Demographic Risk Factors

Table 3 presents the maternal death rate caused by drug overdose (per 100,000 live births) for women who died in Texas during 2012-2015, according to their demographic characteristics.[3] As in the nation, the rate of drug overdose maternal death was higher among White women in Texas, and among those aged 40 and older. The risk for maternal death due to drug overdose was also higher among women residing in urban rather than rural counties,[4] with those living in Region 2/3 (includes Dallas-Fort Worth) and Region 1 (Panhandle) more at risk. In addition, the risk was higher among those who were enrolled in Medicaid at delivery. More analysis is forthcoming to determine insurance status at the time of death to provide a clearer picture of prevention opportunities.

Table 3: Drug Overdose Maternal Death Rate by Demographic Characteristics, Texas, 2012-2015

		Drug Overdose Maternal Death	
Demographic Characteristic	***Number of Live Births***	***Number (%) of Deaths***	***Rate (per 100,000 live births)***
RACE/ETHNICITY			
White	**539,177**	**41 (64%)**	**7.6**
Black	**180,714**	**7 (11%)**	**3.9**
Hispanic	**748,644**	**16 (25%)**	**2.1**
Other	**103,934**	**0 (0%)**	**0.0**
AGE			
<20	**218,240**	**2 (3%)**	**0.9**
20-24	**322,975**	**11 (17%)**	**3.4**
25-29	**443,547**	**20 (31%)**	**4.5**
30-34	**376,051**	**21 (33%)**	**5.6**
35-39	**171,533**	**6 (9%)**	**3.5**
40+	**40,029**	**4 (6%)**	**10.0**

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[3] Both numbers/percentages and rates of maternal death per 100,000 live births are shown. However, only rates are discussed because only with rates can we be certain of the risk for maternal death. Raw numbers/percentages of deaths confound population size with the risk for maternal death. The number/percent of maternal deaths will be higher when the population size is larger and the number of live births/deaths is also higher, and not necessarily because the risk for maternal death is higher. Rates adjust for population size by looking at the number of maternal deaths only for a fixed number of live births v   per 100,000 live births in this case.

[4] This is consistent with the overall rate of maternal death for years 2012-2015 (urban = 24.5 per 100,000 live births vs. rural = 20.1 per 100,000 live births).

Table 3 (continued): Drug Overdose Maternal Death Rate by Demographic Characteristics, Texas, 2012-2015

Demographic Characteristic	*Number of Live Births*	*Drug Overdose Maternal Death*	
		*Number (%) of Deaths**	*Rate (per 100,000 live births)*
COUNTY OF RESIDENCE			
Urban	**1,413,615**	**62 (97%)**	**4.4**
Rural	**158,854**	**2 (3%)**	**1.3**
REGION OF RESIDENCE			
Region 1 (Panhandle)	**49,955**	**3 (5%)**	**6.0**
Region 2/3 (includes Dallas-Fort Worth/DFW)	**437,165**	**28 (44%)**	**6.4**
Region 4/5N (East Texas)	**76,674**	**1 (2%)**	**1.3**
Region 6/5S (includes Houston)	**418,686**	**10 (16%)**	**2.4**
Region 7 (Central Texas)	**177,643**	**5 (8%)**	**2.8**
Region 8 (includes San Antonio)	**158,531**	**7 (11%)**	**4.4**
Region 9/10 (West Texas)	**96,633**	**5 (8%)**	**5.2**
Region 11 (South Texas)	**157,182**	**5 (8%)**	**3.2**
HEALTH INSURANCE AT DELIVERY†			
Medicaid	**728,359**	**48 (75%)**	**6.6**
Private Insurance	**596,330**	**9 (14%)**	**1.5**
Self-Pay/No Insurance	**125,599**	**4 (6%)**	**3.2**
Unknown	**-**	**3 (5%)**	**-**

* Percentages of drug overdose maternal deaths may not sum to exactly 100% due to rounding error.

