



Opioid Prescriptions in South Carolina

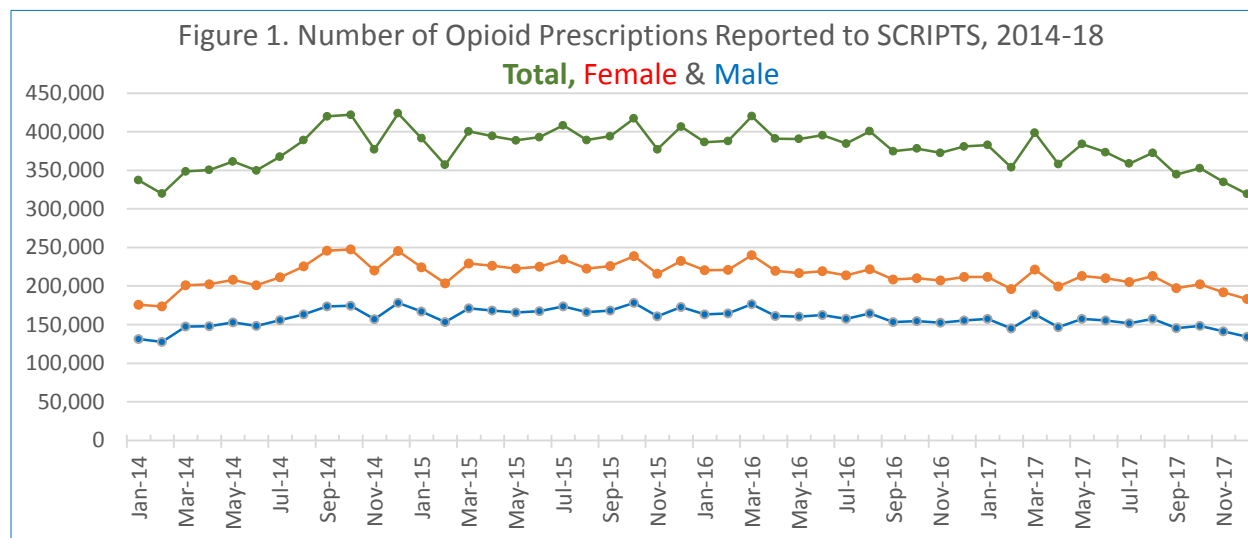
Shelly Kelly, Health Regulation Director
Lisa Thomson, Bureau of Drug Control Director
Christie Frick, Prescription Drug Monitoring Director
Khosrow Heidari, PMP Senior Epidemiologist
Nandini Sen, PMP Grant Coordinator

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Introduction:

Much of the information contained in this report comes from the South Carolina Prescription Drug Monitoring Program or PDMP, which is called South Carolina Reporting & Identification Prescription Tracking System (SCRIPTS). SCRIPTS was mandated by the South Carolina General Assembly in 2006. S.C. Code Ann. § 44-53-1640 requires dispensers to submit to DHEC, by electronic means, information regarding each prescription dispensed for a controlled substance in Schedule II, III and IV on a daily basis. Required information for each prescription includes dispenser's name and DEA number, patient's name, address and date of birth, prescriber's name and DEA number, and prescription information. Prescription information includes prescription number, date the prescription was written, date the prescription was filled, refill number, name and strength of the medication dispensed, metric quantity dispensed, and estimated days of supply. Additionally, if the medication is a narcotic, the daily morphine milligram equivalent (MME) of the prescription is listed. SCRIPTS is intended to improve the state's ability to identify and stop diversion of prescription drugs in an efficient and cost-effective manner.

Monthly, an average of 900,000 prescription drug records are reported to SCRIPTS of which more than 40% are opioids. Figure 1 depicts monthly opioid prescription activities by patient gender. Consistently over time more opioid prescriptions are filled by females than males.



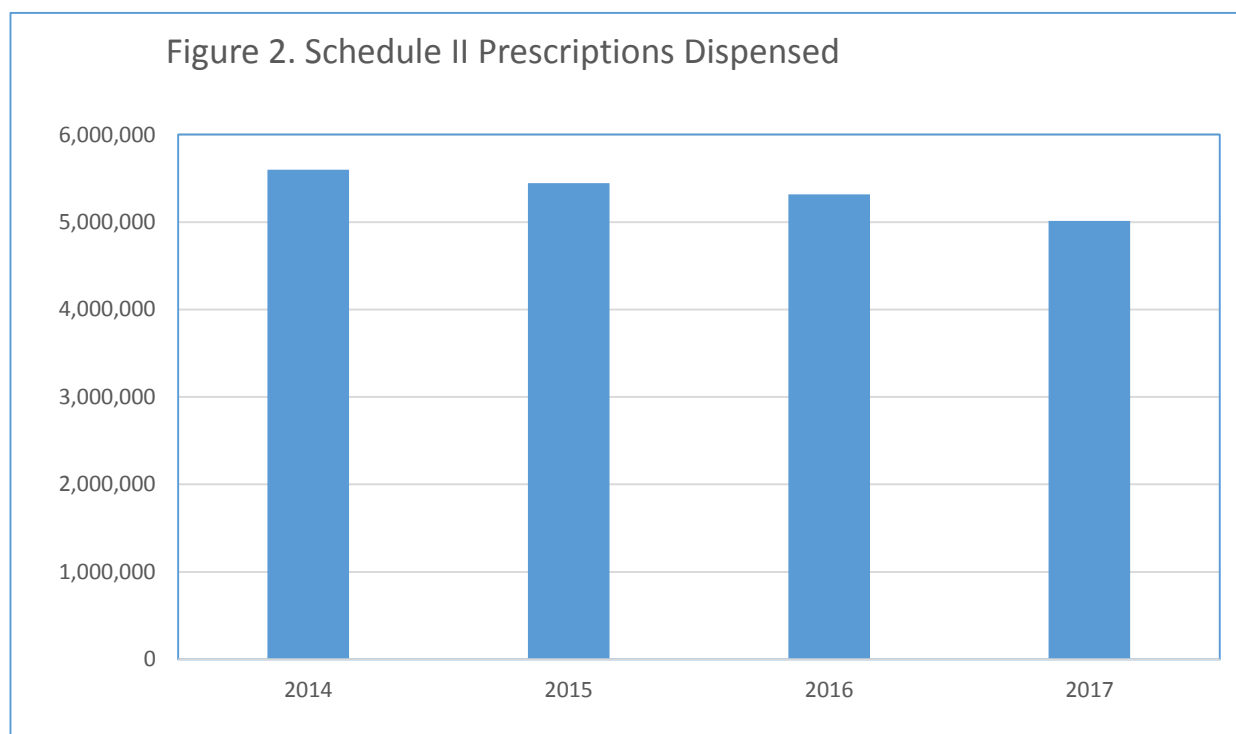
Schedule II prescriptions:

Substances in this schedule have a high potential for abuse, which may lead to severe psychological or physical dependence.

Examples of Schedule II narcotics include: hydromorphone (Dilaudid®), methadone, meperidine (Demerol®), oxycodone (OxyContin®, Percocet®), and fentanyl (Duragesic®). Other Schedule II narcotics include: morphine, opium, codeine and hydrocodone.

Examples of Schedule II stimulants include: amphetamine (Dexedrine®, Adderall®), methamphetamine and methylphenidate (Ritalin®).

In 2017, there were more than 5 million schedule II prescriptions dispensed to South Carolina residents. Compared to the previous year, this was a reduction of 6%. The annual percent change in dispensed schedule II prescriptions since 2014 was significant at 3.48% per year.

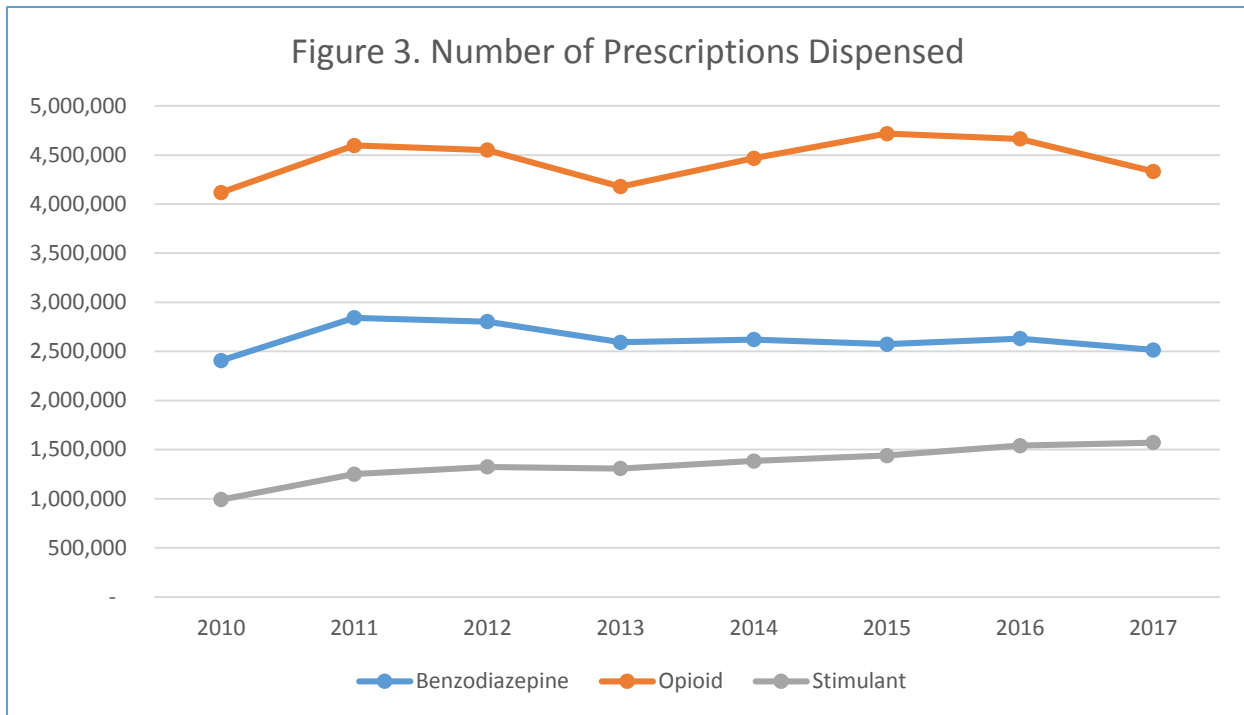


(Figure 2)

