*Toxicology*

A special contribution from the American Association of Poison Control Centers.

# 1998 Annual Report of the American Association of Poison Control Centers Toxic Exposure Surveillance System

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Toxic Exposure Surveillance System (TESS) data are compiled by the American Association of Poison Control Centers (AAPCC) in cooperation with the majority of US poison centers. These data are used to identify hazards early, focus prevention education, guide clinical research, and direct training. TESS data have prompted product reformulations, repackaging, recalls, and bans; are used to support regulatory actions; and form the basis of postmarketing surveillance of newly released drugs and products.

From its inception in 1983, TESS has grown dramatically, with increases in the number of participating poison centers, population served by those centers, and reported human exposures (Table 1).[1-15]

The cumulative AAPCC database now contains 24.8 million human poison exposure cases. This report includes 2,241,082 human exposure cases reported by 65 participating poison centers during 1998, an increase of 2.2% compared with 1997 poisoning reports.

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Centers participating in this report include Children's Hospital of Alabama Regional Poison Control Center, Birmingham, AL; Alabama Poison Center, Tuscaloosa, AL; Arizona Poison and Drug Information Center, Tucson, AZ; Samaritan Regional Poison Center, Phoenix, AZ; California Poison Control System–Fresno Division, CA; California Poison Control System–Sacramento Division, CA; California Poison Control System–San Diego Division, CA; California Poison Control System–San Francisco Division, CA; Rocky Mountain Poison and Drug Center, Denver, CO; Connecticut Poison Control Center, Farmington, CT; National Capital Poison Center, Washington, DC; Florida Poison Information and Toxicology Resource Center, Tampa, FL; Florida Poison Information Center, Jacksonville, FL; Florida Poison Information Center, Miami, FL; Georgia Poison Center, Atlanta, GA; Illinois Poison Control Center, Chicago, IL; Indiana Poison Center, Indianapolis, IN; Iowa Poison Center, Sioux City, IA; Mid-America Poison Control Center, Kansas City, KS; Kentucky Regional Poison Center, Louisville, KY; Louisiana Drug and Poison Information Center, Monroe, LA; Maryland Poison Center, Baltimore, MD; Massachusetts Poison Control System, Boston, MA; Children's Hospital of Michigan Regional Poison Control Center, Detroit, MI; Spectrum Health Regional Poison Center, Grand Rapids, MI; Hennepin Regional Poison Center, Minneapolis, MN; Minnesota Regional Poison Center, Minneapolis, MN; Cardinal Glennon Children's Hospital Regional Poison Center, St. Louis, MO; The Poison Center, Omaha, NE; New Hampshire Poison Information Center, Lebanon, NH; New Jersey Poison Information and Education System, Newark, NJ; New Mexico Poison and Drug Information Center, Albuquerque, NM; New York City Poison Control Center, New York, NY; Hudson Valley Regional Poison Center, Sleepy Hollow, NY; Long Island Regional Poison Control Center, Mineola, NY; Finger Lakes Regional Poison and Drug Information Center, Rochester, NY; Central New York Poison Control Center, Syracuse, NY; Western New York Regional Poison Control Center, Buffalo, NY; Carolinas Poison Center, Charlotte, NC; Western North Carolina Poison Center, Asheville, NC; North Dakota Poison Information Center, Fargo, ND; Cincinnati Drug and Poison Information Center, Cincinnati, OH; Central Ohio Poison Center, Columbus, OH; Greater Cleveland Poison Control Center, Cleveland, OH; Oklahoma Poison Control Center, Oklahoma City, OK; Oregon Poison Center, Portland, OR; Pittsburgh Poison Center, Pittsburgh, PA; The Poison Control Center, Philadelphia, PA; Central Pennsylvania Poison Center, Hershey, PA; Lifespan Poison Center, Providence, RI; Middle Tennessee Regional Poison and Clinical Toxicology Center, Nashville, TN; Southern Poison Center, Memphis, TN; Central Texas Poison Center, Temple, TX; North Texas Poison Center, Dallas, TX; Southeast Texas Poison Center, Galveston, TX; Texas Panhandle Poison Center, Amarillo, TX; West Texas Regional Poison Center, El Paso, TX; South Texas Poison Center, San Antonio, TX; Utah Poison Control Center, Salt Lake City, UT; Virginia Poison Center, Richmond, VA; Blue Ridge Poison Center, Charlottesville, VA; Washington Poison Center, Seattle, WA; West Virginia Poison Center, Charleston, WV; University of Wisconsin Hospital Regional Poison Center, Madison, WI; Children's Hospital of Wisconsin Poison Center, Milwaukee, WI.



