



Department of  
**Mental Health &  
Substance Abuse Services**



8/15/2016

**Substance Use Best Practice Tool  
Guide**

**DRUG POISONING  
DEATHS**

Division of Clinical Leadership in Collaboration with the  
Division of Substance Abuse Services

## Drug Poisoning Deaths

Poisoning, due to drugs, is the leading cause of death in the United States (Chen, Hedegaard, & Warner, 2014; Hedegaard, Chen, & Warner, 2015). Prescription and illicit drugs accounted for 90 percent of the poisoning deaths in 2011 (Chen et al., 2014).

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According to the National Safety Council (NSC), 52 people die every day from an overdose of prescription painkillers (NSC, 2016). In 2011, there were 41,340

drug-poisoning deaths in the United States in 2011, 41 percent of which involved opioid analgesics (Chen et al., 2014).

The age-adjusted, drug-poisoning death rate from 1999 to 2011 more than doubled (6.1 per 100,000 to 13.2 per 100,000, respectively); however, the pace was slower from 2006 to 2011 than from 1999 to 2006. Between 1999 and 2006, the death rate increased 18 percent yearly, but increased by only three percent each year between 2006 and 2011 (Chen et al., 2014).

- Drug-poisoning deaths from methadone increased from 1999 to 2007, only to decline by 2011.
- Poisoning deaths from benzodiazepines consistently increased, on average, 14 percent each year from 1999 to 2011.
- The largest increase in poisoning deaths by opioid analgesics was demonstrated for individuals aged 55-64 years of age.
- Disparity in rates between non-Hispanic Whites and non-Hispanic Blacks or Hispanics has widened (Chen et al., 2014).

Much of the increase in drug overdose deaths has been attributed to prescription painkillers, i.e., opioid pain relievers. Research shows a substantial rise in the sale of these strong painkillers since 1999 (Baumblatt et al., 2014; CDC, 2011; Sauber-Schatz, 2013; TFAH, 2013). The number of overdose deaths from these prescription drugs was greater than the combined number of overdose deaths for heroin and cocaine (Baumblatt et al., 2014; CDC, 2011; NCSL, 2015). That trend continued into 2013 (Hedegaard et al., 2015). Countless emergency department visits are the result of abuse and misuse of prescription painkillers as well. It is reported that greater than 12 million people used these substances nonmedically, i.e., for the feeling elicited by the drugs or without benefit of a prescription (CDC, 2011). Data for 2014 implicates the synthetic opioids fentanyl and tramadol in the increase in prescription opioid-related deaths (Frank, 2015).

Nearly half of overdose deaths linked to prescription opioid pain relievers involve at least one other drug. Typically the other drug includes one or more of the following: alcohol, benzodiazepines, cocaine, and/or heroin (CDC, 2011).

*In 2012, health care providers in the United States wrote enough opioid prescriptions for every adult to have a bottle of pills.* All total, 259 million

prescriptions for opioids were written

(CDC, 2014a; NSC, 2016). There also exists substantial variation in painkiller prescribing by state and/or region of the country. Southern states topped the list showing the most prescriptions per person in 2012. Alabama and **Tennessee** tied for first (143 per 100 persons), followed by West Virginia in third place (138 per 100 persons). It was further noted that more than 20 times the prescriptions were written for the opioid oxycodone, a medication used to relieve moderate to severe pain in individuals requiring continuous, around-the-clock treatment over a long period of time, in **Tennessee** as in Minnesota (CDC, 2014a).

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*According to the controlled substance database (CSD) report presented to the Tennessee General Assembly in 2011, 275 million hydrocodone pills, 117 million alprazolam (Xanax) pills, and 113 million oxycodone pills were dispensed statewide.* Those amounts equate to 51 hydrocodone pills, 22 Xanax pills, and 21 pills of

oxycodone for every Tennessean above the age of 12 (CSD Advisory Committee, 2011; Shepherd, 2013).

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In 2013, the number of prescriptions written in the U.S. declined to about 207 million. Nevertheless, use and misuse remained a major issue. As a country, we accounted for almost 100 percent of the world's total hydrocodone and slightly better than

80 percent of oxycodone (Volkow, 2014). Moreover, drug-poisoning deaths have surpassed traffic-related crashes as the leading cause of injury death since 2009. Emergency department visits for children, in many cases, are the result of the child taking prescription medications that belonged to an adult (TFAH, 2013).

