

# **STATE EPIDEMIOLOGICAL OUTCOME WORKGROUP (SEOW)**

# What is a SEOW?

## State Epidemiological Outcomes Workgroup

- About 15 members
- State gov't and community members
- Data competency and skills

SEOW

Understand

1. Gather data
  - Who are abusing substances?
  - What substances are being abused?
  - What are the consequences of the abuse?

## 2. Track data

- Assess substance abuse problems
- Monitor substance abuse trends
- Plan for the future

Monitor

Make  
Suggestions

3. Use data
  - Prevention programs
  - Treatment programs
  - Recovery programs

State ↔ Local

# Goals & Benefits

Standardize and share data



Identify and monitor data trends



Provide data for decision-making

# State Epidemiological Outcomes Workgroup (SEOW) Membership

## State and government agency members:

- Tennessee Department of Mental Health and Substance Abuse Services
- Tennessee Bureau of Investigation
- Tennessee Department of Health
- Tennessee Department of Safety & Homeland Security
- Tennessee Department of Correction
- Tennessee Department of Military
- Tennessee Division of Health Care Finance and Administration
- Tennessee Department of Children's Services
- Tennessee Department of Education

## Community members:

- East Tennessee State University
- Oasis Center, Inc.
- Allies for Substance Abuse Prevention of Anderson County



# Suggested Heroin Indicators: Tennessee 2015

Recommendations from the  
State Epidemiological Outcomes Workgroup (SEOW)

December 17, 2015

Presented by Jacquelyn Pennings, Ph.D.

# Special thanks to the following for providing data and/or review:

**Tennessee Department of Mental Health and Substance Abuse Services**

Rod Bragg  
Karen Edwards  
Angela McKinney-Jones



**Tennessee Bureau of Investigation**

Jenifer Hall  
Jackie Vandercook



**Tennessee Department of Health**

Mitchell Mutter  
Todd Bess  
Zhi Chen & Lilly Rowland



**Tennessee Department of Safety & Homeland Security**

Sgt. Michael McAlister



**Tennessee Department of Correction**

Michelle Hergert



**Tennessee Department of Military**

LTC Keith Scott



**East Tennessee State University**

Robert Pack



**Oasis Center, Inc.**

Judy Freudenthal



**Substance Abuse Prevention Coalition**

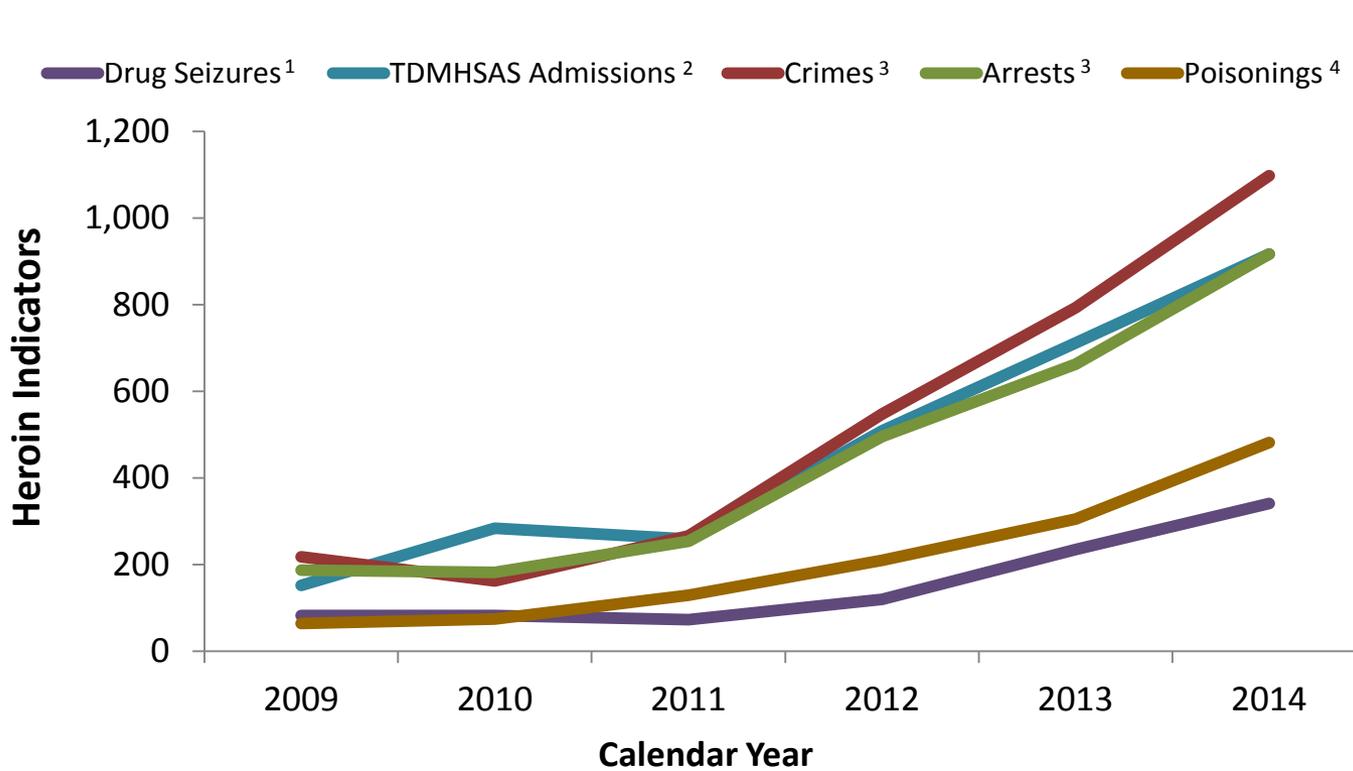
Stephanie Strutner



Overview

# **HEROIN AND OPIOIDS IN TENNESSEE**

**Figure 1. Compilation of heroin indicators: Tennessee 2009-2014**



Sources:

- 1) Tennessee Bureau of Investigation Lab Data 2015
- 2) Tennessee Department of Mental Health and Substance Abuse Services WITS 2015.
- 3) Tennessee Bureau of Investigation CJIS Support Center 2015
- 4) Tennessee Department of Health, Division of Policy, Planning and Assessment; Hospital Discharge Data System, 2009-2013, 2014 provisional

Notes:

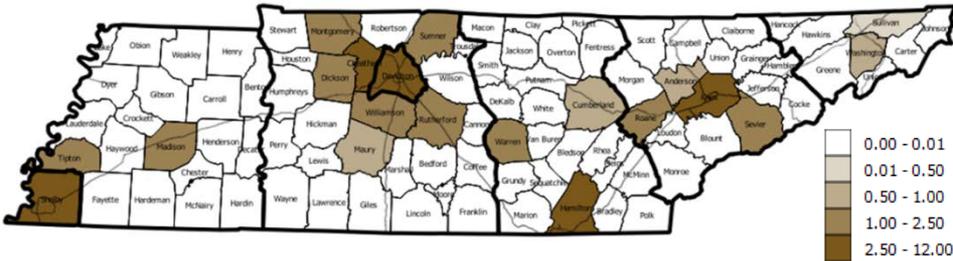
- 1) The data represent the number of incidents in which a drug was seized, tested by the TBI lab, and confirmed to be the substance. This data does not reflect the amount of the drug that was seized.
- 2) TDMHSAS-funded substance abuse treatment admissions only include treatment admissions for Tennessee residents living in poverty. Up to three substances can be listed for each treatment admission.
- 4) Heroin poisonings include hospital discharges with ICD-9 codes of 965.01, E850.0, E935.0.

**Table 1. Compilation of heroin indicators: Tennessee 2009-2014**

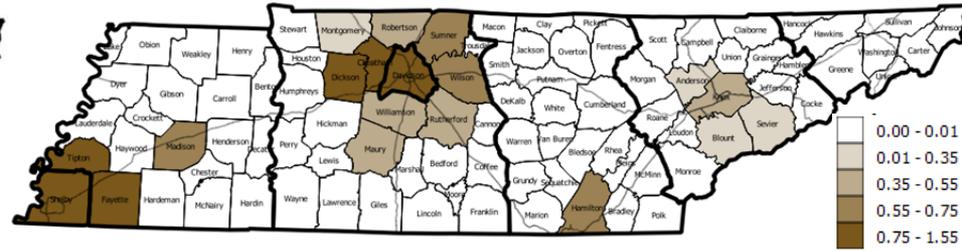
Year (CY)	2009	2010	2011	2012	2013	2014
Drug Seizures <sup>1</sup>	82	82	73	120	235	341
TDMHSAS Admissions <sup>2</sup>	152	284	259	509	712	917
Crimes <sup>3</sup>	218	162	266	548	793	1,098
Arrests <sup>3</sup>	187	182	254	496	663	917
Drug Poisonings	64	74	129	210	305	482

# Heroin indicators

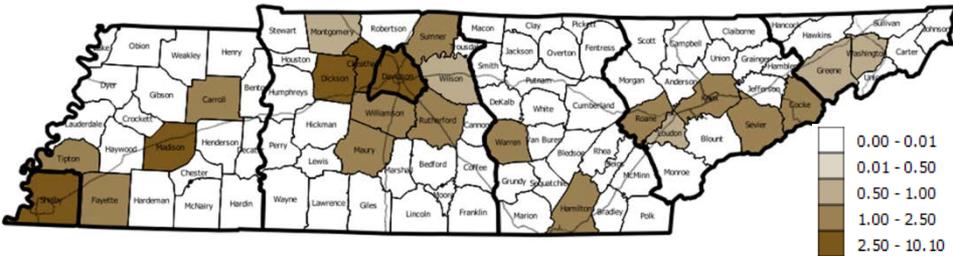
Map 6. Crimes involving heroin (per 10K pop.): 2013-2014  
 Source: Tennessee Bureau of Investigation (TBI) CJIS Support Center, 2015



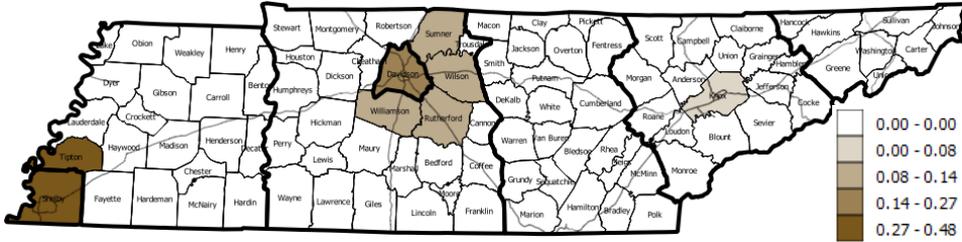
Map 14. Hospital discharges for heroin poisonings (per 10K pop.): 2013-2014<sup>1</sup>  
 Source: Tennessee Department of Health, Division of Policy, Planning and Assessment; Hospital Discharge Data System, 2009-2013, 2014 provisional



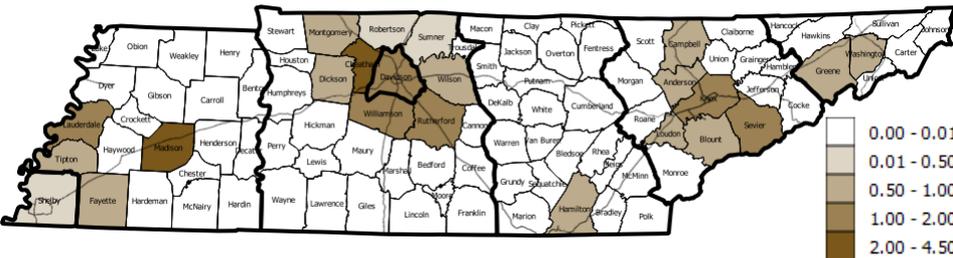
Map 8. Heroin related arrests (per 10K pop.): 2013-2014  
 Source: Tennessee Bureau of Investigation (TBI) CJIS Support Center, 2015



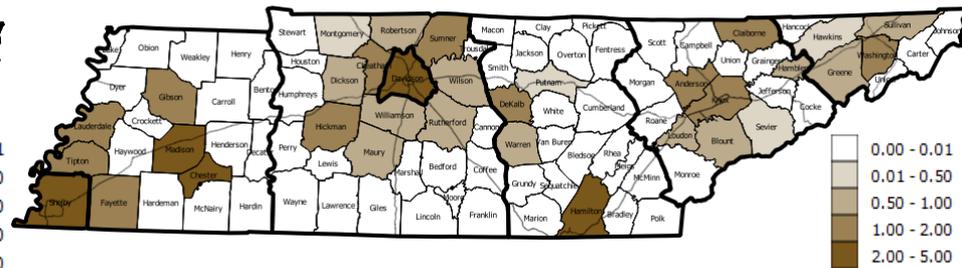
Map 17. Heroin overdose deaths (per 10K pop.): 2012-2014<sup>3</sup>  
 Source: Tennessee Department of Health, Division of Policy, Planning and Assessment Death Statistical System, 2014



Map 10. Confirmed heroin seizures (per 10K pop.): 2014-2015<sup>2</sup>  
 Source: Tennessee Bureau of Investigation (TBI) lab data, 2015



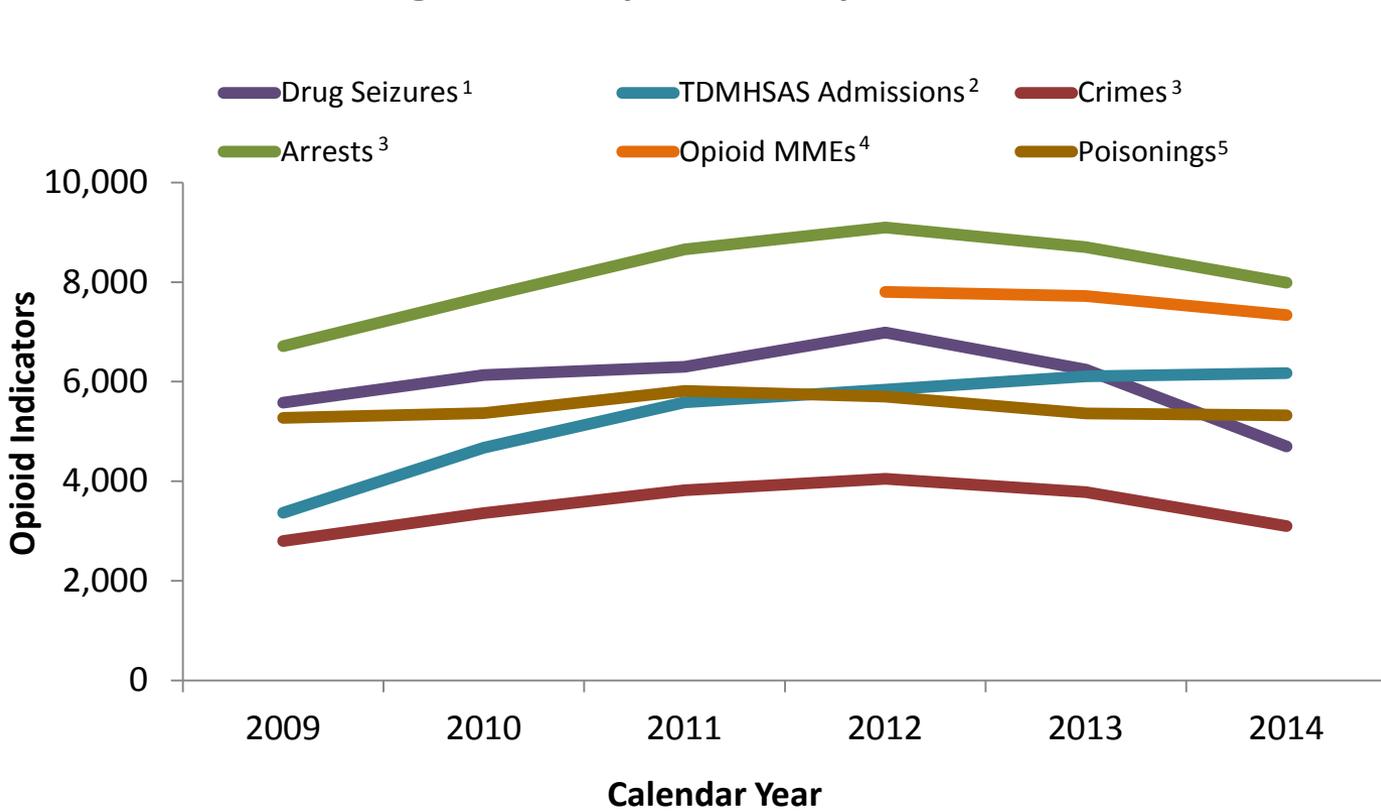
Map 22. TDMHSAS-funded heroin treatment admissions (per 10K pop.): 2014-2015<sup>2</sup>  
 Source: Tennessee Department of Mental Health and Substance Abuse Services WITS, 2015



Notes: see subsequent presentation of maps above for full descriptive notes

(1) Provisional 2014 data was accessed on November 10, 2015. (2) 2015 rates estimated as of Jan-Jun, 2015. (3) Due to the small number of incidents, a three year average rate is given.