† The maternal death rate was suppressed for 3 maternal deaths involving fetal death with 'unknown' health insurance status. DSHS is working with the Health and Human Services Commission (HHSC) to hone in on insurance status at time of death to better identify prevention options for those enrolled in Medicaid.

Regional Timeline Analysis

In order to determine where and when prevention efforts are needed, the number of drug overdose maternal deaths was examined by region and timing of death.[5] The results of this regional timeline analysis are presented in Table 4.

As previously reported, for the state in total, 49 (77%) of drug overdose maternal deaths occurred after 60 days postpartum. The current analysis revealed a similar timeline in each region.

Table 4: Number of Drug Overdose Maternal Deaths by Region and Timing of Death, Texas, 2012-2015

Region of Residence	*While Pregnant**	*0-7 Days Post-Partum**	*8-42 Days Post-partum*	*43-60 Days Post-partum*	*61+ Days Post-partum*	TOTAL
Region 1 (Panhandle)	0	0	1	0	2	3
Region 2/3 (includes DFW)	0	2	1	4	21	28
Region 4/5N (East Texas)	0	0	0	0	1	1
Region 6/5S (includes Houston)	0	0	2	1	7	10
Region 7 (Central Texas)	0	1	1	0	3	5
Region 8 (includes San Antonio)	0	0	1	0	6	7
Region 9/10 (West Texas)	0	0	1	0	4	5
Region 11 (South Texas)	0	0	0	0	5	5
TOTAL	**0**	**3**	**7**	**5**	**49**	**64**

* Death while pregnant or 0-7 days postpartum is used as a proxy for inpatient hospital stay.

Maternal Opioid Use Prevention

The prevalence of opioid-related maternal deaths underscores the need for targeted prevention using both public health and client service solutions. There are several maternal opioid use prevention efforts currently underway in Texas.

Maternal Opioid Safety Initiative

DSHS is partnering with the American Congress of Obstetricians and Gynecologists' Alliance for Innovation on Maternal Health (AIM) to develop and implement a patient safety bundle on obstetric care for women with opioid use disorder. The bundle will consist of instructions, checklists, and supplies for staff at inpatient and outpatient facilities to effectively assess and treat opioid use disorder, and prevent opioid-related drug overdose among pregnant and postpartum

[5] Maternal death rates by region and timing of death are not displayed because of statistical unreliability due to small numbers.

women. Opioid prescribing guidelines are also being developed to establish best-practice protocols on the safe use of opioids for pain management during pregnancy and after delivery.

Behavioral Health Services

Funded by the Substance Abuse and Mental Health Services Administration, the new Texas Targeted Opioid Response (TTOR) program at HHSC is aimed at preventing and treating prescription and illicit opioid use in high risk populations, including pregnant and postpartum women. HHSC also administers behavioral health services for mothers with newborns affected by Neonatal Abstinence Syndrome (NAS) due to opioid use during pregnancy. Through partnerships with hospitals, mothers who were dependent on opioids are able to maintain recovery with the help of comprehensive client services, including medication assisted therapy, and are able to overcome NAS together as a family. HHSC-funded behavioral health service providers in 5 additional counties will begin offering these services in fiscal year 2018, for a total of 10 Texas counties with “Mommies” hospital partnerships (Bell, Bexar, Dallas, Ector, El Paso, Harris, Hidalgo, Nueces, Smith, and Tarrant).

Medicaid Services

Recognizing the prevalence of substance use disorders, including opioid use disorder, HHSC recently expanded its Medicaid substance use screening benefit to include Screening, Brief Intervention, and Referral to Treatment (SBIRT). Endorsed by the Substance Abuse and Mental Health Services Administration, SBIRT is an evidence-based approach to the delivery of early intervention and treatment services for persons with substance use disorders, as well as those who are at risk of developing these disorders. Primary care centers, hospital emergency rooms, trauma centers, and other community settings provide opportunities for early intervention with at-risk substance users before more severe consequences occur. Medicaid also covers a comprehensive substance use disorder treatment benefit that includes pharmaceutical, outpatient, ambulatory, and residential treatment services.

