

## MISSISSIPPI MEDICAID PHARMACY PROGRAMS: DEMOGRAPHICS, UTILIZATION AND COMORBIDITIES

### BACKGROUND

An important function of Mississippi Medicaid retrospective drug utilization review (DUR) is to assure comparability across the three pharmacy programs: fee-for-service (FFS), UnitedHealth Care (UHC) and Magnolia. MS-DUR routinely prepares and presents to the DUR Board results from utilization analyses for the Division of Medicaid (DOM) as a whole, as well as for each pharmacy program. In most analyses, the three programs would be expected to have similar results when the universal preferred drug list (UPDL) and other clinical criteria are implemented consistently across programs. However, there are times that differences between FFS and the two coordinated care (CCO) organizations' programs may exist due to population differences rather than inconsistent implementation of clinical guidelines. This report helps explain what and how population differences exist between the three programs and how these differences may account for differences in utilization that may appear between FFS and the CCO programs.

### METHODS

A retrospective analysis was conducted using DOM's pharmacy and medical claims for the period July 1, 2015 through June 30, 2016 – State Fiscal Year 2016 (SFY 2016). The prevalences of comorbidities and potentially disabling conditions were identified using ICD-9/ICD-10 codes and the number of claim types specified by the Centers for Medicare and Medicaid Services (CMS) Chronic Condition Warehouse (CCW).<sup>1</sup> The CCW uses expert panels to determine the appropriate ICD codes and the number and type of claims required in order to reliably detect chronic conditions using administrative claims data. The CCW criteria for identifying some chronic conditions includes a two or three year lookback period because of the infrequency with which the condition would be recorded as a reason for treatment in medical claims. For these conditions, medical claims from SFY 2015 and SFY 2014 were included when they contained ICD codes for a target condition.

Table 1 summarizes the CCW algorithm for each chronic condition and other chronic or potentially disabling condition included in this analysis. As seen in Table 1, the most common algorithm for these conditions is the presence of a target ICD code in at least one (1) inpatient claim or at least two (2) outpatient claims during the observation year. Hemophilia is not a condition included by the CCW but was added due to its importance in Mississippi Medicaid.

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<sup>1</sup> <https://www.ccwdata.org/web/guest/condition-categories> accessed 12/15/16.

**TABLE 1: CMS Chronic Condition Warehouse Algorithms  
for Chronic Conditions and Other Chronic or Potentially Disabling Conditions**

<b>Condition</b>	<b>Number/Type of Claims With Dx Code Required</b>	<b>Years Lookback</b>
Acquired hypothyroidism	1 inpatient OR 2 outpatient	1
Anxiety disorders		
Asthma		
Atrial Fibrillation		
Attention deficit / hyperactivity disorder (ADHD)		
Autism		
Benign Prostatic Hyperplasia		
Bipolar disorder		
Cancer - breast		
Cancer - colorectal		
Cancer - endometrial		
Cancer - lung		
Cancer - prostate		
Cerebral palsy		
Chronic Kidney Disease (CKD)		
Chronic obstructive pulmonary disease (COPD) and bronchiectasis		
Cystic fibrosis and other metabolic developmental disorders		
Diabetes		
Epilepsy		
Hemophilia *		
Hepatitis C		
Human immunodeficiency virus and acquired immunodeficiency syndrome (HIV/AIDS)		
Hyperlipidemia		
Hypertension		
Migraine and chronic headache		
Multiple sclerosis and transverse myelitis		
Muscular dystrophy		
Obesity		
Osteoporosis		
Peripheral vascular disease (PVD)		
Personality disorders		
Post-traumatic stress disorder (PTSD)		
Schizophrenia and other psychotic disorders		
Stroke		
Anemia	1 inpatient / outpatient	1
Depression		
Acute Myocardial infarction	1 inpatient	1
Hip/pelvic fracture		
Heart failure	1 inpatient / outpatient	2
Ischemic Heart Disease		
Rheumatoid arthritis / osteoarthritis	2 inpatient / outpatient claims	2
Alzheimer's disease	1 inpatient / outpatient	3
Alzheimer's disease and related disorders or senile dementia		

\* Hemophilia is not included in the CCW condition list but was added using algorithms and ICD codes typically used in published research.

