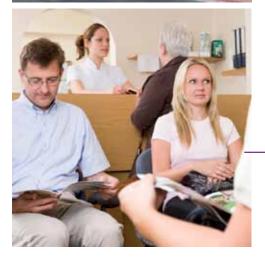
Drug-Related Emergency Department Visits in Metropolitan Areas

Center for Behavioral Health Statistics and Quality







This report is one in a series of reports that provide a snapshot of drug-related emergency department (ED) visits in 11 metropolitan areas across the United States. This report focuses on drug-related ED visits in the Minneapolis Metropolitan Statistical Area, hereafter referred to as "Minneapolis." ¹

The Drug Abuse Warning Network (DAWN) is a public health surveillance system that monitors drug-related ED visits in the United States. DAWN uses a probability sample of hospitals to produce annual estimates of drug-related ED visits for the United States and selected metropolitan areas. To be a DAWN case, an ED visit must have involved a drug, either as the direct cause of the visit or as a contributing factor.

As a national public health resource, DAWN data can track trends, spot emerging problems, and gauge the impact of intervention programs. This information enables communities to manage resources more efficiently, target treatment efforts, and improve the well-being of individuals and their communities. This report uses national statistics as the comparison base for Minneapolis statistics.² Statistical testing was used for comparisons of rates for the sociodemographic characteristics, trends, and drug types within Minneapolis and between Minneapolis and the Nation. Each comparison was tested independently and does not account for differences in other characteristics (e.g., geographic variations). A glossary is included at the end of this report to provide more information about the pharmaceuticals that are highlighted in the following analyses.

² The percentage of missing data for age or gender in Minneapolis was less than 0.1 percent.



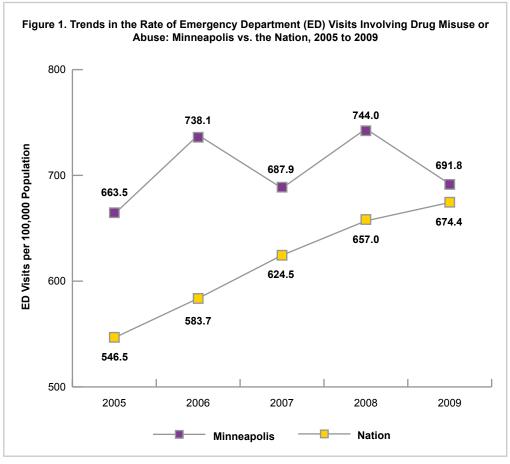
¹ Data for Minneapolis are representative of the 24-hour, general purpose EDs in the Minneapolis–St. Paul-Bloomington, MN–WI Metropolitan Statistical Area. The area includes: Minneapolis, MN; St. Paul, MN; Bloomington, MN; Plymouth, MN; Eagan, MN; Eden Prairie, MN; Minnetonka, MN Anoka County, MN; Carver County, MN; Chisago County, MN; Dakota County, MN; Hennepin County, MN; Isanti County, MN; Ramsey County, MN; Scott County, MN; Sherburne County, MN; Washington County, MN; Wright County, MN; Pierce County, WI; and St. Croix County, WI.

Overview

In 2009, DAWN data show an estimated 49,702 drug-related visits—a rate of 1,520.0 visits per 100,000 population—were made to Minneapolis EDs. These data represent the total ED visits in which drugs were taken for any reason—not just drug abuse—and involve illegal drugs, prescription and over-the-counter pharmaceuticals (e.g., dietary supplements, cough medicine), nonpharmaceutical inhalants, alcohol in combination with other drugs, and alcohol only (for patients aged 20 or younger).

ED Visits Involving Drug Misuse or Abuse

This section presents information about ED visits involving drug misuse or abuse, which is defined as a group of ED visits that includes all visits associated with illicit drugs, use of alcohol in combination with other drugs, use of alcohol only among those aged 20 or younger, and nonmedical use of pharmaceuticals. From 2005 through 2009, Minneapolis's rate of ED visits involving drug misuse or abuse was similar to the national rate (Figure 1). For example, in 2009 the rate for drug misuse or abuse in Minneapolis was 691.8 visits per 100,000 population, and the national rate was 674.4 visits per 100,000 population.