## Figure 2. Compilation of opioid indicators: Tennessee 2009-2014



**Sources:**

- 1) Tennessee Bureau of Investigation Lab Data 2015
- 2) Tennessee Department of Mental Health and Substance Abuse Services WITS 2015
- 3) Tennessee Bureau of Investigation CJIS Support Center 2015
- 4) Tennessee Department of Health Controlled Substance Monitoring Database 2015
- 5) Tennessee Department of Health, Division of Policy, Planning and Assessment; Hospital Discharge Data System, 2009-2013, 2014 provisional

**Notes:**

- 1) The data represent the number of incidents in which a drug was seized, tested by the TBI lab, and confirmed to be the substance. This data does not reflect the amount of the drug that was seized.
- 2) TDMHSAS-funded substance abuse treatment admissions only include treatment admissions for Tennessee residents living in poverty. Up to three substances can be listed for each treatment admission.
- 3) For crimes, opioid-related substance information collected in the following categories: oxycodone, hydrocodone, and all other prescription drugs. Reporting on oxycodone plus hydrocodone provides the most focused information on opioids possible given how data is collected.
- 4) MMEs (morphine milligram equivalents) exclude buprenorphine and are reported per 1,000,000.
- 5) Opioid poisonings include hospital discharges with ICD-9 codes of 965.09, E850.2, E935.2.

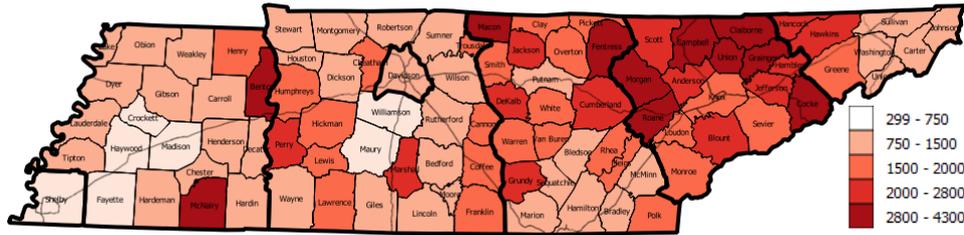
**Table 2. Compilation of opioid indicators: Tennessee 2009-2014**

Year (CY)	2009	2010	2011	2012	2013	2014
Drug Seizures <sup>1</sup>	5,580	6,130	6,299	6,988	6,243	4,696
TDMHSAS Admissions <sup>2</sup>	3,364	4,671	5,587	5,842	6,109	6,174
Crimes <sup>3</sup>	2,802	3,362	3,820	4,050	3,782	3,102
Arrests <sup>3</sup>	6,715	7,704	8,658	9,094	8,701	7,989
Opioid MMEs <sup>4</sup>	N/A	N/A	N/A	7,805	7,719	7,335
Drug Poisonings <sup>5</sup>	5,271	5,368	5,813	5,702	5,363	5,325

# Opioid indicators

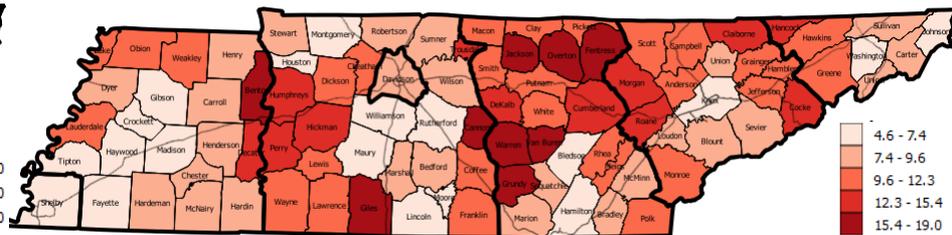
Map 4. Opioid morphine milligram equivalents dispensed and reported to the CSMD (MME per capita): 2014

Source: Tennessee Department of Health Controlled Substance Monitoring Database, 2015



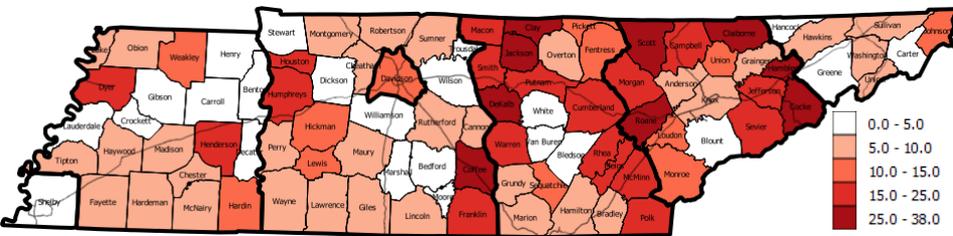
Map 15. Hospital discharges for opioid poisonings (per 10K pop.): 2013-2014<sup>2</sup>

Source: TN Dept. of Health, Division of Policy, Planning & Assessment; Hospital Discharge Data System, 2009-2013



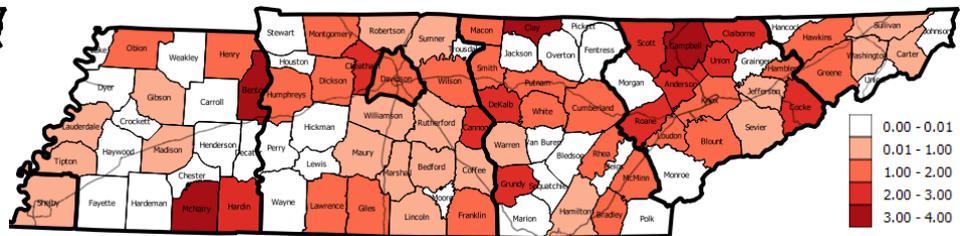
Map 7. Crimes involving oxycodone + hydrocodone (per 10K pop.): 2013-2014

Source: Tennessee Bureau of Investigation (TBI) CJIS Support Center, 2015



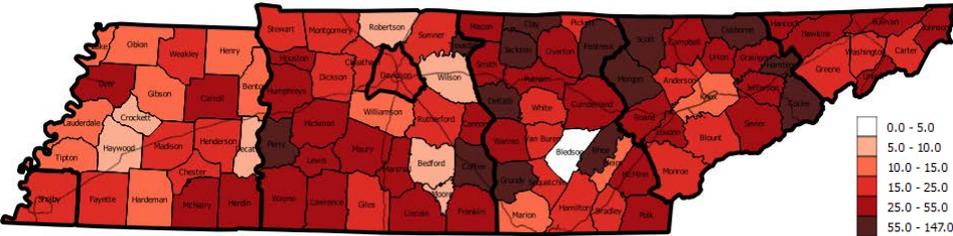
Map 18. Opioid overdose deaths (per 10K pop.): 2013-2014

Source: TN Dept. of Health, Division of Policy, Planning & Assessment; Death Statistical System, 2014



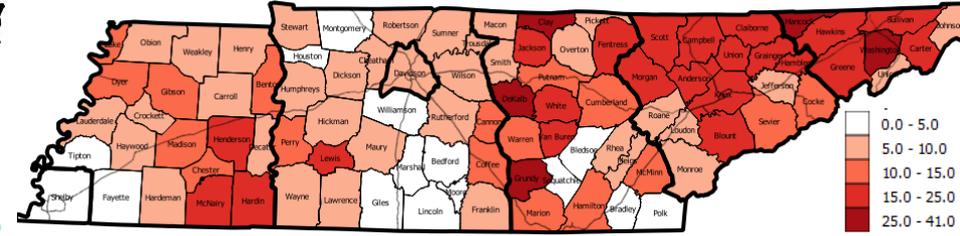
Map 9. Opioid-related arrests (per 10K pop.): 2013-2014

Source: Tennessee Bureau of Investigation (TBI) CJIS Support Center, 2015



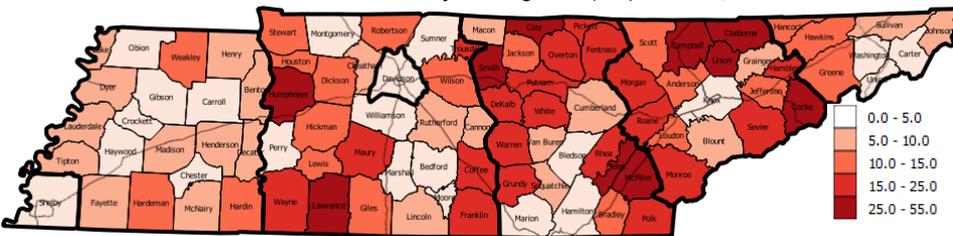
Map 21. TDMHSAS-funded opioid treatment admissions (per 10K pop.): 2014-2015<sup>1</sup>

Source: Tennessee Department of Mental Health and Substance Abuse Services WITS, 2015



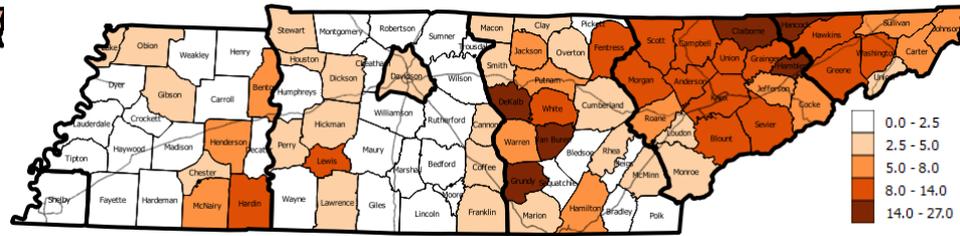
Map 11. Confirmed opioid seizures (per 10K pop.): 2014-2015<sup>1</sup>

Source: Tennessee Bureau of Investigation (TBI) lab data, 2015



Map 24. TDMHSAS-funded injection opioid treatment admissions (per 10K pop.): 2014-2015<sup>1</sup>

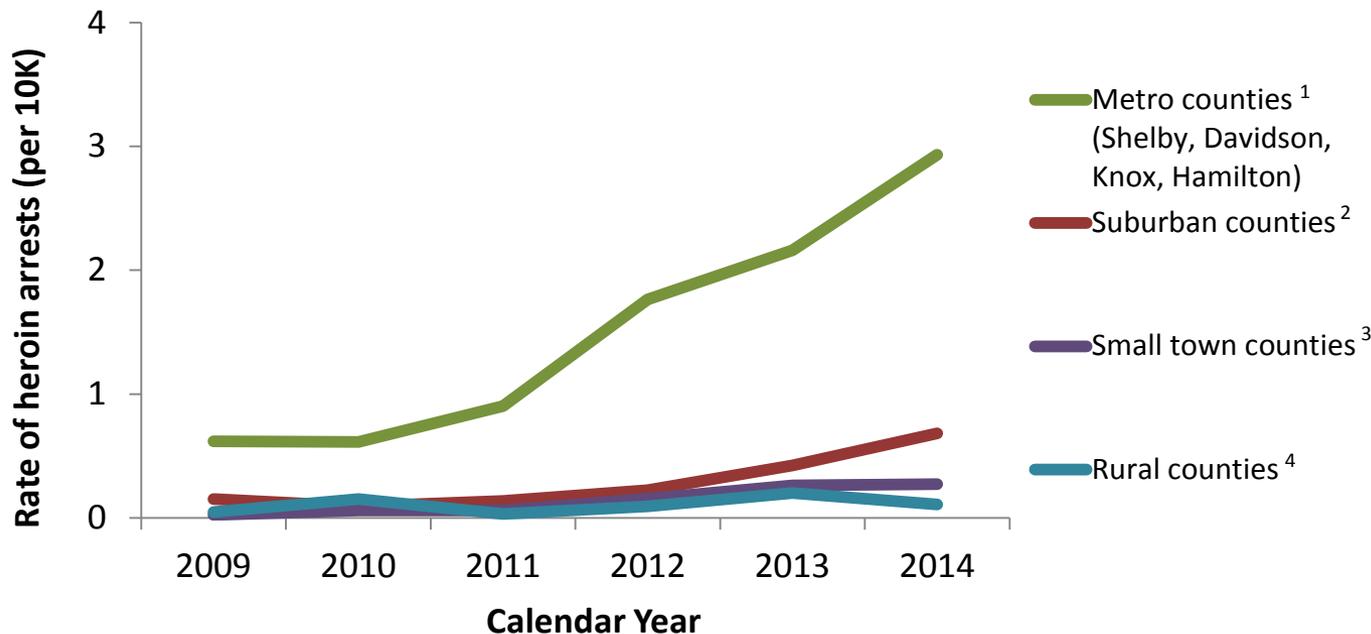
Source: Tennessee Department of Mental Health and Substance Abuse Services WITS, 2015



Notes: see subsequent presentation of maps above for full descriptive notes. (1) 2015 rates estimated as of Jan-Jun, 2015. (2) Provisional 2014 data was accessed on November 10, 2015.

### Figure 3. Number of heroin-related arrests (per 10K population) by area: Tennessee 2009-2014

Source: Tennessee Bureau of Investigation CJIS Support Center 2015

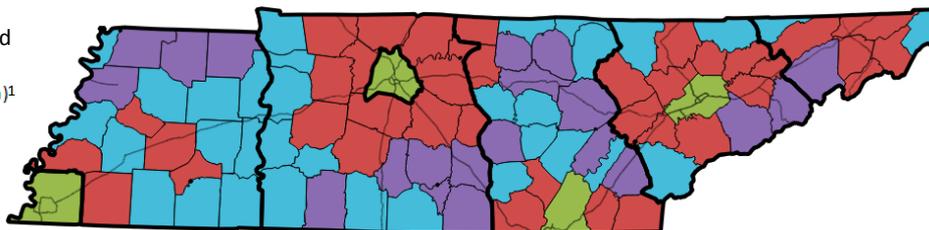


Notes:

- 1) The four most populated counties were examined apart from their surrounding suburbs. The most densely populated counties are: Shelby, Davidson, Knox, and Hamilton counties.
- 2) Metropolitan Statistical Areas: urban areas centered on an urban cluster (urban area) with 50,000 or more population. Shelby, Davidson, Knox, and Hamilton counties were excluded from this group and examined individually.
- 3) Micropolitan Statistical Areas: urban areas centered on an urban cluster (urban area) with a population at least 10,000 but less than 50,000.
- 4) Not a metro or micropolitan county.

The map shows which counties are considered metro, suburban, small town, and rural.

