Division of Medicaid
Office of the Governor
State of Mississippi
Drug Utilization Review (DUR) Board Meeting

MISSISSIPPI DIVISION OF
MEDICAID

June 12, 2025 at 1:00pm

Walter Sillers Building, Cobb Conference Room

Jackson, MS

Prepared by:

MS | DUR Evidence-Based DUR Initiative
The University of Mississippi School of Pharmacy

Drug Utilization Review Board

Joseph Austin, MD
Vicksburg Women's Care
100 Maxwell Drive
Vicksburg, MS 39180
Term Expires: June 30, 2025

Amy Catherine Baggett, PharmD
Love's Pharmacy of Diamondhead
45000 E Aloha Dr., Suite B
Diamondhead, MS 39525
Term Expires: June 30, 2027

Terrence Brown, PharmD
BioScrip Infusion Services
187 Country Place Pkwy, Suite C
Pearl, MS 39208
Term Expires: June 20, 2026

Chrysanthia Davis, PharmD (Chair)
Omnicare Pharmacy
100 Business Park Dr, Ste D
Ridgeland, MS 39157
Term Expires: June 30, 2025

Dena Jackson, MD
King's Daughters Specialty Clinic
940 Brookway Blvd
Brookhaven, MS 39601
Term Expires: June 30, 2026

Jessica Lavender, MD
UMMC
2500 N. State Street
Jackson, MS 39216
Term Expires: June 30, 2025

Holly R. Moore, PharmD
Anderson Regional Medical Center
2124 14th Street
Meridian, MS 39301
Term Expires: June 30, 2026

Joshua Pierce, PharmD (Vice-Chair)
McGuffee Drugs
102 Main St.
Magee, MS 39111
Term Expires: June 30, 2027

Gaylen Sanders, MD
The Pediatric Clinic
415 South 28th Avenue
Hattiesburg, MS 39401
Term Expires: June 30, 2027

Joshua Trull, DO
UMMC Dept of Psychiatry
2500 N. State Street
Jackson, MS 39216
Term Expires: June 30, 2027

Bobbie West, MD
MEA Medical Clinic
342 Gilchrist Drive
Pearl, MS 39208
Term Expires: June 30, 2025

2025 DUR Board Meeting Dates

March 20, 2025
June 12, 2025
September 18, 2025
December 11, 2025

As with any analysis, great efforts are made to ensure that the information reported in this document is accurate. The most recent administrative claims data available are being used at the time the reports are generated, which includes the most recent adjudication history. As a result, values may vary between reporting periods and between DUR Board meetings, reflecting updated reversals and claims adjustments.

Unless otherwise indicated, all MS-DUR analyses are conducted for the entire Mississippi Medicaid program including beneficiaries receiving services through the Medicaid fee-for-service (FFS) and the Mississippi Medicaid Coordinated Care Organizations (CCOs). When dollar figures are reported, the reported dollar figures represent reimbursement amounts paid to providers and are not representative of final Medicaid costs after rebates. Any reported enrollment data presented are unofficial and are only for general information purposes for the DUR Board.

Please refer to the Mississippi Division of Medicaid website for the current official Universal Preferred Drug List (PDL).

http://www.medicaid.ms.gov/providers/pharmacy/preferred-drug-list/

MISSISSIPPI DIVISION OF MEDICAID
OFFICE OF THE GOVERNOR
DRUG UTILIZATION REVIEW BOARD
AGENDA
June 12, 2025

Welcome

Old Business

Resource Utilization Review

Follow-up and Discussion from the Board

New Business

Pharmacy Program Update

Next Meeting Information
September 18, 2025

DUR Board Meeting Minutes

MISSISSIPPI DIVISION OF MEDICAID
DRUG UTILIZATION REVIEW (DUR) BOARD
MINUTES OF THE MARCH 20, 2025 MEETING

DUR Board Roster: State Fiscal Year 2024 (July 1, 2024 – June 30, 2025)	Jun 2024	Sep 2024	Dec 2024	Mar 2025
Joseph Austin, MD	✓		✓	✓
Amy Catherine Baggett, PharmD				✓
Terrence Brown, PharmD	✓			✓
Chrysanthia Davis, PharmD	✓	✓	✓	✓
Dena Jackson, MD		✓		✓
Jessica Lavender, MD	✓	✓		✓
Holly Moore, PharmD		✓	✓	✓
Joshua Pierce, PharmD	✓	✓		✓
Gaylen Sanders, MD	NA	✓	✓	✓
Joshua Trull, DO	✓	✓	✓	✓
Bobbie West, MD	✓			✓
TOTAL PRESENT**	**8**	**7**	**5**	**11**

*** Total Present may not be reflected by individual members marked as present above due to members who either resigned or whose terms expired being removed from the list.*

Also Present:

Division of Medicaid (DOM) Staff:
Terri Kirby, RPH, CPM, Pharmacy Director; Dennis Smith, RPH, DUR Coordinator; Amy Ly-Ha, PharmD, Pharmacist II; Anish Patel, PharmD, Pharmacist II; Catherine Brett, MD, Clinical Medical Director, Health Informatics; Amber Herron, Research/Data Analyst;

University of Mississippi School of Pharmacy - MS-DUR Staff:
Eric Pittman, PharmD, MS-DUR Project Director; Kaustuv Bhattacharya, PhD, MS-DUR Research Assistant Professor; Connor Callahan, Student Pharmacist Intern;

Coordinated Care Organization (CCO) Staff:
Jenni Grantham, PharmD, Director of Pharmacy, Magnolia Health;

Gainwell Staff:
Lew Ann Snow, RN, Advisor Business Analyst; Tricia Banks, PharmD, Director of Pharmacy;

Visitors: Cathy Prine-Eagle, Merck; Paula Whatley, Novo Nordisk; Julie Hardin, Novo Nordisk; Amanda Ellis, Boehninger;

Call to Order/Welcome:
The meeting began at 1:05 pm.

OLD BUSINESS:
Dr. Pierce moved to approve the minutes from the September 2024 and December 2024 DUR Board Meetings, seconded by Dr. Moore, and unanimously approved by the DUR Board.

Resource Utilization Review
Dr. Pittman presented the resource utilization report for December 2024. Data presented was across all pharmacy programs. Dr. Pittman took some time to compare current trends in pharmacy spend with the same time period in 2021. He noted that while current enrollment and the monthly number of prescription claims is lower than in 2021, total spend is roughly equal to that period indicating Medicaid is spending more per member monthly.

Follow-up Discussion
Dr. Pittman presented follow-up information on the most common psychotropic drug classes/molecules that were involved in adverse events among Medicaid members when concurrently prescribed with opioids. Board members discussed ways to use this information to help prevent future opioid adverse events. The discussion focused on educating members and prescribers on the potential adverse events associated with the combination of opioids and these psychotropic medications and the role of naloxone.

A motion was made by Dr. Brown, seconded by Dr. Jackson, and unanimously approved by the Board recommending Medicaid distribute naloxone education to members at increased risks of opioid related adverse events. This education could include both provider and member outreach. The Board deferred to the Pharmacy Division to make the final decision on what type of education is best suited for Medicaid members.

NEW BUSINESS:

Update on MS-DUR Educational Interventions
Dr. Pittman provided an overview of all DUR mailings and educational notices that occurred between December 2024 and February 2025.

Compliance Measurements for Initiators of GLP-1 Anti-obesity Medications
Dr. Pittman presented the Board with an overview of the compliance for initiators of GLP-1 receptor agonist anti-obesity medications (GLP-1 RA AOMs) since their addition to the preferred drug list (PDL) in July 2023. This study estimated compliance metrics among a sample of Mississippi Medicaid members who were prescribed GLP-RA AOMs. Our study found the overall adherence rate for GLP-1 RA AOM initiators was 46.5% at 3 months and declined to 24.6% at 12 months, while persistence was 65.7% at 3 months and 33.5% at 12 months. These figures align with another recent study examining individuals in a commercial health plan. Across all of the metrics examined, Medicaid members enrolled in CCO programs were found to have better compliance compared to those enrolled in FFS. It should be noted that the impacts on medication compliance resulting from recent drug shortages of GLP-1 RAs could not be determined. Future work will reexamine compliance to GLP-1 RA AOMs post-supply chain

issues and will explore outcomes and healthcare resource utilization among individuals initiating GLP-1 RA AOMs.

The board extensively discussed the findings from this report. As the DUR team begins designing a research plan evaluating outcomes associated with GLP-1 use for obesity management, the board provided valuable insights into outcomes that should be assessed.

Impact of PMP Data on Performance on COB-AD Quality Measure
Prior to this study, it was unknown what impact incorporating MS PMP data into Medicaid prescription claims data for members would have on member monitoring parameters and routine reporting metrics related to controlled substance prescribing. This study found that incorporating MS PMP data not only increased the number of members included in the COB-AD quality measure denominator but also increased the overall rate from 3.7% to 8.0%. Further analysis revealed that factors associated with members being additionally identified in the COB-AD when MS PMP data was incorporated into claims data included being White and having a daily MME of 20 or above. Incorporating MS PMP data is critical for monitoring the appropriate prescribing of controlled substances; however, diligence should be taken in determining which routine reporting metrics should incorporate MS PMP data.

This study revealed the impact that incorporating MS PMP data into Medicaid claims data had on the COB-AD quality measure. The DUR Board considered the potential implications of incorporating MS PMP data into future controlled substance monitoring parameters and reporting by DOM, such as the high-risk beneficiaries report.

Sulfonylurea Utilization
Dr. Pittman presented the Board with a mini-report describing the utilization of sulfonylureas during calendar year 2024. Traditionally, this class of medications has not been included on the PDL. After discussing the report, the Board was in agreement to continue excluding this class from the PDL.

FDA Drug Safety Updates:
Dr. Pittman reviewed the FDA drug safety communications published between December 2024 through March 2025.

Pharmacy Program Update:
Dr. Ly-Ha presented the Board with proposed prior authorization criteria for three products: Dupixent®, Adbry®, and Journavx®. The Board provided valuable input on each of these proposed criteria.

Ms. Kirby provided a pharmacy program update:

- DOM will be launching an obesity education initiative with the goal of improving adherence and side effect management related to agents used for obesity management.
- DOM has recently updated the PDL document.

- DOM is responding to CMS' Notice of Funding Opportunity (NOFO) to participate in the Cell and Gene Therapy (CGT) Access Model.

Next Meeting Information:
Proposed meeting dates for 2025:

- June 12, 2025
- September 18, 2025
- December 11, 2025

Dr. Pierce adjourned the meeting at 3:00 pm.

Submitted,

Eric Pittman, PharmD
Evidence-Based DUR Initiative, MS-DUR

DUR Board Meeting Resources

Members

The DUR Board is composed of twelve participating Medicaid providers who are in good standing with their representative organizations.

- DUR Board Member List

Meetings

Meetings will be held on the following dates at 1:00 p.m. in the Cobb Conference Room at 550 High St, Jackson, MS (**see map**).

- March 20, 2025
- June 12, 2025
- September 18, 2025
- December 11, 2025

The March 20 meeting may be viewed virtually by clicking on the following link: Click Here for MS Medicaid DUR Live Broadcast on March 20 2025 at 1:00 p.m.

Please note: This link will only be live during the meeting and will not be archived for future viewing.

Resource Utilizaton Review

TABLE 04A: ENROLLMENT STATISTICS FOR LAST 6 MONTHS October 1, 2024 through March 31, 2025							
		Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25
Total enrollment		728,013	726,067	722,756	723,526	720,859	716,252
Dual-eligibles		162,180	162,487	161,103	162,466	162,379	161,826
Pharmacy benefits		567,351	565,257	562,825	562,457	559,425	554,905
LTC		15,762	15,745	15,636	15,724	15,563	15,316
PLAN %	**FFS**	22.5%	21.9%	21.5%	21.4%	21.1%	20.8%
	MSCAN-UHC	28.9%	29.1%	29.2%	29.2%	29.2%	29.1%
	MSCAN-Magnolia	30.7%	30.9%	31.1%	31.2%	31.4%	31.6%
	MSCAN-Molina	17.9%	18.1%	18.2%	18.2%	18.3%	18.5%

TABLE 04B: PHARMACY UTILIZATION STATISTICS FOR LAST 6 MONTHS October 1, 2024 through March 31, 2025							
		Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25
# Rx Fills	**FFS**	99,975	93,262	94,561	99,093	92,693	93,378
	MSCAN-UHC	142,763	135,092	137,475	143,797	132,368	130,681
	MSCAN-Mag	156,612	147,914	150,667	158,616	147,083	146,357
	MSCAN-Mol	69,605	66,184	67,382	70,310	64,817	63,491
# Rx Fills / Bene	**FFS**	0.8	0.8	0.8	0.8	0.8	0.8
	MSCAN-UHC	0.9	0.8	0.8	0.9	0.8	0.8
	MSCAN-Mag	0.9	0.8	0.9	0.9	0.8	0.8
	MSCAN-Mol	0.7	0.6	0.7	0.7	0.6	0.6
$ Paid Rx	**FFS**	$13,443,743	$11,590,449	$12,342,875	$13,309,499	$12,206,430	$13,259,690
	MSCAN-UHC	$18,728,154	$17,735,224	$18,648,449	$18,638,982	$17,227,972	$19,189,847
	MSCAN-Mag	$20,699,925	$19,512,342	$19,546,712	$20,232,147	$19,178,955	$20,635,677
	MSCAN-Mol	$8,262,092	$7,279,734	$7,374,798	$7,846,970	$7,606,880	$7,814,500
$ /Rx Fill	**FFS**	$134.47	$124.28	$130.53	$134.31	$131.69	$142.00
	MSCAN-UHC	$131.18	$131.28	$135.65	$129.62	$130.15	$146.84
	MSCAN-Mag	$132.17	$131.92	$129.73	$127.55	$130.40	$141.00
	MSCAN-Mol	$118.70	$109.99	$109.45	$111.61	$117.36	$123.08
$ /Bene	**FFS**	$105.31	$93.63	$102.00	$110.58	$103.41	$114.88
	MSCAN-UHC	$114.22	$107.82	$113.47	$113.49	$105.47	$118.84
	MSCAN-Mag	$118.84	$111.71	$111.67	$115.29	$109.18	$117.68
	MSCAN-Mol	$81.36	$71.15	$72.00	$76.66	$74.30	$76.12

NOTE: Paid amounts represent amount reported on claims as paid to the pharmacy. These amounts do not reflect final actual costs after rebates, etc.

TABLE C: TOP 10 DRUG CATEGORIES BY NUMBER OF CLAIMS IN MAR 2025 (FFS AND CCOs)

Category	Month Year	Rank Volume	# RXs	$ Paid	# Unique Benes
CNS stimulants	Mar 2025	1	23,564	$3,155,937	20,569
	Feb 2025	1	22,079	$2,964,342	19,441
	Jan 2025	1	23,781	$3,207,231	20,630
atypical antipsychotics	Mar 2025	2	13,672	$5,147,211	11,544
	Feb 2025	4	13,217	$5,239,946	11,260
	Jan 2025	5	13,902	$5,354,016	11,578
adrenergic bronchodilators	Mar 2025	3	13,154	$584,616	11,418
	Feb 2025	6	12,691	$523,078	11,201
	Jan 2025	4	14,406	$582,206	12,526
SSRI antidepressants	Mar 2025	4	12,527	$162,039	11,487
	Feb 2025	7	12,138	$157,967	11,247
	Jan 2025	8	12,783	$161,961	11,609
aminopenicillins	Mar 2025	5	12,339	$178,047	12,147
	Feb 2025	2	14,178	$203,500	13,992
	Jan 2025	3	15,148	$218,140	14,909
nonsteroidal anti-inflammatory agents	Mar 2025	6	11,880	$161,215	11,364
	Feb 2025	5	12,719	$170,072	12,224
	Jan 2025	6	13,735	$183,847	13,108
antihistamines	Mar 2025	7	11,674	$207,566	11,296
	Feb 2025	12	9,857	$162,914	9,614
	Jan 2025	12	10,629	$174,721	10,294
antiadrenergic agents, centrally acting	Mar 2025	8	11,349	$169,751	10,215
	Feb 2025	10	10,692	$155,285	9,801
	Jan 2025	10	11,560	$169,445	10,306
glucocorticoids	Mar 2025	9	11,163	$447,008	10,752
	Feb 2025	9	11,415	$453,559	11,044
	Jan 2025	9	12,347	$455,713	11,933
proton pump inhibitors	Mar 2025	10	10,131	$294,654	9,595
	Feb 2025	13	9,758	$271,523	9,301
	Jan 2025	13	10,356	$296,326	9,743

TABLE D: TOP 10 DRUG CATEGORIES BY DOLLARS PAID IN MAR 2025 (FFS AND CCOs)

Category	Month Year	Rank Paid Amt	# RXs	$ Paid	# Unique Benes
interleukin inhibitors	Mar 2025	1	987	$6,117,544	922
	Feb 2025	1	929	$5,647,153	869
	Jan 2025	1	986	$5,710,343	899
atypical antipsychotics	Mar 2025	2	13,672	$5,147,211	11,544
	Feb 2025	2	13,217	$5,239,946	11,260
	Jan 2025	2	13,902	$5,354,016	11,578
TNF alpha inhibitors	Mar 2025	3	398	$3,281,750	373
	Feb 2025	3	407	$3,366,565	378
	Jan 2025	3	451	$3,690,850	401
CNS stimulants	Mar 2025	4	23,564	$3,155,937	20,569
	Feb 2025	4	22,079	$2,964,342	19,441
	Jan 2025	4	23,781	$3,207,231	20,630
GLP-1 receptor agonists for obesity	Mar 2025	5	2,283	$2,944,529	2,127
	Feb 2025	5	1,974	$2,521,393	1,874
	Jan 2025	6	1,927	$2,457,879	1,777
antiviral combinations	Mar 2025	6	690	$2,680,994	648
	Feb 2025	6	650	$2,365,485	624
	Jan 2025	5	707	$2,579,362	668
factor for bleeding disorders	Mar 2025	7	149	$2,527,795	114
	Feb 2025	10	114	$1,560,964	98
	Jan 2025	10	106	$1,367,960	92
GLP-1 receptor agonists for non-obesity indications	Mar 2025	8	2,474	$2,297,302	2,313
	Feb 2025	7	2,307	$2,123,997	2,210
	Jan 2025	7	2,442	$2,219,906	2,282
CFTR combinations	Mar 2025	9	86	$2,191,434	79
	Feb 2025	8	75	$1,864,746	70
	Jan 2025	8	82	$2,144,967	71
SGLT-2 inhibitors	Mar 2025	10	2,167	$1,736,726	2,063
	Feb 2025	9	2,079	$1,671,233	2,002
	Jan 2025	9	2,233	$1,770,859	2,129

TABLE E: TOP 25 DRUG MOLECULES
BY NUMBER OF CLAIMS IN MAR 2025 (FFS and CCOs)

Drug Molecule Therapeutic Category	Feb 2025 # Claims	Mar 2025 # Claims	Mar 2025 $ Paid	Mar 2025 # Unique Benes
albuterol / adrenergic bronchodilators	12,160	12,448	$392,441	10,883
amoxicillin / aminopenicillins	14,160	12,314	$177,266	12,122
methylphenidate / CNS stimulants	7,890	8,463	$1,649,094	7,567
azithromycin / macrolides	11,326	8,423	$130,574	8,280
ondansetron / 5HT3 receptor antagonists	10,157	8,165	$126,254	7,852
cetirizine / antihistamines	6,351	8,089	$147,988	7,953
amphetamine-dextroamphetamine / CNS stimulants	7,123	7,598	$239,121	6,656
fluticasone nasal / nasal steroids	6,346	7,538	$131,620	7,477
clonidine / antiadrenergic agents, centrally acting	6,574	6,968	$85,183	6,575
montelukast / leukotriene modifiers	5,564	6,787	$96,876	6,629
ibuprofen / nonsteroidal anti-inflammatory agents	7,234	6,219	$78,573	6,087
gabapentin / gamma-aminobutyric acid analogs	5,935	6,182	$96,079	5,782
prednisolone / glucocorticoids	5,339	5,248	$110,897	5,090
cefdinir / third generation cephalosporins	5,951	5,191	$109,874	5,129
sertraline / SSRI antidepressants	4,808	5,026	$61,124	4,585
acetaminophen-hydrocodone / narcotic analgesic combinations	4,553	4,971	$91,228	4,708
amoxicillin-clavulanate / penicillins/beta-lactamase inhibitors	5,440	4,956	$102,386	4,903
amlodipine / calcium channel blocking agents	4,373	4,556	$70,970	4,239
triamcinolone topical / topical steroids	3,782	4,487	$81,015	4,391
guanfacine / antiadrenergic agents, centrally acting	4,118	4,380	$83,882	4,153
ergocalciferol / vitamins	3,998	4,326	$39,956	3,615
omeprazole / proton pump inhibitors	4,152	4,287	$54,493	4,145
hydroxyzine / miscellaneous anxiolytics, sedatives and hypnotics	3,883	4,141	$70,437	3,965
pantoprazole / proton pump inhibitors	3,933	4,069	$49,985	3,819
atorvastatin / HMG-CoA reductase inhibitors (statins)	3,790	3,962	$48,433	3,555

TABLE F: TOP 25 DRUG MOLECULES
BY DOLLARS PAID IN MAR 2025 (FFS and CCOs)

Drug Molecule Therapeutic Category	Feb 2025 $ Paid	Mar 2025 $ Paid	Mar 2025 # Claims	Mar 2025 # Unique Benes
dupilumab / interleukin inhibitors	$2,693,669	$2,944,952	733	683
semaglutide / GLP-1 receptor agonists for obesity	$2,502,177	$2,914,793	2,256	2,102
adalimumab / TNF alpha inhibitors	$2,450,004	$2,370,577	253	235
elexacaftor/ivacaftor/tezacaftor / CFTR combinations	$1,816,601	$2,143,289	84	77
paliperidone / atypical antipsychotics	$2,165,129	$2,095,647	644	598
dulaglutide / GLP-1 receptor agonists for non-obesity indications	$1,643,963	$1,768,431	1,871	1,763
methylphenidate / CNS stimulants	$1,527,036	$1,649,094	8,463	7,567
aripiprazole / atypical antipsychotics	$1,487,812	$1,455,591	3,664	3,372
bictegravir/emtricitabine/tenofovir / antiviral combinations	$1,340,616	$1,431,032	320	308
emicizumab / factor for bleeding disorders	$798,229	$1,057,670	32	27
ustekinumab / interleukin inhibitors	$707,653	$941,318	34	34
empagliflozin / SGLT-2 inhibitors	$852,558	$898,495	1,080	1,017
dapagliflozin / SGLT-2 inhibitors	$814,805	$834,128	1,080	1,047
ixekizumab / interleukin inhibitors	$861,507	$825,936	95	88
cariprazine / atypical antipsychotics	$834,829	$821,846	566	550
etanercept / TNF alpha inhibitors	$654,400	$685,766	93	88
anti-inhibitor coagulant complex / factor for bleeding disorders	$0	$645,151	3	1
lisdexamfetamine / CNS stimulants	$568,022	$633,538	3,203	3,102
apixaban / factor Xa inhibitors	$533,125	$599,272	1,189	1,030
antihemophilic factor / factor for bleeding disorders	$541,732	$565,251	17	9
somatropin / growth hormones	$355,954	$526,593	104	94
cannabidiol / miscellaneous anticonvulsants	$474,103	$511,573	156	150
upadacitinib / antirheumatics	$374,245	$479,427	72	64
sacubitril-valsartan / angiotensin receptor blockers and neprilysin inhibitors	$419,664	$471,864	741	703
budesonide-formoterol / bronchodilator combinations	$383,409	$430,028	1,884	1,842

TABLE G: TOP 25 DRUG MOLECULES
BY CHANGE IN NUMBER OF CLAIMS FROM JAN 2025 TO MAR 2025 (FFS and CCOs)

Drug Molecule	Jan 2025 # Claims	Feb 2025 # Claims	Mar 2025 # Claims	Mar 2025 $ Paid	Mar 2025 # Unique Benes
cetirizine / antihistamines	6,774	6,351	8,089	$147,988	7,953
fluticasone nasal / nasal steroids	6,675	6,346	7,538	$131,620	7,477
montelukast / leukotriene modifiers	6,125	5,564	6,787	$96,876	6,629
semaglutide / GLP-1 receptor agonists for obesity	1,903	1,955	2,256	$2,914,793	2,102
acetaminophen-hydrocodone / narcotic analgesic combinations	4,720	4,553	4,971	$91,228	4,708
mupirocin topical / topical antibiotics	2,572	2,555	2,797	$42,724	2,749
chlorhexidine topical / mouth and throat products	660	697	850	$11,099	840
polymyxin b-trimethoprim ophthalmic / ophthalmic anti-infectives	514	581	663	$9,760	661
epinephrine / adrenergic bronchodilators	498	484	639	$182,870	637
hydroxyzine / miscellaneous anxiolytics, sedatives and hypnotics	4,034	3,883	4,141	$70,437	3,965
ketoconazole topical / topical antifungals	1,231	1,152	1,333	$28,038	1,270
dulaglutide / GLP-1 receptor agonists for non-obesity indications	1,771	1,739	1,871	$1,768,431	1,763
clindamycin topical / vaginal anti-infectives	679	657	776	$20,366	752
sulfamethoxazole-trimethoprim / sulfonamides	2,132	2,108	2,216	$32,424	2,167
dexamethasone/neomycin/polymyxin b ophthalmic / ophthalmic steroids with anti-infectives	233	254	313	$6,418	304
triamcinolone topical / topical steroids	4,408	3,782	4,487	$81,015	4,391
methylphenidate / CNS stimulants	8,386	7,890	8,463	$1,649,094	7,567
insulin lispro / insulin	719	678	793	$111,199	718
azelastine ophthalmic / ophthalmic antihistamines and decongestants	66	60	140	$2,404	138
viloxazine / noradrenergic uptake inhibitors for ADHD	492	480	563	$252,945	528
budesonide-formoterol / bronchodilator combinations	1,813	1,656	1,884	$430,028	1,842
labetalol / beta blockers, non-cardioselective	570	565	635	$12,579	596
lisdexamfetamine / CNS stimulants	3,142	2,927	3,203	$633,538	3,102
ethinyl estradiol-norelgestromin / contraceptives	1,670	1,568	1,722	$184,299	1,559
hydrocortisone topical / topical steroids	1,710	1,420	1,761	$28,751	1,716

TABLE H: TOP 25 DRUG MOLECULES
BY CHANGE IN AMOUNT PAID FROM JAN 2025 TO MAR 2025 (FFS and CCOs)

Drug Molecule	Jan 2025 $ Paid	Feb 2025 $ Paid	Mar 2025 $ Paid	Mar 2025 # Claims	Mar 2025 # Unique Benes
anti-inhibitor coagulant complex / factor for bleeding disorders	$150,881	$0	$645,151	3	1
semaglutide / GLP-1 receptor agonists for obesity	$2,429,804	$2,502,177	$2,914,793	2,256	2,102
emicizumab / factor for bleeding disorders	$727,818	$798,229	$1,057,670	32	27
antihemophilic factor / factor for bleeding disorders	$320,621	$541,732	$565,251	17	9
ustekinumab / interleukin inhibitors	$763,476	$707,653	$941,318	34	34
cysteamine / miscellaneous uncategorized agents	$171,512	$271,548	$328,722	3	3
glycerol phenylbutyrate / urea cycle disorder agents	$180,271	$130,142	$319,424	6	4
ixekizumab / interleukin inhibitors	$696,483	$861,507	$825,936	95	88
eteplirsen / miscellaneous uncategorized agents	$179,268	$88,045	$300,868	6	2
dulaglutide / GLP-1 receptor agonists for non-obesity indications	$1,649,770	$1,643,963	$1,768,431	1,871	1,763
givinostat / histone deacetylase inhibitors	$37,011	$148,034	$148,034	3	3
valbenazine / VMAT2 inhibitors	$207,793	$276,842	$308,356	38	36
elexacaftor/ivacaftor/tezacaftor / CFTR combinations	$2,050,321	$1,816,601	$2,143,289	84	77
coagulation factor ix / factor for bleeding disorders	$142,297	$161,375	$213,833	13	7
interferon gamma-1b / interferons	$3,145	$0	$67,689	1	1
bimekizumab / interleukin inhibitors	$28,626	$18,280	$81,686	4	4
apremilast / antirheumatics	$129,897	$129,935	$182,052	38	38
upadacitinib / antirheumatics	$429,787	$374,245	$479,427	72	64
berotralstat / hereditary angioedema agents	$86,860	$177,930	$133,448	3	3
methylphenidate / CNS stimulants	$1,603,162	$1,527,036	$1,649,094	8,463	7,567
avibactam-ceftazidime / cephalosporins/beta-lactamase inhibitors	$8,166	$32,800	$54,074	12	4
dornase alfa / miscellaneous respiratory agents	$289,303	$276,128	$334,268	77	73
ruxolitinib / multikinase inhibitors	$44,034	$70,456	$88,068	6	5
glecaprevir-pibrentasvir / antiviral combinations	$58,094	$26,004	$99,162	8	8
sofosbuvir-velpatasvir / antiviral combinations	$132,058	$105,831	$172,965	23	20

TABLE I: TOP 15 DRUG SOLID DOSAGE FORM HIGH VOLUME (100+ RX FILLS LAST MONTH) PRODUCTS WITH UNIT COST > $1
BY PERCENT CHANGE IN AMOUNT PAID PER UNIT JAN 2025 TO MAR 2025 (FFS and CCOs)

Drug Product Therapeutic Category	Mar 2025 # Claims	Mar 2025 $ Paid	Mar 2025 Avr. Paid Per Rx	Mar 2025 Avr. Units Per Rx	Jan 2025 Paid Per Unit	Feb 2025 Paid Per Unit	Mar 2025 Paid Per Unit	Percent Change
methylphenidate (30/70 release) 20 mg/24 hr capsule, extended release / CNS stimulants (Y)	131	$8,174	$62.40	30	$1.28	$1.43	$1.69	32.5%
methylphenidate (30/70 release) 30 mg/24 hr capsule, extended release / CNS stimulants (Y)	121	$7,151	$59.10	30	$1.23	$1.44	$1.62	32.0%
dexmethylphenidate 25 mg capsule, extended release / CNS stimulants (Y)	196	$12,712	$64.86	30	$1.57	$1.63	$1.79	13.9%
asenapine 5 mg tablet / atypical antipsychotics (Y)	106	$10,582	$99.83	39	$2.03	$2.12	$2.31	13.4%
methylphenidate (30/70 release) 40 mg/24 hr capsule, extended release / CNS stimulants (Y)	107	$6,152	$57.49	30	$1.38	$1.38	$1.54	11.8%
dexmethylphenidate 20 mg capsule, extended release / CNS stimulants (Y)	430	$23,366	$54.34	30	$1.31	$1.38	$1.44	9.7%
dexmethylphenidate 5 mg capsule, extended release / CNS stimulants (Y)	180	$7,795	$43.30	30	$1.01	$1.05	$1.07	6.3%
Trintellix (vortioxetine) 20 mg tablet / miscellaneous antidepressants (Y)	126	$61,621	$489.05	29	$15.56	$15.70	$16.29	4.7%
Xarelto (rivaroxaban) 20 mg tablet / factor Xa inhibitors (Y)	361	$188,375	$521.81	28	$17.49	$18.30	$18.29	4.5%
Entresto (sacubitril-valsartan) 49 mg-51 mg tablet / angiotensin receptor blockers and neprilysin inhibitors (Y)	196	$130,073	$663.64	59	$10.52	$10.67	$10.91	3.7%
Linzess (linaclotide) 290 mcg capsule / guanylate cyclase-C agonists (Y)	124	$68,951	$556.06	30	$17.52	$18.02	$18.16	3.7%
Jardiance (empagliflozin) 25 mg tablet / SGLT-2 inhibitors (Y)	553	$481,196	$870.16	44	$18.88	$19.20	$19.49	3.2%
lisdexamfetamine 20 mg tablet, chewable / CNS stimulants (Y)	108	$25,862	$239.46	30	$7.37	$7.32	$7.60	3.1%

Products are only included if 100 or more fills in last month and average cost per unit in reference month was >= $1.