## RESULTS

Information about all prescription claims during SFY 2016 is displayed in Table 2. A total of 519,522 unique beneficiaries were enrolled in Medicaid for at least one month during the SFY 2016. When compared to the FFS pharmacy program, each of the CCO programs have almost twice as many unique beneficiaries enrolled. As noted in the resource utilization reports presented to the DUR Board, the average amount paid per prescription in the FFS program is significantly higher than in the two CCO programs. The higher per prescription cost in the FFS program can be attributed to the older FFS population and a greater percentage of chronic conditions. The two CCO programs are very similar with respect to average paid per prescription and the number of unique prescribers and pharmacies used during SFY 2016.

<b>TABLE 2: Prescription Utilization By Program SFY 2016 (Includes all prescription claims)</b>				
	<b>FFS</b>	<b>UHC</b>	<b>Magnolia</b>	<b>Total</b>
Number of Unique Beneficiaries Served <sup>a</sup>	129,186	229,890	230,731	519,522
Number of Prescription Fills	1,129,212	2,389,474	2,792,979	6,311,665
Total Paid for Prescriptions	\$157,126,474	\$211,989,052	\$238,705,030	\$607,820,555
Average Paid / Prescription	\$139.15	\$88.72	\$85.47	\$96.30
Number of Unique Prescribers	11,502	13,952	15,020	19,696
Number of Unique Pharmacies	1,590	809	836	1,597

<sup>a</sup> Beneficiaries attributed to pharmacy program at time of prescription claim. Beneficiaries may be counted in more than one program.

It is critical that beneficiaries be enrolled for a sufficient number of months during the observation year in order to accurately estimate the prevalence of comorbidities in a population. The CCW algorithms are based on continuous enrollment for the observation year. Therefore, our analysis of chronic conditions was limited to beneficiaries continuously enrolled in Medicaid throughout the SFY 2016. For reporting purposes, beneficiaries were attributed to the pharmacy program they were enrolled in during June 2016. Demographics of the beneficiaries in each pharmacy program are reported in Table 3. The FFS program differed significantly from the two CCO programs based on gender, race and age. Almost all children have been moved to the CCOs; thus the FFS population is comprised of a significantly older population.

<b>TABLE 3: Demographic Characteristics of Beneficiaries Continuously Enrolled During SFY 2016<sup>a</sup></b>					
		<b>FFS</b>	<b>UHC</b>	<b>Magnolia</b>	<b>Total</b>
<b>TOTAL</b>		51,000	213,975	217,090	482,065
<b>Gender *</b>	Female	32,952 64.6%	115,635 54.0%	120,048 55.3%	268,635
	Male	18,046 35.4%	98,340 46.0%	97,042 44.7%	213,428
<b>Race *</b>	Caucasian	17,166 33.7%	71,168 33.3%	64,657 29.8%	152,991
	African American	26,388 51.7%	129,543 60.5%	139,220 64.1%	295,151
	Hispanic	884 1.7%	6,368 3.0%	5,642 2.6%	12,894
	Amer Indian	2,579 5.1%	162 0.1%	302 0.1%	3,043
	Other	3,983 7.8%	6,734 3.1%	7,269 3.3%	17,986
<b>Age * (as of June 30, 2016)</b>	0 - 11	12,333 24.2%	113,614 53.1%	111,391 51.3%	237,338
	12 - 17	7,375 14.5%	50,341 23.5%	47,962 22.1%	105,678
	18 - 44	21,561 42.3%	36,950 17.3%	40,334 18.6%	98,845
	45 - 64	6,749 13.2%	13,037 6.1%	17,354 8.0%	37,140
	65+	2,982 5.8%	33 0.0%	49 0.0%	3,064

<sup>a</sup> Beneficiaries:

- Includes only beneficiaries continuously enrolled for the year and not dual eligible or in long term care.