- Metro counties (Shelby, Davidson, Knox, Hamilton)<sup>1</sup>
- Suburban counties<sup>2</sup>
- Small town counties<sup>3</sup>
- Rural counties<sup>4</sup>



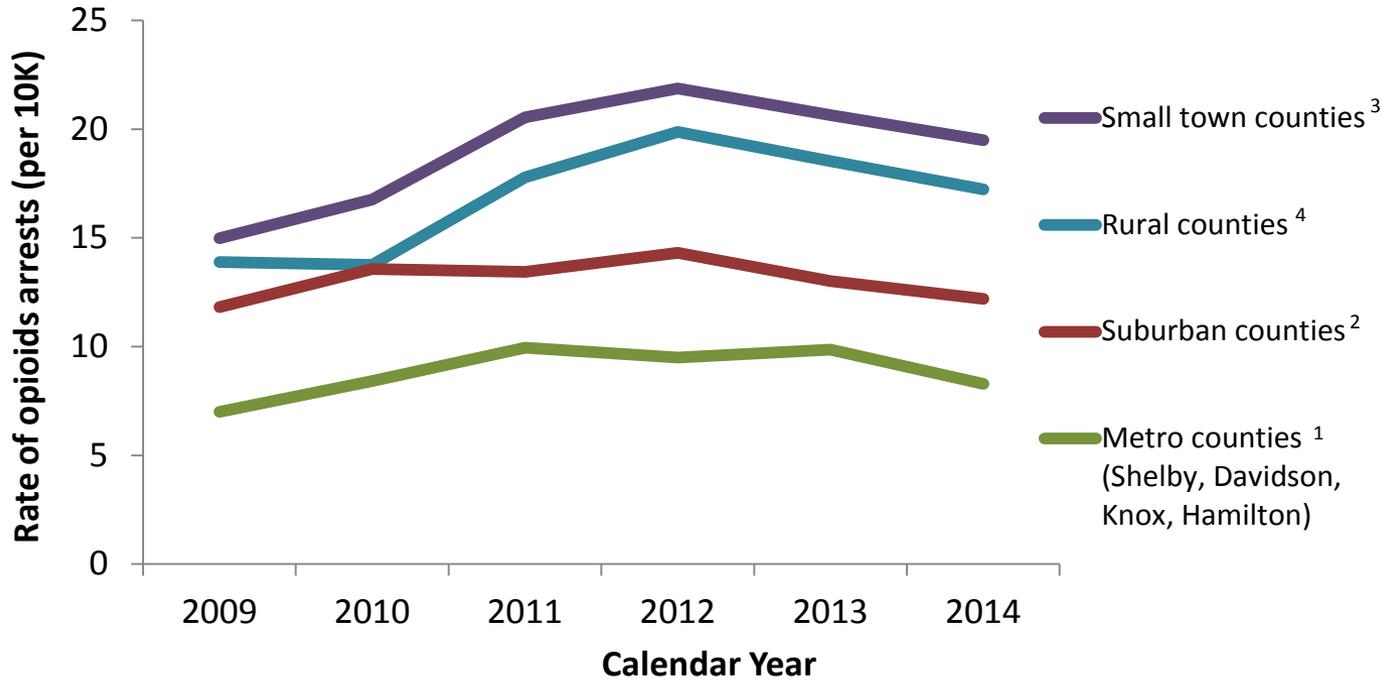
Each metropolitan or micropolitan area consists of one or more counties and may include adjacent counties that have a high degree of social and economic integration (as measured by commuting to work) with the urban core.

Table 3. Number of heroin-related arrests (per 10K population) by area: Tennessee 2009-2014

Year (CY)	2009	2010	2011	2012	2013	2014
<b>Metro counties</b> (Shelby, Davidson, Knox, Hamilton) <sup>1</sup>	0.6	0.6	0.9	1.8	2.2	2.9
<b>Suburban counties</b> <sup>2</sup>	0.2	0.1	0.1	0.2	0.4	0.7
<b>Small town counties</b> <sup>3</sup>	0.0	0.1	0.1	0.2	0.3	0.3
<b>Rural counties</b> <sup>4</sup>	< 0.1	0.2	< 0.1	0.1	0.2	0.1

# Figure 4. Number of opioid<sup>5</sup>-related arrests (per 10K population) by area: Tennessee 2009-2014

Source: Tennessee Bureau of Investigation CJIS Support Center 2015

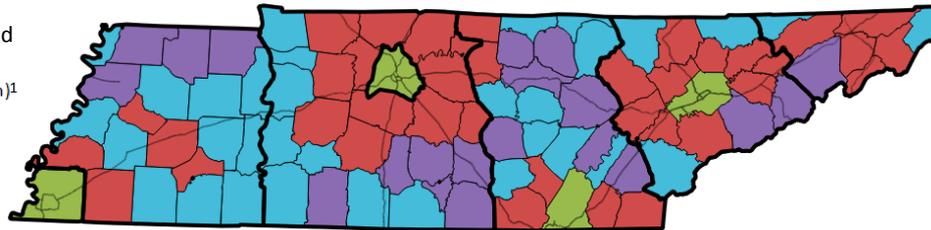


Notes:

- 1) The four most populated counties were examined apart from their surrounding suburbs. The most densely populated counties are: Shelby, Davidson, Knox, and Hamilton counties.
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Each metropolitan or micropolitan area consists of one or more counties and may include adjacent counties that have a high degree of social and economic integration (as measured by commuting to work) with the urban core.

**Table 4. Number of opioid<sup>1</sup>-related arrests (per 10K population) by area: Tennessee 2009-2014**

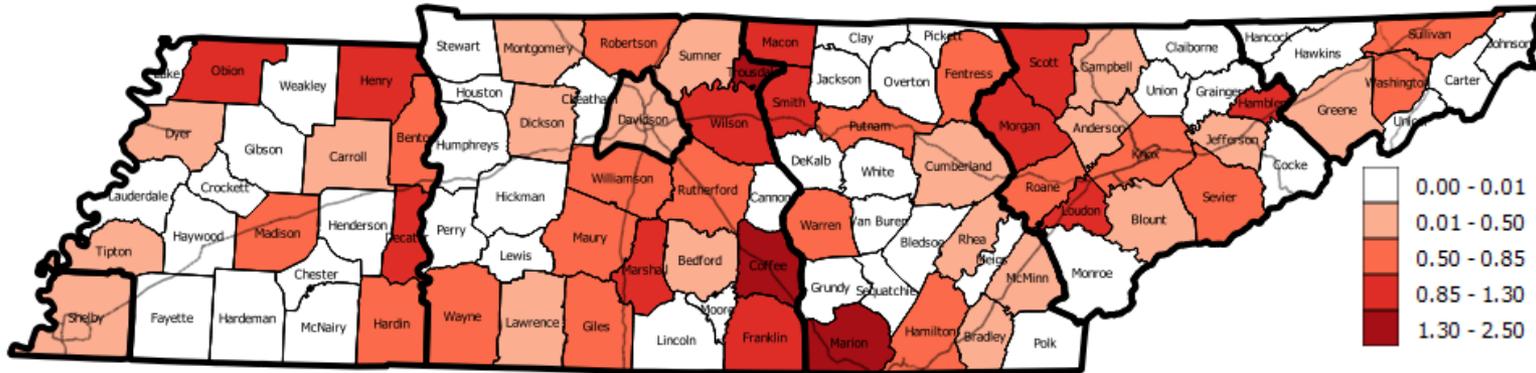
Year (CY)	2009	2010	2011	2012	2013	2014
<b>Metro counties</b> (Shelby, Davidson, Knox, Hamilton) <sup>1</sup>	<b>7.0</b>	<b>8.4</b>	<b>10.0</b>	<b>9.5</b>	<b>9.9</b>	<b>8.3</b>
<b>Suburban counties</b> <sup>2</sup>	<b>11.8</b>	<b>13.6</b>	<b>13.4</b>	<b>14.3</b>	<b>13.0</b>	<b>12.2</b>
<b>Small town counties</b> <sup>3</sup>	<b>15.0</b>	<b>16.8</b>	<b>20.5</b>	<b>21.9</b>	<b>20.6</b>	<b>19.5</b>
<b>Rural counties</b> <sup>4</sup>	<b>13.9</b>	<b>13.8</b>	<b>17.8</b>	<b>19.9</b>	<b>18.5</b>	<b>17.2</b>

Opioids, buprenorphine, methadone

# **SUPPLY**

# Clinics & Doctors

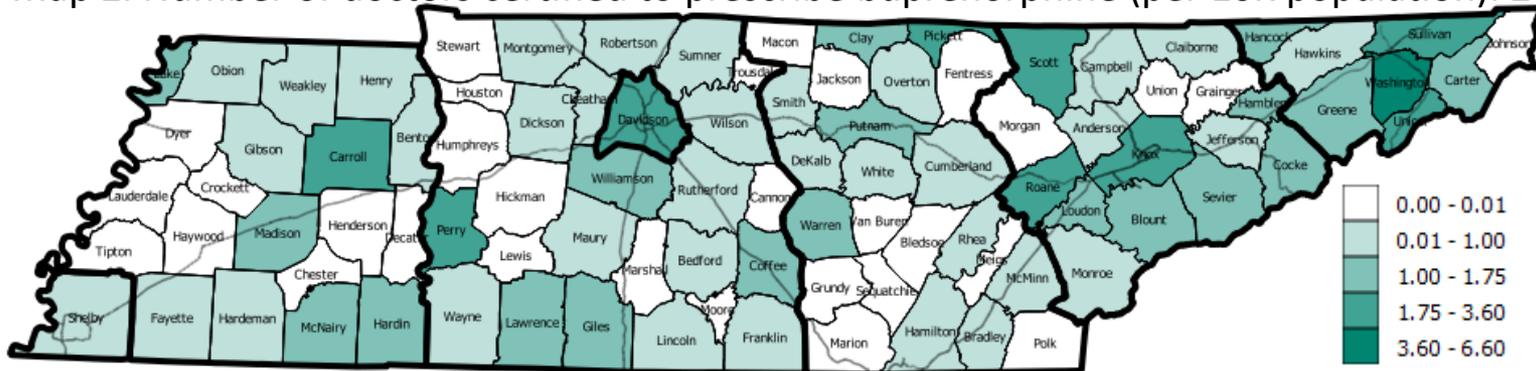
## Map 1. Certified pain clinics (per 10K population): 2015+



\*Point-in-time value (10/1/15)

Source: Tennessee Department of Health, 2015

## Map 2. Number of doctors certified to prescribe buprenorphine (per 10K population): 2015+



\*Point-in-time value (10/1/15)

Source: DEA (private communication), 2015

## Map 3. Opioid treatment programs (count): 2015+

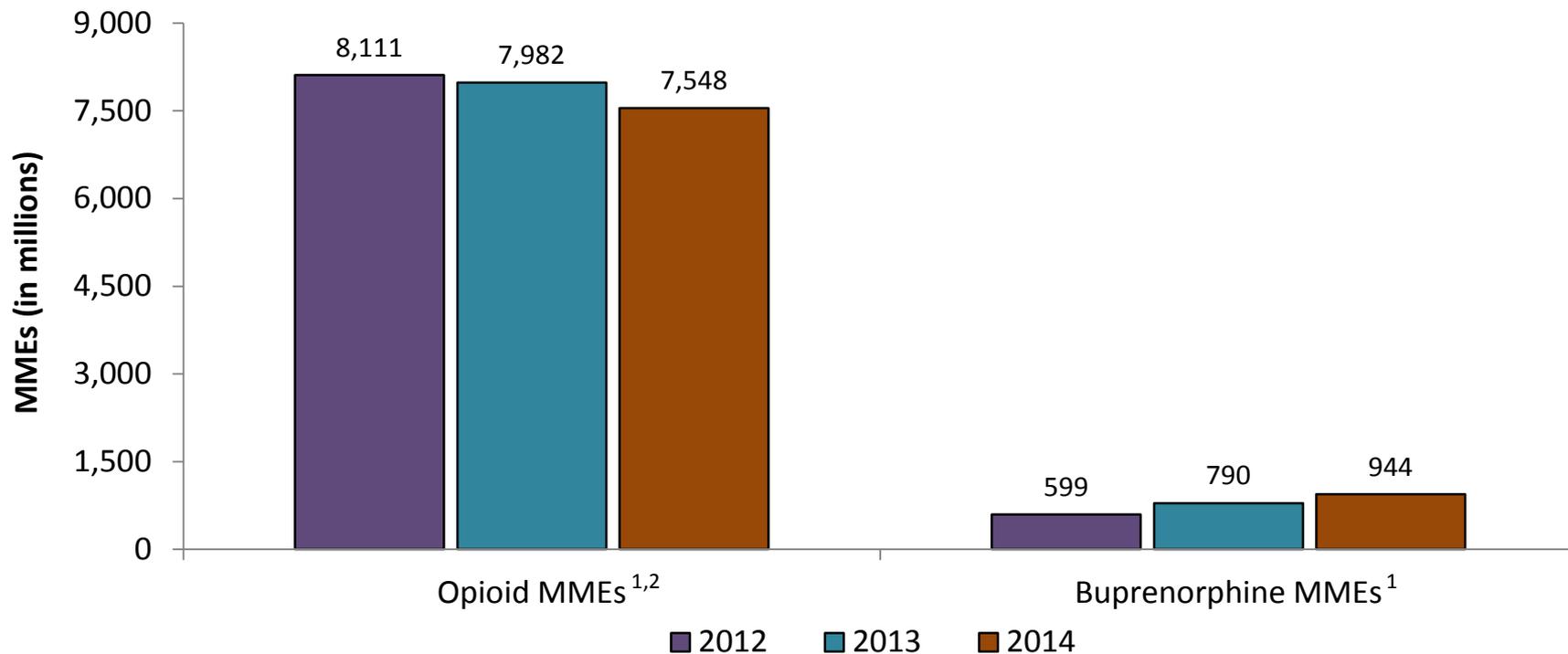


\*Point-in-time value (7/10/15)

Source: Tennessee Department of Mental Health and Substance Abuse Services

## Figure 5. Amount of morphine milligram equivalents (MMEs)<sup>1</sup> dispensed and reported to the CSMD: Tennessee 2012-2014

Source: Tennessee Department of Health Controlled Substance Monitoring Database, 2015



Notes: (1) MMEs are reported (unit = 1,000,000 MMEs); (2) Opioids exclude buprenorphine

Table 5. Morphine milligram equivalents dispensed and reported to the CSMD: Tennessee 2012-2014

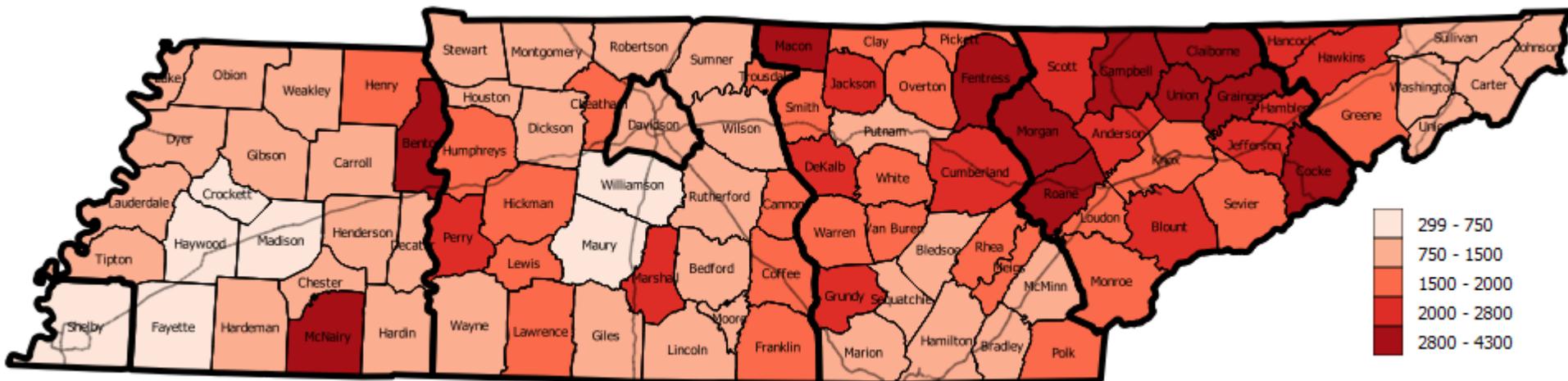
Year (CY)	2012	2013	2014
Opioid <sup>2</sup> MMEs <sup>1</sup>	8,111 (93.1%)	7,982 (91.0%)	7,548 (88.4%)
Buprenorphine MMEs <sup>1</sup>	599 (6.9%)	790 (9.0%)	994 (11.6%)
<b>Total MMEs<sup>1</sup></b>	<b>8,710</b>	<b>8,772</b>	<b>8,541</b>

Note: Count (% of total MMEs)

