

2020

Buprenorphine Report

Tennessee Department of Health-Office of Informatics & Analytics

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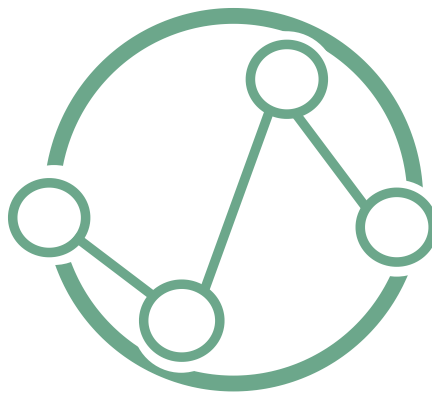
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Table of Contents

- Acknowledgments2
- Table of Contents.....3
- Executive Summary.....4
- Introduction6
 - Medication-Assisted Treatment (MAT).....6
 - Learning about Buprenorphine7
- Prescribing Buprenorphine in Tennessee.....8
 - Buprenorphine Regulation Timeline.....9
 - Buprenorphine Providers in TN.....10
 - Tennessee’s OBOT Clinics12
 - Buprenorphine Prescription Trends13
 - Buprenorphine Product Types17
- Understanding the Cost of Recovery.....20
- Buprenorphine Patients in Tennessee.....21
 - Buprenorphine Patient Demographics.....23
 - Long Term Buprenorphine Use25
- Understanding Stigma and Buprenorphine Use26
- Fatal Overdoses Involving Buprenorphine27
 - Fatal Overdoses Involving Buprenorphine.....29
 - Polydrug Overdose Deaths Involving Buprenorphine.....31
- Nonfatal Drug Overdoses and Buprenorphine Use33
 - Buprenorphine Dispensing Patterns: Opioid (non-heroin) Overdoses.....35
 - Buprenorphine Dispensing Patterns: Heroin Overdoses37
- Endnotes on the Buprenorphine Report.....39
- Data Notes and Sources41
- Additional Sources.....43
- Appendix: Technical Notes45

Executive Summary

This report describes trends and statistics for prescriptions of buprenorphine for medication-assisted treatment (MAT) and buprenorphine related health outcomes in Tennessee using the most recently available data. Included are analyses on prescribing of buprenorphine*, long-term use, fatal drug overdoses involving buprenorphine, and history of buprenorphine use in nonfatal drug overdoses.

Summarized below are key findings from this report:

The number and rate of Tennessee patients filling buprenorphine prescriptions has increased.

- Between the first quarter of 2015 and the fourth quarter of 2019, the quarterly number of buprenorphine prescriptions filled increased by 26% (page 13) and the number of patients increased by 39% (page 22).

Most buprenorphine patients are on long-term prescriptions.

- The majority (75%) of patients who received buprenorphine in 2019 qualified as long-term users of buprenorphine that same year. Long-term use is defined as having ≥ 45 buprenorphine prescription days in a 90 day period (page 25).
- Over one-third (36%) of patients on buprenorphine in 2019 filled prescriptions for more than 9 months' supply that year (page 25).

Buprenorphine in combination with naloxone is much more commonly prescribed than buprenorphine alone.

- Prescriptions of combination buprenorphine/naloxone are filled several times more often than drugs that contain buprenorphine alone (also referred to as monoprodut buprenorphine). For example, in the fourth quarter of 2019, 197,900 buprenorphine/naloxone prescriptions were filled compared to just 33,948 monoprodut prescriptions (page 17).
- Prescriptions for monoprodut buprenorphine are more often filled by women than men while the reverse is true for combination buprenorphine/naloxone drugs (page 18).

Commercial insurance is used to pay for most buprenorphine prescriptions.

- The most frequent method of payment used for buprenorphine prescriptions is commercial insurance for the combination product (65% of prescriptions in Q4 2019) and cash for the monoprodut (44% of prescriptions in Q4 2019) (page 14).

* Unless otherwise indicated, statistics for buprenorphine prescriptions refer only to buprenorphine FDA indicated for the treatment of opioid use disorder (i.e., MAT).

Prescription buprenorphine use after nonfatal overdose is low.

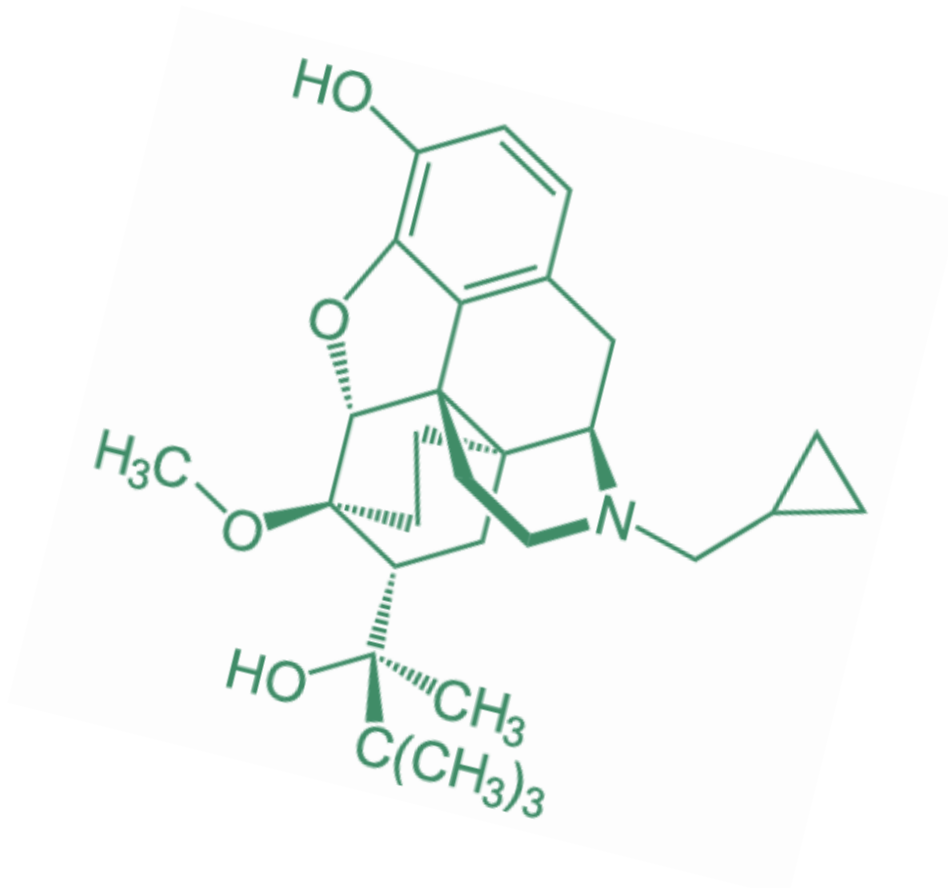
- Only one in ten people fill a buprenorphine prescription in the year after experiencing a nonfatal opioid overdose (pages 34-38).
- Fewer people filled a buprenorphine prescription after a hospitalization related to a nonfatal heroin overdose than before.

Buprenorphine is implicated in only a small percentage of the total number of drug overdose deaths.

- Tennessee had 1,818 fatal drug overdoses in 2018, among which 85 (4.7%) were identified as involving buprenorphine, often along with other drugs (page 28).

Among overdose deaths involving buprenorphine, it is often present in combination with other drugs.

- Almost all (89.4%) fatal drug overdoses involving buprenorphine in 2018 also involved another type of drug (page 31).
- On average, over three drugs were listed as contributing to each death involving buprenorphine in 2018 (page 32).



Introduction

In the United States in 2018 approximately 20.3 million people aged 12 or older had a substance use disorder (SUD) related to their use of alcohol or illicit drugs in the past year.¹ Nationally, this trend continues to increase, including in states like Tennessee (TN). Over the last five years, deaths due to drug overdose in TN have steadily increased, particularly overdose deaths due to drugs like the potent illicit drug fentanyl. Opioid use disorder (OUD) is a subset of SUD that refers to dependence on prescription or illicit opioids. In TN in 2019, 1,543 fatal overdoses involved opioids, representing an almost 50% increase since 2015.

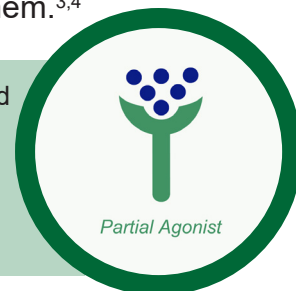
The Food and Drug Administration (FDA) has approved medications to treat OUDs. Medication-assisted treatment (MAT) medications have proven effective in the treatment of OUD by reducing the withdrawal symptoms and psychological cravings that cause chemical imbalances in the body. Medications used for MAT are evidence-based treatment options that are paired with counseling and case management. MAT medications can help individuals break the cycle of OUD to return back to a healthy and productive lifestyle.²

This report and its analyses focus on buprenorphine prescribing and use in TN. Buprenorphine is an approved MAT drug for OUD. Other medications used to treat OUD include methadone and naltrexone. MAT medications are safe to use for months, years, or even a lifetime.²

Medication-Assisted Treatment (MAT)

There are currently three medications that are FDA-approved to treat individuals with OUD: **buprenorphine**, **methadone**, and **naltrexone**. In addition to these medications having different mechanisms of action, they also have different regulations as to how and who prescribes them.^{3,4}

Buprenorphine is a schedule III opioid drug that can be used in either an Opioid Treatment Program (OTP) setting or by a specially-trained provider and filled at a pharmacy. Buprenorphine is a “partial opioid agonist” meaning that the drug binds to the opioid receptors but activates them less strongly. This is helpful to reduce symptoms of withdrawal without producing a feeling of euphoria.



Methadone is a schedule II opioid drug that must be prescribed by a provider in a federally-qualified Opioid Treatment Program (OTP). Methadone is a long-acting “full opioid agonist” and activates the opioid receptors to prevent withdrawal and reduce cravings for opioid drugs. Due to methadone’s potency and potential for overdose, patients take methadone daily under the supervision of a practitioner.

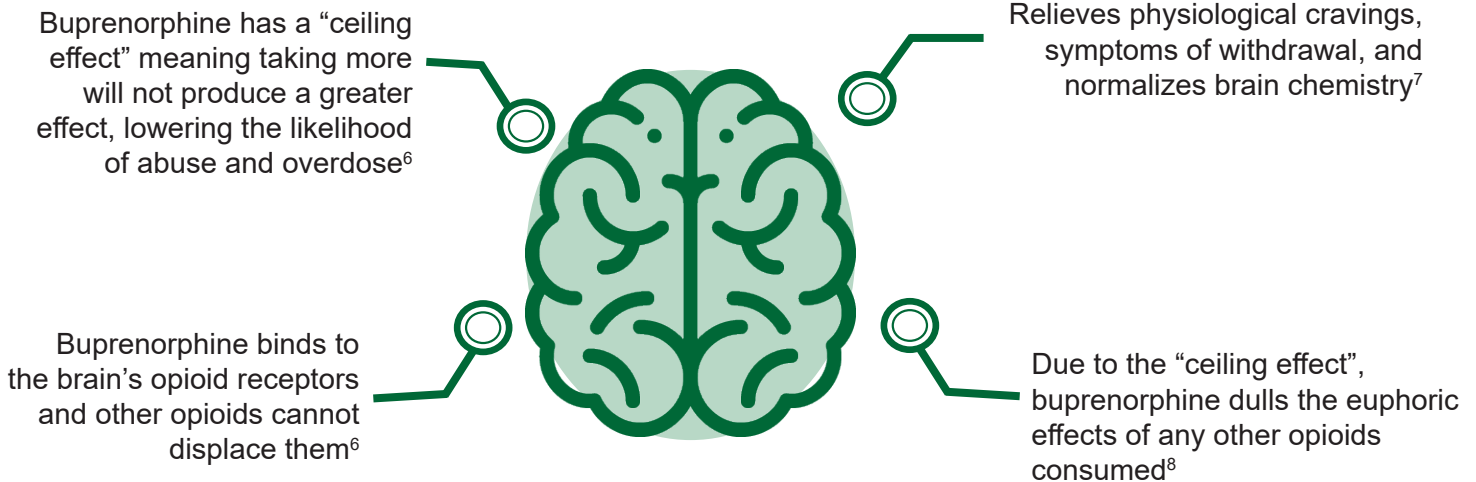
Naltrexone is not an opioid or controlled substance and can be prescribed by any provider licensed to prescribe medicine. Naltrexone is an “opioid antagonist” meaning it blocks the activation of the opioid receptors. Instead of minimizing withdrawal symptoms and cravings, naltrexone works by preventing any opioid from producing euphoric effects.



Learning about Buprenorphine

In 2002, buprenorphine was approved by the Federal Drug Administration (FDA) to treat OUD, making it the newest MAT medication option. Since then, buprenorphine has become a popular option in the treatment of OUD due to its safety, its effectiveness, and its ability to be taken at-home.

How is it Effective?



Advantages of Buprenorphine



Increased convenience/privacy as the prescription can be taken at home⁸



Lower abuse and overdose potential⁶



Long-lasting effects, treatment may not be required daily⁶



Buprenorphine is a treatment of choice for OUD in pregnant and breastfeeding mothers⁸

Types of Buprenorphine

Combination Therapy (buprenorphine + naloxone)

In combination therapy, naloxone is added to buprenorphine to decrease diversion and misuse of the medication. If taken correctly, buprenorphine’s effects dominates. If misused (tablets are crushed and injected), the naloxone effect dominates and can bring on opioid withdrawals.

Common Drug Names⁸:
Suboxone, Zubsolv



Monotherapy (buprenorphine only)

Monotherapy is less commonly prescribed. With only buprenorphine there is a greater potential for misuse or overdose. Monotherapy in TN is only prescribed for those who are nursing, pregnant, or shown to have an adverse reaction to naloxone ([TCA § 53-11-311](#)).

Common Drug Names⁸:
Probuphine, Sublocade, Subutex



Prescribing Buprenorphine in Tennessee

In Tennessee and across the United States, there are strict rules and regulations as to who can prescribe and be prescribed buprenorphine for medication-assisted treatment. In this section, data from Tennessee's Controlled Substance Monitoring Database and the Substance Abuse and Mental Health Services Administration's (SAMHSA) Buprenorphine Practitioner Locator have been analyzed to show the recent trends in buprenorphine prescriptions and prescribers across Tennessee. These trends can help Tennesseans understand how and where buprenorphine is currently being utilized to treat opioid use disorder. Additionally, this section provides insight about which Tennessee communities have little to no access to buprenorphine providers and treatment.