The majority of cases involving prescription drug overdoses have not stemmed from criminal activity such as pharmacy theft. Instead, the drugs involved more commonly came from original prescriptions. Either the drugs were diverted to people for whom the prescription was not written or the individual to whom the drugs were prescribed decided to take dosages higher than recommended. Seventy-five percent of people who misuse prescription pain relievers use substances that have been prescribed to someone else. Many prescriptions for opioid painkillers are written by primary care physicians and dentists. Further, the bulk of prescribing is done by one fifth of the prescribers (CDC, 2011).

Based on existing evidence, individuals at greatest risk for prescription opioid overdose include:

- Adults aged 45-54 years.
- Men (however, overdose among women is on the rise).
- People living in rural areas (clusters in the Southeast, particularly in the Appalachian region).

- People who obtain multiple controlled substance prescriptions (such as the combination of opioid analgesics and benzodiazepines) from multiple providers.
- People who take high daily dosages of opioid pain relievers.
- White and American Indian/Alaska Native people (ASPE, 2015).

From 1999 to 2010, death rates from prescription opioid pain reliever overdoses quadrupled nationally while rates from heroin overdoses increased by less than 50 percent. Since 2010, there has been a steady increase in the number of drug-poisoning deaths involving heroin. A study of data from 28 states reported that the death rate for heroin overdose doubled from 2010 through 2012 (Hedegaard et al., 2015).

The total number of drug-poisoning deaths in the U.S. in 2013 rose to 43,982. Of those deaths, 16,235 (37%) involved opioid analgesics and 8,257 (19%) involved heroin. A very small subset of deaths (1,342 or 3%) involved both opioid analgesics and heroin. Hence, the rate for heroin-related deaths has almost tripled since 2010. In 2013, heroin-related deaths for men were nearly four times higher (6,525 deaths) than for women (1,732 deaths) age groups, census regions, and

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ethnic/racial groups except American Indians/Alaska Natives (CDC, 2014c). From 2000-2013, the 25-44 year-old age group has reflected the highest heroin overdose death rates (Hedegaard, 2015). Statistics from 2013 to 2014 show a 28 percent increase in heroin-related death rates. Heroin is commonly cut with fentanyl, with or without knowledge of the user, in order to enhance its effect (Frank, 2015).

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**The literature indicates there is no longer a typical heroin user (DEA, 2015).**

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A retrospective study of heroin use in the U.S. over the past 50 years demonstrated that among individuals who initiated abuse of opioids in the 1960s, eight in 10 reported they initiated with heroin. Among those

persons who began abusing opioid in the 2000s, in contrast, three fourths reported they initiated with prescription opioids (ASPE, 2015; NSC, 2016). Persons using opioid pain relievers nonmedically were 19 times more likely to report heroin use than people who did not report misuse of prescription opioids (NSC, 2016). Results from the study also indicated that today's heroin is more accessible, significantly cheaper, easier to inhale/inject, and much more potent than prescription opioids (ASPE, 2015). Recent reports are indicating that, in the U.S., heroin is available in larger quantities, used by a larger number of people, and causing an increasing number of overdose deaths. From 2010 to 2014, heroin seizures increased 81 percent, from 2,763 kilograms (kg) to 5,014 kg. The average size of these seizures doubled for this time period, from 0.86 kg in 2010 to 1.74 kg in 2014. The drug has increased in purity so it can be snorted or smoked, which has broadened its appeal. There are reports that many individuals who would never have considered injecting a drug were introduced to heroin by inhalation. In fact, inhalation is still reported as the most common method of administration by new heroin initiates. The drug has further spread to users in rural and suburban areas, younger users, more affluent users, and users of a wider range of races and ethnicities. The literature indicates there is no longer a typical heroin user (DEA, 2015).

Figure 1. Places Where Respondents Reported Heroin as Greatest Drug Threat



Source: 2015 National Drug Threat Survey (DEA, 2015).

Nonmedical use of opioids, including heroin and prescription pain relievers, has contributed to the upward trend in poisoning overdose deaths over the last couple of decades. However, there are other contributing factors (Volkow, 2014).