TABLE I: TOP 15 DRUG SOLID DOSAGE FORM HIGH VOLUME (100+ RX FILLS LAST MONTH) PRODUCTS WITH UNIT COST > $1
BY PERCENT CHANGE IN AMOUNT PAID PER UNIT JAN 2025 TO MAR 2025 (FFS and CCOs)

Drug Product Therapeutic Category	Mar 2025 # Claims	Mar 2025 $ Paid	Mar 2025 Avr. Paid Per Rx	Mar 2025 Avr. Units Per Rx	Jan 2025 Paid Per Unit	Feb 2025 Paid Per Unit	Mar 2025 Paid Per Unit	Percent Change
Vyvanse (lisdexamfetamine) 30 mg capsule / CNS stimulants (Y)	117	$42,281	$361.38	30	$11.34	$12.03	$11.67	2.9%
Entresto (sacubitril-valsartan) 97 mg-103 mg tablet / angiotensin receptor blockers and neprilysin inhibitors (Y)	227	$151,268	$666.38	59	$10.76	$11.12	$11.05	2.7%

Products are only included if 100 or more fills in last month and average cost per unit in reference month was >= $1.

New Business

Special Analysis Projects

MISSISSIPPI DIVISION OF MEDICAID

MS-DUR INTERVENTION / EDUCATIONAL INITIATIVE UPDATE

MARCH 2025 – MAY 2025

Ongoing Mailings:

PROVIDER SHOPPING FOR OPIOIDS (≥4 Prescribers AND ≥4 Pharmacies)				CONCOMITANT USE OF OPIOIDS AND ANTIPSYCHOTICS			SABA MONOTHERAPY		
Month	Prescribers Mailed	Pharms Mailed	Members Addressed	Month	Prescribers Mailed	Members Addressed	Month	Prescribers Mailed	Members Addressed
Jun-24	5	5	10	Jun-24	30	32	Jun-24	NA	NA
Jul-24	4	3	7	Jul-24	29	32	Jul-24	NA	NA
Aug-24	4	4	8	Aug-24	52	65	Aug-24	NA	NA
Sep-24	3	4	7	Sep-24	36	40	Sep-24	NA	NA
Oct-24	5	5	10	Oct-24	46	48	Oct-24	NA	NA
Nov-24	4	4	8	Nov-24	59	67	Nov-24	NA	NA
Dec-24	2	2	4	Dec-24	44	54	Dec-24	NA	NA
Jan-25	2	2	4	Jan-25	51	57	Jan-25	150	216
Feb-25	1	1	2	Feb-25	41	47	Feb-25	150	190
Mar-25	1	1	2	Mar-25	32	38	Mar-25	150	208
Apr-25	2	2	4	Apr-25	35	39	Apr-25	150	191
May-25	1	2	3	May-25	37	39	May-25	150	203

MISSISSIPPI DIVISION OF MEDICAID USE OF PRESCRIPTION MONITORING PROGRAM DATA IN DUR ACTIVITIES

BACKGROUND

The National All Schedules Prescription Electronic Reporting Act of 2005[1] (NASPER) was enacted to establish or improve state-level prescription drug monitoring programs. These programs are designed to establish or improve state-level prescription monitoring programs (PMPs). These programs are designed to electronically monitor the dispensing of controlled substances. The primary goal of NASPER is to combat prescription drug abuse by providing state-level tools for tracking and identifying patterns of misuse.

Mississippi legislative bill 73-21-127 in 2005 directed the Board of Pharmacy (BOP) to develop and implement a computerized program to track prescriptions for controlled substances and to report suspected abuse and misuse of controlled substances in compliance with the federal regulations promulgated under authority of the National All Schedules Prescription Electronic Reporting Act of 2005.[2] Mississippi is unique in that the legislation specifically stated that "upon request, the State Board of Pharmacy shall provide collected information to: . . . Division of Medicaid regarding Medicaid and Medicare Program recipients." Mississippi Medicaid is the only state Medicaid agency with access to the full PMP data for their enrollees.

The Division of Medicaid (DOM) has an annually renewable Memorandum of Understanding with the BOP that recognizes the MS-DUR Program as the retrospective drug utilization review (DUR) vendor for DOM and authorizes MS-DUR to obtain PMP claims on behalf of DOM for enrollees each month. MS-DUR is actively working with DOM to determine how these data can most appropriately be used in DUR activities.

MS-DUR conducted an analysis of all PMP and DOM claims for Medicaid enrollees during the period January 2024 through December 2024. The PMP data includes pharmacy transactions for various scheduled non-prescription and prescription products. MS-DUR focuses its work with PMP claims to the major drug categories of interest for DUR activities – opioids, barbiturates, benzodiazepines, CNS stimulants, gabapentin, and medical cannabis. This report uses the analysis of calendar year 2024 PMP and DOM claims to demonstrate key issues when considering the use of PMP claims for DUR activities and presents an overview of the claims we are receiving from the PMP program.

ISSUES RELATED TO THE USE OF PMP DATA IN DUR

Although all states have PMP information systems and 44 states have the same data warehouse vendor (Bamboo Health), state programs vary in many ways:

- The specific drugs that must be reported.
- The data fields that are required to be reported.

- Frequency of reporting data and updating data included in provider queries.
- What providers and state agencies can access the data.
- The amount of quality control monitoring that can be done.
- The number and types of proactive reports that are done.
- How and how much PMP data are integrated into management and health information systems at all levels (hospitals, doctor offices, pharmacies, etc.).

One thing almost all state programs have in common is that they are seriously underfunded. This limits how much verification of reporting, analysis of their data, and proactive interventions can be done. Like most other states, Mississippi's PMP requires:

- Pharmacies, dispensing physicians, and marijuana dispensaries to report every 24 hours including 0 reports.
- Reporting of controlled substances in schedules I through V, gabapentin, and marijuana dispensing transactions.

Problem – Reporting of Prescriptions

Anecdotal reports from providers in response to MS-DUR opioid interventions have revealed:

- When providers run queries on patients they are treating with opioids, they occasionally do not find prescriptions they wrote and know the patients filled.
- When MS-DUR has mailed patient specific feedback as part of opioid interventions, providers have sometimes reported they did not write the prescription attributed to them in the report.

Both issues are most likely due to how data is entered and reported by pharmacies.

Table 1 shows a breakdown of all claims for enrollees during calendar year 2024 by member type and claim source. Source of claims indicates whether the claims were only found in the DOM data (DOM), only found in the PMP data (PMP), or were found in both the PMP and DOM data (PMP_DOM). If DOM paid for one of these target drugs and the prescription was correctly reported by the dispensing pharmacy/provider, the claims would be found in both the PMP and DOM data. As would be expected, claims for the target drugs for dual Medicare/Medicaid members and non-dual members WITHOUT full pharmacy benefits were limited to data obtained from the PMP. Of concern is the fact that 10% of the target drug claims for non-dual members with full pharmacy benefits were not found in the PMP data. This would be 0% with perfect reporting.

TABLE 1. Source of All Claims For Selected Controlled Substances January 2024 - December 2024				
Member Type	**Claim Source**			
	DOM	**PMP**	**PMP-DOM**	**Total All Sources** *(Column %)*
Dual	- 0.0%	810,144 100.0%	- 0.0%	810,144 49.5%
Non-dual - without full pharmacy benefits	- 0.0%	51,841 100.0%	- 0.0%	51,841 3.2%
Non-dual - with full pharmacy benefits	77,549 10.0%	221,308 28.6%	434,195 56.2%	773,052 47.3%

Note: DOM - Division of Medicaid claim only, PMP - Prescription Monitoring Program claim only, PMP-DOM - claims in DOM and PMP

Problem – Matching Historical Claims to Members

Currently there is no universal patient ID for use in health information systems – therefore, patient matching even within a single state PMP is less than perfect. The CMS report to Congress in 2021 about challenges and best practices Implementing PMP requirements[3], stated:

> *States identified patient matching as the largest challenge faced by PMPs across the country.*
>
> *This challenge is compounded by variations in data content, format, and quality collected by pharmacies and clinicians. Different pharmacies throughout the State may not have the same information on a patient, for example, yet each pharmacy reports on that patient to the same PMP, creating a situation where the PMP must reconcile multiple records for the same patient to one longitudinal record.*

Most state PMPs use Bamboo Health for data storage, access, and reporting. A Bamboo Health report, "Addressing the Challenges of Accurate Patient-Matching"[4] states:

> *Most patient record-linking approaches can be described as deterministic, probabilistic, referential, or a blend of all three. . .*
>
> - *Deterministic matching approaches look for exact matches between multiple records.*
> - *A probabilistic approach to patient linking introduces a measure of uncertainty to the linking.*
> - *Referential approaches rely on external data sets that maintain lists of individuals or households, such as change of addresses databases, to be able to link records together.*
>
> *Bamboo Health patient-matching utilizes all the above techniques in a manner which balances the riskiness of a mismatch while ensuring capture of all records belonging to an individual.*

Within PMP records, when available, the fields used to link patients include name, date of birth, home address, phone number, Social Security number, and the DEA numbers of the prescriber who wrote the prescription and the pharmacy who filled the prescription. However, each state determines which variables are required to be submitted. In Mississippi, the single best data field for matching – Social Security number – is not required to be reported.

Each month, MS-DUR securely sends a file to Bamboo Health that includes the best fields available for matching patients and historical claims. Bamboo Health then securely returns a file to MS-DUR that includes all claims in the PMP database that they would link to these members if a provider query was submitted. Since DOM claims for target drugs are not expected to be available for dual Medicaid/Medicare members and Medicare members without full pharmacy benefits, these members and the claims linked to them are excluded. MS-DUR then uses all DOM and PMP claims for target drug categories to evaluate the validity of the historical claim linkage to members. Members are classified as having valid matches if the following criteria are met:

- DOM paid claims for member matched non-cash PMP claims. (member had <3 DOM claims and all matched PMP claims or member had 3+ DOM claims and all but one matched PMP claims).
- All PMP claims with payment type of “Medicaid” matched a DOM claim.
- At least 1 DOM claim existed if there were any PMP claims with payment type of “Medicaid”.

Table 2 shows the claim source for all target drugs by validity status of the member matching. As shown in Table 1, overall, 10% of DOM claims for target drugs did not match a non-cash PMP claim. However, most of these claims were associated with members that were classified as having an invalid match across historical records during that month. Among members classified as having valid matches, only 0.5% of DOM claims were not matched to a non-cash PMP claim. Even though the validity criteria are not overly stringent, it is important to note that among members with full pharmacy benefits and claims for target drugs, 26% were classified as not having a valid match. Another important thing to note in Table 2 is that among members with full pharmacy benefits and target drug claims with valid matches, **29% of their target drug claims could only be identified by PMP claims.**

TABLE 2. Source of Claims For Selected Drug Types
For Members With Full Pharmacy Benefits
January 2024 - December 2024
BY VALIDITY OF MATCH BETWEEN PMP AND DOM CLAIMS

	Claim Source			
	DOM (Row %)	PMP (Row %)	PMP-DOM (Row %)	Total (Column %)
All Members With Full Pharmacy Benefits	77,549 10.6%	221,308 30.2%	434,195 59.2%	733,052
Members Without Valid Match	74,711 39.0%	65,635 34.3%	51,021 26.7%	191,367 26.1%
Members With Valid Match	2,838 0.5%	155,673 28.7%	383,174 70.7%	541,685 73.9%

Note: DOM - Division of Medicaid claim only, PMP - Prescription Monitoring Program claim only, PMP-DOM - claims in DOM and PMP

This analysis includes all months in 2024. Since members may be enrolled for any number of months during the year, tables reporting number and percentage of members show member months rather than unique members. Table 3 shows the validation status by member months. Overall, 92% of member months were not associated with any target drug claims from DOM or PMP. Of those associated with target drug claims, 85% were classified as having valid matches between DOM and PMP claims.

TABLE 3. Match Validation Status
For Members With Full Pharmacy Benefits
January 2024 - December 2024

Match Validation Status		Member Months	
No Controlled Substance Claims		5,676,774	92.4%
Controlled Substance Claims		466,990	7.6%
	Not Valid Match	70,032	15.0%
	Valid Match	396,958	85.0%

Note: This table reports member months enrolled not individual members. Each member can be enrolled for a different number of months.

Table 4 shows the percentage of member months that met each validation criteria for members with full pharmacy benefits. DOM claims not being included in the PMP data was the most frequent criterion (12%) for classifying member months as not a valid match. As previously stated, this is the result of problems with pharmacies and dispensing provider reporting claims to PMP. The second most frequent criterion that was not met was PMP claims with payment types of Medicaid not matching a DOM claim for that member (5%). This is reflective of the issue matching members to historical claims.

TABLE 4. Member Months Meeting Validation Criteria (Members With Full Pharmacy Benefits Only) January 2024 - December 2024				
Validation Criteria for Matching DOM and PMP Claims	Member Months Meeting Criteria			
	Yes		No	
DOM claims match to PMP claims[1]	412,360	88.3%	54,630	11.7%
PMP Medicaid claims match to DOM claims[2]	484,314	95.0%	25,330	5.0%
No DOM claims but have PMP claims[3]	499,238	98.0%	10,406	2.0%

1 All DOM claims must match a PMP claim. If 3 or more DOM claims, can have 1 claim that does not match.
2 All PMP claims with Medicaid as payment source must match to a DOM claim.
3 No DOM claim but have PMP claims is acceptable if no PMP claims have a payment type of Medicaid.
Note: This table reports member months enrolled not individual members. Each member can be enrolled for a different number of months.

Table 5 shows that the problems inherent in using PMP data are not related to pharmacy plans. There was only slight variation among FFS and CCO plans on the percentage of member months classified as having valid matches.

TABLE 5. Validation Status For Members With Full Pharmacy Benefits January 2024 - December 2024			
Pharmacy Plan*	Member Months		
	Total	Valid Match	No Valid Match
FFS	74,801	86.3%	13.70%
MAG	164,731	84.9%	15.10%
MOL	68,511	84.8%	15.20%
UHC	158,947	84.6%	15.40%

* FFS - Fee for Service; MAG - Magnolia Health; MOL - Molina Healthcare; UHC - UnitedHealthcare.
Note: This table reports member months enrolled not individual members. Each members can be enrolled for a different number of months.

Table 6 shows the validation status for members and the claim source for the target drug categories included in the claims analysis file for members with full pharmacy benefits. Only two drug categories vary from the percentages observed for the other categories – gabapentin and cannabis. Cannabis is not a covered treatment by DOM, therefore all claims for cannabis come from PMP data. However, it is important to note that 77% of the cannabis claims were for members without valid matches. Gabapentin also had 64% of claims associated with members classified as not valid matches. Gabapentin also had an exceptionally high percentage (7%) of claims coming only from DOM. Gabapentin is not a controlled substance but is required to be reported to the PMP. These percentages indicate that some pharmacies may only be reporting controlled substances and are not reporting gabapentin claims.

TABLE 6. Drug Categories Included in All Claims For Members With Full Pharmacy Benefits January 2024 - December 2024					
Drug Category	Member Validation Status		Source of Claims for Members With Valid Matches		
	No Valid Match (Row %)	Valid Match (Row %)	DOM (Row %)	PMP (Row %)	PMP-DOM (Row %)
CNS stimulant	57,143 20.2%	225,795 79.8%	153 0.1%	32,069 14.2%	193,573 85.7%
Barbiturate	1,958 21.4%	7,185 78.6%	9 0.1%	1,741 24.2%	5,462 76.0%
Benzodiazepine	17,849 20.5%	69,083 79.5%	61 0.1%	22,537 32.6%	46,485 67.3%
Buprenorphine-naloxone	3,221 16.3%	16,566 83.7%	26 0.2%	5,974 36.1%	10,566 63.8%
Cannabis	447 77.2%	132 22.8%	0 0.0%	132 100.0%	0 0.0%
Gabapentin	65,196 63.5%	37,513 36.5%	2,504 6.7%	9,482 25.3%	25,527 68.0%
Opioid	43,686 19.5%	180,781 80.5%	87 0.0%	83,069 46.0%	97,625 54.0%
Total	**189,500** 26.1%	**537,055** 73.9%	**2,840** 0.5%	**154,977** 28.9%	**379,238** 70.6%

Note: DOM - Division of Medicaid claim only, PMP - Prescription Monitoring Program claim only, PMP-DOM - claims in DOM and PMP

The Mississippi Medical Cannabis Program (MMCP) began in January 2023 as a way to "provide a safe and accessible program that meets the needs of patients and the public health and safety of all Mississippi residents."[5] Individuals with qualifying medical conditions may by certified by a certifying practitioner. Once certified, individuals may apply to the Mississippi State Department of Health (MSDH) for a medical cannabis card. With a card, individuals may purchase medical cannabis from licensed dispensaries in Mississippi. In Mississippi, medical cannabis dispensaries are required to report dispensing information to the PMP. Appendix A is an example provided by the Mississippi Board of Pharmacy of how a patient profile with medical cannabis use would appear in the PMP.[6] The MMCP provides individuals a route to utilize medical cannabis as directed by a medical professional.

Table 7 shows the type of cannabis claims that are present in the PMP data. There are four different National Drug Code (NDC) reporting choices for cannabis sales characterized by dosage form. Dual Medicare/Medicaid members accounted for 64% of all cannabis claims. Members with full pharmacy benefits and classified as valid matches accounted for only 7% of cannabis claims in the PMP.

Note: Sales for cannabis products are reported in Mississippi Medical Cannabis Equivalency Units (MMCEU) as defined in the Mississippi Medical Cannabis Act. A quantity of 1 in a claim equals 1 MMCEU. One MMCEU is equal to 3.5 grams of medical cannabis flower, 1 gram of medical cannabis concentrate, and 100 milligrams of THC in infused products.

TABLE 7. Types of Cannabis Claims

Type of Cannabis Claim	Patient Type				Total
		Non-Dual			
	Dual	No Full Pharmacy Benefits	Full Benefits - Not Valid Match	Full Benefits - Valid Match	
Concentrate	151 13.2%	6 11.3%	69 15.4%	33 25.0%	259 14.6%
Edible	86 7.5%	1 1.9%	35 7.8%	18 13.6%	140 7.9%
Non-Edible	8 0.7%	0 0.0%	2 0.4%	0 0.0%	10 0.6%
Smoked	900 78.6%	46 86.8%	341 76.3%	81 61.4%	1,368 77.0%
Total	1,145	53	447	132	1,777

Table 8 shows the percentage of members associated with cannabis claims and other target drug claims. Less than one percent of all members were associated with cannabis claims. However, most of the members that were associated with cannabis claims typically had three or more cannabis claims. With dual Medicare/Medicaid members and members without full pharmacy benefits, DOM does not have full information about claims for other target drugs. Therefore, these two patient types were not included in the analysis of members with cannabis claims also having other target drug claims during the same month. These low percentages for members with full pharmacy benefits but no valid matches are most likely due to the poor patient matching that occurred for these members. Of the members with cannabis claims and valid matches to PMP data, 31% had one or more months with cannabis and opioid claims, 19% had one or more months with cannabis and benzodiazepine claims. Of special interest is the finding that 5% of members with valid matches had cannabis claims and claims for buprenorphine/naloxone during the same month.

TABLE 8. Members With Claims for Cannabis and Other Target Drugs				
	Patient Type			
		Non-Dual		
	Dual	No Full Pharmacy Benefits	Full Benefits - Not Valid Match	Full Benefits - Valid Match
Total number of member months	97,022	12,559	24,233	114,388
Number of Cannabis Claims by Member (Percentage of all Members)				
0	96,885	12,555	24,186	114,330
	99.9%	100.0%	99.8%	99.9%
1	44	5	20	16
	0.0%	0.0%	0.1%	0.0%
2	27	3	7	14
	0.0%	0.0%	0.0%	0.0%
3+	67	4	20	28
	0.1%	0.0%	0.1%	0.0%
Any Cannabis Claim	138	12	47	58
	0.1%	0.1%	0.2%	0.1%
Members With Cannabis Claims and Other Target Drug Claims in Same Month (Percentage of Members with any cannabis claim)				
+ Opioid			2	18
			4.3%	31.0%
+ Buprenorphine-Naloxone			0	3
			0.0%	5.2%
+ Gabapentin			4	8
			8.5%	13.8%
+ Barbiturate			0	0
			0.0%	0.0%
+ Benzodiazepine			0	11
			0.0%	19.0%
+ CNS Stimulant			0	5
			0.0%	8.6%

CONCLUSIONS

As demonstrated in this report, some challenges with reporting of claims and matching historical claims to members limit how PMP data can be used in Medicaid DUR activities. Although adding claims found only in PMP to those in the DOM data will provide a more accurate estimate of controlled substance use, it will not provide a completely accurate measure. The problems incurred in matching claims to members also limit the accuracy of DUR interventions using member level data. MS-DUR strives to ensure that letters sent to providers are accurate to maintain credibility in what is being reported. Including claims appearing only in PMP without any regards for the validity of the member matching can easily result in inaccurate information being reported to providers and others. MS-DUR believes that the best way to use claims only in PMP data in DUR activities is to limit use to claims for members classified as having valid matches.

Through the PMP data, few Medicaid members were identified as utilizing medical cannabis products. Of those that had claims for medical cannabis, most had multiple claims in a year. Additionally, a large portion of members with medical cannabis claims also had claims for other psychotropic agents, with opioids and benzodiazepines being the most common.

RECOMMENDATIONS

MS-DUR recommends incorporating PMP data into the High-Risk Members report and CMS quality measure reporting (with and without PMP data). DOM may also consider additional provider/pharmacy outreach utilizing PMP data.

Regarding medical cannabis, MS-DUR asks the Board to consider several questions:

- Do providers/pharmacists understand how medical cannabis claims appear in the PMP?
- How are providers/pharmacists screening for medical cannabis use?
- What types of practitioners are primarily certifying individuals for medical cannabis eligibility?
- For those members with concurrent medical cannabis use and other psychotropic medications, are the prescribers of psychotropics aware that those members are also using medical cannabis?
- To what extent is care coordination occurring between prescribers of psychotropics and medical cannabis certifiers?
- What impact does the concurrent use of medical cannabis with other psychotropics have on the risks of potential adverse events (respiratory complications; falls/fractures; overdose/deaths)?

REFERENCES

1. Rep. Whitfield E [R K 1. H.R.1132 - 109th Congress (2005-2006): National All Schedules Prescription Electronic Reporting Act of 2005. August 11, 2005. Accessed May 29, 2025. https://www.congress.gov/bill/109th-congress/house-bill/1132/subjects

2. HB 262 – (2005) An Act to Provide a Prescription Monitoring Program. Accessed May 29, 2025. https://index.ls.state.ms.us/isysnative/UzpcRG9jdW1lbnRzXDIwMDVccGRmXGhiXDAyMDAtMDI5OVxoYjAyNjJpbi5wZGY=/hb0262in.pdf#xml=http://10.240.72.35/isysquery/irl9b2/1/hilite

3. Report to Congress: State Challenges and Best Practices Implementing PDMP Requirements Under Section 5042 of the SUPPORT Act. Accessed May 29, 2025. https://www.medicaid.gov/medicaid/data-and-systems/downloads/rtc-5042-state-challenges.pdf

4. Bamboo Health, “Addressing the Challenge of Accurate Patient-Matching,” 2022. Accessed May 29, 2025. https://bamboohealth.com/wp-content/uploads/2023/01/Whitepaper_Patient-Matching.pdf

5. Home | MedCann. Accessed May 30, 2025. https://www.mmcp.ms.gov/

6. Medical Cannabis PMP.pdf. Accessed May 30, 2025. https://www.mbp.ms.gov/sites/default/files/2023-03/Medical%20Cannabis%20PMP.pdf

Appendix A: Cannabis and the Prescription Monitoring Program

Key Takeaways

- Dispensaries are required to report all medical marijuana sales at least daily to the PMP
- While the PMP was designed for prescription medications, it has been enabled to accommodate the reporting requirements of the MS Cannabis Program
- Cannabis dispensaries are listed under the pharmacy section of the PMP
- Certifying practitioners have a unique Mississippi Cannabis Number that is different from their NPI and DEA numbers. Who can certify?
- There are 4 different product NDC reporting choices for cannabis sales characterized by dosage form
- Sales are reported in Mississippi Medical Cannabis Equivalency Units as defined in the MS Medical Cannabis Act

NDC Number	Product Name
67660000003	Cannabis Edible 1 = 1 MCEU
67660000004	Cannabis NonEdible 1 = 1 MCEU
67660000001	Cannabis FlowerSmoked 1=1MCEU
67660000002	Cannabis Conc.Vape/Tincture

*Conc. = concentrate Both Edible and Non-edible products are considered "infused" preparations.

Product names are limited to 30 characters in the PMP. Conveying cannabis form and common routes was prioritized. A reminder that a Qty of 1 equals 1 MMCEU has also been incorporated when feasible.

"MMCEU" means Mississippi Medical Cannabis Equivalency Unit.
One unit of MMCEU shall be considered equal to:

A. Three and one-half (3.5) grams of medical cannabis flower;

B. One (1) gram of medical cannabis concentrate; or,

C. One hundred (100) milligrams of THC in an infused product.

Mary Testpatient, 43F

Date of Birth
01/01/1980

Recent Address:

Date Range: 03/02/2022 - 03/02/2023

Linked Records

Name	DOB	ID	Gender	Address
Mary Testpatient	01/01/1980	1	F	5555 TEST STREET JACKSON MS 11111
Mary Testpatient	01/01/1980	2	F	555 TEST ST JACKSON MS 11111
Mary Testpatient	01/01/1980	3	F	123 TEST STREET JACKSON MS 11111

Search Criteria

First Name	Last Name	DOB
Mary	Testpatient	01/01/1980

RX Summary

Summary

Total Prescriptions	4
Total Private Pay	4
Total Prescribers	1
Total Pharmacies	1

Opioids* (excluding Buprenorphine)

Current Qty	0
Current MME/day	0.00
30 Day Avg MME/day	0.00

Buprenorphines*

Current Qty	0
Current mg/day	0.00
30 Day Avg mg/day	0.00

State Indicators

No Known Data

Prescriptions

Total: 4 | Private Pay: 4

Filled	Written	Sold	ID	Drug	QTY	Days	Prescriber	RX #	Dispenser	Refill	Daily Dose*	Pymt Type	PMP
03/02/2023	03/02/2023	03/02/2023	1	Cannabis FlowerSmoked 1=1MCEU	3.00	3	Te Ind	13	Tes ()	0		Private Pay	MS
02/25/2023	02/25/2023	02/25/2023	2	Cannabis Conc.Vape/Tincture	5.00	10	Te Ind	420000	Tes ()	0		Private Pay	MS
02/15/2023	02/15/2023	02/15/2023	3	Cannabis Edible 1 = 1 MCEU	1.00	7	Te Ind	710	Tes ()	0		Private Pay	MS
02/01/2023	02/01/2023	02/01/2023	1	Cannabis NonEdible 1 = 1 MCEU	1.00	5	Te Ind	710710	Tes ()	0		Private Pay	MS

*Per CDC guidance, the MME conversion factors prescribed or provided as part of the medication-assisted treatment for opioid use disorder should not be used to benchmark against dosage thresholds meant for opioids prescribed for pain. Buprenorphine products have no agreed upon morphine equivalency, and as partial opioid agonists, are not expected to be associated with overdose risk in the same dose-dependent manner as doses for full agonist opioids. MME = morphine milligram equivalents. LME = Lorazepam milligram equivalents. MG = dose in milligrams.