WHO CAN BE PRESCRIBED BUPRENORPHINE?

According to SAMHSA⁸, individuals can be prescribed buprenorphine if:

- they have been objectively diagnosed with an opioid dependency
- they are willing to follow safety precautions for the treatment
- they have been cleared for any health conflicts with using buprenorphine
- they have reviewed other treatment options before agreeing to buprenorphine treatment

Buprenorphine Regulation Timeline

2000

The federal Drug Addiction Treatment Act (DATA) was passed, allowing practitioners in the United States who meet specific requirements to prescribe scheduled III-V controlled substances approved for MAT.⁹

In the same year, the U.S. Drug Enforcement Administration (DEA) established 30- and 100- patient capacity limits for buprenorphine providers.

2002

The Federal Drug Administration (FDA) approves the use of buprenorphine in the treatment of opioid use disorder.⁹

2015

The Addiction Treatment Act ([TCA § 53-11-311](#)) was passed in Tennessee, which restricted the prescription of buprenorphine to only those with opioid use disorder, set the initial prescribing guidelines for buprenorphine, and increased access to naloxone across Tennessee.

2016

The federal Comprehensive Addiction and Recovery Act (CARA) was enacted allowing Nurse Practitioners (NP) and Physicians' Assistants (PA) to be eligible to prescribe buprenorphine. **At the time, Tennessee was one of only three states that did not allow NP's or PA's to prescribe buprenorphine.**¹⁰

Tennessee began licensing office-based opioid treatment (OBOT) clinics to regulate the standard of care in buprenorphine treatment.¹¹

The U.S. Department of Health & Human Services raised the patient capacity limit to 275 for buprenorphine providers.

2017

Public Chapter 112 made amendments to the Tennessee Code Annotated 63-1-403, which put into law the Tennessee Nonresidential Buprenorphine Treatment Guidelines.¹² **As of March 2018, Tennessee is only one of four states to have buprenorphine guidelines endorsed by their state legislature.**¹¹

2020

Two additional buprenorphine bills (Public Chapter 761 and 771) were passed in Tennessee that expanded mid-level providers' scope of practice allowing nurse practitioners and physician's assistants to prescribe buprenorphine with restrictions.¹³

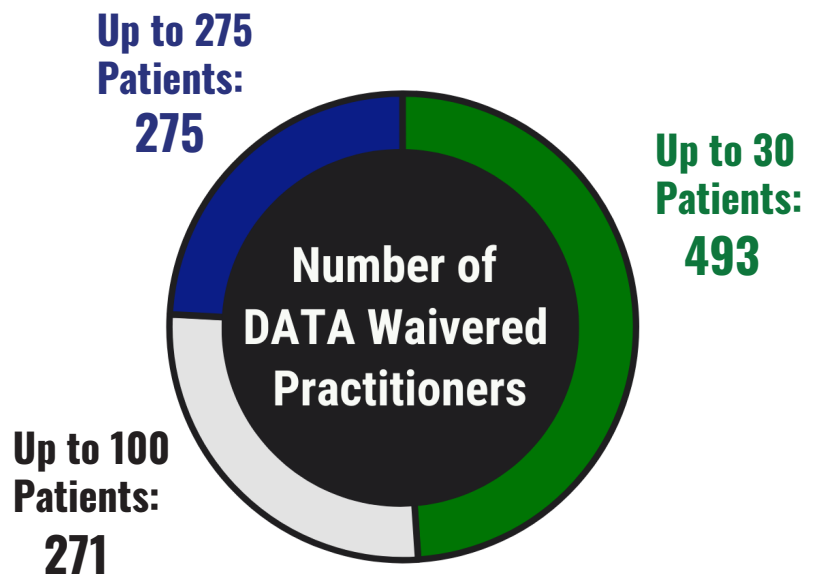
Buprenorphine Providers in TN

WHO CAN PROVIDE BUPRENORPHINE IN TENNESSEE?

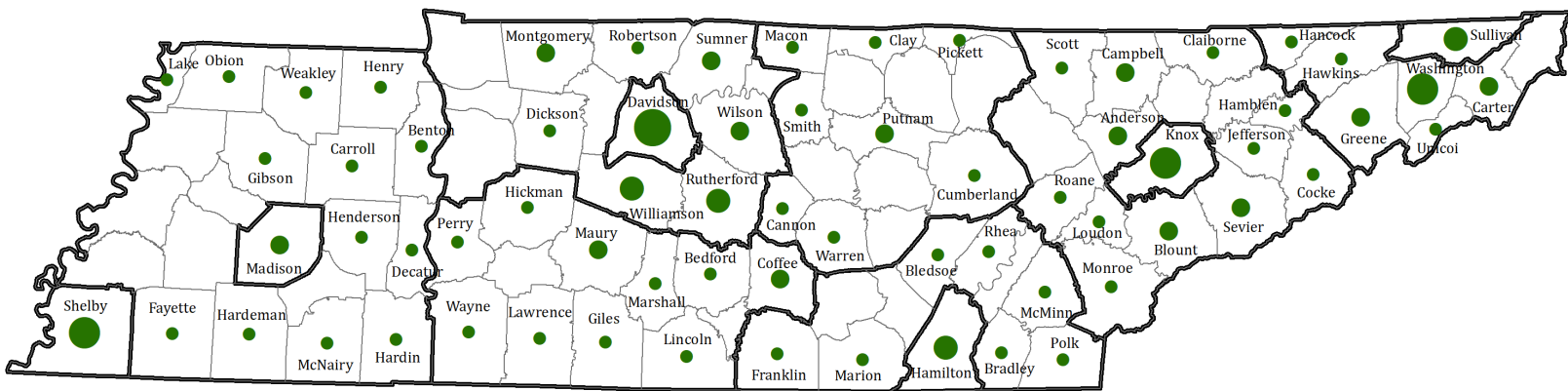
Only licensed providers with Drug Addiction Treatment Act (DATA) waivers are allowed to prescribe buprenorphine to patients for medication-assisted treatment. Depending on the DATA waiver tier, a provider has three options for maximum patient capacity thresholds: 30 patients, 100 patients, or 275 patients. Education and training are required for the initial DATA waiver as well as for any increase to the next patient capacity tier.

As of 3/18/2020, TN had 1,007 DATA waived practitioners at any patient capacity tier. The number of DATA waived providers in TN has increased by 54% since 2015, when only 654 providers were able to treat patients with buprenorphine for medication-assisted treatment. In 2015, this accounted for approximately 41,040 patients who could be treated, compared to 117,515 patients who could be treated in 2020. However, it is important to note that despite the increase in the number of DATA waived providers, this increase does not directly translate to an increase in accessibility of buprenorphine for patients seeking MAT. There are two possible reasons for this: 1) a provider may not be fully utilizing the patient capacity of their DATA waiver and 2) the prescribers with capacity in their DATA waiver may not be located within the communities or neighboring communities for a patient to receive treatment.

1,007
DATA waived practitioners in TN (as of 3/18/2020), all with different levels of patient capacity. Roughly half of providers (49%) have a 30-patient capacity.



Number of Buprenorphine Treatment Providers by County*



Analysis conducted by the Office of Informatics & Analytics, TDH (last updated March 18th, 2020).
 Data Source: Substance Abuse and Mental Health Services Administration (SAMHSA).

According to SAMHSA, there are 1,007 DATA waived practitioners across Tennessee.¹⁴ These providers are publically listed in 69 of TN's 95 counties with the highest number of DATA waived physicians listed in larger metropolitan areas such as Davidson, Hamilton, Knox, Shelby, Sullivan, Williamson, and Washington counties. Davidson County has the highest number of providers with 216 DATA waviered physicians.

Legend

- 1 - 7
- 8 - 20
- 21 - 63
- 64 - 106
- 107 - 216

While there are buprenorphine providers who post their availability publicly in the majority of Tennessee counties, there are 26 counties without a publicly listed provider. In 2018, 86 Tennesseans were lost to opioid overdose in the 26 counties without any publicly listed buprenorphine providers.

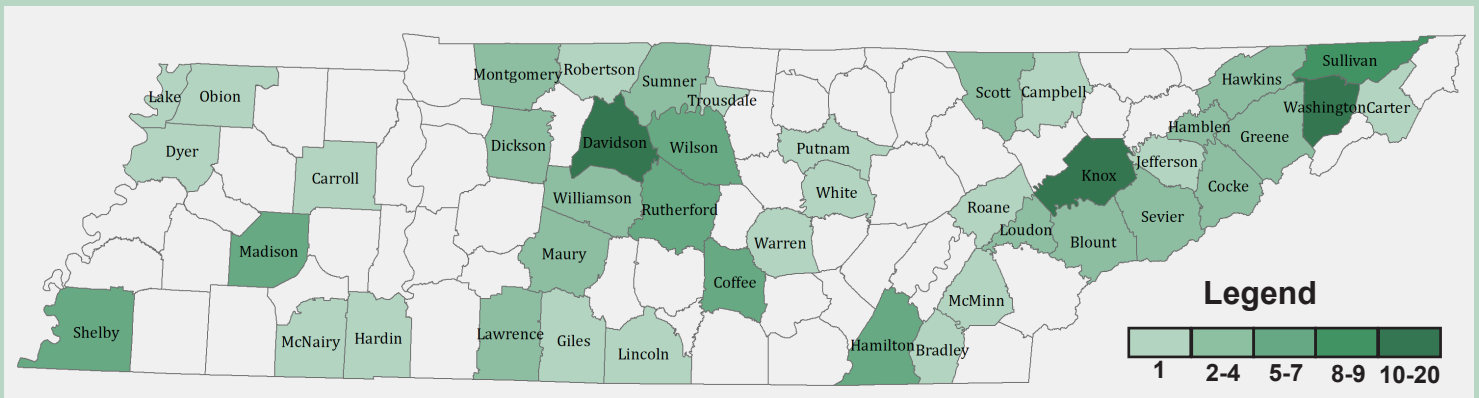
* Please note that this list only contains information from practitioners who consent to release their practice information. Therefore, the list is not inclusive of all waived practitioners. Additionally, some practitioners registered addresses may not correlate to where they provide MAT services or they may provide services at more than one location.

TENNESSEE'S OBOT CLINICS

After the Addiction Treatment Act of 2015 was passed in Tennessee establishing the initial prescribing guidelines of buprenorphine for treatment, state legislators recognized the importance of guaranteeing a standard of care for all Tennesseans who sought treatment for Opioid Use Disorder. This led to Tennessee passing law in 2016 that required office-based opioid treatment (OBOT) clinics to be licensed with the Tennessee Department of Mental Health and Substance Abuse Services (TDMHSAS) ([TCA § 33-2-402](#)). Not all DATA-waivered providers are required to have this additional licensing- below is the definition of a nonresidential OBOT clinic for which a license is required:

- **“Nonresidential office-based opiate treatment facility” includes, but is not limited to, stand-alone clinics, treatment resources, individual physical locations occupied as the professional practice of a prescriber or prescribers licensed pursuant to title 63, or other entities prescribing products containing buprenorphine, or products containing any other controlled substance designed to treat opiate addiction by preventing symptoms of withdrawal to twenty-five percent (25%) or more of its patients or to one hundred fifty (150) or more patients**

FINDING AN OBOT



Analysis conducted by the Office of Informatics & Analytics, TDH (last updated November 4th, 2020).
Data Source: TDMHSAS License Inquiry Report.

As of November 4th, 2020, there are 154 OBOTs licensed by TDMHSAS and listed on the TDMHSAS License Inquiry Report. The above map shows the number of OBOT clinics by county with the darker counties having more OBOT clinics. In general, the metropolitan counties have more OBOT clinics listed than rural counties. The counties with most licensed OBOT clinics are Davidson (18), Washington (17), and Knox (15).

Finding an OBOT Location

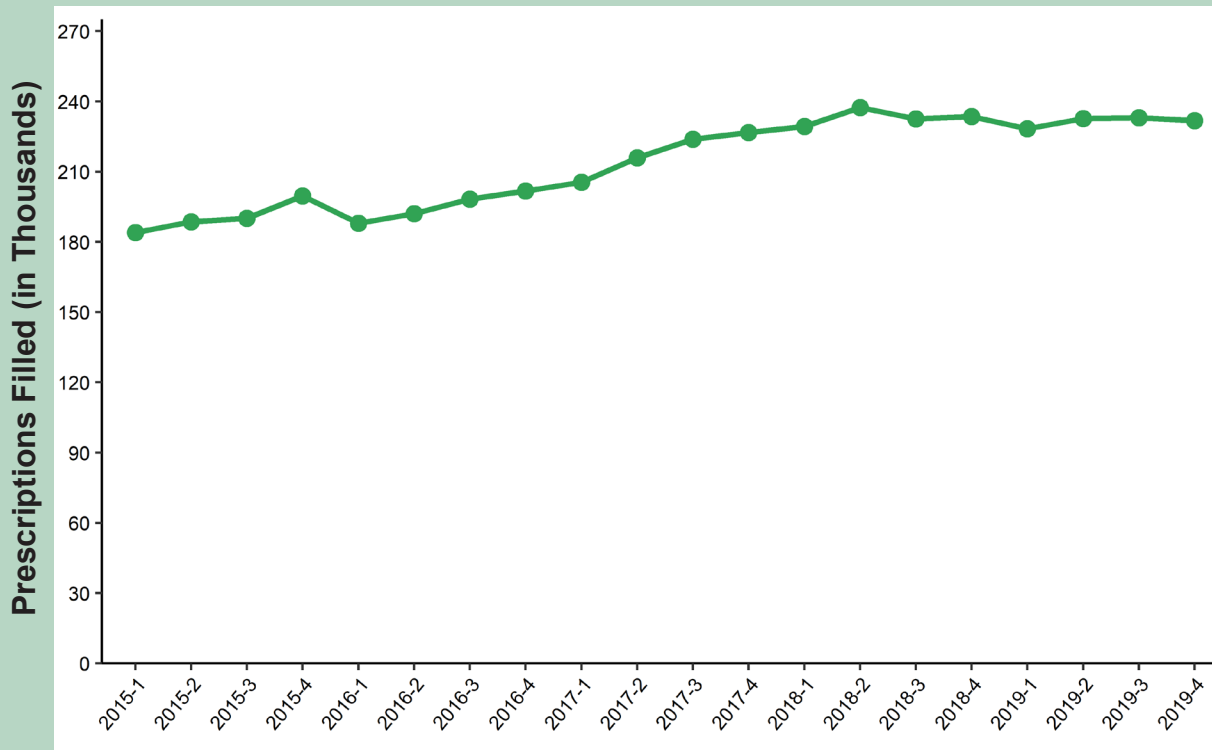
To find an OBOT's exact location, use the [TDMHSAS License Inquiry Report](#) and search for "Alcohol & Drug Non-Residential Office-Based Opiate Treatment Facility" under the license category.