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**TABLE 1.** Growth of the AAPCC Toxic Exposure Surveillance System

| Year | No. of Participating Centers | Population Served (Millions) | Human Exposures Reported | Exposures/ Thousand Population |
|---|---|---|---|---|
| 1983 | 16 | 43.1 | 251,012 | 5.8 |
| 1984 | 47 | 99.8 | 730,224 | 7.3 |
| 1985 | 56 | 113.6 | 900,513 | 7.9 |
| 1986 | 57 | 132.1 | 1,098,894 | 8.3 |
| 1987 | 63 | 137.5 | 1,166,940 | 8.5 |
| 1988 | 64 | 155.7 | 1,368,748 | 8.8 |
| 1989 | 70 | 182.4 | 1,581,540 | 8.7 |
| 1990 | 72 | 191.7 | 1,713,462 | 8.9 |
| 1991 | 73 | 200.7 | 1,837,939 | 9.2 |
| 1992 | 68 | 196.7 | 1,864,188 | 9.5 |
| 1993 | 64 | 181.3 | 1,751,476 | 9.7 |
| 1994 | 65 | 215.9 | 1,926,438 | 8.9 |
| 1995 | 67 | 218.5 | 2,023,089 | 9.3 |
| 1996 | 67 | 232.3 | 2,155,952 | 9.3 |
| 1997 | 66 | 250.1 | 2,192,088 | 8.8 |
| 1998 | 65 | 257.5 | 2,241,082 | 8.7 |
| Total | | | 24,803,585 | |

## CHARACTERIZATION OF PARTICIPATING CENTERS

Of the 65 reporting centers, 63 submitted data for the entire year. Fifty-two of the 65 participating centers were certified as regional poison centers by the AAPCC in 1998. Annual center call volumes (human exposure cases only) ranged from 10,489 to 96,850 (mean 35,566) for centers participating for the entire year. Penetrance, calculated only for states that were completely served by centers participating in TESS, ranged from 3.7 to 16.9 per 1,000 population with a mean of 8.7 reported exposures per 1,000 population. Penetrance is defined as the number of human poison exposure cases reported per 1,000 individuals in the population served.

A total population of 257.5 million was served by the participating centers, including 42 entire states, portions of 4 states, and the District of Columbia (Figure 1). Noting the 270.3 million 1998 United States population, the data presented represent an estimated 95.3% of the human poison exposures that precipitated poison center contacts in the US during 1998. Extrapolating from the 2,241,082 human poison exposures reported in this database, 2.35 million human poison exposures are estimated to have been reported to all US poison centers in 1998. However, extrapolations from the number of reported poisonings to the number of actual poisonings occurring annually in the US cannot be made from these data alone, as considerable variations in poison center penetrance were noted. Indeed, assuming all centers reached the penetrance level of 16.9 poisonings/ 1,000 population reported for one state, 4.6 million poisonings would have been reported to poison centers in 1998.

**TABLE 2.** Site of Caller and Site of Exposure, Human Poison Exposure Cases

| | Site of Caller (%) | Site of Exposure (%) |
|---|---|---|
| Residence | | |
| Own | 77.6 | 88.7 |
| Other | 2.2 | 3.2 |
| Health care facility | 13.1 | 0.3 |
| Workplace | 1.7 | 2.7 |
| School | 0.7 | 1.4 |
| Public area | 0.5 | 1.2 |
| Restaurant/food service | 0.1 | 0.6 |
| Other | 3.9 | 1.0 |
| Unknown | 0.3 | 1.1 |

The data do not directly identify a trend in the overall incidence of poisonings in the US because of changing center participation from year to year and changes in center use. An analysis of data from 61 centers that participated for the entirety of both 1997 and 1998 shows a 0.6% decrease in reported poison exposures from 1997 to 1998 within the regions served by these 61 centers.