Prescribers

Total: 1

Name	Address	City	State	Zipcode	Phone
Test Individual	123 Test Street	Test	MS	11111	-

Pharmacies

Total: 1

Name	Address	City	State	Zipcode	Phone
TEST DISPENSARY	123 Test Drive	Test	MS	11111	-

Knowingly disclosing prescription information for misuse or purposely altering the information may be subject but not limited to a monetary penalty imposed by The Board of not more than 50,000.00 per violation as specified in MS code 73-21-103 and 73-21-127.

Cannabis and the Prescription Monitoring Program (PMP)

Key Takeaways

- Dispensaries are required to report all medical marijuana sales at least daily to the PMP
- While the PMP was designed for prescription medications, it has been enabled to accommodate the reporting requirements of the MS Cannabis Program
- Cannabis dispensaries are listed under the pharmacy section of the PMP
- Certifying practitioners have a unique Mississippi Cannabis Number that is different from their NPI and DEA numbers. Who can certify?
- There are 4 different product NDC reporting choices for cannabis sales characterized by dosage form
- Sales are reported in Mississippi Medical Cannabis Equivalency Units as defined in the MS Medical Cannabis Act

NDC Number	Product Name
67660000003	Cannabis Edible 1 = 1 MCEU
67660000004	Cannabis NonEdible 1 = 1 MCEU
67660000001	Cannabis FlowerSmoked 1=1MCEU
67660000002	Cannabis Conc.Vape/Tincture

*Conc. = concentrate Both Edible and Non-edible products are considered “infused” preparations.

Product names are limited to 30 characters in the PMP. Conveying cannabis form and common routes was prioritized. A reminder that a Qty of 1 equals 1 MMCEU has also been incorporated when feasible.

"MMCEU" means Mississippi Medical Cannabis Equivalency Unit. One unit of MMCEU shall be considered equal to:

A. Three and one-half (3.5) grams of medical cannabis flower;

B. One (1) gram of medical cannabis concentrate; or,

C. One hundred (100) milligrams of THC in an infused product.

Mary Testpatient, 43F

Date of Birth
01/01/1980

Recent Address:

Date Range: 03/02/2022 - 03/02/2023

Linked Records

Name	DOB	ID	Gender	Address
Mary Testpatient	01/01/1980	1	F	5555 TEST STREET JACKSON MS 11111
Mary Testpatient	01/01/1980	2	F	555 TEST ST JACKSON MS 11111
Mary Testpatient	01/01/1980	3	F	123 TEST STREET JACKSON MS 11111

Search Criteria

First Name	Last Name	DOB
Mary	Testpatient	01/01/1980

RX Summary

Summary

Total Prescriptions	4
Total Private Pay	4
Total Prescribers	1
Total Pharmacies	1

Opioids* (excluding Buprenorphine)

Current Qty	0
Current MME/day	0.00
30 Day Avg MME/day	0.00

Buprenorphines*

Current Qty	0
Current mg/day	0.00
30 Day Avg mg/day	0.00

State Indicators

No Known Data

Prescriptions

Total: 4 | Private Pay: 4

Filled	Written	Sold	ID	Drug	QTY	Days	Prescriber	RX #	Dispenser	Refill	Daily Dose*	Pymt Type	PMP
03/02/2023	03/02/2023	03/02/2023	1	Cannabis FlowerSmoked 1=1MCEU	3.00	3	Te Ind	13	Tes ()	0		Private Pay	MS
02/25/2023	02/25/2023	02/25/2023	2	Cannabis Conc.Vape/Tincture	5.00	10	Te Ind	420000	Tes ()	0		Private Pay	MS
02/15/2023	02/15/2023	02/15/2023	3	Cannabis Edible 1 = 1 MCEU	1.00	7	Te Ind	710	Tes ()	0		Private Pay	MS
02/01/2023	02/01/2023	02/01/2023	1	Cannabis NonEdible 1 = 1 MCEU	1.00	5	Te Ind	710710	Tes ()	0		Private Pay	MS

*Per CDC guidance, the MME conversion factors prescribed or provided as part of the medication-assisted treatment for opioid use disorder should not be used to benchmark against dosage thresholds meant for opioids prescribed for pain. Buprenorphine products have no agreed upon morphine equivalency, and as partial opioid agonists, are not expected to be associated with overdose risk in the same dose-dependent manner as doses for full agonist opioids. MME = morphine milligram equivalents. LME = Lorazepam milligram equivalents. MG = dose in milligrams.

Prescribers

Total: 1

Name	Address	City	State	Zipcode	Phone
Test Individual	123 Test Street	Test	MS	11111	-

Pharmacies

Total: 1

Name	Address	City	State	Zipcode	Phone
TEST DISPENSARY	123 Test Drive	Test	MS	11111	-

Knowingly disclosing prescription information for misuse or purposely altering the information may be subject but not limited to a monetary penalty imposed by The Board of not more than 50,000.00 per violation as specified in MS code 73-21-103 and 73-21-127.

UPDATE ON GLP-1 RECEPTOR AGONISTS AS ANTI-OBESITY MEDICATIONS AMONG MISSISSIPPI MEDICAID MEMBERS

BACKGROUND

Obesity is a chronic, relapsing condition that poses a significant burden to individuals, communities, and health systems across the United States. Mississippi (MS) ranks 47th among US states in terms of obesity prevalence[1], with recent data indicating that over 40% of adults in the state are classified as obese.[2,3] This health crisis disproportionately affects low-income populations, including Medicaid enrollees, who often face barriers to accessing effective, evidence-based treatments for obesity.[4] Despite the well-established health risks and economic implications, sustainable and equitable treatment approaches for obesity remain underutilized.

Glucagon-like peptide-1 receptor agonists (GLP-1 RA) as anti-obesity medications (AOMs), such as semaglutide and liraglutide, have emerged as a transformative therapeutic option for obesity and obesity-related conditions. Initially approved for patients with type 2 diabetes mellitus (T2DM), GLP-1 RAs have demonstrated substantial benefits in promoting weight loss, and reducing cardiovascular risk, even among individuals without T2DM.[5] Several randomized Controlled Trials (RCTs), including the STEP and SELECT studies, have shown that GLP-1 RAs can reduce body weight by 10–20% and lower the incidence of major adverse cardiovascular events (MACE), signaling a paradigm shift in obesity pharmacotherapy.[5,6] Consequently, national guidelines increasingly support the use of GLP-1 RA AOMs as part of comprehensive obesity management.

However, access to GLP-1 RA AOMs therapies varies widely across states, particularly within Medicaid programs.[7] MS Medicaid currently covers GLP-1 RA AOMs for those with obesity. These agents are also covered for members who are overweight with certain co-occurring chronic conditions [e.g., hypertension, hyperlipidemia, glucose dysregulation, obstructive sleep apnea, coronary artery disease, heart failure, prior myocardial infarction (MI) or cerebrovascular accident (CVA), metabolic dysfunction-associated steatotic liver disease (MASLD), formerly known as non-alcoholic fatter liver disease (NAFLD)]. Given the profound health disparities and resource constraints in MS, understanding how GLP-1RA-AOMs use affect health outcomes within this population is both timely and essential.

While clinical trials provide robust evidence for the efficacy of GLP-1 agents, real-world data remains sparse. Medicaid members often differ substantially from clinical trial participants in terms of socioeconomic status, comorbidity profiles, medication adherence, and health system access. As a result, there is a critical need to examine how GLP-1 RA AOMs perform in real-world settings among low-income populations, particularly in states like MS, where obesity and chronic disease burdens are disproportionately high. Furthermore, most existing research has focused on short-term outcomes such as weight loss. There is limited information on the long-term effects of GLP-1 RA AOMs use in routine clinical practice, including the progression of obesity-related complications. Studies in a Medicaid population will provide valuable insights into the

effectiveness of GLP-1 RA AOMs outside of RCTs, while accounting for the unique sociodemographic and healthcare access challenges faced by this high-risk population.

MS-DUR continues to examine the utilization of GLP-1 RA AOMs among Mississippi Medicaid members. The objectives of this present report are threefold: 1) Describe the geographic characteristics of Medicaid members who initiated GLP-1 RAs for obesity management; 2) Identify the utilization of obesity-related counseling services during the six-month period following GLP-1 RA AOM initiation; and 3) Describe a research proposal examining both short- and long-term health outcomes associated with GLP-1 RA AOM use among MS Medicaid members with overweight or obesity diagnoses.

GEOGRAPHIC CHARACTERISTICS OF GLP-1 RA AOM INITIATORS

METHODS

This retrospective analysis utilized Mississippi Medicaid administrative claims data from July 2023 to December 2024. The dataset included claims from both the Fee-for-Service (FFS) program and Coordinated Care Organizations (CCOs), which comprised Magnolia Health (MAG), Molina Healthcare (MOL), and UnitedHealthcare (UHC). Pharmacy claims were used to identify all initiations of anti-obesity GLP-1 medications during the study period. Demographic characteristics captured for each initiator included gender, age, race, health plan, anti-obesity medication type, and county of residence. County-level maps of GLP-1 RA AOM eligible members and initiators were generated using the county of residence for each member.

County Level Map for eligible MS Medicaid members

Denominator - The cohort included all Medicaid beneficiaries between July 2023 and December 2024. Eligibility was restricted to those with at least one month of enrollment and age 18 years or older as of the baseline date. Individuals with unknown (00) or out-of-state (97) county codes were excluded to ensure geographic relevance. Age was calculated as of July 1, 2023 for this cohort.

Numerator - The cohort was derived from Medicaid members with at least one month of enrollment between July 2023 and December 2024. Individuals were included if they were aged 18 years or older with full pharmacy benefits. Further criteria required either obesity diagnosis or overweight diagnosis with at least one chronic condition as listed in the Medicaid prior authorization criteria. Individuals with unknown (00) or out-of-state (97) county codes were excluded to ensure geographic relevance.

The GLP-1 eligible population for each county was represented per 1,000 Medicaid members in each county.

County Level Map for GLP-1 initiators among MS Medicaid members eligible for PA
Denominator – The cohort was derived from Medicaid members with at least one month of enrollment between July 2023 and December 2024. Individuals were included if they were aged 18 years or older with full pharmacy benefits. Further criteria required either obesity diagnosis or overweight diagnosis with at least one chronic condition as listed in the Medicaid prior authorization criteria. Individuals with unknown (00) or out-of-state (97) county codes were excluded to ensure geographic relevance.

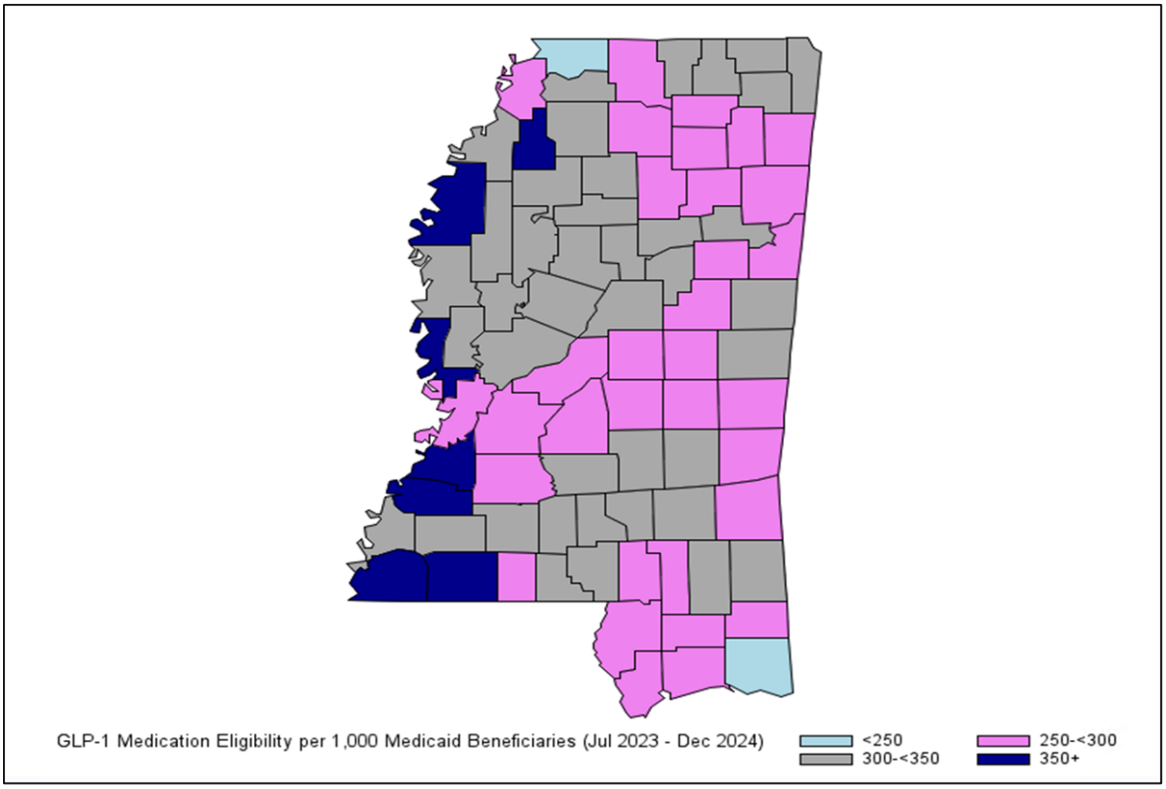
Numerator - The cohort consisted of Medicaid members who initiated GLP-1 agonist therapy between July 2023 and December 2024. Individuals were included if they were 18 years or older at the time of initiation. Individuals with unknown (00) or out-of-state (97) county codes were excluded to ensure geographic relevance.

GLP-1 initiators for each county were represented per 1,000 eligible Medicaid members for that county.

RESULTS

A population of 473,500 members aged 18 years and older with at least one month of Medicaid enrollment between July 1, 2023 and December 31, 2024 were identified across the state of Mississippi. Among those members, 137, 553 members with full pharmacy benefits were identified as meeting prior authorization criteria in claims data and considered as eligible to receive GLP-1 RA AOMs. This translates to **29.05%** of the adult Medicaid population with full pharmacy benefits being eligible to receive these medications between July 1, 2023 and December 31, 2024. The counties with the highest eligible populations per 1,000 Medicaid members were located along the Mississippi Delta region and include Wilkinson, Amite, Jefferson, Claiborne, Issaquena, Bolivar, Quitman counties. (Figure 1) A map identifying all Mississippi counties can be found in Appendix A of this report.

FIGURE 1. MS Medicaid Members Eligible to Initiate GLP-1 RA AOM by County



A total of 3,299 adults aged 18 years and older initiated GLP-1 RA AOMs between July 2023 and December 2024. Most of those members were female (92.33%) between the ages of 18-39 years. Black members were the most common race (49.38%), followed by Whites (36.56%). Magnolia Health had the most initiators (33.34%), followed closely by UnitedHealthcare (30.46%), with Fee for Service having the fewest initiators (17.46%). (Table 1)

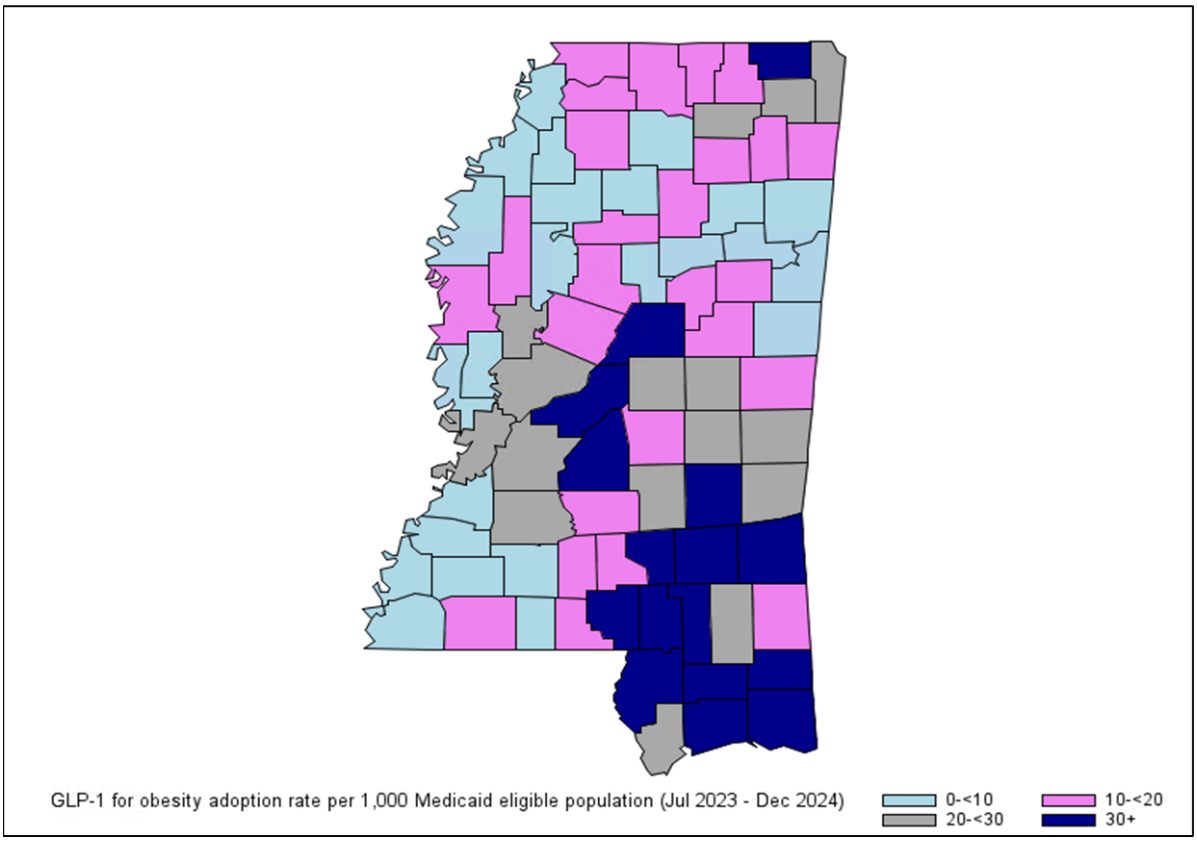
The 3,299 members who initiated GLP-1 RAs AOMs during the analysis period represented **2.4%** of the eligible population. The counties with the highest number of initiators per 1,000 eligible members were identified in three regional areas: South (Jackson, Harrison, Pearl River, George, Stone, Lamar, Marion, Forrest, Covington, Jones, Wayne, Jasper); Central (Rankin, Madison, Attala); and North (Alcorn). (Figure 2)

TABLE 1. Characteristics of Adult GLP-1 RA AOM Initiators in Mississippi Medicaid July 2023 - December 2024

	N	%
Total	**3299**	
Gender		
Male	253	7.67%
Female	3,046	92.33%
Age		
18-39	2,039	61.81%
40-64	1,248	37.83%
65 and above	12	0.36%
Race		
White	1,206	36.56%
Black	1,629	49.38%
Others	464	14.06%
Plan		
FFS	576	17.46%
MAG	1,100	33.34%
MOL	618	18.73%
UHC	1,005	30.46%
Weight Loss Medication		
Saxenda	208	6.30%
Wegovy	3,091	93.70%

Notes: FFS - Fee for Service; MAG -Magnolia Health; MOL - Molina Healthcare; UHC- UnitedHealthcare

FIGURE 2. GLP-1 RA AOM Initiators by County



Providers associated with claims for GLP-1 RA AOM initiators in the counties with the highest adoption rates were identified. The groups associated with the largest number of initiators were weight management practices in the southern and central Mississippi.

CONCLUSIONS

Approximately 29% of Mississippi Medicaid's adult members receiving full pharmacy benefits were found to be eligible to receive GLP-1 RA AOMs under the current prior authorization criteria. Among those eligible members, 2.4% have initiated therapy. The geographic distribution of GLP-1 RA AOM initiators was not consistent with those counties with the most eligible members. While the counties with the highest eligible populations per 1,000 Medicaid members were located primarily along the Mississippi Delta, the counties with the highest number of initiators per 1,000 eligible members were located in pockets in southern, central, and northern regions of the state.

RECOMMENDATIONS

MS-DUR recommends Medicaid work to identify potential barriers to initiation that may be impacting members in counties or regions with the highest rates of eligible members for GLP-1 RA AOM therapy and explore opportunities to improve initiation in those areas.

OBESITY RELATED COUNSELING

METHODS

This retrospective analysis utilized Mississippi Medicaid administrative claims data from July 2023 to February 2025. The dataset included claims from both the Fee-for-Service (FFS) program and Coordinated Care Organizations (CCOs), which comprised Magnolia Health (MAG), Molina Healthcare (MOL), and UnitedHealthcare (UHC). Anti-obesity GLP-1 initiators were identified between July 1, 2023, and August 31, 2024. The first prescription fill for a GLP-1 RA AOM was defined as the index date. Each individual was required to have continuous enrollment in Mississippi Medicaid in the 6-month baseline period and 6-month in the follow-up period. Obesity-related counseling services were identified using the protocol developed by Rajbhandari-Thapa et al.[8]

Several characteristics were measured in the study to better understand the obesity-related counseling utilization patterns:

Demographic characteristics included gender, age, and race. Age was calculated as of the index date.

Clinical characteristics were assessed during the six-month baseline period (prior to the index date) including obesity, overweight, hypertension, hyperlipidemia, prediabetes, type 1 diabetes, type 2 diabetes, sleep apnea, atherosclerotic cardiovascular disease (ASCVD), non-alcoholic fatter liver disease (NAFLD), heart failure, atrial fibrillation and flutter, and myocardial infarction. Hypertension, hyperlipidemia, type 1 diabetes, and type 2 diabetes were defined by the presence of at least one clinical diagnosis and corresponding medication use during the baseline period.

Additional variables analyzed included the health plan and the type of weight loss medication initiated. Plan and medication type were assessed at the index date.

RESULTS

In accordance with guideline recommendations, Mississippi Medicaid requires that individuals prescribed GLP-1 RA AOMs receive obesity-related counseling. Following the grouping utilized by Rajbhandari-Thapa et al, counseling services were categorized into 4 groups: nutrition, disease management, behavior, and face-to-face counseling. For this analysis, members 18 years and older with continuous enrollment for 6 months prior to and post initiation of GLP-1 RA AOMs were included. Table 2 describes the eligible cohort.

Consistent with trends among all initiators, most members included in this sample were females between the ages of 21-40 years of age. Black members composed the largest racial group at nearly half of initiators. The majority of members were enrolled in MAG or UHC, with FFS containing the smallest portion. Approximately 87% had a diagnosis of obesity. Interestingly, nearly 10% of initiators did not have a diagnosis of obesity or overweight in claims data within 6 months of initiation. The most common comorbid conditions present included hypertension (44%), sleep apnea (16%), hyperlipidemia (13%), and type II diabetes mellitus (12%).

Table 3 describes the types of obesity related counseling services initiators received within the first 6 months of initiating GLP-1 RA AOMs. Of the 1,801 initiators, 385 claims for obesity-related counseling for 269 members were identified in claims data. Thus, **only 15% of initiators had evidence in claims data of obesity-related counseling.** While counseling is required for PA approval and reauthorization, prescribers are not required to document specific services provided, rather an attestation for the provision of counseling on dietary choices and increased physical activity is required. Additionally, among the obesity-related counseling codes examined, Mississippi Medicaid only reimburses providers for two codes.

TABLE 2. Characteristics of Adult GLP-1 RA AOM Initiators in Mississippi Medicaid, July 2023 - August 2024

	N	%
Total	**1801**	
Gender		
Male	133	7.38
Female	1668	92.62
Age		
18-20	63	3.5
21-40	1097	60.94
41-64	641	35.56
Race		
White	642	35.67
Black	884	49.11
Others	275	15.06
Plan		
FFS	203	11.28
MAG	653	36.22
MOL	353	19.61
UHC	592	32.89
Clinical Characteristics		
Obesity	1575	87.33
Overweight	64	3.56
Hypertension	790	43.89
Hyperlipidemia	237	13.17
Prediabetes	112	6.22
Type 1 DM	19	1.06
Type 2 DM	210	11.67
Sleep apnea	295	16.39
NAFLD	120	6.67
Atrial Fibrillation and Flutter	37	2.06
Heart Failure	103	5.72
Myocardial Infraction	9	0.5
ASCVD	168	9.33
Medication Use History		
Anti-diabetics	412	22.89
Hypertensives	923	51.28
Hyperlipidemics	291	16.17
Weight Loss Medication		
Saxenda	167	9.28
Wegovy	1633	90.72

Notes: FFS - Fee for Service; MAG - Magnolia Health; MOL - Molina Healthcare; UHC - UnitedHealthcare;

TABLE 3. Coverage and Utilization of Obesity-Related Counseling Services Among GLP-1 RA AOM Initiators (within 6 months of initiation)							
							Number of Initiators
Category	**Code Description**	**Obesity-related service**	**CPT Codes**	**Covered**	**HCPCS**	**Covered**	**Jul23-Aug24 (n=1801)**
Nutrition	Nutrition class, non-physician provider	Nutrition class			S9452	No	0
	Medical nutrition therapy (individual or group); nutritional assessment and intervention by a non-physician provider	**Nutritional counseling**	97802-97804	**97802-Yes**		**Yes**	**148**
				97803-4 No	S9470	No	**100**
Disease Management	Miscellaneous services; physician educational services to patients in a group setting	Group counseling for patients with symptoms/illness	99078	No			0
	Health education disease management program; initial and follow-up assessments	Health education			S0315-S0316	No	0
	Patient education, not otherwise specified non-physician provider, individual, or group	**Health education**			S9445-S9446	**S9445 Yes**	**0**
						S9446 No	0
	Education and training for patient self-management, by non-physician	Counseling for individuals or groups of patients with symptoms/illness	98960-98962	No			0
Behavior Therapy	Health and behavior assessments (health-focused clinical interview, behavior observations, psychophysiological monitoring, health-oriented questionnaires)	Behavioral Consultation and therapy is a treatment modality for obese children by a consultant in the presence of their caregivers. The primary focus of these treatment services is to assess the patient's condition, and therapeutic lifestyle changes of increasing physical activity, and reducing calorie intake.	96150-96155	No			0
	Weight management class, non-physician provider				S9449	No	0
	Exercise class, non-physician provider, per session				S9451	No	**11**
Face-to-face Counseling	Face to Face behavioral counseling for obesity	Counseling services provided by a qualified primary care physician or other primary care practitioners in a primary care setting to obese patients that are competent and alert at the time of counseling.			G0447	No	**66**
	Face-to-face behavioral counseling for obesity (group)				G0473	No	**60**

Notes: Red - Codes Reimbursed by Medicaid

CONCLUSIONS

While obesity-related counseling is recommended by guidelines and required as part of the prior authorization criteria for medications in the treatment of obesity, documentation was identified in claims data for small portion of GLP-1 RA AOM initiators.

RECOMMENDATIONS

To improve the recording of obesity-related counseling among Medicaid members prescribed GLP-1 RA AOMs, MS-DUR recommends DOM consider the following:

1) Medicaid reimburse for more obesity-related counseling services;
2) Medicaid require documentation on the prior authorization form for obesity-related counseling codes for services provided to members receiving GLP-1 RA AOMs.

OUTCOMES STUDY PROPOSALS:

METHODS

STUDY 1: MATCHED COHORT DESIGN

Data Source and Study Design

This matched cohort study will use MS Medicaid fee-for-service (FFS) and coordinated care organization [CCOs: UnitedHealthcare (UHC), Magnolia (MAG), and Molina (MOL)] claims for the period of January 2023, and March 2025 to assess short- and long-term outcomes of GLP-1RA-AOMs use among MS Medicaid members with obesity or overweight. The study will follow The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines.[9]

Study Population

The study population will consist of MS Medicaid members with a diagnosis of obesity alone or overweight with an underlying condition [e.g., hypertension, hyperlipidemia, obstructive sleep apnea, coronary artery disease, heart failure, prior myocardial infarction (MI) or cerebrovascular accident (CVA), metabolic dysfunction-associated steatotic liver disease (MASLD), and type II diabetes mellitus (T2DM)], recorded between January 2023 and December 2024. Eligible individuals will be identified using International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) diagnosis codes.

GLP-1RA-AOMs Cohort

GLP-1RA-AOMs cohort will include those in the study population who newly initiated GLP-1RA-AOMs between July 2023 and December 2024, where the initiation date was set as the index date. Members will be required to have continuous enrollment for six months prior to the index date (baseline period). Eligible members will be followed until the outcome occurrence or the earliest of the censoring criteria: Medicaid disenrollment, death, or end of the study period.

Non- GLP-1RA-AOMs Cohort

The comparison group will consist of individuals from the same study population who have no record of GLP-1RA-AOM use during the study period. A 2:1 matching ratio will be employed using a combination of exact matching and propensity score matching. Matching variables will include the year and quarter of the index date, age, sex, and the presence of an obesity or overweight diagnosis. For each member of the non–GLP-1RA-AOM cohort, the index date will correspond to that of their matched counterpart in the GLP-1RA-AOM cohort. Similar to the GLP-1RA-AOM cohort, individuals in the non–GLP-1RA-AOM group must have at least six months of continuous enrollment prior to the index date. The same censoring criteria will be applied to both cohorts.