TDMHSAS License Inquiry Report parameters

License Category - Select	ALL
License Region - Select	ALL
Facility location - Enter City	ALL
Facility location - Select County	ALL
Facility Location - Enter Zip Code	ALL
Licensee/Facility - name or partial name	ALL
Serves Hearing Impaired	ALL
Serves Vision Impaired	ALL
Serves Mobile Non-ambulatory	ALL

Buprenorphine Prescription Trends

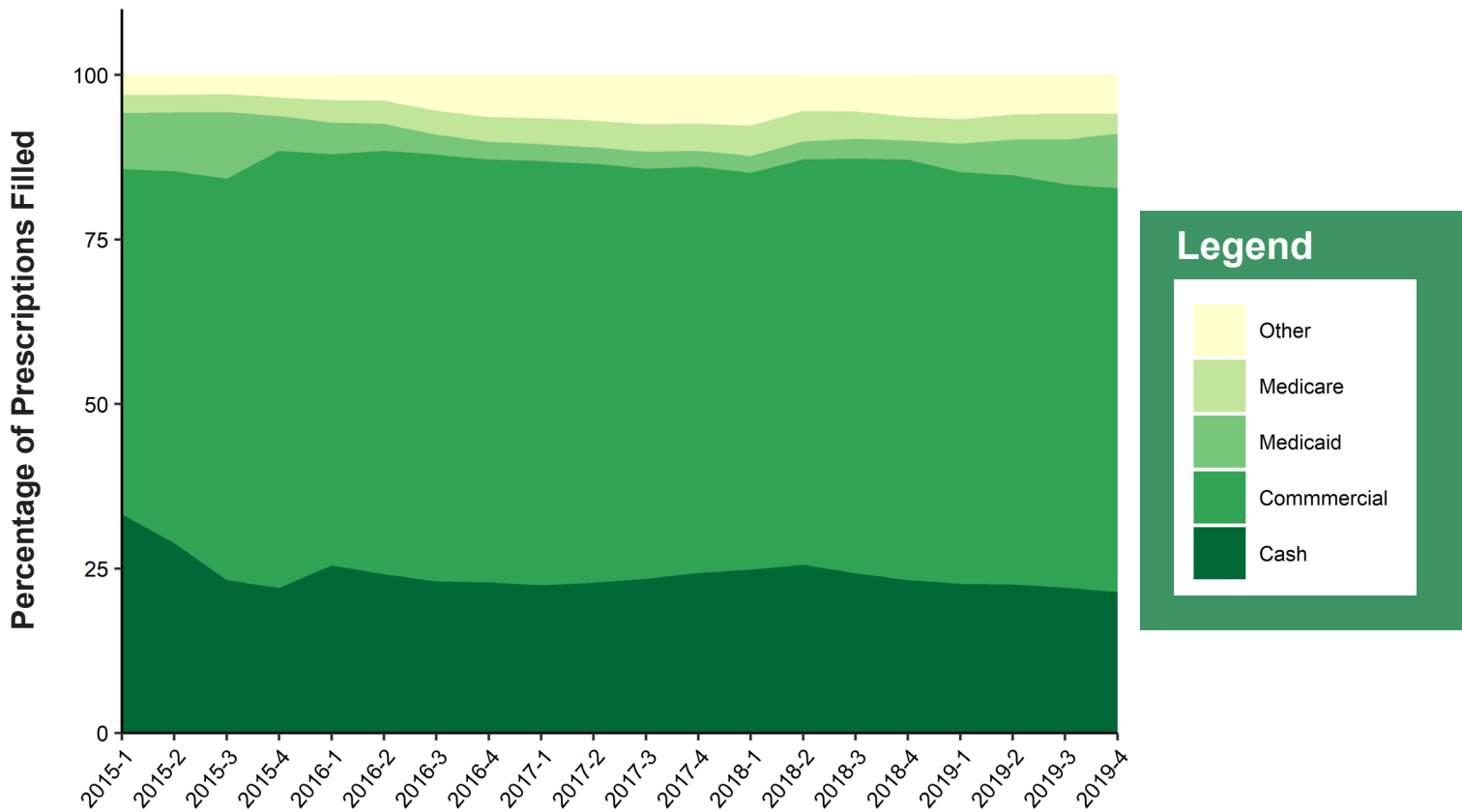
Number of Buprenorphine Prescriptions for Medication-Assisted Treatment in TN by Quarter, 2015-2019



Analysis conducted by the Office of Informatics & Analytics, TDH (last updated May 5, 2020). Limited to TN residents. Data Source: Controlled Substance Monitoring Database.

While opioids for pain and benzodiazepine prescriptions have decreased from 2015 to 2019 by 37.3% and 37.5% respectively¹⁵, buprenorphine prescriptions for MAT have steadily increased. In Q1 2015, only 184,004 buprenorphine prescriptions were filled (28 per 1,000 residents). By Q4 2019, however, 231,848 buprenorphine prescriptions were filled (34 per 1,000 residents), a **26.0%** increase.

Payment Type for Buprenorphine Prescriptions for Medication-Assisted Treatment in TN by Quarter, 2015-2019



Analysis conducted by the Office of Informatics & Analytics, TDH (last updated May 5, 2020). Limited to TN residents.
Data Source: Controlled Substance Monitoring Database.

From 2015 to 2019, the most common payment type for buprenorphine prescriptions for MAT was commercial insurance, followed by cash, Medicaid, Medicare, and other payment types.

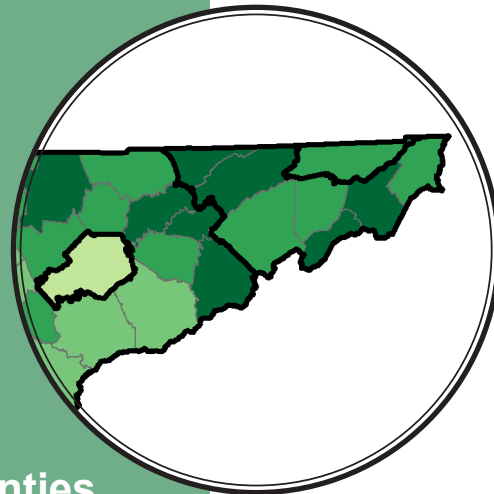
In 2019, commercial insurance accounted for about 61.8% of all buprenorphine prescriptions for MAT, followed by cash (22.2%), Medicaid (6.2%), other payment types (6.1%), and Medicare (3.6%).

WHATS HAPPENING ACROSS TN?

Prescription rates per 1,000 Tennessee residents for buprenorphine for MAT increased steadily from 2015 to 2019 across 78 (82%) of TN's 95 counties. The highest increase in buprenorphine prescription rates from 2015 to 2019 occurred in:

- ★ Coffee County
- ★ Hickman County
- ★ Smith County

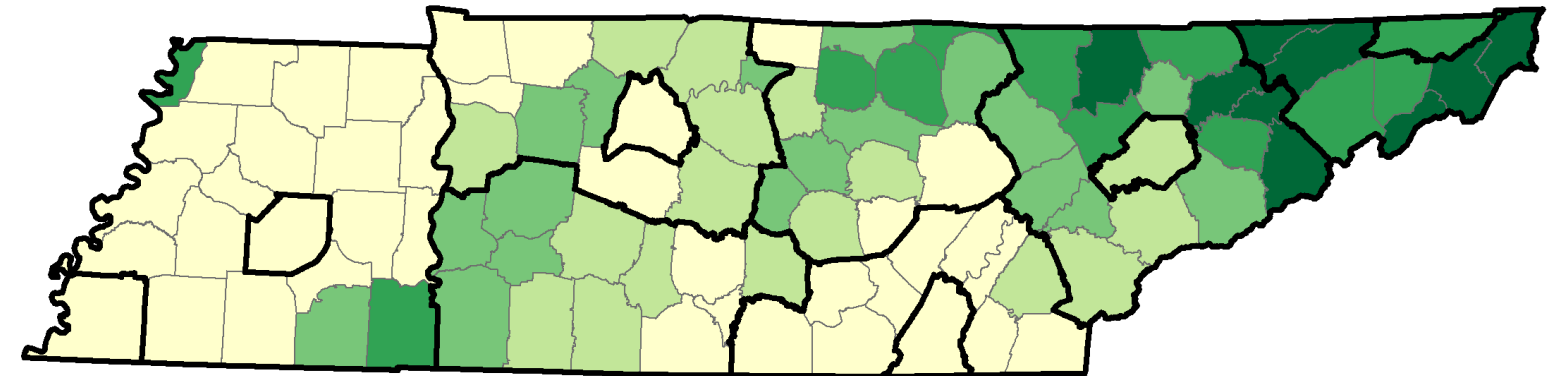
Although prescription rates decreased in the northeast part of the state, those counties had a higher prescription rate for buprenorphine in 2015 compared to other counties.



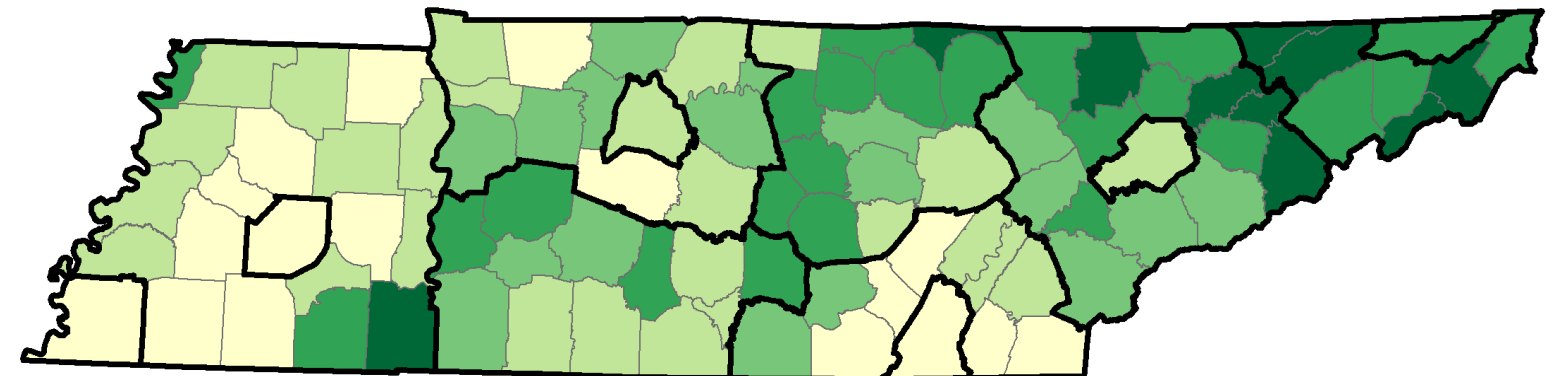
Data Source: Tennessee Department of Health, Controlled Substance Monitoring Database. Analysis conducted by the Office of Informatics and Analytics (last updated 5/5/2020).

Rate of Buprenorphine Prescriptions for Medication-Assisted Treatment per 1,000 Population by TN County of Residence

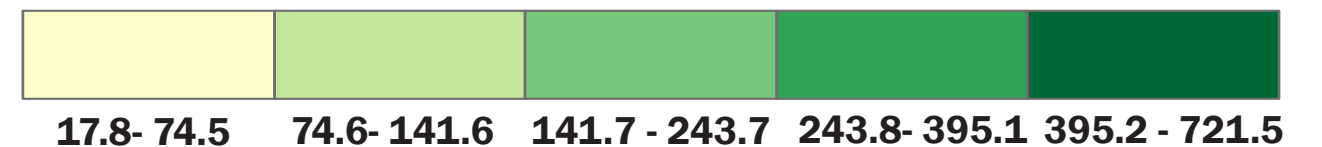
2015



2019



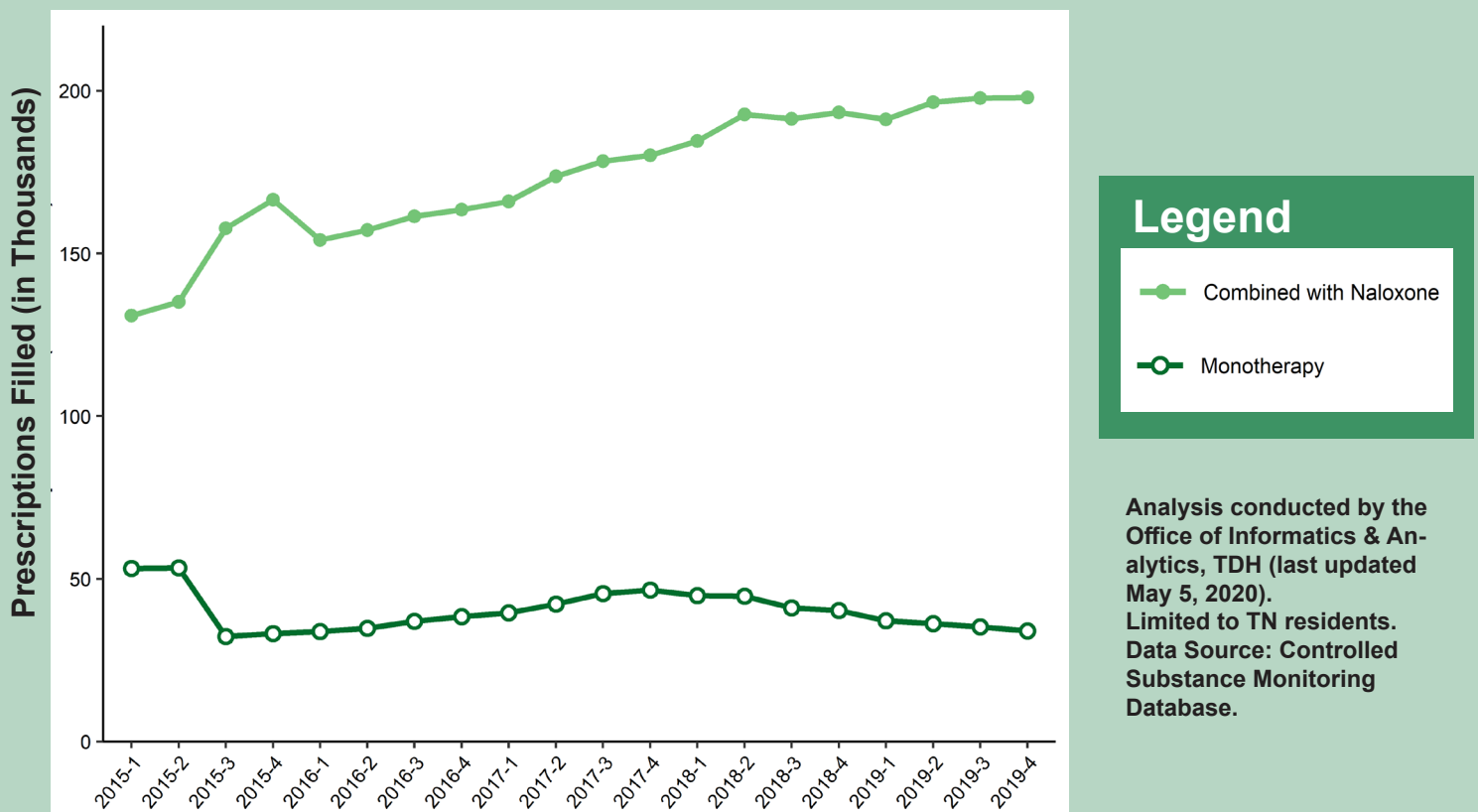
Prescription Rate per 1,000 TN Residents