For example, tolerance, a property of opioid drugs when used repeatedly over time, places users of opioid painkillers at high risk of overdose as well. It occurs when an individual no longer responds to the substance as strongly as he or she did initially, and now requires a higher dose to achieve the same effect. Tolerance plays out in overdosing particularly during relapse after a period in recovery. The users fail to realize they likely lost their tolerance during abstinence and start using again at the high dosage established prior to quitting. Such a dosage will result in overdose for individuals who no longer have tolerance (Volkow, 2014). This may be a particular problem for the person addicted to heroin who has stopped using for a period of time due to rehabilitation programs, incarceration, etc., and then returns to using heroin (DEA, 2015).

Another group of individuals at high risk of overdose are those with chronic pain who use opioid analgesics along with benzodiazepines and/or alcohol. Any combination of CNS depressants and opioid analgesics should occur only if there is a documented medical reason for such combinations. Such cases would require tremendous scrutiny and monitoring (Volkow, 2014).

## Drug Overdose Statistics in Tennessee

In 2010, the prescription drug overdose death rate for the nation was 12.4. Our state's rate for the same time frame was 16.9. The literature reflects a positive correlation between the rise in opioid overdose deaths and the increase in prescribing of these drugs (CDC, 2014b). Recent statistics have shown that rural counties, especially in the south, have been hit hardest. From 1999-2014, death rates from prescription drugs climbed three times faster in rural areas than it did in urban cores of large cities. Opioids such as hydrocodone and oxycodone contributed most to the increase. Moreover, two rural Tennessee counties cracked the top 30 in higher death rates from prescription drugs for the 15-year time period (Marema, 2016).

**Table 1. Tennessee Resident Deaths from Drug Overdoses**

Year	Overdose Deaths	Percent Increase
2001	422	
2002	484	14.7%
2003	660	36.4%
2004	753	14.1%
2005	868	15.3%
2006	963	10.9%
2007	972	0.9%
2008	924	-4.9%
2009	929	0.5%
2010	1,059	14.0%
2011	1,062	0.3%
2012	1,094	3.0%
2013	1,166	6.6%
2014	1,263	8.3%

Source: TDH/OPPA, 2011; TDH, 2015 – Includes all drugs and all intents

Since 2001, the State has seen fluctuations in the percentage of increase in drug overdose deaths. Some years, there have been large percentage increases and other years, the percentage increases have been smaller. The largest percentage increase occurred from 2002 to 2003 when the number of drug overdose deaths grew by nearly 24 percent. In 2008, the actual number reflected a decrease in drug-overdose deaths from the previous year and the first negative percentage increase since 2001. In 2010, the state experienced another double-digit percentage increase in drug-overdose deaths, followed by another dip in percentage increase for 2011. However, percentage increases have been steady for 2012, 2013, and 2014. It should also be noted that the number of drug-overdose deaths has increased yearly since the 2008 drop.

Any increase in the number of overdose deaths due to drugs, however, is concerning. Using 2001 as the base year, drug overdose deaths in Tennessee had doubled by 2005. *By 2014, the number of drug overdose deaths had tripled.* Only once between 2001 and 2014 has the State experienced a decline in the number of overdose deaths due to drugs. The 2008 drug death count was less than the previous year.

Tragically, the State has had more people die from drug overdoses than traffic accidents from 2012 to 2014. (See Table 2 below.) Drug overdose deaths surpassed all violent deaths, including homicides and suicides, for the same time periods.

**Table 2. Tennessee Violent Death Statistics, 2012-2014**

Year	OD	MVA	Homicide	Suicide
2012	1,094	958	456	956
2013	1,166	1,008	405	1,017
2014	1,263	989	376 <sup>a</sup>	948 <sup>b</sup>

Coding: OD = drug overdose deaths; MVA = motor vehicle accidents; \* = data not yet available

Source: TDH, 2015; TDH Press Release, 2015; <sup>a</sup>TDH, n.d.; <sup>b</sup>TSPN.org

A 2014 study using four years of data from the State’s controlled substance monitoring program\* (CSMP) observed the following about drug overdose deaths and prescribing:

- Methadone was linked to the highest risk of death. In most instances, this was the methadone dispensed at retail pharmacies and prescribed for control of pain.
- Most overdose decedents are male, despite more females receiving opioid prescriptions. It has been hypothesized that men more than women are likely to use prescription drugs nonmedically and by non-oral routes.
- Nonmedical use of prescription painkillers is correlated with receiving TennCare and being of lower socioeconomic status.
- Hydrocodone and oxycodone were the most commonly prescribed opioids.
- The highest prescribing rates were reported for rural communities.
- After 2007, primary care physicians accounted for most of the opioids prescribed in the State. Prescription rates for surgeons and dentists tended to remain consistent (Baumblatt et al., 2014).

