

2022 Controlled Substances Reporting System Annual Report

**NC GS 90-113.75B
Amended by Session Law 2017-74, Section 12**



**Report to the
Joint Legislative Oversight Committee on Health and Human Services
North Carolina Medical Board
North Carolina Board of Podiatry Examiners
North Carolina Board of Nursing
North Carolina Dental Board
North Carolina Veterinary Medical Board
North Carolina Board of Pharmacy**

**By
North Carolina Department of Health and Human Services**

June 8, 2022

INTRODUCTION

G.S. § 90-113.75B *Annually on February 1, beginning February 1, 2019, the Department shall report to the Joint Legislative Oversight Committee on Health and Human Services, the North Carolina Medical Board, the North Carolina Board of Podiatry Examiners, the North Carolina Board of Nursing, the North Carolina Dental Board, the North Carolina Veterinary Medical Board, and the North Carolina Board of Pharmacy on data reported to the controlled substances reporting system.*

BACKGROUND

G.S. § 90-113.75B requires an annual report to the General Assembly and licensing boards (as specified in the introduction above) to be delivered on February 1st of each year beginning in 2019. The report must include at least all of the following information about targeted controlled substances reported to the system during the preceding calendar year:

- (1) The total number of prescriptions dispensed, broken down by Schedule.
- (2) Demographics about the ultimate users to whom prescriptions were dispensed.
- (3) Statistics regarding the number of pills dispensed per prescription.
- (4) The number of ultimate users who were prescribed a controlled substance by two or more practitioners.
- (5) The number of ultimate users to whom a prescription was dispensed in more than one county.
- (6) The categories of practitioners prescribing controlled substances and the number of prescriptions authorized by each category of practitioner. For the purpose of this subdivision, medical doctors, surgeons, palliative care practitioners, oncologists and other practitioners specializing in oncology, pain management practitioners, practitioners who specialize in hematology, including the treatment of sickle cell disease, and practitioners who specialize in treating substance use disorder shall be treated as distinct categories of practitioners.
- (7) Any other data deemed appropriate and requested by the Joint Legislative Oversight Committee on Health and Human Services, the North Carolina Medical Board, the North Carolina Board of Podiatry Examiners, the North Carolina Board of Nursing, the North Carolina Dental Board, the North Carolina Veterinary Medical Board, or the North Carolina Board of Pharmacy.

DATA COLLECTION AND EXPLANATORY NOTES

Pharmacies in North Carolina are responsible for submitting data on any Schedule II-V controlled substances they dispense no later than the close of the next business day after the prescription is delivered. The data comes in a standard American Society for Automation in Pharmacy (ASAP) format, which includes details on the transaction such as the patient, prescriber, and pharmacy.

The quality of the prescription data is dependent on the accuracy of pharmacist submissions. Prescriptions are constantly being added and modified within the system, so the values in this report will change slightly with time. Prescriber specialty (Exhibit 6) is based on self-reported specialties in the National Plan and Provider Enumeration System (NPPES), the Drug Enforcement Agency (DEA), the North Carolina Medical Board, and the Controlled Substances Reporting System (CSRS).

On March 27, 2020 Governor Roy Cooper issued Executive Order 121, a statewide, 30 day Stay at Home order to help stop the spread of the novel coronavirus COVID19. It is after this date that significant decreases in the number of controlled substances dispensed was observed within the Controlled Substances Reporting System indicating a change in health seeking behavior as a result of the COVID-19 pandemic. Throughout 2021, North Carolina remained in a state of emergency due to the pandemic.

EXHIBITS AND NOTES

Exhibit 1: Prescriptions by Schedule

In total, 16,529,272 controlled substance prescriptions were dispensed in 2021¹. In 2020, 17,100,256 prescriptions for controlled substances were dispensed. This is a 3% decrease. There has been a decline in the dispensation of all controlled substances for human patients. The largest decline has been seen in the number of Schedule IV controlled substances dispensed. Schedule II controlled substances were the most dispensed in 2021, accounting for 46% of all controlled substance dispensations. Compared to 2020, the number of Schedule II controlled substances dispensed remained similar to the previous year and accounts for a slightly higher percentage of all controlled substances dispensed. This is followed by prescription dispensations in Schedule IV, accounting for 40% of all controlled substance prescriptions dispensed. The most common type of drugs in Schedule II and Schedule IV are opioids and benzodiazepines respectively. See Exhibit 6 for further information.