Buprenorphine Product Types

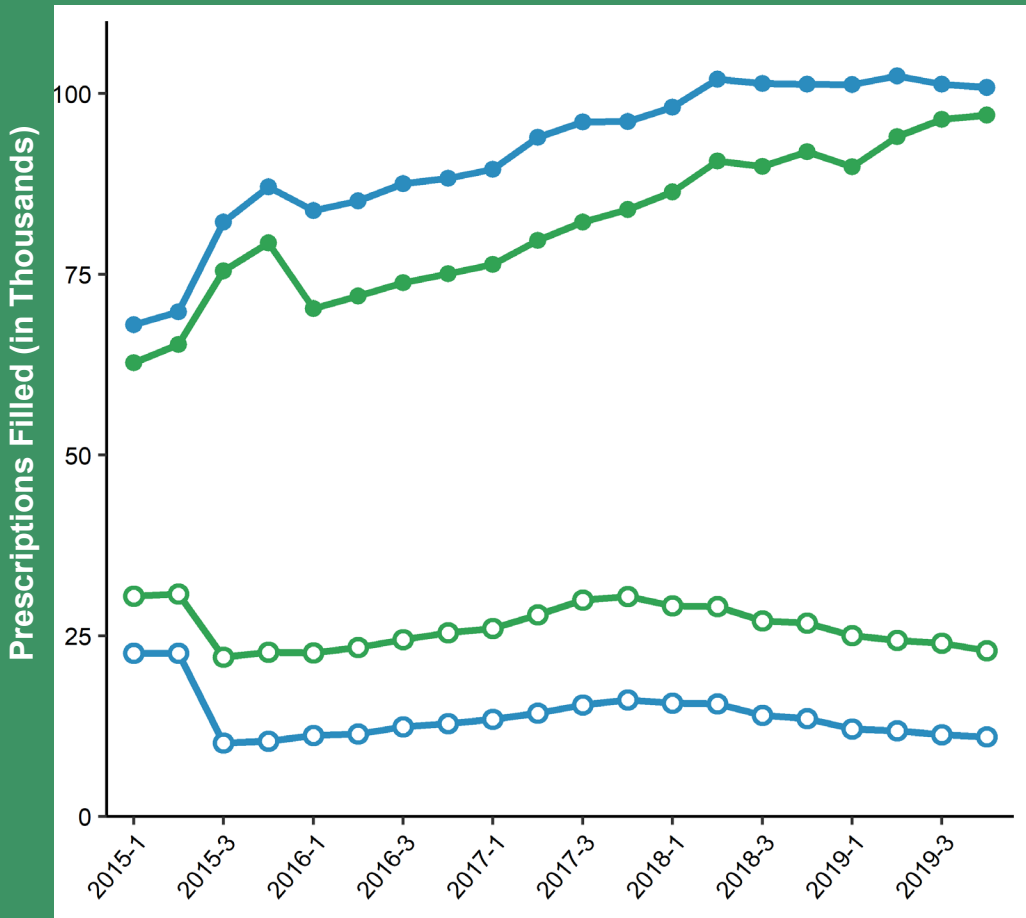
Buprenorphine is available in the United States in two forms: monotherapy (only buprenorphine) or in combination with naloxone. The combination drug (buprenorphine/naloxone) is the preferred product type over buprenorphine monotherapy, as it has a lower risk of diversion and misuse.^{7,8} The graph below shows the quarterly number of buprenorphine prescriptions for MAT by product type in TN from 2015 to 2019.

Product Type for Buprenorphine Prescriptions for Medication-Assisted Treatment in TN by Quarter, 2015-2019



The most common product type for buprenorphine prescriptions for MAT was buprenorphine combined with naloxone. Prescriptions filled by TN residents for buprenorphine combined with naloxone increased from 130,849 in 2015 to 197,900 in 2019, a 51.2 % increase. There was a 36.1% decrease in the number of monotherapy prescriptions across the same time period. A shift to more combination product prescriptions and fewer monotherapy prescriptions occurred in Q3 2015, coinciding with the enactment of the TN Addiction Treatment Act. Since then, monotherapy prescriptions increased slightly before returning to post-Addiction Treatment Act levels while combination product prescriptions have increased in most quarters.

Product Type for Buprenorphine Prescriptions by Sex for Medication-Assisted Treatment in TN by Quarter, 2015-2019



Legend

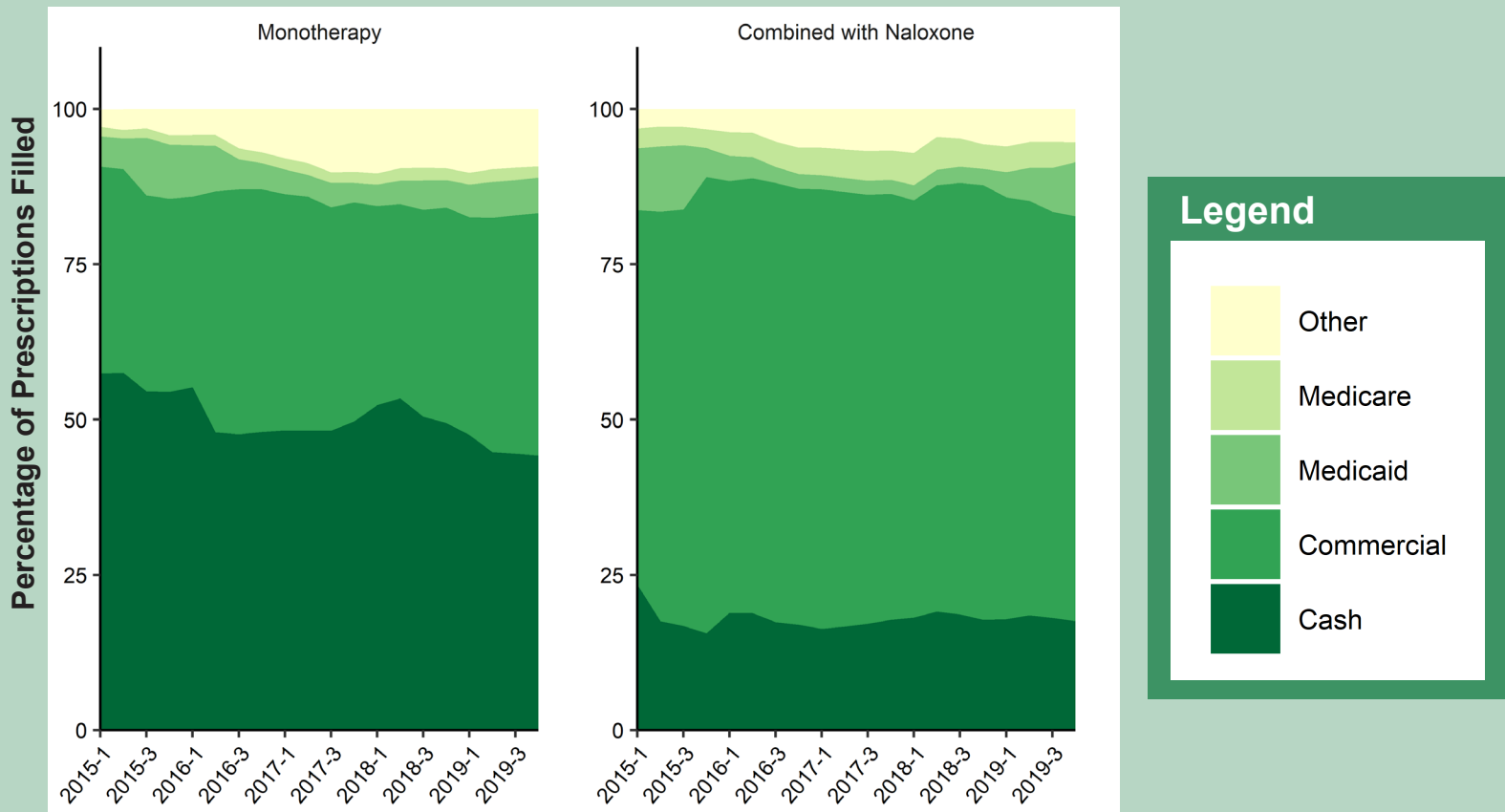
- Female, Monotherapy
- Male, Monotherapy
- Female, Combined with Naloxone
- Male, Combined with Naloxone

Analysis conducted by the Office of Informatics & Analytics, TDH (last updated May 5, 2020). Limited to TN residents. Data Source: Controlled Substance Monitoring Database.

In Q3 2019, the TN Addiction Treatment Act allowed the prescribing of buprenorphine monotherapy to women who are pregnant or nursing, or individuals who have a documented adverse reaction to naloxone.¹¹

The above graph shows the quarterly number of buprenorphine prescriptions for MAT by gender and by product type from 2015 to 2019. Prescriptions filled by TN residents for buprenorphine monotherapy were higher among females, however, prescriptions filled for buprenorphine combined with naloxone were higher among males. A shift to more combination product prescriptions and fewer monotherapy prescriptions occurred in Q3 2015, coinciding with the enactment of the TN Addiction Treatment Act.

Product Type for Buprenorphine Prescriptions by Payment Type in TN by Quarter, 2015-2019

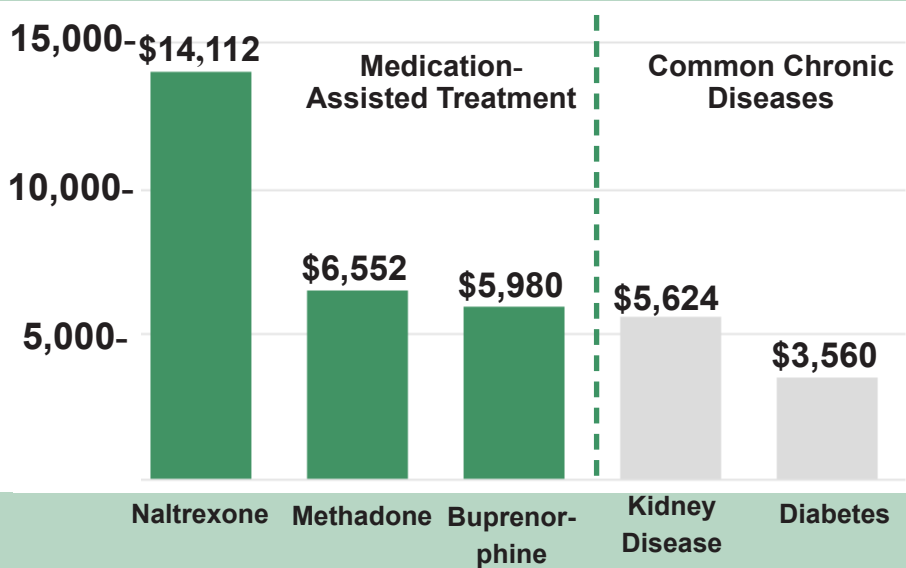


Analysis conducted by the Office of Informatics & Analytics, TDH (last updated May 5, 2020). Limited to TN residents. Data Source: Controlled Substance Monitoring Database.

This graph shows the quarterly number of buprenorphine prescriptions for MAT by payment type and by product type from 2015 to 2019. The most common payment type for mono-therapy buprenorphine for MAT prescriptions was cash, followed by commercial insurance, Medicaid, Other, and Medicare. The most common payment type for prescriptions for buprenorphine combined with naloxone was commercial insurance followed by cash.

UNDERSTANDING THE COST OF RECOVERY

Annual Cost of Medication-Assisted Treatment (MAT) Compared to Other Chronic Diseases according to the National Institute on Drug Abuse (NIDA)¹⁶

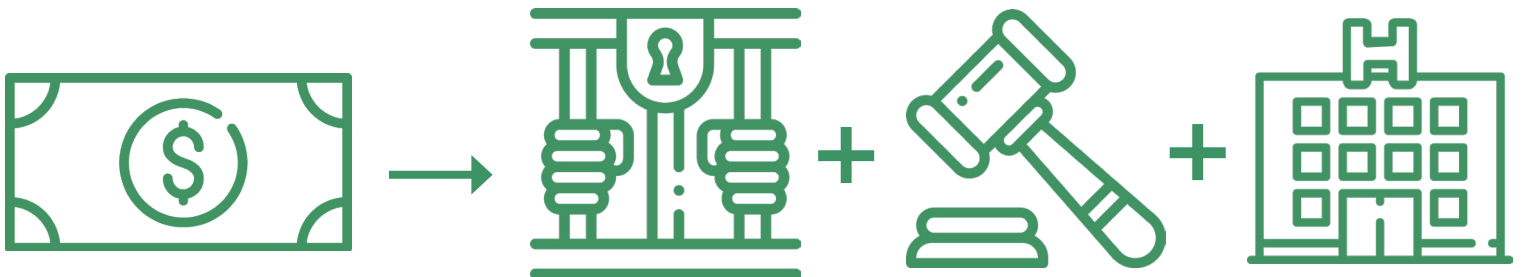


The SUPPORT Act in 2018 required MAT options to be covered by all state Medicare and Medicaid programs (TennCare).¹⁷

Brand name buprenorphine can cost upwards of \$150-500 per month depending on one's health insurance.^{3,9}

A significant barrier to MAT is cost. While the cost of OUD treatment can vary among patients, NIDA released an annual price estimate for MAT drug options (seen above). This estimate revealed buprenorphine treatment as the cheapest option despite being more expensive than the annual costs of common chronic diseases like Kidney Disease or Diabetes.