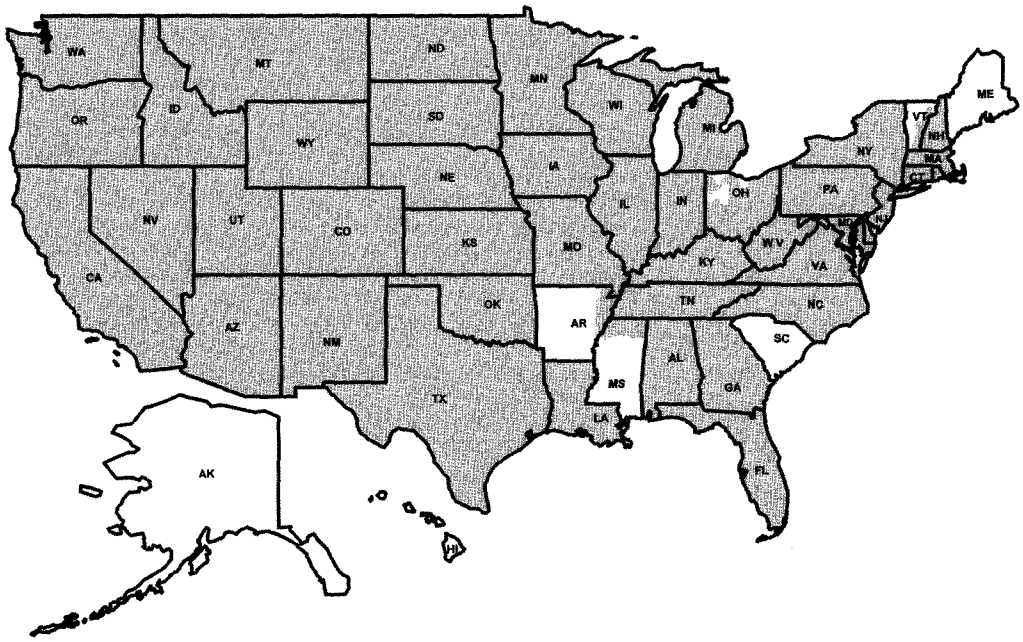


FIGURE 1. Sixty-five poison centers participated in the Toxic Exposure Surveillance System in 1998. The shaded areas denote regions served by reporting centers.