Outcome Assessment

The short-term outcomes of interest in this study will be changes in body mass index (BMI), weight and hemoglobin A1c (HbA1c) level, measured during the follow-up period. The long-term outcomes of interest in this study will be, healthcare resource utilization (HCRU) and associated cost, co-medication use, cardiovascular outcomes (e.g., ischemic heart disease, stroke, atrial fibrillation, heart failure, arrhythmias, and MACE), gastrointestinal outcomes (e.g., gastroparesis, cholecystitis, acute pancreatitis, intestinal obstruction, Barrett's esophagus or related reflux disorders, and MASLD), and other outcomes including acute kidney injury (AKI), T2DM, allergic reactions, joint replacement, and nonarteritic anterior ischemic optic neuropathy (NAION), measured during the follow-up period.[10–13]

Covariates

Sociodemographic and clinical covariates will be identified based on prior literature. Sociodemographic variables will include age, sex, race/ethnicity, and Medicaid plan type, all measured as of the index date. Clinical characteristics will include (1) comorbidities (e.g., coronary heart disease, peripheral vascular disease, hypertension, hyperlipidemia, stroke, transient ischemic attack (TIA), MI, heart failure , arrhythmia, chronic kidney disease, hepatic related conditions , and peptic ulcer disease), (2) co-medication use (e.g., calcium channel blockers, beta-blockers, angiotensin-converting enzyme inhibitors/angiotensin receptor blockers, diuretics, statins, other anti-lipid medications, antiplatelets, and anticoagulants), (3) and Charlson Comorbidity Index (CCI), evaluated during the 6-month baseline period prior to the index date.

Statistical Analysis

Descriptive statistics for baseline characteristics will be reported for GLP-1RA-AOMs and non-GLP-1RA-AOMs cohorts, separately. Frequencies and percentages will be used to summarize categorical variables while means and standard deviations will be used to summarize continuous variables. Chi-square tests and t-tests will be used to determine statistically significant differences across the two study cohorts for categorical and continuous variables, respectively. To evaluate the association between GLP-1RA-AOMs use and study outcomes, separate Cox proportional hazards models will be estimated for each outcome. Hazard ratios (HRs) and 95% confidence intervals (CIs) will be reported, adjusting for relevant covariates. A sensitivity analysis will be conducted by restricting the GLP-1RA-AOMs cohort to persistent users, defined as those with no

gap of ≥ 60 days in GLP-1 therapy during the 365-day follow-up period. All data management and analyses will be conducted using SAS version 9.4 (Cary, NC).

Study objectives (for the analysis between initiators of GLP-1RA-AOMs and matched non-users)

- Compare healthcare cost among initiators of GLP-1RA-AOMs and matched non-users
- Compare healthcare utilization (including cardiometabolic co-medication use) among initiators of GLP-1RA-AOMs and matched non-users
- Examine differences in healthcare costs and utilization among initiators of GLP-1RA-AOMs and matched non-users: a difference-in-difference analysis
- Examine real-world clinical effectiveness of GLP1-RA-AOMs among MS Medicaid members

STUDY 2: SINGLE COHORT DESIGN

Outcomes among GLP-1 initiators only (single cohort study)

This observational study will use MS Medicaid fee-for-service (FFS) and coordinated care organization [CCOs: UnitedHealthcare (UHC), Magnolia (MAG), and Molina (MOL)] claims for the period of January 2023, and March 2025 to assess health outcomes **among MS Medicaid members who initiated GLP-1 RA-AOMs.** The study will follow the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines.[9]

Objective 1: Describe trends in key healthcare indicators post initiation of GLP-1-RA-AOMs

- Describe trends in healthcare utilization (HCRU) and costs among MS Medicaid members who initiated GLP-1-RA-AOMs
- Estimate temporal trends in adherence to GLP-1-RA-AOMs
- Describe trends in weight loss over time post GLP-1-RA-AOM initiation
- Describe trends in utilization of medications for cardiometabolic disorders (number of fills, doses)
- Describe the association between adherence to GLP-1-RA-AOMs and weight loss, utilization of medications for cardiometabolic disorders

Objective 2: Compare changes in HCRU and costs pre- and post-GLP-1-RA-AOM initiation – interrupted time series analysis

- Compare changes in HCRU (inpatient admissions, ED visits, outpatient visits, cardiometabolic medication fills and doses) in the 12-month pre- and post-period among initiators of GLP-1-RA-AOMs
- Compare changes in healthcare costs (inpatient, ED, total medical, prescription drugs) in the 12-month pre- and post-period among initiators of GLP-1-RA-AOMs
- Compare pre-post BMI, weight, and HbA1c levels among initiators of GLP-1-RA-AOMs (if linked electronic medical record data is available)

CONCLUSIONS

Real-world evidence describing the impact of GLP-1 RA AOM use is insufficient. It is vital to understand how these medications perform outside of a clinical trial setting. It is especially crucial to examine the effects of their use in a Medicaid population where members may be disproportionately impacted by obesity and co-occurring chronic conditions.

RECOMMENDATIONS

MS-DUR is seeking Board input regarding the project proposal examining outcomes associated with GLP-1 RA AOM use.

REFERENCES

1. Explore Obesity in Mississippi | AHR. Accessed May 19, 2025. https://www.americashealthrankings.org/explore/measures/Obesity/MS

2. Obesity - Mississippi State Department of Health. Accessed May 19, 2025. https://msdh.ms.gov/page/43,0,289.html

3. CDC. Adult Obesity Prevalence Maps. Obesity. March 25, 2025. Accessed May 19, 2025. https://www.cdc.gov/obesity/data-and-statistics/adult-obesity-prevalence-maps.html

4. Harvey JR, Ogden D. Obesity Treatment in Disadvantaged Population Groups: Where Do We Stand and What Can We Do? *Prev Med*. 2014;68:71-75. doi:10.1016/j.ypmed.2014.05.015

5. Popoviciu MS, Păduraru L, Yahya G, Metwally K, Cavalu S. Emerging Role of GLP-1 Agonists in Obesity: A Comprehensive Review of Randomised Controlled Trials. *Int J Mol Sci*. 2023;24(13):10449. doi:10.3390/ijms241310449

6. Di Odoardo LAF, Zucchetti O, Sciatti E, D'Isa S, D'Elia E, Senni M. Obesity update: cardiovascular risk and therapeutic innovations (focus on semaglutide and tirzepatide). *Eur Heart J Suppl J Eur Soc Cardiol*. 2025;27(Suppl 3):iii137-iii142. doi:10.1093/eurheartjsupp/suaf032

7. Williams E, Rudowitz R, Published CB. Medicaid Coverage of and Spending on GLP-1s. KFF. November 4, 2024. Accessed May 19, 2025. https://www.kff.org/medicaid/issue-brief/medicaid-coverage-of-and-spending-on-glp-1s/

8. Rajbhandari-Thapa J, Chung SR, Hu H, Hall DB, Tiwari BB. Utilization of Counseling Services by Pediatric Patients With Obesity Using MarketScan Data (2017-2019). *Child Obes Print*. 2023;19(8):570-574. doi:10.1089/chi.2022.0158

9. von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP. Strengthening the reporting of observational studies in epidemiology (STROBE) statement: Guidelines for reporting observational studies. *BMJ*. 2007;335(7624):806-808. doi:10.1136/bmj.39335.541782.AD

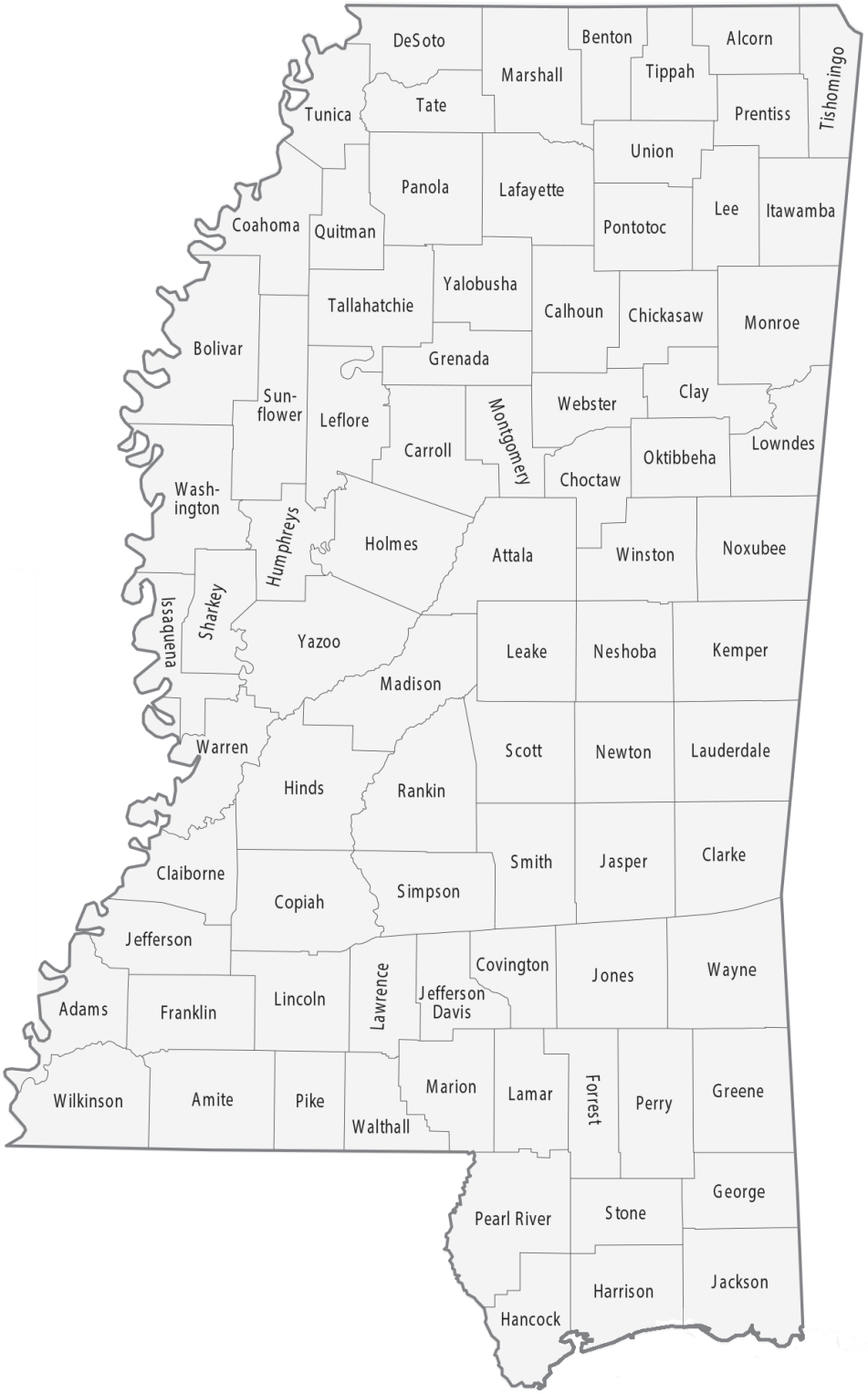
10. Marshall L, Urick B, Friedlander N, Qiu Y, Leslie S, Gleason P. Two-Year Persistent Glucagon-Like Peptide-1 Agonist Obesity without Diabetes Treatment: Clinical Outcomes among Commercially Insured. In: Vol 31. JMCP; 2025:S40.

11. Marshall L, Urick B, Friedlander N, Qiu Y, Leslie S, Gleason P. Real-world Two-Year Clinical Outcomes Following Initiation of Glucagon-Like Peptide-1 Agonists to Treat Obesity without Diabetes among a Commercially Insured Population. In: Vol 31. JMCP; 2025:S41.

12. Huang YN, Liao WL, Huang JY, et al. Long-term safety and efficacy of glucagon-like peptide-1 receptor agonists in individuals with obesity and without type 2 diabetes: A global retrospective cohort study. *Diabetes Obes Metab*. 2024;26(11):5222-5232. doi:10.1111/dom.15869

13. Hathaway JT, Shah MP, Hathaway DB, et al. Risk of Nonarteritic Anterior Ischemic Optic Neuropathy in Patients Prescribed Semaglutide. *JAMA Ophthalmol*. 2024;142(8):732-739. doi:10.1001/jamaophthalmol.2024.2296

APPENDIX A: Mississippi County Map



PERINATAL CARE AMONG MEDICAID MEMBERS WITH BIRTH EVENTS

BACKGROUND

Medicaid plays a significant role in maternal health care across the United States (US), particularly in Mississippi. Nationally, over 40% of maternal care services are paid for by Medicaid programs, with that number jumping to approximately 60% in Mississippi.[1,2] Maternal health is a major public health issue in this country as the US has the highest maternal mortality rate among developed countries.[3] Within the US, Mississippi has been found to have some of the highest rates of infant mortality, maternal mortality, and severe maternal morbidity (SMM).[2,4,5]

Maternal care services provided by Medicaid include preconception, prenatal, delivery, and postpartum care. In recent years, Mississippi Medicaid has placed enhanced emphasis on improving maternal health among Mississippians. Some of the recent expansions in perinatal care in Mississippi Medicaid include presumptive eligibility for pregnant women (PEPW) and extended postpartum benefits to one year for mothers.[6,7] Additionally, based on research identifying factors associated with SMM events among Mississippi Medicaid members, DOM established the Mississippi Outcomes for Maternal Safety (MOMS) Initiative to "reduce SMM events, improve quality of care, and ensure timely postpartum follow-up."[2,8]

Even with these advancements, perinatal care needs persist. There is growing awareness around the impacts perinatal mental health and substance use disorders (PMHSUDs) have on both infants and birthing mothers. This group of disorders can be a continuation of conditions a mother experienced before pregnancy, may arise during pregnancy, or begin postpartum. Estimates reveal that 20% of pregnant or postpartum women have a mental health condition and 10% struggle with substance use disorders.[9] Evidence suggests that women with PMHSUDs are at higher risk of experiencing stillbirth or infant mortality.[10] Despite the growing awareness around PMHSUDs, these conditions remain underdiagnosed and undertreated.[11]

While research into Medicaid often looks at Medicaid coverage as a single unit, multiple categories of eligibility exist within Medicaid programs. Members may change categories of eligibility before and after pregnancy. A recent study of Medicaid programs in other states examined the association between the category of Medicaid coverage for pregnant members (Traditional Medicaid versus Pregnancy Medicaid) and the receipt of outpatient services before and after a birth.[12] Their results showed that members with Traditional Medicaid had more preconception, prenatal, and postpartum care visits compared to those in pregnancy Medicaid.

The objectives of this project are to: 1) Describe the characteristics of Medicaid members who experienced a live birth or stillbirth event, including the presence of PMSUD diagnoses in claims data during the perinatal period; and 2) Determine the association between the type of Medicaid and health care resource utilization during the perinatal period.

METHODS

Study Cohort

Members enrolled in Mississippi Medicaid who had a live birth or stillbirth between January 1, 2023, and December 31, 2023, were identified using the International Statistical Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) codes for live birth or stillbirth, consistent with the approach used by Moll et al.[13] The delivery date was defined as the date of the first claim indicating a live birth during the delivery hospitalization. The pregnancy start date was determined using the methodology described by Moll et al.[13]

The primary study cohort included members aged 12-55 years at the delivery date, who were continuously enrolled for 3 months prior to the pregnancy start date to 2 months post-delivery date. A secondary cohort was constructed using same age criteria but required continuous enrollment from 3 months prior to the pregnancy date to 12 months post-delivery date. Medicaid plan type was categorized as Traditional Medicaid or Family Planning (Pregnancy Medicaid), based on the beneficiary's plan enrollment 3 months prior to the pregnancy start date.

Perinatal Mental Health and Substance Use Disorders (PMHSUD)

A total of 12 mental health and 6 substance use disorders were identified,[14] using ICD-10-CM codes during different stages of pregnancy (Supplementary Table 1):

- Preconception period: 3 months prior to pregnancy start date to pregnancy start date
- Prenatal period: pregnancy start date to delivery date
- Postpartum period: delivery date to 2 months post-delivery date

For the secondary cohort, PMHSUDs were also identified through the full 12 months postpartum period (3 months prior to pregnancy start to 12 months post-delivery date). Additionally, in the secondary cohort, timing of the first PMHSUD diagnosis was assessed, i.e., for each PMHSUD condition, it was ascertained at which phase of pregnancy (preconception, prenatal, or postpartum) a member had their first diagnosis of the PMHSUD condition, as documented in administrative claims.

Maternal Comorbidity Index (MCI)

The maternal comorbidity index (MCI), which was developed and validated by Bateman et al.,[15] was used to quantify the burden of chronic, behavior, and pregnancy-induced conditions (Supplementary Table 2). The conditions underlying MCI were identified from pregnancy start date through delivery date.

Health Care Resource Utilization (HCRU)

Health care resource utilization was measured across different stages of pregnancy. This included all outpatient and medical visits during the preconception, prenatal, and postpartum periods.

Additionally, pregnancy-related services were assessed and further categorized into routine postpartum care or other postpartum services, specific to the corresponding pregnancy stage.[16,17]

Statistical analysis

Descriptive characteristics of the primary study cohort (those with continuous enrollment from the preconception period to at least two months postpartum) and the secondary cohort (those with continuous enrollment from the preconception period till the full 12 months postpartum period) were presented using frequencies (and percentages) and mean (and standard deviation). Healthcare utilization during various phases of pregnancy care were compared between the two Medicaid enrollment types (Traditional Medicaid vs Family Planning), as well as between those with and without PMHSUD conditions.

RESULTS

A total of 18,666 Medicaid members had live births or stillbirths between January 1, 2023 and December 31, 2023. To be included in the health care resource utilization assessment, members were required to maintain continuous enrollment from 3 months prior to their conception through 2 months postpartum. Table 1.1 displays the attrition table used to identify this eligible population. Approximately 41.5% of members with live birth or stillbirth events were excluded due to lack of continuous enrollment during that period. The majority of those exclusions were due to members not being continuously enrolled during the prenatal period. Table 1.2 provides descriptive characteristics of MS Medicaid members with live birth or stillbirth events in calendar year 2023 with continuous enrollment from 3 months prior to their conception through 2 months postpartum.

TABLE 1.1. Attrition Table for Eligible Members with Birth Events January 2023 - December 2023 Continuous Enrollment (3 Months Preconception through 2 Months Postpartum)

Criteria	N	Number Excluded	% Excluded
MS Medicaid members aged 12-55 years with live birth or stillbirth between 01 Jan 2023 to 31 Dec 2023	18,666		
Continuous enrollment during 2 months postpartum	17,641	1,025	5.5%
Continuous enrollment from pregnancy start date to 2 months postpartum	11,918	5,723	30.7%
Continuous enrollment from 3 months prior to pregnancy start date to 2 months postpartum	**10,918**	1,000	5.4%
Total excluded		**7,748**	41.5%
Medicaid type of those excluded*	Traditional	7,709	99.8%
	Family Planning	16	0.2%
Total**		**7,725**	

**Medicaid type is determined based on the very first month that they had Medicaid enrollment in the period between pre-conception and the postpartum period.*

***23 members did not have any enrollment data during the period between pre-conception and the postpartum period*

TABLE 1.2. Characteristics of Members with Birth Events Mississippi Medicaid January 1, 2023 - December 31, 2023 with 2 Months Postpartum Continuous Enrollment Includes Medicaid ONLY - No CHIP			
Member Characteristics		**TOTAL**	
TOTAL		**10,918**	
Age [Mean (SD) = 25.49 (5.68)]	< 18 years	534	4.89%
	18-34 years	9,604	87.96%
	≥35 years	780	7.14%
Race	White	3,706	33.94%
	Black	6,621	60.64%
	Other	591	5.41%
Medicaid type	Traditional	9429	86.36%
	Family Planning	1489	13.64%
Mental Health Disorders	Anxiety disorders	1840	16.85%
	Bipolar disorders	419	3.84%
	Depressive disorders	821	7.52%
	Disruptive, impulse-control, and conduct disorders	94	0.86%
	Eating disorders	71	0.65%
	Obsessive-compulsive disorders	22	0.20%
	Personality disorders	67	0.61%
	Schizophrenia and related disorders	146	1.34%
	Somatic symptom disorders	21	0.19%
	Suicidal ideation or attempt	139	1.27%
	Trauma- and stressor-related disorders	447	4.09%
	Miscellaneous mental disorders	1563	14.32%
	Postpartum depression	340	3.11%
Substance use disorders	Alcohol-related disorders	78	0.71%
	Cannabis-related disorders	662	6.06%
	Opioid-related disorders	117	1.07%
	Sedative-related disorders	11	0.10%
	Stimulant-related disorders	207	1.90%
	Miscellaneous substances and addictive disorders	861	7.89%
Maternal Comorbidity Index (MCI) [Mean (SD) = 0.74 (1.20)]	0	6610	60.54%
	1	2218	20.32%
	2	1213	11.11%
	3	492	4.51%
	4	208	1.91%
	5	88	0.81%
	6	40	0.37%
	7	25	0.23%
	8	8	0.07%
	9	6	0.05%
	10	7	0.06%
	11	2	0.02%
	12	1	0.01%
Notes: SD = standard deviation			

To more fully capture care provided during the postpartum period, data was assessed through 12 months postpartum. Attrition data and descriptive characteristics of the study sample that had full enrollment through 12 months of the postpartum period are presented in Tables 2.1 and 2.2. By extending the requirement for continuous enrollment during the postpartum period to 12 months, an additional 1,192 members were excluded from analysis. This secondary cohort with 12 months continuous enrollment during the postpartum period was 9,726.

TABLE 2.1. Attrition Table for Eligible Members with Birth Events January 2023 - December 2023 Continuous Enrollment (3 Months Preconception through 12 Months Postpartum)			
Criteria	**N**	**Number Excluded**	**% Excluded**
MS Medicaid members aged 12-55 years with live birth or stillbirth between 01 Jan 2023 to 31 Dec 2023	18,666		
Continuous enrollment during 2 months postpartum	15,876	2,790	14.9%
Continuous enrollment from pregnancy start date to 2 months postpartum	10,648	5,228	28.0%
Continuous enrollment from 3 months prior to pregnancy start date to 2 months postpartum	**9,726**	922	4.9%
Total excluded		**8,940**	47.9%
Medicaid type of those excluded*	Traditional	8,797	98.7%
	Family Planning	120	1.3%
Total**		**8,917**	

**Medicaid type is determined based on the very first month that they had Medicaid enrollment in the period between pre-conception and the postpartum period.*

***23 members did not have any enrollment data during the period between pre-conception and the postpartum period*

Among the members included in this secondary cohort, most were Black (61%), 18-34 years (87.7%), with Traditional Medicaid (85.8%) as their Medicaid plan of enrollment 3 months prior to the pregnancy start date. Among mental health disorders identified, anxiety disorders were most common (24%), followed by miscellaneous disorders (15%), including mental disorders complicating childbirth or pregnancy, and depressive disorders (12.6%). To further categorize depressive disorders, postpartum depression on its own was present in 5.5% of women experiencing live birth or stillbirth events in 2023. The most common substance use disorders present were cannabis-related disorders (7.3%) and miscellaneous substance and addictive disorders (8.4%), which included drug use complicating childbirth or pregnancy. Over 40% of women experiencing live birth or stillbirth events had an MCI of at least one. Previous research has shown that Mississippi Members with an MCI greater than zero had higher odds of experiencing severe maternal morbidity events.

TABLE 2.2. Characteristics of Members with Live or Still Birth Events Mississippi Medicaid January 1, 2023 - December 31, 2023 with 12 Months Postpartum Continuous Enrollment Includes Medicaid ONLY - No CHIP			
Member Characteristics		**TOTAL**	
TOTAL		**9,726**	
Age [Mean (SD) = 25.63 (5.69)]	< 18 years	483	4.97%
	18-34 years	8,526	87.66%
	≥35 years	717	7.37%
Race	White	3,278	33.70%
	Other	512	5.26%
	Black	5,936	61.03%
Medicaid type	Traditional	8341	85.76%
	Family Planning	1385	14.24%
Mental Health Disorders	Anxiety disorders	2336	24.02%
	Bipolar disorders	470	4.83%
	Depressive disorders	1223	12.57%
	Disruptive, impulse-control, and conduct disorders	104	1.07%
	Eating disorders	87	0.89%
	Obsessive-compulsive disorders	39	0.40%
	Personality disorders	83	0.85%
	Schizophrenia and related disorders	171	1.76%
	Somatic symptom disorders	30	0.31%
	Suicidal ideation or attempt	200	2.06%
	Trauma- and stressor-related disorders	646	6.64%
	Miscellaneous mental disorders	1459	15.00%
	Postpartum depression	536	5.51%
Substance use disorders	Alcohol-related disorders	120	1.23%
	Cannabis-related disorders	712	7.32%
	Opioid-related disorders	137	1.41%
	Sedative-related disorders	15	0.15%
	Stimulant-related disorders	219	2.25%
	Miscellaneous substances and addictive disorders	815	8.38%
Maternal Comorbidity Index (MCI) [Mean (SD) = 0.75 (1.21)]	0	5819	59.83%
	1	2004	20.60%
	2	1112	11.43%
	3	448	4.61%
	4	183	1.88%
	5	80	0.82%
	6	37	0.38%
	7	23	0.24%
	8	6	0.06%
	9	6	0.06%
	10	6	0.06%
	11	1	0.01%
	12	1	0.01%
Notes: SD = standard deviation			

Timing of the PMHSUD diagnoses in the cohort with 12 months of postpartum enrollment was examined in Table 3. The majority of PMHSUD first appeared in claims data during the postpartum period. Only the majority of disruptive, impulse control, or conduct disorder diagnoses appeared first in the preconception period, while eating disorders, miscellaneous mental, and miscellaneous substance and addictive disorders first appeared in the prenatal period. The reason behind why the majority of PMHSUD first appeared during the postpartum period is unknown. While some

PMHSUDs may have initially occurred during the postpartum period, these findings may point to factors delaying access, diagnosis, or coordination of care for PMHSUDs during the perinatal period.