INVESTING IN RECOVERY



Every dollar invested in treatment programs

saves an average of 12 dollars in reduced drug-related crime, healthcare costs, and criminal justice costs¹⁸



Buprenorphine Patients in Tennessee

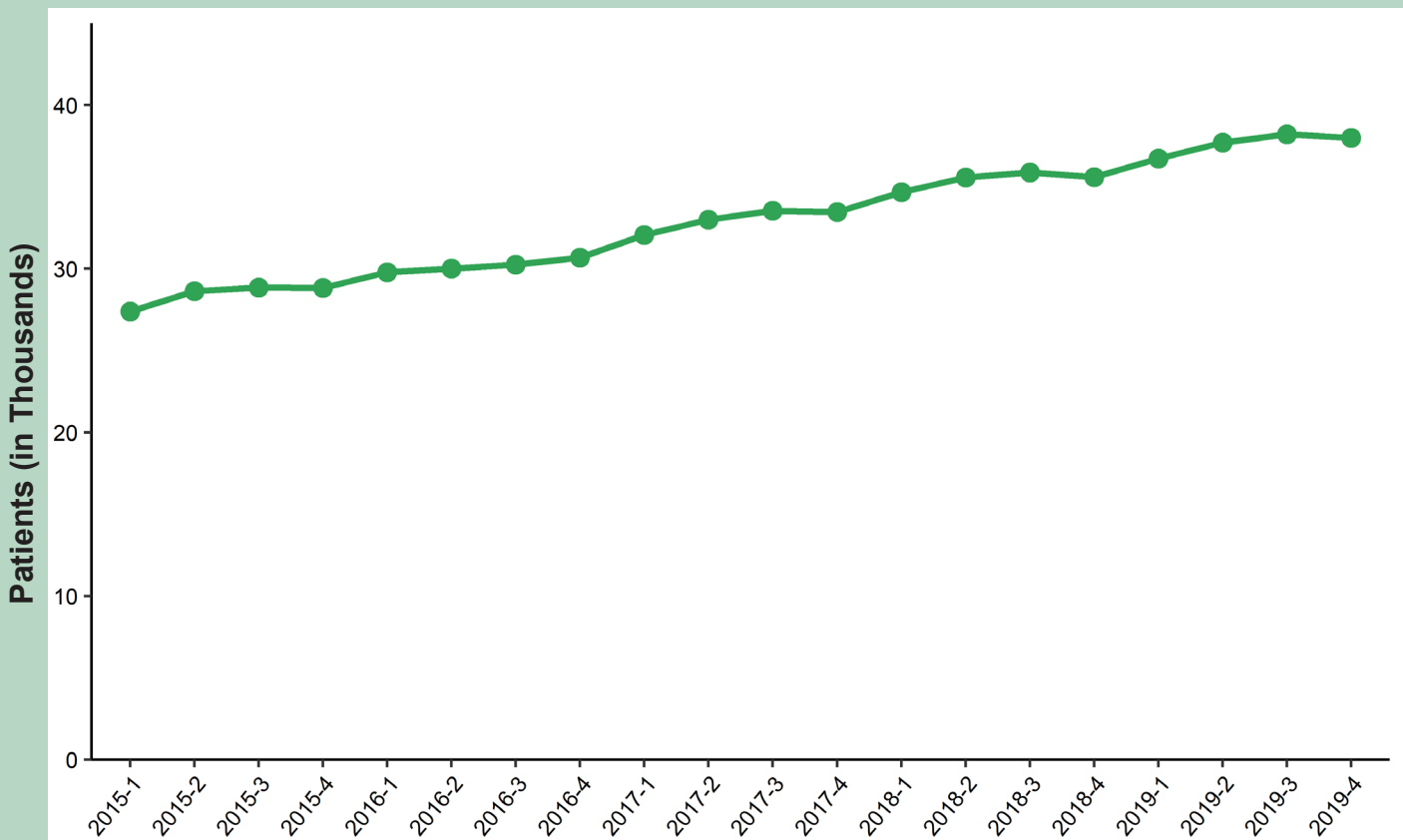
While addiction and opioid use disorder can happen to anyone regardless of age, education, upbringing, or social class, not every person with an opioid use disorder will receive treatment. Barriers to treatment exist in Tennessee, such as access to a DATA-waivered provider, distance to a buprenorphine-dispensing pharmacy, or stigma about opioid use disorder or buprenorphine use itself; however, these barriers cannot be removed until they are better understood. This section uses data from Tennessee's Controlled Substance Monitoring Database to describe the patient population currently receiving buprenorphine in Tennessee.

NEED HELP? NEED A REFERRAL TO TREATMENT?

If you or someone you know need more information and resources on getting help for addiction:

- Call or text the TN REDLINE:
1-800-889-9789
- Use the resources online through the [Tennessee Department of Mental Health and Substance Abuse Services](#)
- Download the TN Recover App on your mobile device

Patients Receiving Buprenorphine for Medication-Assisted Treatment in TN by Quarter, 2015-2019



Analysis conducted by the Office of Informatics & Analytics, TDH (last updated May 5, 2020). Limited to TN residents. Data Source: Controlled Substance Monitoring Database.

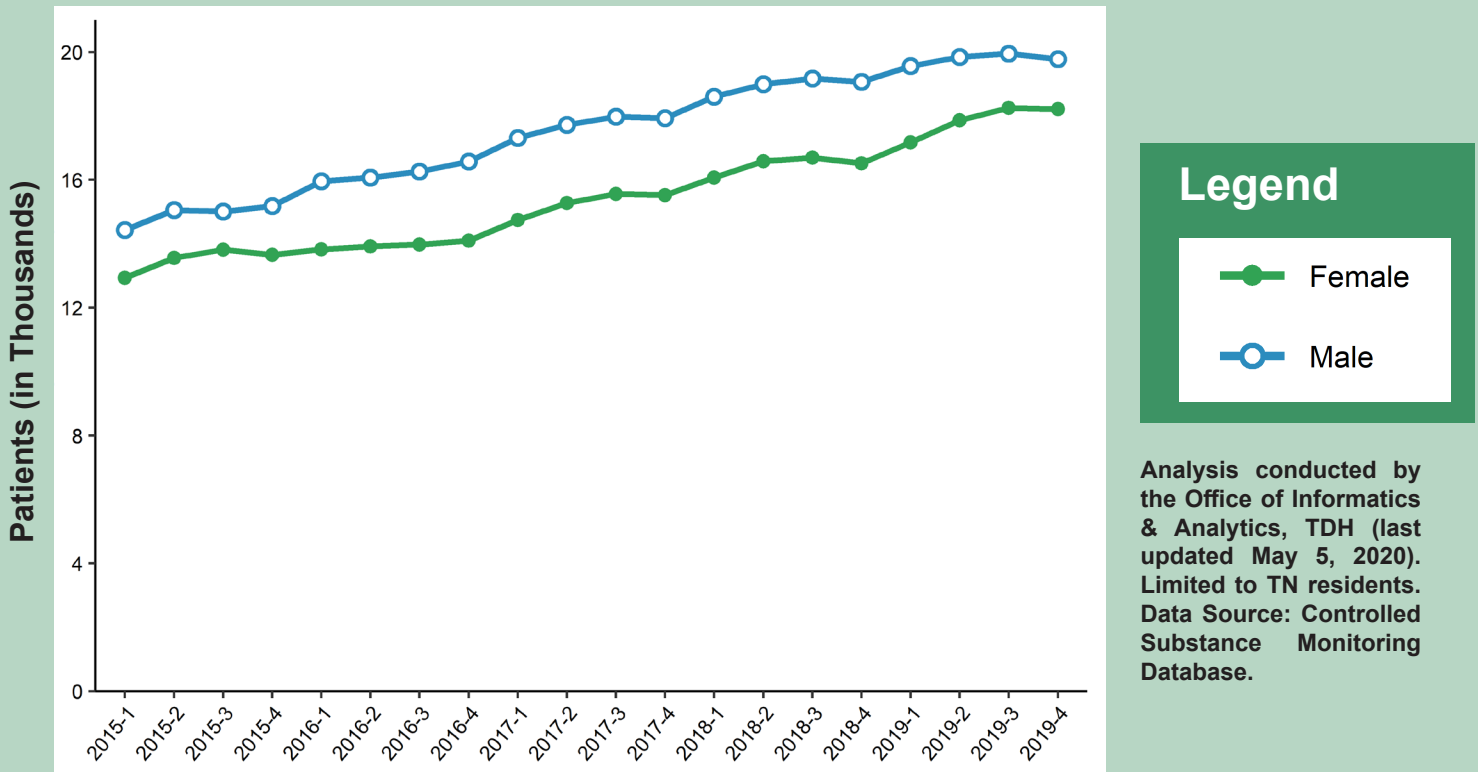
Common Barriers to Treatment:¹⁹

- Cost
- Insurance
- Transportation
 - Stigma
- Availability of a waived provider

The graph above shows quarterly number of patients who have filled buprenorphine prescriptions for MAT from 2015 to 2019 in each quarter. The number of patients who have filled buprenorphine prescriptions for MAT has risen steadily between 2015 and 2019. In Q1 2015, approximately 27,000 patients filled buprenorphine prescriptions. By Q4 2019, that number increased to about 38,000, an increase of 40.7%.

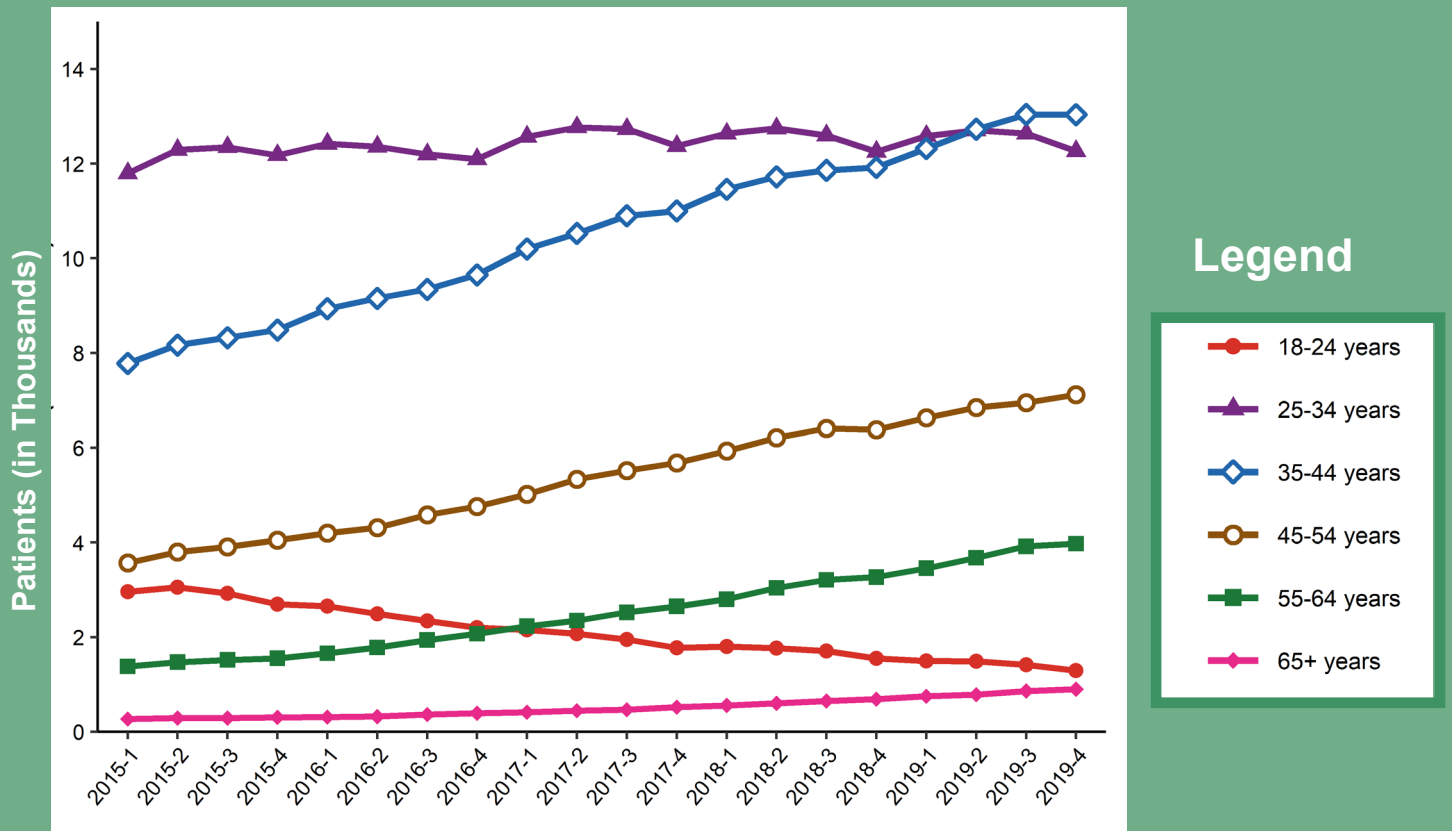
Buprenorphine Patient Demographics

Patients Receiving Buprenorphine for Medication-Assisted Treatment in TN by Sex and Quarter, 2015-2019




The number of patients who filled buprenorphine prescriptions for MAT increased for both males (20.7%) and females (21.1%) from 2015 to 2019. Across this period, more males (14,432 in Q1 2015 and 19,774 in Q4 2019) filled buprenorphine prescriptions for MAT than females (12,935 for Q1 2015 and 18,217 for Q4 2019).