The demographic characteristics of patients in Minneapolis who made an ED visit involving drug misuse or abuse in 2009 show that

- patients aged 18 to 24 made 5,066 visits (22.4 percent) and had the highest rate of ED visits (1,708.1 visits per 100,000 population); and
- 53.8 percent of ED visits were made by male patients (Table 1).

Table 1. Distribution of Emergency Department (ED) Visits Involving Misuse or Abuse of Drugs, by Gender* and Age**: Minneapolis, 2009

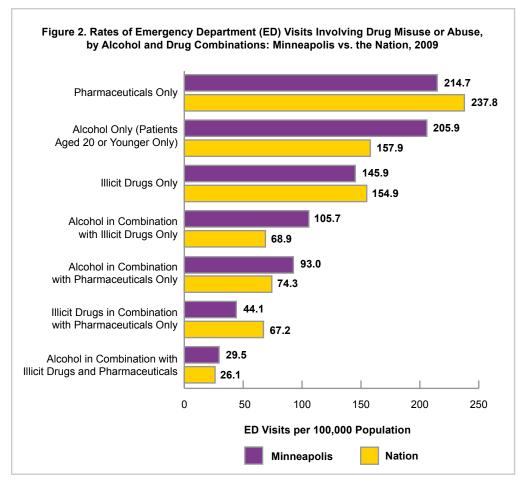
Demographic Characteristic	Estimated Number of ED Visits	Percentage of ED Visits	Rate of ED Visits per 100,000 Population
Total ED Visits	22,620	100.0	691.8
Male	12,166	53.8	749.1
Female	10,427	46.2	633.5
Aged 0 to 11	***	***	***
Aged 12 to 17	2,557	11.3	965.8
Aged 18 to 24	5,066	22.4	1,708.1
Aged 25 to 34	4,575	20.2	930.7
Aged 35 to 44	4,144	18.3	887.4
Aged 45 to 54	3,917	17.3	768.4
Aged 55 to 64	1,501	6.6	423.6
Aged 65 or Older	812	3.6	237.4

^{*}ED visits for which gender is unknown have been excluded.

^{**}ED visits for which age is unknown have been excluded.

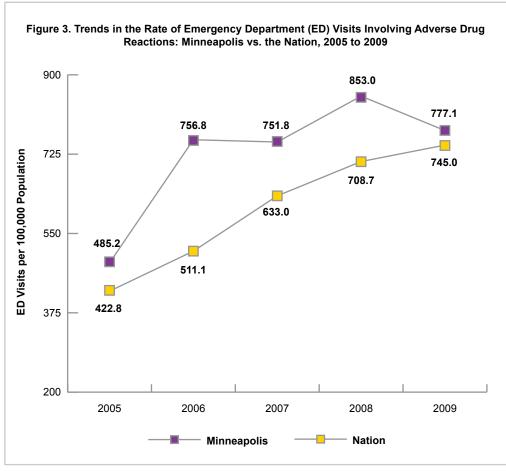
^{***}Estimate suppressed because of low statistical precision.

DAWN data also can provide information on the different drug combinations involved in ED visits related to drug misuse or abuse. In 2009, no significant differences between Minneapolis and the Nation were found with respect to the types and combinations of drugs in ED visits involving drug misuse or abuse (Figure 2).



ED Visits Involving Adverse Drug Reactions

Within DAWN, adverse reactions are defined as ED visits in which an adverse health consequence results from taking prescription drugs, over-the-counter medications, or dietary supplements as prescribed or recommended. From 2005 through 2009, Minneapolis's rate of ED visits involving adverse drug reactions was similar to the national rate (Figure 3). For example, in 2009, the rate for visits involving adverse reactions to drugs in Minneapolis was 777.1 visits per 100,000 population, and the national rate was 745.0 visits per 100,000 population.