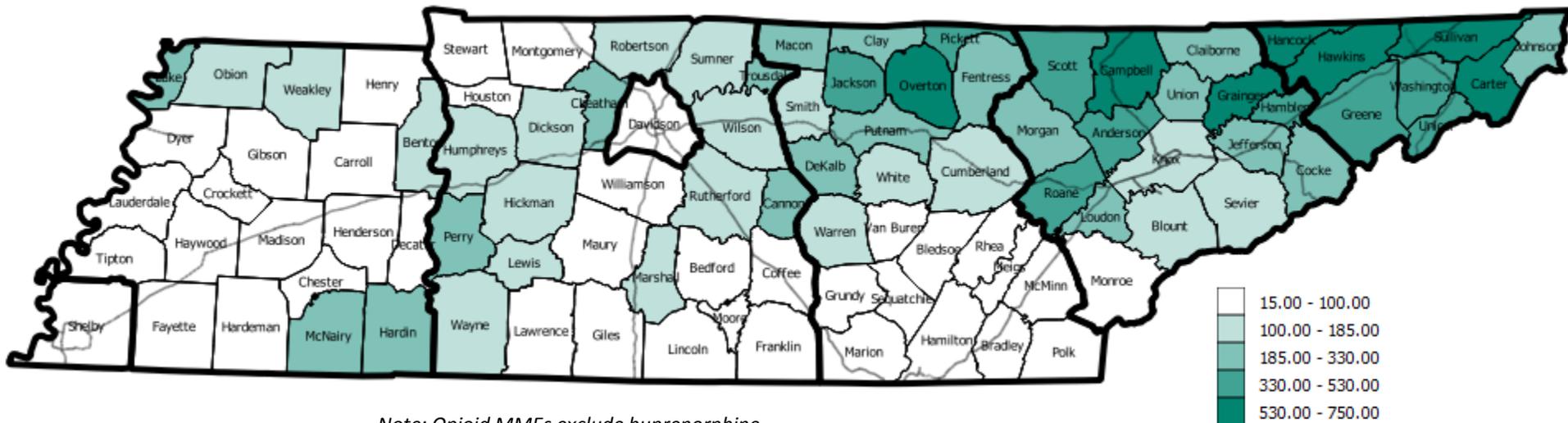
# Morphine milligram equivalents dispensed and reported to the CSMD

Source: Tennessee Department of Health Controlled Substance Monitoring Database, 2015

## Map 4. Opioid<sup>1</sup> morphine milligram equivalents dispensed and reported to the CSMD (MME per capita): 2014



## Map 5. Buprenorphine morphine milligram equivalents dispensed and reported to the CSMD (MME per capita): 2014



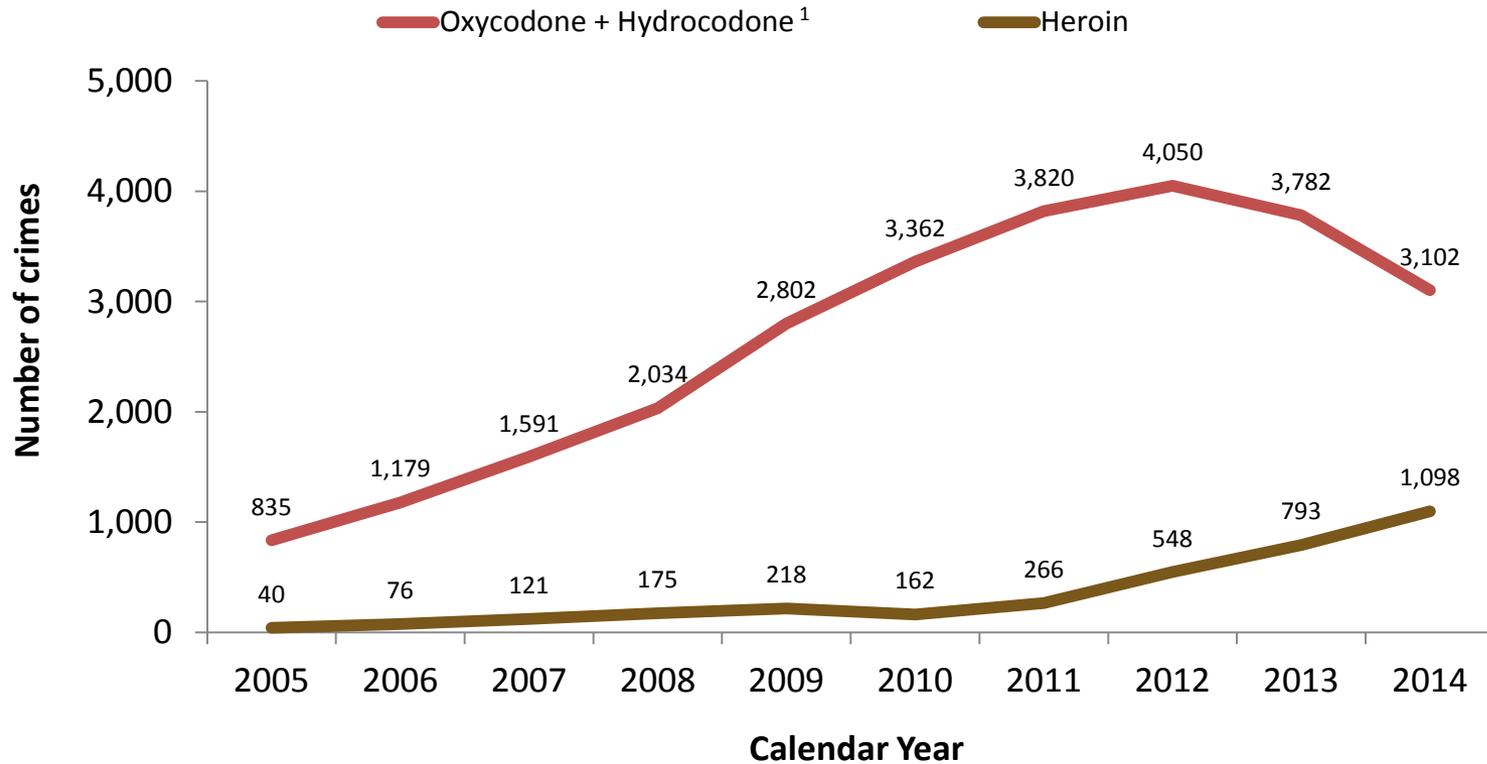
Note: Opioid MMEs exclude buprenorphine.

Heroin, opioid, buprenorphine, methadone

# **CRIMES**

# Figure 6. Number of crimes involving oxycodone + hydrocodone<sup>1</sup> and heroin: Tennessee 2005-2014

Source: Tennessee Bureau of Investigation (TBI) CJIS Support Center, 2015



Notes:  
 (1) Opioid-related substance information collected in the following categories: oxycodone, hydrocodone, and all other prescription drugs. Reporting on oxycodone plus hydrocodone provides the most focused information on opioids possible given how data is collected.

Table 6. Crimes involving oxycodone + hydrocodone and heroin: Tennessee 2005-2014

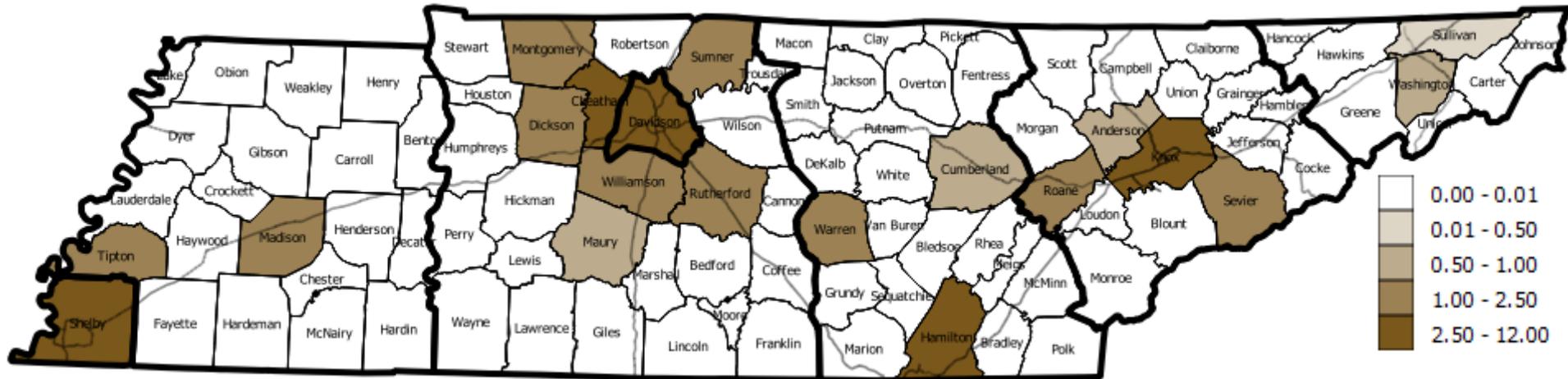
Year (CY)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
<b>Oxycodone + Hydrocodone<sup>1</sup></b>	<b>835</b>	<b>1,179</b>	<b>1,591</b>	<b>2,034</b>	<b>2,802</b>	<b>3,362</b>	<b>3,820</b>	<b>4,050</b>	<b>3,782</b>	<b>3,102</b>
	95.4%	93.9%	92.9%	92.1%	92.8%	95.4%	93.5%	88.1%	82.7%	73.9%
<b>Heroin</b>	<b>40</b>	<b>76</b>	<b>121</b>	<b>175</b>	<b>218</b>	<b>162</b>	<b>266</b>	<b>548</b>	<b>793</b>	<b>1,098</b>
	4.6%	6.1%	7.1%	7.9%	7.2%	4.6%	6.5%	11.9%	17.3%	26.1%
<b>Total</b>	<b>875</b>	<b>1,255</b>	<b>1,712</b>	<b>2,209</b>	<b>3,020</b>	<b>3,524</b>	<b>4,086</b>	<b>4,598</b>	<b>4,575</b>	<b>4,200</b>

Note: Count (% of total Oxycodone + Hydrocodone + Heroin)

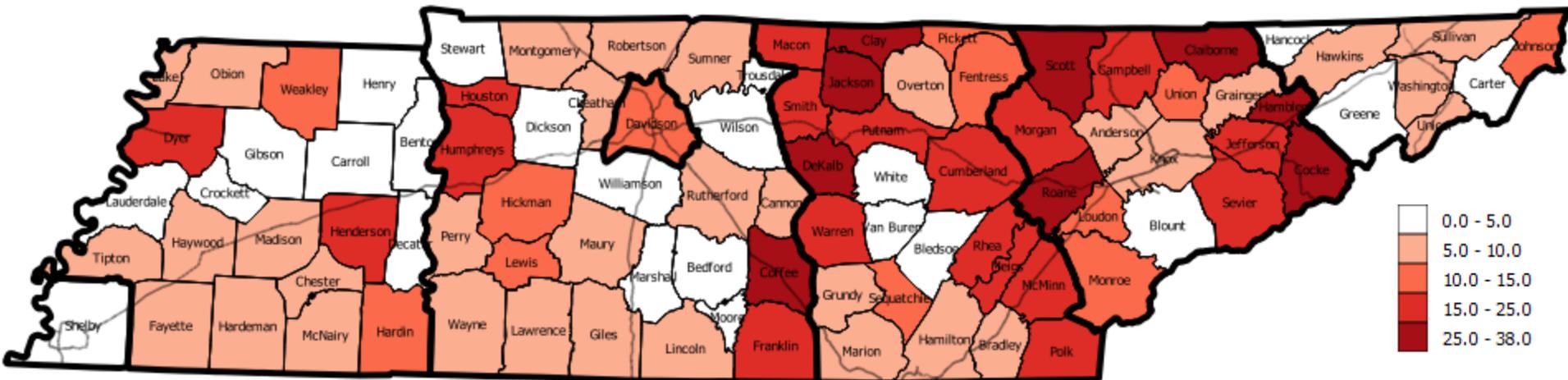
# Drug-related crimes

Source: Tennessee Bureau of Investigation (TBI) CJIS Support Center, 2015

## Map 6. Crimes involving heroin (per 10K population): 2013-2014



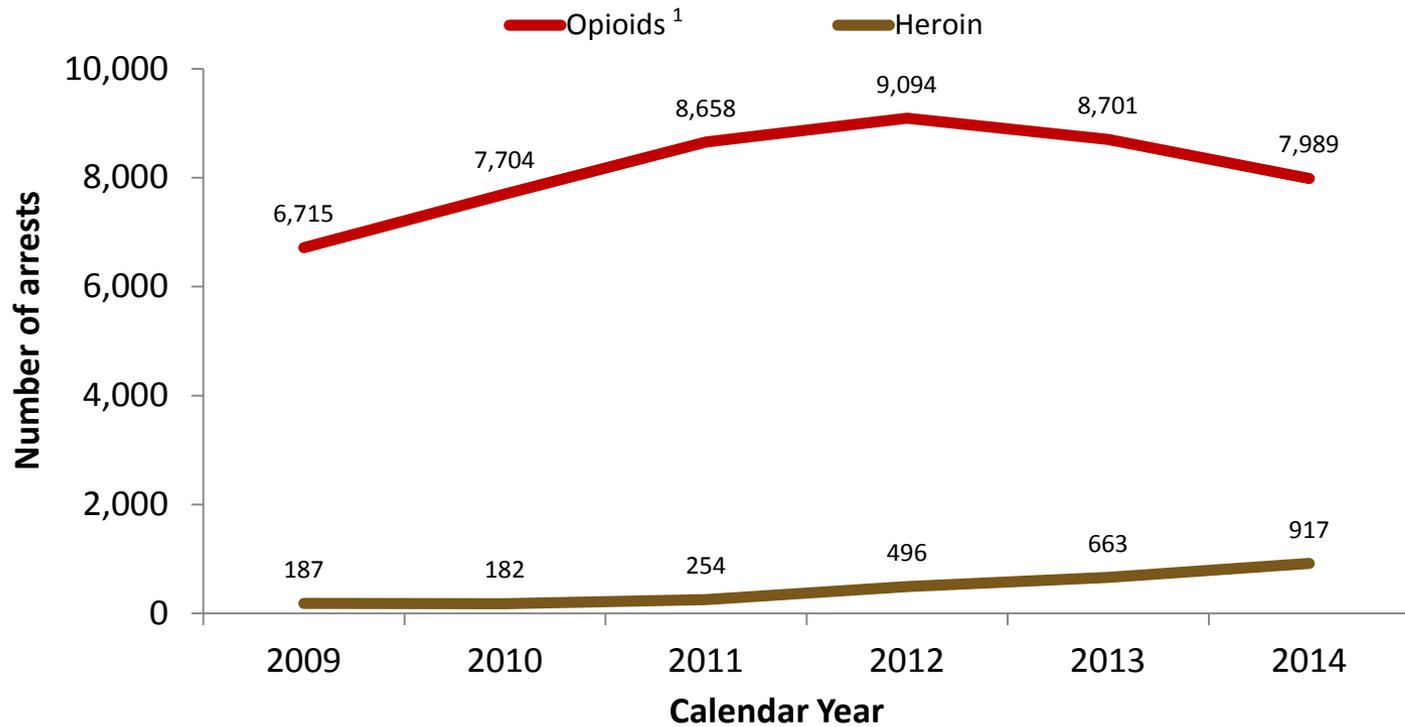
## Map 7. Crimes involving oxycodone + hydrocodone (per 10K population): 2013-2014



Notes: Rates are only shown for counties where the combined count during the time period (2013-2014) was greater than 5. Rates based on two year averages.

# Figure 7. Number of opioid<sup>1</sup> and heroin related arrests: Tennessee 2009-2014

Source: Tennessee Bureau of Investigation CJIS Support Center 2015



Notes:  
 (1) Opioid-related arrests include arrests for morphine, opium, and all narcotic-related arrests with the exception of cocaine and crack-cocaine arrests.