Patients Receiving Buprenorphine for Medication-Assisted Treatment in TN Age-Group by Quarter, 2015-2019



Analysis conducted by the Office of Informatics & Analytics, TDH (last updated May 5, 2020). Limited to TN residents. Data Source: Controlled Substance Monitoring Database.

The above graph displays the quarterly number of patients who have filled buprenorphine prescriptions for MAT by age-group from 2015 to 2019. The number of patients who filled buprenorphine prescriptions for MAT increased for most age groups 35 and older. Prescriptions among 18-24 year olds decreased during this period, while prescriptions for the 25-34 year old group remained relatively steady. Patients aged 25-34 years and 35-44 years had the highest buprenorphine prescriptions for MAT with the biggest increase observed among 35-44 year olds from 2015 to 2019 (12,712 in 2015 to 18,369 in 2019, a 44.5% increase) while those aged ≥ 65 years had the lowest number of prescriptions filled across the entire time period.



35-44
years old is also the age group that experienced the highest number of opioid overdose deaths in Tennessee in 2018.

Long Term Buprenorphine Use

Buprenorphine use for MAT is meant to be part of a person’s long term recovery from opioid use disorder. During a patient’s treatment plan, they may be prescribed buprenorphine for longer periods of time often referred to as maintenance therapy. In order to better understand maintenance therapy and buprenorphine prescriptions, long term buprenorphine use was analyzed.² For this analysis, long term buprenorphine use episodes were measured when a patient had an active prescription for buprenorphine for at least 45 days in a 90 day period.²⁰ In Tennessee, the percentage of buprenorphine patients who had one or more long-term episodes has increased slightly from 72.1 % in 2015 to 74.6% in 2019.

74.6%
of buprenorphine patients in TN had one or more long-term use episodes in 2019

Percentage of Patients Filling Buprenorphine for MAT in Active Prescription Day Ranges in TN

Active Prescription Days	Year				
	2015	2016	2017	2018	2019
1-7 days	6.5	6.6	5.7	6.5	6.6
8-30 days	15.3	15.0	14.4	13.6	12.7
31-90 days	18.8	18.4	17.2	16.2	15.3
91-180 days	17.7	16.5	16.2	15.6	15.2
181-270 days	14.4	13.8	14.1	13.9	14.0
>270 days	27.4	29.6	32.4	34.1	36.2

Analysis conducted by the Office of Informatics & Analytics, TDH (last updated May 5, 2020). Limited to TN residents. Data Source: Controlled Substance Monitoring Database.

The table above shows the percentage of buprenorphine patients in each year by the number of days they had an active buprenorphine prescription in that year. Buprenorphine patients tend to have active prescriptions for long periods of the year. Patients who filled prescriptions of only a week or less made up less than 7% of all buprenorphine patients in any given year. Patients who had active prescriptions of 270 or more days of the year rose from just over a quarter (27.4%) of all buprenorphine patients in 2015 to over one-third (36.2%) in 2019. By 2019, half (50.2%) of all buprenorphine patients received prescriptions lasting over 180 days. By contrast, over half (57.7%) of patients who received opioid prescriptions for pain in 2019 had prescriptions for only a week or less during the year.¹⁵

UNDERSTANDING STIGMA AND BUPRENORPHINE USE

What is Stigma?

Stigma is a set of negative beliefs that society holds about a topic or group of people.

There is stigma associated with Opioid Use Disorder (OUD) and those who receive medication for OUD like Buprenorphine.

Why is Stigma Dangerous?

Stigma results in people viewing the person as the problem rather than viewing the condition as the problem. This can negatively impact the individual's:

- **willingness to ask for help**
- **willingness to continue treatment**
- **self-esteem & mental health**

Education is essential to reduce stigma.

Here are the facts:^{21,22}

- Buprenorphine is a medication. It is safe and effective in helping patients to treat OUD and sustain recovery. Buprenorphine is an evidence-based and medically accepted treatment for persons with an OUD.
- Buprenorphine is more successful if used for longer periods of time. Like other chronic diseases, recovery from addiction is a life-long process. Research shows patients using buprenorphine for 1-2 years have the greatest rates of success.
- Patients in recovery do not get high off of buprenorphine. Buprenorphine has a “ceiling effect” or a limit to how much an opioid receptor is activated. Intoxication can only occur if buprenorphine is taken with other substances.



Fatal Overdoses Involving Buprenorphine

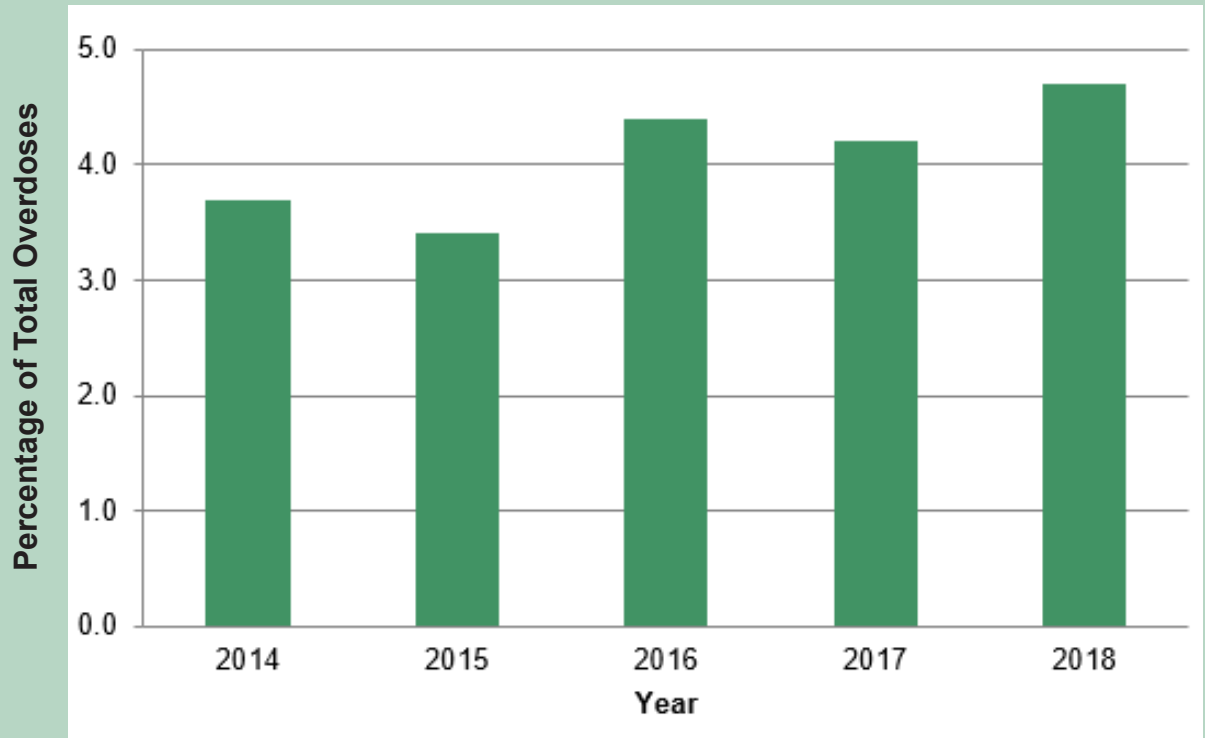
This section uses data from Tennessee's Vital Statistics Death Certificate file to analyze fatal overdoses involving buprenorphine. In Tennessee there were 1,818 fatal drug overdoses in 2018 with only a small percentage of those deaths involving buprenorphine. While buprenorphine is a powerful medicine, the drug itself is safe when taken as prescribed by patients with a known history of opioid use disorder. Due to buprenorphine's ceiling effect, a fatal overdose is unlikely unless the patient is taking buprenorphine with interacting medications or illicit drugs. To better understand fatal overdoses involving buprenorphine, trends in decedent demographics and other substances involved in the death will be presented in the following pages.

Buprenorphine Safety Instructions

The following safety precautions have been published by SAMHSA regarding people taking buprenorphine:⁸

1. Do not take other medications without first consulting your doctor.
2. Do not use illegal drugs, drink alcohol, or take sedatives, tranquilizers, or other drugs that slow breathing. Mixing large amounts of other medications with buprenorphine can lead to overdose or death.
3. Ensure that a provider monitors any liver-related health issues you may have.

Percentage of Total Drug Overdose Deaths Involving Buprenorphine by Year 2014-2018



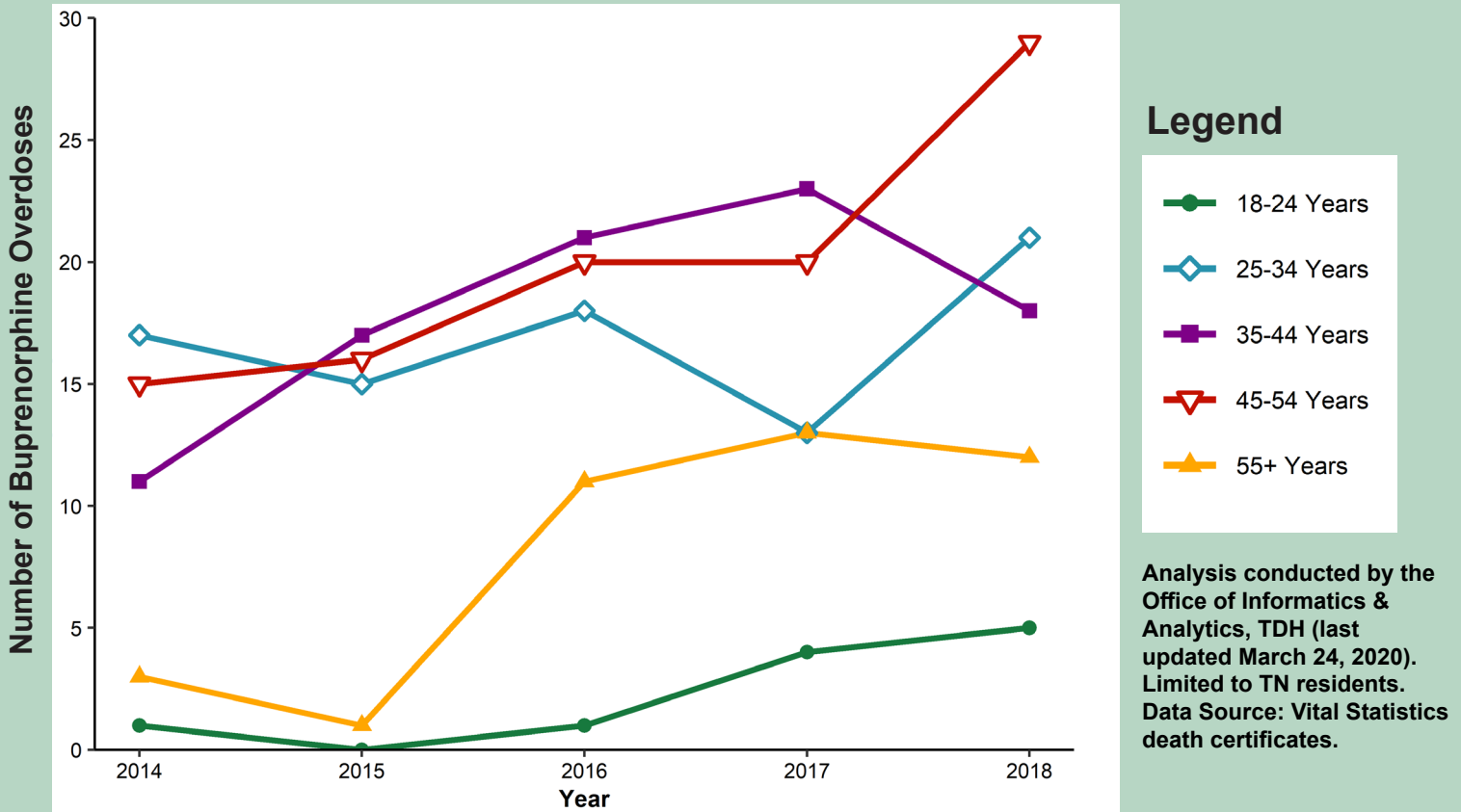
Analysis conducted by the Office of Informatics & Analytics, TDH (last updated March 24, 2020). Limited to TN residents. Data Source: Vital Statistics Death Certificates

Less than 5% of overdose deaths have involved buprenorphine from 2014 to 2018.

In 2018, there were 85 drug overdose deaths of TN residents that listed buprenorphine as a contributing cause, comprising 4.7% of the total number of drug overdose deaths in 2018. The percentage of drug overdose deaths involving buprenorphine increased between 2014 (3.7%) and 2018 (4.7%). In 2018, drug overdose deaths involving buprenorphine occurred in more females (55.3%) than males, almost exclusively among White people (98.8%), and with an average age of 42.2 years old.

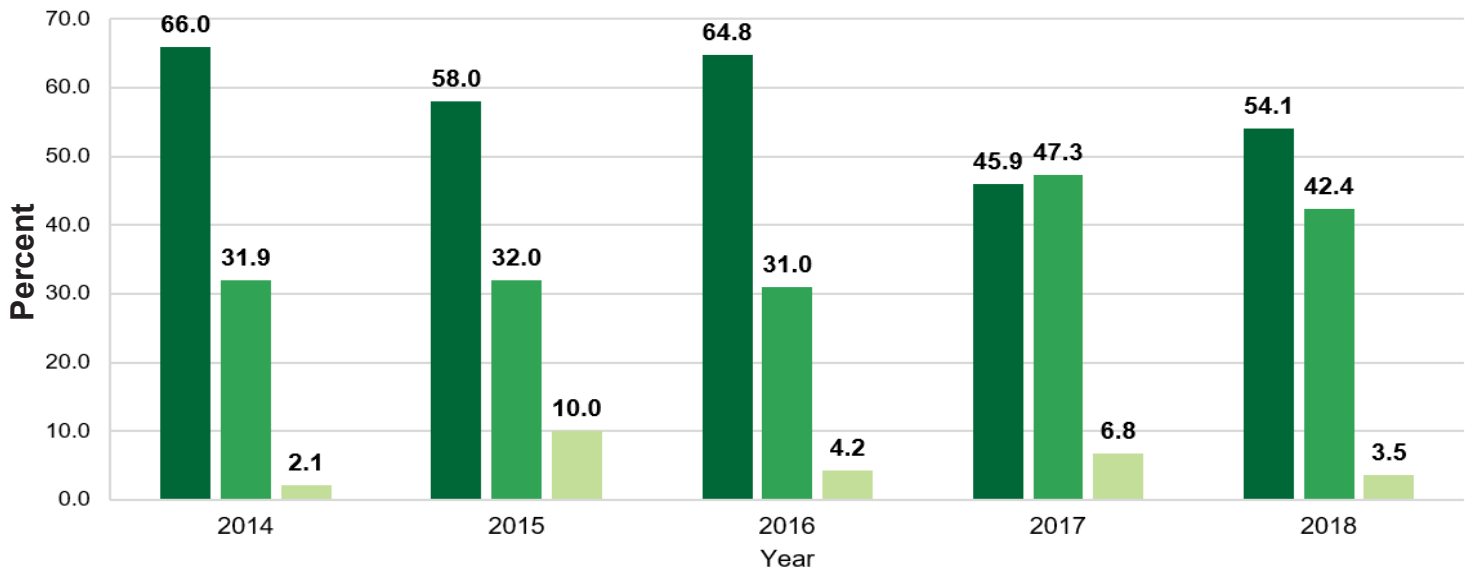
Fatal Overdoses Involving Buprenorphine

Number of Drug Overdose Deaths Involving Buprenorphine by Age and by Year, 2014-2018



From 2014 to 2018, an increase in buprenorphine-involved overdoses was observed across most age groups. The increase was particularly sharp for decedents over 45 years of age. There was a sizable decrease in the 35-44 age group from 2017 to 2018.

