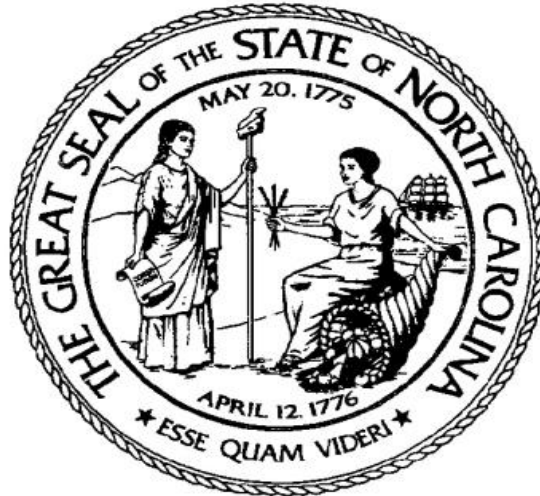


Controlled Substances Reporting System Annual Report

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

February 28, 2020

INTRODUCTION

§ 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

In 2017, House Bill 243 was introduced with several sections directly addressing the North Carolina Controlled Substances Reporting System (CSRS). It was signed into law on June 29, 2017. One of the requirements in this law is 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. In June 2019, Veterinarians that dispense controlled substances from their practice started to report to the CSRS.

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 CSRS.

EXHIBITS AND NOTES

Exhibit 1: Prescriptions by Schedule

In total, 18,057,312 controlled substance prescriptions were dispensed in 2019¹. In 2018, 18,389,645 prescriptions for controlled substances were dispensed. The largest decline has been seen in the number of Schedule II controlled substances dispensed. Schedule II controlled substances were the most dispensed in 2019, accounting for 46% of all controlled substance prescriptions dispensed. This is followed by prescriptions in Schedule IV, accounting for 42% 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 2019, the proportion of human prescriptions listed as uncategorized was 1%, compared to 4.5% in 2018. The proportion of veterinary prescriptions listed as uncategorized was 14%.

Table 1.1 - Total Prescriptions by Schedule in 2019

Schedule	Human Rx	Veterinary Rx	Total
II	8,236,591	15,834	8,252,425
III	1,392,084	2,461	1,394,545
IV	7,408,222	109,116	7,517,338
V	726,183	789	726,972
Data Missing	145,162	20,870	166,032
Total	17,908,242	149,070	18,057,312

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 03 January 2020. 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 is a 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 has the smallest controlled substance prescription per patient ratio of all North Carolina counties (4.91 prescriptions per patient) and Mitchell has the highest (8.03) See Table 2.1 below. The rate of prescriptions per 1,000 residents of a county has been included as an alternative metric to understand trends within geographic areas. For example, whilst Mecklenburg has the smallest rate of prescriptions dispensed per patient, the rate of prescriptions per 1,000 population is mid-range at 1,168.21.

Table 2.1 - Number of Controlled Substance Prescriptions Dispensed by County of Patient Residence in 2019

NC County	Prescriptions	Patients	Rx per Patient	Rx per 1,000 population
Alamance	272,355	47,345	5.75	1,647.70
Alexander	86,334	11,787	7.32	2,227.69
Alleghany	20,509	3,559	5.76	1,815.44
Anson	39,593	7,297	5.43	1,545.03
Ashe	58,301	8,235	7.08	2,145.55
Avery	42,021	5,971	7.04	2,324.17
Beaufort	116,767	16,453	7.1	2,465.42
Bertie	34,502	6,058	5.7	1,739.80
Bladen	65,258	9,651	6.76	1,928.03
Brunswick	302,828	46,287	6.54	2,186.58
Buncombe	435,319	70,459	6.18	1,625.54
Burke	196,444	26,675	7.36	2,151.23
Cabarrus	354,983	59,625	5.95	1,661.77
Caldwell	202,191	28,002	7.22	2,389.54
Camden	13,838	2,612	5.3	1,322.44
Carteret	157,373	22,884	6.88	2,212.87
Caswell	25,840	3,480	7.43	1,090.43
Catawba	366,964	54,948	6.68	2,324.04
Chatham	71,295	12,635	5.64	914.86
Cherokee	66,748	9,700	6.88	2,193.20
Chowan	21,785	4,385	4.97	1,549.54
Clay	24,432	3,779	6.47	2,066.83
Cleveland	244,518	36,276	6.74	2,467.54