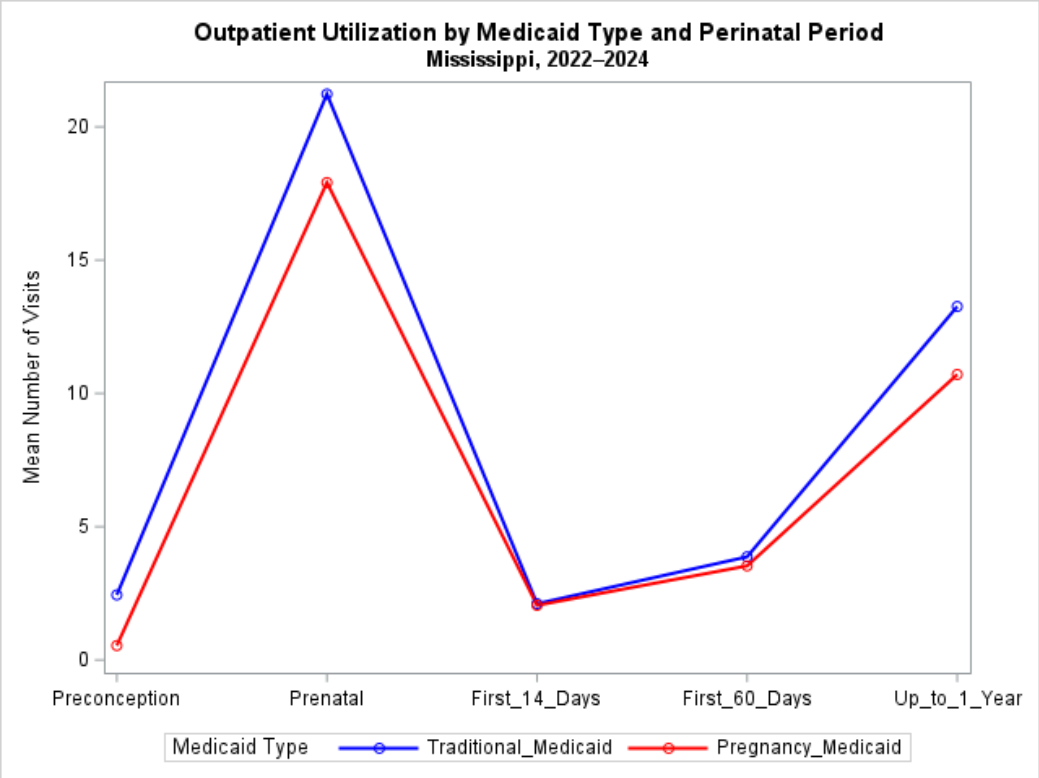
TABLE 3. Timing of Diagnoses for Perinatal Mental Health and Substance Use Disorders (by phase of pregnancy care) Among Medicaid Members Experiencing Live Birth or Stillbirth with 12 Months of Postpartum Coverage (Birth Events January 1, 2023 - December 31, 2023)

		TOTAL		Preconception period		Prenatal period		Postpartum period	
		9,726							
Mental Health Disorders	Anxiety disorders	2336	24.02%	0	0.0%	989	42.3%	1347	57.7%
	Bipolar disorders	470	4.83%	139	29.6%	157	33.4%	174	37.0%
	Depressive disorders	1223	12.57%	330	27.0%	272	22.2%	621	50.8%
	Disruptive, impulse-control, and conduct disorders	104	1.07%	54	51.9%	22	21.2%	28	26.9%
	Eating disorders	87	0.89%	7	8.0%	48	55.2%	32	36.8%
	Obsessive-compulsive disorders	39	0.40%	6	15.4%	6	15.4%	27	69.2%
	Personality disorders	83	0.85%	22	26.5%	27	32.5%	34	41.0%
	Schizophrenia and related disorders	171	1.76%	64	37.4%	46	26.9%	61	35.7%
	Somatic symptom disorders	30	0.31%	6	20.0%	7	23.3%	17	56.7%
	Suicidal ideation or attempt	200	2.06%	40	20.0%	60	30.0%	100	50.0%
	Trauma- and stressor-related disorders	646	6.64%	155	24.0%	162	25.1%	329	50.9%
	Miscellaneous mental disorders	1459	15.00%	27	1.9%	845	57.9%	587	40.2%
	Postpartum depression*	536	5.51%	6	1.1%	2	0.4%	528	98.5%
Substance use disorders	Alcohol-related disorders	120	1.23%	25	20.8%	33	27.5%	62	51.7%
	Cannabis-related disorders	712	7.32%	84	11.8%	299	42.0%	329	46.2%
	Opioid-related disorders	137	1.41%	43	31.4%	48	35.0%	46	33.6%
	Sedative-related disorders	15	0.15%	2	13.3%	1	6.7%	12	80.0%
	Stimulant-related disorders	219	2.25%	30	13.7%	73	33.3%	116	53.0%
	Miscellaneous substances and addictive disorders	815	8.38%	24	2.9%	511	62.7%	280	34.4%

*Postpartum depression is also included under the depressive disorders category

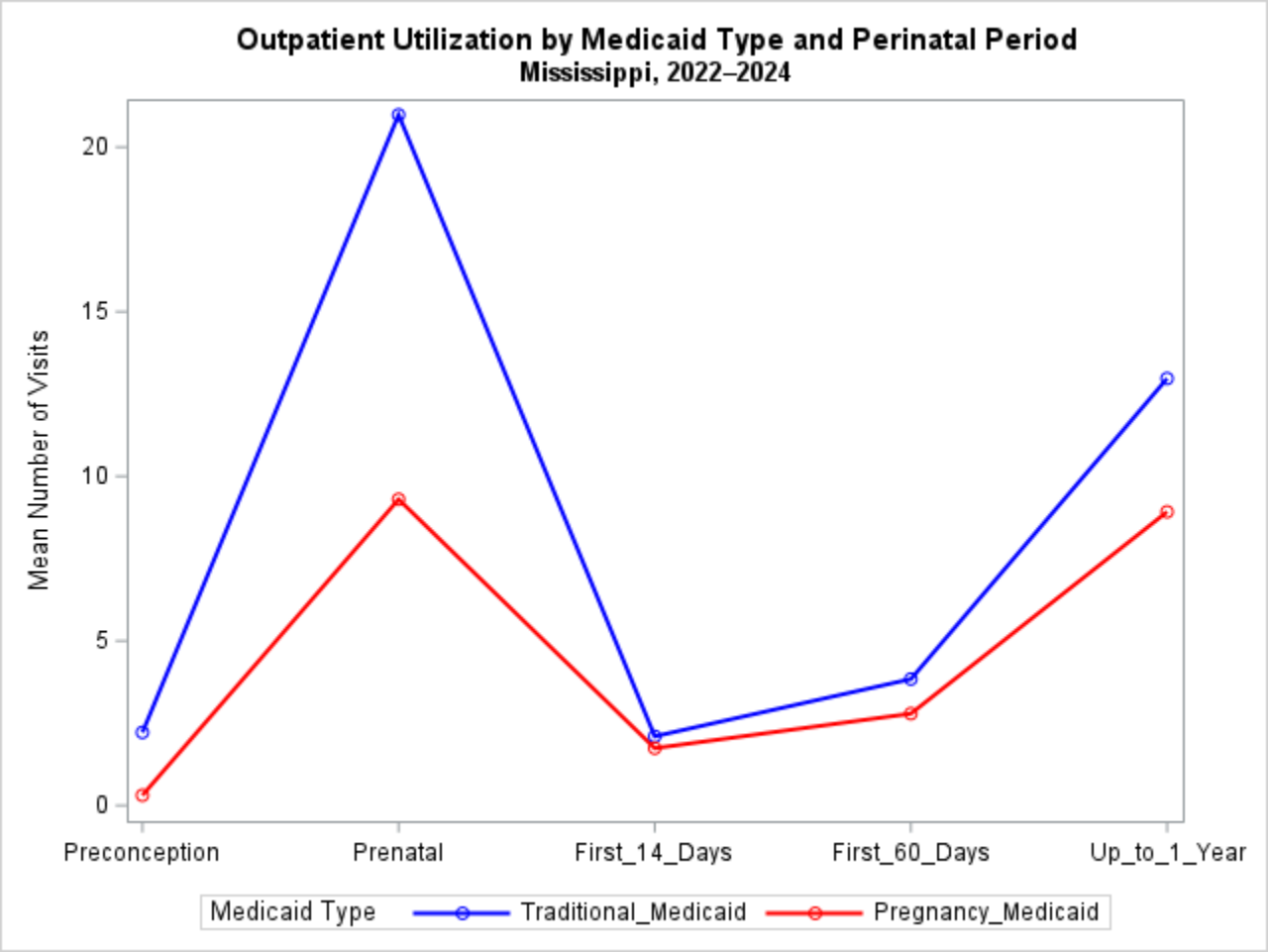
Next, we examined total outpatient health care utilization beginning at 3 months prior to pregnancy (preconception) through 12-months postpartum. Members were characterized as being in Family Planning or Traditional Medicaid based on the first month of eligibility. (Figure 1.1) When operationalizing their type of Medicaid coverage in this manner, few differences were noted in health care resource utilization (HCRU) across the perinatal period. The largest difference in HCRU can be seen in prenatal period where those who began in Traditional Medicaid had a mean of 21.2 outpatient events compared to those in Family Planning with 17.9 events. At the 14- and 60-day postpartum marks, HCRU between the two groups was nearly identical, however, some separation began to appear at 12-months postpartum.

FIGURE 1.1 Outpatient HCRU during the Perinatal Period by Medicaid Type (classified by Medicaid type during member's first month of eligibility in the study period)



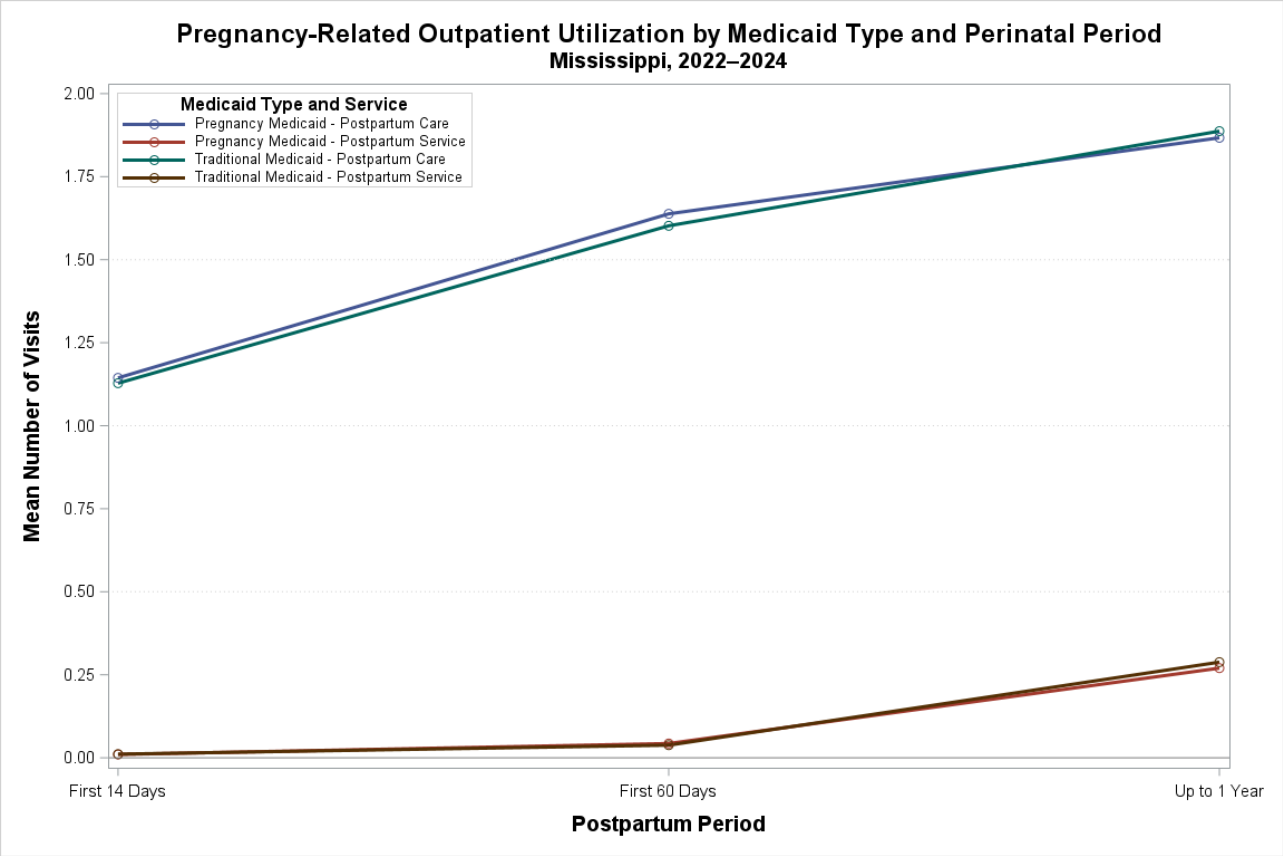
We then examined an alternative method for classifying Medicaid type. This operationalization is based on the amount of time a member spent in each category during the perinatal period. Those who spent 50% or more of their time in Traditional Medicaid were classified as Traditional Medicaid, while those who spent less than 50% of their perinatal time in Traditional Medicaid were classified as Family Planning. When separating mothers into categories using this methodology, our sample sizes for each group changed substantially. Over 98% of members were classified as Traditional Medicaid. This difference can be explained by the fact that women are routinely moved into Traditional Medicaid when they become pregnant. Figure 1.2 displays their HCRU using this methodology to classify Medicaid type. Using this method, stark differences appear across most of the perinatal periods. Preconception care for those in Family Planning had a mean of 0.3 visits, while those with Traditional Medicaid had a mean of 2.2 visits. During the prenatal period, those in Family Planning had a mean of 9.3 events compared to 21 events for those in Traditional Medicaid. For the postpartum period, the largest difference was at the 12-month mark where those in Family Planning had a mean of 9 visits compared to 13 visits for those with Traditional Medicaid.

FIGURE 1.2 Outpatient HCRU during the Perinatal Period by Medicaid Type (classified by the proportion of time a member spent in each category during the perinatal period)



Additionally, we assessed utilization of routine postpartum care and postpartum services in the post-delivery period. Utilization of these services were assessed for three separate time points: the first 14 days post-delivery, the first 60 days post-delivery, and up to 365 days post-delivery. Similar to Figure 1.1 for total outpatient HCRU, members were categorized into Family Planning or Traditional Medicaid based on the first month of eligibility (**Figure 2.1**). Similar to results for total outpatient HCRU, there was little to no difference in utilization of routine postpartum care or postpartum care services between the two groups for any of the three postpartum period assessments *(**First 14 days post-delivery – Routine postpartum care:** 1.13 mean visits for Traditional Medicaid vs 1.14 mean visits for Family Planning, **Postpartum Services:** 0.01 mean visits for Traditional Medicaid vs 0.01 mean visits for Family Planning; **First 60 days post-delivery – Routine postpartum care:** 1.6 mean visits for Traditional Medicaid vs 1.64 mean visits for Family Planning, **Postpartum Services:** 0.04 mean visits for Traditional Medicaid vs 0.04 mean visits for Family Planning; **Up to one year post-delivery – Routine postpartum care:** 1.89 mean visits for Traditional Medicaid vs 1.87 mean visits for Family Planning, **Postpartum Services:** 0.29 mean visits for Traditional Medicaid vs 0.27 mean visits for Family Planning).*

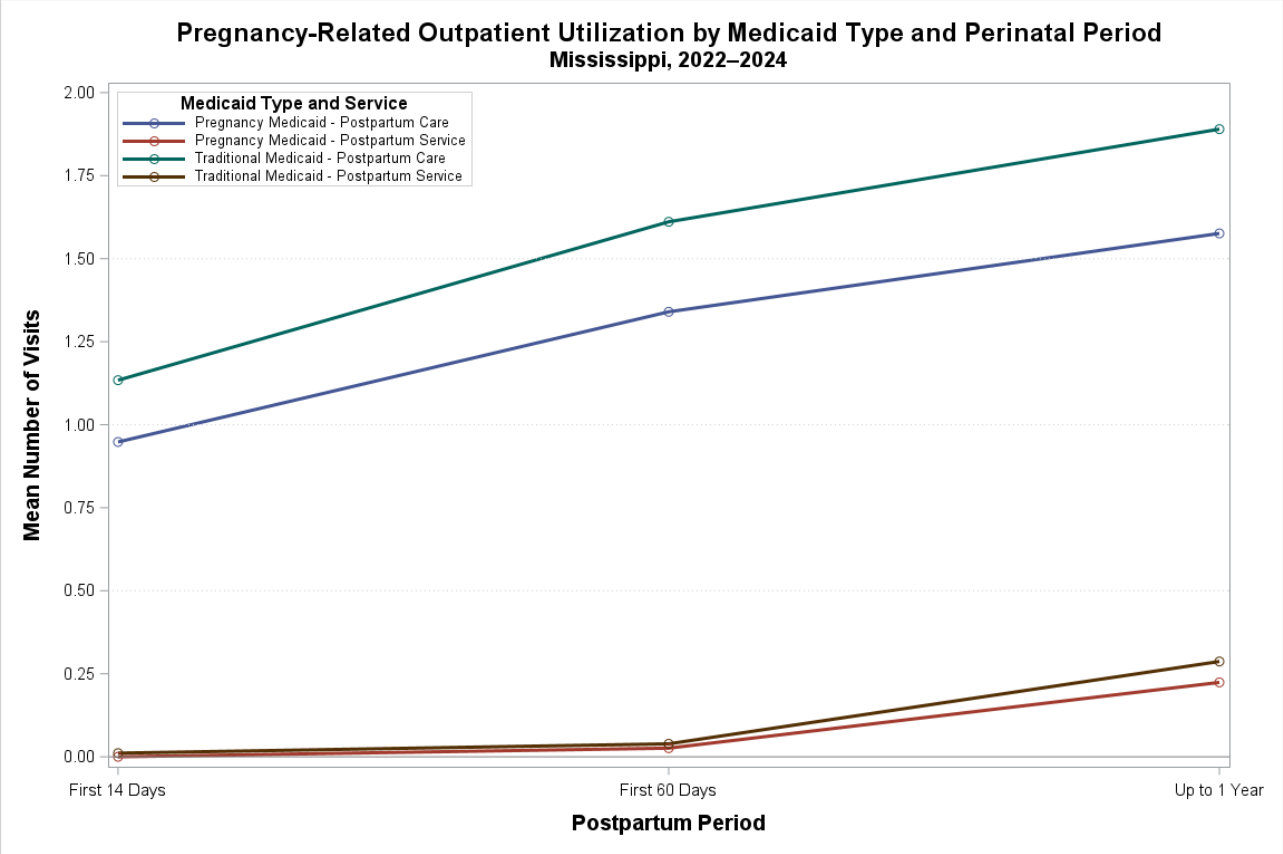
FIGURE 2.1 Postpartum care and postpartum service utilization during the Postpartum Period by Medicaid Type (classified by Medicaid type during member's first month of eligibility in the study period)



Moreover, we also examined an alternative method for classifying Medicaid type while assessing utilization of postpartum care. As stated above, this operationalization is based on the amount of time a member spent in each category during the perinatal period. Those who spent 50% or more of their time in Traditional Medicaid were classified as Traditional Medicaid, while those who spent less than 50% of their perinatal time in Traditional Medicaid were classified as Family Planning. Using this categorization for Medicaid eligibility, we observed noticeable differences in utilization of postpartum care services across the two groups, with the differences increasing as we followed longer into the postpartum period (**Figure 2.2**). In the first 14 days post-delivery, members in the Traditional Medicaid group had 1.13 mean routine postpartum care visits while members in the Family Planning group had 0.95 mean routine postpartum care visits. In the first 60 days post-delivery, members in Traditional Medicaid had a mean of 1.61 routine postpartum care visits while those in the Family Planning group had a mean of 1.34 routine postpartum care visits. In the full 12 months postpartum period, 1.89 mean routine postpartum care visits were observed for those in Traditional Medicaid vs 1.58 mean routine postpartum care visits for those

in Family Planning. Similar to that in Figure 2.1, utilization of postpartum services was critically low for members enrolled in both groups across the entire postpartum period.

FIGURE 2.2 Postpartum care and postpartum service utilization during the Postpartum Period by Medicaid Type (classified by the proportion of time a member spent in each category during the perinatal period)



Finally, we examined healthcare utilization by PMHSUD diagnosis status across the perinatal periods (Table 4). Those with no PMHSUD diagnoses had the lowest HCRU across all perinatal periods, and those with both perinatal mental health and substance use disorder diagnoses had the highest HCRU. Of note, those with perinatal substance use disorders only had lower HCRU across all perinatal periods compared to those with perinatal mental health disorders only. Numerous factors such as access, stigma, or other barriers could be impacting these differences in HCRU for mothers experiencing various types of PMHSUDs.

TABLE 4. Routine Healthcare Utilization by Perinatal Mental Health and Substance Use Disorder Diagnosis Status Among Medicaid Members Experiencing Live Birth or Stillbirth with 12 Months of Postpartum Coverage (Birth Events January 1, 2023 - December 31, 2023)				
Phase of Pregnancy care	No PMHSUD conditions (N = 5,707) mean (SD)	Any PMH condition but no PSUD conditions (N = 2,865) mean (SD)	Any PSUD condition but no PMH conditions (N = 514) mean (SD)	Both PMH and PSUD conditions (N= 640) mean (SD)
Preconception period	1.51 (2.61)	3.24 (4.69)	1.88 (2.97)	3.69 (5.14)
Prenatal period	18.54 (10.01)	24.81 (13.54)	20.44 (11.06)	25.93 (15.59)
Postpartum period				
Total	9.58 (9.73)	17.75 (16.42)	10.90 (8.97)	22.35 (20.3)
First 14 days	1.96 (1.657)	2.31 (1.96)	2.19 (1.98)	2.64 (2.24)
First 60 days	3.27 (2.76)	4.71 (4.55)	3.78 (3.83)	5.41 (5.29)
61-365 days	6.30 (8.65)	13.03 (14.05)	7.12 (7.52)	16.94 (17.87)
Notes: PMHSUD - perinatal mental health and substance use disorders; PMH - perinatal mental health; PSUD - perinatal substance use disorder; SD - standard deviation				

CONCLUSIONS

This landscape analysis among members with deliveries (live births or stillbirths) in Mississippi Medicaid reported significant prevalence of PMHSUDs in this population, with most of the conditions first being observed in the postpartum period. Concurrently, it found that while total outpatient HCRU is higher for members with PMHSUDs than those without, there is substantial heterogeneity within the PMHSUD group - with drastically lower utilization of services among those with substance use disorders only versus those with mental health disorders only.

Additionally, while there were no considerable differences in outpatient HCRU across various phases of pregnancy care when comparing members in Traditional Medicaid versus Family Planning when eligibility was determined as of their first month of eligibility, substantial differences in outpatient HCRU across the pregnancy period was noted when the groups were operationalized based on the time (proportion of months) spent in each of the categories. Future analyses may consider exploring the timing of transition from Family Planning to Traditional Medicaid and the underlying clinical profiles of members.

Furthermore, utilization of postpartum services was noted to be deficient across the entire postpartum period. This may be an artifact of these services not being documented in claims submitted for reimbursement, either due to bundled payments or reimbursement issues associated with these services.

Finally, utilization of outpatient care and postpartum care does not imply quality care and future analyses may consider evaluating the quality of care received in the perinatal period to improve understanding of high-risk individuals and inform current DOM initiatives.

RECOMMENDATIONS

1. Future research should explore the heterogeneity in care quality and outcomes among members with PMHSUD
2. Future research should evaluate the quality of postpartum care and care coordination and identify member characteristics associated with low quality of care that may put them at greater risk of adverse maternal health outcomes.

REFERENCES

1. Heberlein M. Medicaid's Role in Financing Maternity Care.

2. Maharjan S, Goswami S, Rong Y, et al. Risk Factors for Severe Maternal Morbidity Among Women Enrolled in Mississippi Medicaid. *JAMA Netw Open*. 2024;7(1):e2350750. doi:10.1001/jamanetworkopen.2023.50750

3. Tikkanen R, Gunja MZ, FitzGerald M, Zephyrin L. Maternal mortality maternity care US compared 10 other countries. Accessed October 11, 2022. https://www.commonwealthfund.org/publications/issue-briefs/2020/nov/maternal-mortality-maternity-care-us-compared-10-countries

4. Infant mortality rate by state U.S. 2022. Statista. Accessed May 29, 2025. https://www.statista.com/statistics/252064/us-infant-mortality-rate-by-ethnicity-2011/

5. Pregnancy Mortality Surveillance System | Maternal and Infant Health | CDC. April 13, 2022. Accessed May 25, 2022. https://www.cdc.gov/reproductivehealth/maternal-mortality/pregnancy-mortality-surveillance-system.htm

6. Westerfield M. Presumptive Eligibility for Pregnant Women - Mississippi Division of Medicaid. June 28, 2024. Accessed May 29, 2025. https://medicaid.ms.gov/presumptive-eligibility-for-pregnant-women/

7. Westerfield M. MS SPA 23-0015 Postpartum Coverage approved by CMS - Mississippi Division of Medicaid. December 14, 2023. Accessed May 29, 2025. https://medicaid.ms.gov/ms-spa-23-0015-postpartum-coverage-approved-by-cms/

8. Johnson L. Mississippi Outcomes for Maternal Safety (MOMS).

9. Brown CC, Tilford JM, Thomsen M, et al. Risk of adverse infant outcomes associated with maternal mental health and substance use disorders. *Arch Womens Ment Health*. 2025;28(3):551-561. doi:10.1007/s00737-024-01517-2

10. Adane AA, Bailey HD, Morgan VA, et al. The impact of maternal prenatal mental health disorders on stillbirth and infant mortality: a systematic review and meta-analysis. *Arch Womens Ment Health*. 2021;24(4):543-555. doi:10.1007/s00737-020-01099-9

11. Womersley K, Alderson H. Perinatal mental health. *Medicine (Baltimore)*. 2024;52(10):632-636. doi:10.1016/j.mpmed.2024.07.009

12. Swartz JJ, Kaufman M, Rodriguez MI. Not all Medicaid for pregnancy care is delivered equally. *PloS One*. 2024;19(4):e0299818. doi:10.1371/journal.pone.0299818

13. Moll K, Wong HL, Fingar K, et al. Validating claims-based algorithms determining pregnancy outcomes and gestational age using a linked claims-electronic medical record database. *Drug Saf*. 2021;44(11):1151-1164. doi:10.1007/s40264-021-01113-8

14. Brown CC, Tilford JM, Thomsen M, et al. Risk of adverse infant outcomes associated with maternal mental health and substance use disorders. *Arch Womens Ment Health*. 2025;28(3):551-561. doi:10.1007/s00737-024-01517-2

15. Bateman BT, Mhyre JM, Hernandez-Diaz S, et al. Development of a comorbidity index for use in obstetric patients. *Obstet Gynecol*. 2013;122(5):957-965. doi:10.1097/AOG.0b013e3182a603bb

16. Pennington EL, Barner JC, Brown CM, Lawson KA. Pregnancy-related risk factors and receipt of postpartum care among Texas Medicaid pregnant enrollees: Opportunities for pharmacist services. *J Am Pharm Assoc*. 2024;64(1):260-267.e2. doi:10.1016/j.japh.2023.11.018

17. Carson MP, Frank MI, Keely E. CMS Merit-based Incentive Payment System (MIPS) Clinical Quality Measure (CQM) Maternity Care: Postpartum Follow-up and Care Coordination. *Prim Care Diabetes*. 2013;7(3):177-186. doi:10.1016/j.pcd.2013.04.007

FDA DRUG SAFETY COMMUNICATIONS

March 2025 – May 2025

- 05-16-2025 FDA requires warning about rare but severe itching after stopping long-term use of oral allergy medicines cetirizine or levocetirizine (Zyrtec, Xyzal, and other trade names)

Division of Medicaid
Drug Utilization Review Board
By-Laws

Article I. Purpose

The Drug Utilization Review Board (DUR) is a requirement of the Social Security Act, Section 1927. The purpose of the DUR Board is to provide clinical guidance to the Division of Medicaid (DOM) regarding the utilization of pharmaceutical products within the Mississippi Medicaid program. The DUR Board makes recommendations to DOM to promote patient safety and cost effective care in the Mississippi Medicaid program. The DUR Board shall advise DOM with respect to the content of medical criteria and standards for utilization management strategies including prospective drug prior authorization (PA), concurrent patient management, retrospective drug utilization review, and educational intervention programs. DOM retains the authority to accept or reject the recommendations by the DUR Board.

Article II. Membership

Section 1 – Board Composition

A. The DUR Board will consist of not less than twelve (12) voting members.
B. The DUR Board voting members will be comprised of at least one-third (1/3), but no more than fifty-one percent (51%), licensed and actively practicing physicians and at least one-third (1/3) licensed and actively practicing pharmacists. Voting members may consist of health care professionals with knowledge/expertise in one or more of the following:
   1) Prescribing of drugs,
   2) Dispensing and monitoring of drugs,
   3) Drug use review, evaluation, and intervention,
   4) Medical quality assurance.
C. Non-voting board members consist of the Division of Medicaid (DOM) Executive Director, Office of Pharmacy pharmacists, DUR Coordinator, the DUR contractor and Medical Director.

Section 2 – Appointment selection methodology

A. DOM's Office of Pharmacy in consultation with officially recognized state professional healthcare associations recommends potential, qualified new candidates for appointment or reappointment of existing board members to DOM's Executive Director.
B. Nominations are considered internally and appointments are given final approval by the DOM Executive Director.
C. Board members are appointed by the Governor of the State of Mississippi, or Governor's designee, pursuant to state law.

Section 3 - Term of Office

A. All members are appointed for three year terms following a staggered appointment fulfillment as follows: one-third of DUR Board members shall be appointed each term. All subsequent appointments shall be for terms of three years from the expiration date of the previous term.
B. Members may serve up to three consecutive three-year terms (for a total of nine consecutive years).
C. Members may serve for either an extended term or a fourth consecutive term at the discretion of the Executive Director and by recommendation of both the DUR Coordinator and Division of Medicaid Office of Pharmacy in the event that no qualified, willing candidate is found in sufficient time. Members, including those filling vacated positions, may be re-appointed by the Executive Director for a subsequent term.
D. In the event of an unexpected or expected vacancy, the DUR Coordinator and Office of Pharmacy may recommend a qualified replacement candidate to DOM's Executive Director for emergency approval.
E. The Executive Director shall fill any vacancy before the end of the term, and the person appointed to fill the vacancy shall serve for the remainder of the unexpired term. Members, including those filling vacated positions, may be re-appointed by the Executive Director for a subsequent term.

Section 4 - Attendance

A. Members are required to attend at least fifty percent of the meetings per year. Failure to attend meetings without an explanation of extenuating circumstances will result in the termination of the member's appointment.
B. Members are asked to give advance notice regarding any planned absences so that a quorum may be determined prior to meetings.

Section 5 - Resignation

A member of the DUR Board may resign by giving a 30 day written advance notice to the DUR Board Chair and DUR Coordinator.

Section 6 - Removal

A member of the DUR Board may be removed by either the DUR Board Chair or majority vote of the DUR Board for good cause. Good cause may be defined as one or more of the following conditions:

A. Lack of attendance –failure to attend at least 50% of the scheduled DUR meetings shall constitute a resignation by said DUR Board member,
B. Identified misconduct or wrongdoing during any DUR Board term, or

C. Not disclosing a conflict of interest either upon initial disclosure or throughout the rest of the term.

Section 7 - Board Officers

At the first meeting of the state fiscal year, which constitutes July 1 through June 30, board members shall select two members to serve as Chair and Chair-Elect of the board, respectively. The Chair and Chair-Elect shall both serve one year terms. At the end of the serving year, the Chair-Elect assumes the role of Chair, and a new Chair-Elect will be chosen.

If the persons serving as Chair and Chair-Elect have either previously served as Chair or Chair-Elect, that person may be reelected to either posting.

The Chair-Elect will serve as Chair in absentia of the Chair or by the Chair's request.

Section 8 – Reimbursement

The Division of Medicaid will reimburse DUR Board members for travel related expenses.

Article III. Meetings

Section 1 – Frequency

The DUR Board shall meet at least quarterly, and may meet at other times as necessary for the purpose of conducting business that may be required. The DUR Board Chair, a majority of the members of the board, or the Division of Medicaid Office of Pharmacy and DUR Coordinator, shall maintain the authority of calling DUR meetings.

Section 2 – Regular Meetings

The DUR Board will hold regular quarterly meetings in the city of Jackson, Mississippi. Meetings will occur at the predesignated time and place. Dates for the upcoming year's quarterly meetings will be posted before the first quarterly meeting of the upcoming year.

Section 3 – Special Meetings

The DUR Board may meet at other times other than regular quarterly meetings as deemed necessary and appropriate. The DUR Coordinator and Office of Pharmacy must notify DUR Board members of any special meeting at least two weeks, i.e., ten (10) days, prior to the requested meeting date. Special meetings may be requested by the following officials:

A. Division of Medicaid Executive Director,
B. DUR Coordinator and Office of Pharmacy,
C. DUR Board Chair, or
D. Majority of DUR Board members via communication to DUR Coordinator and/or DUR Board Chair.