**TABLE 3.** Age and Gender Distribution of Human Poison Exposure Cases

| | Male | | Female | | Unknown | | Total | | Cumulative Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| Age (yr) | No. | Row % | No. | Row % | No. | Row % | No. | Col % | No. | Col % |
| <1 | 76,519 | 52.8 | 67,949 | 46.9 | 428 | 0.3 | 144,896 | 6.5 | 144,896 | 6.5 |
| 1 | 198,941 | 53.2 | 174,639 | 46.7 | 663 | 0.2 | 374,243 | 16.7 | 519,139 | 23.2 |
| 2 | 197,690 | 53.6 | 170,711 | 46.3 | 640 | 0.2 | 369,041 | 16.5 | 888,180 | 39.6 |
| 3 | 91,807 | 55.3 | 73,855 | 44.5 | 312 | 0.2 | 165,974 | 7.4 | 1,054,154 | 47.0 |
| 4 | 43,509 | 56.1 | 33,859 | 43.7 | 158 | 0.2 | 77,526 | 3.5 | 1,131,680 | 50.5 |
| 5 | 26,113 | 56.7 | 19,848 | 43.1 | 111 | 0.2 | 46,072 | 2.1 | 1,177,752 | 52.6 |
| Unknown child ≤5 | 1,471 | 45.2 | 1,258 | 38.7 | 525 | 16.1 | 3,254 | 0.1 | 1,181,006 | 52.7 |
| 6-12 | 89,824 | 56.7 | 67,843 | 42.8 | 684 | 0.4 | 158,351 | 7.1 | 1,339,357 | 59.8 |
| 13-19 | 69,009 | 43.5 | 89,034 | 56.2 | 475 | 0.3 | 158,518 | 7.1 | 1,497,875 | 66.8 |
| Unknown child | 986 | 35.8 | 1,013 | 36.7 | 758 | 27.5 | 2,757 | 0.1 | 1,500,632 | 67.0 |
| Total children (<20) | 795,869 | 53.0 | 700,009 | 46.6 | 4,754 | 0.3 | 1,500,632 | 67.0 | 1,500,632 | 67.0 |
| 20-29 | 81,017 | 44.4 | 101,347 | 55.5 | 216 | 0.1 | 182,580 | 8.1 | 1,683,212 | 75.1 |
| 30-39 | 81,448 | 42.9 | 108,398 | 57.1 | 137 | 0.1 | 189,983 | 8.5 | 1,873,195 | 83.6 |
| 40-49 | 54,371 | 41.9 | 75,316 | 58.0 | 71 | 0.1 | 129,758 | 5.8 | 2,002,953 | 89.4 |
| 50-59 | 26,940 | 39.1 | 41,924 | 60.9 | 31 | 0.0 | 68,895 | 3.1 | 2,071,848 | 92.4 |
| 60-69 | 14,428 | 37.0 | 24,595 | 63.0 | 21 | 0.1 | 39,044 | 1.7 | 2,110,892 | 94.2 |
| 70-79 | 10,473 | 35.2 | 19,283 | 64.8 | 19 | 0.1 | 29,775 | 1.3 | 2,140,667 | 95.5 |
| 80-89 | 4,815 | 31.5 | 10,462 | 68.4 | 11 | 0.1 | 15,288 | 0.7 | 2,155,955 | 96.2 |
| 90-99 | 778 | 27.1 | 2,094 | 72.8 | 3 | 0.1 | 2,875 | 0.1 | 2,158,830 | 96.3 |
| Unknown adult | 29,389 | 39.6 | 42,768 | 57.6 | 2,066 | 2.8 | 74,223 | 3.3 | 2,233,053 | 99.6 |
| Total adults | 303,659 | 41.5 | 426,187 | 58.2 | 2,575 | 0.4 | 732,421 | 32.7 | 2,233,053 | 99.6 |
| Unknown age | 2,685 | 33.4 | 3,563 | 44.4 | 1,781 | 22.2 | 8,029 | 0.4 | 2,241,082 | 100.0 |
| Total | 1,102,213 | 49.2 | 1,129,759 | 50.4 | 9,110 | 0.4 | 2,241,082 | 100.0 | 2,241,082 | 100.0 |

## REVIEW OF THE DATA

Of the 2,241,082 human exposures reported in 1998, 91.9% occurred at a residence (Table 2). Two unlikely sites of poisonings, health care facilities and schools, accounted for 6,311 (0.3%) and 30,850 (1.4%) poison exposures, respectively. Poison center peak call volumes were noted from 4 PM to 10 PM, although call frequency remained consistently high between 8 AM and midnight, with 91% of calls logged during this 16-hour period. Although the average number of poison center consultations handled per day by all participating US poison centers was 6,140, higher volumes were observed in the warmer months (up to 6,569/day in July) compared to 5,588 consultations per day in December.

