2023 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

July 19, 2023

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 dispensed 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).

Exhibit 7, Number of Users of the NC CSRS, was added to this report showing the number of searches and active users by role in 2022.

EXHIBITS AND NOTES

Exhibit 1: Prescriptions by Schedule

In total, 16,153,455 controlled substance prescriptions were dispensed in 2022[1]. In 2021, 16,529,272 prescriptions for controlled substances were dispensed. This is a 2% 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 2022, accounting for 47% of all controlled substance dispensations. Compared to 2021, 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 2022, the proportion of human prescriptions listed as uncategorized was 0.8% the same as the previous year. The proportion of veterinary prescriptions listed as uncategorized was 14%, almost the same rate reported in 2021. 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 2022

Schedule	Human Rx	Veterinary Rx	Total
II	7,496,694	19,141	7,515,835
III	1,291,017	1,944	1,292,961
IV	6,337,350	95,318	6,432,668
V	757,495	2,723	760,218
Data Missing	132,994	18,779	151,773
Total	16,015,550	137,905	16,153,455

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®).

[1] This data is accurate as of 15 January 2023. Some variation may occur due to late submissions.

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.

Exhibit 2: Demographics

The data has been aggregated by two demographic categories: Counties (Table 2.1) and Age Group and Gender (Table 2.3). 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 Chowan have the smallest controlled substance prescription per patient ratio of all North Carolina counties (4.94 and 4.96 prescriptions per patient respectively) and Richmond and Rutherford have the highest (7.05 prescriptions per patient respectively). See Table 2.1 below. Swain has the highest rate of prescriptions per 1,000 residents (2,743.07 per 1,000).

Table 2.1 - Number of Controlled Substance Prescriptions Dispensed by County of Patient Residence in 2022

NC County	Prescriptions	Patients	Rx per Patient	Rx per 1,000 population
Alamance	226,779	41,947	5.41	1,269.79
Alexander	75,903	10,852	6.99	1,935.86
Alleghany	19,712	3,517	5.60	1,699.60
Anson	31,384	6,032	5.20	1,241.01
Ashe	51,945	7,784	6.67	1,809.93
Avery	30,059	5,045	5.96	1,667.17
Beaufort	101,202	14,725	6.87	2,130.34
Bertie	28,595	5,243	5.45	1,458.85
Bladen	55,845	8,490	6.58	1,626.28
Brunswick	254,585	43,603	5.84	1,665.25
Buncombe	403,213	66,629	6.05	1,476.80
Burke	157,641	23,493	6.71	1,702.39
Cabarrus	319,733	53,696	5.95	1,423.40
Caldwell	173,671	25,461	6.82	2,053.50
Camden	12,495	2,274	5.49	1,147.38
Carteret	138,575	20,785	6.67	1,908.51
Caswell	19,237	2,921	6.59	812.85
Catawba	317,150	50,130	6.33	1,951.38
Chatham	65,482	11,516	5.69	806.87
Cherokee	63,492	9,144	6.94	2,074.29

NC County	Prescriptions	Patients	Rx per Patient	Rx per 1,000 population
Chowan	19,055	3,841	4.96	1,363.31
Clay	24,490	3,754	6.52	1,969.28
Cleveland	207,993	31,361	6.63	2,058.66
Columbus	117,222	17,197	6.82	2,085.06
Craven	182,139	29,056	6.27	1,746.37
Cumberland	440,375	76,318	5.77	1,317.92
Currituck	24,285	4,200	5.78	843.00
Dare	58,897	10,451	5.64	1,548.37
Davidson	254,950	39,751	6.41	1,467.71
Davie	85,367	13,457	6.34	1,893.01
Duplin	67,179	12,057	5.57	1,123.41
Durham	318,866	62,524	5.10	967.79
Edgecombe	71,488	12,899	5.54	1,370.26
Forsyth	570,038	100,550	5.67	1,461.39
Franklin	88,816	15,736	5.64	1,226.59
Gaston	468,541	67,570	6.93	2,075.29
Gates	9,329	1,714	5.44	764.42
Graham	16,930	2,523	6.71	1,949.11
Granville	66,360	11,726	5.66	1,042.99
Greene	17,771	3,355	5.30	844.27
Guilford	737,862	133,541	5.53	1,323.17
Halifax	78,398	13,069	6.00	1,564.17
Harnett	172,890	27,409	6.31	1,220.98
Haywood	119,274	17,984	6.63	1,841.05
Henderson	186,390	31,944	5.83	1,522.12
Hertford	28,212	5,042	5.60	1,175.11
Hoke	56,354	9,836	5.73	973.67
Hyde	7,265	1,217	5.97	1,421.72
Iredell	346,426	55,474	6.24	1,829.96
Jackson	59,439	9,439	6.30	1,295.59
Johnston	258,999	44,010	5.89	1,153.21
Jones	20,352	3,110	6.54	1,996.08
Lee	116,219	18,732	6.20	1,827.11
Lenoir	77,233	14,435	5.35	1,400.47
Lincoln	163,197	25,769	6.33	1,799.17
Macon	56,126	10,090	5.56	1,489.23