- Beneficiaries are attributed to the pharmacy program they were enrolled in during June 2016.

\* Significant difference across pharmacy programs ( $p < 0.001$ ).

Tables 4 – 13 report the number and prevalence rate for selected chronic conditions and potentially disabling conditions within each pharmacy program. It is important to note that the rates reported are conservative estimates of the true prevalence of each condition. Chronic conditions can only be identified from administrative claims data when medical care is delivered and the condition is coded as a reason for the service. Existing chronic conditions that are not being actively treated at the time are typically not recorded on claims.

For every condition except “migraines and chronic headaches”, the prevalence of each chronic condition was significantly higher in the FFS program. For most conditions, the prevalence in the FFS program was two to three times as high as in the CCO programs.

**TABLE 4: Diseases of the Circulatory System<sup>a</sup>  
Among Beneficiaries Continuously Enrolled During SFY 2016<sup>b</sup>**

	FFS	UHC	Magnolia	All Programs
<b>TOTAL Number of Beneficiaries</b>	51,000	213,975	217,090	482,065
Acute Myocardial infarction *	130 0.25%	215 0.10%	238 0.11%	583 0.12%
Atrial Fibrillation*	322 0.63%	402 0.19%	495 0.23%	1,219 0.25%
Heart failure *	1,319 2.59%	1,858 0.87%	2,480 1.14%	5,657 1.17%
Hypertension *	3,429 6.72%	6,294 2.94%	8,396 3.87%	18,119 3.76%
Ischemic Heart Disease *	1,427 2.80%	2,457 1.15%	3,269 1.51%	7,153 1.48%
Peripheral vascular disease (PVD) *	449 0.88%	675 0.32%	903 0.42%	2,027 0.42%
Stroke *	719 1.41%	562 0.26%	703 0.32%	1,984 0.41%

<sup>b</sup> Beneficiaries:

- Includes only beneficiaries continuously enrolled for the year and not dual eligible or in long term care.
- Beneficiaries are attributed to the pharmacy program they were enrolled in during June 2016.

\* Significant difference across pharmacy programs ( $p < 0.001$ ).

Beneficiaries identified as having a diagnosis of hemophilia are assigned to the FFS program, which is depicted in in Table 5. Although beneficiaries with hemophilia represent a small percentage of Medicaid beneficiaries the per beneficiary costs for treating hemophilia patients is very high. This is one major contributor to the higher average per prescription cost in the FFS program.

**TABLE 5: Diseases of the Blood, Blood-Forming Organs  
and Certain Disorders Involving the Immune Mechanism<sup>a</sup>  
Among Beneficiaries Continuously Enrolled During SFY 2016<sup>b</sup>**

	FFS	UHC	Magnolia	All Programs
<b>TOTAL Number of Beneficiaries</b>	51,000	213,975	217,090	482,065
Anemia *	4,316 8.46%	10,923 5.10%	12,402 5.71%	27,641 5.73%
Hemophilia *	89 0.17%	1 0.00%	3 0.00%	93 0.02%

<sup>b</sup> Beneficiaries:

- Includes only beneficiaries continuously enrolled for the year and not dual eligible or in long term care.
- Beneficiaries are attributed to the pharmacy program they were enrolled in during June 2016.

\* Significant difference across pharmacy programs ( $p < 0.001$ ).

