



SPECIAL FOCUS REPORT

# SC Medicaid Enrollees Within the Growing Opioid Crisis

A Look at the Impact of the Prescription Monitoring Program Policy

DEVELOPED BY:

The Division of Medicaid Policy Research  
at the University of South Carolina Institute for Families in Society  
under contract to the SC Department of Health and Human Services

August 2017



**Medicaid Policy Research**  
at the USC Institute for Families in Society



# ACKNOWLEDGEMENTS



This study, conducted by the USC Institute for Families in Society, Division of Medicaid Policy Research under contract to the SC Department of Health and Human Services, examines the impact of the 2014 policy change requiring SC Medicaid prescribers to use the Prescription Monitoring Program (PMP). Failure to verify the opioid prescribing history of the Medicaid recipient can result in penalties and loss of provider payment.

This report was prepared under contract with the South Carolina Department of Health and Human Services. The findings, views, and opinions of authors expressed herein do not necessarily state or reflect those of the SC Department of Health and Human Services.

This work would not have been possible without the efforts of the following members of the Institute for Families in Society, Division of Medicaid Policy Research: Ana Lòpez-De Fede, PhD; Kathy Mayfield-Smith, MA, MBA; Tammy Cummings, PhD; Becky Wilkerson, MSPH; John Stewart, MS, MPH; Verna Brantley, MSPH; James Edwards, MA, MS; Robert Hawks; and Rachel Passer, MA. Special recognition of Dawn Sudduth, MEd, for the graphic design of this report.

Suggested citation: USC Institute for Families in Society, Division of Medicaid Policy Research. (2017). SC Medicaid Enrollees Within the Growing Opioid Crisis: A Look at the Impact of the Prescription Monitoring Program Policy. Columbia, SC: University of South Carolina

## **Contact:**

**Ana Lòpez-De Fede, PhD**  
Research Professor and Director, Division of Medicaid Policy Research  
University of South Carolina  
Institute for Families in Society  
Columbia, SC 29208  
adefede@mpr.sc.edu  
(803) 777-5789

# CONTENTS

Executive  
Summary

2

Background

4

Key Findings

9

PMP Policy Analysis

16

Conclusions &  
Recommendations

21

Appendices

24

# EXECUTIVE SUMMARY

## Age and race make a difference in the SC Medicaid adult population with prescribed opioids.

- Older adults ( $\geq 46$  years) were disproportionately represented among the high-dosage (42%) opioid users compared to all opioid (23%) and at-risk (21%) groups.
- Regardless of gender, White/Caucasian Medicaid recipients were more likely to be among high-dosage users.

## Prescription dosage makes a difference.

At-risk opioid users (50 mg to  $< 120$  mg TDMED) are:

- 2.4 times more likely to have a heroin overdose prior to implementation (CY2013) vs. 1.8 times after the implementation (CY2016).

High-dosage opioid users ( $\geq 120$  mg TDMED) are:

- 3 times more likely to have a primary diagnosis of hepatitis C than those with a lower Rx dosage (CY2013-2016); and
- 5.8 times more likely to use more than 3 prescribing providers prior to implementation (CY2013) vs. 4.9 times after the implementation (CY2016).

## Geography and poor outcomes differ.

- High-dosage opioid prescriptions seem to produce different outcomes by geography, with rural areas more likely to see “shopper” behaviors and urban counties “illicit” drug use. This inconsistent pattern indicates the need for different interventions depending on where within the state the high-dosage prescribing occurs.

### “TDMED”

Used throughout this report, TDMED is the abbreviation of **Total Daily Morphine Equivalent Dose**. TDMED represents the total amount of opioid drugs prescribed to a patient daily, expressed as a common unit, milligrams of morphine. Opioid cough and cold products and combination products containing buprenorphine and naloxone are not included in TDMED calculations. Opioid users were classified by their maximum calculated TDMED in each year.

# EXECUTIVE SUMMARY

(continued)

## **The pattern of opioid use in South Carolina, by geography, reflects known social determinants of health.**

- Geographically, prescribing patterns reflect higher dosages in the upper, central, and coastal areas of South Carolina. The rural geographic pattern associated with higher average dosages has not changed substantially from previous reports. In 2013, the Office of Inspector General illustrated a similar geographical pattern in its seminal report on the need for a statewide prescription drug abuse strategy. See Appendix A.
- The top 25 places in South Carolina for high-dosage prescriptions are in predominantly rural communities where there are known factors associated with increased risk of opioid addiction and overdose. Rural communities experience poor housing, poverty, and unemployment at higher rates, all of which are known to increase the likelihood of substance use. Also, rural occupations are susceptible to physical injury that can lead to higher exposure of opioid prescriptions at higher dosages (Keyes, 2014).

## **The analysis shows that, with the implementation of the PMP, reductions or changes are noted in numbers of opioid prescriptions, changes in dosages, prescribing patterns, and the number of doctor and pharmacy shoppers.**

Reduction in the percent of Medicaid recipients with an opioid prescription:

- ↓ 29% for all opioid prescriptions
- ↓ 15% for all high-dosage opioid users

Reduction in the average maximum TDMED:

- ↓ 7% for all opioid users
- ↓ 6% for high-dosage users

Positive change in prescribing patterns:

- ↓ Number of individuals prescribed opioids
- ↓ Total daily morphine equivalent dose per user per year

Decrease in the number of doctor and pharmacy “shoppers”:

- ↓ To date, there have been relative change reductions of 39% and 45%, respectively, among those with the two highest TDMED prescribed dosages: 50 to < 120 mg (At-Risk) and ≥ 120 mg (High-Dosage).



# BACKGROUND

## Examining Medicaid Opioid Prescribing Patterns: Why Does it Matter?

### National Statistics

Nearly 12% of adults covered by Medicaid have a substance use disorder, including opioid use disorder (CMS, 2014).

The U.S. makes up 4.6% of the world population but consumes 81% of the world supply of oxycodone (National Safety Council, 2016).

4 out of 5 heroin users started on prescription opioids (National Safety Council, 2016).

Overall, rates of opioid-related emergency department (ED) visits and inpatient stays are greatest in low-income communities (Weiss, Bailey, O'Malley, et al., 2017).

From 2005 to 2014, rates of opioid-related ED visits increased more in rural areas than in large metropolitan areas (Weiss, Bailey, O'Malley, et al., 2017).

Hepatitis C is a highly infectious blood-borne virus that can cause severe liver damage and death. Needle sharing among people who inject drugs (PWID) is the most common form of hepatitis C transmission. Research undertaken by the Centers for Disease Control (CDC) suggests rising hepatitis C rates are associated with increasing injection of opioid drugs (CDC, 2015).

### South Carolina Statistics

South Carolina ranks in the highest quartile among states for the number of painkiller prescriptions per 100 people and has seen prescriptions increase each year (CDC, 2016).

Opioid-related deaths across South Carolina jumped from 237 in 2013 to 516 in 2014; and, in 2015, more than 600 people died from opioid and heroin overdoses (SC DHEC, 2016).

Recipients with opiate prescriptions account for 20.4% of South Carolina's total Medicaid population and consume 6.1% of pharmacy spending (IBM Health Watson, 2017).



# BACKGROUND

(continued)

## Analysis of Medicaid Opioid Prescribing Monitoring Program (PMP) Policy Requirement

As of April 1, 2014, the South Carolina Department of Health and Human Services (SCDHHS) requires that providers verify Medicaid members' controlled substance prescription history before issuing prescriptions for opioids. Failure to consult the South Carolina Reporting and Identification Prescription Tracking System (PMP) database may result in loss of Medicaid payments for the office visit during which the prescription was given. Further action, such as referral to the appropriate licensing boards, may be taken against providers with serious or persistent compliance problems.

This report examines the impact of this policy on Medicaid opioid prescribing patterns and users for Calendar Years 2013, 2014, 2015, and 2016—before, during, and after implementation of the state's Prescription Monitoring Program (PMP).

**What is the value of the PMP?** Prescription monitoring programs, also known as PMPs, are state-run electronic databases that collect, monitor, and analyze information on the prescribing and dispensing of controlled substances. PMPs are authorized by state law and administered by a state agency, such as the health department, pharmacy board, or the attorney general's office. Each state law sets forth the controlled substances for which dispensing data will be collected. Most PMPs collect data on Schedules II-IV drugs, but some states require reporting on other drugs of concern. Responsibility for reporting typically falls to pharmacies and other dispensers. PMPs were created to assist clinicians and law enforcement in curbing misuse, abuse, and diversion of controlled substances.