In 2021, the proportion of human prescriptions listed as uncategorized was 0.8%, slightly lower than the previous year (1%). The proportion of veterinary prescriptions listed as uncategorized was 15%, lower than the proportion reported in 2020 (17%). This can be attributed to a variety of systemic factors such as the formal classification of new products and improved data systems to capture information.

Table 1.1 - Total Prescriptions by Schedule in 2021

Schedule	Human Rx	Veterinary Rx	Total
II	7,533,387	19,744	7,553,131
III	1,320,837	2,424	1,323,261
IV	6,683,991	104,391	6,788,382
V	700,313	1,968	702,281
Data Missing	138,656	23,561	162,217
Total	16,377,184	152,088	16,529,272

Schedule II substances are currently recognized for medical use but have a high potential for abuse, which may lead to severe psychological or physical dependence. Examples include Hydrocodone, Oxycodone, Fentanyl, Amphetamine Salts and Cocaine.

Schedule III substances have a potential for abuse that is less than schedule II and may lead to moderate dependence. Examples include Buprenorphine, Ketamine, Tylenol with codeine, testosterone, and anabolic steroids.

Schedule IV substances have a lower potential for abuse compared to schedule III. Examples include benzodiazepines such as alprazolam (Xanax®), carisoprodol (Soma®), clonazepam (Klonopin®), clorazepate (Tranxene®), diazepam (Valium®).

Schedule V substances have lower potential for abuse than Schedule IV and consist of preparations containing limited quantities of certain narcotics and are generally used for antidiarrheal, antitussive, and analgesic (pain relief) purposes. Examples include Robitussin AC, Lomotil, and Lyrica.

¹ This data is accurate as of 15 January 2022. Some variation may occur due to late submissions.

Exhibit 2: Demographics

The data has been aggregated by two demographic categories: Counties (Table 2.1) and Age Group and Gender (Table 2.2). These tables contain a combination of human and veterinary prescriptions due to the small numbers in the veterinary category. This count of unique patients may differ from the sum of all categories because patients may have moved between counties during the reporting period causing them to be indicated in more than one county.

It is noted that Mecklenburg and Perquimans have the smallest controlled substance prescription per patient ratio of all North Carolina counties (4.96 and 4.92 prescriptions per patient respectively) and Alexander has the highest (7.40) See Table 2.1 below. Swain has the highest rate of prescriptions per 1,000 residents (2841.36 per 1,000).

Table 2.1 - Number of Controlled Substance Prescriptions Dispensed by County of Patient Residence in 2021

NC County	Prescriptions	Patients	Rx per Patient	Rx per 1,000 population
Alamance	239,141	42,888	5.58	1,352.32
Alexander	79,663	10,769	7.40	2,043.48
Alleghany	19,738	3,316	5.95	1,708.18
Anson	31,087	6,078	5.11	1,229.32
Ashe	53,085	7,946	6.68	1,868.07
Avery	33,022	5,316	6.21	1,831.81
Beaufort	108,100	15,167	7.13	2,275.93
Bertie	29,366	5,310	5.53	1,498.11
Bladen	56,908	8,504	6.69	1,654.78
Brunswick	266,321	43,552	6.12	1,781.32
Buncombe	406,912	66,370	6.13	1,506.86
Burke	167,189	24,075	6.94	1,811.99
Cabarrus	324,751	54,581	5.95	1,473.21
Caldwell	184,622	26,334	7.01	2,195.29
Camden	13,104	2,412	5.43	1,212.44
Carteret	142,690	21,035	6.78	1,978.48
Caswell	19,497	2,985	6.53	823.84
Catawba	334,303	50,452	6.63	2,069.78
Chatham	66,914	11,722	5.71	842.36
Cherokee	65,915	9,075	7.26	2,175.63
Chowan	19,595	3,866	5.07	1,397.55
Clay	24,693	3,696	6.68	2,015.92
Cleveland	219,201	32,465	6.75	2,176.71
Columbus	124,935	17,641	7.08	2,222.25
Craven	185,752	29,672	6.26	1,783.44