NC County	Prescriptions	Patients	Rx per Patient	Rx per 1,000 population
Columbus	142,550	19,597	7.27	2,505.10
Craven	207,521	32,823	6.32	1,998.20
Cumberland	495,131	83,531	5.93	1,501.83
Currituck	31,801	5,475	5.81	1,151.79
Dare	70,792	11,701	6.05	1,886.58
Davidson	296,884	45,198	6.57	1,755.67
Davie	89,856	14,207	6.32	2,053.24
Duplin	85,107	14,635	5.82	1,433.19
Durham	338,515	66,263	5.11	1,072.91
Edgecombe	83,420	14,984	5.57	1,621.79
Forsyth	637,374	111,748	5.7	1,676.94
Franklin	97,578	16,590	5.88	1,421.30
Gaston	531,317	74,293	7.15	2,382.93
Gates	10,802	2,045	5.28	897.4
Graham	20,086	2,762	7.27	2,261.94
Granville	77,867	13,023	5.98	1,273.34
Greene	26,639	4,513	5.9	1,237.81
Guilford	847,117	152,301	5.56	1,594.04
Halifax	93,796	15,578	6.02	1,834.64
Harnett	195,440	29,806	6.56	1,444.66
Haywood	130,928	19,867	6.59	2,068.83
Henderson	204,592	34,513	5.93	1,710.99
Hertford	33,933	5,983	5.67	1,427.86
Hoke	58,877	10,406	5.66	1,046.07
Hyde	7,960	1,267	6.28	1,417.63
Iredell	369,130	59,069	6.25	2,018.04
Jackson	66,433	10,220	6.5	1,502.81
Johnston	285,759	47,274	6.04	1,390.40
Jones	23,099	3,563	6.48	2,230.93
Lee	122,793	20,588	5.96	2,059.32
Lenoir	111,337	18,923	5.88	1,944.55
Lincoln	179,784	28,291	6.35	2,093.19
Macon	58,662	10,417	5.63	1,622.78
Madison	36,564	5,674	6.44	1,605.87
Martin	49,470	7,667	6.45	2,121.90
McDowell	87,868	13,833	6.35	1,906.77
Mecklenburg	1,310,102	266,635	4.91	1,168.21

NC County	Prescriptions	Patients	Rx per Patient	Rx per 1,000 population
Mitchell	38,174	4,756	8.03	2,511.61
Montgomery	45,976	7,634	6.02	1,638.96
Moore	172,963	29,057	5.95	1,719.38
Nash	158,080	26,876	5.88	1,674.72
New Hanover	440,045	69,416	6.34	1,875.93
Northampton	27,868	5,055	5.51	1,368.43
Onslow	275,688	43,509	6.34	1,380.96
Orange	194,684	35,172	5.54	1,339.11
Pamlico	22,146	3,505	6.32	1,663.99
Pasquotank	58,088	11,665	4.98	1,418.75
Pender	118,458	17,692	6.7	1,858.37
Perquimans	20,699	3,935	5.26	1,520.87
Person	80,727	11,648	6.93	2,011.89
Pitt	307,643	49,564	6.21	1,734.06
Polk	30,761	4,887	6.29	1,438.10
Randolph	247,658	38,635	6.41	1,689.43
Richmond	114,819	15,522	7.4	2,566.99
Robeson	284,083	42,800	6.64	2,172.77
Rockingham	244,350	31,374	7.79	2,664.87
Rowan	282,281	41,960	6.73	1,962.90
Rutherford	151,675	21,376	7.1	2,232.06
Sampson	107,101	18,160	5.9	1,712.74
Scotland	75,703	11,839	6.39	2,132.30
Stanly	129,297	20,257	6.38	2,030.93
Stokes	112,087	15,900	7.05	2,400.61
Surry	172,558	25,381	6.8	2,368.90
Swain	43,853	6,123	7.16	2,867.71
Transylvania	70,904	10,493	6.76	2,018.73
Tyrrell	5,625	1,010	5.57	1,359.68
Union	348,871	63,244	5.52	1,474.01
Vance	76,191	12,705	6	1,703.85
Wake	1,462,875	282,262	5.18	1,337.20
Warren	19,672	3,743	5.26	983.26
Washington	21,392	3,630	5.89	1,754.02
Watauga	68,970	10,852	6.36	1,178.47
Wayne	185,815	32,807	5.66	1,469.46

