

Amphetamine-Related Emergency Department Visits New Mexico, 2010 – 2014

Amphetamine and methamphetamine are stimulant drugs that affect the central nervous system. Amphetamines are prescription medications (e.g. Adderall) used to treat attention hyperactivity disorder (ADHD).

Methamphetamine, a much more potent version of amphetamine, is usually produced and sold illegally.^{1,2} Methamphetamine (also known as meth, crystal, chalk, ice, crank, and speed) produces similar brain and behavioral changes as cocaine; however, methamphetamine remains in the body longer and produces a stronger high.² Abuse of both amphetamine and methamphetamine leads to increases in heart rate, blood pressure, and temperature.^{1,2} Chronic use of methamphetamine can cause anxiety, insomnia, violent behavior, extreme weight loss, and dental problems.² Additionally, use of methamphetamine increases the risk for sexually transmitted diseases and HIV.^{3,4}

Deaths involving methamphetamine more than doubled between 2009 and 2014 in New Mexico (Office of the Medical Investigator). Methamphetamine is one of the most common illicit substances found in unintentional overdose death.⁵ Methamphetamine-related deaths provide only one measure of the impact of this drug on individuals and communities. To gain greater insight into the methamphetamine epidemic, the New Mexico Department of Health (NMDOH) assessed amphetamine-related emergency department visits in New Mexico. These data can provide information on amphetamine abuse and possible areas for prevention before a drug overdose death occurs.

Methods

In 2010, all non-federal facilities started providing NMDOH with all emergency department visit information for surveillance. The emergency department data (EDD) includes all diagnoses for a visit, visit information (e.g. date and time of visit), and demographic information about the patient (e.g. age, gender, race/ethnicity). The EDD represents unique emergency department visits, but does not distinguish between unique patients. Therefore, an individual may be represented more than once in the dataset.

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From 2010 through 2014, emergency department facilities in New Mexico coded visits using the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM). We defined an amphetamine-related ED visit as having one or more of the following codes in any of the forty-seven diagnosis variables: 304.40 – 304.43 (Amphetamine and other psychostimulant dependence); 305.70 – 305.73 (Nondependent amphetamine abuse); 969.72 (Poisoning by amphetamines). We extracted these visits from the larger dataset to compute amphetamine dependent, amphetamine non-dependent, amphetamine poisoning, and total amphetamine related visits and visit rates. Given possible overlap between diagnoses (i.e. a visit can be coded for both amphetamine poisoning and amphetamine abuse), total counts and rates may be less than the sum of individual diagnoses. We calculated rates using population estimates provided by the Geospatial and Population Studies Program at the University of New Mexico. Age adjusted rates used the US 2000 standard population. We examined rates by year, age, gender, and health region.

EDD collected during this time does not distinguish between methamphetamine (usually an illicit drug) and prescription amphetamines for treating ADHD. However, prescription amphetamines are a Schedule II controlled substance and are reported to the Prescription Drug Monitoring Program (PMP). We conducted a comparison of the age distribution of amphetamine-related emergency department (ED) visits to that of prescriptions for amphetamines reported to the PMP to determine whether visits to emergency departments were primarily for illicit methamphetamine use or prescription amphetamine use.

Results

Between 2010 and 2014, there were 3,136 emergency department visits for amphetamine-related causes. ED

visits increased from 382 in 2010 to 1,097 in 2014. During this time, the rate of ED visits for amphetamine-related diagnoses in New Mexico nearly tripled from 19.1 visits per 100,000 population in 2010 to 56.1 visits per 100,000 population in 2014. Visits for amphetamine nondependent abuse mainly contributed to this increase (Figure 1). Overall, working age adults in the 25-34 age group had the highest rate at 78 visits per 100,000 followed by those in the 15-24 age group with a rate of 57.6 visits per 100,000 population.

Overall, men were more likely to present to the emergency department for amphetamine-related causes compared to women for all age groups (Figure 2). Men in the 25-34 age group had the highest rate of amphetamine-related visits (13 visits per 100,000 population) between 2010 and 2014 followed by men in the 15-24 year age group. Women followed a similar pattern with individuals in the 25-34 year age group having the highest rate (8.0 visits per 100,000) followed by those in the 15-24 year age group (7.6 visits per 100,000); however, the difference between these age groups for women was not as great as for men.

The Southeast region had the highest rate of amphetamine-related visits (50.5 visits per 100,000) followed by the Southwest region (31.5 visits per 100,000) between 2010 and 2014. The Metro region had the greatest increase in amphetamine-related visits among all regions from a rate of 20.5 visits per 100,000 in 2010 to 66.1 visits per 100,000 in 2014. Most of this increase occurred between 2013 and 2014 (Table 1).