*\*The controlled substance monitoring program (CSMP) may also be referenced as the prescription drug monitoring program (PDMP) or controlled substance monitoring database (CSMD) in this document.*

## Drug Overdose Strategies and Interventions

In 2010, Tennessee demonstrated rates higher than the national average in sales of opioid pain relievers (OPR) with a rate of 11.8 compared to 7.1 for the nation. The State was among the five with the highest levels of OPR sales. In fact, the State tied for second highest with Nevada (Chakravarthy, Shah, & Lotfipour, 2012). Tennessee also ranked eighth highest in drug overdose mortality rate in the United States in 2010. However, the State has implemented diverse strategies

aimed at reducing prescription drug abuse as well as improving drug overdose statistics (TFAH, 2013).

A 2013 Issue Report assessed states on a series of 10 indicators for a range of evidence-informed policies in place. These strategies were a snapshot of efforts that states were taking to reduce prescription drug misuse. The indicators were selected based on consultation with leading medical, law enforcement, and public health experts about the most promising approaches. Each state received a score on each of the indicators, one point for achieving an indicator and zero points if they did not. Hence, zero was the lowest possible overall score and 10 was the highest possible score. A total score of zero meant that a state had no policies in place and a total score of 10 reflected the state had all policies in place ((TFAH, 2013).

New Mexico and Vermont achieved the highest overall score on the indicators (i.e., 10) and South Dakota demonstrated the lowest score for any state with 2. Indicators included: 1) a doctor shopping law (Does the state have a doctor shopping statute?); 2) good Samaritan law (Does the state have a law in place to provide a degree of immunity from criminal charges or mitigation of sentencing for a person seeking help for himself/herself?); 3) prescription drug monitoring program [PDMP] (Does the state have an operational PDMP? ); 4) mandatory use of PDMP (Does the state require any form of mandatory use requirement of PDMPs by providers?); 5) prescriber education requirement (Does the state recommend or require education for prescribers of pain medications?); 6) support for naloxone use (Does the state have a law in place to expand access to, as well as use of, naloxone, given by nonmedical persons, for people who are overdosing?); 7) physical exam requirement (Does the state require a healthcare provider to conduct a screening for signs of substance use, a physical exam of the patient, or that there be an established patient-physician relationship which includes an examination by a physician prior to prescribing prescription medications?); 8) support for substance abuse services (Has the state expanded Medicaid under the Affordable Care Act, thereby expanding coverage of substance abuse treatment?); 9) identification requirement (Does the state have a law permitting or requiring a pharmacist to ask for identification prior to dispensing a controlled substance?); and 10) pharmacy lock-in program (Does the state's Medicaid plan have a pharmacy lock-in program that requires persons suspected of misusing controlled substances to use a single prescriber and pharmacy?) (TFAH, 2013).

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**Tennessee was one of five states to achieve a score of seven out of 10 on the prescription drug policy indicators (TFAH, 2013).**

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*Tennessee was one of five states to achieve a score of seven out of 10 on the prescription drug policy indicators.* At the time, the three indicators for which we had no policies in place were:

1. Substance abuse treatment – Medicaid expansion
2. Immunity law – Good Samaritan
3. Immunity Law – Allow use of naloxone (TFAH, 2013).

Since the Report, Tennessee has addressed two more of the policy indicators. In July 2014, the State became the 18th to pass and support a "Good Samaritan" civil immunity law focused on the

lifesaving medicine Naloxone. Naloxone is an opioid antagonist that reverses the effects of an opioid overdose. Effective July 1, 2014, the four key components of the legislation are as follow:

1. Immunity from civil suit is granted to providers who prescribe naloxone to a patient, family member, or other person in a position to assist giving the medication.
2. It gives the TDH time to provide training and instruction on how to use naloxone.
3. Prospective providers are required to receive basic instruction, including taking a quiz and printing the certificate, on how to give naloxone.
4. The person acting as the "Good Samaritan" is granted civil immunity for administering the medicine to someone they reasonably believe is overdosing on an opioid (TDH, n.d.).