Table 7. Opioid<sup>1</sup> and heroin related arrests: Tennessee 2009-2014

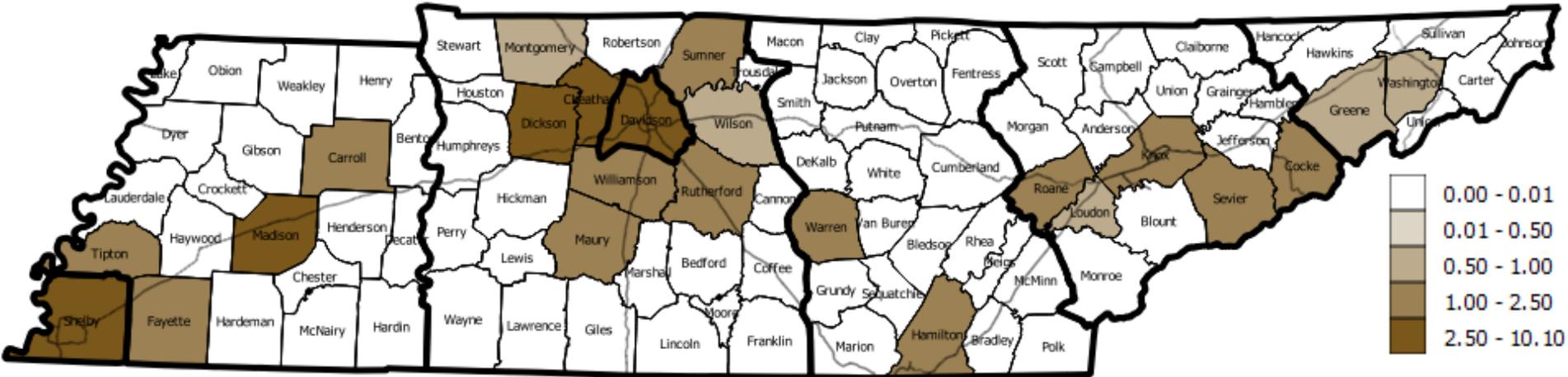
Year (CY)	2009	2010	2011	2012	2013	2014
<b>Opioids<sup>1</sup></b>	<b>6,715</b> (97.3%)	<b>7,704</b> (97.7%)	<b>8,658</b> (97.1%)	<b>9,094</b> (94.8%)	<b>8,701</b> (92.9%)	<b>7,989</b> (89.7%)
<b>Heroin</b>	<b>187</b> (2.7%)	<b>182</b> (2.3%)	<b>254</b> (2.9%)	<b>496</b> (5.2%)	<b>663</b> (7.1%)	<b>917</b> (10.3%)
<b>Total</b>	<b>6,902</b>	<b>7,886</b>	<b>8,912</b>	<b>9,590</b>	<b>9,364</b>	<b>8,906</b>

Note: Count (% of opioid + heroin arrests)

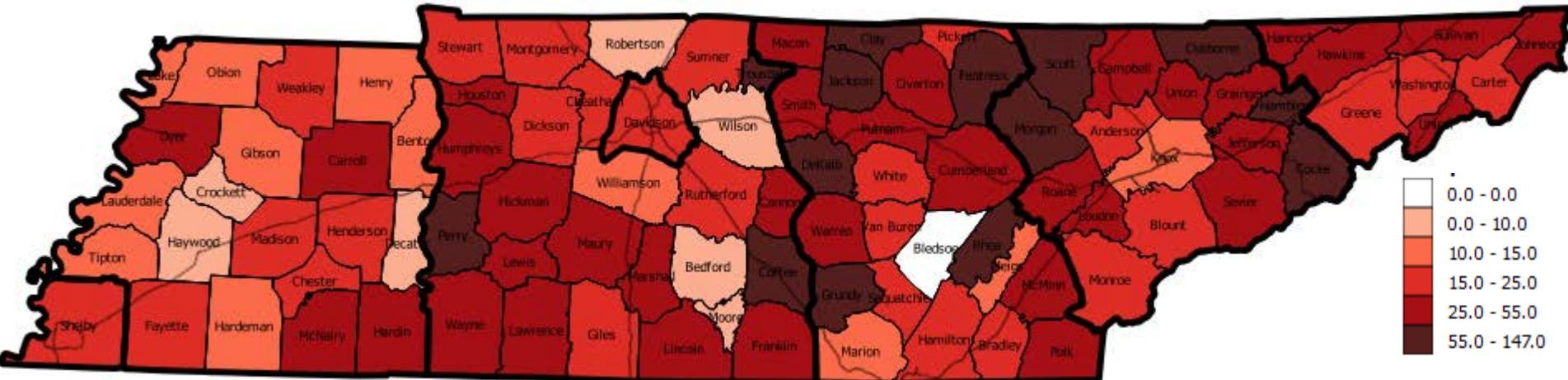
# Drug-related arrests

Source: Tennessee Bureau of Investigation (TBI) CJIS Support Center, 2015

## Map 8. Heroin-related arrests (per 10K population): 2013-2014



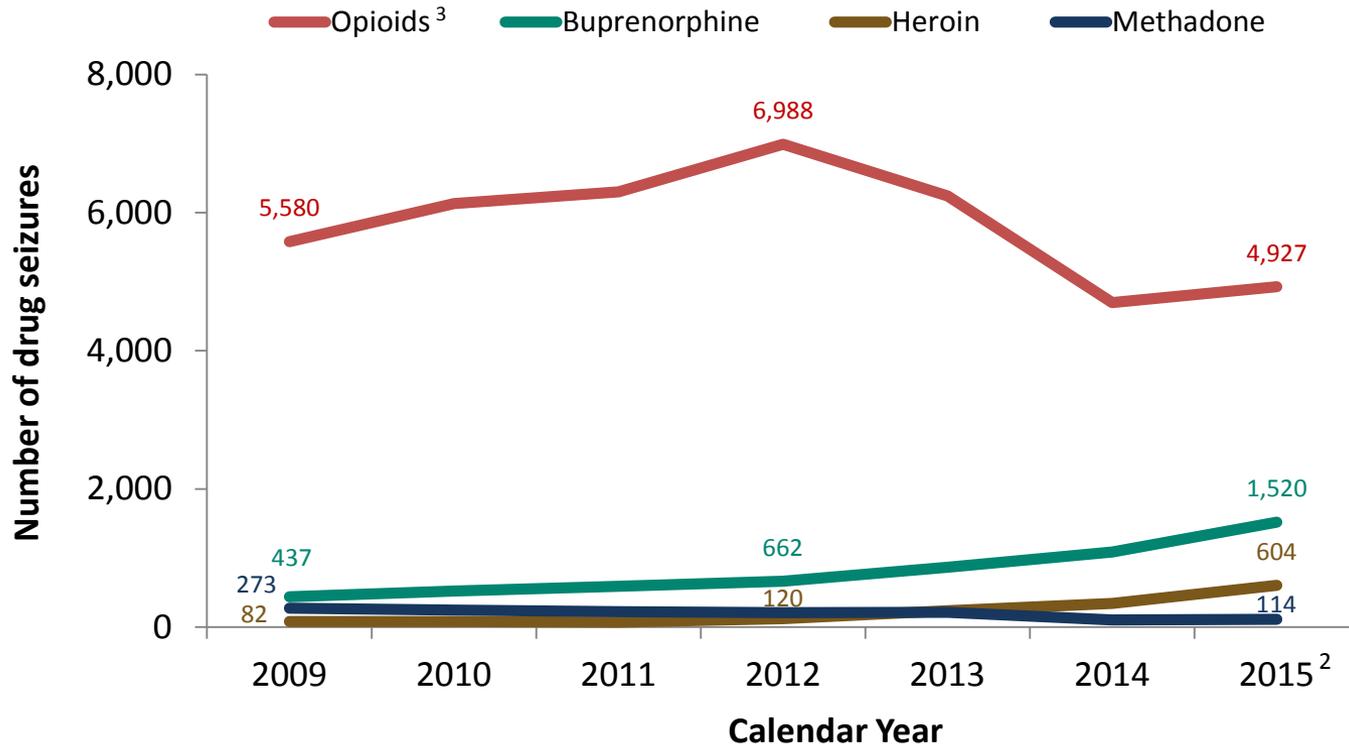
## Map 9. Opioid-related arrests (per 10K population): 2013-2014



Notes: Rates are only shown for counties where the combined count during the time period (2013/2014) was greater than 5. Rates based on two year averages. Opioids exclude heroin.

# Figure 8. Number of opioid, buprenorphine, heroin, and methadone confirmed drug seizures<sup>1</sup>: Tennessee 2009-2015<sup>2</sup>

Source: Tennessee Bureau of Investigation (TBI) lab data, 2015



- Notes:
- (1) Multiple substances may be seized from a single incident thus the unit of measurement is type of drug seized.
  - (2) The data represent the number of incidents in which a drug was seized, tested by the TBI lab, and confirmed to be the substance. This data does not reflect the amount of the drug that was seized.
  - (3) 2015 rates estimated as of Jan-Jun, 2015.
  - (4) Opioid seizures exclude buprenorphine, methadone, and heroin.

Table 8. Confirmed opioid, buprenorphine, heroin, and methadone drug seizures<sup>1</sup>: Tennessee 2009-2015<sup>2</sup>

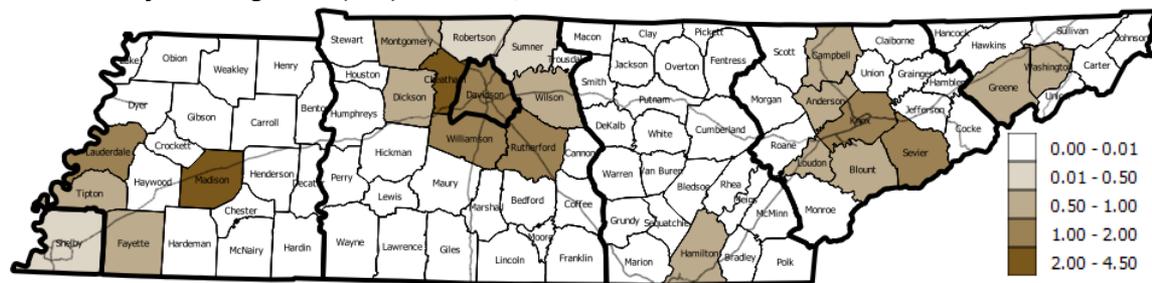
Year (CY)	2009	2010	2011	2012	2013	2014	2015 <sup>2</sup>
<b>Opioids<sup>3</sup></b>	<b>5,580</b> (87.6%)	<b>6,130</b> (87.9%)	<b>6,299</b> (87.6%)	<b>6,988</b> (87.6%)	<b>6,243</b> (82.6%)	<b>4,696</b> (75.4%)	<b>4,927</b> (68.8%)
<b>Buprenorphine</b>	<b>437</b> (6.9%)	<b>520</b> (7.5%)	<b>591</b> (8.2%)	<b>662</b> (8.3%)	<b>868</b> (11.5%)	<b>1,085</b> (17.4%)	<b>1,520</b> (21.2%)
<b>Heroin</b>	<b>82</b> (1.3%)	<b>82</b> (1.2%)	<b>73</b> (1.0%)	<b>120</b> (1.5%)	<b>235</b> (3.1%)	<b>341</b> (5.5%)	<b>604</b> (8.4%)
<b>Methadone</b>	<b>273</b> (4.3%)	<b>244</b> (3.5%)	<b>224</b> (3.1%)	<b>211</b> (2.6%)	<b>215</b> (2.8%)	<b>106</b> (1.7%)	<b>114</b> 1.6%)
<b>Total</b>	<b>6,372</b>	<b>6,976</b>	<b>7,187</b>	<b>7,981</b>	<b>7,561</b>	<b>6,228</b>	<b>7,165</b>

Note: Count (% of total opioids + buprenorphine + heroin + methadone)

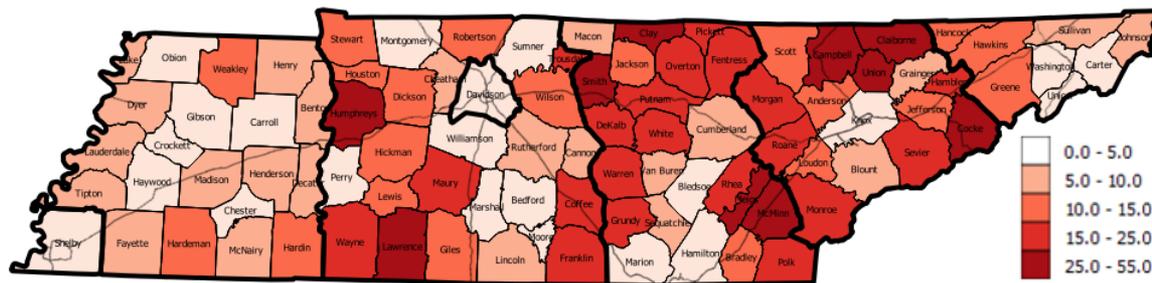
# Confirmed drug seizures

Source: Tennessee Bureau of Investigation (TBI) lab data, 2015

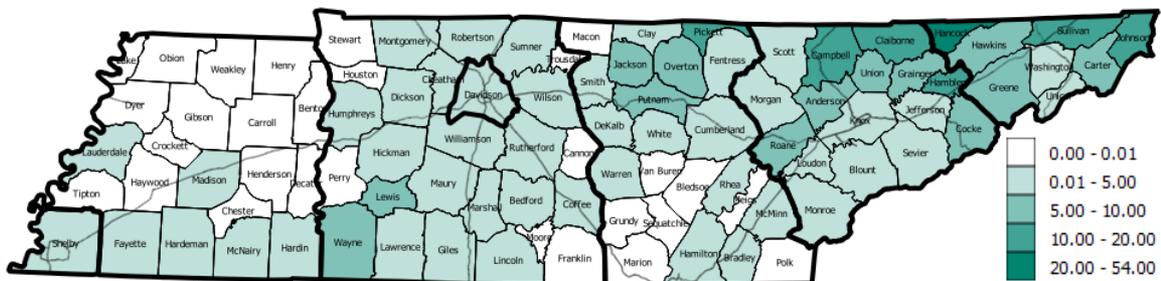
Map 10. Confirmed heroin seizures (per 10K population): 2014-2015<sup>1</sup>



Map 11. Confirmed opioid<sup>2</sup> seizures (per 10K population): 2014-2015<sup>1</sup>



Map 12. Confirmed buprenorphine seizures (per 10K population): 2014-2015<sup>1</sup>



Map 13. Confirmed methadone seizures (per 10K population): 2014-2015<sup>1</sup>



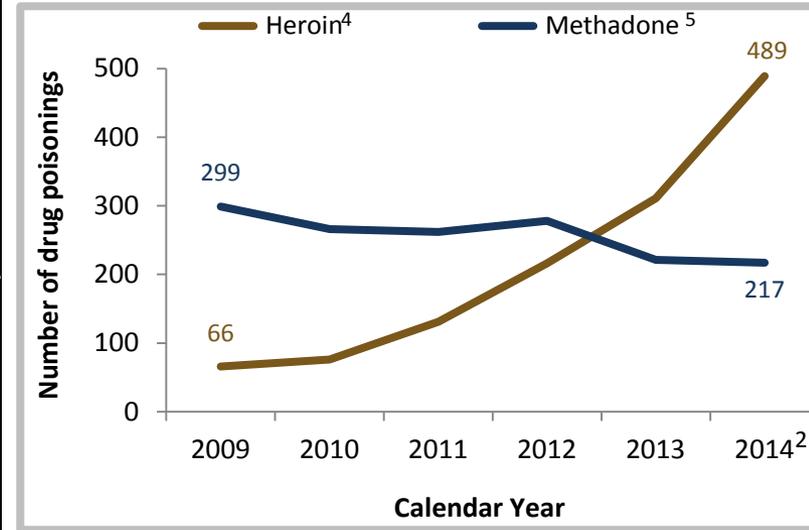
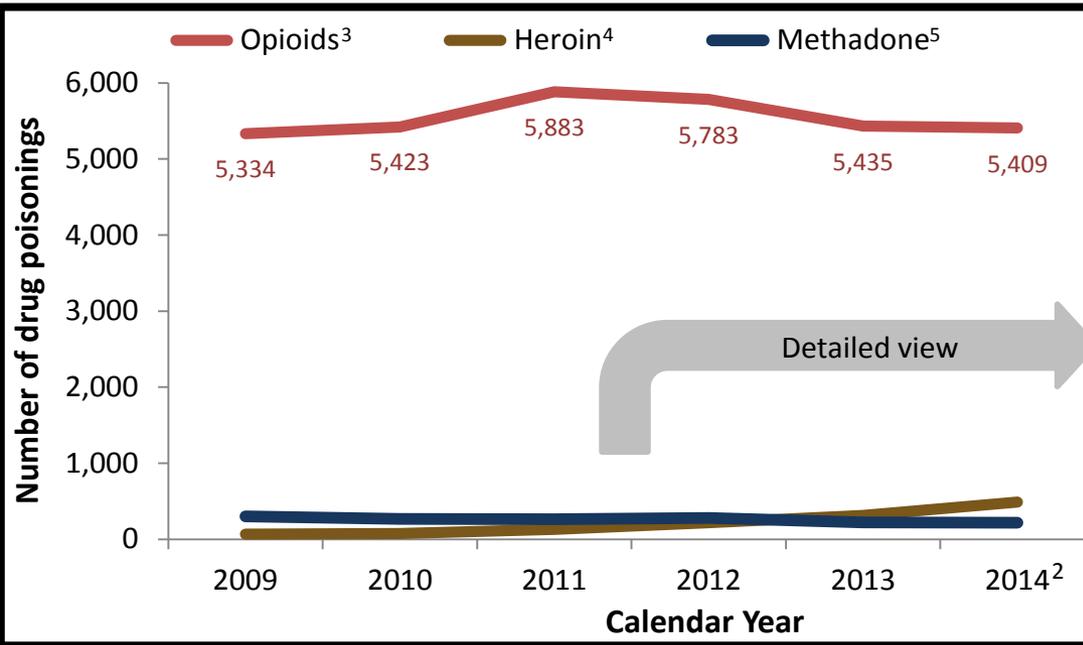
Notes: Rates are only shown for counties where the combined count during the time period (2014/2015) was greater than 5. Rates based on two year averages. (1) 2015 rates estimated of Jan-Jun, 2015. (2) Opioids exclude heroin & buprenorphine.