The demographic characteristics of patients in Minneapolis who made an ED visit involving an adverse reaction to drugs in 2009 show that

- patients aged 65 or older made the most ED visits (7,847 visits, or 30.9 percent) and had the highest rate of ED visits (2,293.9 visits per 100,000 population); and
- 62.6 percent of visits were made by female patients (Table 2).

Table 2. Distribution of Emergency Department (ED) Visits Involving Adverse Drug Reactions, by Gender* and Age**: Minneapolis, 2009

Demographic Characteristic	Estimated Number of ED Visits	Percentage of ED Visits	Rate of ED Visits per 100,000 Population
Total ED Visits	25,409	100.0	777.1
Male	9,504	37.4	585.2
Female	15,885	62.6	965.2
Aged 0 to 11	1,244	4.9	228.8
Aged 12 to 17	503	2.0	189.8
Aged 18 to 24	2,119	8.3	714.5
Aged 25 to 34	3,220	12.7	655.0
Aged 35 to 44	3,278	12.9	702.0
Aged 45 to 54	3,906	15.4	766.2
Aged 55 to 64	3,285	12.9	927.2
Aged 65 or Older	7,847	30.9	2,293.9

^{*}ED visits for which gender is unknown have been excluded.

^{**}ED visits for which age is unknown have been excluded.

In 2009, Minneapolis's rate of ED visits involving adverse reactions was similar to the national rate for most types of drugs (Table 3). However, compared with the Nation, Minneapolis had significantly higher rates of ED visits involving adverse reactions to oxycodone (36.4 vs. 21.2 visits per 100,000 population).

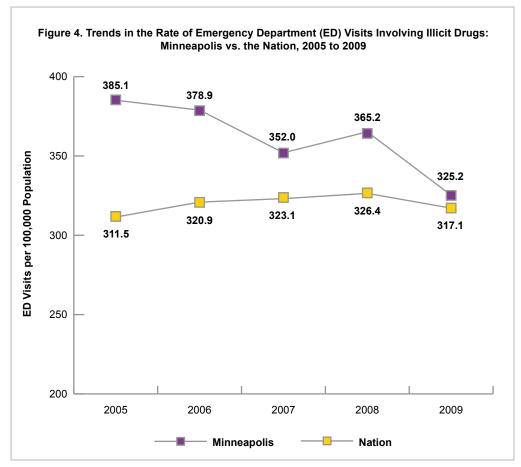
Table 3. Rates of Emergency Department (ED) Visits Involving Adverse Drug Reactions, by Drug Category: Minneapolis vs. the Nation, 2009

Drug Category and Selected Drugs	Minneapolis Rate per 100,000 Population	National Rate per 100,000 Population
Central Nervous System Medications	232.3	192.6
Pain Relievers	160.7	126.1
Opiates/Opioids	92.6	73.5
Narcotic Pain Relievers	86.3	71.1
Oxycodone*	36.4	21.2
Hydrocodone	28.5	26.0
Drugs That Treat Anxiety or Insomnia	40.8	34.0
Benzodiazepines	23.1	20.7
Anticonvulsants	30.9	28.3
Anti-infection Medications	134.1	155.4
Cardiovascular System Medications	100.7	80.8
Blood Modifiers	82.5	70.8
Hormones	54.5	38.8
Drugs for Metabolic Disorders	43.6	56.6
Cancer Drugs	41.1	34.2
Gastrointestinal System Medications	38.9	26.8
Nutritional Products	28.6	21.8
Respiratory System Medications	23.5	31.0
Immune System Medications	22.2	32.7
Topical Agents	17.7	16.4

^{*}The difference between Minneapolis and the Nation was statistically significant at the .05 level.

ED Visits Involving Illicit Drug Use

Within DAWN, ED visits involving illicit drug use are defined as all visits related to the use of illicit or illegal drugs, such as cocaine, marijuana, heroin, and stimulants (e.g., amphetamines and methamphetamines). From 2005 through 2009, Minneapolis's rate of ED visits involving illicit drugs was similar to the national rate (Figure 4).