PMP	Baseline	Policy Change	Full Implementation
	CY2013	CY2014-2015	CY2016



# Things to Know About This Study



## DATA SOURCE

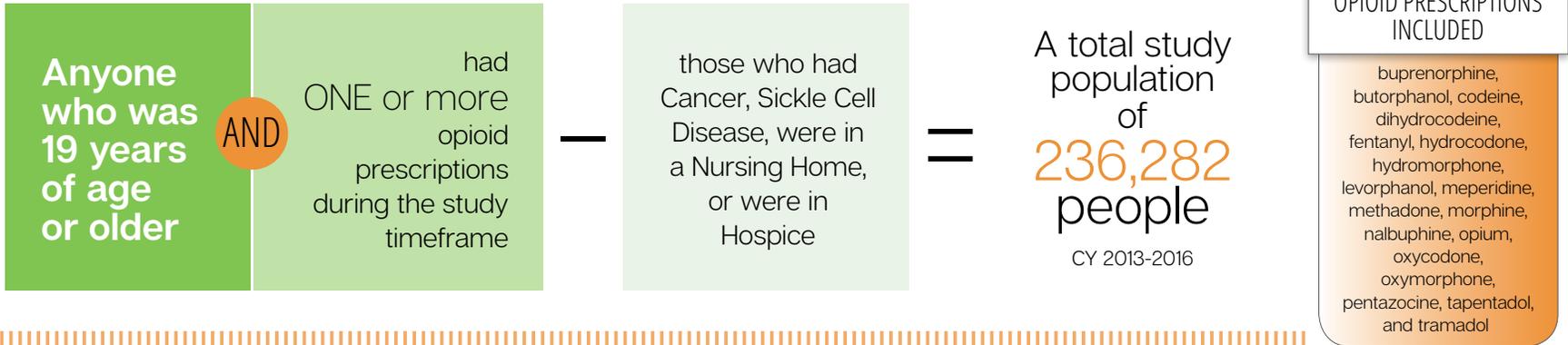
Recipient Provider Claims  
Within the SC Medicaid  
Management Information System



## PRESCRIPTION MONITORING PROGRAM (PMP) TIMELINE

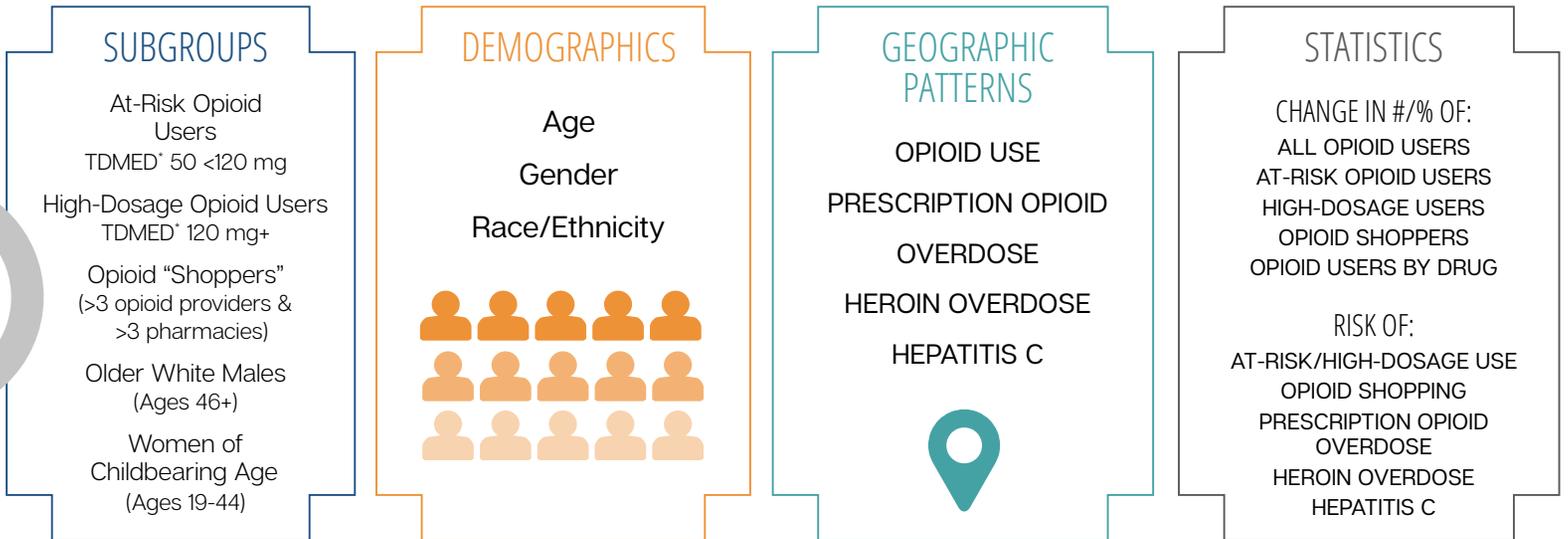
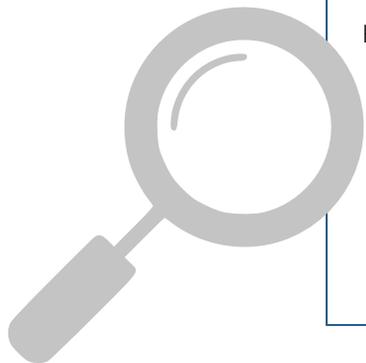


THE STUDY INCLUDED



- ### OPIOID PRESCRIPTIONS INCLUDED
- buprenorphine,
  - butorphanol, codeine,
  - dihydrocodeine,
  - fentanyl, hydrocodone,
  - hydromorphone,
  - levorphanol, meperidine,
  - methadone, morphine,
  - nalbuphine, opium,
  - oxycodone,
  - oxymorphone,
  - pentazocine, tapentadol,
  - and tramadol

## THE DATA WAS ANALYZED BY



\*TDMED (Total Daily Morphine Equivalent Dose) is the total amount of opioid drugs prescribed to a patient daily, expressed in terms of a common unit, milligrams of morphine.



# BACKGROUND

(continued)

## ORGANIZATION OF THE DATA RESULTS

The results are organized by three distinct groups of individuals with Medicaid opioid claims:

**All Opioid Users** include SC Medicaid recipients ages 19 years or older with any opioid prescription in the measurement period.

**At-Risk Opioid Users** refers to those SC Medicaid recipients among **All Opioid Users** who have a maximum TDMED of 50 to < 120 mg in a measurement year.

**High-Dosage Opioid Users** refers to those SC Medicaid recipients among **All Opioid Users** who have a TDMED of  $\geq 120$  mg in a measurement year.

These groupings are based on the CDC recommendations for calculating the total daily dose of opioids. Dosages at or above 50 TDMED/day are twice as likely to have a higher risk of overdose and death.

**As such, for the purposes of this report, the study population consists of two groups: at-risk and high-dosage opioid users.**



# BACKGROUND

(continued)

## DATA CAVEATS

The identification of all opioid users and high-dosage opioid users is based only on claims associated with prescribed opioid medications.

Maps represent only those opioid users with viable addresses in South Carolina (approximately 99% of all opioid users with claims).

Map locations use the most current address of the Medicaid recipient.

Charts with Medicaid recipients used as a denominator to calculate a percent that are opioid users have the following exclusions applied to the total Medicaid population denominator: (1) in a Nursing home or Hospice by restricting to those who were not in the payment categories (10, 33, or 54) in each year, (2) who were not age 19 or older in each year, and (3) those that did not have a viable SC address (< 1% of all recipients in each year). The counts of opioid users and high-dosage users in these charts also exclude those users that did not have a viable SC address (< 1% of all recipients in each year).

The methods illustration details the specific approach for this analysis. However, as the availability of data was explored, limitations were found in what analyses could be conducted at this time. In some cases a more comprehensive analysis of sub-populations has been deferred as a component of next steps (e.g., women with prescription opioids and cohort of individuals enrolled across all years.)

## HOW TO USE THE STUDY FINDINGS

This report can be used by policymakers, health care providers, health system administrators, and community stakeholders to better understand prescription opioid use among adult Medicaid recipients in South Carolina.

### **In particular, this report can help:**

- identify demographic groups at increased risk for high-dosage opioid use;
- identify opioid users at greater risk for prescription opioid overdose and hepatitis C;
- locate geographic areas with high rates of heroin overdose;
- evaluate the impact of the state's Prescription Monitoring Program (PMP) on the number and proportion of high-dosage prescriptions as well as the specific opioids prescribed; and
- detect differences in the average maximum TDMED for all opioid users and high-dosage users before and after PMP implementation.





# KEY FINDINGS



# AGE

## Age makes a difference.

In the Medicaid adult population with prescribed opioids:

Older adults (≥ 46 years) were disproportionately represented in the high-dosage (42%) opioid users group compared to all opioid (23%) and at-risk (21%) groups.

Conversely, less than 9% of high-dosage opioid users are ages 19-25 compared to all (22%) and at-risk opioid users (22%).

Age Characteristics of All, At-Risk, and High-Dosage Opioid Users Combined Years (CY2013-16)

### ALL USERS



### AT-RISK USERS



### HIGH-DOSAGE USERS



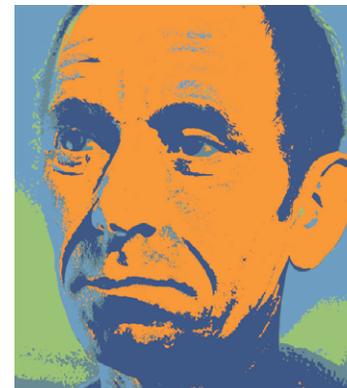
Note: Rounded percentages may not total to 100%.