Opioid Prescriptions:

Opioids are a class of drugs naturally found in the opium poppy plant. Prescription opioids are used mostly to treat moderate to severe pain. Opioids can be highly addictive, and overdoses and death are common. Examples of opioids include hydrocodone (Vicodin®), oxycodone (OxyContin®, Percocet®), oxymorphone (Opana®), morphine (Kadian®, Avinza®), codeine, and fentanyl.

In 2017, there were more than 4.3 million opioid prescriptions dispensed to South Carolina residents, which was a 7.1% decrease from the previous year (4.7 million in 2016).



The number of opioid pills dispensed in South Carolina peaked in 2015 but has been decreasing since. (Figure 3) In 2016, 311.3 million opioid pills were dispensed, while in 2017 less than 286 million pills were dispensed. The annual number of opioid pills per person (depicted in Figure 4) declined from 63 to 57 per person in South Carolina.

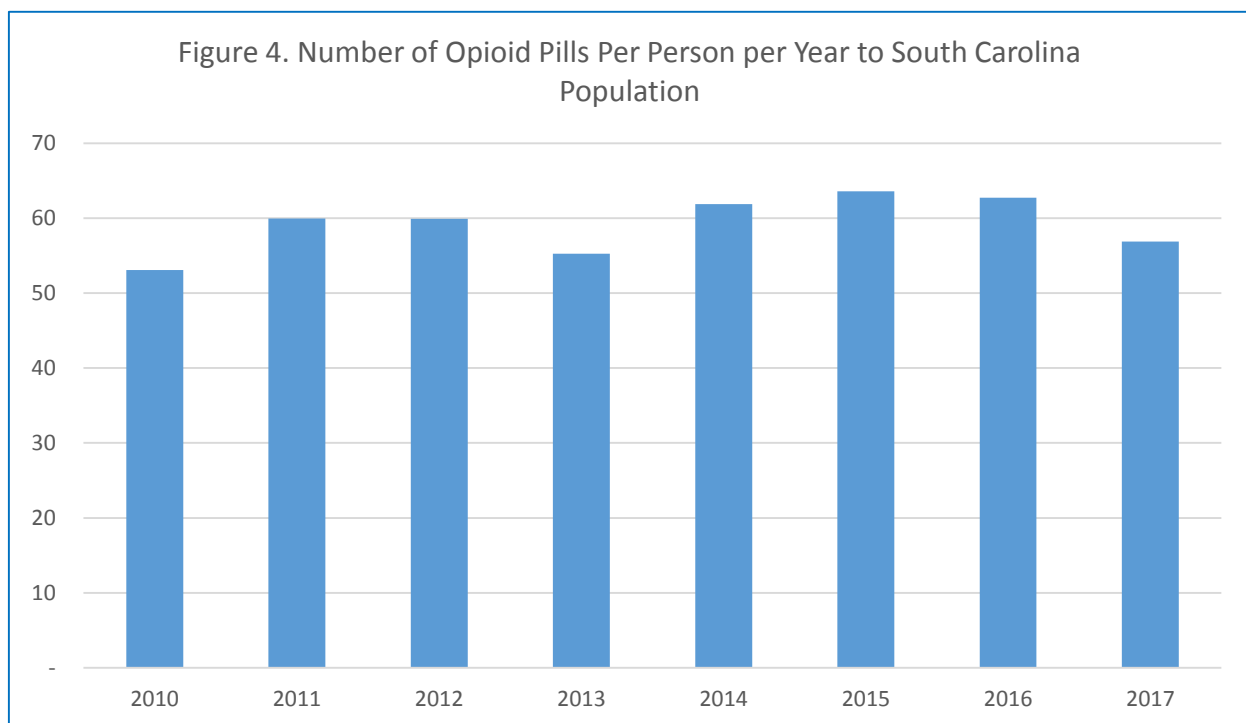


Table 1 and Table 2 below depict the number and rate, respectively, of prescriptions dispensed by county to S.C. residents. The opioid prescription rate by county ranges from 569 per 1,000 Richland County residents to 1,466 per 1,000 residents of Union County during 2017. Other counties among those with the highest number of prescriptions dispensed during 2017 were Darlington, Colleton, Cherokee and Laurens. However, the rate of opioid prescription decreased for all counties from 2016 to 2017, ranging from 1% (Williamsburg) to 13% (Edgefield).

Table1. 2017 Number and Quantity of Prescriptions Dispensed by Patient County

Patient County	Benzodiazepine		Opioid		Stimulant	
	Prescription	Quantity	Prescription	Quantity	Prescription	Quantity
Abbeville	14,074	820,414	25,414	1,782,673	7,655	309,246
Aiken	90,372	5,143,057	137,589	8,317,981	45,787	1,818,968
Allendale	2,692	142,592	7,532	470,450	1,244	46,708
Anderson	133,299	8,332,767	204,004	15,135,906	59,154	2,398,428
Bamberg	6,337	374,212	13,207	777,197	4,232	173,104
Barnwell	11,178	686,102	21,964	1,392,599	6,334	234,341
Beaufort	68,430	3,505,595	116,142	6,405,726	37,379	1,514,731
Berkeley	91,142	4,969,687	180,601	11,392,096	77,796	3,266,368
Calhoun	6,959	397,005	12,683	768,912	5,205	243,035
Charleston	180,288	9,526,756	255,953	15,295,405	183,122	8,185,013
Cherokee	38,479	2,584,253	74,481	6,111,586	13,865	496,548
Chester	20,358	1,267,294	38,490	2,369,259	9,146	359,547
Chesterfield	28,523	1,621,299	52,205	3,640,424	10,457	396,216
Clarendon	14,662	920,552	33,287	2,343,323	8,568	349,965
Colleton	20,983	1,287,174	50,111	3,625,928	11,670	500,550
Darlington	51,829	3,240,180	97,575	7,704,429	21,707	866,054
Dillon	14,391	796,718	37,646	2,714,705	7,768	298,233
Dorchester	72,952	3,990,917	133,660	8,399,983	62,060	2,601,646
Edgefield	10,377	579,120	18,480	1,130,839	5,350	213,402
Fairfield	10,059	614,958	20,879	1,393,478	4,004	177,723
Florence	77,344	4,549,850	153,241	10,871,624	42,791	1,738,065
Georgetown	31,267	1,787,000	64,603	4,551,297	23,071	962,338
Greenville	247,755	14,637,960	384,287	25,094,495	176,622	7,354,088
Greenwood	34,859	1,982,894	65,307	4,043,353	21,045	836,443
Hampton	7,104	363,880	19,718	1,128,251	3,572	131,417
Horry	183,317	10,707,104	322,201	22,206,163	94,149	4,008,974
Jasper	8,196	424,852	21,152	1,210,472	4,149	162,282
Kershaw	39,337	2,325,294	65,056	4,082,314	24,293	972,084
Lancaster	37,113	2,251,205	67,312	4,170,716	22,623	890,771
Laurens	45,284	2,899,428	83,523	6,002,220	22,662	886,367
Lee	6,948	401,838	15,522	1,057,988	3,066	114,058
Lexington	172,564	9,935,065	249,374	14,439,671	119,296	5,184,015
Marion	17,688	1,075,587	37,178	2,648,324	8,562	346,950
Marlboro	11,430	652,657	31,205	2,246,600	4,598	169,591
McCormick	2,863	159,390	6,337	387,410	1,247	44,123
Newberry	18,066	1,041,205	37,470	2,178,967	10,730	430,277
Oconee	52,144	3,387,630	94,394	7,739,072	27,897	1,148,806
Orangeburg	34,654	2,003,534	74,912	4,580,914	25,904	1,145,530
Pickens	78,349	4,989,381	125,673	8,672,101	39,304	1,622,942
Richland	141,986	7,861,409	234,391	13,078,805	103,789	4,308,154
Saluda	8,379	482,294	14,859	835,727	3,549	149,717
Spartanburg	199,054	12,649,886	314,050	23,466,319	90,683	3,718,216
Sumter	33,817	1,940,594	77,662	4,790,544	26,688	1,109,451
Union	20,186	1,375,478	40,357	3,111,761	10,875	411,856
Williamsburg	13,016	756,623	32,485	2,148,589	7,517	296,654
York	104,101	5,954,031	169,598	9,772,523	70,464	2,840,249
South Carolina	2,514,205	147,396,715	4,333,770	285,689,115	1,571,649	65,433,243