The demographic characteristics of patients in Minneapolis who made an illicit drugrelated ED visit in 2009 show that

- patients aged 25 to 34 made 2,495 visits (23.5 percent);
- when population is taken into account, the rate of ED visits was highest for patients aged 18 to 24 (811.7 visits per 100,000 population); and
- 63.9 percent of ED visits were made by male patients (Table 4).

Table 4. Distribution of Emergency Department (ED) Visits Involving Illicit Drugs, by Gender* and Age**: Minneapolis, 2009

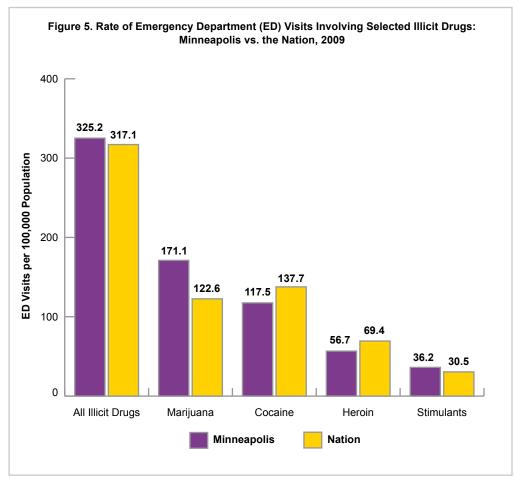
Demographic Characteristic	Estimated Number of ED Visits	Percentage of ED Visits	Rate of ED Visits per 100,000 Population
Total ED Visits	10,633	100.0	325.2
Male	6,790	63.9	418.1
Female	3,829	36.1	232.7
Aged 0 to 11	***	***	***
Aged 12 to 17	1,374	12.9	518.8
Aged 18 to 24	2,407	22.6	811.7
Aged 25 to 34	2,495	23.5	507.6
Aged 35 to 44	2,105	19.8	450.8
Aged 45 to 54	1,783	16.8	349.7
Aged 55 to 64	406	3.8	114.5
Aged 65 or Older	***	***	***

^{*}ED visits for which gender is unknown have been excluded.

^{**}ED visits for which age is unknown have been excluded.

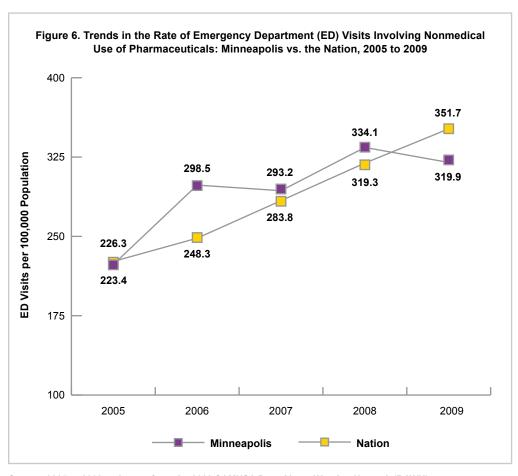
^{***}Estimate suppressed because of low statistical precision.

In 2009, compared with the Nation as a whole, Minneapolis had similar rates of ED visits involving illicit drugs overall, as well as particular drugs, including marijuana, cocaine, heroin, and stimulants.



ED Visits Involving Nonmedical Use of Pharmaceuticals

In DAWN, the nonmedical use of pharmaceuticals includes taking more than the prescribed dose of a prescription pharmaceutical or more than the recommended dose of an over-the-counter pharmaceutical or supplement; taking a pharmaceutical prescribed for another individual; deliberate poisoning with a pharmaceutical by another person; and documented misuse or abuse of a prescription drug, an over-the-counter pharmaceutical, or a dietary supplement. Nonmedical use of pharmaceuticals may involve pharmaceuticals only or pharmaceuticals in combination with illicit drugs or alcohol. From 2005 through 2009, Minneapolis's rate of ED visits involving nonmedical use of pharmaceuticals was similar to the national rate (Figure 6). For example, in 2009, the rate for visits involving nonmedical use of pharmaceuticals in Minneapolis was 319.9 visits per 100,000 population, and the national rate was 351.7 visits per 100,000 population.