Section 4 – Meeting Notice

DUR Board members will be notified of the location for the meeting a minimum of ten (10) days in advance. Notification may include one or a combination of the following methods: e-mail, fax, or other written communication. DUR Board members are required to keep on file with
DOM Office of Pharmacy his or her address, primary phone number, alternate phone number (i.e., cell), fax number, and email address to which notices and DUR related communications may be submitted.

Meetings may be cancelled due to lack of quorum, severe inclement weather, or other reasons as determined by the DUR Coordinator and Office of Pharmacy. In the event of a cancellation, the DUR Coordinator and DOM Pharmacy staff will communicate with DUR Board members regarding the meeting cancellation as soon as circumstances permit. Notifications shall also be posted with DFA and on DOM's website to ensure that the public is notified of any meeting cancellation.

DUR Board Meetings shall be open to the public and conducted in accordance with state law, specifically the Open Meetings Act. Notice of any meetings held shall be provided at least five (5) days in advance of the date scheduled for the meeting. The notice shall include the date, time, place and purpose for the meeting and shall identify the location of the meeting to the general public.

Section 5 – Meeting Sign-In

All meeting attendees will be required to sign-in at the meeting entrance for DUR meetings. Sign-in sheets will be logged, scanned and transferred to electronic medium for official records. All attendees shall include participant's name and entity represented (as applicable).

Section 6 – Quorum

A simple majority of voting board members shall constitute a quorum and must be present for the transaction of any business of the board. For a fully-appointed 12-person DUR Board as required by state law, seven voting board members constitutes a quorum. If a quorum is not present, the Chair, Chair-Elect or DUR Coordinator maintains the responsibility to conclude meeting proceedings. Meeting minutes shall reflect that a quorum was not present.

Section 7 – Voting

The voting process shall be conducted by the Chair or the Chair-Elect in absentia of the Chair.

All board recommendations shall begin with a motion by a voting board member. The motion may then be seconded by a voting board member. If a recommendation does not receive a second motion, the motion shall not pass. If a recommendation receives a second motion, then the board shall vote on the motion. A motion shall be considered as passed if the motion carries a majority of votes if a quorum of the board is present.

In the event that a motion receives a tie vote in the presence of a quorum, the motion shall not pass. The motion can be brought up for further discussion after which a subsequent motion may be made to vote on the issue again during the same meeting, or a motion can be made to table the issue and discussion until the next quarterly DUR Board meeting.

A vote abstention occurs when a voting member is present for the meeting and the action but has chosen not to vote on the current motion. An abstention is a vote with the majority on the measure. A recusal, on the other hand, is necessitated when a voting member has a conflict of interest or potential pecuniary benefit resulting from a particular measure. In order to properly and completely recuse oneself from a matter, the DUR Board member must leave the room or area where discussions, considerations, or other actions take place

before the matter comes up for discussion. The member must remain absent from the meeting until the vote is concluded. The minutes will state the recusing member left the room before the matter came before the DUR Board and did not return until after the vote.

Section 8 – Minutes

A public body speaks only through its minutes. State law, specifically the Open Meetings Act, requires minutes be kept of all meetings of a public body, whether in open or executive session, showing the following:

A. Members present or absent,
B. Date, time and place of meeting,
C. Accurate recording of any final actions taken,
D. Record, by individual member, of how s/he voted on any final action, and
E. Any other information that the public body requests is reflected in the minutes.

The minutes shall be finalized no later than thirty (30) days after the adjournment of the DUR Board meeting and shall be made available for public inspection. DOM Office of Pharmacy posts all DUR Board Minutes on the DUR webpage.

Section 9 – Speakers & Special Topics

DUR Board members may request various healthcare, industry, or specialized professionals to present at DUR meetings regarding a posted topic on an upcoming DUR agenda.

A. The DUR Board may allow up to 20 minutes for topic presentation by an invited speaker.
B. DUR Board Members may ask a member of the audience to provide information on a topic being discussed by the Board. Invited participants may be asked to disclose any potential conflicts of interests if applicable. (See Article IV, Section 1).
C. Members of the audience may not speak unless so designated at the appropriate time by a DUR Board member.
D. DUR Board Members, both voting and non-voting, maintain speaking privileges at DUR meetings.
E. Contracted employees of DOM and employees of other DOM vendors are considered members of the audience.

Section 10 – Executive Session

During special circumstances, the DUR Board may go into executive session at the conclusion of normal meeting proceedings; however, all DUR Board meetings must commence as an open meeting. In order for executive session to be called, the following procedure must be followed in accordance with the Open Meetings Act:

A. A member may <u>move to close</u> the meeting to determine whether board needs to go into executive session; vote in open meeting with vote recorded in minutes, majority rules.
B. Closed meeting: vote taken on whether to <u>declare</u> executive session, requires 3/5 of all members present.
C. Board comes back into open session and states statutory reason for executive session. The reason for the executive session shall be recorded in the meeting minutes.
D. Board members then will go into executive session where action may be taken on stated subject matter only.

E. Minutes must be kept in accordance with the Open Meetings Act.

Section 11 – Conduct of Participants

Pursuant to state law, specifically the Open Meetings Act, the DUR Board may make and enforce reasonable rules and regulations for the conduct of persons attending the DUR meetings. The following is a non-exhaustive list of rules for DUR Board meetings:

A. Attendees should please remain silent and allow for the efficient transaction of business.
B. Cell phones should be placed on silent or vibrate.
C. Laptop computers are discouraged from being utilized during meetings as frequent typing may distract board members.
D. Food and drink are not allowed in the meeting room.
E. Security is provided by the state. Guests not following proper decorum may be asked to leave by security.

Article IV. Public Participation

Section 1 - Disclosure of Persons Appearing Before DUR Board

The DUR Board may ask individuals appearing before the board to disclose either in writing or verbally their relationship, as applicable, including but not limited to pharmaceutical companies or special interest groups. Any such disclosures should be recorded as a matter of public record in the documented meeting minutes.

Article V. Conflicts of Interest

DUR Board members are expected to maintain the highest professional, ethical standards. A conflict of interest may exist when a DUR Board member maintains a financial/pecuniary, personal, or professional interest that may compete or interfere with the DUR Board member's ability to act in a fair, impartial manner while acting in the best interests of the Division of Medicaid and the beneficiaries that it serves.

As such, DUR Board members are required to complete and submit annually a Conflict of Interest disclosure statement with the DOM Office of Pharmacy and DUR Coordinator. Statements shall be maintained by the Office of Pharmacy. Members have an ongoing responsibility to update and revise said statements, disclosing any new conflicts of interest to the DUR Coordinator and DOM Office of Pharmacy.

It is the sole responsibility and requirement of each board member to review the agenda of each forthcoming board meeting to determine any if any potential conflicts of interest exist. If so, an aforementioned Disclosure statement must be updated indicating the conflict of interest. The board member should notify the Chair or Chair-Elect of the conflict of interest prior to the meeting.

A DUR Board member shall recuse himself/herself from any vote, action, or discussion pertaining to any product or product class if there is documentation stating an actual or perceived conflict of interest. Please refer to the procedure outlined in Article III, Section 7.

Article VI. Confidentiality

DUR Board members are required to safeguard all confidential and proprietary information, including but not limited to pricing information, which is disclosed by the Mississippi Division of Medicaid for purposes of conducting DUR Board activities. Any provider or patient specific information discussed by the DUR Board shall also be kept strictly confidential in accordance with state and federal law.

Article VII. Amendments

Proposed Amendments of By-Laws

A. Proposed amendments must be submitted to the DUR Coordinator at least thirty (30) days prior to the next scheduled DUR meeting and the proposed amendments will be disseminated to the DUR Board en masse for consideration at said DUR Board meeting.
B. Proposed amendments will be distributed to board members no less than five (5) business days prior to next DUR Board meeting.
C. Proposed amendments will be initiated by the Chair, or the Chair-Elect in absentia of the Chair, prior to Next Meeting Information announcements.
D. Proposed amendments will be voted upon at the next scheduled DUR Board meeting. If majority of DUR Board votes to ratify amendment, the amendment will take effect immediately at the conclusion of the meeting.

MS-DUR BOARD
COMMON ABBREVIATIONS

AWP	Any Willing Provider, Average Wholesale Price
BENE	Beneficiary
CAH	Critical Access Hospital
CCO	Coordinated Care Organization
CDC	Centers for Disease Control
CHIP	Children's Health Insurance Program
CMS	Center for Medicare and Medicaid Services
COB	Coordination of Benefits
CPC	Complex Pharmaceutical Care
DME	Durable Medical Equipment
DOC	Department of Corrections
DOM	Division of Medicaid
DUR	Drug Utilization Review
EOB	Explanation of Benefits
EPSDT	Early and Periodic Screening, Diagnosis and Treatment
FA	Fiscal Agent
FFS	Fee For Service
FPW	Family Planning Waiver
FQHC	Federally Qualified Health Clinic
FY	Fiscal Year
HB	House Bill
HCPCS/ HEIDIS	Health Plan Employer Data and Information Set
HHS	Department of Health and Human Services
HIPAA	Health Insurance Portability and Accountability
IDD	Intellectual and Developmental Disabilities
LTC	Long Term Care
MAG	Magnolia Health
MEDD	Morphine Equivalent Daily Dose
MOL	Molina Healthcare
MPR	Medication Possession Ratio
MSCAN	Mississippi Coordinated Access Network
MSDH	Mississippi State Department of Health
NADAC	National Average Drug Acquisition Cost
NDC	National Drug Code
P&T	Pharmacy and Therapeutics
PA	Prior Authorization
PBM	Pharmacy Benefit Manager
PDC	Proportion of Days Covered
PDL	Preferred Drug List
PI	Program Integrity
PIP	Performance Improvement Program
POS	Point of Sale, Place of Service, Point of Service
Pro-DUR	Prospective Drug Use Review
OTC	Over the Counter
QI	Quality Indicator
QIO	Quality Improvement Organization
QM	Quality Management
RA	Remittance Advise
REOMB	Recipient's Explanation of Medicaid Benefits
Retro-DUR	Retrospective Drug Utilization Review
RFI	Request for Information
RFP	Request for Proposal
RHC	Rural Health Clinic
SB	Senate Bill
SCHIP	State Child Health Insurance Program
SMART PA	Conduent's Pharmacy Application (SmartPA) is a proprietary electronic prior authorization system used for Medicaid fee for service claims
SPA	State Plan Amendment
UHC	United Healthcare
UM/QIO	Utilization Management and Quality Improvement Organization
UPDL	Universal Preferred Drug List
UR	Utilization Review
VFC	Vaccines for Children
WAC	Wholesale Acquisition Cost
WIC	Women, Infants, Children
340B	Federal Drug Discount Program

SUPPLEMENTARY TABLES

Supplementary Table 1. Perinatal Mental Health and Substance Use Disorders

ICD-10-CM Code	Mental health conditions
Mental disorder-related diagnoses	
1.Anxiety disorders	
F064	Anxiety disorder due to known physiological condition
F4000	Agoraphobia, unspecified
F4001	Agoraphobia with panic disorder
F4002	Agoraphobia without panic disorder
F4010	Social phobia, unspecified
F4011	Social phobia, generalized
F40210	Arachnophobia
F40218	Other animal type phobia
F40220	Fear of thunderstorms
F40228	Other natural environment type phobia
F40230	Fear of blood
F40231	Fear of injections and transfusions
F40232	Fear of other medical care
F40233	Fear of injury
F40240	Claustrophobia
F40241	Acrophobia
F40242	Fear of bridges
F40243	Fear of flying
F40248	Other situational type phobia
F40290	Androphobia
F40291	Gynephobia
F40298	Other specified phobia
F408	Other phobic anxiety disorders
F409	Phobic anxiety disorder, unspecified
F410	Panic disorder [episodic paroxysmal anxiety]
F411	Generalized anxiety disorder
F413	Other mixed anxiety disorders
F418	Other specified anxiety disorders
F419	Anxiety disorder, unspecified
F422	Mixed obsessional thoughts and acts
F423	Hoarding disorder
F424	Excoriation (skin-picking) disorder
F428	Other obsessive-compulsive disorder

F429	Obsessive-compulsive disorder, unspecified
F4311	Post-traumatic stress disorder, acute
F4312	Post-traumatic stress disorder, chronic
F930	Separation anxiety disorder of childhood
F940	Selective mutism
R466	Undue concern and preoccupation with stressful events
2.Bipolar disorders	
F0633	Mood disorder due to known physiological condition with manic features
F0634	Mood disorder due to known physiological condition with mixed features
F3010	Manic episode without psychotic symptoms, unspecified
F3011	Manic episode without psychotic symptoms, mild
F3012	Manic episode without psychotic symptoms, moderate
F3013	Manic episode, severe, without psychotic symptoms
F302	Manic episode, severe with psychotic symptoms
F303	Manic episode in partial remission
F308	Other manic episodes
F309	Manic episode, unspecified
F310	Bipolar disorder, current episode hypomanic
F3110	Bipolar disorder, current episode manic without psychotic features, unspecified
F3111	Bipolar disorder, current episode manic without psychotic features, mild
F3112	Bipolar disorder, current episode manic without psychotic features, mod
F3113	Bipolar disorder, current episode manic without psychotic features, severe
F312	Bipolar disorder, current episode manic severe with psychotic features
F3130	Bipolar disorder, current episode depressed, mild or moderate severity, unspecified
F3131	Bipolar disorder, current episode depressed, mild
F3132	Bipolar disorder, current episode depressed, moderate
F314	Bipolar disorder, current episode depressed, severe, without psychotic features
F315	Bipolar disorder, current episode depressed, severe, with psychotic features
F3160	Bipolar disorder, current episode mixed, unspecified
F3161	Bipolar disorder, current episode mixed, mild
F3162	Bipolar disorder, current episode mixed, moderate
F3163	Bipolar disorder, current episode mixed, severe, without psychotic features
F3164	Bipolar disorder, current episode mixed, severe, with psychotic features
F3171	Bipolar disorder, in partial remission, most recent episode hypomanic
F3173	Bipolar disorder, in partial remission, most recent episode manic
F3175	Bipolar disorder, in partial remission, most recent episode depressed
F3177	Bipolar disorder, in partial remission, most recent episode mixed
F3181	Bipolar II disorder
F3189	Other bipolar disorder

F319	Bipolar disorder, unspecified
F340	Cyclothymic disorder
3.Depressive disorders	
F0630	Mood disorder due to known physiological condition, unspecified
F0631	Mood disorder due to known physiological condition with depressed features
F0632	Mood disorder due to physiological condition with major depressive-like episode
F320	Major depressive disorder, single episode, mild
F321	Major depressive disorder, single episode, moderate
F322	Major depressive disorder, single episode, severe without psychotic features
F323	Major depressive disorder, single episode, severe with psychotic features
F324	Major depressive disorder, single episode, in partial remission
F328	Other depressive episodes
F3281	Premenstrual dysphoric disorder
F3289	Other specified depressive episodes
F329	Major depressive disorder, single episode, unspecified
F330	Major depressive disorder, recurrent, mild
F331	Major depressive disorder, recurrent, moderate
F332	Major depressive disorder, recurrent severe without psychotic features
F333	Major depressive disorder, recurrent, severe with psychotic symptoms
F3341	Major depressive disorder, recurrent, in partial remission
F338	Other recurrent depressive disorders
F339	Major depressive disorder, recurrent, unspecified
F341	Dysthymic disorder
F348	Other persistent mood [affective] disorders
F3481	Disruptive mood dysregulation disorder
F3489	Other specified persistent mood disorders
F349	Persistent mood [affective] disorder, unspecified
F39	Unspecified mood [affective] disorder
O906	Postpartum mood disturbance
4.Disruptive, impulse-control, and conduct disorders	
F631	Pyromania
F632	Kleptomania
F6381	Intermittent explosive disorder
F6389	Other impulse disorders
F639	Impulse disorder, unspecified
F910	Conduct disorder confined to family context
F911	Conduct disorder, childhood-onset type
F912	Conduct disorder, adolescent-onset type
F913	Oppositional defiant disorder

F918	Other conduct disorders
F919	Conduct disorder, unspecified
5.Eating disorders	
F5000	Anorexia nervosa, unspecified
F5001	Anorexia nervosa, restricting type
F5002	Anorexia nervosa, binge eating/purging type
F502	Bulimia nervosa
F508	Other eating disorders
F5081	Binge eating disorder
F5089	Other specified eating disorder
F509	Eating disorder, unspecified
F9821	Rumination disorder of infancy
F9829	Other feeding disorders of infancy and early childhood
F983	Pica of infancy and childhood
6.Obsessive-compulsive disorders	
F42	Obsessive-compulsive disorder
F4521	Hypochondriasis
F4522	Body dysmorphic disorder
F633	Trichotillomania
R4681	Obsessive-compulsive behavior
7.Personality disorders	
F070	Personality change due to known physiological condition
F21	Schizotypal disorder
F600	Paranoid personality disorder
F601	Schizoid personality disorder
F602	Antisocial personality disorder
F603	Borderline personality disorder
F604	Histrionic personality disorder
F605	Obsessive-compulsive personality disorder
F606	Avoidant personality disorder
F607	Dependent personality disorder
F6081	Narcissistic personality disorder
F6089	Other specific personality disorders
F609	Personality disorder, unspecified
F6811	Factitious disorder with predominantly psychological signs and symptoms
F6812	Factitious disorder with predominantly physical signs and symptoms
F6813	Factitious disorder with combined psychological and physical signs and symptoms
F688	Other specified disorders of adult personality and behavior
F69	Unspecified disorder of adult personality and behavior

8.Schizophrenia and related disorders	
F060	Psychotic disorder with hallucinations due to known physiological condition
F061	Catatonic disorder due to known physiological condition
F062	Psychotic disorder with delusions due to known physiological condition
F200	Paranoid schizophrenia
F201	Disorganized schizophrenia
F202	Catatonic schizophrenia
F203	Undifferentiated schizophrenia
F205	Residual schizophrenia
F2081	Schizophreniform disorder
F2089	Other schizophrenia
F209	Schizophrenia, unspecified
F22	Delusional disorders
F23	Brief psychotic disorder
F24	Shared psychotic disorder
F250	Schizoaffective disorder, bipolar type
F251	Schizoaffective disorder, depressive type
F258	Other schizoaffective disorders
F259	Schizoaffective disorder, unspecified
F28	Other psychotic disorder not due to a substance or known physiological condition
F29	Unspecified psychosis not due to a substance or known physiological condition
9.Somatic symptom disorders	
F444	Conversion disorder with motor symptom or deficit
F445	Conversion disorder with seizures or convulsions
F446	Conversion disorder with sensory symptom or deficit
F447	Conversion disorder with mixed symptom presentation
F450	Somatization disorder
F451	Undifferentiated somatoform disorder
F4520	Hypochondriacal disorder, unspecified
F4529	Other hypochondriacal disorders
F4541	Pain disorder exclusively related to psychological factors
F4542	Pain disorder with related psychological factors
F458	Other somatoform disorders
F459	Somatoform disorder, unspecified
F54	Psychological and behavioral factors associated with disorders or diseases classified elsewhere
F6810	Factitious disorder, unspecified
10.Suicidal ideation or attempt	
R45851	Suicidal ideations

T1491	Suicide attempt (through fiscal year 2017)
T360X2A	Poisoning by penicillins, intentional self-harm, initial encounter
T361X2A	Poisoning by cephalosporins and other beta-lactam antibiotics, intentional self-harm, initial encounter
T362X2A	Poisoning by chloramphenicol group, intentional self-harm, initial encounter
T363X2A	Poisoning by macrolides, intentional self-harm, initial encounter
T364X2A	Poisoning by tetracyclines, intentional self-harm, initial encounter
T365X2A	Poisoning by aminoglycosides, intentional self-harm, initial encounter
T366X2A	Poisoning by rifampicins, intentional self-harm, initial encounter
T367X2A	Poisoning by antifungal antibiotics, systemically used, intentional self-harm, initial encounter
T368X2A	Poisoning by other systemic antibiotics, intentional self-harm, initial encounter
T3692XA	Poisoning by unspecified systemic antibiotic, intentional self-harm, initial encounter
T370X2A	Poisoning by sulfonamides, intentional self-harm, initial encounter
T371X2A	Poisoning by antimycobacterial drugs, intentional self-harm, initial encounter
T372X2A	Poisoning by antimalarials and drugs acting on other blood protozoa, intentional self-harm, initial encounter
T373X2A	Poisoning by other antiprotozoal drugs, intentional self-harm, initial encounter
T374X2A	Poisoning by anthelminthics, intentional self-harm, initial encounter
T375X2A	Poisoning by antiviral drugs, intentional self-harm, initial encounter
T378X2A	Poisoning by other specified systemic anti-infectives and antiparasitics, intentional self-harm, initial encounter
T3792XA	Poisoning by unspecified sys anti-infectives and antiparasitics, intentional self-harm, initial encounter
T380X2A	Poisoning by glucocorticoids and synthetic analogues, intentional self-harm, initial encounter
T381X2A	Poisoning by thyroid hormones and substitutes, intentional self-harm, initial encounter
T382X2A	Poisoning by antithyroid drugs, intentional self-harm, initial encounter
T383X2A	Poisoning by insulin and oral hypoglycemic drugs, intentional self-harm, initial encounter
T384X2A	Poisoning by oral contraceptives, intentional self-harm, initial encounter
T385X2A	Poisoning by other estrogens and progestogens, intentional self-harm, initial encounter
T386X2A	Poisoning by antigonadotrophins, antiestrogens, antiandrogens, not elsewhere classified, intentional self-harm, initial encounter
T387X2A	Poisoning by androgens and anabolic congeners, intentional self-harm, initial encounter
T38802A	Poisoning by unspecified hormones and synthetic substitutes, intentional self-harm, initial encounter
T38812A	Poisoning by anterior pituitary hormones, intentional self-harm, initial encounter
T38892A	Poisoning by other hormones and synthetic substitutes, intentional self-harm, initial encounter
T38902A	Poisoning by unspecified hormone antagonists, intentional self-harm, initial encounter
T38992A	Poisoning by other hormone antagonists, intentional self-harm, initial encounter
T39012A	Poisoning by aspirin, intentional self-harm, initial encounter

T39092A	Poisoning by salicylates, intentional self-harm, initial encounter
T391X2A	Poisoning by 4-Aminophenol derivatives, intentional self-harm, initial encounter
T392X2A	Poisoning by pyrazolone derivatives, intentional self-harm, initial encounter
T39312A	Poisoning by propionic acid derivatives, intentional self-harm, initial encounter
T39392A	Poisoning by other nonsteroidal anti-inflammatory drugs, intentional self-harm, initial encounter
T394X2A	Poisoning by antirheumatics, not elsewhere classified, intentional self-harm, initial encounter
T398X2A	Poisoning by other nonopioid analgesics and antipyretics, not elsewhere classified, intentional self-harm, initial encounter
T3992XA	Poisoning by unspecified nonopioid analgesic, antipyretic and antirheumatic, intentional self-harm, initial encounter
T400X2A	Poisoning by opium, intentional self-harm, initial encounter
T401X2A	Poisoning by heroin, intentional self-harm, initial encounter
T402X2A	Poisoning by other opioids, intentional self-harm, initial encounter
T403X2A	Poisoning by methadone, intentional self-harm, initial encounter
T404X2A	Poisoning by other synthetic narcotics, intentional self-harm, initial encounter
T405X2A	Poisoning by cocaine, intentional self-harm, initial encounter
T40602A	Poisoning by unspecified narcotics, intentional self-harm, initial encounter
T40692A	Poisoning by other narcotics, intentional self-harm, initial encounter
T407X2A	Poisoning by cannabis (derivatives), intentional self-harm, initial encounter
T408X2A	Poisoning by lysergide, intentional self-harm, initial encounter
T40902A	Poisoning by unspecified psychodysleptics, intentional self-harm, initial encounter
T40992A	Poisoning by other psychodysleptics, intentional self-harm, initial encounter
T410X2A	Poisoning by inhaled anesthetics, intentional self-harm, initial encounter
T411X2A	Poisoning by intravenous anesthetics, intentional self-harm, initial encounter
T41202A	Poisoning by unspecified general anesthetics, intentional self-harm, initial encounter
T41292A	Poisoning by other general anesthetics, intentional self-harm, initial encounter
T413X2A	Poisoning by local anesthetics, intentional self-harm, initial encounter
T4142XA	Poisoning by unspecified anesthetic, intentional self-harm, initial encounter
T415X2A	Poisoning by therapeutic gases, intentional self-harm, initial encounter
T420X2A	Poisoning by hydantoin derivatives, intentional self-harm, initial encounter
T421X2A	Poisoning by iminostilbenes, intentional self-harm, initial encounter
T422X2A	Poisoning by succinimides and oxazolidinediones, intentional self-harm, initial encounter
T423X2A	Poisoning by barbiturates, intentional self-harm, initial encounter
T424X2A	Poisoning by benzodiazepines, intentional self-harm, initial encounter
T425X2A	Poisoning by mixed antiepileptics, intentional self-harm, initial encounter
T426X2A	Poisoning by other antiepileptic and sedative-hypnotic drugs, intentional self-harm, initial encounter
T4272XA	Poisoning by unspecified antiepileptic and sedative-hypnotic drugs, intentional self-harm, initial encounter

T428X2A	Poisoning by antiparkinsonism drugs and other central muscle-tone depressants, intentional self-harm, initial encounter
T43012A	Poisoning by tricyclic antidepressants, intentional self-harm, initial encounter
T43022A	Poisoning by tetracyclic antidepressants, intentional self-harm, initial encounter
T431X2A	Poisoning by monoamine-oxidase-inhibitor antidepressants, intentional self-harm, initial encounter
T43202A	Poisoning by unspecified antidepressants, intentional self-harm, initial encounter
T43212A	Poisoning by selective serotonin and norepinephrine reuptake inhibitors, intentional self-harm, initial encounter
T43222A	Poisoning by selective serotonin reuptake inhibitors, intentional self-harm, initial encounter
T43292A	Poisoning by other antidepressants, intentional self-harm, initial encounter
T433X2A	Poisoning by phenothiazine antipsychotics and neuroleptics, intentional self-harm, initial encounter
T434X2A	Poisoning by butyrophenone and thiothixene neuroleptics, intentional self-harm, initial
T43502A	Poisoning by unspecified antipsychotics and neuroleptics, intentional self-harm, initial encounter
T43592A	Poisoning by other antipsychotics and neuroleptics, intentional self-harm, initial encounter
T43602A	Poisoning by unspecified psychostimulants, intentional self-harm, initial encounter
T43612A	Poisoning by caffeine, intentional self-harm, initial encounter
T43622A	Poisoning by amphetamines, intentional self-harm, initial encounter
T43632A	Poisoning by methylphenidate, intentional self-harm, initial encounter
T43692A	Poisoning by other psychostimulants, intentional self-harm, initial encounter
T438X2A	Poisoning by other psychotropic drugs, intentional self-harm, initial encounter
T4392XA	Poisoning by unspecified psychotropic drug, intentional self-harm, initial encounter
T440X2A	Poisoning by anticholinesterase agents, intentional self-harm, initial encounter
T441X2A	Poisoning by other parasympathomimetics, intentional self-harm, initial encounter
T442X2A	Poisoning by ganglionic blocking drugs, intentional self-harm, initial encounter
T443X2A	Poisoning by other parasympatholytics and spasmolytics, intentional self-harm, initial encounter
T444X2A	Poisoning by predominantly alpha-adrenoreceptor agonists, intentional self-harm, initial encounter
T445X2A	Poisoning by predominantly beta-adrenoreceptor agonists, intentional self-harm, initial encounter
T446X2A	Poisoning by alpha-adrenoreceptor antagonists, intentional self-harm, initial encounter
T447X2A	Poisoning by beta-adrenoreceptor antagonists, intentional self-harm, initial encounter
T448X2A	Poisoning by centrally-acting and adrenergic-neuron-blocking agents, intentional self-harm, initial encounter
T44902A	Poisoning by unspecified drugs primarily affecting the autonomic nervous system, intentional self-harm, initial encounter
T44992A	Poisoning by other drug primarily affecting the autonomic nervous system, intentional self-harm, initial encounter
T450X2A	Poisoning by antiallergic and antiemetic drugs, intentional self-harm, initial encounter

T451X2A	Poisoning by antineoplastic and immunosuppressive drugs, intentional self-harm, initial encounter
T452X2A	Poisoning by vitamins, intentional self-harm, initial encounter
T453X2A	Poisoning by enzymes, intentional self-harm, initial encounter
T454X2A	Poisoning by iron and its compounds, intentional self-harm, initial encounter
T45512A	Poisoning by anticoagulants, intentional self-harm, initial encounter
T45522A	Poisoning by antithrombotic drugs, intentional self-harm, initial encounter
T45602A	Poisoning by unspecified fibrinolysis-affecting drugs, intentional self-harm, initial encounter
T45612A	Poisoning by thrombolytic drug, intentional self-harm, initial encounter
T45622A	Poisoning by hemostatic drug, intentional self-harm, initial encounter
T45692A	Poisoning by other fibrinolysis-affecting drugs, intentional self-harm, initial encounter
T457X2A	Poisoning by anticoagulant antagonists, vitamin K and other coagulants, intentional self-harm, initial encounter
T458X2A	Poisoning by other primarily systemic and hematological agents, intentional self-harm, initial encounter
T4592XA	Poisoning by unspecified primarily systemic and hematological agent, intentional self-harm, initial encounter
T460X2A	Poisoning by cardiac-stimulant glycosides and drugs of similar action, intentional self-harm, initial encounter
T461X2A	Poisoning by calcium-channel blockers, intentional self-harm, initial encounter
T462X2A	Poisoning by other antidysrhythmic drugs, intentional self-harm, initial encounter
T463X2A	Poisoning by coronary vasodilators, intentional self-harm, initial encounter
T464X2A	Poisoning by angiotensin-converting-enzyme inhibitors, intentional self-harm, initial encounter
T465X2A	Poisoning by other antihypertensive drugs, intentional self-harm, initial encounter
T466X2A	Poisoning by antihyperlipidemic and antiarteriosclerotic drugs, intentional self-harm,
T467X2A	Poisoning by peripheral vasodilators, intentional self-harm, initial encounter
T468X2A	Poisoning by antivaricose drugs, including sclerosing agents, intentional self-harm, initial encounter
T46902A	Poisoning by unspecified agents primarily affecting the cardiovascular system, intentional self-harm, initial encounter
T46992A	Poisoning by other agents primarily affecting the cardiovascular system, intentional self-harm, initial encounter
T470X2A	Poisoning by histamine H2-receptor blockers, intentional self-harm, initial encounter
T471X2A	Poisoning by other antacids and anti-gastric-secretion drugs, intentional self-harm, initial encounter
T472X2A	Poisoning by stimulant laxatives, intentional self-harm, initial encounter
T473X2A	Poisoning by saline and osmotic laxatives, intentional self-harm, initial encounter
T474X2A	Poisoning by other laxatives, intentional self-harm, initial encounter
T475X2A	Poisoning by digestants, intentional self-harm, initial encounter
T476X2A	Poisoning by antidiarrheal drugs, intentional self-harm, initial encounter
T477X2A	Poisoning by emetics, intentional self-harm, initial encounter