Percent of Drug Overdose Deaths Involving Buprenorphine by Grand Division and by Year, 2014-2018



Analysis conducted by the Office of Informatics & Analytics, TDH (last updated May 5, 2020). Limited to TN residents.
Data Source: Vital Statistics death certificates.

The graph above shows the percent of drug overdose deaths involving buprenorphine in each of TN's Grand Divisions by year in TN.

From 2014 to 2016, East TN had a high percentage of TN's buprenorphine-involved overdose deaths (ranging from 58% to 66%), followed by Middle TN (from 31% to 32.0%), and West TN (from 2.1% to 10.0%). In 2017 and 2018, the percent of buprenorphine-involved overdose deaths in Middle TN was close to or surpassed that of East TN, while the proportion in West TN remained low.

Legend

- East TN
- Middle TN
- West TN

Polydrug Overdose Deaths Involving Buprenorphine

Overdoses involving buprenorphine that were categorized as polydrug overdoses have increased from 2014 to 2018. Polydrug overdose deaths are deaths that were identified as involving more than one substance that contributed to the overdose. Overdose deaths involving buprenorphine are more likely to involve other drugs, and more of them, than overdoses that do not involve buprenorphine.

Polydrug Overdose Deaths in TN by Year, 2014-2018

	2014 (N= 1,263)	2015 (N= 1,451)	2016 (N= 1,631)	2017 (N= 1,776)	2018 (n= 1,818)
	n (%)	n (%)	n (%)	n (%)	n (%)
Overdoses Involving Buprenorphine					
Polydrug	35 (74.5)	41 (82.0)	62 (87.3)	70 (94.6)	76 (89.4)
Non-Polydrug	12 (25.5)	9 (18.0)	9 (12.7)	4 (5.4)	9 (10.6)
Overdoses NOT Involving Buprenorphine					
Polydrug	591 (60.4)	734 (62.0)	875 (65.3)	958 (61.2)	993 (61.7)
Non-Polydrug	387 (39.6)	450 (38.0)	464 (34.7)	607 (38.8)	616 (38.3)

In 2014, 74.5% of fatal overdoses involving buprenorphine were identified as polydrug. In 2017, the percentage of fatal overdoses involving buprenorphine that were identified as polydrug increased to 94.6% with a decrease (89.4%) in 2018.

Average Number of Drugs Listed on Death Certificates in Drug Overdose Deaths

	2014	2015	2016	2017	2018
Overdoses Involving Buprenorphine	2.7	3.1	3.0	3.5	3.4
Overdoses NOT Involving Buprenorphine	2.2	2.3	2.4	2.2	2.2

The average number of drugs listed in overdose deaths involving buprenorphine increased between 2014 and 2018. In overdoses involving buprenorphine, death certificates listed an average of 2.7 different drugs (including buprenorphine) that contributed to the overdose in 2014. In 2018, the average number of drugs involved including buprenorphine increased to 3.4. Among overdose deaths that did not involve buprenorphine, death certificates listed an average of 2.2 different drugs in both 2014 and 2018.

Most Common Other Drugs Listed on Death Certificates for Fatal Drug Overdoses Involving Buprenorphine in TN

Most Common Other Drugs for 2014 and 2018

2014 (N= 47)		2018 (N= 85)	
Drug	n (%)	Drug	n (%)
Alprazolam	14 (29.8)	Alprazolam	23 (29.9)
Clonazepam	6 (12.8)	Methamphetamine	22 (28.6)
Oxycodone	5 (10.6)	Fentanyl	18 (23.4)
Citalopram, Diazepam, Oxymorphone	4 (8.5)	Clonazepam	17 (22.1)
		Heroin	13 (16.9)

Note: drug categories are nonexclusive.

Analysis conducted by the Office of Informatics & Analytics, TDH (last updated May 5th, 2020). Limited to TN residents. Data Source: Vital Statistics Death Certificates

From 2014 to 2018, the most common other drug listed in buprenorphine-involved drug overdoses was the benzodiazepine Alprazolam. Each year, around one third of drug overdoses involving buprenorphine also involved Alprazolam. Clonazepam, methamphetamine, and fentanyl were some other common drugs listed in drug overdoses involving buprenorphine. Among polydrug overdose deaths, drug categories are nonexclusive, i.e. each overdose death may be counted in more than one other drug category. To learn more about polydrug deaths and how the common other drugs were identified in death certificates, reference the technical notes in the appendix.



The combination of buprenorphine (an opioid) and benzodiazepines has an increased risk of overdose, as both types of drugs suppress breathing and sedate users.



Nonfatal Drug Overdoses and Buprenorphine Use

Nonfatal overdoses treated in an emergency department setting are important to monitor and analyze as they provide an opportunity for substance use intervention and harm reduction through connecting the patient with resources and information on topics such as treatments like buprenorphine. To better understand the dispensing pattern of buprenorphine for medication-assisted treatment before and after a nonfatal overdose, a total of 79,153 eligible hospital discharges for drug overdose among adults (18-64 years old) reported in the Tennessee (TN) Hospital Discharge Data System during 2014-2018 were linked to prescriptions in the TN Controlled Substance Monitoring Database.

In 2018, there were 23,565 nonfatal overdose discharges identified in the TN Statewide Hospital Discharge Data System. That is roughly 65 drug related discharges every day.



Dispensing Patterns of Buprenorphine for Treatment by Nonfatal Drug Overdose Types

Filled a prescription for buprenorphine	Opioid (non-heroin) Overdoses		Heroin Overdoses	
	Outpatient Visits (n = 5,859)	Inpatient Stays (n = 4,680)	Outpatient Visits (n = 4,471)	Inpatient Stays (n = 751)
	n (%)	n (%)	n (%)	n (%)
1- 365 days before overdose	504 (8.6)	323 (6.9)	691 (15.5)	116 (15.5)
1-365 days after overdose	592 (10.1)	355 (7.6)	741 (16.6)	108 (14.4)

Analysis conducted by the Office of Informatics & Analytics, TDH (last updated by August 12th, 2020). Limited to TN residents. Data Source: Hospital Discharge Data System & Controlled Substance Monitoring Database.

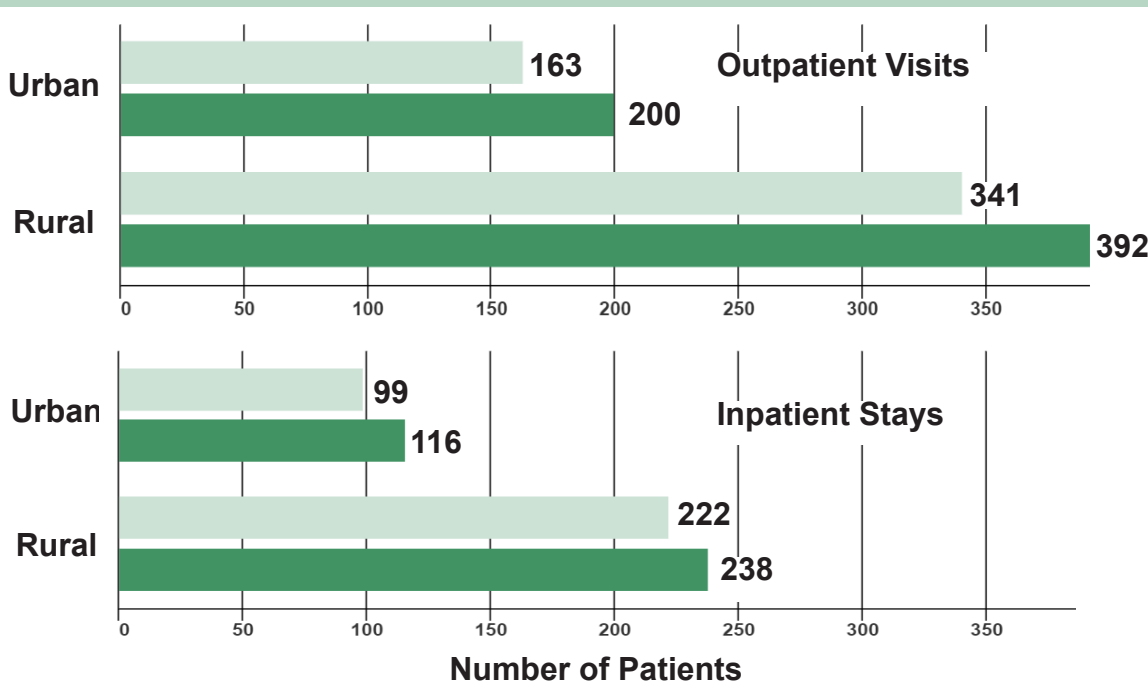
In this inquiry into the dispensing patterns of buprenorphine for MAT, there were 5,859 opioid (non-heroin) and 4,471 heroin outpatient overdose visits and 4,680 opioid and 751 heroin overdose inpatient stays. Among outpatient opioid (non-heroin) overdose discharges, 504 (8.6%) patients filled a buprenorphine prescription in the year before and 592 (10.1%) filled buprenorphine in the year after the overdose, while among outpatient heroin overdose discharges, about 16-17% of patients had filled a buprenorphine prescription in the year before and after the overdose. The number of patients filling a buprenorphine prescription in the year after inpatient opioid overdose stays increased while filling after inpatient heroin overdose stays decreased.

Methods

In Tennessee, 55,112 patients (4.2 million prescriptions) with a first overdose from 2014 to 2018 were considered for this analysis. About 19% (n=10,530) of patients discharged from the hospital for the first overdose had filled a buprenorphine prescription during this five year period.

Buprenorphine Dispensing Patterns: Opioid (non-heroin) Overdoses

Prescription Dispensing History for Buprenorphine in the Year Before and After the First Nonfatal Opioid (non-Heroin) Overdose by Discharge Setting and by Urbanicity



Legend

- Before Overdose
- After Overdose

Analysis conducted by the Office of Informatics & Analytics, TDH (last updated August 12th, 2020). Limited to TN residents.
Data Source: Hospital Discharge Data System & Controlled Substance Monitoring Database.

The visualization above displays the number of Tennesseans who filled a buprenorphine prescription before and after a nonfatal opioid (non-heroin) overdose. This analysis additionally looked at dispensing patterns by discharge setting and urbanicity (if the patient lived in an urban or rural setting); such analysis can provide insight on a patient's access to a DATA waived provider (and therefore to a buprenorphine prescription) in both settings.

A total of 341 patients in rural health regions filled a buprenorphine prescription in the year before compared to 392 patients in the year after an outpatient opioid (non-heroin) overdose visit, while in the urban health regions, 37 more patients (before: n=163, after: n=200) filled a buprenorphine prescription after an outpatient opioid (non-heroin) overdose visit. A similar pattern of increase in the number of patients filling a buprenorphine prescription was observed in both regions after an inpatient opioid (non-heroin) overdose stay. Though the uptake of buprenorphine after an opioid overdose did not show an appreciable increase between rural and urban setting residents, those in the urban regions tend to fill buprenorphine slightly at a higher rate (percent increase was 22.7% for Outpatient Visits and 17.2% for Inpatient Stays) than those in the rural regions (percent increase was 14.9% for Outpatient Visits and 7.2% for Inpatient Stays) in both discharge settings which may be indicative of improved access in urban regions.

Demographic and Prescription Characteristics of Patients with a Prescription Dispensing History for Buprenorphine in the Year Before and After the First Nonfatal Opioid (non-Heroin) Overdose by Discharge Setting

		Before Overdose	After Overdose	Before Overdose	After Overdose
Characteristics		Outpatient Visits (n = 504)	Outpatient Visits (n = 592)	Inpatient Stays (n = 323)	Inpatient Stays (n = 355)
Age Group	18-24	61	84	27	32
	25-44	366	383	193	203
	45-64	77	125	103	120
Race**	White	488	569	309	334
Sex	Female	215	246	166	173
	Male	289	346	157	182
Type of Product*	Monotherapy	101	116	66	59
	Combination	289	520	283	322

* A patient is counted in both if they had taken both types; **Counts for other races were suppressed (n < 11)

Analysis conducted by the Office of Informatics & Analytics, TDH (last updated August 12th, 2020). Limited to TN residents. Data Source: Hospital Discharge Data System & Controlled Substance Monitoring Database.

The number of patients filling buprenorphine prescriptions in the year after an opioid (non-heroin) overdose increased in both outpatient and inpatient settings. Among those aged 45-64 years, 48 more patients filled in the year after (before: n=77, after: n=125) an opioid overdose visit while 17 more patients (before: n=103, after: n=120) filled buprenorphine in the year after an inpatient stay for an opioid (non-heroin) overdose.