The demographic characteristics of patients in Minneapolis who made drug-related ED visits involving nonmedical use of pharmaceuticals in 2009 show that

- patients aged 25 to 34 made 2,217 visits (21.2 percent);
- when population is taken into account, the rate of ED visits was highest for patients aged 18 to 24 (561.6 visits per 100,000 population); and
- 54.2 percent of ED visits were made by female patients (Table 5).

Table 5. Distribution of Emergency Department (ED) Visits Involving Nonmedical Use of Pharmaceuticals, by Gender *and Age**: Minneapolis, 2009

Demographic Characteristic	Estimated Number of ED Visits	Percentage of ED Visits	Rate of ED Visits per 100,000 Population
Total ED Visits	10,461	100.0	319.9
Male	4,787	45.8	294.8
Female	5,663	54.2	344.1
Aged 0 to 11	***	***	***
Aged 12 to 17	809	7.7	305.4
Aged 18 to 24	1,666	15.9	561.6
Aged 25 to 34	2,217	21.2	450.9
Aged 35 to 44	2,007	19.2	429.8
Aged 45 to 54	2,040	19.5	400.2
Aged 55 to 64	1,002	9.6	282.9
Aged 65 or Older	693	6.6	202.7

^{*}ED visits for which gender is unknown have been excluded.

^{**}ED visits for which age is unknown have been excluded.

^{***}Estimate suppressed because of low statistical precision.

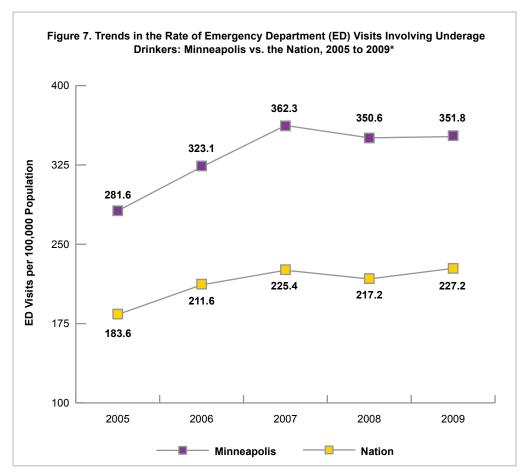
In 2009, there were no significant differences between Minneapolis and the Nation with regard to the rates of ED visits for nonmedical use of pharmaceuticals within selected drug categories or among particular drugs (Table 6).

Table 6. Rates of Emergency Department (ED) Visits Involving Nonmedical Use of Pharmaceuticals, by Drug Category: Minneapolis vs. the Nation, 2009

Drug Category and Selected Drugs	Minneapolis Rate per 100,000 Population	National Rate per 100,000 Population
Central Nervous System Medications	227.9	257.8
Pain Relievers	150.0	168.1
Opiates/Opioids	116.9	135.7
Narcotic Pain Relievers	96.9	111.6
Oxycodone	42.3	48.4
Hydrocodone	22.9	28.1
Methadone	20.5	20.5
Hydromorphone	7.0	4.7
Morphine	7.0	10.3
Fentanyl	5.6	6.8
Drugs That Treat Anxiety or Insomnia	87.2	118.3
Benzodiazepines	65.3	101.9
Anticonvulsants	11.9	13.7
Psychotherapeutic Medications	53.3	43.2
Antidepressants	35.9	29.0
Antipsychotics	25.2	18.9
Cardiovascular System Medications	17.0	15.1

ED Visits Involving Underage Drinkers

Underage drinking continues to be a public health concern in many metropolitan areas and in the Nation as a whole. In DAWN, drug-related ED visits involving underage drinking are those visits related to alcohol use by patients aged 20 or younger. These visits may include alcohol only or alcohol in combination with other drugs. From 2005 through 2009, Minneapolis's rate of drug-related ED visits involving underage drinkers was not significantly different from the national rate (Figure 7). In 2009, the rate for visits involving underage drinking in Minneapolis was 351.8 visits per 100,000 population, and the national rate was 227.2 visits per 100,000 population.