NC County	Prescriptions	Patients	Rx per Patient	Rx per 1,000 population
Madison	33,624	5,351	6.28	1,441.48
Martin	41,243	6,594	6.25	1,807.63
McDowell	79,210	12,445	6.36	1,670.25
Mecklenburg	1,206,702	244,278	4.94	1,023.92
Mitchell	30,829	4,514	6.83	2,017.34
Montgomery	33,916	6,083	5.58	1,220.00
Moore	144,472	25,718	5.62	1,357.32
Nash	139,387	23,901	5.83	1,446.40
New Hanover	399,558	65,749	6.08	1,619.60
Northampton	23,769	4,352	5.46	1,195.02
Onslow	268,840	41,966	6.41	1,284.23
Orange	188,419	34,277	5.50	1,242.54
Pamlico	16,339	2,810	5.81	1,227.02
Pasquotank	50,712	9,829	5.16	1,279.57
Pender	106,637	17,048	6.26	1,594.38
Perquimans	18,531	3,466	5.35	1,356.69
Person	58,964	9,941	5.93	1,444.35
Pitt	273,432	44,358	6.16	1,489.67
Polk	26,627	4,437	6.00	1,201.58
Randolph	195,560	32,273	6.06	1,325.00
Richmond	92,950	13,182	7.05	2,073.90
Robeson	255,228	37,192	6.86	1,971.24
Rockingham	187,886	27,368	6.87	2,045.42
Rowan	238,599	36,388	6.56	1,656.57
Rutherford	134,120	19,037	7.05	1,922.62
Sampson	94,899	15,940	5.95	1,465.92
Scotland	64,420	9,472	6.80	1,808.13
Stanly	113,846	18,016	6.32	1,744.77
Stokes	96,711	14,073	6.87	2,090.33
Surry	151,096	22,881	6.60	2,063.25
Swain	37,997	5,433	6.99	2,743.07
Transylvania	60,974	9,613	6.34	1,675.16
Tyrrell	4,524	824	5.49	1,062.22
Union	313,989	58,493	5.37	1,234.10
Vance	64,174	11,038	5.81	1,382.52
Wake	1,452,939	278,231	5.22	1,261.05

NC County	Prescriptions	Patients	Rx per Patient	Rx per 1,000 population
Warren	16,528	3,108	5.32	840.65
Washington	19,168	3,222	5.95	1,621.66
Watauga	51,938	9,238	5.62	860.00
Wayne	159,513	28,817	5.54	1,244.56
Wilkes	122,744	19,020	6.45	1,727.16
Wilson	116,594	19,405	6.01	1,394.90
Yadkin	78,262	11,505	6.80	2,043.45
Yancey	34,719	5,157	6.73	1,814.71
Out of State	703,184	157,619	4.46	.
Unspecified	8,257	1,397	5.91	.
Total	16,153,455	2,789,395	5.79	1,485.56

Table 2.2- Summary of North Carolina Dispensing Metrics in 2021 and 2022

Dispensing Metrics	2021			2022		
	Lowest Value	Highest Value	Total	Lowest Value	Highest Value	Total
Prescriptions	4,851	1,431,992	15,850,314	4,524	1,452,939	15,450,271
Patients	877	273,442	2,666,607	824	278,231	2,631,776
Rx per patient	4.92	7.40	5.94	4.94	7.06	5.79
Rx per 1,000 population	784.05	2,841.36	1,537.11	764.42	2,743.07	1,486.56

There is a decrease in the total number of prescriptions, prescriptions per patient and the prescriptions per 1,000 population from 2021 to 2022. The information in Table 2.2 excludes Out of State prescriptions and patients.