**TABLE 6: Endocrine, Nutritional and Metabolic Disorders<sup>a</sup>  
Among Beneficiaries Continuously Enrolled During SFY 2016<sup>b</sup>**

	FFS	UHC	Magnolia	All Programs
<b>TOTAL Number of Beneficiaries</b>	51,000	213,975	217,090	482,065
Acquired hypothyroidism *	887 1.74%	1,701 0.79%	2,134 0.98%	4,722 0.98%
Cystic fibrosis and other metabolic developmental dis	152 0.30%	223 0.10%	207 0.10%	582 0.12%
Diabetes *	3,013 5.91%	5,601 2.62%	7,414 3.42%	16,028 3.32%
Hyperlipidemia *	2,415 4.74%	5,184 2.42%	7,129 3.28%	14,728 3.06%
Obesity *	2369 4.65%	5487 2.56%	6828 3.15%	14,684 3.05%

<sup>b</sup> Beneficiaries:

- Includes only beneficiaries continuously enrolled for the year and not dual eligible or in long term care.
- Beneficiaries are attributed to the pharmacy program they were enrolled in during June 2016.

\* Significant difference across pharmacy programs ( $p < 0.001$ ).

**TABLE 7: Diseases of the Respiratory System<sup>a</sup>  
Among Beneficiaries Continuously Enrolled During SFY 2016<sup>b</sup>**

	FFS	UHC	Magnolia	All Programs
<b>TOTAL Number of Beneficiaries</b>	51,000	213,975	217,090	482,065
Asthma *	3571 7.00%	13213 6.18%	13966 6.43%	30,750 6.38%
Chronic obstructive pulmonary disease (COPD) and bronchiectasis *	1,498 2.94%	3,947 1.84%	4,720 2.17%	10,165 2.11%

<sup>b</sup> Beneficiaries:

- Includes only beneficiaries continuously enrolled for the year and not dual eligible or in long term care.
- Beneficiaries are attributed to the pharmacy program they were enrolled in during June 2016.

\* Significant difference across pharmacy programs ( $p < 0.001$ ).

<b>TABLE 8: Diseases of the Musculoskeletal System and Connective Tissue<sup>a</sup> Among Beneficiaries Continuously Enrolled During SFY 2016<sup>b</sup></b>				
	<b>FFS</b>	<b>UHC</b>	<b>Magnolia</b>	<b>All Programs</b>
<b>TOTAL Number of Beneficiaries</b>	51,000	213,975	217,090	482,065
Hip/pelvic fracture **	31 0.06%	71 0.03%	80 0.04%	182 0.04%
Osteoporosis *	106 0.21%	171 0.08%	202 0.09%	479 0.10%
Rheumatoid arthritis / osteoarthritis *	2,060 4.04%	5,037 2.35%	6,049 2.79%	13,146 2.73%

<sup>b</sup> Beneficiaries:

- Includes only beneficiaries continuously enrolled for the year and not dual eligible or in long term care.
- Beneficiaries are attributed to the pharmacy program they were enrolled in during June 2016.

\* Significant difference across pharmacy programs ( $p < 0.001$ ).

\*\* Significant difference across pharmacy programs ( $p < 0.05$ ).

<b>TABLE 9: Diseases of the Nervous System<sup>a</sup> Among Beneficiaries Continuously Enrolled During SFY 2016<sup>b</sup></b>				
	<b>FFS</b>	<b>UHC</b>	<b>Magnolia</b>	<b>All Programs</b>
<b>TOTAL Number of Beneficiaries</b>	51,000	213,975	217,090	482,065
Alzheimer's disease *	44 0.09%	18 0.01%	14 0.01%	76 0.02%
Alzheimer's disease and related disorders or senile dementia *	308 0.60%	404 0.19%	450 0.21%	1,162 0.24%
Cerebral palsy *	893 1.75%	304 0.14%	320 0.15%	1,517 0.31%
Epilepsy *	1432 2.81%	2029 0.95%	2199 1.01%	5,660 1.17%
Migraine and chronic headache	585 1.15%	2607 1.22%	2699 1.24%	5,891 1.22%
Multiple sclerosis and transverse myelitis *	105 0.21%	139 0.06%	166 0.08%	410 0.09%
Muscular dystrophy *	101 0.20%	54 0.03%	83 0.04%	238 0.05%

<sup>b</sup> Beneficiaries:

- Includes only beneficiaries continuously enrolled for the year and not dual eligible or in long term care.
- Beneficiaries are attributed to the pharmacy program they were enrolled in during June 2016.