Thus, physicians are allowed to prescribe naloxone to a person at risk of overdose or a friend, family member, or other person in a position to help (CLADD, 2014). First responders, as notified by calling the emergency number 911, should also be called immediately if an overdose is suspected. Calling 911 may increase the chances that the person overdosing will survive (TDH, n.d.). This call should be made in addition to any intervention involving naloxone (i.e., Narcan).

*The State further obtained a “green” rating for the pain clinic law and PDMP.* Green was the best of three rating options and indicated that the policy or practice was established in accordance with expert recommendations and/or supporting evidence. Tennessee’s pain clinic law met selected criteria as of July 2013. Pain clinic laws received a green rating in the Prevention Status Report (PSR) if the law required state oversight and contained other requirements concerning ownership and operation of pain management clinics, facilities, or practice locations. The State achieved a green rating for our PDMP because it incorporates all three indicated best practices: 1) provides prescribers and dispensers access to PDMPs; 2) is interoperable with a PDMP of the District of Columbia or at least one other state; and 3) proactively reports findings to regulatory agencies and law enforcement (CDC, 2014b).

The National Safety Council’s Prescription Nation Report (2016) focused on six key indicators that states should meet to help prevent overdose deaths from prescription drugs. These indicators include: 1) mandatory prescriber education; 2) opioid prescribing guidelines; 3) eliminating pill mills; 4) prescriptions drug monitoring programs (PDMPs); 5) increased access to naloxone; and 6) availability of opioid use disorder (OUD) treatment. States were evaluated on each of the indicators and rated as “Making Progress”, “Lagging Behind”, or “Failing”. Meeting these indicators required

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**Tennessee is one of only four states to achieve this (“Making Progress”) rating (NSC, 2016).**

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strengthening of laws and regulations around prescription drug abuse. States rated as “Making Progress” had to meet at least five of the six indicators, and *Tennessee is one of only four states to achieve this rating.*

The other three states were Kentucky, New Mexico, and Vermont. All states rated as “Making Progress” met five of the six indicators. Sadly, three states did not meet any of the six indicators (NSC, 2016).

### ***Tennessee’s Prescription Drug Monitoring Program (PDMP).***

The State's prescription drug monitoring program (PDMP) became operational in 2006 (Baumblatt et al., 2014; CDC, 2014a). Being operational meant that entities dispensing prescription medications were collecting and submitting data to the PDMP in a timely fashion and that persons authorized by law might access and submit requests to obtain PDMP data for a legally authorized purpose (WDSPP, 2011). Hence, these operational programs had the capacity to receive and distribute controlled substance prescription information to authorized users (DEA/ODC, 2016).

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**The State's prescription drug monitoring program (PDMP) became operational in 2006 (Baumblatt et al., 2014; CDC, 2014a).**

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PDMPs, sometimes referenced as CSMPs (or CSDs), are state-run electronic databases used to track prescribing and dispensing of controlled prescription medications to patients. They afford the opportunity to quickly identify "problem" prescribers and persons misusing drugs, not only stopping overt attempts at doctor shopping but allowing for better treatment of persons with pain and substance dependence. PDMPs further quickly help identify inadvertent prescribing of similar medications by multiple physicians or inadvertent misuse by service recipients (Blumenschein et al., 2010; Chakravarthy et al., 2012; TFAH, 2013). Our State's PDMP is housed in and operated by the Board of Pharmacy (Blumenschein, 2010). As of this writing, 49 states, the District of Columbia (DC), and one U.S. territory (Guam) have legislation authorizing the creation and operation of a PDMP and all but the DC program are operational (ASPE, 2015). Missouri is the only state that has not passed legislation to establish and operationalize a PDMP (DEA/ODC, 2016; PDMPITAC, n.d.; Urick, 2015).

Before the PDMP, it was easy for patients to walk into a physician's office needing help with anxiety or pain and then walk back out with a prescription for a 90-day supply of Xanax or Vicodin, for example. The PDMP requires that patients face a series of hoops to get pain analgesics, anti-anxiety medication, and/or other controlled substances (Belz, 2014).

The PDMP has been identified as a critical strategy in the reduction of prescription drug misuse (ASPE, 2015; Hansen, 2015; Chakravarthy et al., 2012). Tennessee was highlighted as one of the "State Successes" in CDC's *VitalSigns* in 2014. The article noted that we took action in 2012 requiring prescribers to check our PDMP (or CSMP/CSD) before-prescribing opioid medications and that initial results were extremely favorable. By 2013, the State had demonstrated a 36 percent decline in the number of persons who were seeing multiple prescribers to obtain the same medications and ultimately put them at higher risk of overdose (CDC, 2014a).