Among the 3,136 amphetamine-related ED visits, 86% (n=2,720) had an amphetamine ICD-9-CM code in the first diagnosis and the remaining (n=417) had a first diagnosis for opioid type dependence. Among the 2,720 visits with an amphetamine-related first diagnosis,

Table 1. Amphetamine-Related Emergency Department Visits by Health Region, New Mexico, 2010-2014

	Northwest	Northeast	Metro	Southeast	Southwest	New Mexico
2010	13.6	20.5	20.5	25.7	15.8	18.4
2011	11.8	4.4	12.2	30.7	20.2	20.0
2012	24.9	14.0	20.5	49.0	29.8	24.1
2013	23.3	15.3	33.4	69.3	40.6	33.8
2014	23.1	35.2	66.1	76.7	51.1	52.0
All Years*	19.3	17.9	30.6	50.5	31.5	30.5

Source: Emergency Department Data, UNM/GPS population
* Five year age adjusted rates for 2010-2014

sis, the most common second diagnoses were 1) anxiety state 2) tobacco use disorder 3) cannabis abuse 4) altered mental status 5) opioid abuse and 6) suicidal ideation. Additionally, depressive disorder was a common second diagnosis for these visits.

The age distribution among amphetamine-related emergency department visits did not match those of prescriptions for amphetamines in the PMP. Individuals in the 5-14 age group had the highest rate of amphetamine prescriptions compared with all other age groups (11,723 prescriptions per 100,000 individuals). The rate of amphetamine prescriptions for individuals in the 25-34 age group was 5,844 prescriptions per 100,000 individuals).

Discussion

This report provides insight into the burden of methamphetamine use in New Mexico using emergency department data. This analysis shows that amphetamine-related emergency department visits increased sharply during the same period as deaths involving methamphetamine. Young working-age adults and males, as well as southern counties had the highest rates of amphetamine-related emergency department visits across the five-year period. Visits for amphetamine-related abuse contributed to the increase in total visits more substantially than dependence or poisoning.

Furthermore, many visits included co-morbidities such as abuse of other drugs and mental health disorders. The difference in the age distribution of prescription amphetamines and amphetamine-related emergency department visits offers some evidence that individuals presenting to the emergency department for amphetamine-related causes may not have amphetamine prescriptions.

We must interpret these findings cautiously. First, EDD represents unique visits, but not unique individuals; therefore, these findings can only provide a limited view of the impact of amphetamine abuse on the healthcare system. Second, the ICD codes used in the EDD are primarily for billing purposes; therefore, there may be a variety of reasons that individuals coding ED visits choose one code rather than another for amphetamine-related visits.

Despite these limitations, we can use EDD to create a broader picture of the burden of amphetamine abuse in New Mexico. Based on this analysis, we recommend statewide prevention and education efforts to

reduce methamphetamine use targeting young working age males, especially in the Southeast region.

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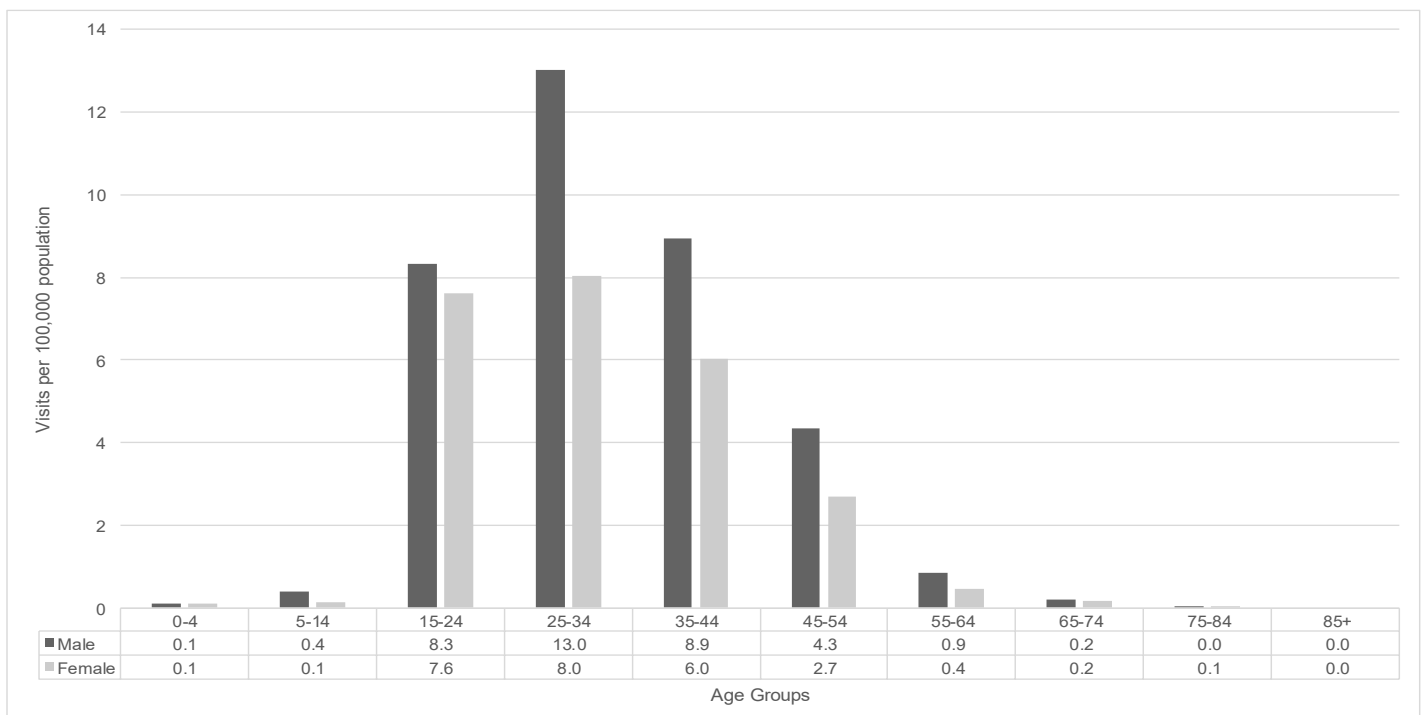
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Figure 2. Amphetamine-Related Emergency Department visits by Age and Gender, New Mexico, 2010-2014