NC County	Prescriptions	Patients	Rx per Patient	Rx per 1,000 population
Cumberland	459,863	78,952	5.82	1,377.86
Currituck	27,498	4,847	5.67	968.96
Dare	63,186	10,566	5.98	1,671.19
Davidson	264,325	41,052	6.44	1,534.15
Davie	84,545	13,163	6.42	1,898.61
Duplin	69,913	12,633	5.53	1,169.56
Durham	320,764	62,369	5.14	987.27
Edgecombe	75,150	13,477	5.58	1,436.66
Forsyth	582,150	102,307	5.69	1,505.89
Franklin	89,944	15,636	5.75	1,261.33
Gaston	493,188	68,863	7.16	2,194.70
Gates	9,556	1,743	5.48	784.05
Graham	18,601	2,598	7.16	2,140.75
Granville	70,201	11,893	5.90	1,116.30
Greene	20,084	3,594	5.59	954.15
Guilford	757,837	136,676	5.54	1,374.50
Halifax	80,233	13,308	6.03	1,589.37
Harnett	177,488	27,915	6.36	1,272.52
Haywood	123,657	18,419	6.71	1,923.13
Henderson	190,752	32,006	5.96	1,575.06
Hertford	29,765	5,123	5.81	1,239.74
Hoke	56,493	9,912	5.70	994.24
Hyde	7,229	1,165	6.21	1,407.79
Iredell	352,523	55,660	6.33	1,888.53
Jackson	59,597	9,380	6.35	1,313.75
Johnston	263,910	44,217	5.97	1,207.32
Jones	21,082	3,263	6.46	2,067.67
Lee	119,404	19,160	6.23	1,894.73
Lenoir	84,147	15,357	5.48	1,514.63
Lincoln	164,220	26,003	6.32	1,833.88
Macon	54,982	9,871	5.57	1,474.36
Madison	34,450	5,521	6.24	1,492.38
Martin	43,625	6,809	6.41	1,902.78
McDowell	81,753	12,783	6.40	1,732.75
Mecklenburg	1,218,207	245,760	4.96	1,053.71
Mitchell	32,556	4,451	7.31	2,131.74
Montgomery	35,608	6,311	5.64	1,282.94

NC County	Prescriptions	Patients	Rx per Patient	Rx per 1,000 population
Moore	147,789	26,582	5.56	1,411.51
Nash	145,199	24,571	5.91	1,509.97
New Hanover	405,883	65,676	6.18	1,670.39
Northampton	24,447	4,502	5.43	1,214.64
Onslow	270,647	42,311	6.40	1,308.43
Orange	185,169	33,396	5.54	1,233.43
Pamlico	17,743	2,987	5.94	1,334.16
Pasquotank	52,725	10,103	5.22	1,329.59
Pender	109,639	16,973	6.46	1,668.02
Perquimans	17,266	3,510	4.92	1,265.28
Person	61,835	10,201	6.06	1,520.00
Pitt	281,078	45,202	6.22	1,542.03
Polk	26,827	4,418	6.07	1,219.02
Randolph	207,822	34,127	6.09	1,416.66
Richmond	95,467	13,669	6.98	2,125.98
Robeson	259,578	38,287	6.78	1,996.71
Rockingham	190,222	27,776	6.85	2,071.03
Rowan	248,572	37,128	6.70	1,730.59
Rutherford	138,656	19,573	7.08	1,997.00
Sampson	98,519	16,463	5.98	1,524.87
Scotland	67,599	9,855	6.86	1,895.55
Stanly	115,742	18,419	6.28	1,787.71
Stokes	99,724	14,473	6.89	2,153.35
Surry	155,946	23,361	6.68	2,129.45
Swain	39,691	5,526	7.18	2,841.36
Transylvania	63,841	9,719	6.57	1,768.40
Tyrrell	4,851	877	5.53	1,138.73
Union	319,918	58,752	5.45	1,287.76
Vance	67,505	11,397	5.92	1,458.31
Wake	1,431,992	273,442	5.24	1,266.34
Warren	17,633	3,290	5.36	891.64
Washington	19,659	3,410	5.77	1,651.46
Watauga	55,576	9,544	5.82	933.09
Wayne	161,725	29,931	5.40	1,269.55
Wilkes	131,579	19,647	6.70	1,859.09
Wilson	122,604	20,666	5.93	1,475.13
Yadkin	80,394	11,781	6.82	2,100.65

NC County	Prescriptions	Patients	Rx per Patient	Rx per 1,000 population
Yancey	34,584	5,215	6.63	1,823.86
Out of State	688,958	156,207	4.41	N/A
Unspecified	9,678	1,857	5.21	N/A
Total	16,529,272	2,822,643	5.86	1,537.11