The age and gender distribution of human poison exposure victims is outlined in Table 3. Children younger than 3 years were involved in 39.6% of cases, and 52.7% occurred in children younger than 6 years. A male predominance is found among poison exposure victims younger than 13 years, but the gender distribution is reversed in teenagers and adults. Although the gender distribution was nearly equal for unintentional exposures, 59.4% of intentional exposures occurred in females, as did 64.2% of adverse reactions. Of all poison exposures captured, 8,120 occurred in pregnant women. Of those with known pregnancy duration, 32% occurred in the first trimester, 38% in the second trimester, and 30% in the third trimester. In 4.2% of cases (94,713 cases) multiple patients were implicated in the

**TABLE 4.** Distribution of Age and Gender for 775 Fatalities

| Age (yr) | Male | Female | Total | % | Cumulative Total | Cumulative % |
|---|---|---|---|---|---|---|
| <1 | 0 | 0 | 0 | 0.0 | 0 | 0.0 |
| 1 | 5 | 0 | 5 | 0.6 | 5 | 0.6 |
| 2 | 3 | 1 | 4 | 0.5 | 9 | 1.2 |
| 3 | 2 | 1 | 3 | 0.4 | 12 | 1.5 |
| 4 | 2 | 1 | 3 | 0.4 | 15 | 1.9 |
| 5 | 1 | 0 | 1 | 0.1 | 16 | 2.1 |
| 6-12 | 1 | 4 | 5 | 0.6 | 21 | 2.7 |
| 13-19 | 30 | 16 | 46 | 5.9 | 67 | 8.6 |
| 20-29 | 80 | 46 | 126 | 16.3 | 193 | 24.9 |
| 30-39 | 80 | 61 | 141 | 18.2 | 334 | 43.1 |
| 40-49 | 75 | 90 | 165 | 21.3 | 499 | 64.4 |
| 50-59 | 36 | 49 | 85 | 11.0 | 584 | 75.4 |
| 60-69 | 35 | 36 | 71 | 9.2 | 655 | 84.5 |
| 70-79 | 29 | 28 | 57 | 7.4 | 712 | 91.9 |
| 80-89 | 16 | 25 | 41 | 5.3 | 753 | 97.2 |
| 90-99 | 5 | 4 | 9 | 1.2 | 762 | 98.3 |
| Unknown adult | 9 | 4 | 13 | 1.7 | 775 | 100.0 |
| Total | 409 | 366 | 775 | 100.0 | 775 | 100.0 |

**TABLE 5.** Number of Substances Involved in Human Poison Exposure Cases

| No. of Substances | No. of Cases | % of Cases |
|---|---|---|
| 1 | 2,079,141 | 92.8 |
| 2 | 127,943 | 5.7 |
| 3 | 18,542 | 0.8 |
| 4 | 7,590 | 0.3 |
| 5 | 3,236 | 0.1 |
| 6 | 1,447 | 0.1 |
| 7 | 716 | 0.0 |
| 8 | 323 | 0.0 |
| ≥9 | 2,144 | 0.1 |
| Total | 2,241,082 | 100.0 |

**TABLE 6.** Reason for Human Poison Exposure Cases

| Reason | No. | % |
|---|---|---|
| Unintentional | | |
| General | 1,495,771 | 66.7 |
| Therapeutic error | 144,328 | 6.4 |
| Bite/sting | 80,334 | 3.6 |
| Misuse | 71,261 | 3.2 |
| Environmental | 54,368 | 2.4 |
| Food poisoning | 48,233 | 2.2 |
| Occupational | 44,849 | 2.0 |
| Unknown | 3,136 | 0.1 |
| Total | 1,942,280 | 86.7 |
| Intentional | | |
| Suicidal | 162,432 | 7.2 |
| Misuse | 33,828 | 1.5 |
| Abuse | 29,305 | 1.3 |
| Unknown | 9,411 | 0.4 |
| Total | 234,976 | 10.5 |
| Other | | |
| Malicious | 6,948 | 0.3 |
| Contaminant/tampering | 5,863 | 0.3 |
| Total | 12,811 | 0.6 |
| Adverse Reaction | | |
| Drug | 31,601 | 1.4 |
| Other | 8,963 | 0.4 |
| Food | 4,656 | 0.2 |
| Total | 45,220 | 2.0 |
| Unknown | 5,795 | 0.3 |
| Total | 2,241,082 | 100.0 |

poison exposure episode (eg, siblings "shared" a household product, multiple patients inhaled vapors at a hazardous materials spill).