sexual behaviors and HIV infection among non-

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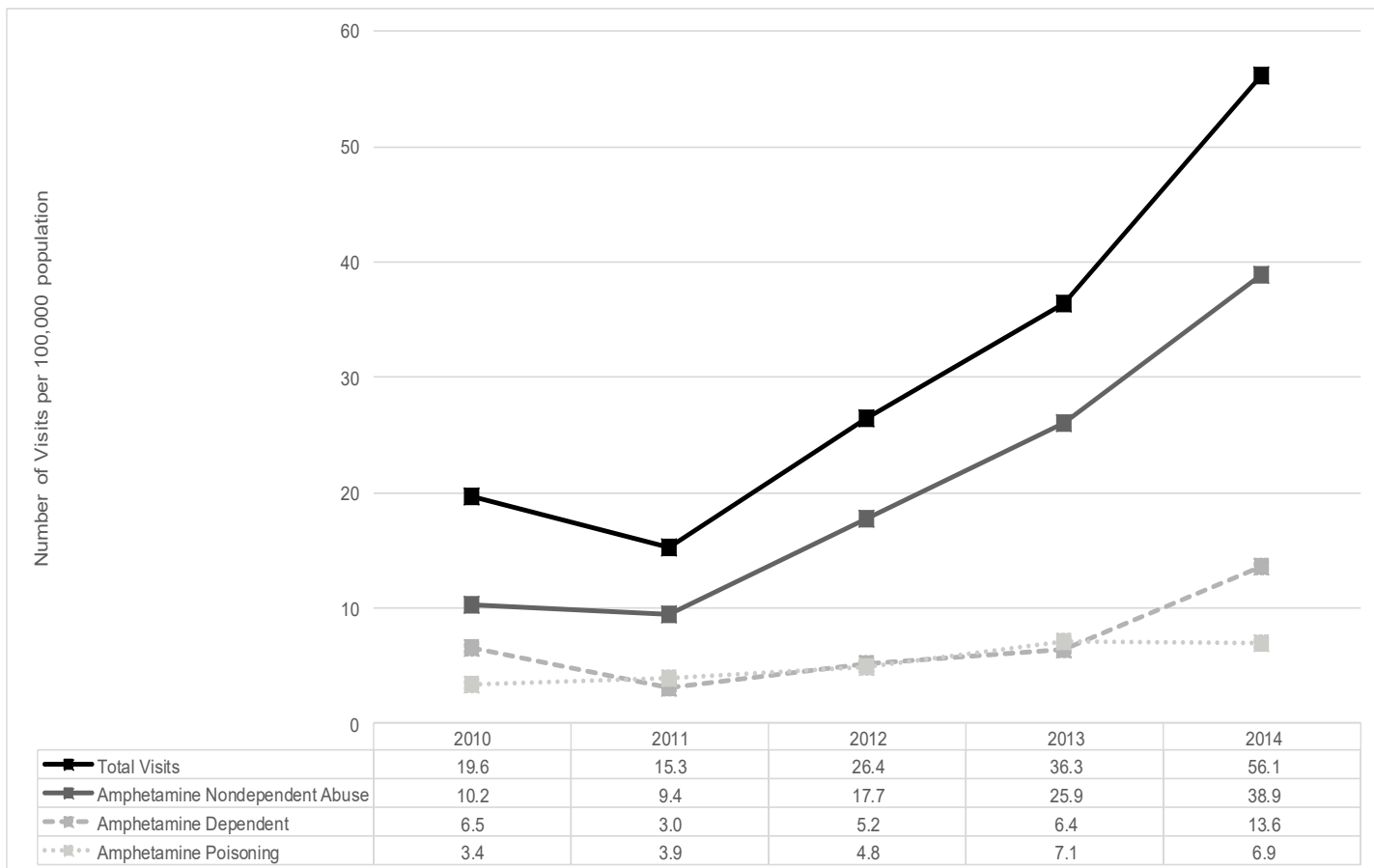
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Figure 1. Amphetamine-Related Emergency Department Visits, New Mexico, 2010-2014



*Crude rates