# RACE & GENDER

## Race and gender make a difference.

Regardless of gender, White/Caucasian Medicaid recipients were more likely to be among high-dosage users. Of those males who were prescribed opioids anytime between 2013 and 2016 and were high-dosage users, most were 56+ years of age and Caucasian.

In contrast, of those females who were prescribed opioids anytime between 2013 and 2016 and were high-dosage opioid users, most were between 26 and 35 years of age and Caucasian. A higher percentage of all, at-risk, and high-dosage opioid users were women. Subsequent analysis will explore specific factors among women of childbearing age connected with opioid use.



**MOST HIGH-DOSAGE MALES**

White/Caucasian  
56+ years of age



**MOST HIGH-DOSAGE FEMALES**

White/Caucasian  
26-35 years of age

# Impact of Prescribing High-Dosage Opioids

## STUDIES SHOW

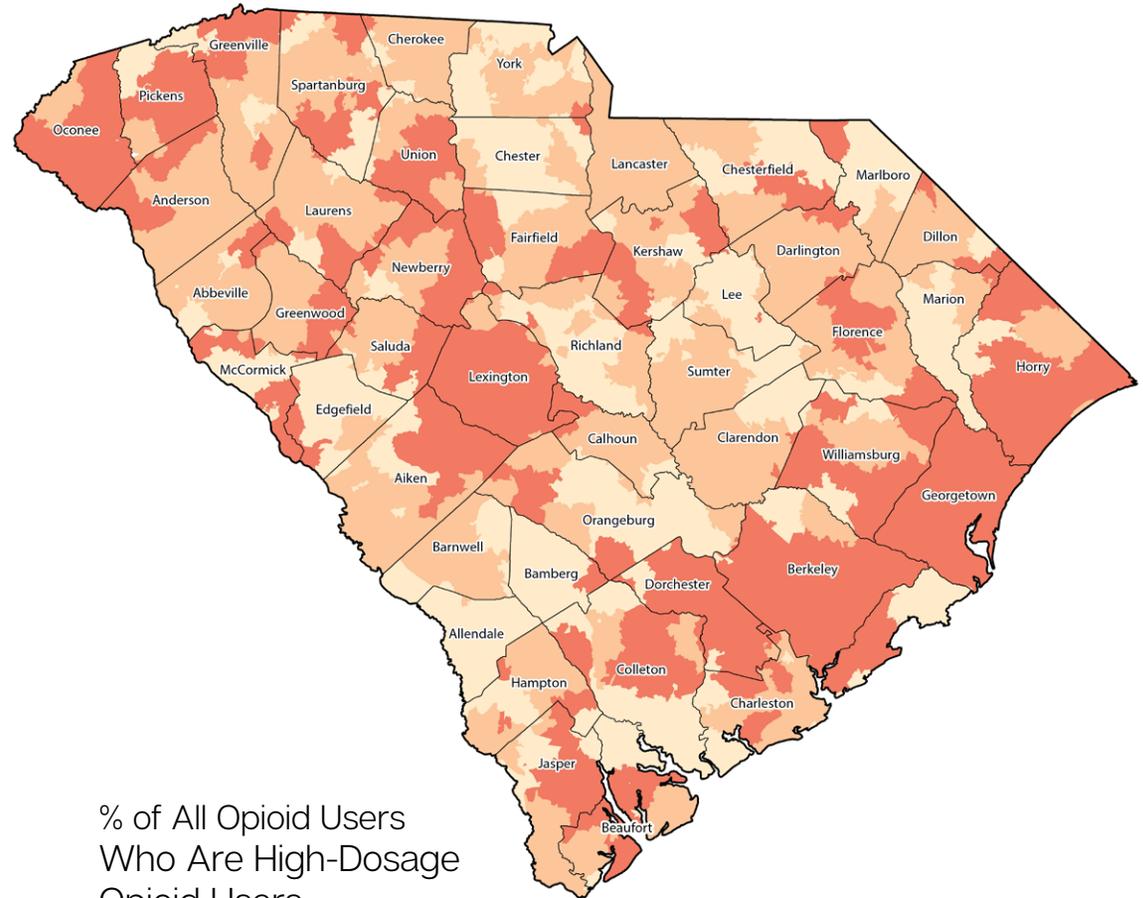
### High-Dosage Opioids = High Abuse

Research shows that patients receiving > 100 mg TDMED/day had an 8.9-fold increase in overdose risk: 12% of these overdoses were fatal (Dunn et al., 2010).

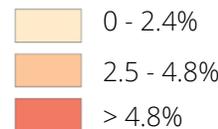
Dose escalation to > 120 mg TDMED/day is associated with a 2.6-fold risk of clinical depression (Zedler, 2014).

Growing evidence suggests that abusers of prescription opioids are shifting to heroin as prescription drugs become less available or harder to abuse (Compton et al., 2016).

Rural communities in southern states are disproportionately impacted by high-dosage opioid prescribing practices and a shift in heroin use (Okie, 2010; Koebler, 2014; Keyes, 2014; MMWR, 2014).



% of All Opioid Users Who Are High-Dosage Opioid Users



Notes:  
Classes represent adjusted natural breaks.  
High-dosage is defined as a TDMED of 120 mg or higher.  
Source: SC MMIS, CY2016

## Our Study Findings

SC Medicaid **AT-RISK** opioid users (50 mg to < 120 mg TDMED) are:

**2X** more likely to have a heroin overdose prior to implementation (CY2013) vs. 1.8X after implementation (CY2016).

**HIGH-DOSAGE** opioid users ( $\geq 120$  mg TDMED) are approximately:

**6X** more likely to use more than 3 prescribing providers and pharmacies than those with lower prescription dosages (CY2013).

**3X** more likely to have a primary diagnosis of hepatitis C than those with a lower prescription dosage (CY2013-16).



# Prescribing Patterns and Geographic Variation

## DO PRESCRIBING PATTERNS DIFFER BY GEOGRAPHICAL AREAS?

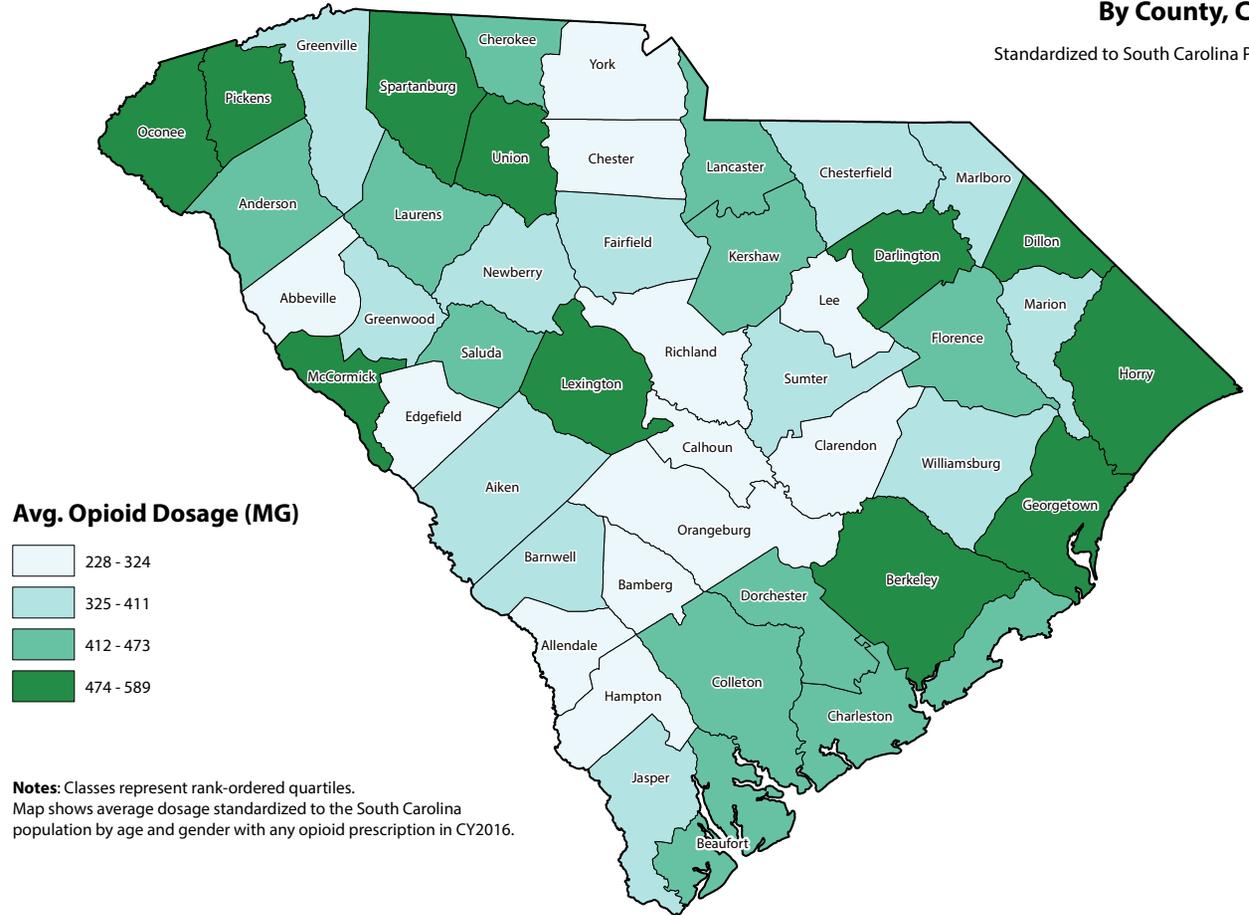
The geographical prescription dosage patterns are higher in the upper, central, and coastal areas of South Carolina. The rural geographic pattern associated with higher average prescribing dosage has not changed substantially from previous reports.