Table 4 presents the age and gender distribution for the 775 reported fatalities. Although responsible for the majority of poisoning reports, children younger than 6 years comprised just 2.1% (16) of the fatalities. Fifty-six percent of poisoning fatalities occurred in 20- to 49-year-old individuals.

A single substance was implicated in 92.8% of reports, and 1.5% of patients were exposed to more than 2 possibly poisonous drugs or products (Table 5). In contrast, 44.7% of fatal cases involved 2 or more drugs or products. The overwhelming majority of human exposures were acute (93.7%) compared to only 57.0% of poison-related fatal exposures. Chronic exposures comprised 2.1% of all poison exposure reports, and acute-on-chronic exposures comprised 3.6%. (Chronic exposures were defined as continuous or repeated exposures occurring in a period exceeding 8 hours.)

Reason for exposure was coded according to the following definitions: *Unintentional general:* All unintentional exposures not specifically defined below. Most unintentional exposures in children are captured here. *Environmental:* Any passive, nonoccupational exposure that results from contamination of air, water, or soil. Environmental exposures are usually caused by man-made contaminants. *Occupational:* An exposure that occurs as a direct result of the person being on the job or in the workplace. *Therapeutic error:* An unintentional deviation from a proper therapeutic regimen that results in the wrong dose, incorrect route of administration, administration to the wrong person, or administration of the wrong substance. Only exposures to medications or products substituted for medications are included. Drug interactions resulting from unintentional administration of drugs or foods that are known to interact are also included. *Unintentional misuse:* Unintentional improper or incorrect use of a nonpharmaceutical substance. Unintentional misuse differs from intentional misuse in that the exposure was unplanned or not foreseen by the patient. *Bite/sting:* All animal bites and stings, with or without envenomation, are included. *Food poisoning:* Suspected or confirmed food poisoning; ingestion of food contaminated with microorganisms is included. *Unintentional unknown:* An exposure determined to be unintentional but the exact reason is unknown. *Suspected suicidal:* An exposure resulting from the inappropriate use of a substance for reasons that are suspected to be self-destructive or manipulative. *Intentional misuse:* An exposure resulting from the intentional improper or incorrect use of a substance for reasons *other* than the pursuit of a psychotropic effect. *Intentional abuse:* An exposure resulting from the intentional improper or incorrect use of a substance when the victim was likely attempting to achieve a euphoric or psychotropic effect. All recreational use of substances for any effect is included. *Intentional unknown:* An exposure that is determined to be intentional but the specific motive is unknown. *Contaminant/tampering:* The patient is an unintentional victim of a substance that has been adulterated (either maliciously or unintentionally) by the introduction of an undesirable substance. *Malicious:* This category is used to capture patients who are victims of another person's intent to harm them. *Adverse reaction:* An adverse event occurring with normal, prescribed, labeled, or recommended use of the product, as opposed to overdose, misuse, or abuse. Included are cases with an unwanted effect

**TABLE 7.** Distribution of Reason for Exposure by Age

| | <6 Years | | 6-12 Years | | 13-19 Years | | >19 Years | | Unknown | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Reason | No. | Row % | No. | Row % | No. | Row % | No. | Row % | No. | Row % | No. | Col % |
| Unintentional | 1,174,666 | 60.5 | 145,585 | 7.5 | 85,118 | 4.4 | 529,832 | 27.3 | 7,079 | 0.4 | 1,942,280 | 86.7 |
| Intentional | 753 | 0.3 | 7,819 | 3.3 | 66,758 | 28.4 | 156,700 | 66.7 | 2,946 | 1.3 | 234,976 | 10.5 |
| Other | 1,194 | 9.3 | 1,765 | 13.8 | 2,299 | 17.9 | 7,375 | 57.6 | 178 | 1.4 | 12,811 | 0.6 |
| Adverse Reaction | 3,894 | 8.6 | 2,674 | 5.9 | 3,475 | 7.7 | 34,894 | 77.2 | 283 | 0.6 | 45,220 | 2.0 |
| Unknown | 499 | 8.6 | 508 | 8.8 | 868 | 15.0 | 3,621 | 62.5 | 299 | 5.2 | 5,795 | 0.3 |
| Total | 1,181,006 | 52.7 | 158,351 | 7.1 | 158,518 | 7.1 | 732,422 | 32.7 | 10,785 | 0.5 | 2,241,082 | 100.0 |