Drug poisoning, drug overdose deaths, neonatal abstinence syndrome

# **CONSEQUENCES**

**Figure 9. Number of hospital discharges<sup>1</sup> for opioids, heroin, and methadone poisonings: Tennessee 2009-2014<sup>2</sup>**

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment; Hospital Discharge Data System, 2009-2013, 2014 provisional.



Notes:

(1) The data represent inpatient and outpatient hospital discharges of patients discharged alive. (2) Provisional 2014 data was accessed on November 10, 2015; (3) Opioid poisonings include hospital discharges with ICD-9 codes of 965.09, E850.2, E935.2. (4) Heroin poisonings include hospital discharges with ICD-9 codes of 965.01, E850.0, E935.0. (5) Methadone poisonings include hospital discharges with ICD-9 codes 965.02, E850.1 or E935.1.

**Table 9. Hospital discharges<sup>1</sup> for opioids, heroin, and methadone poisonings: Tennessee 2009-2014<sup>2</sup>**

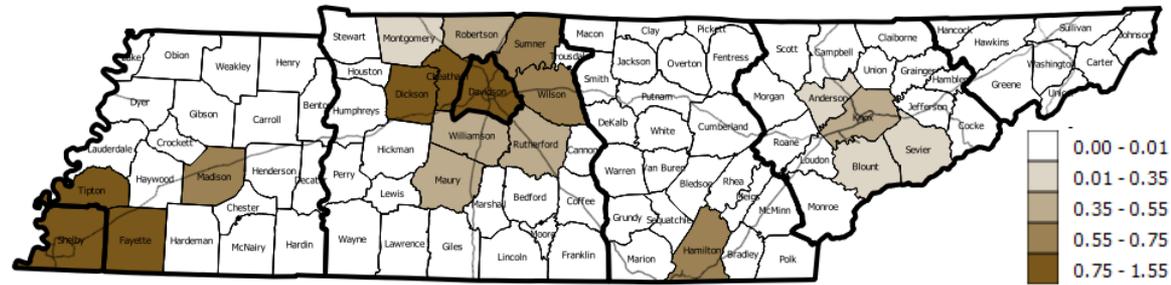
Year (CY)	2009	2010	2011	2012	2013	2014 <sup>2</sup>
<b>Opioids<sup>3</sup></b>	<b>5,271</b>	<b>5,368</b>	<b>5,813</b>	<b>5,702</b>	<b>5,363</b>	<b>5,325</b>
<b>Heroin<sup>4</sup></b>	<b>64</b>	<b>74</b>	<b>129</b>	<b>210</b>	<b>305</b>	<b>482</b>
<b>Methadone<sup>5</sup></b>	<b>299</b>	<b>266</b>	<b>262</b>	<b>278</b>	<b>221</b>	<b>217</b>

Note: Counts presented

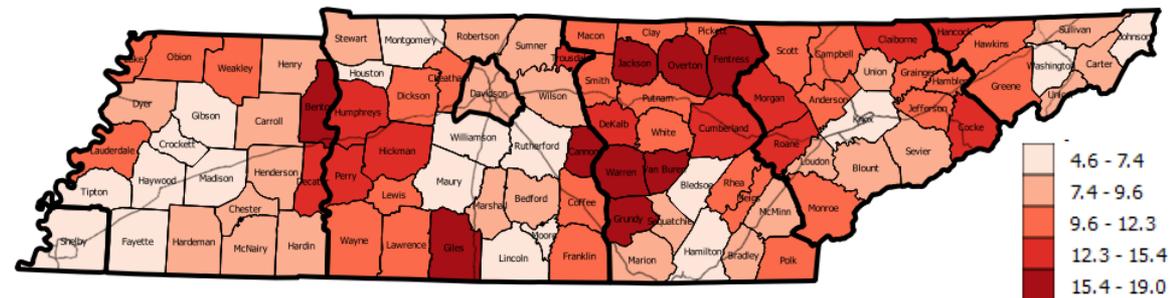
## Hospital discharges for drug-related poisonings

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment; Hospital Discharge Data System, 2009-2013, 2014 provisional.

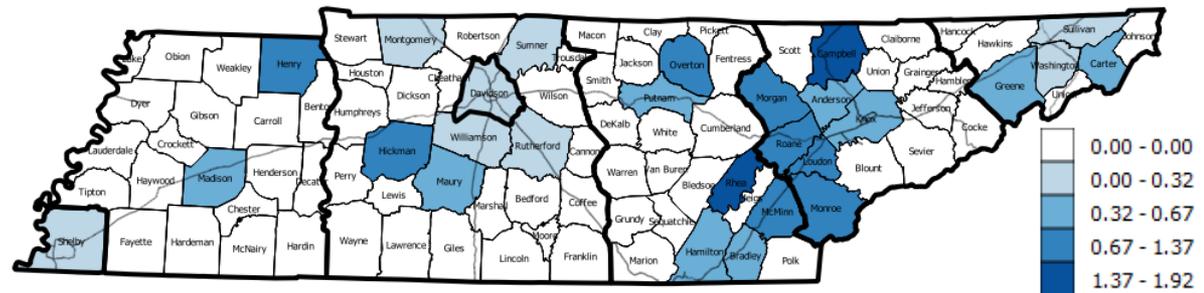
Map 14. Hospital discharges<sup>1</sup> for heroin<sup>3</sup> poisonings (per 10K population): 2013-2014<sup>2</sup>



Map 15. Hospital discharges<sup>1</sup> for opioid<sup>4</sup> poisonings (per 10K population): 2013-2014<sup>2</sup>



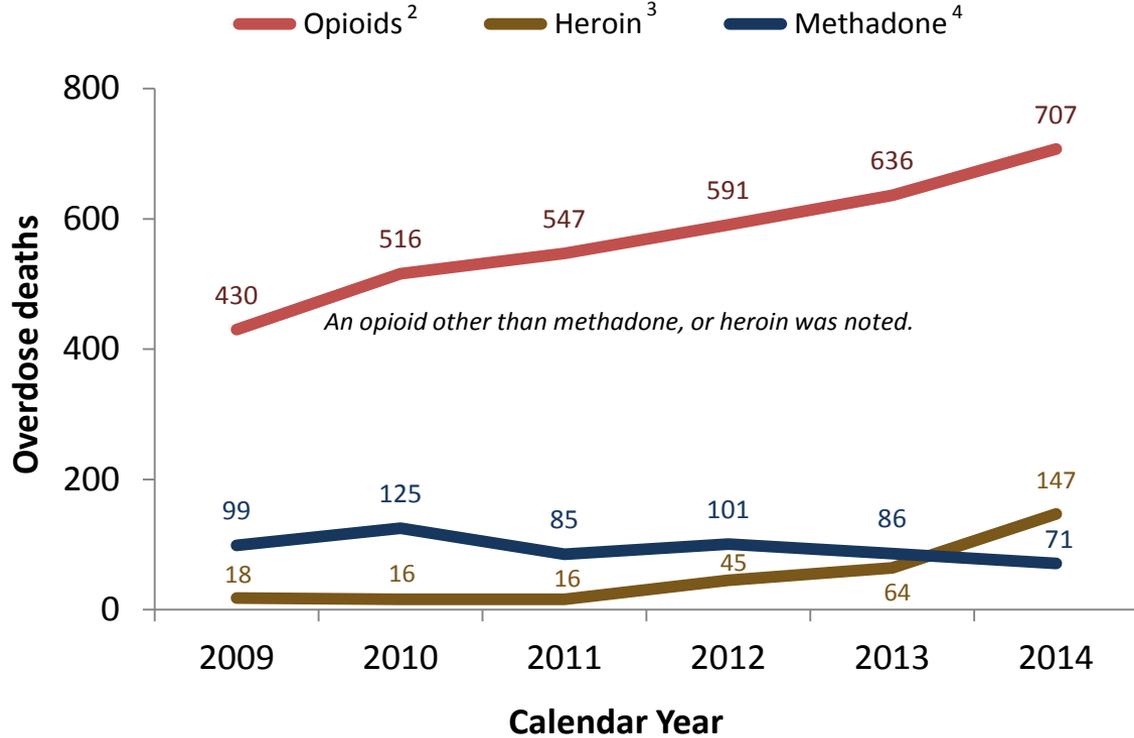
Map 16. Hospital discharges<sup>1</sup> for methadone<sup>5</sup> poisonings (per 10K population): 2013-2014<sup>2</sup>



Notes: (1) The data represent inpatient and outpatient hospital discharges of patients discharged alive. (2) Provisional 2014 data was accessed on November 10, 2015; (3) Heroin poisonings include hospital discharges with ICD-9 codes of 965.01, E850.0, E935.0. (4) Opioid poisonings include hospital discharges with ICD-9 codes of 965.09, E850.2, E935.2. (5) Methadone poisonings include hospital discharges with ICD-9 codes 965.02, E850.1 or E935.1

# Figure 10. Number of drug overdose deaths<sup>1</sup> for opioids and heroin reported to the Death Statistical System: Tennessee 2009-2014

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment Death Statistical System, 2009-2014.



**Notes:**

- Not all drug overdose deaths specify the drug(s) involved, and a **death may involve more than one specific substance.**
  - Increases in overdose deaths may be due to increases in reporting by medical examiners.
- 1) Drug overdose deaths are based on the following ICD-10 underlying cause of death codes: X40-X44, X60-X64, X85, Y10-Y14.
  - 2) "Opioid Analgesic" overdose deaths include non-heroin opioid overdose deaths and were summarized based on an underlying cause of death being a drug overdose and the multiple causes of death containing at least one of the following ICD-10 codes: T40.2, T40.4, T40.6.
  - 3) "Heroin" overdose deaths were summarized based on an underlying cause of death being a drug overdose and the multiple causes of death containing at least one of the following ICD-10 codes: T40.0 - T40.1.
  - 4) "Methadone" overdose deaths were summarized based on an underlying cause of death being a drug overdose and the multiple causes of death containing at least one of the following ICD-10 codes: T40.3.

**Table 10. Reported drug overdose deaths for opioids, heroin, methadone and all overdose deaths: Tennessee 2009-2014**

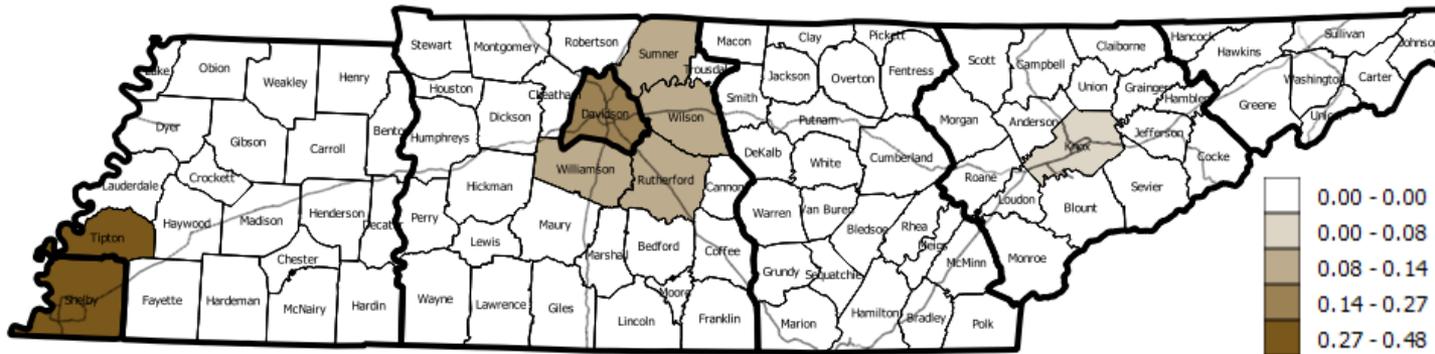
Year (CY)	2009	2010	2011	2012	2013	2014
<b>Opioids<sup>2</sup></b>	<b>430</b> (48.4%)	<b>516</b> (52.9%)	<b>547</b> (50.7%)	<b>591</b> (54.4%)	<b>636</b> (54.6%)	<b>707</b> (55.2%)
<b>Heroin<sup>3</sup></b>	<b>18</b> (1.9%)	<b>16</b> (1.5%)	<b>16</b> (1.5%)	<b>45</b> (4.1%)	<b>64</b> (5.5%)	<b>147</b> (11.6%)
<b>Methadone<sup>4</sup></b>	<b>99</b> (10.7%)	<b>125</b> (11.8%)	<b>85</b> (8.0%)	<b>101</b> (9.2%)	<b>86</b> (7.4%)	<b>71</b> (5.6%)
<b>All overdose deaths</b>	<b>929</b>	<b>1,059</b>	<b>1,062</b>	<b>1,094</b>	<b>1,166</b>	<b>1,263</b>

Note: Count (% of all overdose deaths)

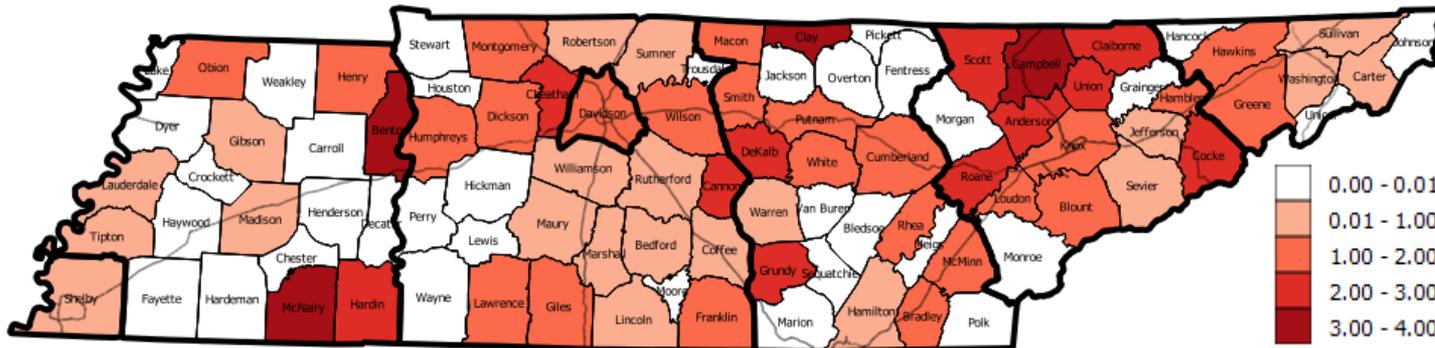
# Drug overdose deaths<sup>1</sup>

Source: Tennessee Department of Health, Division of Policy, Planning and Assessment Death Statistical System, 2014

## Map 17. Heroin<sup>2</sup> overdose deaths (per 10K population): 2012-2014<sup>5</sup>



## Map 18. Opioid<sup>3</sup> overdose deaths (per 10K population): 2013-2014



## Map 19. Methadone<sup>4</sup> overdose deaths (per 10K population): 2012-2014<sup>5</sup>



### Notes:

- Rates are only shown for counties where the combined count during the time period was greater than 5. Rates based on two year averages.
  - Not all drug overdose deaths specify the drug(s) involved, and **a death may involve more than one specific substance.**
- 1) Drug overdose deaths are based on the following ICD-10 underlying cause of death codes: X40-X44, X60-X64, X85, Y10-Y14.
  - 2) "Heroin" overdose deaths were summarized based on an underlying cause of death being a drug overdose and the multiple causes of death containing at least one of the following ICD-10 codes: T40.0 - T40.1.
  - 3) "Opioid Analgesic" overdose deaths include non-heroin opioid overdose deaths and were summarized based on an underlying cause of death being a drug overdose and the multiple causes of death containing at least one of the following ICD-10 codes: T40.2, T40.4, T40.6.
  - 4) "Methadone" overdose deaths were summarized based on an underlying cause of death being a drug overdose and the multiple causes of death containing at least one of the following ICD-10 codes: T40.3.
  - 5) Due to the small number of incidents, a three year average rate is given.