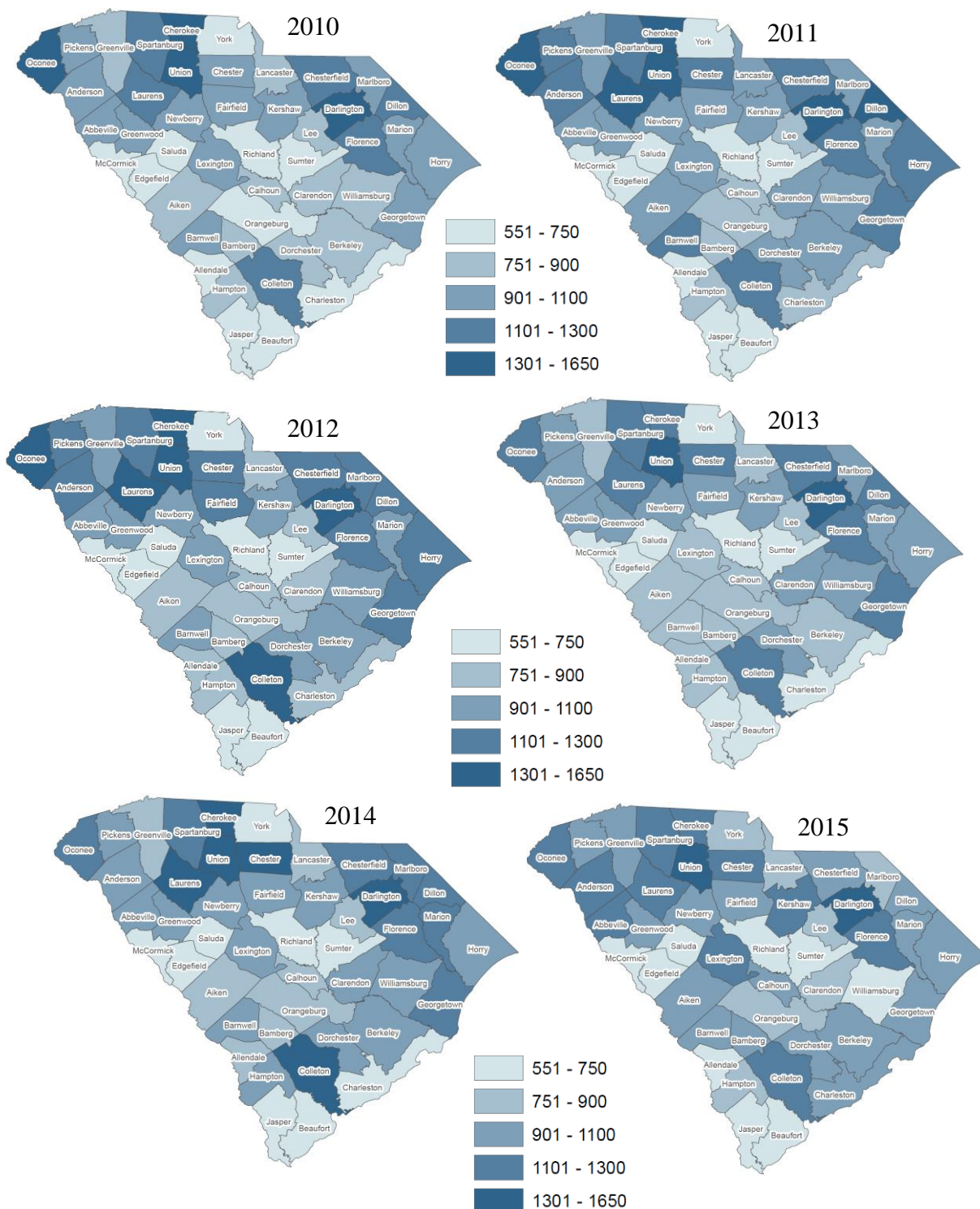
Source: South Carolina DHEC, Bureau of Drug Control - PMP August 2018

Table2. Opioid Analgesic Prescriptions Dispensed Rate Per 1,000 Population by County

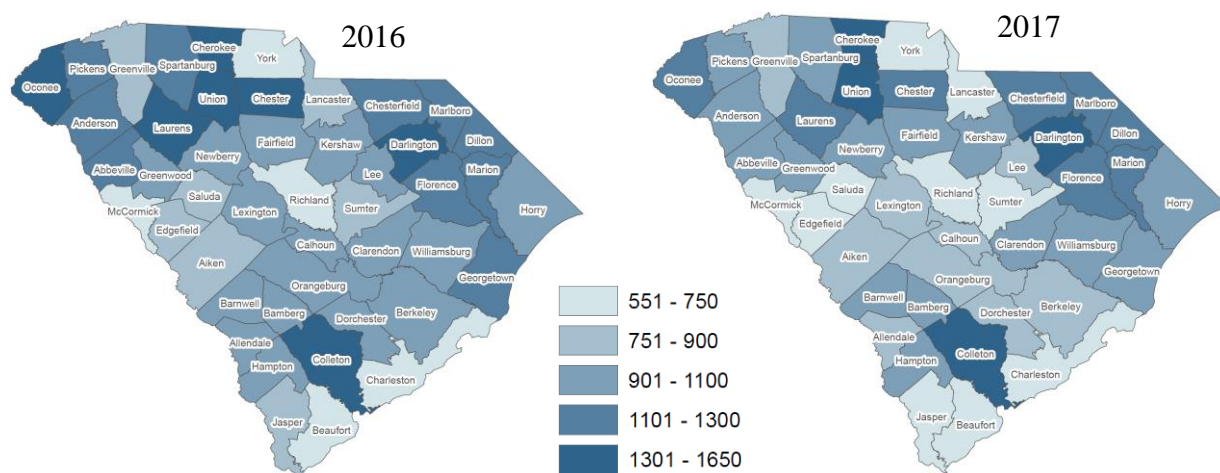
County	2010	2011	2012	2013	2014	2015	2016	2017
Abbeville	946.65	1,038.27	1,012.03	936.14	1,068.02	1,109.94	1,133.08	1,027.99
Aiken	857.41	911.20	845.81	770.01	829.95	931.28	880.35	818.11
Allendale	653.33	732.44	827.59	780.67	882.21	710.17	940.30	836.70
Anderson	1,050.26	1,149.34	1,127.60	1,032.83	1,074.53	1,139.23	1,113.28	1,026.39
Bamberg	799.34	851.89	840.70	806.55	874.79	907.93	977.28	918.36
Barnwell	1,064.41	1,129.57	1,069.11	807.41	1,033.65	1,068.08	1,097.98	1,029.00
Beaufort	599.91	668.03	658.69	586.92	625.59	693.32	667.37	621.60
Berkeley	838.91	946.66	920.80	849.22	921.77	960.46	916.13	828.68
Calhoun	776.47	861.27	840.11	756.76	871.08	933.50	922.28	862.55
Charleston	702.74	815.51	772.81	688.33	706.81	908.87	694.29	637.59
Cherokee	1,319.16	1,465.36	1,421.71	1,284.30	1,339.07	1,179.86	1,405.61	1,304.28
Chester	1,028.61	1,222.54	1,247.99	1,183.56	1,302.01	1,237.18	1,306.17	1,191.60
Chesterfield	1,127.79	1,280.45	1,266.60	1,164.51	1,209.30	1,056.61	1,164.00	1,136.18
Clarendon	881.59	930.08	864.42	910.70	1,014.51	871.80	1,050.16	977.39
Colleton	1,105.06	1,257.34	1,305.14	1,244.34	1,334.97	1,236.49	1,435.20	1,332.35
Darlington	1,408.96	1,628.33	1,618.35	1,489.53	1,516.98	1,436.00	1,541.56	1,450.61
Dillon	1,161.03	1,347.79	1,273.48	1,177.43	1,261.96	1,043.61	1,294.45	1,227.61
Dorchester	885.59	974.15	991.63	902.14	914.32	1,003.50	944.47	854.30
Edgefield	654.18	721.37	692.49	620.44	691.11	724.67	795.93	692.32
Fairfield	946.28	1,062.11	1,109.06	968.58	1,010.05	957.01	1,017.35	923.56
Florence	1,102.18	1,186.11	1,181.06	1,116.09	1,132.33	1,123.99	1,188.26	1,105.91
Georgetown	1,065.98	1,256.81	1,208.41	1,128.06	1,152.49	1,039.46	1,114.19	1,048.63
Greenville	863.19	942.44	918.17	819.98	848.74	937.30	848.78	758.21
Greenwood	944.45	962.47	964.65	932.20	1,024.91	1,017.63	1,015.34	928.25
Hampton	808.01	809.14	889.80	886.47	1,014.90	868.12	1,065.91	1,005.92
Horry	1,031.43	1,133.13	1,118.91	969.98	1,062.57	1,077.13	1,046.15	966.79
Jasper	603.54	735.11	680.91	676.07	730.55	622.56	771.83	743.27
Kershaw	953.92	1,070.82	1,089.01	967.32	1,051.11	1,132.01	1,086.29	1,000.31
Lancaster	843.36	946.33	890.81	814.36	863.47	780.38	811.67	727.30
Laurens	1,277.64	1,349.64	1,328.44	1,243.58	1,324.05	1,170.00	1,345.55	1,249.45
Lee	797.66	838.16	860.67	821.39	852.86	831.53	974.77	894.64
Lexington	935.58	1,023.25	995.05	893.32	935.86	1,104.84	936.82	858.01
Marion	949.82	1,095.26	1,056.20	1,047.55	1,136.69	1,077.83	1,209.70	1,188.06
Marlboro	992.60	1,038.90	1,140.24	1,027.57	1,120.04	880.05	1,221.01	1,163.28
McCormick	604.12	646.24	621.95	627.73	687.39	632.29	725.09	663.91
Newberry	904.31	998.30	1,007.08	949.23	1,001.03	922.10	1,053.44	973.55
Oconee	1,301.86	1,395.44	1,380.01	1,242.47	1,297.01	1,239.88	1,302.29	1,221.61
Orangeburg	734.31	841.98	827.26	780.43	839.74	834.21	931.20	856.37
Pickens	1,059.12	1,181.84	1,174.46	1,053.55	1,083.98	1,071.95	1,129.00	1,017.77
Richland	594.11	626.03	624.30	556.67	586.34	695.33	620.20	569.47
Saluda	680.10	680.16	701.85	643.67	742.78	744.58	818.49	726.53
Spartanburg	1,124.26	1,229.24	1,211.76	1,108.00	1,163.75	1,111.72	1,130.33	1,023.45
Sumter	609.87	674.20	682.79	646.99	703.88	735.05	783.91	726.85
Union	1,346.67	1,562.33	1,483.15	1,387.91	1,453.51	1,427.58	1,590.79	1,465.56
Williamsburg	805.48	1,003.78	930.31	922.31	1,017.68	743.41	1,050.66	1,043.43
York	656.65	750.07	735.98	655.73	703.26	782.78	708.03	636.54
SC Total	890.21	982.40	963.24	875.16	924.22	963.60	939.99	862.55