In CY2016, the average opioid dosage per adult Medicaid user varied considerably by county. In high-prescribing counties (top quartile of the distribution), the average opioid dosage per person was 1.8 times greater than in low-prescribing counties (bottom quartile of the distribution).

See Appendix D for a map of average number of opioid milligrams dispensed per county resident.

## Average Opioid Dosage Per Opioid User By County, CY2016

Standardized to South Carolina Population

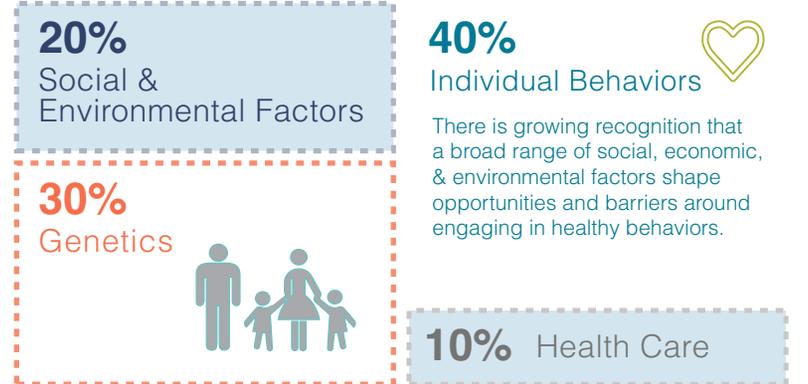


# Prescribing Patterns and Geographic Variation *(continued)*

## SOCIAL DETERMINANTS IMPACT OPIOID ADDICTION RISK AND TREATMENT



### IMPACT OF RISK FACTORS ON PREMATURE DEATH



Social factors account for more than

**ONE THIRD**

of total deaths in the US annually.

**Premature death** increases

**1**

as income decreases.



For the complete infographic, *Social and Economic Factors That Impact Health*, visit [shealthviz.sc.edu/Data/Sites/1/media/features/sdohinfographic.pdf](https://shealthviz.sc.edu/Data/Sites/1/media/features/sdohinfographic.pdf).

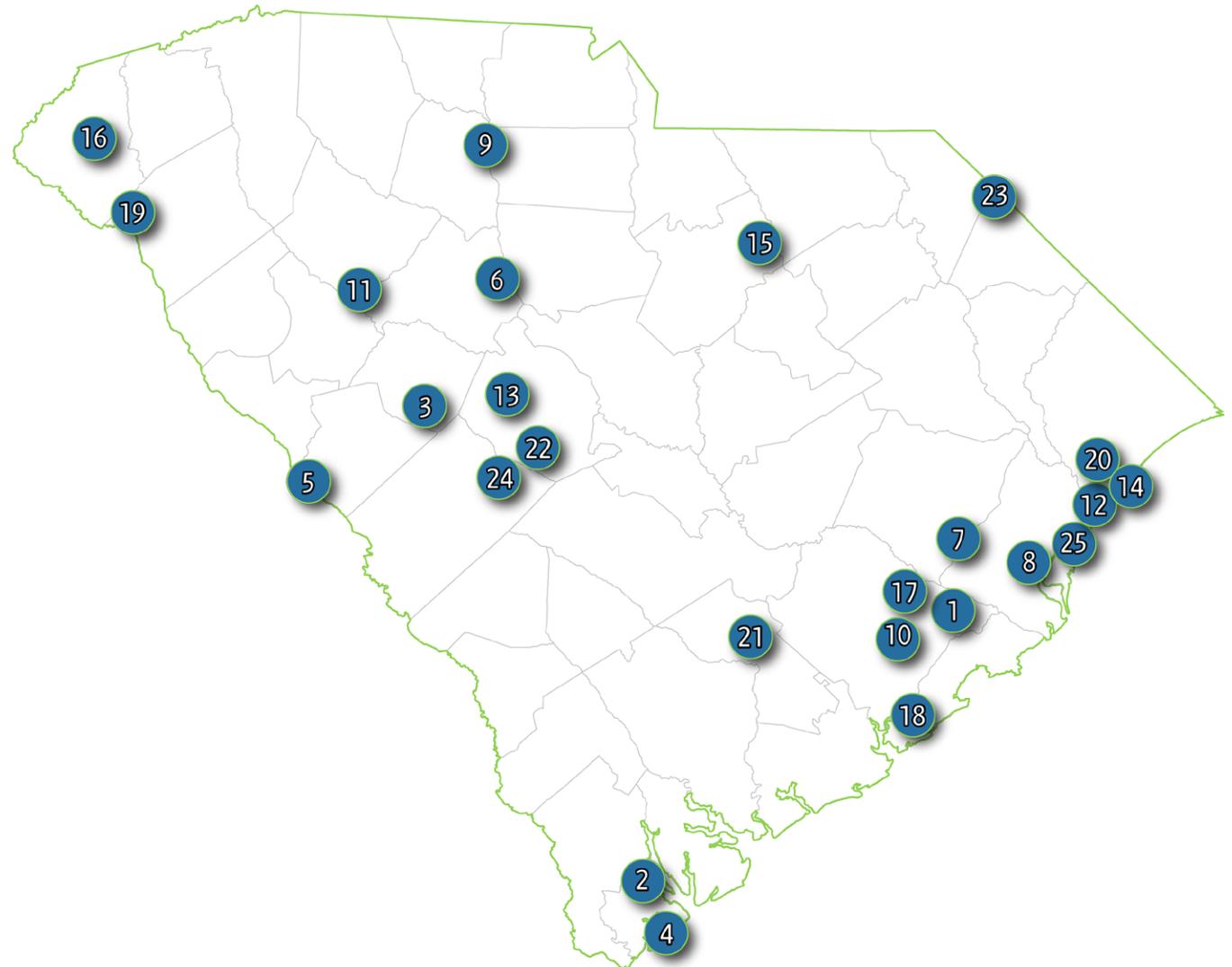
## SC ZCTAs With the Highest Percentages of High- Dosage Opioid Users

Central and coastal locations are among the top 25 places for high-dosage opioid users in South Carolina.

Of the top 25 ZCTAs shown here, 72% are rural. Of those 18 rural ZCTAs, 61% are higher than or equal to their respective counties in % poverty, % unemployment and/or % with no high school diploma.

Social determinants of health, such as substandard housing, poverty, and unemployment, are seen at higher rates in rural communities. These determinants are known to increase the likelihood of opioid use that can, in turn, lead to opioid abuse.

Also, workers in rural occupations are susceptible to physical injuries that can lead to higher exposure to opioid prescriptions at higher dosages.





# PMP POLICY ANALYSIS



# Medicaid PMP Policy Implementation Analysis

## % of SC Medicaid Recipients With an Opioid Prescription

FINDING: The PMP policy has reduced the percent of Medicaid recipients with an opioid prescription.

The values reported in this graphic are based on opioid users and Medicaid recipients with viable addresses in SC (approximately 99% of all records).



RELATIVE CHANGE

% With An Opioid Prescription:

↓29%

% With A High-Dosage Opioid Prescription:

↓15%



# Medicaid PMP Policy Implementation Analysis

## Prescription Maximum Dose Patterns

**FINDING:** The PMP policy has significantly reduced the average maximum TDMED.

The policy is successfully reducing the dosage for individuals with TDMED associated with all opioid users by 7% and high-dosage users by 6%. For an understanding of the impact of the PMP on at-risk users see Appendix E.

In contrast, there has been an increase of TDMED < 50mg between CY2013–CY2016. This change may require further exploration related to reasons for the increased lower-dosage prescription pattern.



