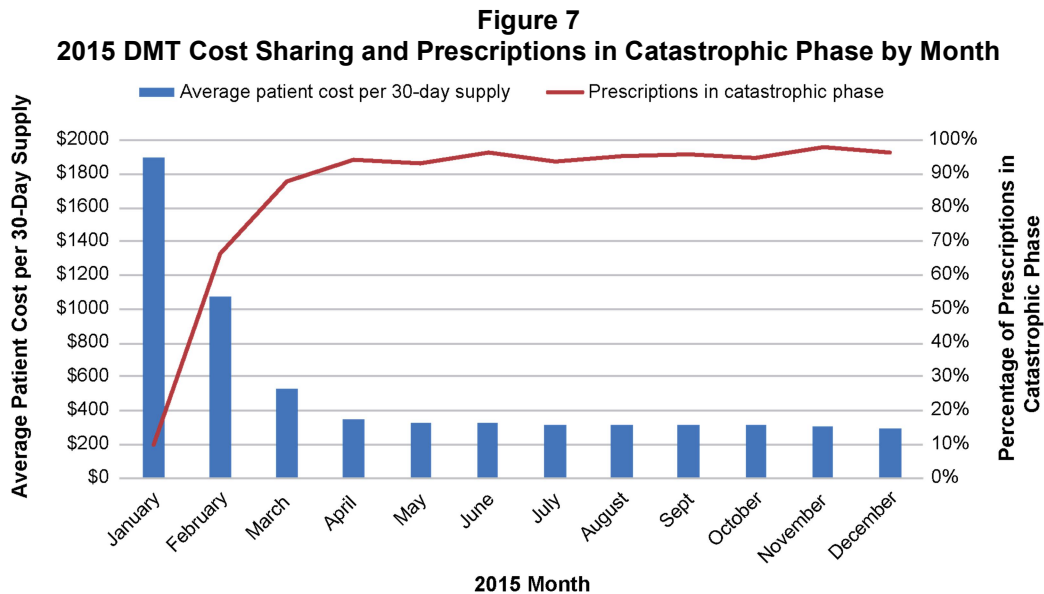
Source: Milliman analysis.

**On average, non-LIS enrollees faced larger cost burdens for DMT prescriptions filled early in the year (before the enrollee reached their catastrophic phase). The average cost sharing for the first prescription in 2015 for PDP and MA-PD enrollees was \$1800**

**For non-EGWP enrollees, the second 30-day (\$5700) DMT prescription always fell partially or fully in the catastrophic phase**

The average patient cost per 30-day prescription in Table 1 is lower than in Figure 6 because the costs represent 2 different analyses; Figure 6 shows the average DMT cost per 30-day prescription for all DMT patients regardless of the number of prescriptions, whereas Table 1 shows the average DMT cost of the weighted average of one first prescription and 11 subsequent prescriptions (assuming 12 prescriptions per year). Though patients with 12 prescriptions will pay more in total over a year than patients with fewer prescriptions, the average monthly cost per prescription for patients with 12 prescriptions is lower because they have more prescriptions in the catastrophic phase, with only 5% cost sharing.

In our real-world data, not all DMT users filled their first 2015 prescription in January, filled a second in February, and filled 1 prescription per month in the remaining months of the year. Some patients obtained 90-day fills, others missed a month, and some filled their first prescription midyear. Figure 8 shows that across all DMT users, the average cost sharing per prescription fell through May, and the percentage of prescriptions in catastrophic phase exceeded 90% starting in April. Further details can be seen in Table A6 in the Appendix.



Source: Milliman analysis.

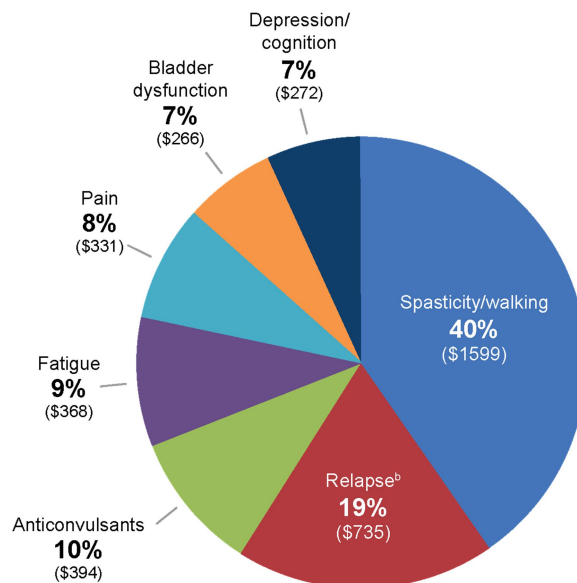
**DMT users (not covered by an EGWP) reached the catastrophic phase by their second monthly DMT prescription**

**More than 90% of prescriptions were in the catastrophic phase by April**

## MS-RELATED NON-DMT DRUGS AND COST SHARING

Part D data do not provide diagnosis codes that would allow a direct analysis of comorbid conditions. However, Part D data can be used to help identify when DMT users are taking non-DMT drugs that might be used to help treat comorbid conditions related to MS. We refer to these drugs as MS-related non-DMT drugs (see *Code Set 2: MS-Related Non-DMT Drugs in Appendix C*). MS-related drug use may indicate the presence of conditions associated with MS.<sup>1</sup> Table A9 in the Appendix shows that DMT users had an average use of MS-related drugs from 2.8 categories in 2015. The most common MS-related non-DMT drug categories were depression/cognition, pain, and spasticity/walking. More than half of DMT users filled at least one prescription in one or more of these common categories. EGWP enrollees had the lowest average number of MS-related non-DMT drug categories (2.4), while LIS enrollees had the highest (3.0); this is further illustrated in Table A8 in the Appendix.