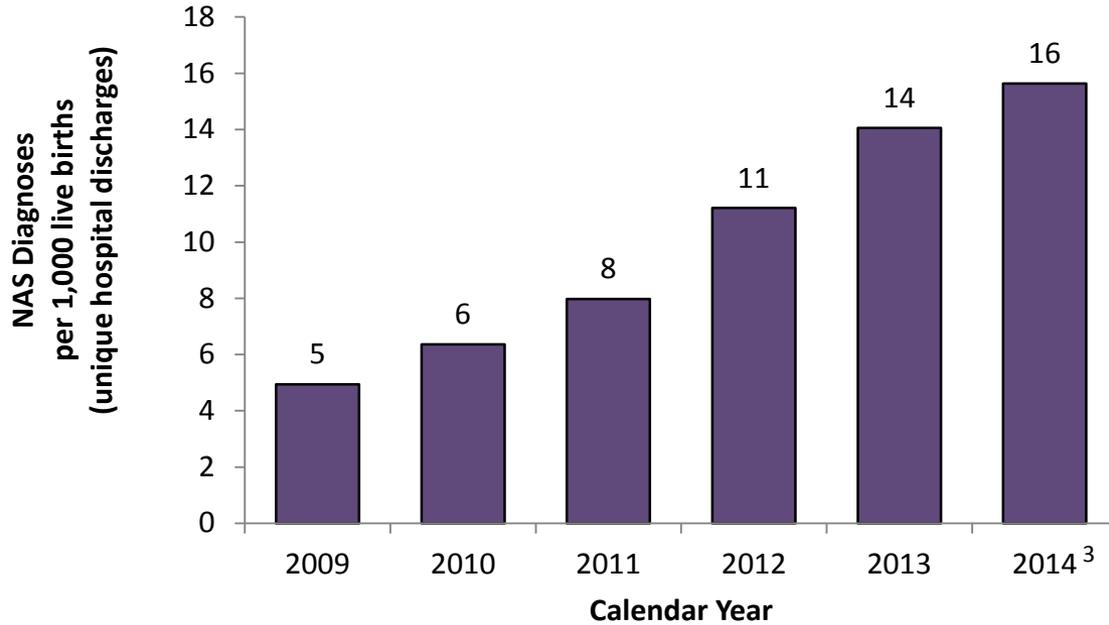
**Figure 11. Unique cases<sup>1</sup> of Neonatal Abstinence Syndrome (NAS)<sup>2</sup> per 1,000 live births: Tennessee 2009-2014<sup>3</sup>**

**Table 11. Number of unique cases<sup>1</sup> of NAS and live births: Tennessee 2009-2014<sup>3</sup>**

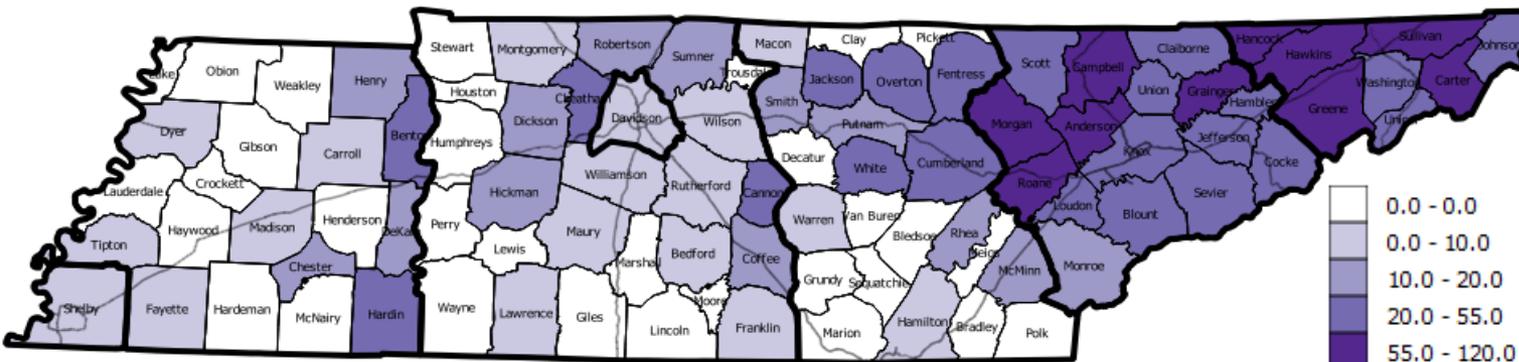
Year	Number of NAS Discharges	Number of Live Births
2009	406	82,109
2010	505	79,345
2011	634	79,462
2012	899	80,202
2013	1,224	79,954
2014 <sup>3</sup>	1,276	81,609

Notes:

- 1) Within each year, only the first hospital discharge of an infant was counted.
- 2) Analysis includes inpatient hospitalization and outpatient visits, with age less than 1 and any diagnosis of drug withdrawal syndrome of newborn (ICD-9-CM 779.5). Hospital Discharge Data System records may contain up to 18 diagnoses. Infants were included if any of these diagnoses fields were coded 779.5.
- 3) 2014 data is provisional.
- 4) Two year average. Rates are only shown for counties where the combined count during the time period (2013/2014) was greater than 5.



**Map 20. Unique cases<sup>1</sup> of NAS (per 1,000 live births): 2013 and 2014<sup>4</sup>**

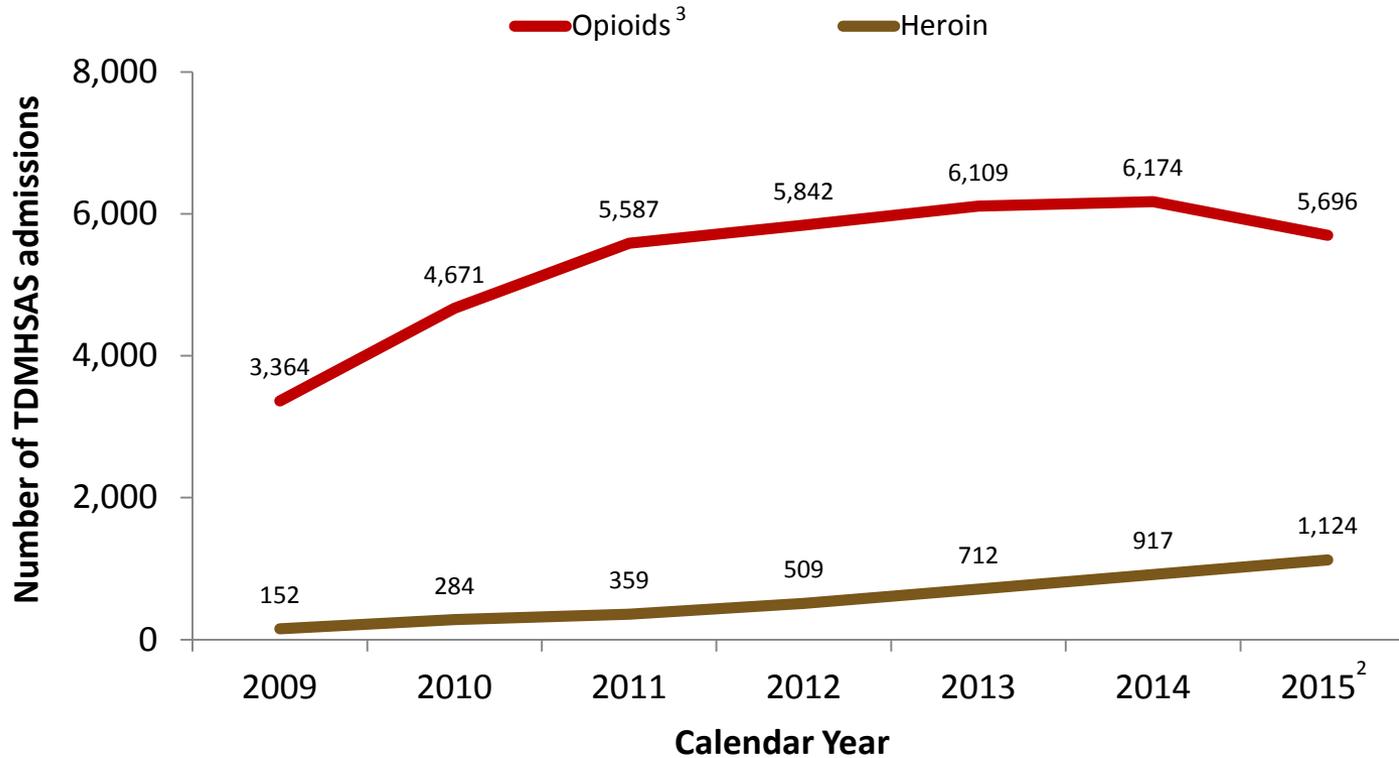


Opioid, heroin, injection drug use

# TREATMENT

**Figure 12. Number of opioid and heroin substance abuse treatment admissions<sup>1</sup> funded by Tennessee Department of Mental Health and Substance Abuse Services (TDMHSAS): 2009-2015<sup>2</sup>**

Source: Tennessee Department of Mental Health and Substance Abuse Services WITS, 2015<sup>2</sup>; SAMHSA TEDS, 2012



Notes:

- 1) TDMHSAS-funded substance abuse treatment admissions only include treatment admissions for Tennessee residents living in poverty. Up to three substances can be listed for each treatment admission.
- 2) 2015 rates estimated of Jan-Jun, 2015.
- 3) Opioid treatment admissions exclude heroin.

**Table 12. Number of opioid and heroin substance abuse treatment admissions<sup>1</sup> funded by TDMHSAS: 2009-2015<sup>2</sup>**

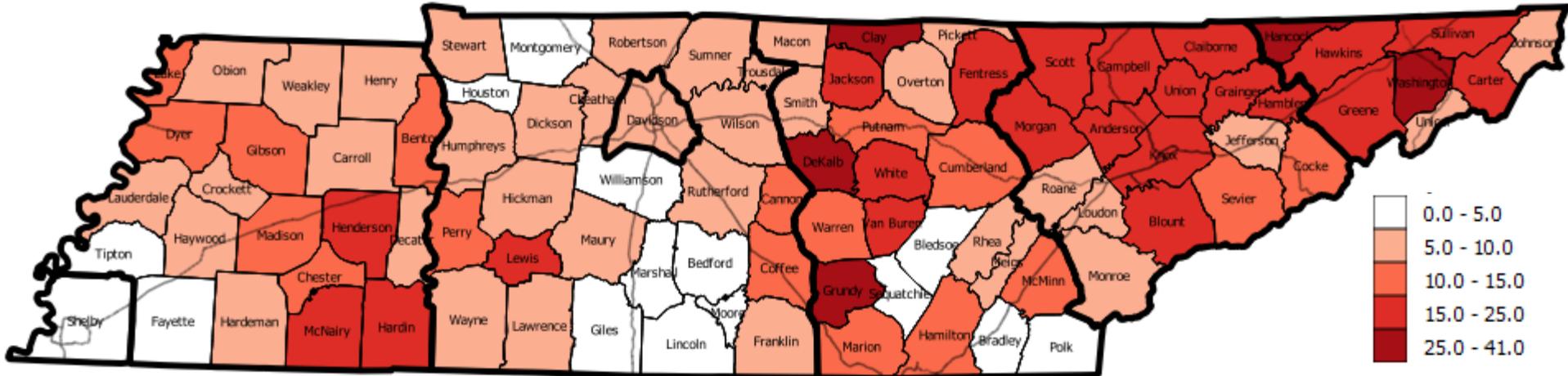
Year (CY)	2009	2010	2011	2012	2013	2014	2015 <sup>2</sup>
<b>Opioids<sup>3</sup></b>	<b>3,364</b> (32.9%)	<b>4,671</b> (34.8%)	<b>5,587</b> (36.5%)	<b>5,842</b> (40.7%)	<b>6,109</b> (40.4%)	<b>6,174</b> (40.8%)	<b>5,696</b> (41.2%)
<b>Heroin</b>	<b>152</b> (1.4%)	<b>284</b> (2.1%)	<b>359</b> (2.3%)	<b>509</b> (3.5%)	<b>712</b> (4.7%)	<b>917</b> (6.1%)	<b>1,124</b> (8.1%)
<b>Total</b>	<b>10,235</b>	<b>13,424</b>	<b>15,299</b>	<b>14,354</b>	<b>15,140</b>	<b>15,141</b>	<b>13,826</b>

Note: Count (% of total admissions)

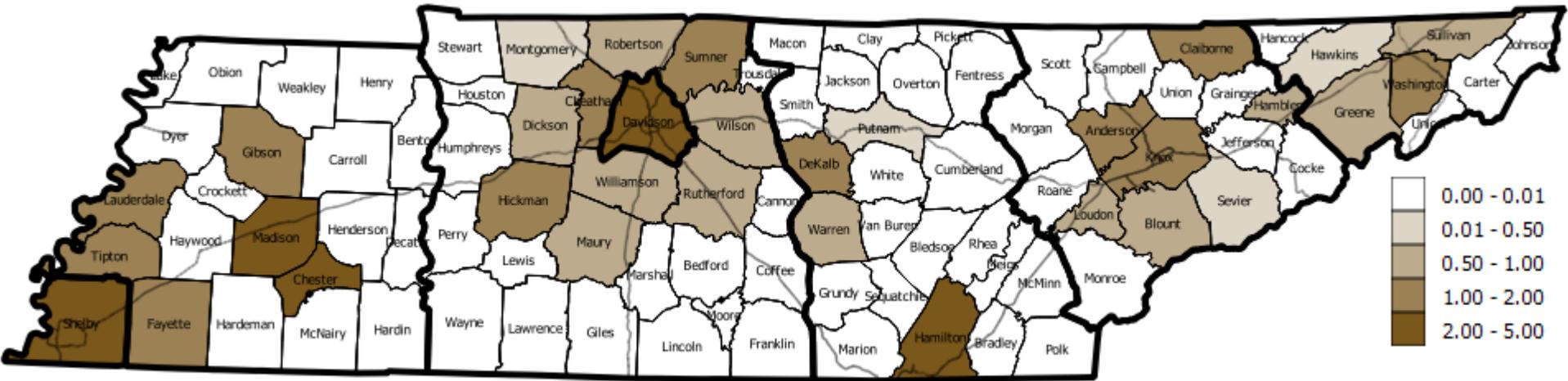
# Tennessee Department of Mental Health and Substance Abuse Services-funded substance abuse treatment admissions

Source: Tennessee Department of Mental Health and Substance Abuse Services WITS, 2015

Map 21. TDMHSAS-funded opioid treatment admissions (per 10K population): 2014-2015<sup>1</sup>



Map 22. TDMHSAS-funded heroin treatment admissions (per 10K population): 2014-2015<sup>1</sup>

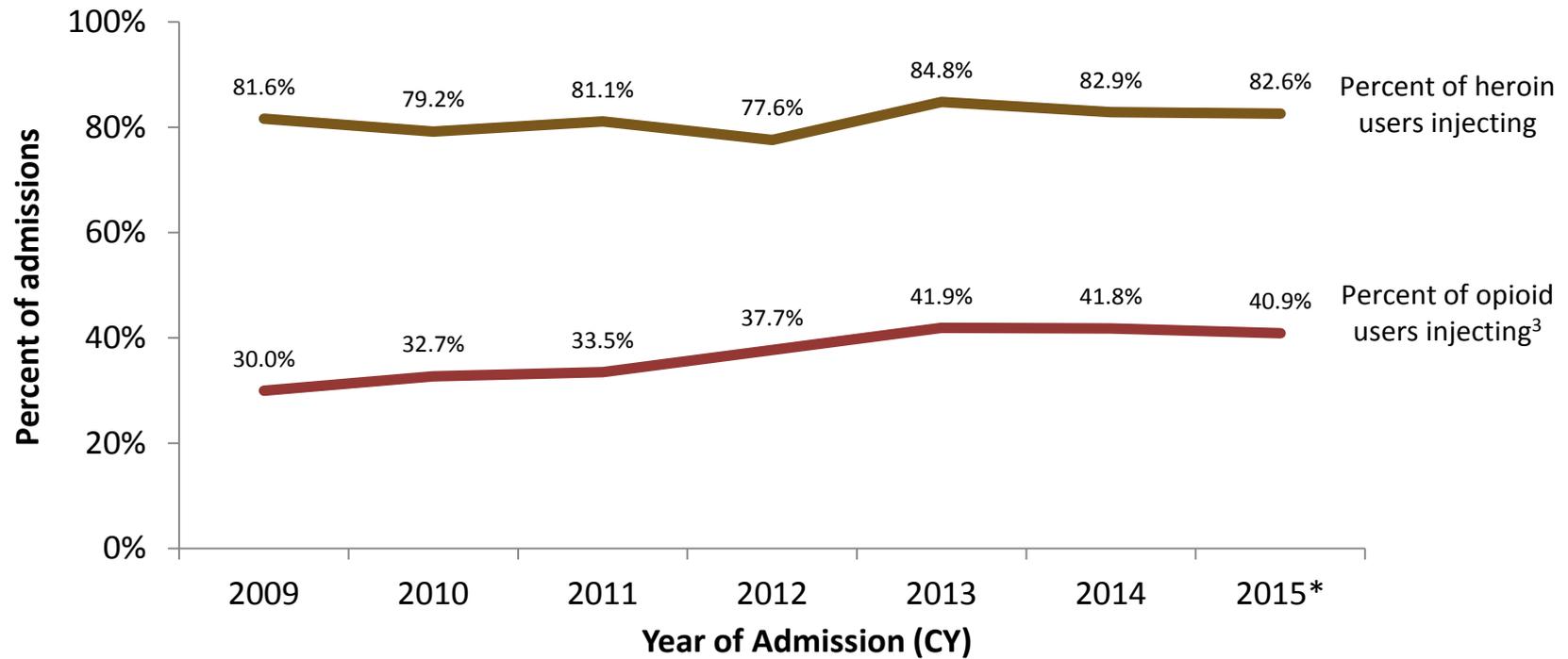


Notes: Rates are only shown for counties where the combined count during the time period (2014/2015) was greater than 5. Rates based on two year averages.