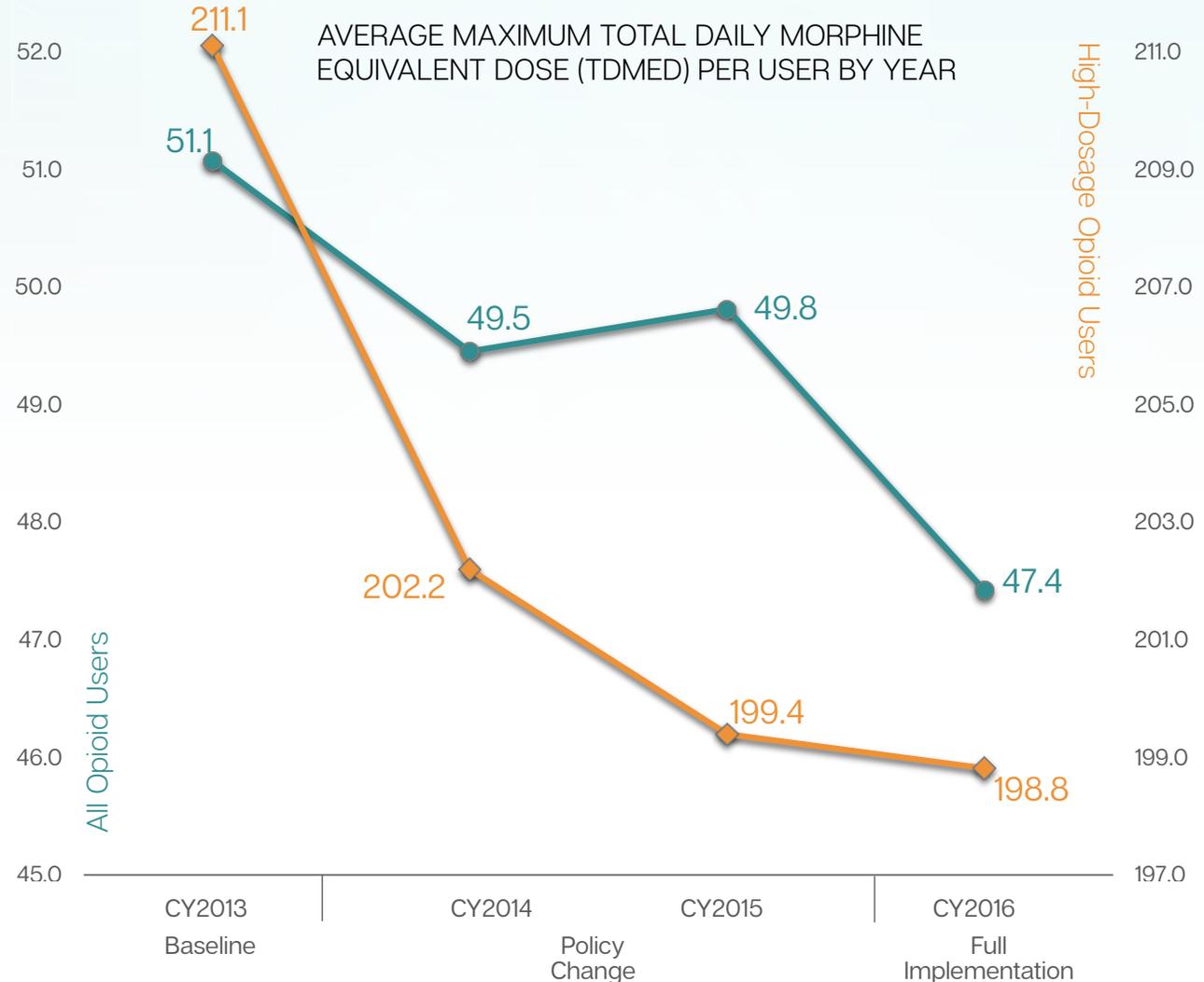
RELATIVE CHANGE

All Opioid Users:

↓7%

High-Dosage Users

↓6%



# Medicaid PMP Policy Implementation Analysis

## Prescription Patterns Addressing Opioid Abuse Risk

**FINDING:** The PMP policy is positively associated with an increase of prescriptions for the treatment for opioid overdose/abuse and a reduction of fentanyl, associated with increasing risk of overdose.

In spite of removing individuals with diagnoses more likely to be prescribed fentanyl (e.g., cancer, hospice, and sickle cell disease) the number of individuals who received fentanyl prescriptions remained high in CY2016 compared to the number of individuals who received buprenorphine prescriptions to treat opioid dependence.

**NOTE:** Fentanyl is a powerful synthetic opioid analgesic that is similar to morphine. It is 50-100 times more potent than morphine. The high potency of fentanyl greatly increases risk of overdose.<sup>†</sup>



Fentanyl Prescriptions

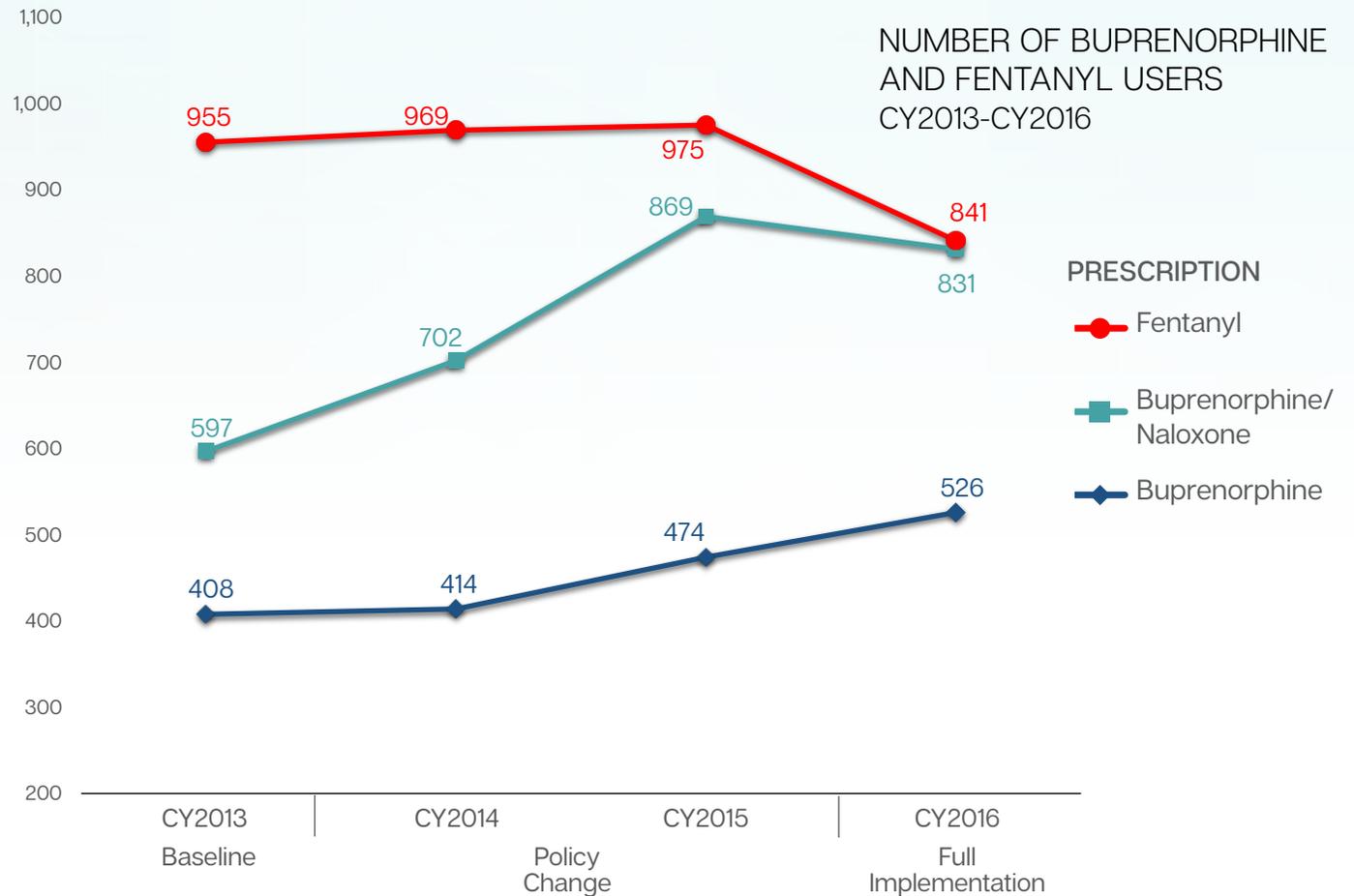
↓12%

Buprenorphine/Naloxone Prescriptions

↑39%

Buprenorphine Prescriptions

↑29%



<sup>†</sup> Volpe DA, Tobin GAM, Mellon RD, et al. Uniform assessment and ranking of opioid Mu receptor binding constants for selected opioid drugs. Regul Toxicol Pharmacol. 2011;59(3):385-390. doi:10.1016/j.yrtph.2010.12.007.

# Medicaid PMP Policy Implementation Analysis

## Doctor & Pharmacy “Shoppers”

**FINDING:** The PMP policy resulted in a 45% relative decrease in the % of those among the high-dosage opioid users identified as doctor and pharmacy “shoppers.”