**Figure 8**  
**Spending for Part D MS-Related Non-DMT Drugs by Category by DMT Users<sup>a</sup>**



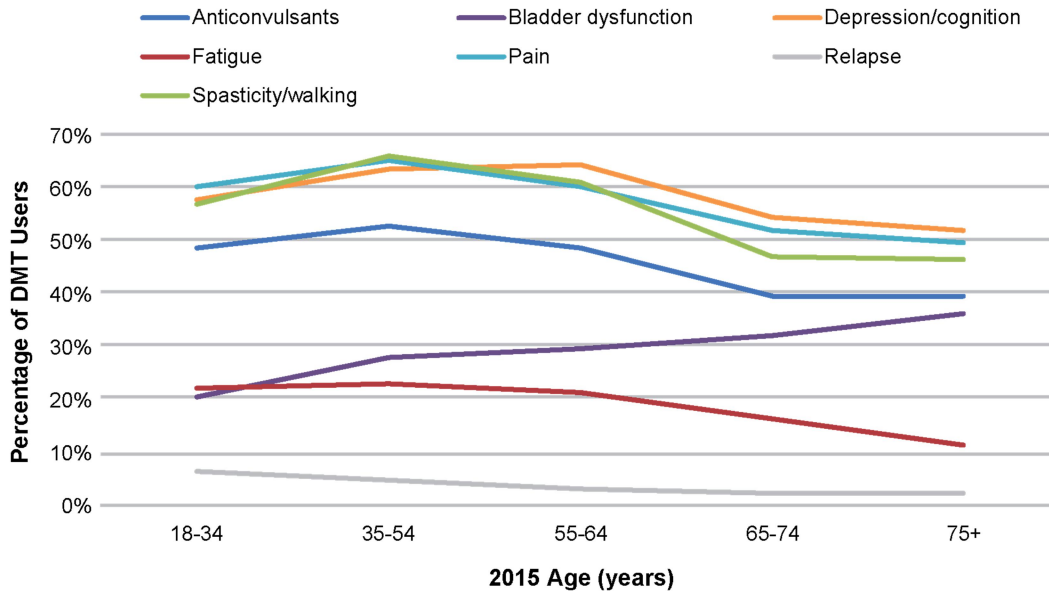
<sup>a</sup>Average total cost per DMT user. A given DMT user may have no or several drugs and may only have the drug(s) for part of the year.

<sup>b</sup>Relapses treated using infusible drugs or not treated are not included in this analysis.

Source: Milliman analysis.

MS-related non-DMT drug use for DMT users by age was fairly level until 65 years of age; DMT users aged 65 years and older appeared to use fewer MS-related non-DMT drugs, with the exception of bladder drugs. These findings are illustrated in Figure 9 and supported by Figure 10 and Table A9 in the Appendix. The decline of MS-related non-DMT drug use at more advanced ages does not seem to be consistent with the expected progressive course of MS, and may suggest that the patients with MS who were more impaired may not have been receiving DMTs. Patients with MS who were not receiving DMTs were not identified by our analysis. We plan to examine the percentage of patients with MS using DMTs by age in a future report.

**Figure 9**  
**Percentage of DMT Users With MS-Related Non-DMT Drug Use in 2015**



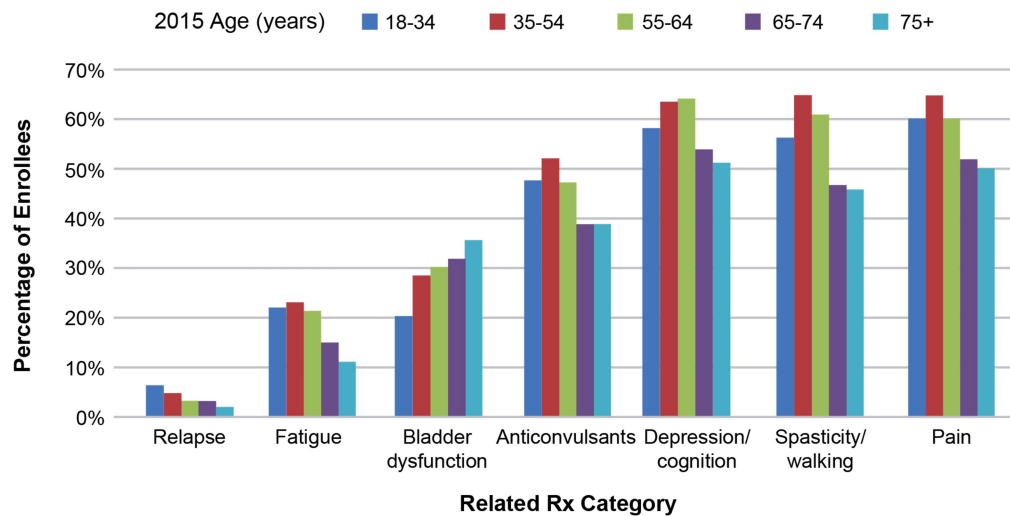
Source: Milliman analysis.