^{*}The rate includes visits involving alcohol only and alcohol in combination with other drugs.

Demographic characteristics of underage drinkers who made drug-related visits to Minneapolis EDs in 2009 indicate that

- young adults aged 18 to 20 made the most ED visits related to underage drinking (1,898 visits, or 57.7 percent) and had the highest rate of visits (1,501.7 visits per 100,000 population); and
- 54.9 percent of ED visits related to underage drinking were made by male patients (Table 7).

Table 7. Distribution of Emergency Department (ED) Visits Involving Underage Drinking, by Gender* and Age**: Minneapolis, 2009

Demographic Characteristic	Estimated Number of ED Visits	Percentage of ED Visits	Rate of ED Visits per 100,000 Population
Total ED Visits	3,289	100.0	351.8
Male	1,806	54.9	378.6
Female	1,481	45.1	323.3
Aged 0 to 11	***	***	***
Aged 12 to 17	1,377	41.9	520.2
Aged 18 to 20	1,898	57.7	1,501.7

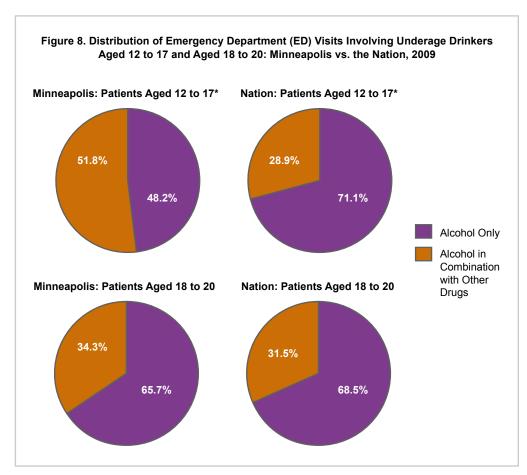
^{*}ED visits for which gender is unknown have been excluded.

^{**}ED visits for which age is unknown have been excluded.

^{***}Estimate suppressed because of low statistical precision.

In 2009, 41.6 percent of ED visits among Minneapolis's underage drinkers aged 12 to 20 involved alcohol in combination with other drugs, which was not significantly different than visits for the Nation as a whole (30.5 percent) (data not shown).

Among underage drinkers aged 12 to 17, Minneapolis had a significantly higher proportion of ED visits that involved alcohol in combination with other drugs than the Nation as a whole did (51.8 vs. 28.9 percent, respectively) (Figure 8). Among underage drinkers aged 18 to 20, the proportion of ED visits involving alcohol in combination with other drugs in Minneapolis was not significantly different from that of the Nation as a whole (34.3 and 31.5 percent, respectively).

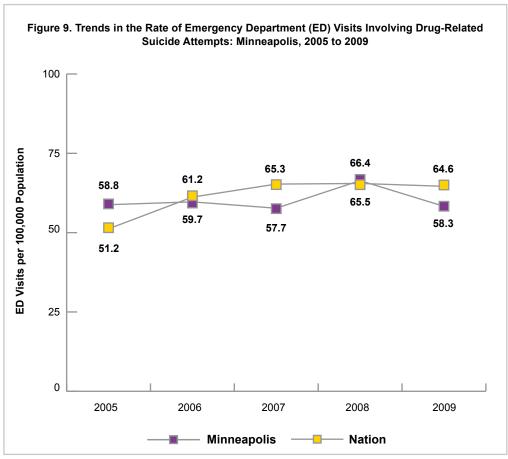


^{*}The difference between Minneapolis and the Nation was statistically significant at the .05 level.