A goal of the SC Medicaid PMP policy is to reduce the number of opioid doctor and pharmacy “shoppers,” who are known to be at increased risk of dependence, abuse, and overdose death.†

The PMP Medicaid policy has substantially reduced the percent of doctor and pharmacy shoppers across all TDMEDs.



RELATIVE CHANGE

TDMED ≥ 120 mg  
↓45%

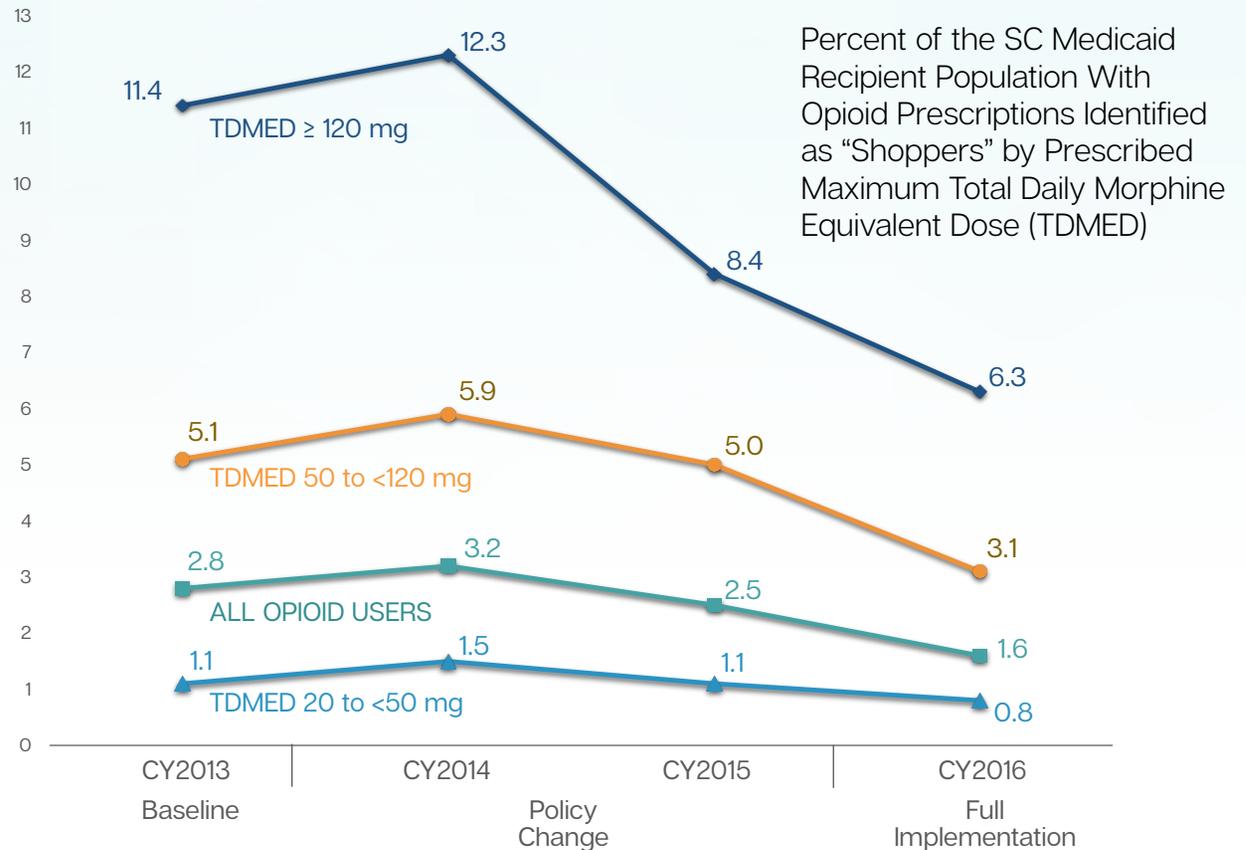


RELATIVE CHANGE

ALL OPIOID USERS  
↓43%

TDMED 50 to <120 mg  
↓39%

TDMED 20 to <50 mg  
↓27%



Note: Shoppers are defined as those recipients who are prescribed opioids by more than 3 providers and have their prescriptions filled by more than 3 pharmacies within a calendar year.

The percent of recipients prescribed TDMED 0-<20 mg is 0% in any year and is not plotted.

† Yang et al., 2015.



# CONCLUSIONS & RECOMMENDATIONS



# CONCLUSIONS

The implementation of the Prescription Monitoring Program (PMP) has positively reduced the total daily morphine equivalent dose (TDMED) of Medicaid recipients across all TDMED levels.



1.

Total daily morphine equivalent dosages < 20 mg TDMED experienced the largest increase in prescriptions. See Appendix E.

2.

Reductions in the higher dosage prescription levels ( $\geq 120$  mg TDMED) were small and do not significantly reduce the poor outcomes—opioid and heroin overdose and the growing rate of hepatitis C—among this population and among “shoppers.”

3.

The PMP is making a difference in curtailing the growing opioid epidemic. However, continued gains must be grounded in a statewide commitment to holistic interventions. These interventions should address the clinical and social determinants that increase the risk of opioid dependence.



# RECOMMENDATIONS

**To increase the long-term effectiveness of the PMP and to lessen the impact on individuals and communities, the study findings suggest:**

1. Implement a policy of prescribing partial dosage of 7 days for first-time opioid patients. This policy has the potential to curb unnecessary prescriptions at higher rates and without medical oversight ensuring the need for ongoing pain medication intervention.

2. Monitor the use of opioids at high-dosage levels.

***Use of Opioids at High Dosage.*** This measure assesses the rate of health plan members 18 years and older who receive long-term opioids at high-dosage (average morphine equivalent dose  $\geq 120$  mg).

3. Implement strategies to address “prescription shoppers” at the different levels.

***Use of Opioids from Multiple Providers*** measures to assess the rate of Medicaid beneficiaries 18 years and older who receive TDMED  $\geq 120$  mg from 3 or more multiple prescribers and pharmacies for at least 90 consecutive days.

4. Incorporate new variables measuring the initiation and engagement of opioid dependence services as a component of access to care and service utilization. To enhance existing reporting protocols, we recommend capturing the rate of individuals receiving the following services:
  - Medication-Assisted Treatment (MAT)
  - Outpatient treatment services
  - Telehealth treatment services
  - Emergency department visits
  - Inpatient hospital stays
5. Limit the number of prescriptions or require alternate authorization procedures for individuals without a known medical diagnosis for dosages  $\geq 120$  mg for 90 days or more. Any procedural change should not create a barrier for patients with medical conditions or end-of-life stage diseases where higher dosages are medically warranted.
6. Encourage testing for hepatitis C and illicit drug use among high-dosage opioid users who have long-term patterns of use.
7. Enhance the working relationship with SC SCRIPTS so as to link SC Medicaid data with all-payer data to identify “shopper” and related behaviors detrimental to the medical treatment of these patients and to formulate interagency approaches to address the problem.
8. Explore working with rural stakeholders on the development of approaches to lessen the impact on these communities and to enhance the provision of treatment services in these areas.





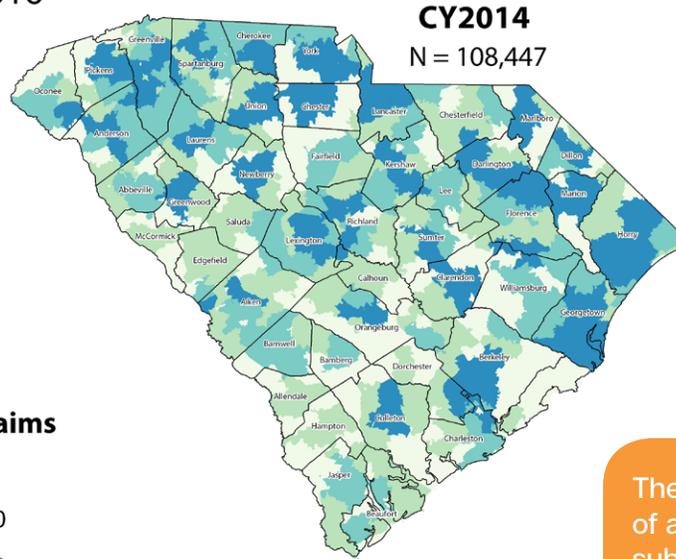
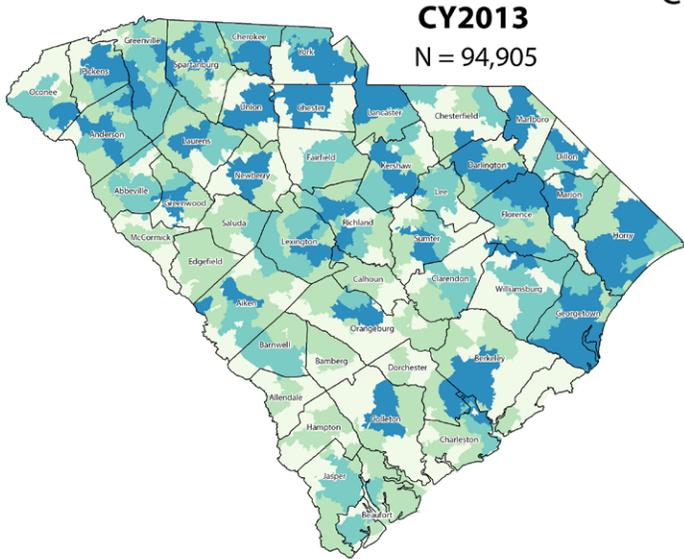
# APPENDICES