**MS-related non-DMT drug use for DMT users was fairly level until 65 years of age; DMT users aged 65 years and older appeared to use fewer MS-related non-DMT drugs, with the exception of bladder drugs**

**The decline of MS-related non-DMT drug use at more advanced ages does not seem to be consistent with the expected progressive course of MS**



**Figure 10**  
**MS-Related Non-DMT Drugs by Age Among Part D DMT Users in 2015**

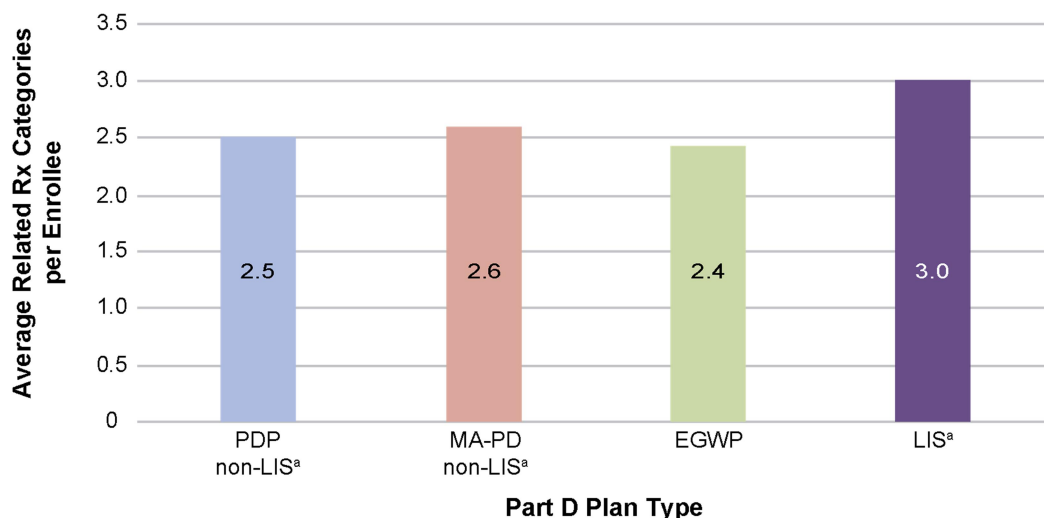


Source: Milliman analysis.

Figure 11 shows that LIS enrollees had the greatest use of MS-related non-DMT drugs, perhaps suggesting that LIS enrollees have more MS-related conditions. LIS enrollees had greater drug use than non-LIS enrollees for all drug categories except fatigue and bladder drugs, where they had similar use (see *Table A8 in the Appendix*).

Note that LIS enrollees generally tend to have overall greater utilization than non-LIS enrollees, so this difference could also be caused by cost sharing incentives, among other factors.

**Figure 11**  
**Average Number of MS-Related Non-DMT Drug Categories per DMT User by Part D Plan Type in 2015**

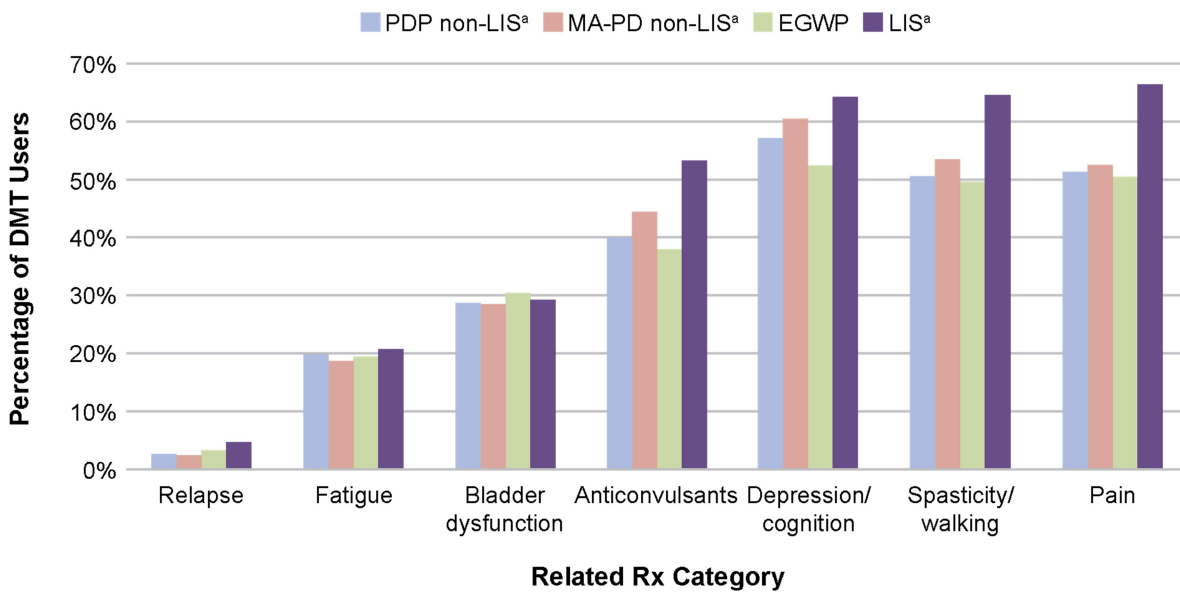


<sup>a</sup>Excluding EGWP.