NC County	Prescriptions	Patients	Rx per Patient	Rx per 1,000 population
Wilkes	157,490	21,723	7.25	2,211.10
Wilson	135,961	23,401	5.81	1,641.15
Yadkin	88,602	12,875	6.88	2,349.50
Yancey	37,961	5,511	6.89	2,073.13
_ Out Of State	671,050	156,492	4.29	.
Unspecified	11,386	1,603	7.1	.
Total	18,057,312	3,049,294	5.92	1,719.04

Range of values	From	To
Prescriptions	5625	1462875
Patients	1010	282262
Rx per patient	4.29	8.03
Rx per 1,000 population	897.40	2867.70

Table 2.2 - Number of Prescriptions Dispensed by Age and Gender

Age Range	Male	Female	Unknown	Total
0-9	313,854	161,234	6,177	481,265
10-19	658,729	442,466	6,737	1,107,932
20-29	467,335	732,127	3,059	1,202,521
30-39	819,344	1,382,831	5,405	2,207,580
40-49	1,053,373	1,802,115	7,590	2,863,078
50-59	1,460,289	2,265,024	8,185	3,733,498
60-69	1,438,272	2,055,755	6,470	3,500,497
70-79	824,674	1,225,131	2,823	2,052,628
80+	285,047	621,531	1,170	907,748
Unknown	107	187	271	565
Total	7,321,024	10,688,401	47,887	18,057,312

The number of controlled substance prescriptions dispensed increases significantly between the 0-9 age range and the 0-19 age range. There is another significant increase between the 20-29 age group and 30-39 age group. The steepest increases is between the 40-49 age group and the 50-59 age group, after which the number of controlled substance prescriptions dispensed starts to decline. 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 2019 was Opioids followed by Benzodiazepines. (Table 3.1 below). The majority of controlled substance prescriptions (46%) are dispensed in quantities of 30 pills or less. Opioids become the most commonly dispensed classification in pill quantities of 31-60 to 91-120 accounting for 38%, 45% and 80% respectively.

Table 3.1 – Pill Quantity by Classification

Quantity Range	Benzo	Muscle Relaxant	Opioid	Sedative	Stimulant	No CDC Class	Total
1-30	1,625,856	15,188	2,719,412	973,370	1,842,763	1,306,301	8,482,890
31-60	1,079,215	14,003	1,426,631	28,931	523,675	656,938	3,729,393
61-90	631,085	19,795	1,067,259	78,944	168,613	359,095	2,324,791
91-120	135,613	7,692	1,055,567	296	26,443	88,575	1,314,186
121-150	15,776	205	135,147	558	4,471	11,303	167,460
151-180	37,964	649	209,330	842	12,863	52,815	314,463
181+	19,076	786	93,053	41	3,856	31,373	148,185
Not Pills	27,636	0	475,233	417	25,950	1,046,708	1,575,944
Total	3,572,221	58,318	7,181,632	1,083,399	2,608,634	3,553,108	18,057,312

[^]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 a majority (54%) of patients who were dispensed a controlled substance were prescribed by only one practitioner within the reporting period (Table 4.1 below). This is lower than the percentage noted in 2018 data (60%). Compared to 2018 the proportion of patients that see more than one prescriber has increased slightly in all prescriber counts. The cause of the increase is not known.