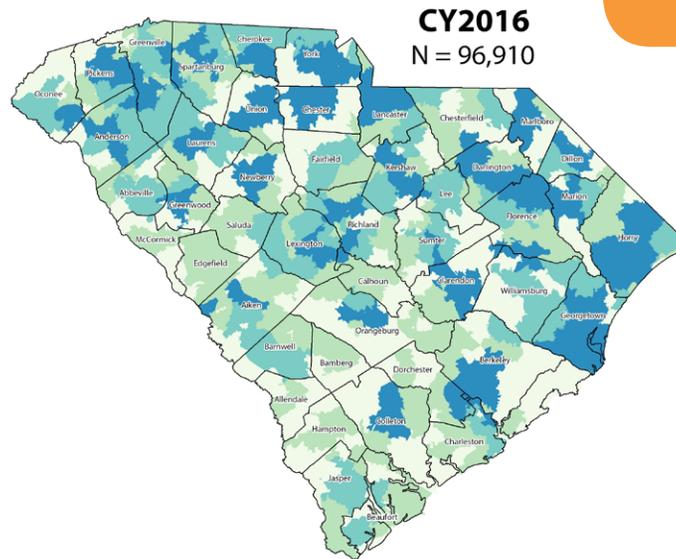
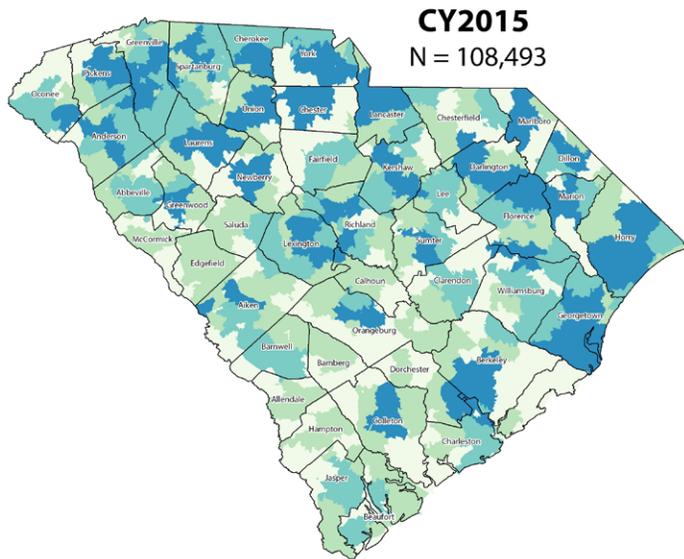
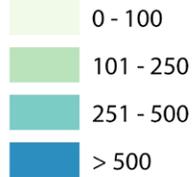
# Geographical Distribution of Medicaid Recipients with Opioid Prescriptions

## All Opioid Claims

CY2013 - CY2016

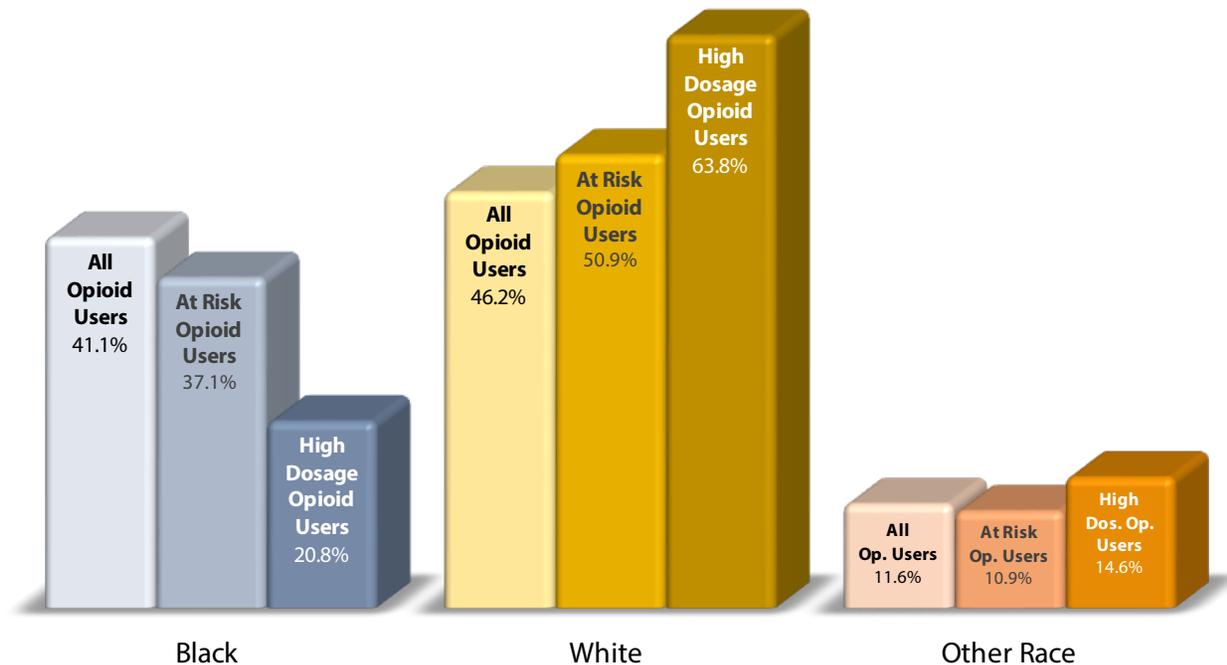


### All Opioid Claims



The geographical distribution of all opioid claims has not substantially changed from CY2013–CY2016.

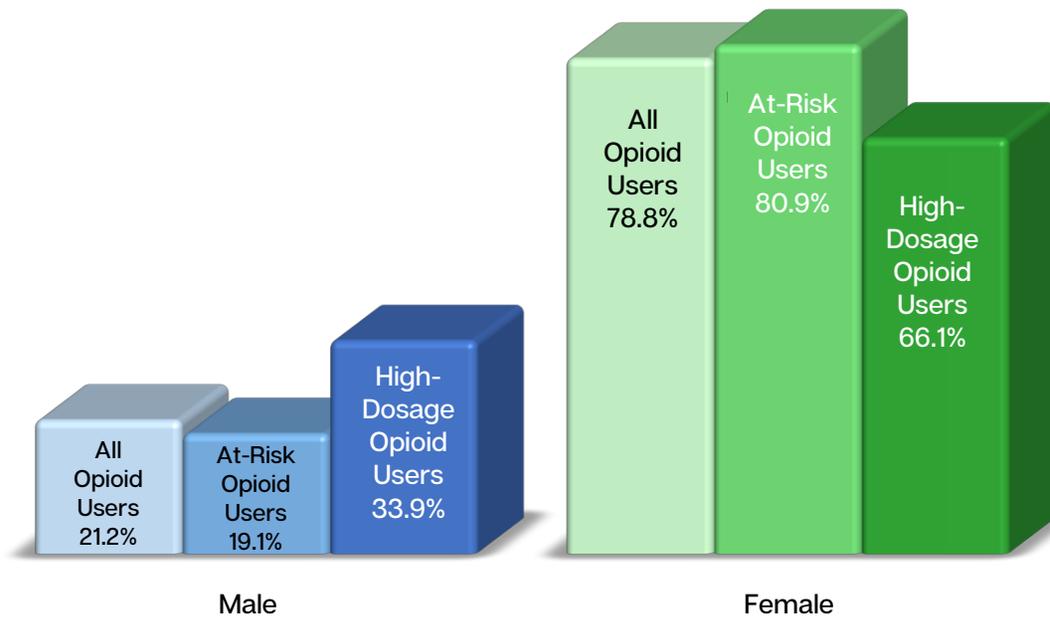
Demographic Characteristics of High-Dosage Opioid Users, At-Risk Opioid Users, and All Opioid Users Combined Years (CY2013-CY2016)  
BY RACE



Source: SC MMIS, CY2013-CY2016.

Note: At-Risk Opioid Users include all opioid users with a Total Daily Morphine Equivalent Dosage (TDMED) of 50<120 mg. High-Dosage Opioid Users include all opioid users with a TDMED greater than or equal to 120 mg. Race category charts do not include opioid users for whom race data is missing.