(1) 2015 rates estimated of Jan-Jun, 2015; rates computed per 10K of the population of those 12 years and older.

# Figure 13. Percent of substance abuse treatment admissions<sup>1</sup> who are injection drug users funded by Tennessee Department of Mental Health and Substance Abuse Services (TDMHSAS): 2009-2015<sup>2</sup>

Source: Tennessee Department of Mental Health and Substance Abuse Services WITS 2015



Notes: (1) TDMHSAS-funded substance abuse treatment admissions only include treatment admissions for Tennessee residents living in poverty. Up to three substances can be listed for each treatment admission; (2) 2015 rates estimated of Jan-Jun, 2015; (3) Opioid treatment admissions exclude heroin.

**Table 13. Substance abuse treatment admissions<sup>1</sup> who are injection drug users funded by TDMHSAS: 2009-2015<sup>2</sup>**

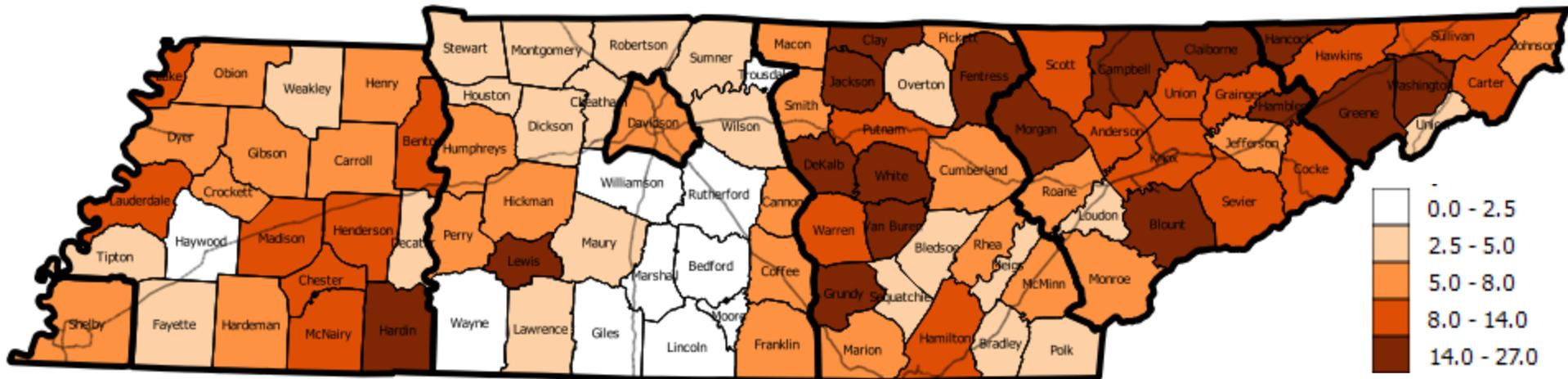
Year (CY)	2009	2010	2011	2012	2013	2014	2015 <sup>2</sup>
<b>Injecting Opioids<sup>3</sup></b>	<b>1,009</b>	<b>1,528</b>	<b>1,893</b>	<b>2,205</b>	<b>2,563</b>	<b>2,576</b>	<b>2,322</b>
<b>Total Opioids</b>	<b>3,364</b>	<b>4,671</b>	<b>5,587</b>	<b>5,842</b>	<b>6,109</b>	<b>6,174</b>	<b>5,696</b>
<b>Injecting Heroin</b>	<b>124</b>	<b>225</b>	<b>279</b>	<b>395</b>	<b>604</b>	<b>762</b>	<b>934</b>
<b>Total Heroin</b>	<b>152</b>	<b>284</b>	<b>359</b>	<b>509</b>	<b>712</b>	<b>917</b>	<b>1,124</b>

Note: Count (% of total)

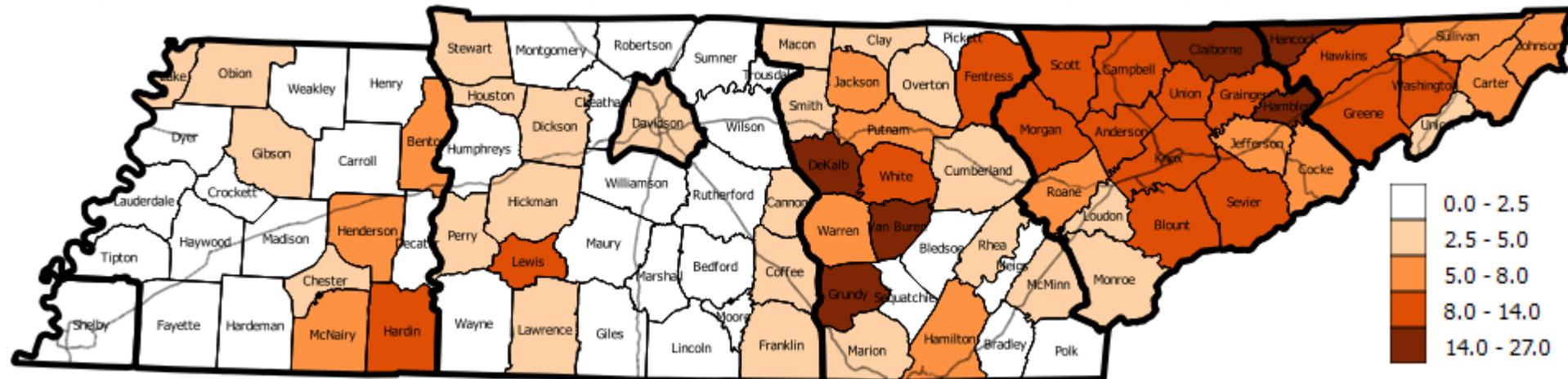
# Tennessee Department of Mental Health and Substance Abuse Services: substance abuse treatment admissions

Source: Tennessee Department of Mental Health and Substance Abuse Services WITS, 2015

Map 23. TDMHSAS-funded injection drug user treatment admissions (per 10K population): 2014-2015<sup>1</sup>



Map 24. TDMHSAS-funded injection opioid user treatment admissions (per 10K population): 2014-2015<sup>1</sup>



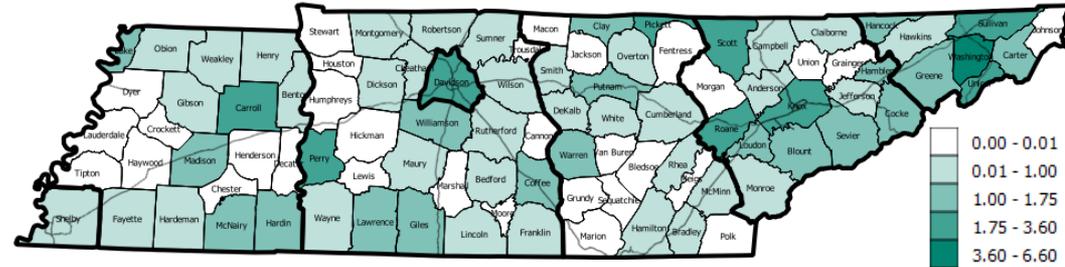
Notes: Rates are only shown for counties where the combined count during the time period (2014/2015) was greater than 5. Rates based on two year averages.

<sup>1</sup>2015 rates estimated of Jan-Jun, 2015; rates computed per 10K of the population of those 12 years and older.

# Buprenorphine indicators

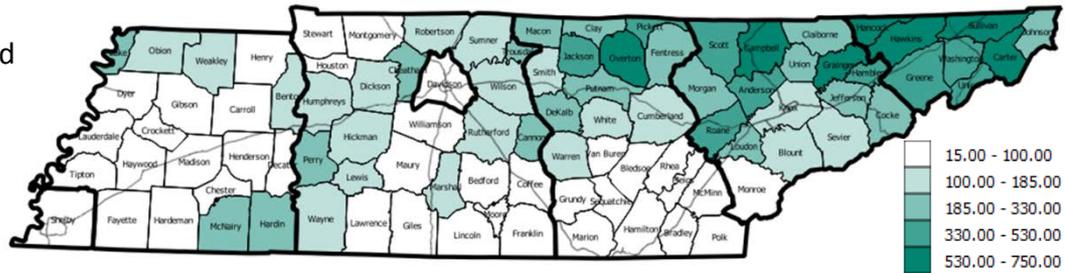
Map 2. Number of doctors certified to prescribe buprenorphine (per 10K population): 2015<sup>1</sup>

Source: DEA (private communication), 2015



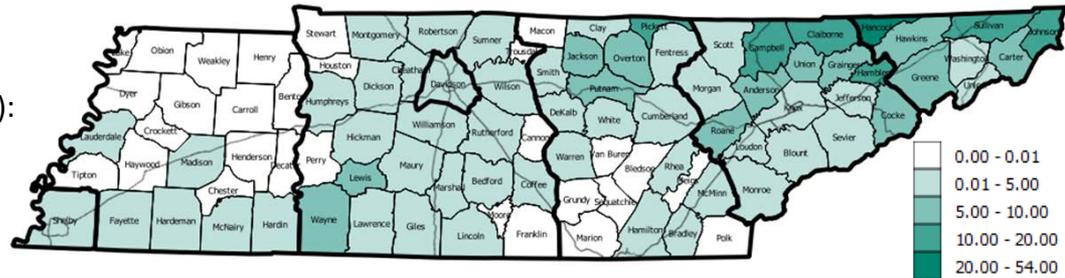
Map 5. Buprenorphine morphine milligram equivalents dispensed and reported to the CSMD (MME per capita): 2014

Source: Tennessee Department of Health Controlled Substance Monitoring Database, 2015



Map 12. Confirmed buprenorphine seizures (per 10K population): 2014-2015<sup>3</sup>

Source: Tennessee Bureau of Investigation (TBI) lab data, 2015

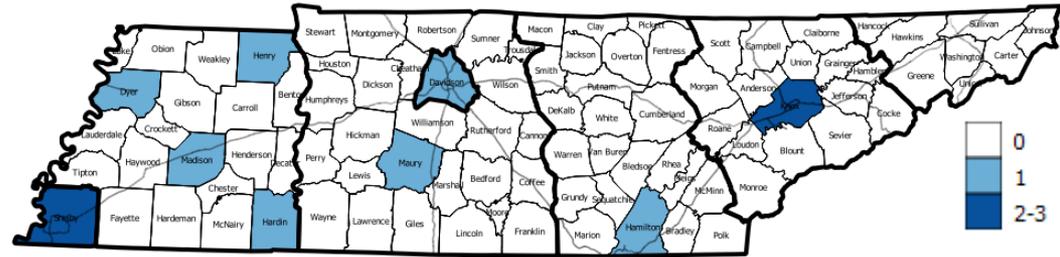


Notes: see first presentation of maps above for full descriptive notes.

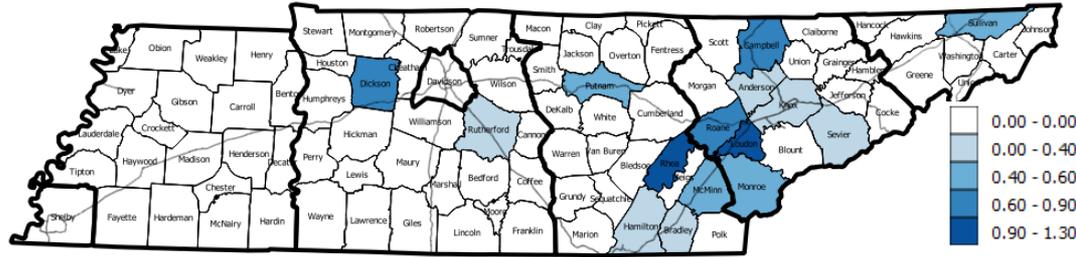
(1) +Point-in-time value (10/1/15); (2) Provisional 2014 data was accessed on November 10, 2015. (2) 2015 rates estimated as of Jan-Jun, 2015.

# Methadone indicators

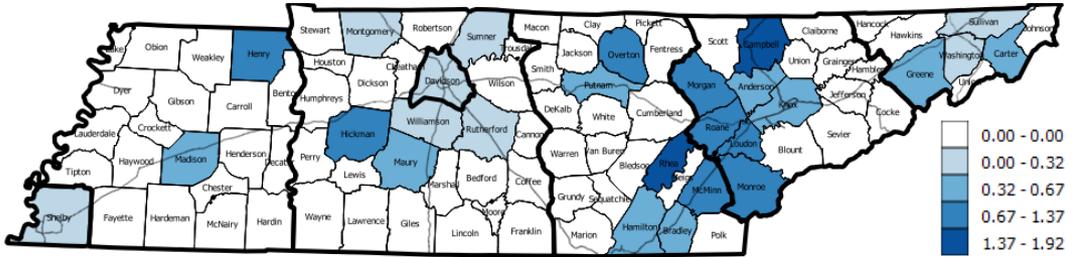
Map 3. Number of opioid treatment programs (count): 2015<sup>1</sup>  
 Source: Tennessee Department of Mental Health and Substance Abuse Services, 2015



Map 13. Confirmed methadone seizures (per 10K population): 2014-2015<sup>4</sup>  
 Source: Tennessee Bureau of Investigation (TBI) lab data, 2015



Map 16. Hospital discharges for methadone poisonings (per 10K population): 2013-2014<sup>2</sup>  
 Source: Tennessee Department of Health, Division of Policy, Planning & Assessment; Hospital Discharge Data System, 2009-2013



Map 19. Methadone overdose deaths (per 10K population): 2012-2014<sup>3</sup>  
 Source: Tennessee Department of Health, Division of Policy, Planning and Assessment; Death Statistical System, 2014



Map 25. TDMHSAS-funded methadone treatment admissions (per 10K population): 2014-2015<sup>4</sup>  
 Source: Tennessee Department of Mental Health and Substance Abuse Services WITS, 2015



Notes: see first presentation of maps above for full descriptive notes.  
 (1) +Point-in-time value (7/10/15); (2) Provisional 2014 data was accessed on November 10, 2015. (3) Due to the small number of incidents, a three year average is given. (4) 2015 rates estimated as of Jan-Jun, 2015.

Heroin misuse is occurring in urban areas



The highest rates of other opioid misuse are in small towns



but moving into the suburbs.



and rural areas.



Key Points