ED Visits Involving Drug-Related Suicide Attempts

This section presents information on drug-related suicide attempts that resulted in ED visits. Drug-related suicide attempts are not limited to drug overdoses. If there is drug involvement in a suicide attempt by other means (e.g., if a patient cut his or her wrists while smoking marijuana), the case is considered to be drug related. Excluded are suicide-related behaviors other than actual attempts (e.g., suicidal ideation or suicidal thoughts).

From 2005 through 2009, Minneapolis's rate of ED visits involving drug-related suicide attempts was not significantly different from the national rate (Figure 9). For example, in 2009, the rate for visits involving drug-related suicide attempts in Minneapolis was 58.3 visits per 100,000 population, and the national rate was 64.6 visits per 100,000 population.



Demographic characteristics of patients who made visits involving drug-related suicide attempts to Minneapolis EDs in 2009 indicate that

- patients aged 35 to 44 made 452 visits (23.7 percent);
- when population is taken into account, patients aged 18 to 24 had a rate of 118.0 visits per 100,000 population; and
- 61.8 percent of ED visits were made by female patients (Table 8).

Table 8. Distribution of Emergency Department (ED) Visits Involving a Drug-Related Suicide Attempt, by Gender* and Age**: Minneapolis, 2009

Demographic Characteristic	Estimated Number of ED Visits	Percentage of ED Visits	Rate of ED Visits per 100,000 Population
Total ED Visits	1,906	100.0	58.3
Male	729	38.2	44.9
Female	1,177	61.8	71.5
Aged 0 to 11	***	***	***
Aged 12 to 17	190	10.0	71.8
Aged 18 to 24	350	18.4	118.0
Aged 25 to 34	403	21.1	82.0
Aged 35 to 44	452	23.7	96.8
Aged 45 to 54	345	18.1	67.6
Aged 55 to 64	125	6.6	35.4
Aged 65 or Older	***	***	***

^{*}ED visits for which gender is unknown have been excluded.

^{**}ED visits for which age is unknown have been excluded.

^{***}Estimate suppressed because of low statistical precision.

An examination of the rate of ED visits involving a drug-related suicide attempt in 2009 revealed that there were no significant differences between Minneapolis and the Nation in the selected types of drugs involved (Table 9).

Table 9. Rates of Emergency Department (ED) Visits Involving a Drug-Related Suicide Attempt, by Drug Category: Minneapolis vs. the Nation, 2009

Drug Category and Selected Drugs	Minneapolis Rate per 100,000 Population	National Rate per 100,000 Population
Alcohol	18.6	20.1
Illicit Drugs	6.7	11.6
Cocaine	4.1	5.9
Marijuana	2.3	4.6
Central Nervous System Medications	42.3	46.8
Pain Relievers	23.6	24.6
Opiates/Opioids	9.3	10.7
Narcotic Pain Relievers	8.6	9.6
Drugs That Treat Anxiety or Insomnia	19.2	25.3
Benzodiazepines	12.1	18.5
Anticonvulsants	4.1	4.3
Psychotherapeutic Medications	20.7	17.1
Antidepressants	16.1	11.8
Antipsychotics	7.8	7.8
Cardiovascular System Medications	3.0	3.5