Source: Milliman analysis.

**LIS enrollees used the most categories of MS-related non-DMT drugs, possibly suggesting more MS-related conditions than non-LIS or EGWP enrollees**

**Figure 12**  
**Percentage of Part D DMT Users With MS-Related Non-DMT Drug Use by Drug Category in 2015**



**Note:** The percentage of DMT users for related drug use for LIS enrollees is significantly higher than non-LIS enrollees for all categories ( $p < 0.05$ ), with the exception of bladder dysfunction.

<sup>a</sup>Excluding EGWP.

Source: Milliman analysis.

The average MS-related Part D drug cost for DMT users was \$3964 per year. The average drug costs shown in Figure 8 reflect a mix of both relatively inexpensive generics and high-cost brands. One high-cost drug dominated the 2015 drug costs for spasticity/walking and another for relapse. The analysis also does not include the costs for infusible (non-Part D) drugs. Though only 4% of DMT users took a relapse category drug in 2015, that category accounted for 19% of the annual cost. Since relapses may be treated with infusible drugs or not treated with Part D drugs, the 4% rate for Part D relapse drug use may understate the proportion of DMT users with relapses. Furthermore, DMT users are expected to have lower relapse rates compared with non-DMT users.<sup>6</sup>

MS-related drug use by plan type can be examined in more detail in Table 8A in the Appendix.

## DISCUSSION

### POTENTIAL COST BARRIERS

In the real-world data we examined, relapsing MS DMTs were expensive, about \$5700 a month in 2015. Compared with other Medicare Part D enrollees, DMT users were disproportionately young, disabled, and low-income. On average, DMT users with LIS paid only \$7 per 30-day supply, while those with EGWPs paid about \$50 (see *Figure 6*). All others, including those who were only marginally above the low-income threshold, faced an annual cost-sharing burden of about \$5700 for DMTs if they were fully adherent. This cost sharing is approximately equal to our calculated average 2015 cost for one MS DMT prescription.

The \$5700 in cost sharing is nearly as much as the 2015 annual OOP maximum of \$6600 for an individual covered under a non-Medicare, non-Medicaid Affordable Care Act (ACA) plan.<sup>23</sup> People covered under ACA plans and commercial plans, however, can potentially obtain DMTs with lower cost sharing than specified by their benefit plans through manufacturer prescription drug coupon programs that are legally not available to Part D enrollees.<sup>24</sup> However, Medicare beneficiaries and others may have access to other types of patient assistance programs.

In 2015, the maximum income to qualify for the LIS was 150% of the federal poverty level,<sup>13</sup> or \$17,655 annual income for a single person and \$23,895 for a couple.<sup>25</sup> DMT users with income just above the LIS limits could spend 25% or more of their annual income on their DMTs. DMTs are typically low cost for those with very low incomes, but some patients with MS with incomes higher than LIS thresholds may be challenged to afford cost sharing for DMTs. As a result of having had a progressively disabling disease during their prime working years, many patients with MS may have lower incomes or assets than other Part D enrollees. More research on the relationship between income and DMT use is needed; a study of Medicare patients with MS by income level might reveal that DMT use is concentrated among low- and high-income Part D patients, with lower use among middle-income patients.

**POTENTIAL IMPLICATIONS**

Based on 2015 data, nearly all DMT users entered Medicare before 65 years of age due to disability, and it appears they, like other Medicare beneficiaries, remained on Medicare for the remainder of their lives. Consequently, Medicare Part D data may provide a useful window on the later stages of the MS patient journey.