Source: South Carolina DHEC, Bureau of Drug Control - PMP August 2018

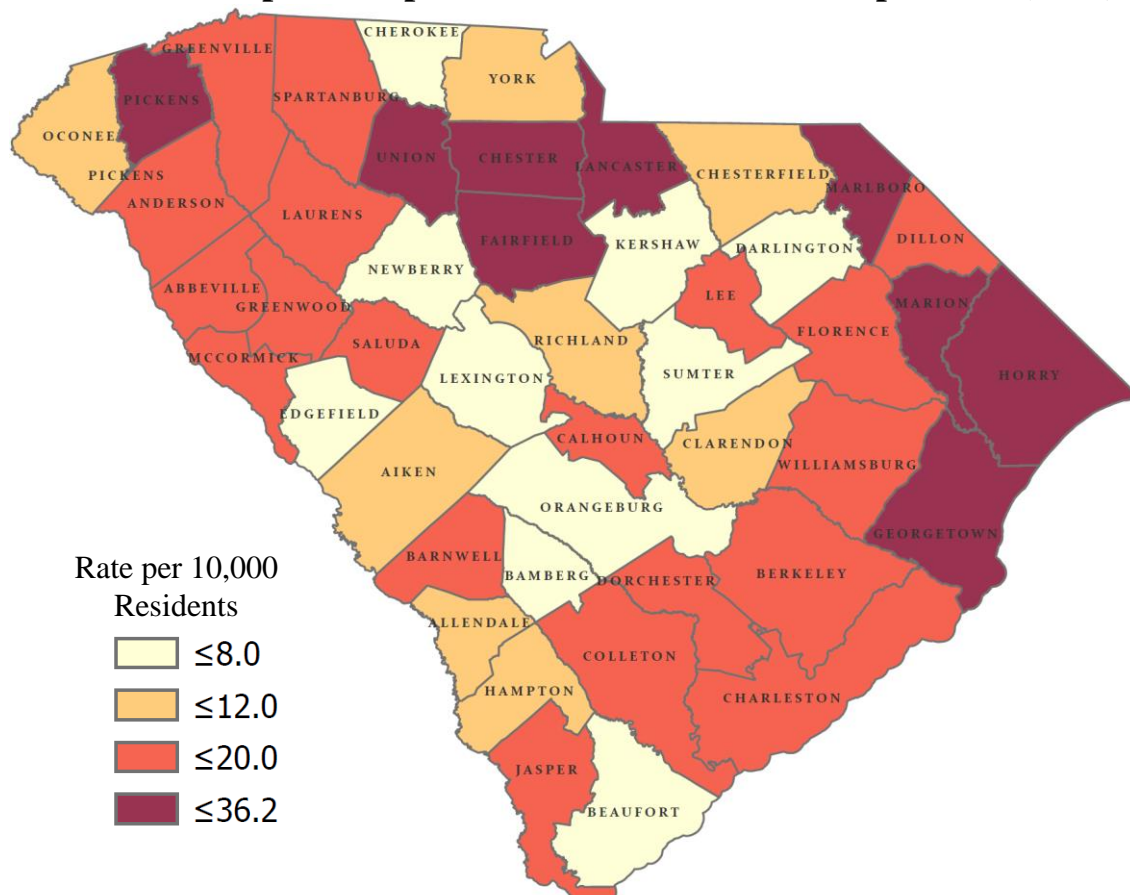
Maps of Opioid Prescription Dispensed Rate (per 1,000) South Carolina County Residents



Maps of Opioid Prescription Dispensed Rate (per 1,000) South Carolina County Residents



2017 EMS Suspected Opioid Overdose Rescue Attempt Cases (Rate)



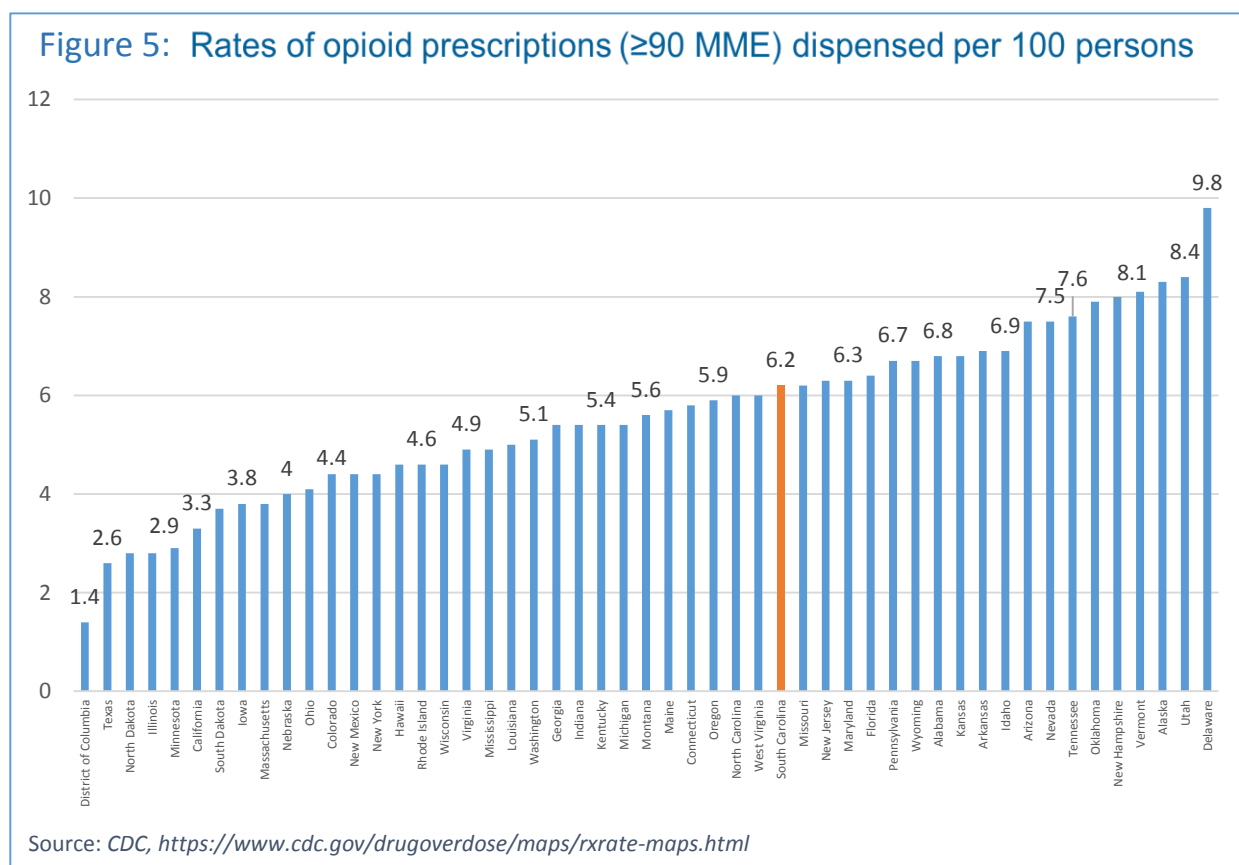
Source: DHEC, Bureau of Emergency Medical Services (EMS) 2017

Opioid Drug Strength: Daily morphine milligram equivalents (MME) per prescription have been used to show the amount of opioid dispensed to a patient as a measure of the potency of the drug. The following example shows how a prescription daily MME is calculated:

$$\text{MME/Day} = \text{Strength per Unit} * (\text{Number of Units/ Days Supply}) * \text{MME conversion factor}$$

Example: 10 mg oxycodone tablets * (120 tablets/ 30 days) * 1.5 = 60 MME/day.