***Table 2.3- Number of Prescriptions Dispensed by Age and Gender* in 2022**

Age Range	Male	Female	Unknown	Total
0-9	243,609	118,897	6,208	368,714
10-19	526,963	376,873	5,442	909,278
20-29	408,878	660,254	3,800	1,072,932
30-39	784,660	1,294,972	6,061	2,085,693
40-49	905,620	1,588,231	6,976	2,500,827
50-59	1,207,182	1,953,648	8,679	3,169,509
60-69	1,297,431	1,896,734	5,985	3,200,150
70-79	804,928	1,196,759	2,916	2,004,603
80+	276,261	564,339	1,130	841,730
Unknown	0	2	17	19
Total	6,455,532	9,650,709	47,214	16,153,455

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, with an approximate 96% increase for females and 92% increase for males. The number of controlled substance prescriptions dispensed continues to increase from that point up until 60-69, after which the numbers significantly decline, approximately 37% for males and females. Compared to 2021, the number of controlled substance prescriptions dispensed in these age ranges decreased significantly, except for the 70-79 age group which had a slight increase of 1%. By gender, females consistently have a higher number of dispensed prescriptions for controlled substances than males beginning at the 20-29 age group continuing through the 80+ age group. Approximately 60% of controlled substance prescriptions are dispensed to females.

Exhibit 3: Pill Statistics

The classification of controlled substance with the highest number of prescriptions dispensed in 2022 was Opioids, then the category 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 (48%) are dispensed in quantities of 30 pills or less. The category No CDC Class was the most dispensed controlled substance in a 1-30 and 31-60 day quantity. Opioids were the most dispensed controlled substance for quantities greater than 60 days.

Table 3.1 – Pill Quantity by Classification

Quantity Range	Benzo	Muscle Relaxant	Opioid	Sedative	Stimulant	No CDC Class	Total
1-30	1,129,821	809	2,094,666	763,646	1,577,332	2,241,721	7,807,995
31-60	665,150	697	1,034,901	24,461	356,648	1,154,804	3,236,661
61-90	376,137	735	823,369	77,461	123,371	633,453	2,034,526
91-120	73,590	253	852,216	208	17,487	162,881	1,106,635
121-150	9,712	20	116,939	634	3,565	20,608	151,478
151-180	24,341	63	152,881	652	9,769	85,421	273,127
181+	12,230	59	59,405	26	2,865	43,894	118,479
Not Pills	19,509	0	553,425	195	14,298	837,057	1,424,484
Data Missing	9	0	24	2	0	35	70
Total	2,310,499	2,636	5,687,826	867,285	2,105,335	5,179,874	16,153,455

^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 56.83% of patients saw one prescriber for their dispensed controlled substances. This is similar to the percentage noted in the 2021 data (57.11%). 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	1,552,050	56.83%
2	631,785	23.13%
3	286,074	10.47%
4	133,924	4.90%
5	63,589	2.33%
6	31,184	1.14%
7	15,203	0.56%
8	8,011	0.29%
9	4,168	0.15%
10+	5,196	0.19%
Total	2,731,184	.

Table 4.2 Prescriber counts (Veterinary)

Prescribers	Patients	Percentage
1	50,533	85.18%
2	6,686	11.27%
3	1,601	2.70%
4	398	0.67%
5	82	0.14%
6	22	0.04%
7	3	0.01%
8	1	0.00%
9	0	0.00%
10+	1	0.00%
Total	59,327	.

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 was an increase in the percentage of human patients receiving controlled substance prescriptions in one county from 2021 to 2022. The data remained consistent with the patterns observed in 2021, that most patient's controlled substances were dispensed within only one county.

Table 5.1 - Dispenser Counties (Human patients)

Counties	Patients	Percentage
1	2,481,750	90.87%
2	222,001	8.13%
3	24,531	0.90%
4	2,559	0.09%
5	296	0.01%
6	40	0.00%
7	4	0.00%
8	1	0.00%
9	1	0.00%
10+	1	0.00%
Total	2,731,184	.

Table 5.2 - Dispenser Counties (Veterinary patients)

Counties	Patients	Percentage
1	58,983	99.42%
2	340	0.57%
3	2	0.00%
4	2	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	59,327	.

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 55% (*Other*) and 39% (*Medical Doctor*) of all controlled substances prescribed and dispensed. Dentists are the third most frequent prescribers of controlled substances.

Of the identified specialties, Substance Use Disorder[2] 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	290,125	223,988	1.30
Hematology	8,117	2,478	3.28
Medical Doctor	6,275,791	1,326,156	4.73
Oncology	66,317	19,961	3.32
Pain Management	241,594	45,545	5.30
Palliative Care	22,504	6,334	3.55
Substance Use Disorder	28,072	4,230	6.64
Veterinary	136,556	59,011	2.31
Other+	8,910,671	1,719,828	5.18
Unspecified	173,708	51,218	3.39
Total*	16,153,455	2,789,395	5.79