Potential Implications	Relevant Findings
<p><b>Prevalence of MS in Part D was 0.25% and at least 67% greater than in the commercially insured population.</b></p>	<ul style="list-style-type: none"> <li>• The snapshot analysis of 2013 data in <i>Multiple Sclerosis: New Perspectives on the Patient Journey</i> indicated MS prevalence of 0.15% for commercial members younger than 65 years<sup>1</sup></li> <li>• In 2015, approximately 0.25% of Part D enrollees in the current analysis were DMT users (see <i>Table A1 in the Appendix</i>). The prevalence of MS among Part D enrollees is likely much higher than 0.25%, as some enrollees with MS are either not receiving DMTs or are obtaining DMTs through other coverage, such as Medicare Part B</li> <li>• Our commercial insurance study found that about two-thirds of patients with MS were DMT users<sup>1</sup>; Medicare Part D DMT users are generally further along in their disease progression</li> <li>• If two-thirds of Part D patients with MS use DMTs and one-third do not, then MS prevalence in Part D is 0.375%, which is 150% greater than in the commercially insured population</li> <li>• We plan to calculate the percentage of Part D patients with MS using DMTs in future research</li> </ul>
<p><b>Part D enrollees who are DMT users seem to have a different demographic mix than overall Part D members. DMT users appeared to be younger and more likely to receive LIS.</b></p>	<ul style="list-style-type: none"> <li>• 72% of DMT users in the 2015 Part D population were younger than 65 years, and 52% were LIS. This compares to 20% younger than 65 years and 30% LIS for the overall Part D enrollees</li> </ul>
<p><b>Part D LIS DMT users may have more medical conditions related to MS than DMT users in other Part D payer groups.</b></p>	<ul style="list-style-type: none"> <li>• LIS enrollees had the greatest use of MS-related non-DMT drugs (an average of 3.0 categories), perhaps suggesting they have more MS-related conditions</li> <li>• On average, DMT enrollees used drugs from 2.8 MS-related categories</li> <li>• More than half of DMT users had at least 1 prescription in one or more of the most common MS-related drug categories: depression/cognition (61%), pain (60%), and spasticity/walking (59%)</li> </ul>
<p><b>LIS members appeared to face additional obstacles to adherence other than cost sharing.</b></p>	<ul style="list-style-type: none"> <li>• Of all the payer demographic groups, LIS had the lowest adherence and also the lowest cost sharing</li> <li>• The prevalence of DMT users was lowest in MA-PDs, even though MA-PDs can coordinate medical and pharmaceutical treatment</li> </ul>

Please note that the DMTs used in this analysis are US FDA approved for relapsing forms of MS, and most have not been clinically studied in people 65 years and older.

## LIMITATIONS AND FUTURE RESEARCH

Medicare Part D data can provide only a partial picture of the patient journey. Since Part D data do not contain diagnosis information or capture data for DMTs that are delivered via infusion, we could not identify patients with MS who were not DMT users or calculate the full proportion of patients with MS who were DMT users.

Single-year data do not provide longitudinal insight. For example, 2 years of data may show whether switching and nonadherence spike very early in the calendar year, corresponding to Part D open-enrollment plan changes, plans introducing new formularies, transitional prescriptions, and high first-DMT-prescription-of-the-year cost sharing for non-LIS, non-EGWP enrollees.

In future reports, we plan to examine multiple years of Part D data longitudinally, including switching and long-term adherence. We also plan to analyze integrated databases that contain diagnoses and medical and prescription drug claims. Within the integrated databases, we aim to be able to identify all Medicare patients diagnosed with MS, both DMT users and non-DMT users, and their characteristics. This will allow us to study DMT use in context of the total care of patients.

This analysis included DMTs approved by the US FDA to treat relapsing forms of MS.

**APPENDIX A: SUPPORTING TABLES**

**Table A1  
2015 National vs Milliman PDCD Part D and DMT User Enrollment**

Demographic	2015 Part D Enrollees		
	Estimated National	Milliman PDCD	
		Total	DMT Users
<b>Number of Enrollees</b>	<b>38,754,687</b>	<b>6,572,825</b>	<b>16,342</b>
Percentage of National		17.0%	0.04%
Percentage of Milliman PDCD			0.25%
<b>Plan Type</b>			
PDP non-LIS <sup>a</sup>	28%	19%	15%
MA-PD non-LIS <sup>a</sup>	25%	23%	11%
EGWP	17%	25%	18%
LIS <sup>a</sup>	30%	33%	56%
Total	100%	100%	100%
<b>Age, years</b>			
Disabled (<65)	20%	20%	72%
≥65	80%	80%	28%
≥70	57%	57%	9%
≥75	37%	36%	3%
≥80	23%	21%	1%
<b>Gender</b>			
Male	42%	42%	23%
Female	58%	58%	77%
Total	100%	100%	100%
<b>Region</b>			
North	44%	42%	51%
South	56%	48%	36%
Unspecified		11%	13%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

<sup>a</sup>Excluding EGWP.  
Source: Milliman analysis.

**Table A2**  
**2015 Estimated National DMT Users in Part D**

Enrollment	2015 Estimated National Part D Enrollees				
	PDP Non-LIS <sup>a</sup>	MA-PD Non-LIS <sup>a</sup>	EGWP	LIS <sup>a</sup>	Total
<b>Total Part D</b>	<b>10,966,188</b>	<b>9,794,629</b>	<b>6,440,598</b>	<b>11,553,272</b>	<b>38,754,687</b>
Percentage of Total	28%	25%	17%	30%	100%
<b>DMT Users</b>	<b>21,028</b>	<b>11,878</b>	<b>11,564</b>	<b>48,463</b>	<b>92,933</b>
Percentage of Total	23%	13%	12%	52%	100%
Prevalence/1,000	1.92	1.21	1.80	4.19	2.49
Percentage aged <65 years	55%	66%	40%	88%	72%
Percentage with Medicare via Disability <sup>b</sup>	67%	82%	68%	95%	84%

<sup>a</sup>Excluding EGWP.

<sup>b</sup>Because source of Medicare eligibility is unknown for 17% of enrollees older than 65 years, the actual value is presumed to be higher than stated herein.