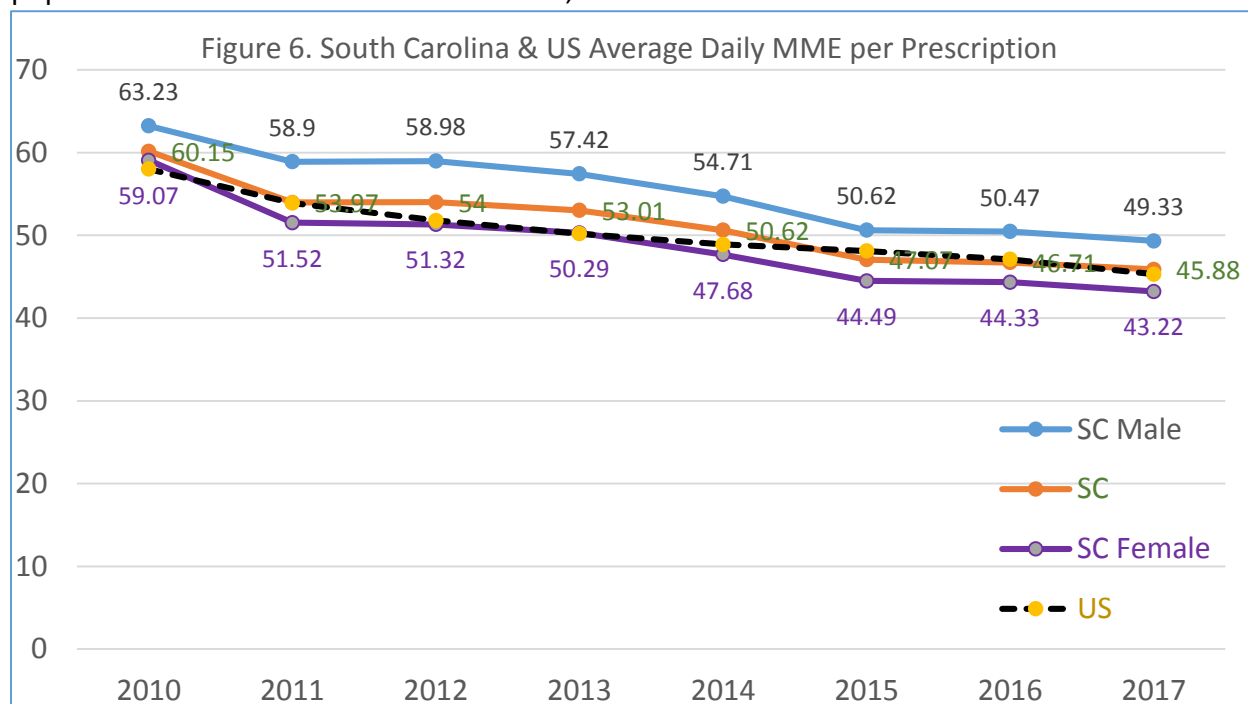
So a prescription of 120 tablets of 10 mg oxycodone for a 30 days' supply will yield 60 MME per day. A dose of 50 MME or more per day doubles the risk of opioid overdose death, compared to 20 MME or less per day, according to the CDCⁱ.



South Carolina ranks 20th among high opioid dosage states – defined as the rate of opioid prescriptions 90 MME or more per 100 state residents.

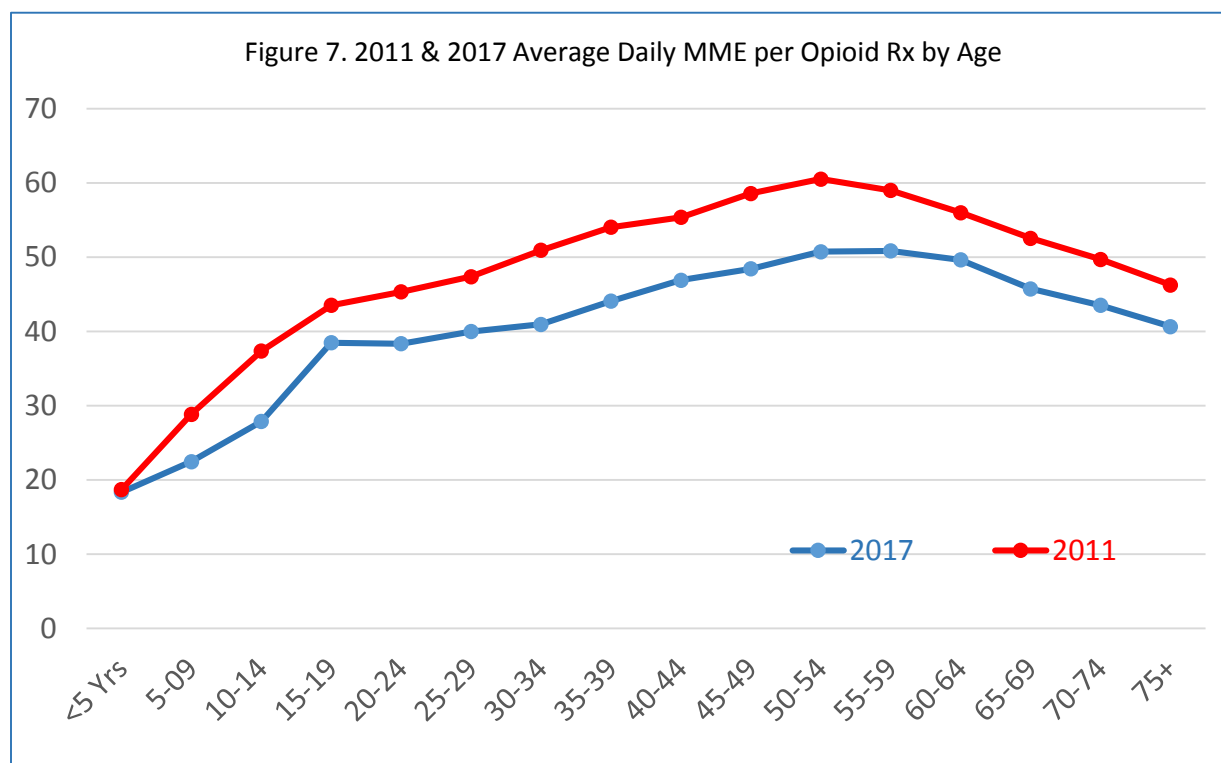
Figure 6 depicts the average daily MME per prescription declining for the United States. South Carolina's average daily MME per prescription rates have been declining since 2010, following the same national trend. In fact, South Carolina's rate remains very close to the national statistics. Although the average daily MME per opioid prescription dispensed to the male

population has been more than to females, both rates have followed a downward trend.



Source: <https://www.cdc.gov/drugoverdose/pdf/pubs/2018-cdc-drug-surveillance-report.pdf>

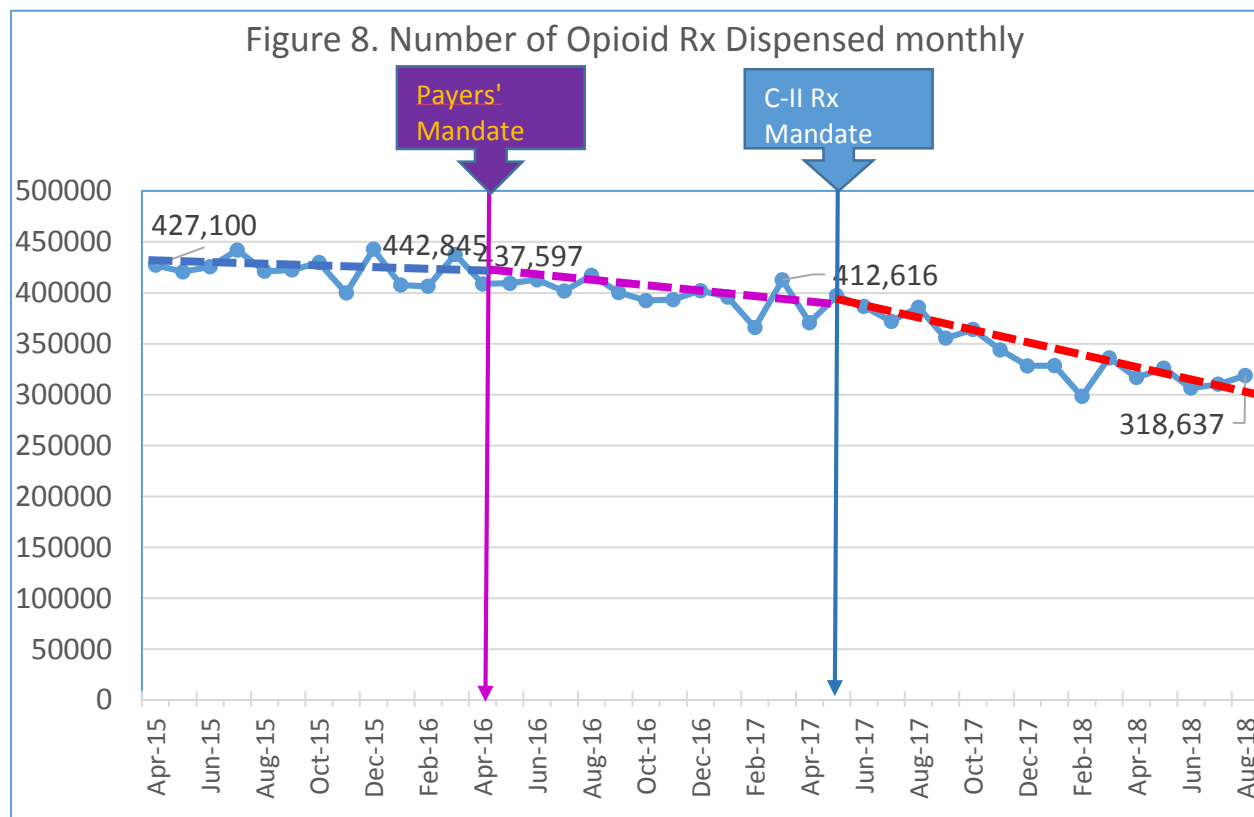
Figure 7 depicts average daily MME per prescription for 2011 and 2017. For every age group it dropped to a lower level during 2017, except for infants and toddlers, where it remained unchanged.