Table 2.2- Summary of North Carolina Dispensing Metrics in 2020 and 2021

Dispensing Metrics	2020			2021		
	Lowest Value	Highest Value	Total	Lowest Value	Highest Value	Total
Prescriptions	5,047	1,410,660	16,434,251	4,851	1,431,992	15,840,314
Patients	904	263,578	2,675,404	877	273,442	2,666,607
Rx per patient	5.04	8.05	6.14	4.92	7.40	5.94

The information in Table 2.2 excludes Out of State prescriptions and patients. There was an over-all decrease in the number of prescriptions, the number of patients receiving prescriptions, and the prescriptions per patient from 2020 to 2021.

Table 2.3- Number of Prescriptions Dispensed by Age and Gender

Age Range	Male	Female	Unknown	Total
0-9	242,932	123,333	6,035	372,300
10-19	528,274	378,846	5,894	913,014
20-29	425,076	677,881	4,425	1,107,382
30-39	785,195	1,310,220	6,462	2,101,877
40-49	932,607	1,638,117	7,368	2,578,092
50-59	1,282,909	2,041,984	9,224	3,334,117
60-69	1,333,781	1,931,005	6,905	3,271,691
70-79	798,884	1,190,861	3,389	1,993,134
80+	275,747	580,307	1,565	857,619
Unknown	1	5	40	46
Total	6,605,406	9,872,559	51,307	16,529,272

The highest volume of controlled substance prescriptions dispensed occur from age 30 to 69. The steepest increase occurs between the age groups 20-29 and 30-39. The number of controlled substance prescriptions dispensed continues to increase from that point up until 60-69, after which the numbers significantly decline. Compared to 2020, the number of controlled substance prescriptions dispensed in these age ranges decreased significantly. By gender, females have a higher number of dispensed prescriptions for controlled substances than males from the 20-29 age group onwards.

Exhibit 3: Pill Statistics

The classification of controlled substance with the highest number of prescriptions dispensed in 2021 was Opioids followed by a category called No CDC Class (e.g., Phentermine, Pregabalin, Testosterone), and then Benzodiazepines. (Table 3.1 below). No CDC Class denotes that the Center for Disease Control does not have a classification on file for the drug in question. Most controlled substance prescriptions (47%) are dispensed in quantities of 30 pills or less. Opioids remain the most dispensed controlled substance in all quantity ranges.

Table 3.1 – Pill Quantity by Classification

Quantity Range	Benzo	Muscle Relaxant	Opioid	Sedative	Stimulant	No CDC Class	Total
1-30	1,294,852	1,655	2,208,912	793,459	1,486,704	2,123,666	7,909,248
31-60	781,405	1,364	1,101,639	24,331	379,951	1,112,333	3,401,023
61-90	430,930	1,732	846,106	74,708	132,433	645,731	2,131,640
91-120	83,560	415	868,407	190	18,657	194,562	1,165,791
121-150	11,223	39	118,020	565	3,825	23,653	157,325
151-180	28,774	96	165,972	635	10,367	81,706	287,550
181+	13,898	115	67,398	34	3,208	44,459	129,112
Not Pills	22,358	0	352,114	156	15,964	956,906	1,347,498
Data Missing	8	0	37	2	2	36	85
Total	2,667,008	5,416	5,728,605	894,080	2,051,111	5,183,052	16,529,272

^No CDC Class – The Center for Disease Control (CDC) does not have a classification on file for the drug

Exhibit 4: Patients with Multiple Prescribers

The data indicates that 57.11% of patients saw one prescriber for their dispensed controlled substances. This is like the percentage noted in 2020 data (54.38%). Pet and animal owners were more likely to receive controlled substance prescriptions for their animals from one veterinarian.

Table 4.1 Prescriber counts (human patients)

Prescribers	Patients	Percentage
1	1,573,138	57.11%
2	634,160	23.02%
3	285,379	10.36%
4	133,261	4.84%
5	64,182	2.33%
6	31,195	1.13%
7	15,730	0.57%
8	8,080	0.29%
9	4,175	0.15%
10+	5,310	0.19%
Total	2,754,610	100.00%

Table 4.2 Prescriber counts (Veterinary)

Prescribers	Patients	Percentage
1	59,727	86.15%
2	7,351	10.60%
3	1,751	2.53%
4	401	0.58%
5	81	0.12%
6	14	0.02%
7	3	0.00%
8	0	0.00%
9	1	0.00%
10+	2	0.00%
Total	69,331	100.00%

Exhibit 5: Patients with Multiple County Dispensing

The largest percentage of patients had controlled substance prescriptions dispensed in only one county (Tables 5.1 and 5.2 below). There is little change in this pattern compared to 2020.