T478X2A	Poisoning by other agents primarily affecting gastrointestinal system, intentional self-harm, initial encounter
T4792XA	Poisoning by unspecified agents primarily affecting gastrointestinal system, intentional self-harm, initial encounter
T480X2A	Poisoning by oxytocic drugs, intentional self-harm, initial encounter
T481X2A	Poisoning by skeletal muscle relaxants, intentional self-harm, initial encounter
T48202A	Poisoning by unspecified drugs acting on muscles, intentional self-harm, initial encounter
T48292A	Poisoning by other drugs acting on muscles, intentional self-harm, initial encounter
T483X2A	Poisoning by antitussives, intentional self-harm, initial encounter
T484X2A	Poisoning by expectorants, intentional self-harm, initial encounter
T485X2A	Poisoning by other anti-common-cold drugs, intentional self-harm, initial encounter
T486X2A	Poisoning by antiasthmatics, intentional self-harm, initial encounter
T48902A	Poisoning by unspecified agents prim act on the resp sys, intentional self-harm, initial encounter
T48992A	Poisoning by other agents primarily acting on the respiratory system, intentional self-harm, initial encounter
T490X2A	Poisoning by local antifungal, anti-infective and anti-inflammatory drugs, intentional self-harm, initial encounter
T491X2A	Poisoning by antipruritics, intentional self-harm, initial encounter
T492X2A	Poisoning by local astringents/detergents, intentional self-harm, initial encounter
T493X2A	Poisoning by emollients, demulcents and protect, intentional self-harm, initial encounter
T494X2A	Poisoning by keratolytics, keratoplastics, and other hair treatment drugs and preparations, intentional self-harm, initial encounter
T495X2A	Poisoning by ophthalmological drugs and preparations, intentional self-harm, initial encounter
T496X2A	Poisoning by otorhinolaryngological drugs and preparations, intentional self-harm, initial encounter
T497X2A	Poisoning by dental drugs, topically applied, intentional self-harm, initial encounter
T498X2A	Poisoning by other topical agents, intentional self-harm, initial encounter
T4992XA	Poisoning by unspecified topical agent, intentional self-harm, initial encounter
T500X2A	Poisoning by mineralocorticoids and their antagonists, intentional self-harm, initial encounter
T501X2A	Poisoning by loop diuretics, intentional self-harm, initial encounter
T502X2A	Poisoning by carbonic-anhydrase inhibitors, benzothiadiazides and other diuretics, intentional self-harm, initial encounter
T503X2A	Poisoning by electrolytic, caloric and water-balance agents, intentional self-harm, initial encounter
T504X2A	Poisoning by drugs affecting uric acid metabolism, intentional self-harm, initial encounter
T505X2A	Poisoning by appetite depressants, intentional self-harm, initial encounter
T506X2A	Poisoning by antidotes and chelating agents, intentional self-harm, initial encounter
T507X2A	Poisoning by analeptics and opioid receptor antagonists, intentional self-harm, initial encounter
T508X2A	Poisoning by diagnostic agents, intentional self-harm, initial encounter

T50902A	Poisoning by unspecified drugs, medicaments and biological substances, intentional self-harm, initial encounter
T50992A	Poisoning by other drugs, medicaments and biological substances, intentional self-harm, initial encounter
T50A12A	Poisoning by pertussis vaccine, including combinations with a pertussis component, intentional self-harm, initial encounter
T50A22A	Poisoning by mixed bacterial vaccines without a pertussis component, intentional self-harm, initial encounter
T50A92A	Poisoning by other bacterial vaccines, intentional self-harm, initial encounter
T50B12A	Poisoning by smallpox vaccines, intentional self-harm, initial encounter
T50B92A	Poisoning by other viral vaccines, intentional self-harm, initial encounter
T50Z12A	Poisoning by immunoglobulin, intentional self-harm, initial encounter
T50Z92A	Poisoning by other vaccines and biological substances, intentional self-harm, initial encounter
T510X2A	Toxic effect of ethanol, intentional self-harm, initial encounter
T511X2A	Toxic effect of methanol, intentional self-harm, initial encounter
T512X2A	Toxic effect of 2-Propanol, intentional self-harm, initial encounter
T513X2A	Toxic effect of fusel oil, intentional self-harm, initial encounter
T518X2A	Toxic effect of other alcohols, intentional self-harm, initial encounter
T5192XA	Toxic effect of unspecified alcohol, intentional self-harm, initial encounter
T520X2A	Toxic effect of petroleum products, intentional self-harm, initial encounter
T521X2A	Toxic effect of benzene, intentional self-harm, initial encounter
T522X2A	Toxic effect of homologues of benzene, intentional self-harm, initial encounter
T523X2A	Toxic effect of glycols, intentional self-harm, initial encounter
T524X2A	Toxic effect of ketones, intentional self-harm, initial encounter
T528X2A	Toxic effect of organic solvents, intentional self-harm, initial encounter
T5292XA	Toxic effect of unspecified organic solvent, intentional self-harm, initial encounter
T530X2A	Toxic effect of carbon tetrachloride, intentional self-harm, initial encounter
T531X2A	Toxic effect of chloroform, intentional self-harm, initial encounter
T532X2A	Toxic effect of trichloroethylene, intentional self-harm, initial encounter
T533X2A	Toxic effect of tetrachloroethylene, intentional self-harm, initial encounter
T534X2A	Toxic effect of dichloromethane, intentional self-harm, initial encounter
T535X2A	Toxic effect of chlorofluorocarbons, intentional self-harm, initial encounter
T536X2A	Toxic effect of other halogen derivatives of aliphatic hydrocarbons, intentional self-harm, initial encounter
T537X2A	Toxic effect of other halogen derivatives of aromatic hydrocarbons, intentional self-harm, initial encounter
T5392XA	Toxic effect of unspecified halogen derivatives of aliphatic and aromatic hydrocarbons, intentional self-harm, initial encounter
T540X2A	Toxic effect of phenol and phenol homologues, intentional self-harm, initial encounter
T541X2A	Toxic effect of corrosive organic compounds, intentional self-harm, initial encounter

T542X2A	Toxic effect of corrosive acids and acid-like substances, intentional self-harm, initial encounter
T543X2A	Toxic effect of corrosive alkalis and alkali-like substances, intentional self-harm, initial encounter
T5492XA	Toxic effect of unspecified corrosive substance, intentional self-harm, initial encounter
T550X2A	Toxic effect of soaps, intentional self-harm, initial encounter
T551X2A	Toxic effect of detergents, intentional self-harm, initial encounter
T560X2A	Toxic effect of lead and its compounds, intentional self-harm, initial encounter
T561X2A	Toxic effect of mercury and its compounds, intentional self-harm, initial encounter
T562X2A	Toxic effect of chromium and its compounds, intentional self-harm, initial encounter
T563X2A	Toxic effect of cadmium and its compounds, intentional self-harm, initial encounter
T564X2A	Toxic effect of copper and its compounds, intentional self-harm, initial encounter
T565X2A	Toxic effect of zinc and its compounds, intentional self-harm, initial encounter
T566X2A	Toxic effect of tin and its compounds, intentional self-harm, initial encounter
T567X2A	Toxic effect of beryllium and its compounds, intentional self-harm, initial encounter
T56812A	Toxic effect of thallium, intentional self-harm, initial encounter
T56892A	Toxic effect of other metals, intentional self-harm, initial encounter
T5692XA	Toxic effect of unspecified metal, intentional self-harm, initial encounter
T570X2A	Toxic effect of arsenic and its compounds, intentional self-harm, initial encounter
T571X2A	Toxic effect of phosphorus and its compounds, intentional self-harm, initial encounter
T572X2A	Toxic effect of manganese and its compounds, intentional self-harm, initial encounter
T573X2A	Toxic effect of hydrogen cyanide, intentional self-harm, initial encounter
T578X2A	Toxic effect of inorganic substances, intentional self-harm, initial encounter
T5792XA	Toxic effect of unspecified inorganic substance, intentional self-harm, initial encounter
T5802XA	Toxic effect of carbon monoxide from motor vehicle exhaust, intentional self-harm, initial encounter
T5812XA	Toxic effect of carbon monoxide from utility gas, intentional self-harm, initial encounter
T582X2A	Toxic effect of carbon monoxide from incomplete combustion of other domestic fuels, intentional self-harm, initial encounter
T588X2A	Toxic effect of carbon monoxide from other source, intentional self-harm, initial encounter
T5892XA	Toxic effect of carbon monoxide from unspecified source, intentional self-harm, initial encounter
T590X2A	Toxic effect of nitrogen oxides, intentional self-harm, initial encounter
T591X2A	Toxic effect of sulfur dioxide, intentional self-harm, initial encounter
T592X2A	Toxic effect of formaldehyde, intentional self-harm, initial encounter
T593X2A	Toxic effect of lacrimogenic gas, intentional self-harm, initial encounter
T594X2A	Toxic effect of chlorine gas, intentional self-harm, initial encounter
T595X2A	Toxic effect of fluorine gas and hydrogen fluoride, intentional self-harm, initial encounter
T596X2A	Toxic effect of hydrogen sulfide, intentional self-harm, initial encounter
T597X2A	Toxic effect of carbon dioxide, intentional self-harm, initial encounter
T59812A	Toxic effect of smoke, intentional self-harm, initial encounter

T59892A	Toxic effect of gases, fumes and vapors, intentional self-harm, initial encounter
T5992XA	Toxic effect of unspecified gases, fumes and vapors, intentional self-harm, initial encounter
T600X2A	Toxic effect of organophosphate and carbamate insecticides, intentional self-harm, initial encounter
T601X2A	Toxic effect of halogenated insecticides, intentional self-harm, initial encounter
T602X2A	Toxic effect of insecticides, intentional self-harm, initial encounter
T603X2A	Toxic effect of herbicides and fungicides, intentional self-harm, initial encounter
T604X2A	Toxic effect of rodenticides, intentional self-harm, initial encounter
T608X2A	Toxic effect of other pesticides, intentional self-harm, initial encounter
T6092XA	Toxic effect of unspecified pesticide, intentional self-harm, initial encounter
T6102XA	Ciguatera fish poisoning, intentional self-harm, initial encounter
T6112XA	Scombroid fish poisoning, intentional self-harm, initial encounter
T61772A	Other fish poisoning, intentional self-harm, initial encounter
T61782A	Other shellfish poisoning, intentional self-harm, initial encounter
T618X2A	Toxic effect of other seafood, intentional self-harm, initial encounter
T6192XA	Toxic effect of unspecified seafood, intentional self-harm, initial encounter
T620X2A	Toxic effect of ingested mushrooms, intentional self-harm, initial encounter
T621X2A	Toxic effect of ingested berries, intentional self-harm, initial encounter
T622X2A	Toxic effect of ingested (parts of) plant(s), intentional self-harm, initial encounter
T628X2A	Toxic effect of other specified noxious substances eaten as food, intentional self-harm, initial encounter
T6292XA	Toxic effect of unspecified noxious substances eaten as food, intentional self-harm, initial encounter
T63002A	Toxic effect of unspecified snake venom, intentional self-harm, initial encounter
T63012A	Toxic effect of rattlesnake venom, intentional self-harm, initial encounter
T63022A	Toxic effect of coral snake venom, intentional self-harm, initial encounter
T63032A	Toxic effect of taipan venom, intentional self-harm, initial encounter
T63042A	Toxic effect of cobra venom, intentional self-harm, initial encounter
T63062A	Toxic effect of venom of other North and South American snake, intentional self-harm, initial encounter
T63072A	Toxic effect of venom of Australian snake, intentional self-harm, initial encounter
T63082A	Toxic effect of venom of African and Asian snake, intentional self-harm, initial encounter
T63092A	Toxic effect of venom of snake, intentional self-harm, initial encounter
T63112A	Toxic effect of venom of gila monster, intentional self-harm, initial encounter
T63122A	Toxic effect of venom of venomous lizard, intentional self-harm, initial encounter
T63192A	Toxic effect of venom of reptiles, intentional self-harm, initial encounter
T632X2A	Toxic effect of venom of scorpion, intentional self-harm, initial encounter
T63302A	Toxic effect of unspecified spider venom, intentional self-harm, initial encounter
T63312A	Toxic effect of venom of black widow spider, intentional self-harm, initial encounter
T63322A	Toxic effect of venom of tarantula, intentional self-harm, initial encounter

T63332A	Toxic effect of venom of brown recluse spider, intentional self-harm, initial encounter
T63392A	Toxic effect of venom of spider, intentional self-harm, initial encounter
T63412A	Toxic effect of venom of centipede/millipede, intentional self-harm, initial encounter
T63422A	Toxic effect of venom of ants, intentional self-harm, initial encounter
T63432A	Toxic effect of venom of caterpillars, intentional self-harm, initial encounter
T63442A	Toxic effect of venom of bees, intentional self-harm, initial encounter
T63452A	Toxic effect of venom of hornets, intentional self-harm, initial encounter
T63462A	Toxic effect of venom of wasps, intentional self-harm, initial encounter
T63482A	Toxic effect of venom of arthropod, intentional self-harm, initial encounter
T63512A	Toxic effect of contact with stingray, intentional self-harm, initial encounter
T63592A	Toxic effect of contact with other venomous fish, intentional self-harm, initial encounter
T63612A	Toxic effect of contact with Portugese Man-o-war, intentional self-harm, initial encounter
T63622A	Toxic effect of contact with other jellyfish, intentional self-harm, initial encounter
T63632A	Toxic effect of contact with sea anemone, intentional self-harm, initial encounter
T63692A	Toxic effect of contact with other venom marine animals, intentional self-harm, initial encounter
T63712A	Toxic effect of contact with venom marine plant, intentional self-harm, initial encounter
T63792A	Toxic effect of contact with other venomous plant, intentional self-harm, initial encounter
T63812A	Toxic effect of contact with venomous frog, intentional self-harm, initial encounter
T63822A	Toxic effect of contact with venomous toad, intentional self-harm, initial encounter
T63832A	Toxic effect of contact with other venomous amphib, intentional self-harm, initial encounter
T63892A	Toxic effect of contact with other venom animals, intentional self-harm, initial encounter
T6392XA	Toxic effect of contact with unspecified venom animal, intentional self-harm, initial encounter
T6402XA	Toxic effect of aflatoxin, intentional self-harm, initial encounter
T6482XA	Toxic effect of mycotoxin food contaminants, intentional self-harm, initial encounter
T650X2A	Toxic effect of cyanides, intentional self-harm, initial encounter
T651X2A	Toxic effect of strychnine and its salts, intentional self-harm, initial encounter
T65212A	Toxic effect of chewing tobacco, intentional self-harm, initial encounter
T65222A	Toxic effect of tobacco cigarettes, intentional self-harm, initial encounter
T65292A	Toxic effect of tobacco and nicotine, intentional self-harm, initial encounter
T653X2A	Toxic effect of nitroderivatives and aminoderivatives of benzene and its homologues, intentional self-harm, initial encounter
T654X2A	Toxic effect of carbon disulfide, intentional self-harm, initial encounter
T655X2A	Toxic effect of nitroglycerin and other nitric acids and esters, intentional self-harm, initial encounter
T656X2A	Toxic effect of paints and dyes, not elsewhere classified, intentional self-harm, initial encounter
T65812A	Toxic effect of latex, intentional self-harm, initial encounter
T65822A	Toxic effect of harmful algae and algae toxins, intentional self-harm, initial encounter

T65832A	Toxic effect of fiberglass, intentional self-harm, initial encounter
T65892A	Toxic effect of other substances, intentional self-harm, initial encounter
T6592XA	Toxic effect of unspecified substance, intentional self-harm, initial encounter
T71112A	Asphyxiation due to smothering under pillow, intentional self-harm, initial encounter
T71122A	Asphyxiation due to plastic bag, intentional self-harm, initial encounter
T71132A	Asphyxiation due to being trapped in bed linens, intentional self-harm, initial encounter
T71152A	Asphyxiation due to smothering in furniture, intentional self-harm, initial encounter
T71162A	Asphyxiation due to hanging, intentional self-harm, initial encounter
T71192A	Asphyxiation due to mechanical threat to breathing due to other causes, intentional self-harm, initial encounter
T71222A	Asphyxiation due to being trapped in a car trunk, intentional self-harm, initial encounter
T71232A	Asphyxiation due to being trapped in a (discarded) refrigerator, intentional self-harm, initial encounter
X710XXA	Intentional self-harm by drowning and submersion while in bathtub, initial encounter
X711XXA	Intentional self-harm by drowning and submersion while in swimming pool, initial encounter
X712XXA	Intentional self-harm by drowning and submersion after jump into swimming pool, initial encounter
X713XXA	Intentional self-harm by drowning and submersion in natural water, initial encounter
X718XXA	Other intentional self-harm by drowning and submersion, initial encounter
X719XXA	Intentional self-harm by drowning and submersion, unspecified, initial encounter
X72XXXA	Intentional self-harm by handgun discharge, initial encounter
X730XXA	Intentional self-harm by shotgun discharge, initial encounter
X731XXA	Intentional self-harm by hunting rifle discharge, initial encounter
X732XXA	Intentional self-harm by machine gun discharge, initial encounter
X738XXA	Intentional self-harm by other larger firearm discharge, initial encounter
X739XXA	Intentional self-harm by unspecified larger firearm discharge, initial encounter
X7401XA	Intentional self-harm by airgun, initial encounter
X7402XA	Intentional self-harm by paintball gun, initial encounter
X7409XA	Self-harm by other gas, air or spring-operated gun, initial encounter
X748XXA	Intentional self-harm by other firearm discharge, initial encounter
X749XXA	Intentional self-harm by unspecified firearm discharge, initial encounter
X75XXXA	Intentional self-harm by explosive material, initial encounter
X76XXXA	Intentional self-harm by smoke, fire and flames, initial encounter
X770XXA	Intentional self-harm by steam or hot vapors, initial encounter
X771XXA	Intentional self-harm by hot tap water, initial encounter
X772XXA	Intentional self-harm by other hot fluids, initial encounter
X773XXA	Intentional self-harm by hot household appliances, initial encounter
X778XXA	Intentional self-harm by other hot objects, initial encounter
X779XXA	Intentional self-harm by unspecified hot objects, initial encounter
X780XXA	Intentional self-harm by sharp glass, initial encounter

X781XXA	Intentional self-harm by knife, initial encounter
X782XXA	Intentional self-harm by sword or dagger, initial encounter
X788XXA	Intentional self-harm by other sharp object, initial encounter
X789XXA	Intentional self-harm by unspecified sharp object, initial encounter
X79XXXA	Intentional self-harm by blunt object, initial encounter
X80XXXA	Intentional self-harm by jumping from a high place, initial encounter
X810XXA	Intentional self-harm by jumping or lying in front of motor vehicle, initial encounter
X811XXA	Self-harm by jumping or lying in front of (subway) train, initial encounter
X818XXA	Self-harm by jumping or lying in front of moving object, initial encounter
X820XXA	Intentional collision of motor vehicle with other motor vehicle, initial encounter
X821XXA	Intentional collision of motor vehicle with train, initial encounter
X822XXA	Intentional collision of motor vehicle with tree, initial encounter
X828XXA	Other intentional self-harm by crashing of motor vehicle, initial encounter
X830XXA	Intentional self-harm by crashing of aircraft, initial encounter
X831XXA	Intentional self-harm by electrocution, initial encounter
X832XXA	Intentional self-harm by exposure to extremes of cold, initial encounter
X838XXA	Intentional self-harm by other specified means, initial encounter
11. Trauma- and stressor-related disorders	
F430	Acute stress reaction
F4310	Post-traumatic stress disorder, unspecified
F4320	Adjustment disorder, unspecified
F4321	Adjustment disorder with depressed mood
F4322	Adjustment disorder with anxiety
F4323	Adjustment disorder with mixed anxiety and depressed mood
F4324	Adjustment disorder with disturbance of conduct
F4325	Adjustment disorder with mixed disturbance of emotions and conduct
F4329	Adjustment disorder with other symptoms
F438	Other reactions to severe stress
F439	Reaction to severe stress, unspecified
F440	Dissociative amnesia
F441	Dissociative fugue
F442	Dissociative stupor
F4481	Dissociative identity disorder
F4489	Other dissociative and conversion disorders
F449	Dissociative and conversion disorder, unspecified
F941	Reactive attachment disorder of childhood
F942	Disinhibited attachment disorder of childhood
12. Miscellaneous mental disorders	
F068	Other mental disorders due to known physiological condition

F09	Unspecified mental disorder due to known physiological condition
F481	Depersonalization-derealization syndrome
F488	Other specified nonpsychotic mental disorders
F489	Nonpsychotic mental disorder, unspecified
F650	Fetishism
F651	Transvestic fetishism
F652	Exhibitionism
F653	Voyeurism
F654	Pedophilia
F6551	Sexual masochism
F6552	Sexual sadism
F6581	Frotteurism
F6589	Other paraphilias
F659	Paraphilia, unspecified
F939	Childhood emotional disorder, unspecified
F99	Mental disorder, not otherwise specified
O99340	Other mental disorders complicating pregnancy, unspecified trimester
O99341	Other mental disorders complicating pregnancy, first trimester
O99342	Other mental disorders complicating pregnancy, second trimester
O99343	Other mental disorders complicating pregnancy, third trimester
O99344	Other mental disorders complicating childbirth
O99345	Other mental disorders complicating the puerperium
R45850	Homicidal ideations
Substance use disorder	
1. Alcohol-related disorders	
F1010	Alcohol abuse, uncomplicated
F10120	Alcohol abuse with intoxication, uncomplicated
F10121	Alcohol abuse with intoxication delirium
F10129	Alcohol abuse with intoxication, unspecified
F1014	Alcohol abuse with alcohol-induced mood disorder
F10150	Alcohol abuse with alcohol-induced psychotic disorder with delusions
F10151	Alcohol abuse with alcohol-induced psychotic disorder with hallucinations
F10159	Alcohol abuse with alcohol-induced psychotic disorder, unspecified
F10180	Alcohol abuse with alcohol-induced anxiety disorder
F10181	Alcohol abuse with alcohol-induced sexual dysfunction
F10182	Alcohol abuse with alcohol-induced sleep disorder
F10188	Alcohol abuse with other alcohol-induced disorder
F1019	Alcohol abuse with unspecified alcohol-induced disorder

F1020	Alcohol dependence, uncomplicated
F10220	Alcohol dependence with intoxication, uncomplicated
F10221	Alcohol dependence with intoxication delirium
F10229	Alcohol dependence with intoxication, unspecified
F10230	Alcohol dependence with withdrawal, uncomplicated
F10231	Alcohol dependence with withdrawal delirium
F10232	Alcohol dependence with withdrawal with perceptual disturbance
F10239	Alcohol dependence with withdrawal, unspecified
F1024	Alcohol dependence with alcohol-induced mood disorder
F10250	Alcohol dependence with alcohol-induced psychotic disorder with delusions
F10251	Alcohol dependence with alcohol-induced psychotic disorder with hallucinations
F10259	Alcohol dependence with alcohol-induced psychotic disorder, unspecified
F1026	Alcohol dependence with alcohol-induced persisting amnestic disorder
F1027	Alcohol dependence with alcohol-induced persisting dementia
F10280	Alcohol dependence with alcohol-induced anxiety disorder
F10281	Alcohol dependence with alcohol-induced sexual dysfunction
F10282	Alcohol dependence with alcohol-induced sleep disorder
F10288	Alcohol dependence with other alcohol-induced disorder
F1029	Alcohol dependence with unspecified alcohol-induced disorder
F10920	Alcohol use, unspecified with intoxication, uncomplicated
F10921	Alcohol use, unspecified with intoxication delirium
F10929	Alcohol use, unspecified with intoxication, unspecified
F1094	Alcohol use, unspecified with alcohol-induced mood disorder
F10950	Alcohol use, unspecified with alcohol-induced psychotic disorder with delusions
F10951	Alcohol use, unspecified with alcohol-induced psychotic disorder with hallucinations
F10959	Alcohol use, unspecified with alcohol-induced psychotic disorder, unspecified
F1096	Alcohol use, unspecified with alcohol-induced persisting amnestic disorder
F1097	Alcohol use, unspecified with alcohol-induced persisting dementia
F10980	Alcohol use, unspecified with alcohol-induced anxiety disorder
F10981	Alcohol use, unspecified with alcohol-induced sexual dysfunction
F10982	Alcohol use, unspecified with alcohol-induced sleep disorder
F10988	Alcohol use, unspecified with other alcohol-induced disorder
F1099	Alcohol use, unspecified with unspecified alcohol-induced disorder
G621	Alcoholic polyneuropathy
I426	Alcoholic cardiomyopathy
K2920	Alcoholic gastritis without bleeding
K2921	Alcoholic gastritis with bleeding

K700	Alcoholic fatty liver
K7010	Alcoholic hepatitis without ascites
K7011	Alcoholic hepatitis with ascites
K702	Alcoholic fibrosis and sclerosis of liver
K7030	Alcoholic cirrhosis of liver without ascites
K7031	Alcoholic cirrhosis of liver with ascites
K7040	Alcoholic hepatic failure without coma
K7041	Alcoholic hepatic failure with coma
K709	Alcoholic liver disease, unspecified
O354XX0	Maternal care for (suspected) damage to fetus from alcohol, not applicable or unspecified
O354XX1	Maternal care for (suspected) damage to fetus from alcohol, fetus 1
O354XX2	Maternal care for (suspected) damage to fetus from alcohol, fetus 2
O354XX3	Maternal care for (suspected) damage to fetus from alcohol, fetus 3
O354XX4	Maternal care for (suspected) damage to fetus from alcohol, fetus 4
O354XX5	Maternal care for (suspected) damage to fetus from alcohol, fetus 5
O354XX9	Maternal care for (suspected) damage to fetus from alcohol, other fetus
O99310	Alcohol use complicating pregnancy, unspecified trimester
O99311	Alcohol use complicating pregnancy, first trimester
O99312	Alcohol use complicating pregnancy, second trimester
O99313	Alcohol use complicating pregnancy, third trimester
O99314	Alcohol use complicating childbirth
O99315	Alcohol use complicating the puerperium
2. Cannabis-related disorders	
F1210	Cannabis abuse, uncomplicated
F12120	Cannabis abuse with intoxication, uncomplicated
F12121	Cannabis abuse with intoxication delirium
F12122	Cannabis abuse with intoxication with perceptual disturbance
F12129	Cannabis abuse with intoxication, unspecified
F12150	Cannabis abuse with psychotic disorder with delusions
F12151	Cannabis abuse with psychotic disorder with hallucinations
F12159	Cannabis abuse with psychotic disorder, unspecified
F12180	Cannabis abuse with cannabis-induced anxiety disorder
F12188	Cannabis abuse with other cannabis-induced disorder
F1219	Cannabis abuse with unspecified cannabis-induced disorder
F1220	Cannabis dependence, uncomplicated
F12220	Cannabis dependence with intoxication, uncomplicated
F12221	Cannabis dependence with intoxication delirium

F12222	Cannabis dependence with intoxication with perceptual disturbance
F12229	Cannabis dependence with intoxication, unspecified
F12250	Cannabis dependence with psychotic disorder with delusions
F12251	Cannabis dependence with psychotic disorder with hallucinations
F12259	Cannabis dependence with psychotic disorder, unspecified
F12280	Cannabis dependence with cannabis-induced anxiety disorder
F12288	Cannabis dependence with other cannabis-induced disorder
F1229	Cannabis dependence with unspecified cannabis-induced disorder
F1290	Cannabis use, unspecified, uncomplicated
F12920	Cannabis use, unspecified with intoxication, uncomplicated
F12921	Cannabis use, unspecified with intoxication delirium
F12922	Cannabis use, unspecified with intoxication with perceptual disturbance
F12929	Cannabis use, unspecified with intoxication, unspecified
F12950	Cannabis use, unspecified with psychotic disorder with delusions
F12951	Cannabis use, unspecified with psychotic disorder with hallucinations
F12959	Cannabis use, unspecified with psychotic disorder, unspecified
F12980	Cannabis use, unspecified with anxiety disorder
F12988	Cannabis use, unspecified with other cannabis-induced disorder
F1299	Cannabis use, unspecified with unspecified cannabis-induced disorder
T407X1A	Poisoning by cannabis (derivatives), accidental, initial encounter
T407X3A	Poisoning by cannabis (derivatives), assault, initial encounter
T407X4A	Poisoning by cannabis (derivatives), undetermined, initial encounter
T407X5A	Adverse effect of cannabis (derivatives), initial encounter
3. Opioid-related disorders	
F1110	Opioid abuse, uncomplicated
F11120	Opioid abuse with intoxication, uncomplicated
F11121	Opioid abuse with intoxication delirium
F11122	Opioid abuse with intoxication with perceptual disturbance
F11129	Opioid abuse with intoxication, unspecified
F1114	Opioid abuse with opioid-induced mood disorder
F11150	Opioid abuse with opioid-induced psychotic disorder with delusions
F11151	Opioid abuse with opioid-induced psychotic disorder with hallucinations
F11159	Opioid abuse with opioid-induced psychotic disorder, unspecified
F11181	Opioid abuse with opioid-induced sexual dysfunction
F11182	Opioid abuse with opioid-induced sleep disorder
F11188	Opioid abuse with other opioid-induced disorder
F1119	Opioid abuse with unspecified opioid-induced disorder