Policy Analysis: Since early 2000, a great deal of attention has been paid to opioid prescriptions and their potential abuse. In 2006, a US congressional hearing about the opioid epidemic brought public health attention to this crisis. As a result of the hearing and extensive media coverage, our public representatives have allocated a great deal of time and resources to address the opioid crisis (or “the opioid epidemic” as declared by CDC). In June of 2010, a CDC press release pointed to the opioid painkillers as a cause for concernⁱⁱ.

The public messaging via various means has intensified since 2016 in South Carolina. The governor’s annual opioid summit for the past two years and the media coverage of it has raised awareness about the problem in South Carolina. Based on the recent downward trend in prescribing and the timing of other factors such as mandates to limit certain types of opioid prescriptions and change in guidelines among some of the largest payers in the state, including Medicaid and BlueCross BlueShield of South Carolina, it seems these interventions have had a positive impact on opioid dispensing patterns in our state. While all of these factors together have created a suitable environment for limiting opioid abuse opportunity, it is challenging to accurately measure the impact of a specific policy or procedure.

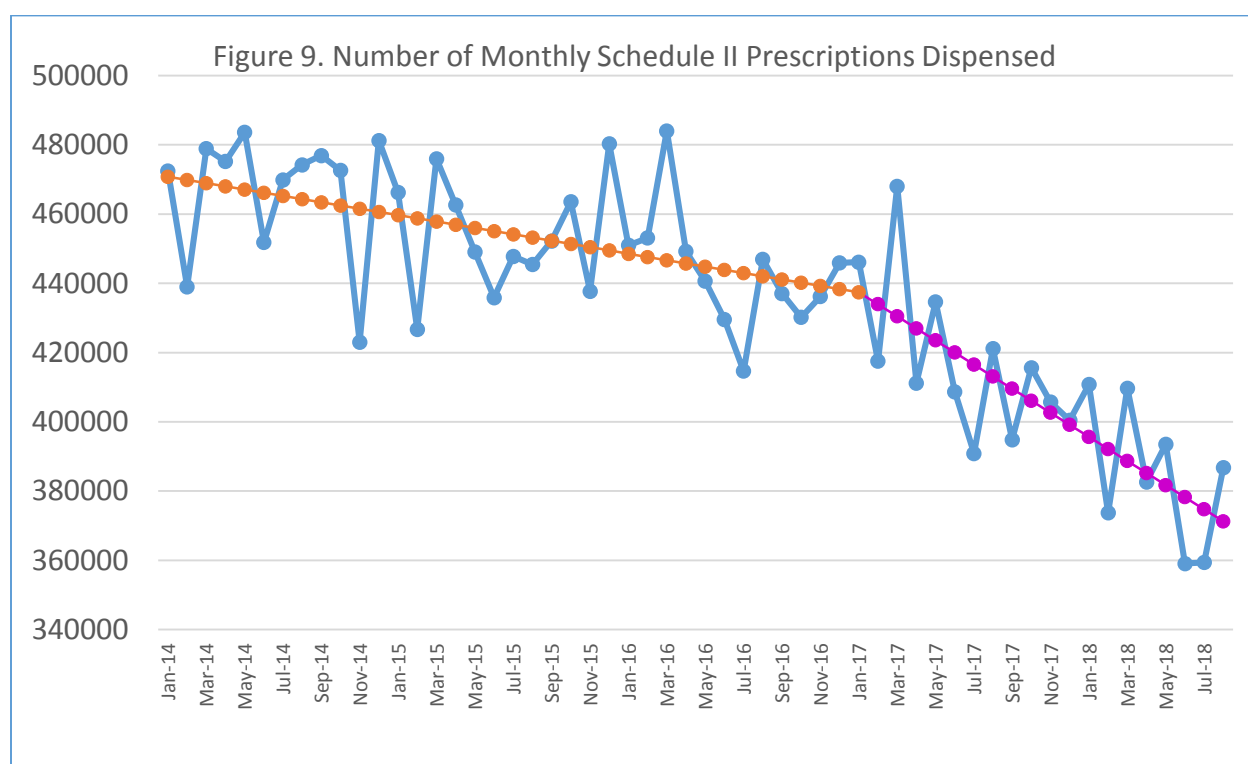
Figure 8 depicts the monthly number of opioid prescriptions dispensed in South Carolina. The purple flag marking April of 2016 is referenced as a payers’ mandate and the blue flag marks Schedule II prescription (C-II Rx) legislative mandates (please see Appendix A for detail of



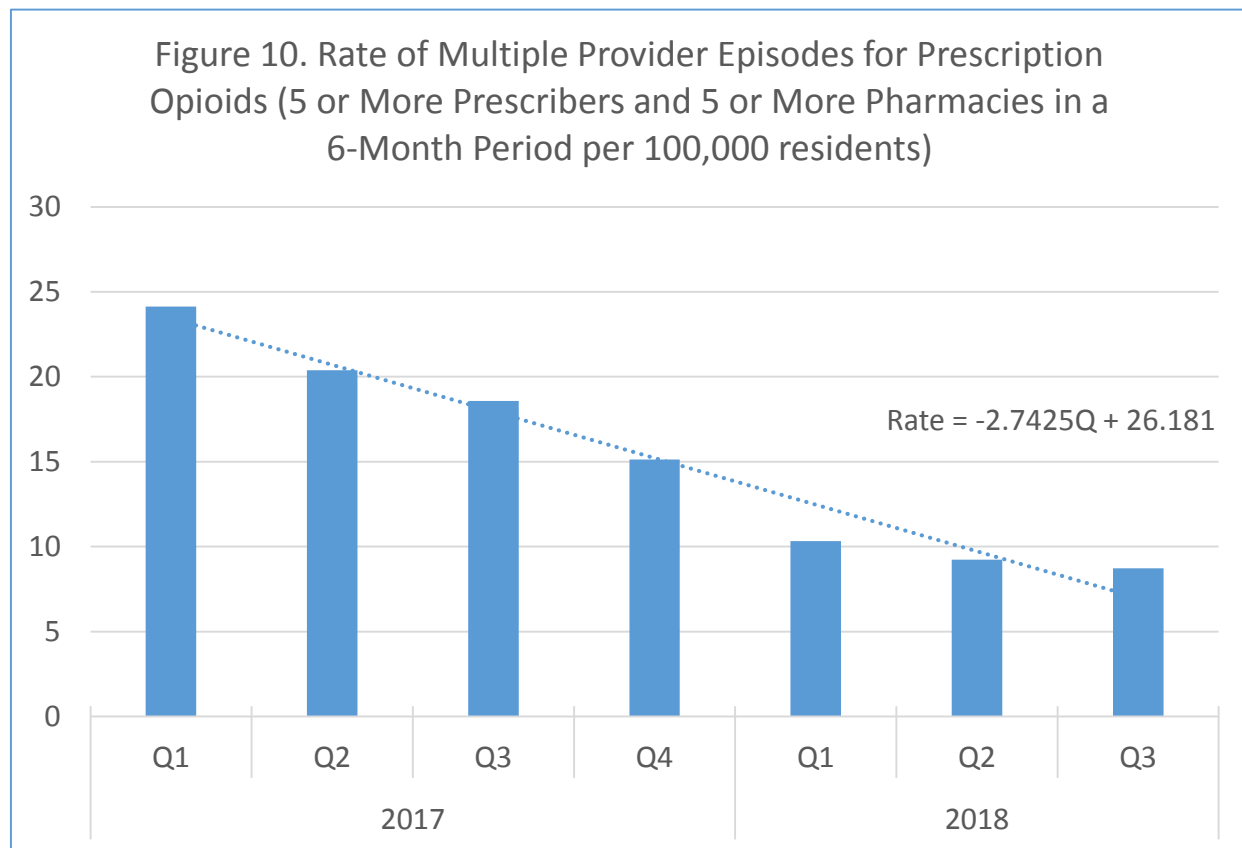
mandates). The fitted purple and red dashed lines each show a drastic change in pattern of overall opioid prescriptions in South Carolina that could be attributed to the mandates.