Table 5.1 - Dispenser Counties (Human patients)

Counties	Patients	Percentage
1	2,507,007	91.01%
2	219,897	7.98%
3	24,720	0.90%
4	2,624	0.10%
5	299	0.01%
6	52	0.00%
7	7	0.00%
8	2	0.00%
9	1	0.00%
10+	1	0.00%
Total	2,754,610	100.00%

Table 5.2 - Dispenser Counties (Veterinary patients)

Counties	Patients	Percentage
1	69,026	99.56%
2	298	0.43%
3	7	0.01%
4	0	0.00%
5	0	0.00%
6	0	0.00%
7	0	0.00%
8	0	0.00%
9	0	0.00%
10+	0	0.00%
Total	69,331	100.00%

Exhibit 6: The categories of practitioners prescribing controlled substances and the number of prescriptions authorized by each category of practitioner

Of the identified specialties, the largest categories for both controlled substance prescriptions and patients are *Other* followed by *Medical Doctor* (Table 6.1 below). These two specialties account for 51% and 44% of all controlled substances prescribed and dispensed. Dentists are the third most frequent prescribers of controlled substances.

Of the identified specialties, Substance Use Disorder² and Pain Management provide the highest prescription rate per patient compared to other specialties. Dentists have the lowest rate of prescriptions per patient.

Table 6.1 – Number of controlled substance prescriptions dispensed by prescriber specialty

Specialty	Prescriptions	Patients	Rx per Patient
Dentist	341,244	264,037	1.29
Hematology	5,754	1,629	3.53
Medical Doctor	6,709,635	1,363,110	4.92
Oncology	72,778	21,332	3.41
Pain Management	270,948	49,255	5.50
Palliative Care	24,859	7,169	3.47
Substance Use Disorder	35,998	5,078	7.09
Veterinary	150,491	68,877	2.18
Other+	8,754,890	1,683,015	5.20
Unspecified	162,675	48,455	3.36
Total*	16,529,272	2,822,643	5.86

+Specialty other than those in this list (e.g., Nurse Practitioner, Prescribing Pharmacist, et. al.)

*This is the total of unique patients and differs from the sum of all categories because unique patients may see more than one practitioner specialty.

Opioids remain the most prescribed and dispensed controlled substance across all specialties except Veterinary. Controlled substances with No CDC Class and benzodiazepines are the second and third most prescribed and dispensed controlled substances (Table 6.2).

² The classification of Substance Use Disorder specialty contains data from prescriptions dispensed at a pharmacy by a patient and does not include data from Substance Use Treatment services that dispense medications on site or less than 48 hours supply.

Table 6.2 – Number of prescriptions dispensed by prescriber specialty and drug class

Specialty	Benzo	Opioid	Muscle Relaxant	Stimulant	Sedative	No CDC Class[^]	Total
Dentist	44,388	242,745	28	66	83	53,934	341,244
Hematology	622	3,770	0	46	200	1,116	5,754
Medical Doctor	1,212,803	2,003,121	2,385	787,695	498,772	2,204,859	6,709,635
Oncology	10,119	44,505	2	484	2,224	15,444	72,778
Pain Management	9,461	200,924	304	1,919	2,390	55,950	270,948
Palliative Care	4,834	13,779	1	201	292	5,752	24,859
Substance Use Disorder	2,082	19,545	2	3,143	392	10,834	35,998
Veterinary	14,237	23,221	0	110	39	112,884	150,491
Other+	1,343,218	3,126,553	2,643	1,242,557	380,722	2,659,197	8,754,890
Unspecified	25,244	50,442	51	14,890	8,966	63,082	162,675
Total	2,667,008	5,728,605	5,416	2,051,111	894,080	5,183,052	16,529,272

[^]No CDC Class – The Center for Disease Control (CDC) does not have a classification on file for the drug

⁺Specialty other than those in this list (e.g., Nurse Practitioner, Prescribing Pharmacist, et. al.)