**TABLE 8.** Distribution of Reason for Exposure and Age for 775 Fatalities

| Reason | <6 Years | 6-12 Years | 13-19 Years | >19 Years | Total |
|---|---|---|---|---|---|
| Unintentional | | | | | |
| General | 8 | 0 | 1 | 10 | 19 |
| Therapeutic error | 1 | 1 | 0 | 38 | 40 |
| Bite/sting | 0 | 1 | 0 | 2 | 3 |
| Misuse | 0 | 0 | 0 | 5 | 5 |
| Environmental | 4 | 2 | 0 | 14 | 20 |
| Food poisoning | 0 | 0 | 0 | 0 | 0 |
| Occupational | 0 | 0 | 1 | 10 | 11 |
| Unknown | 0 | 0 | 0 | 8 | 8 |
| Total | 13 | 4 | 2 | 87 | 106 |
| Intentional | | | | | |
| Suicide | 0 | 1 | 26 | 394 | 421 |
| Misuse | 0 | 0 | 1 | 25 | 26 |
| Abuse | 0 | 0 | 15 | 100 | 115 |
| Unknown | 0 | 0 | 0 | 31 | 31 |
| Total | 0 | 1 | 42 | 550 | 593 |
| Other | 2 | 0 | 0 | 3 | 5 |
| Adverse Reaction | 0 | 0 | 1 | 29 | 30 |
| Unknown | 1 | 0 | 1 | 39 | 41 |
| Total | 16 | 5 | 46 | 708 | 775 |

due to an allergic, hypersensitive, or idiosyncratic response to the active ingredients, inactive ingredients, or excipients. Concomitant use of a contraindicated medication or food is excluded, and coded instead as a therapeutic error.

The vast majority (86.7%) of poison exposures were unintentional; suicidal intent was present in 7.2% of cases (Table 6). Therapeutic errors comprised 6.4% of exposures (144,328 cases), with unintentional nonpharmaceutical product misuse comprising another 3.2% of exposures (71,261 cases). Unintentional poisonings outnumbered intentional poisonings in all age groups (Table 7). In contrast, of the 775 human poisoning fatalities reported, 78% of adult deaths (older than 19 years) were intentional (Table 8).

Ingestions accounted for 74.3% of exposure routes (Table 9), followed in frequency by dermal, inhalation, and ocular

**TABLE 9.** Distribution of Route of Exposure for Human Poison Exposure Cases and 775 Fatalities

| | All Exposure Cases | | Fatal Exposure Cases | |
|---|---|---|---|---|
| Route | No. | % | No. | % |
| Ingestion | 1,749,792 | 74.3 | 638 | 76.0 |
| Dermal | 198,247 | 8.4 | 13 | 1.5 |
| Inhalation | 154,594 | 6.6 | 84 | 10.0 |
| Ocular | 142,145 | 6.0 | 2 | 0.2 |
| Bites and stings | 85,069 | 3.6 | 3 | 0.4 |
| Parenteral | 8,311 | 0.4 | 48 | 5.7 |
| Aspiration | 4,311 | 0.2 | 14 | 1.7 |
| Other | 5,575 | 0.2 | 0 | 0.0 |
| Unknown | 7,943 | 0.3 | 37 | 4.4 |
| Total | 2,355,987 | 100.0 | 839 | 100.0 |

NOTE: Multiple routes of exposure were observed in many poison exposure victims. Percentage is based on the total number of exposure routes (2,355,987 for all patients, 839 for fatal cases) rather than the total number of human exposures (2,241,082) or fatalities (775).