Source: Milliman analysis.

**Table A3**  
**2015 Type of DMT Use by Age in Part D**

Enrollee Ages, Years	Percentage of Drug Prescription Days	
	Oral	Injectable
18-34	57%	43%
35-54	46%	54%
55-64	33%	67%
65-74	24%	76%
≥75	17%	83%
<b>All Ages</b>	<b>36%</b>	<b>64%</b>

Source: Milliman analysis.

**Table A4**  
**2015 Part D DMT Adherence by Plan Type**

Enrollee	Part D Plan Type				
	PDP Non-LIS <sup>a</sup>	MA-PD Non-LIS <sup>a</sup>	EGWP	LIS <sup>a</sup>	Total
Route of Administration					
Oral	76%	79%	85%	72%	75%
Injectable	83%	80%	82%	68%	75%
<b>Both</b>	<b>81%</b>	<b>80%</b>	<b>83%</b>	<b>70%</b>	<b>75%</b>
Ages, Years					
18-34	69%	60%	60%	58%	59%
35-54	76%	77%	77%	70%	71%
55-64	83%	80%	81%	72%	77%
65-74	83%	82%	85%	70%	81%
≥75	75%	76%	79%	70%	76%
<b>All Ages</b>	<b>81%</b>	<b>80%</b>	<b>83%</b>	<b>70%</b>	<b>75%</b>

<sup>a</sup>Percentage of nonswitching enrollees with PDC from first prescription to end of year ≥80%. Non-LIS plans and LIS plan excludes EGWPs.  
 Source: Milliman analysis.

**Table A5**  
**2015 DMT Total Cost and Cost Sharing per Prescription in Part D by Plan Type**

DMT Route	Part D Plan Type			
	PDP Non-LIS <sup>a</sup>	MA-PD Non-LIS <sup>a</sup>	EGWP	LIS <sup>a</sup>
<b>Average Total Cost per 30-day Supply</b>				
Oral	\$5693	\$5681	\$5743	\$5678
Injectable	\$5705	\$5674	\$5611	\$5703
<b>Average Patient Cost per 30-day Supply</b>				
Oral	\$542	\$470	\$52	\$7
Injectable	\$513	\$467	\$50	\$7
<b>Average Nonpatient Cost per 30-day Supply</b>				
Oral	\$5151	\$5212	\$5691	\$5671
Injectable	\$5192	\$5207	\$5561	\$5696

<sup>a</sup>Excluding EGWP.  
 Source: Milliman analysis.



**Table A6**  
**Costs per 30-Day Supply by Month for PDP and MA-PD Non-LIS Plans<sup>a</sup>**

Month	Costs per 30-day Supply by Payer					
	Total	Patient Pay	Other Payers <sup>b</sup>	Coverage Gap Discount <sup>c</sup>	Part D Plan	Prescriptions in Catastrophic Phase <sup>d</sup>
January	\$5508	\$1892	\$122	\$725	\$2321	10%
February	\$5520	\$1070	\$67	\$506	\$3603	66%
March	\$5598	\$530	\$75	\$196	\$4718	88%
April	\$5663	\$351	\$67	\$65	\$5161	94%
May	\$5655	\$321	\$56	\$43	\$5226	93%
June	\$5662	\$327	\$38	\$45	\$5242	96%
July	\$5632	\$319	\$37	\$36	\$5230	94%
August	\$5665	\$320	\$26	\$36	\$5274	95%
September	\$5816	\$320	\$18	\$32	\$5440	96%
October	\$5834	\$312	\$20	\$24	\$5475	95%
November	\$5838	\$300	\$19	\$15	\$5500	98%
December	\$5842	\$298	\$24	\$14	\$5505	96%
<b>Average</b>	<b>\$5691</b>	<b>\$498</b>	<b>\$46</b>	<b>\$130</b>	<b>\$4954</b>	<b>87%</b>

<sup>a</sup>Excluding EGWP.

<sup>b</sup>Other payers include the EGWP employer and patient assistance programs; employer payments are not included in TrOOP, hence the EGWP enrollees take longer to reach the catastrophic zone; most of their TrOOP accumulation is via the coverage gap discount.

<sup>c</sup>LIS status is based on status at end of the year; while LIS enrollees do not obtain the coverage gap discount, a few members we identified as LIS at year end were non-LIS sometime during the year.

<sup>d</sup>Prescriptions partially or fully in catastrophic phase; LIS enrollees enter the catastrophic phase based on what they would have paid if they were not LIS.

Source: Milliman analysis.

**Table A7**  
**Spending for Part D MS-Related Non-DMT Drugs by Category by DMT Users**

Related Rx Category	[1] Percentage of Enrollees With One or More Rx	[2] Prescription Days per Enrollee With an Rx	[3] Annual Total Cost per Enrollee With an Rx <sup>a</sup>	[4] Annual Total Cost per Enrollee [1] x [3]	[5] Percentage of MS-Related Costs
Anticonvulsants	47%	323	\$829	\$394	10%
Bladder Dysfunction	29%	270	\$911	\$266	7%
Depression/Cognition	61%	385	\$450	\$272	7%
Fatigue	20%	234	\$1811	\$368	9%
Pain	60%	222	\$554	\$331	8%
Relapse <sup>b</sup>	4%	18	\$18,785	\$735	19%
Spasticity/Walking	59%	300	\$2733	\$1599	40%
<b>Average Total Annual Cost per Enrollee</b>				<b>\$3964</b>	
<b>Average Number of Related Rx Categories per Enrollee</b>	<b>2.8</b>				

<sup>a</sup>Actual annual cost per patient with MS taking drug in category; does not assume full-year adherence.