Summary and Discussion

In 2021, 16 million dispensed controlled substance prescriptions were entered into the North Carolina Controlled Substances Reporting System. This is another significant decline compared to previous years.

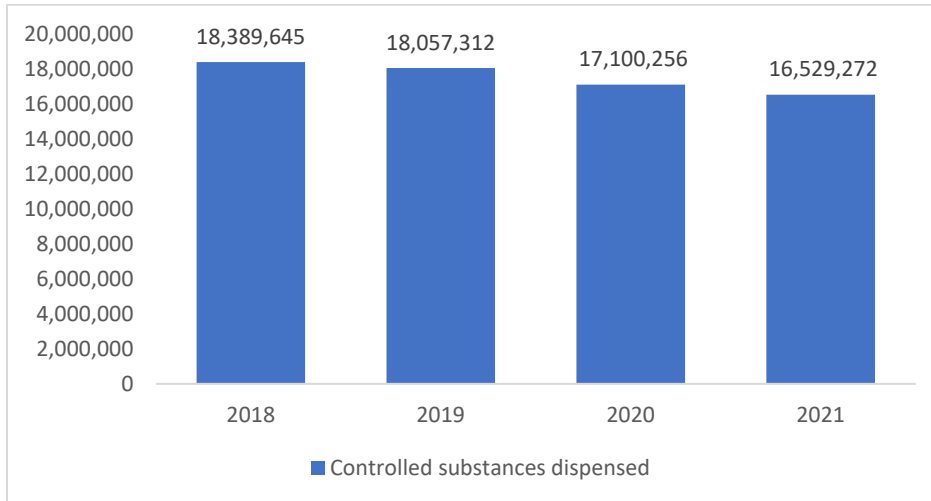


Figure 1 Annual trend in controlled substances dispensed

The 2020 annual report stated that the first significant observed decrease occurred between April and June of 2020. This coincided with the timing of the Governor’s Stay at Home orders and is consistent with observations nationwide. Survey results published by the CDC found that 40.9% of adults in the US had avoided medical care, both urgent and routine, because of concerns about COVID-19. The survey was conducted in June 2020³. Despite an observed return to prescribing levels in the last half of 2020, this report indicates a significant drop in the number of dispensed prescriptions throughout 2021.

The North Carolina Controlled Substances Reporting System was accessed by 52,824 practitioners and pharmacists. This is slightly higher compared to 2020, when just over 46,200 practitioners and pharmacists accessed prescription histories and other clinical diagnosis tools to assist in prescribing and dispensing decisions.

Mandatory use legislation for the search of patient histories prior to prescribing targeted controlled substances became effective in July 2021. One audit of compliance was completed in October 2021. Quarterly audits will continue to be completed throughout 2022 and the results will be reported in the next legislative annual report. Work will continue in 2022 to increase the number of practitioners and pharmacists accessing the system, with a focus on increasing technical integrations into clinical workflows and targeted engagement activities to keep the sector informed of resources and updates.

The continued decline in the total number of prescribed substances dispensed from 2021 to 2022 indicates some progress in achieving goals established in the *NC Department of Health and Human Services 2021-2023 Strategic Plan*. Goal #4 *Turn the tide on North Carolina’s opioid and substance use crisis*, measures the number of people receiving prescribed opioids as a metric for success. This position is supported by the

³ Czeisler MÉ, Marynak K, Clarke KEN, et al. Delay or Avoidance of Medical Care Because of COVID-19-Related Concerns - United States, June 2020. *MMWR Morb Mortal Wkly Rep.* 2020;69(36):1250-1257. Published 2020 Sep 11. doi:10.15585/mmwr.mm6936a4

decrease in opioid dispensing. The challenge for the state is to ensure that the behavioral and health related crisis emerging from the COVID19 pandemic does not reverse these trends.

The CSRS plays a key role in providing the medical community with accurate and up to date information on prescribing trends to encourage clinical decision making that will ultimately result in fewer targeted controlled substances circulating in the community. DHHS now provides prescribers with detailed quarterly trend reports on their own prescribing patterns. In addition, the implementation of the mandatory use statute, which requires searching prescription histories for all patients receiving a new targeted controlled substance prescription and every subsequent three months that substance is prescribed is predicted to have a positive impact on prescribing trends. Future reports will continue to measure the reduction expected in the total number of opioid prescriptions dispensed.