+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, based upon the 2022 data, continue to be the most prescribed and dispensed controlled substance overall and across most specialties. Drugs falling into the 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	41,847	213,038	13	283	329	34,615	290,125
Hematology	706	5,205	0	57	243	1,906	8,117
Medical Doctor	996,526	1,901,280	1,291	762,525	470,513	2,143,656	6,275,791
Oncology	6,888	40,185	1	582	1,866	16,795	66,317
Pain Management	7,295	191,115	116	1,868	1,718	39,482	241,594
Palliative Care	3,953	12,764	0	114	160	5,513	22,504
Substance Use Disorder	1,326	19,874	0	1,794	384	4,694	28,072
Veterinary	13,726	17,373	0	111	22	105,324	136,556
Other+	1,215,191	3,232,333	1,190	1,318,043	382,800	2,761,114	8,910,671
Unspecified	23,041	54,659	25	19,958	9,250	66,775	173,708
Total	2,310,499	5,687,826	2,636	2,105,335	867,285	5,179,874	16,153,455

^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.)

Exhibit 7: Number of Users of the NC CSRS

The North Carolina Controlled Substances Reporting system was accessed by 49,307 practitioners and pharmacists in 2022 resulting in over 3 million total searches. This is a slight decrease from 2021 when 52,824 practitioners and pharmacists accessed prescription histories and other clinical diagnosis tools to assist in prescribing and dispensing decisions.

Table 7.1- Number of Searches and Active Users by Role in 2022

Role	Active Users	Total Searches	Searches per Active User
Prescriber	39,501	2,176,659	55.10
Pharmacist	9,806	1,132,944	115.54
Other	345	4,389	12.72
Total	49,651	3,313,992	66.75

Summary and Discussion

In 2022, over 16 million dispensed controlled substance prescriptions were entered into the North Carolina Controlled Substances Reporting System. There has been a significant decline in the number of dispensed controlled substance prescriptions entered into the Controlled Substances Reporting System since 2018.

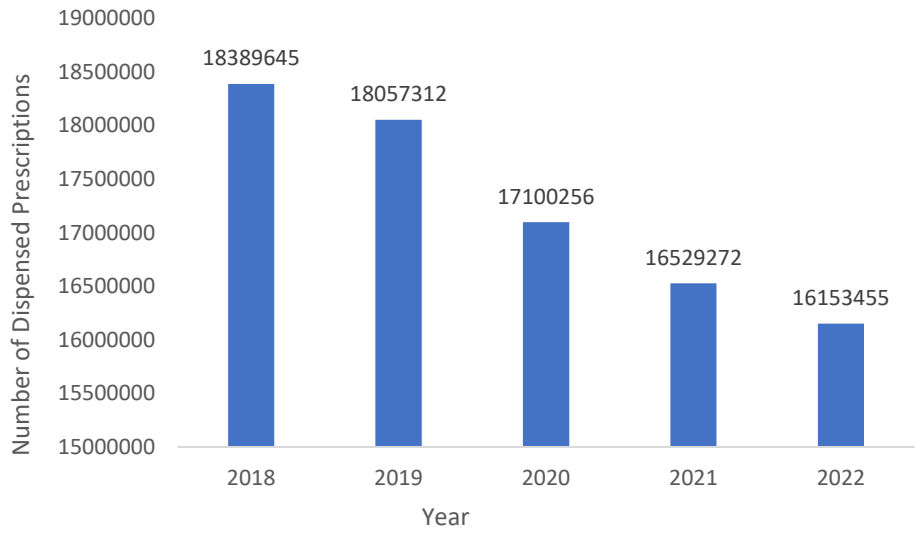

Figure 1 Annual Trend in Controlled Substances Dispensed

The 2021 annual report reflected the effect of the COVID-19 pandemic upon the controlled substances reporting system data, resulting in fewer controlled substances being prescribed and dispensed due to fewer individuals seeking medical care during this period. The 2022 data shows a continued decline in the overall number of controlled substances being prescribed and dispensed compared to the prior year, even with COVID-19 restrictions lifted.

The data reflected herein is consistent with the trends found in the previous year's report, including opioids being the most prominent controlled substance being dispensed. However, the total number of opioids dispensed decreased 0.7% from the data reported in the 2021 Annual Report. When compared to the total number of dispensed Opioids from the 2019 Annual Report (7,181,632 opioids) the number of dispensed opioids in 2022 have decreased by 21%. This data indicates trends that the overall amount of opioid prescribing is decreasing, future reports will continue to follow these trends carefully.

The continued decline in the total number of prescribed substances dispensed from 2022 to 2023 indicates additional 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. The 2022 data supports an overall decrease in opioid prescribing and dispensing in North Carolina.

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 more informed prescribing of controlled substances.