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**Tennessee was highlighted as one of the "State Successes" in CDC's *VitalSigns* in 2014 (CDC, 2014a).**

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### ***Preventing Overdose (After the Fact).***

Poisoning became the leading cause of injury death in the U.S. in 2008 and nearly 90 percent of these deaths were caused by drugs. Thus, reduction of fatal poisonings became a *Healthy People 2010* objective and was retained in *Healthy People 2020*. Drugs, legal and illicit, caused nearly 90 percent of the poisoning deaths (Warner, Chen, Makuc, Anderson, & Miniño, 2011).

### *Drug Poisoning Deaths*

Many strategies to prevent accidental drug overdoses are simple. For example, all medications including vitamins and over-the-counter medicines should be maintained in a safe, secure place. Preventing unintentional overdose of illicit drugs often requires getting the individual away from access. Having family and friends to assist with medication therapy and lend social support are also necessary and useful strategies to help substance users stay clean and safe (Anker, 2014).

The person's doctor, local poison center, or emergency department (ED) of a local hospital may be able to help determine the seriousness of a suspected drug overdose. Calling 911 may be more efficient. If symptoms after the drug overdose, immediate attention should be sought. To the extent possible, provide accurate information about the specific name of the drug, amount of the drug ingested, and time when the drug was taken. If prescription or over-the-counter medication is involved, the bottle the drug came in likely will have the information needed (Anker, 2014).

Individuals are not expected to know when a drug overdose is serious. Sometimes you may be able to reach a qualified medical professional by phone to discuss the overdose; other times it may be more prudent to take the person who has overdosed to the nearest hospital ED or medical facility. Appropriate caution must be taken when dealing a drug overdose. Each individual responds differently and reactions are difficult to predict. Some individuals that are directed to go to the ED may not develop physical signs of poisoning. Others may become quite ill. Calling 911 will ensure that a person who is unwilling to get medical assistance receives the necessary services. Family members and friends can sometimes be helpful in encouraging the person to seek medical care. It will be especially helpful for anyone with the person who overdoses to find all medication, chemical containers, paraphernalia, etc., and take them to the medical source (Anker, 2014). This may be extremely difficult or uncomfortable when illicit drugs are involved in the overdose. Emergency medical services responding to a 911 call may be more helpful in such situations.

Volkow (2014) has pointed to the contribution of nonmedical use of opioids, including heroin and prescription pain relievers, in the upward trend in poisoning overdose deaths over the last few decades. Individuals experiencing an opioid overdose typically exhibit symptoms known as the 'opioid overdose triad':

- Pinpoint pupils (i.e., pupils that are abnormally constricted)
- Respiratory depression (i.e., a decreased rate of breathing)
- Unconsciousness (WHO/UNODC, 2013)

Experts recommend that prevention of opioid overdose deaths focus on strategies that target 1) high-dosage medical users and 2) persons who seek care from multiple doctors, receive high doses, and are likely involved in drug diversion (CDC, 2012). As previously mentioned, Tennessee has already implemented many of the recommended strategies and interventions that can assist in reducing the number of opioid-related deaths, including legislating immunity laws and Naloxone for use during overdose situations.

The opioid antagonist Naloxone is typically recommended in the event of an opioid overdose. Naloxone only has a 30-minute-half-life so more than a single dose will be needed (Kreek et al., 2010). Naloxone has been available in an injectable formulation since 1971; however, its use was restricted to medical emergency personnel. In April 2014, the Food and Drug Administration (FDA) approved a hand-held auto-injector. It was developed to reverse the effects of an overdose and was specifically designed for administration by caregivers, family members, or co-workers. As

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designed, the product could be used to automatically give a subcutaneous or intramuscular injection of 0.4 mg Naloxone, marketed as Evzio, by simply holding it to an individual's thigh, even over clothing (Preda, 2014; Volkow, 2014). There are voice and visual instructions, as well as directions to seek emergency medical care immediately following use (MedlinePlus, 2014; Preda, 2014).