\* Significant difference across pharmacy programs ( $p < 0.001$ ).

<b>TABLE 10: Diseases of the Genitourinary System<sup>a</sup> Among Beneficiaries Enrolled During SFY 2016<sup>b</sup></b>				
	<b>FFS</b>	<b>UHC</b>	<b>Magnolia</b>	<b>All Programs</b>
<b>TOTAL Number of Beneficiaries</b>	51,000	213,975	217,090	482,065
Benign Prostatic Hyperplasia *	151 0.30%	192 0.09%	283 0.13%	626 0.13%
Chronic Kidney Disease *	1,996 3.91%	3,684 1.72%	4,453 2.05%	10,133 2.10%

<sup>b</sup> Beneficiaries:

- Includes only beneficiaries continuously enrolled for the year and not dual eligible or in long term care.
- Beneficiaries are attributed to the pharmacy program they were enrolled in during June 2016.

\* Significant difference across pharmacy programs ( $p < 0.001$ ).

The prevalence of Hepatitis C is higher in the FFS program, but this difference is barely significant statistically. Approximately one-third of all beneficiaries in SFY 2016 were identified as having Hepatitis C.

<b>TABLE 11: Certain Infectious and Parasitic Diseases<sup>a</sup> Among Beneficiaries Continuously Enrolled During SFY 2016<sup>b</sup></b>				
	<b>FFS</b>	<b>UHC</b>	<b>Magnolia</b>	<b>All Programs</b>
<b>TOTAL Number of Beneficiaries</b>	51,000	213,975	217,090	482,065
Hepatitis C **	192 0.38%	624 0.29%	704 0.32%	1,520 0.32%
Human immunodeficiency virus and acquired immunodeficiency syndrome (HIV/AIDS) *	101 0.20%	387 0.18%	551 0.25%	1,039 0.22%

<sup>b</sup> Beneficiaries:

- Includes only beneficiaries continuously enrolled for the year and not dual eligible or in long term care.
- Beneficiaries are attributed to the pharmacy program they were enrolled in during June 2016.

\* Significant difference across pharmacy programs ( $p < 0.001$ ).

\*\* Significant difference across pharmacy programs ( $p < 0.05$ ).



**TABLE 12: Mental, Behavioral and Neurodevelopmental Disorders<sup>a</sup>  
Among Beneficiaries Continuously Enrolled During SFY 2016<sup>b</sup>**

	FFS	UHC	Magnolia	All Programs
<b>TOTAL Number of Beneficiaries</b>	51,000	213,975	217,090	482,065
Anxiety disorders *	2,695 5.28%	9,113 4.26%	9,730 4.48%	21,538 4.47%
Attention deficit / hyperactivity disorder (ADHD) *	4,877 9.56%	17,362 8.11%	16,257 7.49%	38,496 7.99%
Autism *	1,111 2.18%	1,095 0.51%	956 0.44%	3,162 0.66%
Bipolar disorder *	1,941 3.81%	5,025 2.35%	5,299 2.44%	12,265 2.54%
Depression *	4,036 7.91%	12,244 5.72%	13,616 6.27%	29,896 6.20%
Personality disorders *	408 0.80%	1103 0.52%	1169 0.54%	2,680 0.56%
Post-traumatic stress disorder (PTSD) *	352 0.69%	1105 0.52%	1248 0.57%	2,705 0.56%
Schizophrenia and other psychotic disorders *	1,144 2.24%	3,105 1.45%	3,683 1.70%	7,932 1.65%

<sup>b</sup> Beneficiaries:

- Includes only beneficiaries continuously enrolled for the year and not dual eligible or in long term care.