Glossary for the Pharmaceuticals Mentioned in This Report

- Anticonvulsants—These medications prevent the brain from seizure activity and include those that treat epilepsy as well as those that can alleviate the discomfort associated with nerve damage. Common anticonvulsants include phenytoin (Dilantin*) and carbamazepine (Carbatrol*).
- Antidepressants—This category of drugs includes psychotherapeutic medications that are used to treat depression and other mental disorders. There are several types of antidepressants including: selective serotonin reuptake inhibitors (e.g., fluoxetine, or Prozac*), serotonin and norepinephrine reuptake inhibitors (e.g., duloxetine, or Cymbalta*), norepinephrine and dopamine reuptake inhibitors (e.g., bupropion, or Wellbutrin*), and atypical antidepressants (e.g., trazodone, or Desyrel*; mirtazapine, or Remeron*), and monoamine oxidase inhibitors (e.g., phenelzine, or Nardil*).
- Anti-infection Medications—Anti-infection medications are used to treat conditions caused by bacteria, viruses, protozoa, worms, fungi, and yeast. Drugs that treat infections include penicillins, azithromycin (Zithromax*), cephalexin (Keflex*), clindamycin (Cleocin*), and fluconazole (Diflucan*).
- Antipsychotics—Antipsychotic pharmaceuticals are used to treat mental disorders; the antipsychotic
 category includes drugs such as chlorpromazine (Thorazine*), haloperidol (Haldol*), and clozapine
 (Clozaril*). See also Antidepressants and Psychotherapeutic Medications.
- Blood Modifiers—Medications that alter the blood, including drugs that prevent blood from clotting, that dissolve blood clots, or that cause the blood to clot. Examples of blood modifiers include warfarin (Coumadin*), alteplase (Activase*), and factor IX complex.
- Cancer Drugs—A category of drugs that treats cancer. Examples of cancer drugs include medications such
 as paclitaxel (Taxol*), cyclophosphamide (Cytoxan*), and chlorambucil (Leukeran*).
- Cardiovascular System Medications—Cardiovascular system medications treat conditions of the
 cardiovascular system such as angina and arrhythmia. Examples of such medications include beta blockers
 and diuretics.
- Central Nervous System Medications—As used by DAWN, central nervous system medications are a broad class of pharmaceuticals that act on the central nervous system. Major drug types grouped under this heading are: narcotic pain relievers (e.g., OxyContin®), nonnarcotic pain relievers (e.g., tramadol), anticonvulsants (e.g., Depakote®), drugs to treat anxiety (e.g., Klonopin®), central nervous system stimulants (e.g., Adderall®), and muscle relaxants (e.g., Soma®).
- Drugs for Metabolic Disorders—A category of medications that treat disorders or conditions that impact the metabolism. Examples of such drugs include antidiabetic agents (e.g., insulin), lipid-lowering drugs (e.g., Zocor* and Lipitor*), and antiobesity drugs (e.g., Orlistat*).

- Drugs That Treat Anxiety or Insomnia—This category includes drugs to treat anxiety or insomnia and includes: barbiturates (e.g., Seconal*), benzodiazepines (e.g., Xanax*, Klonopin*, Ativan*), and medications to treat sleep disorders (e.g., Ambien*).
- Gastrointestinal System Medications—A category of drugs that includes antacids, antidiarrheals, digestive enzymes, and laxatives.
- Hormones—A category of drugs that supplies hormones to the body, such as adrenal cortical steroids, thyroid medications (e.g., Synthroid*), hydrocortisone, prednisone, and contraceptives.
- Immune System Medications—Used to treat immune system conditions, this category includes antivirals (e.g., influenza shot) and vaccines (e.g., tetanus shot).
- Narcotic Pain Relievers—Used to treat severe pain, the category of narcotic pain relievers includes codeine, fentanyl (e.g., Actiq*), hydrocodone (e.g., Lortab* and Vicodin*), hydromorphone (e.g., Dilaudid*), oxycodone (e.g., OxyContin*), morphine, and methadone.
- Nutritional Products—A broad category of pharmaceuticals that includes products such as minerals, electrolytes, and vitamins.
- Opiates/Opioids—This category comprises pain relievers that contain opiates or opioids (synthetic opiates). Narcotic Pain Relievers are in this category, as are drugs identified by toxicology as opiate/opioid metabolites.
- Pain Relievers—This category includes narcotic and nonnarcotic pain relievers.
- Psychotherapeutic Medications—A general grouping of drugs that primarily includes *Antidepressants* and *Antipsychotics*.
- Respiratory System Medications—Drugs that treat conditions or diseases of the respiratory system, including medications such as antihistamines, bronchodilators, decongestants, and expectorants.
- Topical Agents—A category of drugs that includes antiseptics and germicides, dermatological medications, and topical antibacterials.