<sup>b</sup>Relapses treated using infusible drugs or not treated are not included in this analysis.

Source: Milliman analysis.

**Table A8**  
**MS-Related Non-DMT Drugs by Plan Type Among Part D DMT Users in 2015**

Related Rx Category	Percentage of Enrollees					p Value <sup>b</sup>
	PDP Non-LIS <sup>a</sup>	MA-PD Non-LIS <sup>a</sup>	EGWP	LIS <sup>a</sup>	Total Non-LIS	
Anticonvulsants	40%	44%	38%	53%	40%	<0.01
Bladder Dysfunction	29%	28%	30%	29%	29%	0.67
Depression/Cognition	57%	61%	52%	64%	56%	<0.01
Fatigue	20%	19%	20%	21%	20%	<0.01
Pain	51%	52%	50%	66%	51%	<0.01
Relapse	3%	3%	3%	5%	3%	<0.01
Spasticity/Walking	51%	53%	50%	65%	51%	<0.01
<b>Average Related Rx Categories per Enrollee</b>	<b>2.5</b>	<b>2.6</b>	<b>2.4</b>	<b>3.0</b>	<b>2.5</b>	

<sup>a</sup>Excluding EGWP.

<sup>b</sup>The alternative hypothesis is that LIS enrollees are more likely to have this category of related drug use than non-LIS enrollees (PDP non-LIS + MA-PD non-LIS + EGWP). The alternative hypothesis is supported for all categories except bladder dysfunction.

Source: Milliman analysis.

**Table A9**  
**MS-Related Non-DMT Drugs by Age Among Part D DMT Users in 2015**

Related Rx Category	Percentage of Enrollees				
	18-34	35-54	55-64	65-74	75+
Anticonvulsants	48%	53%	48%	39%	39%
Bladder Dysfunction	20%	28%	30%	32%	36%
Depression/Cognition	58%	63%	64%	54%	52%
Fatigue	22%	23%	21%	16%	11%
Pain	60%	65%	60%	52%	50%
Relapse	7%	5%	3%	3%	2%
Spasticity/Walking	57%	65%	61%	47%	46%
<b>Average Related Rx Categories per Enrollee</b>	<b>2.7</b>	<b>3.0</b>	<b>2.9</b>	<b>2.4</b>	<b>2.4</b>

Source: Milliman analysis.

## APPENDIX B: METHODOLOGY

### DMTs and Users

We identified DMT users as enrollees having one or more DMT prescriptions filled at any time during 2015. See Code Set 1: Relapsing MS DMT Drugs in Part D (*Appendix C*) for the relapsing MS DMTs and classifications. These DMTs are used only for relapsing forms of MS.

### Age

We calculated age as of December 31, 2015, or the last enrollment date, if earlier.

### Region

When state codes were available in the PDCD (they were available for 87% of enrollees), we attributed states to regions using Code Set 3: State-Region Assignments (*Appendix C*).

### Plan Type

We assigned plan type based on the enrollee's last enrolled month of the year, typically December. Some enrollees change plan type during the year (for example, by acquiring LIS status).

### Medicare via Disability Status

Consistent with Medicare eligibility rules, any enrollee younger than 65 years would have entered Medicare via disability. For enrollees 65 years and older, we used the Medicare original reason for entitlement code (OREC), when available. OREC codes were available for 83% of DMT users 65 years and older.

### MS-Related Drugs

We identified MS-related drugs by generic name and Medi-Span Generic Product Identifier (GPI), excluding topical drugs and compounding powders. These drugs are not equivalent to DMTs. See Code Set 2: MS-Related Non-DMT Drugs (*Appendix C*) for the MS-related drugs, the identification rules, and classifications. The classifications are ordinal (in the order shown in the "Order" column) and are mutually exclusive. For example, if a spasticity drug is also an anticonvulsant, we classified it as a spasticity drug.

### Costs

Costs, as recorded in the Milliman PDCD, are all costs attributed to various payers at the point of sale, including patient costs, coverage gap discount, TrOOP-eligible third-party payer costs, non-TrOOP-eligible third-party payer costs, LIS, and Part D plan costs. Patient costs may be funded by family members or other contributors. Costs are not reduced for postsale rebates.

### Adherence Minimum Enrollment

We excluded enrollees enrolled for fewer than 3 months after their first DMT from the adherence calculation.

### Switching

We defined switching as having more than one DMT during the year. Product changes within the same generic drug were not considered switches: for example, changing from a vial to a pen of the same drug is not considered a switch. Brand changes are considered switches. See Code Set 1: Relapsing MS DMT Drugs in Part D (*Appendix C*) for specific lists of products and brands.