Conclusion

The current investigation provides further insight into drug overdose maternal deaths that occurred between 2012 and 2015, including the specific drugs involved and the demographic characteristics of those more at risk. These drug overdose maternal deaths mainly involved opioids, with the vast majority occurring after 60 days postpartum in every region of the state. DSHS will continue to work collaboratively with HHSC Behavioral Health and Medicaid Services to use these findings to effectively implement maternal opioid use prevention in Texas.

Appendix 1

Drug Terms found in Death Certificate Narratives[6]

Combination of Drugs/Mixed Toxicity
- combined
- multiple drug
- mixed drug
- multi-drug
- cocaine and heroin
- toxic effects of
- cocaine and opiate
- heroin and cocaine

Opioid
- opioid
- opiate
- narcotic
- hydrocodone
- hydromorphone
- buprenorphine
- methadone
- oxymorphone
- tramadol

Sedative
- butalbital
- diazepam
- alprazolam
- carisoprodol
- clonazepam
- promethazine
- doxylamine

Heroin
- heroin

Cocaine
- cocaine
- crack

Methamphetamine
- methamphetamine

Alcohol
- alcohol
- ethanol

Acetaminophen
- acetaminophen

Fentanyl
- fentanyl

Antidepressant
- citalopram

Anticonvulsant
- topiramate

Inhalant
- difluoroethane

Caffeine
- caffeine

Unknown
- prescription drug overdose

[6] Misspellings were corrected in order to ensure accuracy of results.

Appendix 2

Death Certificate Cause-of-Death Coding

The results of this analysis are highly dependent on the quality of death certificate data. The National Center for Health Statistics (NCHS) converts death certificate narratives into ICD-10 underlying cause-of-death codes using multi-step software. The table below lists the underlying cause-of-death codes for all 64 drug overdose maternal deaths in this report. However, these underlying cause-of-death codes were not precise enough to identify the specific drugs that led to each overdose. For this reason, a detailed search for any drug terminology was performed on the narrative text appearing on the death certificate. Detailed case reviews performed by the DSHS Maternal Mortality and Morbidity Task Force continue to provide the most accurate and complete picture of maternal deaths in Texas.

Underlying Cause-of-Death Codes for Drug Overdose Maternal Deaths, Texas, 2012-2015

ICD-10 Code	Count	ICD-10 Label
X44	26	Accidental poisoning by and exposure to other and unspecified drugs, medicaments and biological substances
X42	20	Accidental poisoning by and exposure to narcotics and psychodysleptics
X41	6	Accidental poisoning by and exposure to antiepileptic, sedative, hypnotic, antiparkinsonism and psychotropic drugs
X64	3	Intentional self-poisoning by and exposure to other and unspecified drugs, medicaments and biological substances
Y14	2	Poisoning by/exposure to other and unspecified drugs, medicaments, undetermined intent
F141	1	Mental and behavioral disorders due to use of cocaine, harmful use
F149	1	Mental and behavioral disorders due to use of cocaine, unspecified mental and behavioral disorder
O95	1	Obstetric death of unspecified cause
O993	1	Mental disorders and diseases of the nervous system complicating pregnancy, childbirth and the puerperium
X40	1	Accidental poisoning by and exposure to nonopioid analgesics, antipyretics and antirheumatics
X47	1	Accidental poisoning by and exposure to other gases and vapors
X61	1	Intentional self-poisoning by and exposure to antiepileptic, sedative, hypnotic, antiparkinsonism and psychotropic drugs
TOTAL	**64**	

Due to most drug overdose deaths involving more than one substance, ICD-10 coding for underlying cause of death was not substance-specific for a number of cases (X44, X64, Y14, and X40). Code X42 is

applicable to a list of substances (cannabis, cocaine, codeine, heroin, LSD, mescaline, methadone, morphine, and opium), and is not useful for a substance-specific analysis. Two cases were coded using the Obstetric chapter of ICD-10 (O95 and O993), and were not substance abuse specific.

More detail was obtained from additional ICD-10 contributing cause-of-death codes, but these were not always available or precise enough to pinpoint specific drugs involved.