Tennessee passed legislation allowing physicians to prescribe Naloxone, an antidote to narcotic overdoses, effective July 1, 2014. Tennesseans are encouraged to talk with a health care provider about learning how to administer Naloxone in the event a friend or loved one experiences an opioid overdose (Wilemon, 2014). TDMHSAS Commissioner E. Douglas Varney acknowledged the successes of Naloxone availability as a life-saving remedy for persons who overdose on opioids during his abuse-deterrent opioid workgroup meetings (TDMHSAS, 2015). Dr. John Dreyzehner, commissioner of the Tennessee Department of Health, also noted that deaths can be prevented in many opioid overdoses through Naloxone administration. He points out that almost immediately after administration the deadly effects of opioids are reversed, which allows time to reach further medical treatment (Wilemon, 2014). Whenever naloxone is administered, 911 should be called as quickly as possible because the antidote provides only temporary reversal of an overdose. First responders should be informed that naloxone has been administered and given the empty device(s) that have been administered. This action will help greatly the responders with their life-saving efforts (TDH, 2015).

Some states had implemented off-label use of a nasal Naloxone (Narcan) delivery service, issuing naloxone rescue kits in communities with high rates of opioid deaths.

Results showed reductions in opioid overdose death rates in the targeted communities (Walley et al., 2013).

**On November 18, 2015, the FDA announced approval of NARCAN® Nasal Spray for the emergency treatment of suspected or known opioid overdose** (FDA, 2015). Until that time, Narcan only had Fast Track designation by the FDA (Vermes, 2014). The Narcan formulation is a ready-to-use, needle-free, unit-dose opioid overdose antidote that can easily be used by an overdose victim, companion, or wider range of first responders (e.g., police) in the event of an emergency. Product development had National Institute on Drug Abuse (NIDA) support (Volkow, 2014) and the fast-tracking designation was a positive sign that approval would be forthcoming. (Fast tracking was an exciting first step toward accelerating the commercialization of a simple, ready-to-use treatment needed to address the growing epidemic of opioid overdose.) Narcan has many significant benefits, including reducing the risk of infection to medical personnel given that many heroin users have hepatitis or HIV (Vermes, 2014). No assembly or priming is required prior to use. Otherwise, general caveats about use are similar to those for the auto-injector device (Maginn, 2015).

**On November 18, 2015, the FDA announced the approval of NARCAN® Nasal Spray for the emergency treatment of suspected or known opioid overdose (Maginn, 2015).**

TDH has information on Tennessee's Narcan laws as well as online training at

<http://tn.gov/health/topic/information-for-naloxone> (TDH, 2015). A half of a vial of Narcan should be squirted into each nostril of the overdosing person. Pushing the applicator fast will help to create a fine mist as liquid drops will not be absorbed in the nose and will not work. Nasal naloxone is given with a foam tip (nebulizer, adapter or atomizer) that is put on a syringe and then placed into the nostril. It will not work when given in any other way. Common signs of opioid overdose include: inability to be awakened; slow, shallow breaths; gray or blue lips or skin; or noisy, weird breathing. These are signs that an individual is in trouble and may stop breathing soon. Immediate action is necessary, including calling 911. Some people may awake disoriented or agitated after receiving Naloxone. Know that this response is a good sign, but that calling 911 is still very

important to help the person survive. There is further a video on how to use the Narcan nasal spray at <http://www.narcannaspray.com/nns-4-mg-dose/how-to-use-nns/#video>. The Narcan link provides answers to frequently asked questions as well as important safety information.

### ***Opioid Overdose Toolkit.***

In 2013, the Substance Abuse and Mental Health Service Administration (SAMHSA) released its *Opioid Overdose Prevention Toolkit*. As indicated by its name, the document was designed to provide information, education, and resources about opioids and opioid overdosing to key individuals, including the person experiencing the overdose. The toolkit was revised in 2014. Topics include:

- Facts for Community Members
- Five Essential Steps for First Responders
- Information for Prescribers
- Safety Advice for Patients & Family Members
- Recovering from Opioid Overdose (SAMHSA, 2014).

The toolkit also describes circumstances under which individuals may not respond to naloxone. For example, the toolkit mentions that persons who have overdosed on buprenorphine may not respond to naloxone. Additionally, the toolkit contains general information, such as encouraging persons involved to call 911, which will be applicable in overdose situations involving any substance (SAMHSA, 2014). The toolkit can be downloaded at no charge from [http://store.samhsa.gov/shin/content//SMA14-4742/Overdose\\_Toolkit.pdf](http://store.samhsa.gov/shin/content//SMA14-4742/Overdose_Toolkit.pdf).

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