Table 4.1 Prescriber counts (human patients)

Prescribers	Patients	Percentage
1	1,632,607	54.83%
2	677,407	22.75%
3	325,868	10.94%
4	162,380	5.45%
5	83,378	2.80%
6	43,535	1.46%
7	23,113	0.78%
8	12,656	0.43%
9	6,977	0.23%
10+	9,782	0.33%
Total	2,977,703	.

Table 4.2 Prescriber counts (Veterinary)

Prescribers	Patients	Percentage
1	65,040	89.30%
2	6,429	8.83%
3	1,116	1.53%
4	202	0.28%
5	34	0.05%
6	8	0.01%
7	3	0.00%
8	2	0.00%
9	0	0.00%
10+	0	0.00%
Total	72,834	.

Table 4.2 contains data for the veterinarian population. The data indicates that most animal owners see one prescriber for the purposes of treating an animal that they own.

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). Compared to 2018 (Table 5.1) a larger proportion of patients in 2019 had a controlled substance dispensed in just one county. Compared to 2018, fewer patients are going to multiple counties to obtain their prescriptions for controlled substances.

Table 5.1 - Dispenser Counties (Human patients)

Counties	Patients	Percentage
1	2,684,245	90.14%
2	251,122	8.43%
3	36,164	1.21%
4	5,298	0.18%
5	723	0.02%
6	111	0.00%
7	23	0.00%
8	11	0.00%
9	4	0.00%
10+	2	0.00%
Total	2,977,703	.

Table 5.2 - Dispenser Counties (Veterinary)

Counties	Patients	Percentage
1	72,566	99.63%
2	263	0.36%
3	5	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	72,834	.

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 Medical Doctor and Other (Table 6.1 below). These two specialties account for 45% and 49% 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	417,024	318,059	1.31
Hematology	3,348	841	3.98
Medical Doctor	8,008,696	1,593,276	5.03
Oncology	107,445	27,277	3.94
Pain Management	296,832	52,084	5.7
Palliative Care	30,537	7,964	3.83
Substance Use Disorder	37,268	5,168	7.21
Veterinary	145,213	70,957	2.05
Other+	8,950,421	1,758,039	5.09
Unspecified	60,528	19,018	3.18
Total	18,057,312	3,049,294	5.92

+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.

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.

Opioids remain the most prescribed and dispensed controlled substance across all specialties except Veterinary. Benzodiazepines and controlled substances with no CDC class are the second and third most prescribed and dispensed controlled substances.

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	58,282	350,087	349	477	349	7,480	417,024
Hematology	281	2,597	0	8	100	362	3,348
Medical Doctor	1,752,659	2,773,085	32,236	1,124,845	638,429	1,687,442	8,008,696
Oncology	18,404	67,889	89	2,315	3,901	14,847	107,445
Pain Management	11,652	250,321	1,281	2,160	3,161	28,257	296,832
Palliative Care	6,948	17,501	27	366	244	5,451	30,537
Substance Use Disorder	1,363	26,024	31	3,401	167	6,282	37,268
Veterinary	17,992	32,792	5	67	35	94,322	145,213
Other+	1,696,707	3,636,842	24,259	1,469,959	434,966	1,687,688	8,950,421
Unspecified	7,933	24,494	41	5,036	2,047	20,977	60,528
Total	3,572,221	7,181,632	58,318	2,608,634	1,083,399	3,553,108	18,057,312

[^]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 2019, over 18 million dispensed controlled substance prescriptions were entered into the North Carolina Controlled Substances Reporting System. The overall number of controlled substances dispensed continues to decline. This report indicates that there have been changes in behavior in prescribing and dispensing in North Carolina. The number of prescribers that patients go to has increased, whilst the number of counties visited for the dispensed medication has decreased.

The North Carolina Controlled Substances Reporting System was accessed by just over 46,300 practitioners and pharmacists who were able to access prescription histories and other clinical diagnosis tools to assist in prescribing and dispensing decisions. Diagnosis tools available in 2019, included Narxcare, a tool that assesses an individual's risk of an unintentional overdose from prescribed controlled substances. Work will continue in 2020, to increase the number of practitioners and pharmacists accessing the system, with a focus on increasing technical integrations into clinical workflows.