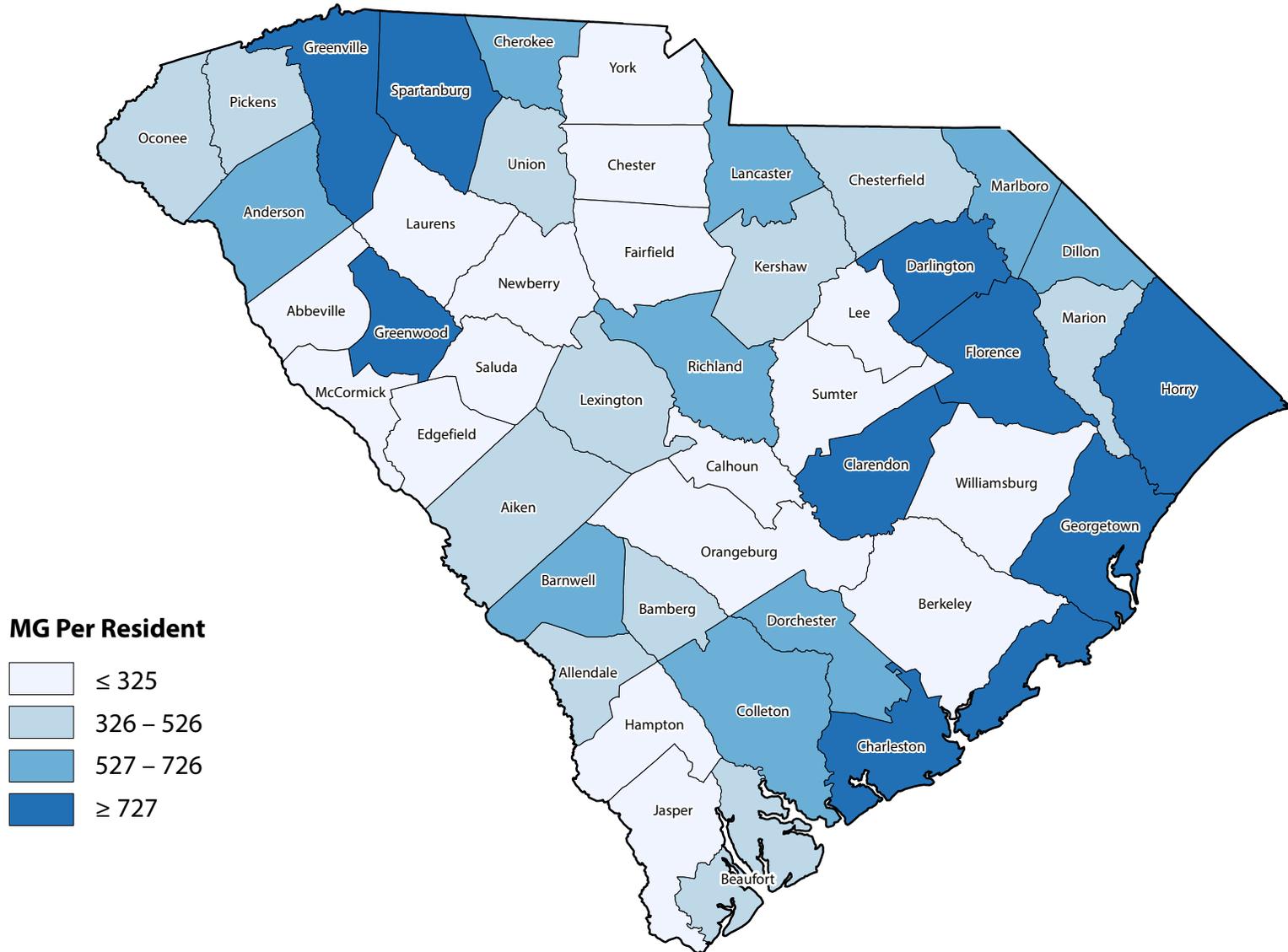
Demographic Characteristics of High-Dosage Opioid Users, At-Risk Opioid Users, and All Opioid Users Combined Years (CY2013-CY2016)  
 BY GENDER



Source: SC MMIS, CY2013-CY2016.

Note: At-Risk Opioid Users include all opioid users with a Total Daily Morphine Equivalent Dosage (TDMED) of 50<120 mg. High-Dosage Opioid Users include all opioid users with a TDMED greater than or equal to 120 mg.

Average Number of Opioids Dispensed in Milligrams (MG) per County Resident  
 (Average county in US dispenses 426 MG)

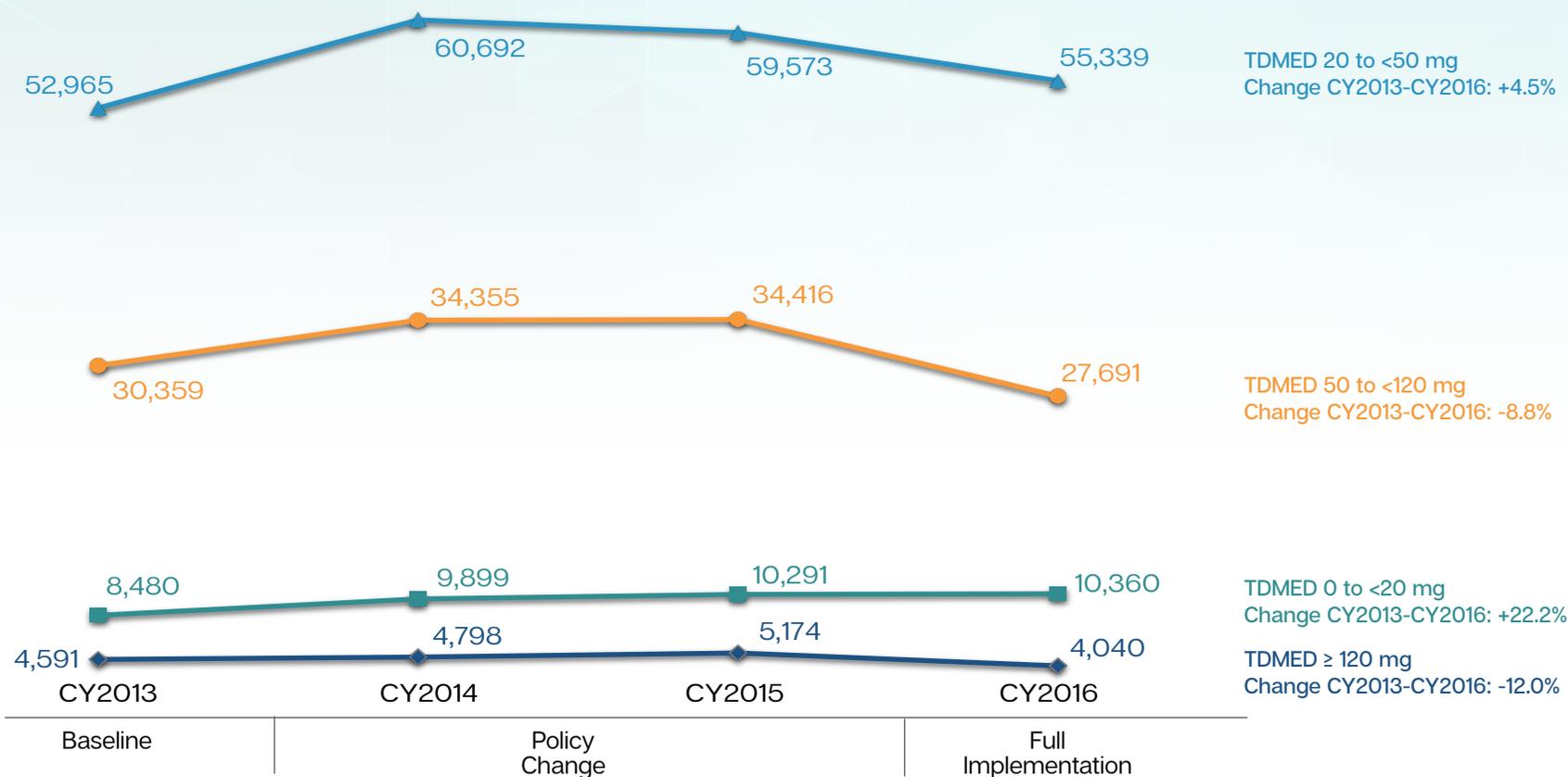


# Medicaid PMP Policy Implementation Analysis

## Opioid Users by Maximum Dose Patterns

FINDING: The policy is successfully reducing the number of individuals with TDMED associated with at-risk (9%) and high-dosage (12%) opioid users. In contrast, there was an increase of TDMED < 50mg between CY2013–CY2016. This change may require further exploration related to reasons for the increased lower-dosage prescription pattern.

All Opioid Users by Maximum Total Daily Morphine-Equivalent Dose (TDMED) by Year



**Note:**

The total numbers of all opioid users for each year (regardless of TDMED value) are as follows:

CY2013: 96,395	CY2015: 109,454
CY2014: 109,744	CY2016: 97,430