H.3824 was signed into law on May 19, 2017. That law requires prescribers to verify patients' controlled substance prescription history through SCRIPTS before issuing Schedule II controlled substance prescriptions, with some exceptions.

Figure 9 depicts the monthly number of Schedule II (C-II) prescriptions dispensed in South Carolina between January 2014 and August of 2018. The fitted (piecewise) regression lines reveal that passage of H.3824 might have further accelerated a lowering of the number of Schedule II prescriptions in South Carolina, since the trend had already been on a downward path.



Multiple prescribers and Pharmacies:

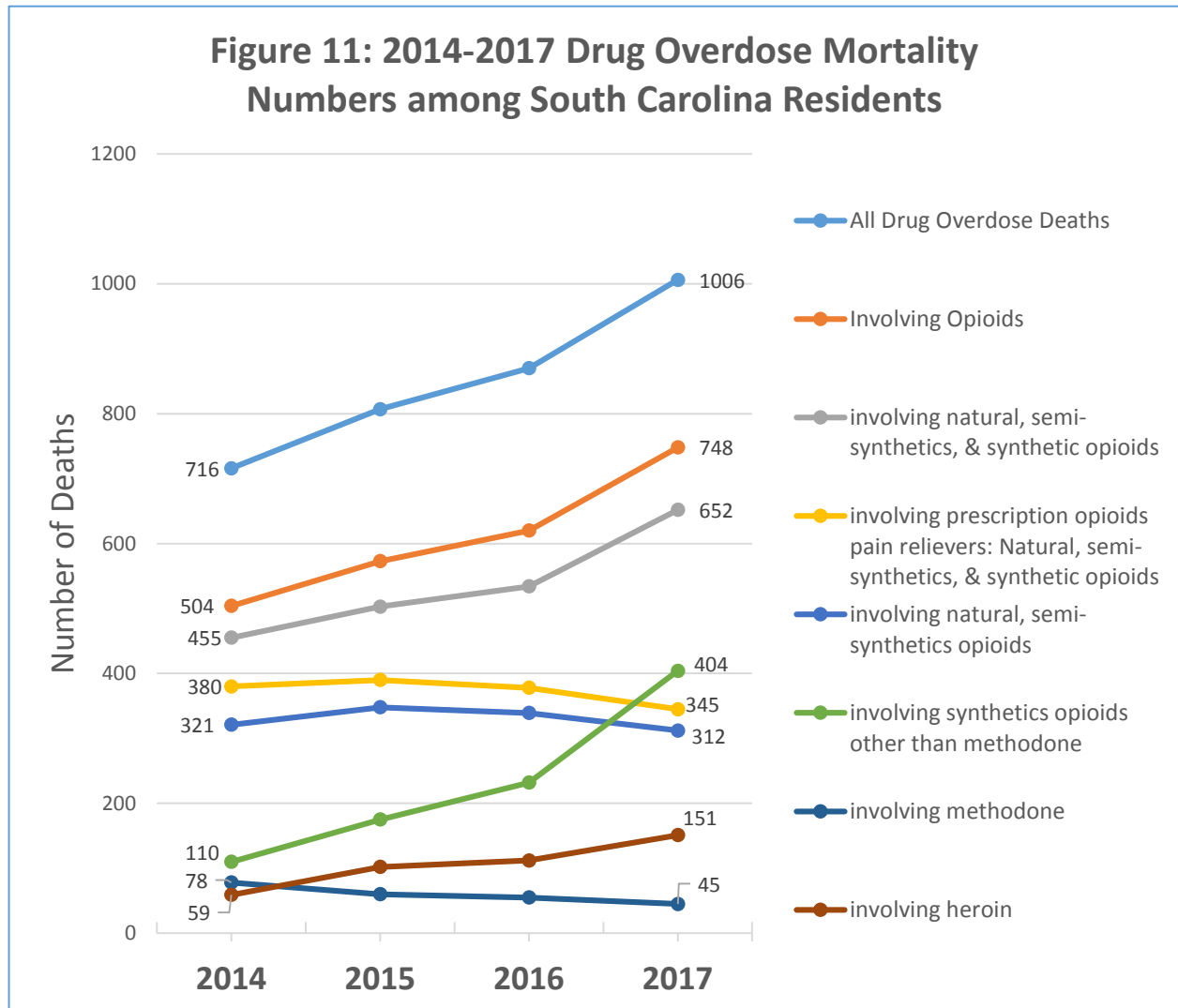


SCRIPTS enables prescribers to review a patient's record of prescriptions for controlled substances. Prescribers can better judge whether the patient might be visiting other prescribers for the same or similar drugs, a practice known as multiple provider episodes. The rate of multiple provider episodes for prescription opioids per 100,000 residents is depicted in Figure 10. The numerator is comprised of the number of patients receiving prescriptions for opioid analgesics from five or more prescribers dispensed at five or more pharmacies in a six-month period. The trend over the past six quarters, beginning with the first quarter of 2017 in South Carolina has been downward (slope is significant at <0.001 error).

Limitation:

The prescription-based indicators used in this report are limited by the completeness and quality of the data reported to SCRIPTS. Rescheduling and up-scheduling of specific drugs (e.g., tramadol, hydrocodone) will affect trends over time.

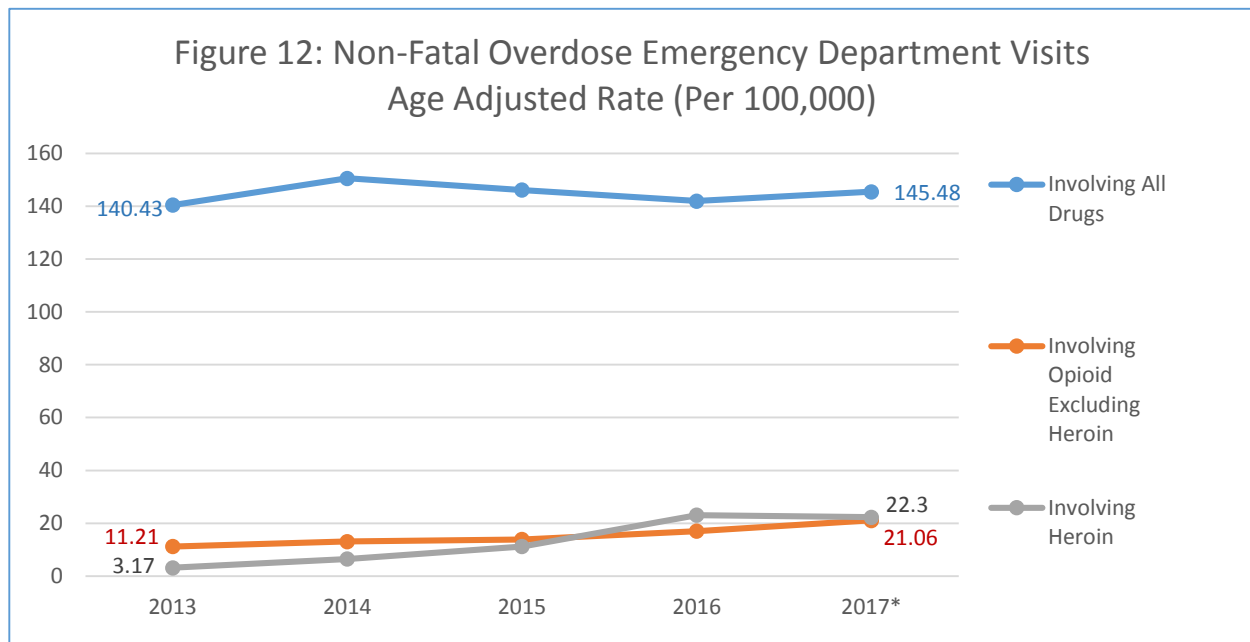
Fatal Overdose:



Source: DHEC- Biostatistics

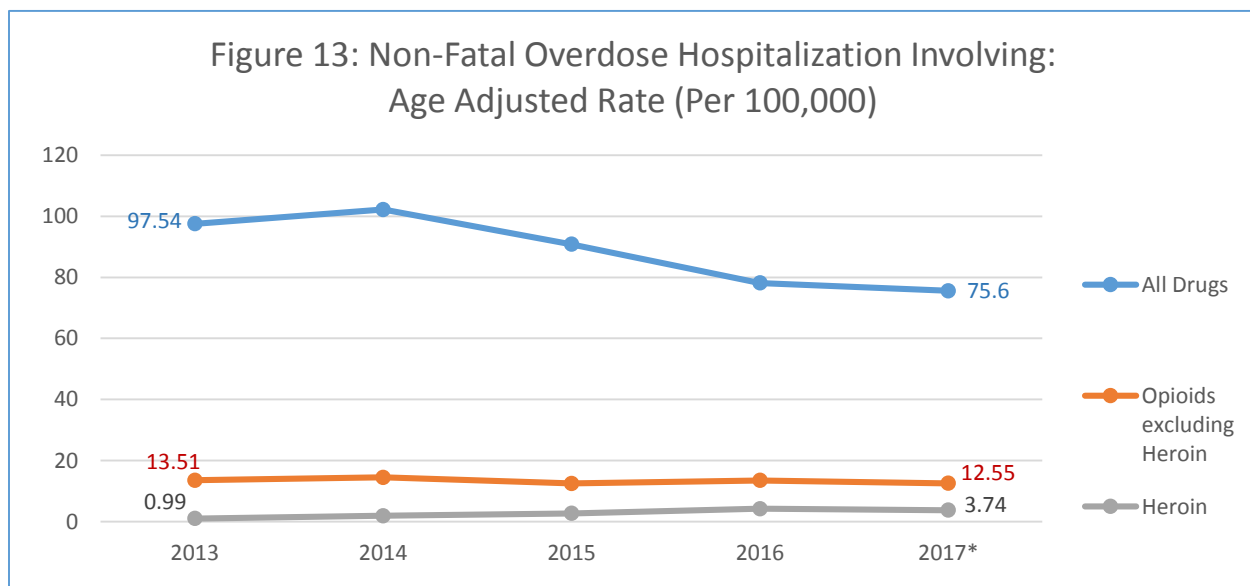
Note: “Drug overdose deaths may involve multiple drugs; therefore, a single death might be included in more than one category when describing the number of drug overdose deaths involving a specific drug. For example, a death that involved both heroin and fentanyl would be included in the following categories: deaths involving heroin, deaths involving fentanyl, deaths involving opioids, and deaths involving prescription drugsⁱⁱⁱ.”