- Beneficiaries are attributed to the pharmacy program they were enrolled in during June 2016.

\* Significant difference across pharmacy programs ( $p < 0.001$ ).

**TABLE 13: Neoplasms<sup>a</sup>**

**Among Beneficiaries Continuously Enrolled During SFY 2016<sup>b</sup>**

	FFS	UHC	Magnolia	All Programs
<b>TOTAL Number of Beneficiaries</b>	51,000	213,975	217,090	482,065
Breast cancer *	136 0.27%	241 0.11%	314 0.14%	691 0.14%
Colorectal cancer *	113 0.22%	99 0.05%	141 0.06%	353 0.07%
Endometrial cancer **	13 0.03%	24 0.01%	42 0.02%	79 0.02%
Lung cancer *	82 0.16%	113 0.05%	123 0.06%	318 0.07%
Prostate cancer *	57 0.11%	82 0.04%	108 0.05%	247 0.05%

<sup>b</sup> Beneficiaries:

- Includes only beneficiaries continuously enrolled for the year and not dual eligible or in long term care.

- Beneficiaries are attributed to the pharmacy program they were enrolled in during June 2016.

\* Significant difference across pharmacy programs ( $p < 0.001$ ).

\*\* Significant difference across pharmacy programs ( $p < 0.05$ ).

Table 14 summarizes the number of chronic conditions identified for beneficiaries enrolled continuously during SFY 2016. Both CCO programs had approximately 12% more beneficiaries without any of the chronic conditions identified. Beneficiaries in the FFS program averaged 50% more chronic conditions compared to beneficiaries in the two CCO programs.

<b>TABLE 14: Number of Chronic Conditions Among Beneficiaries Continuously Enrolled During SFY 2016<sup>a</sup></b>					
		<b>FFS</b>	<b>UHC</b>	<b>Magnolia</b>	<b>Total</b>
<b>Total number of beneficiaries</b>		51,000	213,975	217,090	482,065
<b>Number of Chronic Conditions</b>	0	30297 59.4%	153972 72.0%	153333 70.6%	337602 70.0%
	1	9642 18.9%	34584 16.2%	34716 16.0%	78942 16.4%
	2	4465 8.8%	11037 5.2%	11820 5.4%	27322 5.7%
	3	2335 4.6%	5573 2.6%	6179 2.8%	14087 2.9%
	4	1431 2.8%	3078 1.4%	3759 1.7%	8268 1.7%
	5 - 9	2459 4.8%	5036 2.4%	6380 2.9%	13875 2.9%
	10 - 14	351 0.7%	658 0.3%	854 0.4%	1863 0.4%
	15 - 19	19 0.0%	37 0.0%	49 0.0%	105 0.0%
	20 or more	1 0.0%	0 0.0%	0 0.0%	1 0.0%
	Mean number of Comorbidities *	1.00	0.58	0.66	0.66

<sup>a</sup> Beneficiaries:

- Includes only beneficiaries continuously enrolled for the year and not dual eligible or in long term care.

- Beneficiaries are attributed to the pharmacy program they were enrolled in during June 2016.

\* Significant difference across pharmacy programs ( $p < 0.001$ ).

## **CONCLUSIONS AND RECOMMENDATIONS AND BOARD ACTION**

Although only about 22% of current beneficiaries receive services through the FFS program, these are older beneficiaries who have significantly more chronic conditions. Therefore it would be expected that the FFS program would have greater utilization per beneficiary and would have a higher per beneficiary cost/month for both pharmacy and medical services.

The populations of the two CCO programs are very similar with respects to demographics and the prevalence of chronic conditions

The information provided in this report is for informational purposes only and should be useful when MS-DUR monitors for compliance with the Universal PDL. No additional DUR Board action is requested at this time.