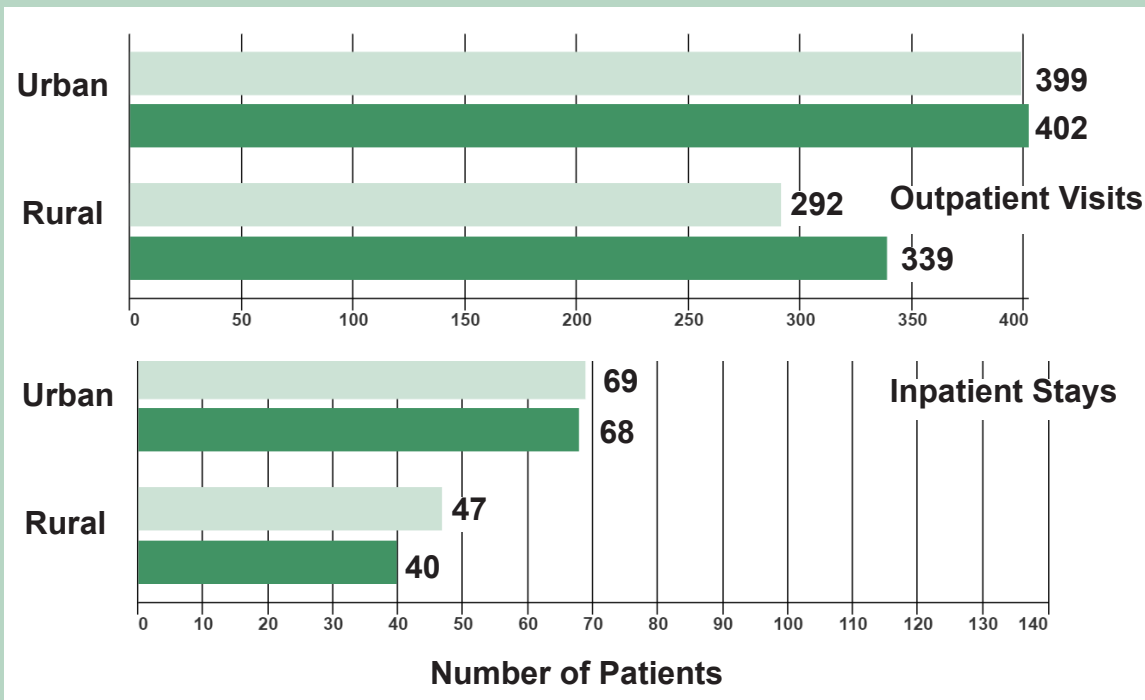
Among White Tennesseans, 488 patients filled buprenorphine in the year before and 569 patients in the year after an outpatient opioid (non-heroin) overdose visit. There were 31 more females and 57 more males filling a buprenorphine prescription in the year after an outpatient opioid (non-heroin) overdose visit. Among those who filled a buprenorphine prescription around an inpatient stay for an opioid (non-heroin) overdose, 309 White patients filled in the year before compared to 334 White patients in the year after an opioid (non-heroin) overdose. More males than females filled a buprenorphine prescription after an inpatient overdose stay.

In outpatient and inpatient settings, the number of patients who filled buprenorphine combined with naloxone prescriptions also increased after an opioid (non-heroin) overdose. In the year before an outpatient overdose visit, 445 patients filled a combination buprenorphine prescription while in the year after the overdose, 520 patients filled a combination prescription. A similar pattern was observed among those filling a combination therapy around an inpatient overdose stay. The number of patients filling prescriptions involving buprenorphine monotherapy showed a negligible change after an overdose inpatient stay (before: n=66, after: n=59) but increased after an outpatient visit.

Overall, these data suggest that there is still work to be done to connect people to treatment after an overdose. While treatment with buprenorphine is only one of the available treatment options, these findings suggest a relatively small number of people are receiving buprenorphine-assisted treatment after experiencing an opioid (non-heroin) overdose.

Buprenorphine Dispensing Patterns: Heroin Overdoses

Prescription Dispensing History for Buprenorphine in the Year Before and After the First Nonfatal Heroin Overdose by Discharge Setting and by Urbanicity



Legend

- Before Overdose
- After Overdose

Analysis conducted by the Office of Informatics & Analytics, TDH (last updated August 12th, 2020). Limited to TN residents. Data Source: Hospital Discharge Data System & Controlled Substance Monitoring Database.

The visualization above displays the number of Tennesseans who filled a buprenorphine prescription before and after a nonfatal heroin overdose. This analysis additionally looked at dispensing patterns by discharge setting and urbanicity (if the patient lived in an urban or rural setting); such analysis can provide insight on a patient's access to a DATA waived provider (and therefore to a buprenorphine prescription) in both settings.

The number of patients filling buprenorphine prescriptions in the year after an inpatient heroin overdose stay decreased in both rural and urban health regions. In the year after an outpatient heroin overdose visit, those in the urban health regions showed a minimal increase in the number of patients filling a buprenorphine prescription. A total of 292 patients in the year before compared to 339 patients in the year after an outpatient heroin overdose visit from the rural health regions filled a buprenorphine prescription (seen in the chart above). From the data, no apparent differences were seen in the buprenorphine filling patterns based on the patients residential setting for nonfatal heroin overdoses.

Demographic and Prescription Characteristics of Patients with a Prescription Dispensing History for Buprenorphine in the Year Before and After the First Nonfatal Heroin Overdose by Discharge Setting

Characteristics		Before Overdose	After Overdose	Before Overdose	After Overdose
		Outpatient Visits (n = 691)	Outpatient Visits (n = 741)	Inpatient Stays (n = 116)	Inpatient Stays (n = 108)
Age Group	18-24	144	173	23	22
	25-44	478	494	79	70
	45-64	69	74	14	16
Sex	Female	289	310	44	41
	Male	402	431	72	67
Race**	White	649	689	107	98
Type of Product*	Monotherapy	128	114	19	17
	Combination	622	689	108	101

* A patient is counted in both if they had taken both types; **Counts for other races were suppressed (n < 11)

Analysis conducted by the Office of Informatics & Analytics, TDH (last updated August 12th, 2020). Limited to TN residents. Data Source: Hospital Discharge Data System & Controlled Substance Monitoring Database.

The number of patients filling a buprenorphine prescription increased across all age groups in the year after an outpatient heroin overdose visit especially in those aged 18-24 years (increased from 144 patients in the year before to 173 patients in the year after). In the year after an inpatient heroin overdose stay, there was a decrease in the number of patients filling a buprenorphine prescription across all age groups except in those aged 45-64 years.

The number of patients filling a buprenorphine prescription increased among White Tennesseans and in both males and females in the year after an outpatient heroin overdose visit, while there was a reduction in the number of patients filling buprenorphine prescription in the year after an inpatient heroin overdose stay. Among those who filled a buprenorphine prescription combined with naloxone, 622 patients filled in the year before compared to 689 patients in the year after an outpatient heroin overdose visit, while 108 patients filled in the year before and 101 patients in the year after an inpatient heroin overdose stay.

As with overdoses involving other opioids, the experience of a heroin overdose does not appear to lead many patients to seek treatment involving buprenorphine. In the case of people admitted to the hospital for heroin overdoses, buprenorphine dispensation decreased. Taken together, these results suggest that more can be done to connect people who overdose to treatment at a crucial point in their path to recovery.

NO MORE
STIGMA. NO
MORE SHAME.

A Pennington Institute Initiative

Endnotes on the Buprenorphine Report

This report focused on trends for buprenorphine use and outcomes in Tennessee. The data show the number of buprenorphine patients, prescriptions, and DATA waived prescribers increased from 2015 to 2019 and that patients filling buprenorphine prescriptions frequently filled the combination product with naloxone rather than the monoprodut of buprenorphine alone. These data also indicated that patients are frequently engaged in long-term therapy, a trend that is common with buprenorphine treatment plans.²¹ However, the data also revealed there are areas for improvement -- such as increasing the number of DATA waived providers in TN counties with no or few waived physicians and continuing to improve access and uptake of buprenorphine for medication-assisted treatment of opioid use disorder, particularly after an overdose. Taken together, however, these trends indicate TN is moving in a positive direction towards expanding access to treatment for opioid use disorder. As drug overdose deaths continue to rise in the state and treatment for OUD becomes more available, it will be important to continue to address:

- 1. Reducing stigma about buprenorphine.**
- 2. Increasing education about buprenorphine.**
- 3. Using data to improve access and availability of buprenorphine.**

Language Matters

It's time to change the conversation about Opioid Use Disorder

Our language is powerful. Stigmatizing language continues negative perceptions about substance use. Let's reduce stigma by being purposeful with our words.

Using "person first" language emphasizes the person, not the disease.



"person with substance use disorder" **NOT** "addict or junkie"



"person living with an addiction" **NOT** "suffering from an addiction"



"person living in recovery" **NOT** "ex-addict"



"had a setback" **NOT** "relapsed"

Data Notes and Sources

Data for this report comes from Tennessee's Controlled Substances Monitoring Database for analyses involving prescriptions, Tennessee's Vital Records death certificates for analyses involving fatal drug overdoses, Tennessee's Hospital Discharge Data System for analyses involving nonfatal drug overdoses, and the Substance Abuse and Mental Health Services Administration for analyses involving buprenorphine providers.

Controlled Substances Monitoring Database (CSMD)

The CSMD is Tennessee's prescription drug monitoring program, which collects a record of all schedule II-IV controlled substances that are dispensed in the state through pharmacies and other legal avenues. Buprenorphine prescriptions are required to be reported to the CSMD shortly after they are dispensed to the patient. Reporting includes information about the drug, prescription, and identity of the patient, prescriber, and dispenser.


The prescription numbers presented in this report underestimate total buprenorphine dispensing in Tennessee as not all buprenorphine is required to be reported to the CSMD. Reporting requirements mandate reporting for buprenorphine used for medication-assisted treatment (MAT) of opioid use disorder prescribed in outpatient settings with the exception of federally funded treatment centers, for which reporting is optional.¹¹

The CSMD does not collect any clinical data, including medical history, the reason that buprenorphine was prescribed, or details of the patient's treatment. This report assumes that buprenorphine prescriptions follow the FDA-approved indication for medication-assisted treatment. The CSMD also does not track consumption data but only measures prescriptions that were dispensed.

Vital Statistics Death Certificates

The Tennessee Office of Vital Records issues and maintains death certificates for all deaths that occur in Tennessee. Causes of death are diagnosed by doctors and reported as one underlying cause of death and up to 19 additional contributing causes. In cases where the cause of death is unclear, suspicious, or requires toxicology, a medical examiner diagnoses an underlying cause of death and multiple contributing causes. Diagnoses are recorded using International Classification of Disease version 10 codes.

Buprenorphine-involved fatal overdoses, like all overdoses, may be misdiagnosed or not have every contributing cause of death listed on the death certificate. This report includes fatal overdose numbers from 2014-2018 as 2019 was not finalized at the time of writing.


 The 2019 Mortality Report is now available online. Click [here](#) or scan the barcode to read it!



Hospital Discharge Data Set

Tennessee's Hospital Discharge Data System (HDDS) is a database of discharges at hospitals throughout the state, including inpatient hospitalizations, outpatient visits, and emergency department visits. Diagnoses are listed in up to 18 diagnosis fields using International Classification of Diseases, Ninth and Tenth Revisions, Clinical Modification (ICD-9-CM and ICD-10-CM) codes. ICD-9-CM codes were used for discharges occurring before October 1, 2015, and ICD-10-CM codes were used for discharges on and after October 1, 2015. Diagnoses for the ICD-9-CM period also included the analysis of the 3 external cause of injury codes (ecodes). Records where a patient was deceased at discharge are excluded from nonfatal numbers and instead included in fatal numbers.

This report includes HDDS records of nonfatal overdoses at non-federal, acute care hospitals in Tennessee from 2014-2018. Discharges occurring in 2019 were not available at the time of writing.


 Read about Nonfatal Drug Overdoses in Tennessee in the 2020 Annual Report (pg. 46)



Substance Abuse and Mental Health Services Administration (SAMHSA)

The Substance Abuse and Mental Health Services Administration (SAMHSA) is an agency within the U.S. Department of Health and Human Service. This agency has led public health efforts to improve the behavioral health of the nation including increasing awareness, education, and access to treatment for those with substance use and mental health disorders.²³ SAMHSA is a resource for patients, physicians, pharmacists, and the general information about medication-assisted treatment options including buprenorphine.

This report includes information about MAT and buprenorphine treatment released by SAMHSA. Specifically, SAMHSA's Buprenorphine Practitioner Locator and Practitioner Count was accessed to identify the number of providers in Tennessee and to visualize where treatment can be accessed around the state. Not all buprenorphine providers (or physicians with a DATA waiver) may be listed through the SAMHSA website as physicians are not required to be publically listed. For those who are listed, basic provider information including their name, degree, office location, and office telephone number are available online. The providers' patient capacity or if they are currently accepting new patients is not available online.

 Learn more about MAT and buprenorphine from SAMHSA [here](#).



Additional Sources:

1. Substance Abuse and Mental Health Services Administration (SAMHSA). Key Substance Use and Mental Health Indicators in the United States: Results from the 2018 National Survey on Drug Use and Health. <https://www.samhsa.gov/data/sites/default/files/cbhsq-reports/NSDUHNationalFindingsReport2018/NSDUHNationalFindingsReport2018.pdf>. Accessed: 8/01/2020.
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Appendix: Technical Notes

The following technical notes are for the section on fatal overdoses involving buprenorphine (pg 26-31).

Overdose deaths are determined by ICD10 codes listed as the underlying cause of death in the Death Statistical File. These codes are assigned by the National Center for Health Statistics from the cause of death text fields on death certificates. Contributing substances are generally determined by ICD10 codes in the multiple cause of death fields in the statistical file. Some causes of death cannot be determined by these codes and instead are derived from the cause of death text entered on the death certificate. Relevant ICD10 codes or literal text searches are listed below.

All Drug Overdose – underlying cause of death code falls in one of the following ranges:

- X40-X44 (Accidental poisoning by drugs)
- X60-X64 (Intentional self-poisoning by drugs)
- X85 (Assault by drug poisoning)
- Y10-Y14 (Drug poisoning of undetermined intent)

Buprenorphine – Meets all drug overdose criteria and contains text ‘BUPRE’, ‘NORPH’ or ‘SUBOXONE’ or some common misspellings in written cause of death on certificate.

Polydrug deaths – Meets all drug overdose criteria and contains more than one drug identified by using text search. Alcohol is not included in drug counts. Numbers are not mutually exclusive.

Buprenorphine Report



www.tn.gov/health/health-program-areas/pdo.html



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