Non-Fatal Overdose Emergency Department Visits



Source: RFA- Health and Demographics

Non-Fatal Overdoses Hospitalization



Source: RFA- Health and Demographics

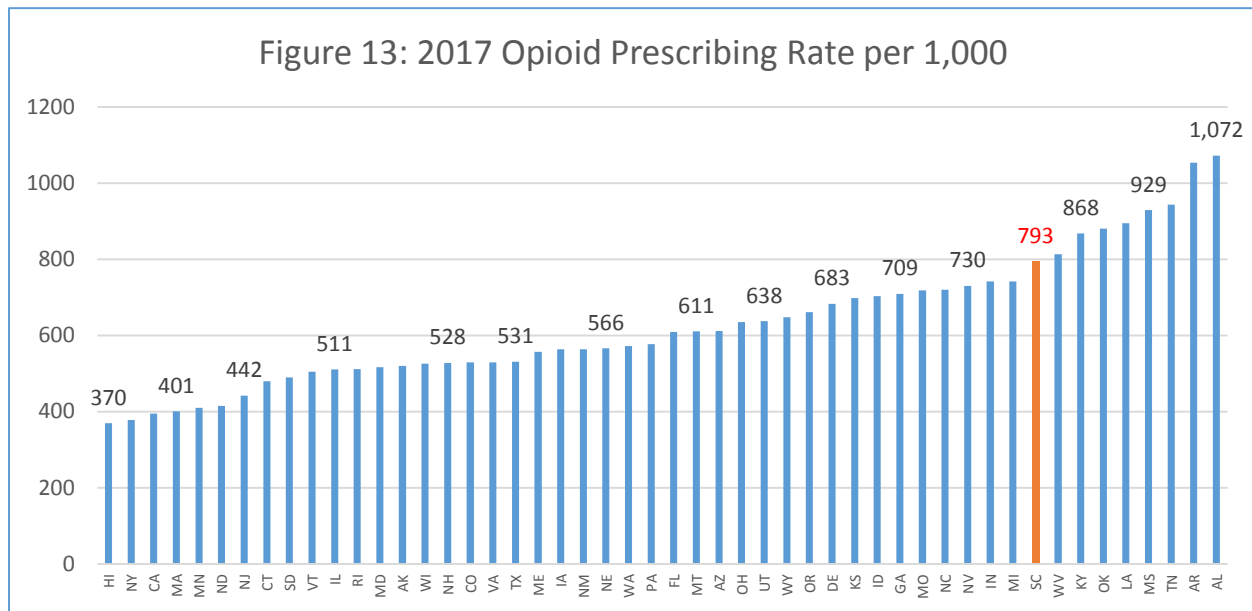
Appendix A

Timeline of Events Impacting Utilization of Prescription Drug Monitoring Program (PMP) in South Carolina; i.e., South Carolina Reporting & Identification Prescription Tracking System (SCRIPTS)

- 2006: SCRIPTS legislated by the South Carolina General Assembly
- February 1, 2008: SCRIPTS became available for use by practitioners and pharmacists
- January 1, 2014: DHEC required dispensers to upload data to the SCRIPTS vendor on a daily basis instead of monthly as was the previous requirement.
- June 4 and 6, 2014: Senate Bill 840 passed by the state legislature on June 4, 2014, and signed into law by Gov. Nikki Haley June 6, 2014, amended the current code of laws related to the state prescription drug monitoring program to: include “authorized delegates” who may conduct SCRIPTS reports on behalf of registered prescribers (although the PMP system was not able to register delegate accounts until November 2015); require dispensers to report prescription monitoring information daily (to reinforce DHEC’s required change on Jan. 1, 2014), and require continuing education for prescribers on prescription dispensing and monitoring that requires physicians to complete two hours of CME related to controlled substances every two years prior to license renewal.
- November 2014: Joint Revised Pain Management Guidelines Approved by the South Carolina State Medical Board, South Carolina Board of Dentistry and South Carolina Board of Nursing consider registration and utilization of SCRIPTS “mandatory for prescribers to provide safe, adequate pain treatment” and recommend scrutiny if ≥ 80 mg of morphine equivalents/day for more than three continuous months.
 - Actions outside the scope of Appropriate Pain Management: “Not making use of available tools for risk mitigation: SCRIPTS should be utilized prior to prescribing opioids and for ongoing monitoring”
 - http://www.llr.state.sc.us/POL/Medical/PDF/Joint_Revised_Pain_Management_Guidelines.pdf
- November/December 2014: The Dorn VAMC (Columbia, South Carolina) and Ralph H. Johnson Charleston VAMC (Charleston, South Carolina) began contributing dispensing data to SCRIPTS
- December 2014: The Governor’s Prescription Drug Abuse Prevention Council released the State Plan to Prevent and Treat Prescription Drug Abuse (<http://governor.sc.gov/ExecutiveOffice/Documents/Prescription%20Drug%20Abuse%20Prevention%20Council%20State%20Plan%20December%202014.pdf>)
- Nov. 23, 2015: SCRIPTS switched vendors and started online registration for users, registration of delegate accounts, online password reset
- Payer mandates
 - March 15, 2016: Blue Cross/Blue Shield State Health Plan will require SCRIPTS Reports for all “members that are being prescribed opioids”
 - April 1, 2016: South Carolina Department of Health and Human Services will require SCRIPTS reports for all CII – CIV controlled substances
- PMP/EHR Integration

- September 2015: first two integrations of SCRIPTS into Emergency Departments (ED) were completed
 - Lexington Medical Center went live with ED physicians on Sept. 21, 2015.
 - Palmetto Health went live with ED physicians on Sept. 22, 2015.
- Jan. 1, 2016 – March 31, 2016: 20 separate acute care locations associated with Palmetto Health went live with Narxcheck
- April 2017: Integration at MUSC
- End of August 2017: GHS integrates
- Many other facilities and pharmacies continue to integrate SCRIPTS data into their workflow
- May 2017: H.3824 signed into law requiring practitioners to check the South Carolina PMP before issuing a CII prescription (with some notable exceptions). Expands CE requirements on prescribing and monitoring controlled substances to other prescribers.
- May 2018: Legislation passed that limits initial opioid prescriptions for acute pain management or postoperative pain management to not exceed a seven-day supply, except when clinically indicated for cancer pain, chronic pain, hospice care, palliative care, major trauma, major surgery, treatment of sickle cell disease, treatment of neonatal abstinence syndrome, or medication-assisted treatment for substance use disorder.
- May 14, 2018: SCRIPTS is enhanced with Narxcare to include analytics and resources on patient prescription history reports.

Appendix B



Source: <https://www.cdc.gov/drugoverdose/maps/rxstate2017.html> accessed Oct. 31, 2018

Note: South Carolina ranks 9th among states with the highest opioid prescription rates in the country at 793 per 1,000 residents. These estimates are based on the IQVIA Xponent 2006–2017. IQVIA Xponent is based on a sample of approximately 50,000 retail (non-hospital) pharmacies, which dispense nearly 90% of all retail prescriptions in the United States. For this database, a prescription is an initial or refill prescription dispensed at a retail pharmacy in the sample and paid for by commercial insurance, Medicaid, Medicare, or cash or its equivalent. Unlike SCRIPTS, this database does not include mail order pharmacy data. Therefore, SCRIPTS is a more complete and accurate estimate of opioid prescriptions dispensed in South Carolina. Thus the CDC reported estimated rate of 793 based on a sample is under-reporting the South Carolina true prevalence of 863 per 1,000 (from table 1).

ⁱ <https://www.cdc.gov/drugoverdose/images/vitalsigns/VS_MME-Prescribing-Graphic_508.pdf>

ⁱⁱ “Study Shows 111 Percent Increase in Emergency Department Visits Involving Nonmedical Use of Prescription Opioid Pain Relievers in Five-Year Period.”

<<https://www.cdc.gov/media/pressrel/2010/r100617.htm>>

ⁱⁱⁱ <<https://www.scdhec.gov/sites/default/files/media/document/Drug%20Overdose%20Deaths%20-%20South%20Carolina%202017.pdf>>