F1120	Opioid dependence, uncomplicated
F11220	Opioid dependence with intoxication, uncomplicated
F11221	Opioid dependence with intoxication delirium
F11222	Opioid dependence with intoxication with perceptual disturbance
F11229	Opioid dependence with intoxication, unspecified
F1123	Opioid dependence with withdrawal
F1124	Opioid dependence with opioid-induced mood disorder
F11250	Opioid dependence with opioid-induced psychotic disorder with delusions
F11251	Opioid dependence with opioid-induced psychotic disorder with hallucinations
F11259	Opioid dependence with opioid-induced psychotic disorder, unspecified
F11281	Opioid dependence with opioid-induced sexual dysfunction
F11282	Opioid dependence with opioid-induced sleep disorder
F11288	Opioid dependence with other opioid-induced disorder
F1129	Opioid dependence with unspecified opioid-induced disorder
F1190	Opioid use, unspecified, uncomplicated
F11920	Opioid use, unspecified with intoxication, uncomplicated
F11921	Opioid use, unspecified with intoxication delirium
F11922	Opioid use, unspecified with intoxication with perceptual disturbance
F11929	Opioid use, unspecified with intoxication, unspecified
F1193	Opioid use, unspecified with withdrawal
F1194	Opioid use, unspecified with opioid-induced mood disorder
F11950	Opioid use, unspecified with opioid-induced psychotic disorder with delusions
F11951	Opioid use, unspecified with opioid-induced psychotic disorder with hallucinations
F11959	Opioid use, unspecified with opioid-induced psychotic disorder, unspecified
F11981	Opioid use, unspecified with opioid-induced sexual dysfunction
F11982	Opioid use, unspecified with opioid-induced sleep disorder
F11988	Opioid use, unspecified with other opioid-induced disorder
F1199	Opioid use, unspecified with unspecified opioid-induced disorder
T400X1A	Poisoning by opium, accidental (unintentional), initial encounter
T400X3A	Poisoning by opium, assault, initial encounter
T400X4A	Poisoning by opium, undetermined, initial encounter
T400X5A	Adverse effect of opium, initial encounter
T401X1A	Poisoning by heroin, accidental (unintentional), initial encounter
T401X3A	Poisoning by heroin, assault, initial encounter
T401X4A	Poisoning by heroin, undetermined, initial encounter
T402X1A	Poisoning by other opioids, accidental (unintentional), initial encounter
T402X3A	Poisoning by other opioids, assault, initial encounter

T402X4A	Poisoning by other opioids, undetermined, initial encounter
T402X5A	Adverse effect of other opioids, initial encounter
T403X1A	Poisoning by methadone, accidental (unintentional), initial encounter
T403X3A	Poisoning by methadone, assault, initial encounter
T403X4A	Poisoning by methadone, undetermined, initial encounter
T403X5A	Adverse effect of methadone, initial encounter
T404X1A	Poisoning by other synthetic narcotics, accidental (unintentional), initial encounter
T404X3A	Poisoning by other synthetic narcotics, assault, initial encounter
T404X4A	Poisoning by other synthetic narcotics, undetermined, initial encounter
T404X5A	Adverse effect of other synthetic narcotics, initial encounter
T40601A	Poisoning by unspecified narcotics, accidental (unintentional), initial encounter
T40603A	Poisoning by unspecified narcotics, assault, initial encounter
T40604A	Poisoning by unspecified narcotics, undetermined, initial encounter
T40605A	Adverse effect of unspecified narcotics, initial encounter
T40691A	Poisoning by other narcotics, accidental (unintentional), initial encounter
T40693A	Poisoning by other narcotics, assault, initial encounter
T40694A	Poisoning by other narcotics, undetermined, initial encounter
T40695A	Adverse effect of other narcotics, initial encounter
4. Sedative-related disorders	
F1310	Sedative, hypnotic or anxiolytic abuse, uncomplicated
F13120	Sedative, hypnotic or anxiolytic abuse with intoxication, uncomplicated
F13121	Sedative, hypnotic or anxiolytic abuse with intoxication delirium
F13129	Sedative, hypnotic or anxiolytic abuse with intoxication, unspecified
F1314	Sedative, hypnotic or anxiolytic abuse with mood disorder
F13150	Sedative, hypnotic or anxiolytic abuse with psychotic disorder with delusions
F13151	Sedative, hypnotic or anxiolytic abuse with psychotic disorder with hallucinations
F13159	Sedative, hypnotic or anxiolytic abuse with psychotic disorder, unspecified
F13180	Sedative, hypnotic or anxiolytic abuse with anxiety disorder
F13181	Sedative, hypnotic or anxiolytic abuse with sexual dysfunction
F13182	Sedative, hypnotic or anxiolytic abuse with sleep disorder
F13188	Sedative, hypnotic or anxiolytic abuse with other disorder
F1319	Sedative, hypnotic or anxiolytic abuse with unspecified disorder
F1320	Sedative, hypnotic or anxiolytic dependence, uncomplicated
F13220	Sedative, hypnotic or anxiolytic dependence with intoxication, uncomplicated
F13221	Sedative, hypnotic or anxiolytic dependence with intoxication delirium
F13229	Sedative, hypnotic or anxiolytic dependence with intoxication, unspecified
F13230	Sedative, hypnotic or anxiolytic dependence with withdrawal, uncomplicated

F13231	Sedative, hypnotic or anxiolytic dependence with withdrawal delirium
F13232	Sedative, hypnotic or anxiolytic dependence with withdrawal with perceptual disturb
F13239	Sedative, hypnotic or anxiolytic dependence with withdrawal, unspecified
F1324	Sedative, hypnotic or anxiolytic dependence with mood disorder
F13250	Sedative, hypnotic or anxiolytic dependence with psychotic disorder with delusions
F13251	Sedative, hypnotic or anxiolytic dependence with psychotic disorder with hallucinations
F13259	Sedative, hypnotic or anxiolytic dependence with psychotic disorder, unspecified
F1326	Sedative, hypnotic or anxiolytic dependence with persisting amnestic disorder
F1327	Sedative, hypnotic or anxiolytic dependence with persisting dementia
F13280	Sedative, hypnotic or anxiolytic dependence with anxiety disorder
F13281	Sedative, hypnotic or anxiolytic dependence with sexual dysfunction
F13282	Sedative, hypnotic or anxiolytic dependence with sleep disorder
F13288	Sedative, hypnotic or anxiolytic dependence with other disorder
F1329	Sedative, hypnotic or anxiolytic dependence with unspecified disorder
F1390	Sedative, hypnotic or anxiolytic use, unspecified, uncomplicated
F13920	Sedative, hypnotic or anxiolytic use, unspecified with intoxication, uncomplicated
F13921	Sedative, hypnotic or anxiolytic use, unspecified with intoxication delirium
F13929	Sedative, hypnotic or anxiolytic use, unspecified with intoxication, unspecified
F13930	Sedative, hypnotic or anxiolytic use, unspecified with withdrawal, uncomplicated
F13931	Sedative, hypnotic or anxiolytic use, unspecified with withdrawal delirium
F13932	Sedative, hypnotic or anxiolytic use, unspecified with withdrawal with perceptual disturbance
F13939	Sedative, hypnotic or anxiolytic use, unspecified with withdrawal, unspecified
F1394	Sedative, hypnotic or anxiolytic use, unspecified with mood disorder
F13950	Sedative, hypnotic or anxiolytic use, unspecified with psychotic disorder with delusions
F13951	Sedative, hypnotic or anxiolytic use, unspecified with psychotic disorder with hallucinations
F13959	Sedative, hypnotic or anxiolytic use, unspecified with psychotic disorder, unspecified
F1396	Sedative, hypnotic or anxiolytic use, unspecified with persisting amnestic disorder
F1397	Sedative, hypnotic or anxiolytic use, unspecified with persisting dementia
F13980	Sedative, hypnotic or anxiolytic use, unspecified with anxiety disorder
F13981	Sedative, hypnotic or anxiolytic use, unspecified with sexual dysfunction
F13982	Sedative, hypnotic or anxiolytic use, unspecified with sleep disorder
F13988	Sedative, hypnotic or anxiolytic use, unspecified with other disorder
F1399	Sedative, hypnotic or anxiolytic use, unspecified with unspecified disorder
5. Stimulant-related disorders	
F1410	Cocaine abuse, uncomplicated
F14120	Cocaine abuse with intoxication, uncomplicated

F14121	Cocaine abuse with intoxication with delirium
F14122	Cocaine abuse with intoxication with perceptual disturbance
F14129	Cocaine abuse with intoxication, unspecified
F1414	Cocaine abuse with cocaine-induced mood disorder
F14150	Cocaine abuse with cocaine-induced psychotic disorder with delusions
F14151	Cocaine abuse with cocaine-induced psychotic disorder with hallucinations
F14159	Cocaine abuse with cocaine-induced psychotic disorder, unspecified
F14180	Cocaine abuse with cocaine-induced anxiety disorder
F14181	Cocaine abuse with cocaine-induced sexual dysfunction
F14182	Cocaine abuse with cocaine-induced sleep disorder
F14188	Cocaine abuse with other cocaine-induced disorder
F1419	Cocaine abuse with unspecified cocaine-induced disorder
F1420	Cocaine dependence, uncomplicated
F14220	Cocaine dependence with intoxication, uncomplicated
F14221	Cocaine dependence with intoxication delirium
F14222	Cocaine dependence with intoxication with perceptual disturbance
F14229	Cocaine dependence with intoxication, unspecified
F1423	Cocaine dependence with withdrawal
F1424	Cocaine dependence with cocaine-induced mood disorder
F14250	Cocaine dependence with cocaine-induced psychotic disorder with delusions
F14251	Cocaine dependence with cocaine-induced psychotic disorder with hallucinations
F14259	Cocaine dependence with cocaine-induced psychotic disorder, unspecified
F14280	Cocaine dependence with cocaine-induced anxiety disorder
F14281	Cocaine dependence with cocaine-induced sexual dysfunction
F14282	Cocaine dependence with cocaine-induced sleep disorder
F14288	Cocaine dependence with other cocaine-induced disorder
F1429	Cocaine dependence with unspecified cocaine-induced disorder
F1490	Cocaine use, unspecified, uncomplicated
F14920	Cocaine use, unspecified with intoxication, uncomplicated
F14921	Cocaine use, unspecified with intoxication delirium
F14922	Cocaine use, unspecified with intoxication with perceptual disturbance
F14929	Cocaine use, unspecified with intoxication, unspecified
F1494	Cocaine use, unspecified with cocaine-induced mood disorder
F14950	Cocaine use, unspecified with cocaine-induced psychotic disorder with delusions
F14951	Cocaine use, unspecified with cocaine-induced psychotic disorder with hallucinations
F14959	Cocaine use, unspecified with cocaine-induced psychotic disorder, unspecified
F14980	Cocaine use, unspecified with cocaine-induced anxiety disorder

F14981	Cocaine use, unspecified with cocaine-induced sexual dysfunction
F14982	Cocaine use, unspecified with cocaine-induced sleep disorder
F14988	Cocaine use, unspecified with other cocaine-induced disorder
F1499	Cocaine use, unspecified with unspecified cocaine-induced disorder
F1510	Other stimulant abuse, uncomplicated
F15120	Other stimulant abuse with intoxication, uncomplicated
F15121	Other stimulant abuse with intoxication delirium
F15122	Other stimulant abuse with intoxication with perceptual disturbance
F15129	Other stimulant abuse with intoxication, unspecified
F1514	Other stimulant abuse with stimulant-induced mood disorder
F15150	Other stimulant abuse with stimulant-induced psychotic disorder with delusions
F15151	Other stimulant abuse with stimulant-induced psychotic disorder with hallucinations
F15159	Other stimulant abuse with stimulant-induced psychotic disorder, unspecified
F15180	Other stimulant abuse with stimulant-induced anxiety disorder
F15181	Other stimulant abuse with stimulant-induced sexual dysfunction
F15182	Other stimulant abuse with stimulant-induced sleep disorder
F15188	Other stimulant abuse with other stimulant-induced disorder
F1519	Other stimulant abuse with unspecified stimulant-induced disorder
F1520	Other stimulant dependence, uncomplicated
F15220	Other stimulant dependence with intoxication, uncomplicated
F15221	Other stimulant dependence with intoxication delirium
F15222	Other stimulant dependence with intoxication with perceptual disturbance
F15229	Other stimulant dependence with intoxication, unspecified
F1523	Other stimulant dependence with withdrawal
F1524	Other stimulant dependence with stimulant-induced mood disorder
F15250	Other stimulant dependence with stimulant-induced psychotic disorder with delusions
F15251	Other stimulant dependence with stimulant-induced psychotic disorder with hallucinations
F15259	Other stimulant dependence with stimulant-induced psychotic disorder, unspecified
F15280	Other stimulant dependence with stimulant-induced anxiety disorder
F15281	Other stimulant dependence with stimulant-induced sexual dysfunction
F15282	Other stimulant dependence with stimulant-induced sleep disorder
F15288	Other stimulant dependence with other stimulant-induced disorder
F1529	Other stimulant dependence with unspecified stimulant-induced disorder
F1590	Other stimulant use, unspecified, uncomplicated
F15920	Other stimulant use, unspecified with intoxication, uncomplicated
F15921	Other stimulant use, unspecified with intoxication delirium
F15922	Other stimulant use, unspecified with intoxication with perceptual disturbance

F15929	Other stimulant use, unspecified with intoxication, unspecified
F1593	Other stimulant use, unspecified with withdrawal
F1594	Other stimulant use, unspecified with stimulant-induced mood disorder
F15950	Other stimulant use, unspecified with stimulant-induced psychotic disorder with delusions
F15951	Other stimulant use, unspecified with stimulant-induced psychotic disorder with hallucinations
F15959	Other stimulant use, unspecified with stimulant-induced psychotic disorder, unspecified
F15980	Other stimulant use, unspecified with stimulant-induced anxiety disorder
F15981	Other stimulant use, unspecified with stimulant-induced sexual dysfunction
F15982	Other stimulant use, unspecified with stimulant-induced sleep disorder
F15988	Other stimulant use, unspecified with other stimulant-induced disorder
F1599	Other stimulant use, unspecified with unspecified stimulant-induced disorder
T405X1A	Poisoning by cocaine, accidental (unintentional), initial encounter
T405X3A	Poisoning by cocaine, assault, initial encounter
T405X4A	Poisoning by cocaine, undetermined, initial encounter
T405X5A	Adverse effect of cocaine, initial encounter
T43601A	Poisoning by unspecified psychostimulants, accidental (unintentional), initial encounter
T43603A	Poisoning by unspecified psychostimulants, assault, initial encounter
T43604A	Poisoning by unspecified psychostimulants, undetermined, initial encounter
T43605A	Adverse effect of unspecified psychostimulants, initial encounter
T43621A	Poisoning by amphetamines, accidental (unintentional), initial encounter
T43623A	Poisoning by amphetamines, assault, initial encounter
T43624A	Poisoning by amphetamines, undetermined, initial encounter
T43625A	Adverse effect of amphetamines, initial encounter
T43631A	Poisoning by methylphenidate, accidental (unintentional), initial encounter
T43633A	Poisoning by methylphenidate, assault, initial encounter
T43634A	Poisoning by methylphenidate, undetermined, initial encounter
T43635A	Adverse effect of methylphenidate, initial encounter
T43691A	Poisoning by other psychostimulants, accidental (unintentional), initial encounter
T43693A	Poisoning by other psychostimulants, assault, initial encounter
T43694A	Poisoning by other psychostimulants, undetermined, initial encounter
T43695A	Adverse effect of other psychostimulants, initial encounter
6. Miscellaneous substances and addictive disorders	
F1610	Hallucinogen abuse, uncomplicated
F16120	Hallucinogen abuse with intoxication, uncomplicated
F16121	Hallucinogen abuse with intoxication with delirium
F16122	Hallucinogen abuse with intoxication with perceptual disturbance
F16129	Hallucinogen abuse with intoxication, unspecified

F1614	Hallucinogen abuse with hallucinogen-induced mood disorder
F16150	Hallucinogen abuse with psychotic disorder with delusions
F16151	Hallucinogen abuse with psychotic disorder with hallucinations
F16159	Hallucinogen abuse with psychotic disorder, unspecified
F16180	Hallucinogen abuse with hallucinogen-induced anxiety disorder
F16183	Hallucinogen abuse with hallucinogen persisting perception disorder
F16188	Hallucinogen abuse with other hallucinogen-induced disorder
F1619	Hallucinogen abuse with unspecified hallucinogen-induced disorder
F1620	Hallucinogen dependence, uncomplicated
F16220	Hallucinogen dependence with intoxication, uncomplicated
F16221	Hallucinogen dependence with intoxication with delirium
F16229	Hallucinogen dependence with intoxication, unspecified
F1624	Hallucinogen dependence with hallucinogen-induced mood disorder
F16250	Hallucinogen dependence with psychotic disorder with delusions
F16251	Hallucinogen dependence with psychotic disorder with hallucinations
F16259	Hallucinogen dependence with psychotic disorder, unspecified
F16280	Hallucinogen dependence with anxiety disorder
F16283	Hallucinogen dependence with hallucinogen persisting perception disorder
F16288	Hallucinogen dependence with other hallucinogen-induced disorder
F1629	Hallucinogen dependence with unspecified hallucinogen-induced disorder
F1690	Hallucinogen use, unspecified, uncomplicated
F16920	Hallucinogen use, unspecified with intoxication, uncomplicated
F16921	Hallucinogen use, unspecified with intoxication with delirium
F16929	Hallucinogen use, unspecified with intoxication, unspecified
F1694	Hallucinogen use, unspecified with hallucinogen-induced mood disorder
F16950	Hallucinogen use, unspecified with psychotic disorder with delusions
F16951	Hallucinogen use, unspecified with psychotic disorder with hallucinations
F16959	Hallucinogen use, unspecified with psychotic disorder, unspecified
F16980	Hallucinogen use, unspecified with anxiety disorder
F16983	Hallucinogen use, unspecified with hallucinogen persisting perception disorder
F16988	Hallucinogen use, unspecified with other hallucinogen-induced disorder
F1699	Hallucinogen use, unspecified with unspecified hallucinogen-induced disorder
F1810	Inhalant abuse, uncomplicated
F18120	Inhalant abuse with intoxication, uncomplicated
F18121	Inhalant abuse with intoxication delirium
F18129	Inhalant abuse with intoxication, unspecified
F1814	Inhalant abuse with inhalant-induced mood disorder

F18150	Inhalant abuse with inhalant-induced psychotic disorder with delusions
F18151	Inhalant abuse with inhalant-induced psychotic disorder with hallucinations
F18159	Inhalant abuse with inhalant-induced psychotic disorder, unspecified
F1817	Inhalant abuse with inhalant-induced dementia
F18180	Inhalant abuse with inhalant-induced anxiety disorder
F18188	Inhalant abuse with other inhalant-induced disorder
F1819	Inhalant abuse with unspecified inhalant-induced disorder
F1820	Inhalant dependence, uncomplicated
F18220	Inhalant dependence with intoxication, uncomplicated
F18221	Inhalant dependence with intoxication delirium
F18229	Inhalant dependence with intoxication, unspecified
F1824	Inhalant dependence with inhalant-induced mood disorder
F18250	Inhalant dependence with inhalant-induced psychotic disorder with delusions
F18251	Inhalant dependence with inhalant-induced psychotic disorder with hallucinations
F18259	Inhalant dependence with inhalant-induced psychotic disorder, unspecified
F1827	Inhalant dependence with inhalant-induced dementia
F18280	Inhalant dependence with inhalant-induced anxiety disorder
F18288	Inhalant dependence with other inhalant-induced disorder
F1829	Inhalant dependence with unspecified inhalant-induced disorder
F1890	Inhalant use, unspecified, uncomplicated
F18920	Inhalant use, unspecified with intoxication, uncomplicated
F18921	Inhalant use, unspecified with intoxication with delirium
F18929	Inhalant use, unspecified with intoxication, unspecified
F1894	Inhalant use, unspecified with inhalant-induced mood disorder
F18950	Inhalant use, unspecified with inhalant-induced psychotic disorder with delusions
F18951	Inhalant use, unspecified with inhalant-induced psychotic disorder with hallucinations
F18959	Inhalant use, unspecified with inhalant-induced psychotic disorder, unspecified
F1897	Inhalant use, unspecified with inhalant-induced persisting dementia
F18980	Inhalant use, unspecified with inhalant-induced anxiety disorder
F18988	Inhalant use, unspecified with other inhalant-induced disorder
F1899	Inhalant use, unspecified with unspecified inhalant-induced disorder
F1910	Other psychoactive substance abuse, uncomplicated
F19120	Other psychoactive substance abuse with intoxication, uncomplicated
F19121	Other psychoactive substance abuse with intoxication delirium
F19122	Other psychoactive substance abuse with intoxication with perceptual disturb
F19129	Other psychoactive substance abuse with intoxication, unspecified
F1914	Other psychoactive substance abuse with mood disorder

F19150	Other psychoactive substance abuse with psychotic disorder with delusions
F19151	Other psychoactive substance abuse with psychotic disorder with hallucinations
F19159	Other psychoactive substance abuse with psychotic disorder, unspecified
F1916	Other psychoactive substance abuse with persist amnestic disorder
F1917	Other psychoactive substance abuse with persisting dementia
F19180	Other psychoactive substance abuse with anxiety disorder
F19181	Other psychoactive substance abuse with sexual dysfunction
F19182	Other psychoactive substance abuse with sleep disorder
F19188	Other psychoactive substance abuse with other disorder
F1919	Other psychoactive substance abuse with unspecified disorder
F1920	Other psychoactive substance dependence, uncomplicated
F19220	Other psychoactive substance dependence with intoxication, uncomplicated
F19221	Other psychoactive substance dependence with intoxication delirium
F19222	Other psychoactive substance dependence with intoxication with perceptual disturbance
F19229	Other psychoactive substance dependence with intoxication, unspecified
F19230	Other psychoactive substance dependence with withdrawal, uncomplicated
F19231	Other psychoactive substance dependence with withdrawal delirium
F19232	Other psychoactive substance dependence with withdrawal with perceptual disturbance
F19239	Other psychoactive substance dependence with withdrawal, unspecified
F1924	Other psychoactive substance dependence with mood disorder
F19250	Other psychoactive substance dependence with psychotic disorder with delusions
F19251	Other psychoactive substance dependence with psychotic disorder with hallucinations
F19259	Other psychoactive substance dependence with psychotic disorder, unspecified
F1926	Other psychoactive substance dependence with persisting amnestic disorder
F1927	Other psychoactive substance dependence with persisting dementia
F19280	Other psychoactive substance dependence with anxiety disorder
F19281	Other psychoactive substance dependence with sexual dysfunction
F19282	Other psychoactive substance dependence with sleep disorder
F19288	Other psychoactive substance dependence with other disorder
F1929	Other psychoactive substance dependence with unspecified disorder
F1990	Other psychoactive substance use, unspecified, uncomplicated
F19920	Other psychoactive substance use, unspecified with intoxication, uncomplicated
F19921	Other psychoactive substance use, unspecified with intoxication with delirium
F19922	Other psychoactive substance use, unspecified with intoxication with perceptual disturbance
F19929	Other psychoactive substance use, unspecified with intoxication, unspecified
F19930	Other psychoactive substance use, unspecified with withdrawal, uncomplicated
F19931	Other psychoactive substance use, unspecified with withdrawal delirium

F19932	Other psychoactive substance use, unspecified with withdrawal with perceptual disturbance
F19939	Other psychoactive substance use, unspecified with withdrawal, unspecified
F1994	Other psychoactive substance use, unspecified with mood disorder
F19950	Other psychoactive substance use, unspecified with psychotic disorder with delusions
F19951	Other psychoactive substance use, unspecified with psychotic disorder with hallucinations
F19959	Other psychoactive substance use, unspecified with psychotic disorder, unspecified
F1996	Other psychoactive substance use, unspecified with persisting amnestic disorder
F1997	Other psychoactive substance use, unspecified with persisting dementia
F19980	Other psychoactive substance use, unspecified with anxiety disorder
F19981	Other psychoactive substance use, unspecified with sexual dysfunction
F19982	Other psychoactive substance use, unspecified with sleep disorder
F19988	Other psychoactive substance use, unspecified with other disorder
F1999	Other psychoactive substance use, unspecified with unspecified disorder
F550	Abuse of antacids
F551	Abuse of herbal or folk remedies
F552	Abuse of laxatives
F553	Abuse of steroids or hormones
F554	Abuse of vitamins
F558	Abuse of other non-psychoactive substances
F630	Pathological gambling
O355XX0	Maternal care for (suspected) damage to fetus by drugs, unspecified
O355XX1	Maternal care for damage to fetus by drugs, fetus 1
O355XX2	Maternal care for damage to fetus by drugs, fetus 2
O355XX3	Maternal care for damage to fetus by drugs, fetus 3
O355XX4	Maternal care for damage to fetus by drugs, fetus 4
O355XX5	Maternal care for damage to fetus by drugs, fetus 5
O355XX9	Maternal care for (suspected) damage to fetus by drugs, other
O99320	Drug use complicating pregnancy, unspecified trimester
O99321	Drug use complicating pregnancy, first trimester
O99322	Drug use complicating pregnancy, second trimester
O99323	Drug use complicating pregnancy, third trimester
O99324	Drug use complicating childbirth
O99325	Drug use complicating the puerperium
T408X1A	Poisoning by lysergide, accidental (unintentional), initial encounter
T408X3A	Poisoning by lysergide [LSD], assault, initial encounter
T408X4A	Poisoning by lysergide, undetermined, initial encounter
T40901A	Poisoning by unspecified psychodysleptics, accidental, initial encounter

T40903A	Poisoning by unspecified psychodysleptics, assault, initial encounter
T40904A	Poisoning by unspecified psychodysleptics, undetermined, initial encounter
T40905A	Adverse effect of unspecified psychodysleptics, initial encounter
T40991A	Poisoning by other psychodysleptics, accidental, initial encounter
T40993A	Poisoning by other psychodysleptics, assault, initial encounter
T40994A	Poisoning by other psychodysleptics, undetermined, initial encounter
T40995A	Adverse effect of other psychodysleptics, initial encounter
Z726	Gambling and betting

Supplementary Table 2. Maternal Comorbidity Index

Condition	Weight	ICD-10 Codes
Severe preeclampsia	5	O14.1
Chronic congestive heart failure	5	I50.22, I50.23, I50.32, I50.33, I50.42, I50.43
Congenital heart disease	4	Q20, Q21, Q22, Q23, Q24, Q25, Q26
Sickle cell disease	3	D57.00, D57.01, D57.02, D57.211, D57.212, D57.219, D57.411, D57.412, D57.419, D57.811, D57.812, D57.819, (5th digit: unspecified, acute chest syndrome or splenic sequestration)
Multiple gestation	2	O30
Cardiac valvular disease	2	I05.0, I05.1, I05.2, I05.8
Systemic lupus erythematosus	2	M32
Human immunodeficiency virus	2	B20, Z21
Mild preeclampsia or unspecified preeclampsia	2	O14.0, O14.9
Drug abuse	2	F11.1, F12.1, F13.1, F14.1, F15.1, F16.1, F18.1, F19.1
Placenta previa	2	O44
Chronic renal disease	1	N26.9, N18
Preexisting hypertension	1	O10
Previous cesarean birth	1	O34.21, O34.22
Gestational hypertension	1	O13
Alcohol abuse	1	F10.1
Asthma	1	J45
Preexisting diabetes mellitus	1	O24.0, O24.1, O24.3, O24.8
Maternal Age		-
35-39 years	1	-
40-44 years	2	-
45 and above	3	-

Supplementary Table 3: Codes for postpartum visits

Service type	CPT codes	ICD-10 codes
Routine Postpartum care	59400, 59410, 59430, 59510, 59515, 59610, 59614, 59618, 59622	Z39.1, Z39.2
Postpartum services	82947, 82948, 82950-82952, 99420	R41.83, R45.85x, Z01.4x, Z11.x, Z12.x, Z13.x, Z23, Z28.x, Z30.x, Z32.2, Z32.3, Z46.81, Z53.1, Z53.2x, Z55.x, Z56.xx, Z57.x, Z59.x, Z60.x, Z62.x, Z63.x, Z64.x, Z65.x, Z68.x, Z69.x, Z70.x, Z71.3, Z71.4x, Z71.5x, Z71.6, Z71.7, Z71.8x, Z71.9, Z72.xxx, Z73.x, Z74.1, Z74.9, Z75.5, Z76.89, Z80, Z82.x, Z83.x, Z84, Z85, Z86.x, Z87.x, Z88, Z91.x

Abbreviations used: CPT=current procedural terminology; ICD=international classification of diseases