## Adherence

We calculated adherence as the ratio of nonswitching enrollees with a PDC  $\geq 80\%$  to total nonswitching enrollees. We calculated PDC as the ratio of number of prescription days from the date of the first DMT fill to the number of remaining days in the year from the date of the first DMT fill.

## National Part D Enrollment Data

We relied on the following sources for national Part D data:

Part D enrollment data from Centers for Medicare & Medicaid Services<sup>26</sup>

- Part D enrollment as of July 2015
- LIS enrollment for 2015

Age and gender distribution from the Medicare Payment Advisory Commission<sup>16</sup>

- For 2013 (most recent year available)

## Comparison of National and Milliman PDCD Enrollment

We compared the national Part D enrollment data to Milliman PDCD enrollment data as of July 2015.

## Estimating National DMT Users

The Milliman PDCD is overrepresentative of EGWP and LIS and underrepresentative of non-LIS plan types. We therefore normalized by plan type when estimating national DMT users. The normalization applied the PDCD DMT user prevalence by plan type to the national Part D enrollment by plan type.

Example of normalization for PDP non-LIS:

From Table A1

PDCD DMT Drug User Prevalence  
=  $1,000 \times (16,342 \times 15\%) / (6,572,825 \times 19\%)$   
= 1.92 per thousand  
*(Differences due to rounding)*

To Table A2

National DMT Drug User Enrollees  
= National enrollment  $\times$  PDCD DMT Drug User Prevalence  
=  $10,966,188 \times 1.92 / 1,000$   
= 21,028  
*(Differences due to rounding)*

## APPENDIX C: CODE SETS

### Code Set 1: Relapsing MS DMT Drugs in Part D

DMT Brand Name	DMT Generic Name
AUBAGIO	Teriflunomide
AVONEX	Interferon beta-1a
AVONEX PEN	Interferon beta-1a
BETASERON	Interferon beta-1b
COPAXONE	Glatiramer acetate
EXTAVIA	Interferon beta-1b
GILENYA	Fingolimod
GLATOPA	Glatiramer acetate
PLEGRIDY	Peginterferon beta-1a
PLEGRIDY STARTER PACK	Peginterferon beta-1a
REBIF	Interferon beta-1a
REBIF REBIDOSE	Interferon beta-1a
REBIF REBIDOSE TITRATION PACK	Interferon beta-1a
REBIF TITRATION PACK	Interferon beta-1a
TECFIDERA	Dimethyl fumarate
TECFIDERA STARTER PACK	Dimethyl fumarate

## Code Set 2: MS-Related Non-DMT Drugs

Generic Name	Brand Name(s)	Identification Criteria
<b>Relapse Drugs</b>		
Corticotropin	Acthar Gel	Generic name
Methylprednisolone	Various	
Prednisone	Various	
<b>Bladder Dysfunction</b>		
Mirabegron	Myrbetriq	Generic name
Fesoterodine fumarate	Toviaz	
Darifenacin	Enablex	
Desmopressin acetate	DDAVP Nasal Spray	
Imipramine	Tofranil	
Oxybutynin	Ditropan, Oxytrol, Gelnique	
Prazosin	Minipress	
Propantheline	Pro-Banthine	
Solifenacin succinate	Vesicare	
Tamsulosin	Flomax	
Terazosin	Hytrin	
Tolterodine	Detrol	
Tropium chloride	Sanctura	
<b>Spasticity/Walking</b>		
Cyclobenzaprine	Amrix, Fexmid, Flexeril	Generic name
Cyproheptadine	Periactin, Peritol	
Baclofen	Gablofen, Lioresal	
Clonazepam	Klonopin	
Dantrolene	Dantrium	
Diazepam	Valium	
Tizanidine	Zanaflex	
Dalfampridine	Ampyra	
<b>Pain</b>		
Narcotics	Various	Medi-Span GPI codes 65*
Non-steroidal anti-inflammatory drugs	Various	Medi-Span GPI codes 6610*, 6410*
<b>Fatigue</b>		
Amantadine hydrochloride	Symmetrel	Generic name
Amphetamines & stimulants	Various	Medi-Span GPI codes 6110*, 6140*
<b>Depression/Cognition</b>		
Antidementias	Various	Medi-Span GPI codes 6205*
Antidepressants	Various	Medi-Span GPI codes 58*
Antidepressant combos	Various	Medi-Span GPI codes 629920*, 629930*, 629950*
<b>Anticonvulsants</b>		
Anticonvulsants	Various	Medi-Span GPI codes 72*

**Note:** Asterisks indicate all values from 0-9 in that location of the GPI code.

**Code Set 3: State-Region Assignments**

<b>Northwest</b>	<b>Southwest</b>	<b>North Central</b>	<b>South Central</b>	<b>Northeast</b>	<b>Southeast</b>
AK	AZ	IA	AR	CT	AL
ID	CA	IL	CO	DE	FL
MT	HI	IN	KS	DC	GA
OR	NV	MI	LA	MA	KY
WA	UT	MN	MO	MD	MS
WY		ND	NM	ME	NC
		NE	OK	NH	SC
		OH	TX	NJ	TN
		SD		NY	VA
		WI		PA	WV
				RI	PR
				VT	

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