**TABLE 10.** Management Site of Human Poison Exposure Cases

| Site | No. | % |
|---|---|---|
| Managed on-site, nonhealth care facility | 1,684,528 | 75.2 |
| Managed in health care facility | | |
| Treated and released | 275,526 | 12.3 |
| Admitted to critical care | 61,386 | 2.7 |
| Admitted to noncritical care | 33,837 | 1.5 |
| Admitted to psychiatry | 31,724 | 1.4 |
| Lost to follow-up; left AMA | 78,050 | 3.5 |
| Unspecified level of care | 124 | 0.0 |
| Subtotal | 480,647 | 21.4 |
| Other | 20,765 | 0.9 |
| Refused referral | 43,971 | 2.0 |
| Unknown | 11,171 | 0.5 |
| Total | 2,241,082 | 100.0 |

ABBREVIATION: AMA, against medical advice.

exposures. For the 775 fatalities, ingestion, inhalation, and parenteral were the predominant exposure routes.

Clinical effects (signs, symptoms, or laboratory abnormalities) were coded in 30.2% of cases (17.4% had 1 effect, 7.6% had 2 effects, 3.3% had 3 effects, 1.3% had 4 effects, 0.4% had 5 effects, and 0.1% had more than 5 effects). Of 1,454,491 clinical effects coded, 79.6% were deemed related, 8.1% were considered not related, and 12.3% were coded as "unknown if related."

The majority of cases reported to poison centers were managed in a nonhealth care facility (75.2%), usually at the site of exposure, the patient's own home (Table 10). Treatment in a health care facility was rendered in 21.4% of cases and recommended in another 2.0% of patients who refused the referral. The percentage of patients treated in a health care facility varied considerably with age. Only 10.6% of children under 6 years and only 13.7% of children between 6 and 12 years were managed in a health care facility compared to 45.2% of teenagers (13 to 19 years) and 35.3% of adults (over 19 years). Of cases managed in a health care facility, 57.3% were treated and released without admission, 12.8% were admitted for critical care, and 7.0% were admitted for noncritical care. Where treatment was provided in a health care facility, 38.1% of the patients were referred in by the poison center and 61.9% were already in or en route to the health care facility when the poison center was contacted. Health care facilities included acute care hospitals (86.7%), physician offices or clinics (11.0%), and freestanding emergency centers (2.3%).

Table 11 displays the medical outcome of the human poison exposure cases distributed by age, showing more severe outcomes in the older age groups. Table 12 compares medical outcome and reason for exposure, and shows the greater frequency of serious outcomes in intentional exposures. Table 13 shows the increasing duration of the clinical effects observed with more severe outcomes. Medical outcome categories were as follows: *No effect:* The patient developed no signs or symptoms as a result of the exposure. *Minor effect:* The patient developed some signs or symptoms as a result of the exposure, but they were minimally bothersome and generally resolved rapidly with no residual disability or disfigurement. A minor effect is often limited to

**TABLE 11.** Medical Outcome of Human Poison Exposure Cases by Patient Age

| | <6 Years | | 6-12 Years | | 13-19 Years | | >19 Years | | Unknown | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Outcome | No. | Col % | No. | Col % | No. | Col % | No. | Col % | No. | Col % | No. | % |
| No effect | 400,461 | 33.9 | 33,248 | 21:0 | 30,824 | 19.4 | 98,374 | 13.4 | 1,296 | 12.1 | 564,203 | 25.2 |
| Minor effect | 121,574 | 10.3 | 32,475 | 20.5 | 42,386 | 26.7 | 181,723 | 24.8 | 1,414 | 13.2 | 379,572 | 16.9 |
| Moderate effect | 8,977 | 0.8 | 3,829 | 2.4 | 13,100 | 8.3 | 61,369 | 8.4 | 322 | 3.0 | 87,597 | 3.9 |
| Major effect | 682 | 0.1 | 267 | 0.2 | 1,407 | 0.9 | 9,337 | 1.3 | 42 | 0.4 | 11,735 | 0.5 |
| Death | 16 | 0.0 | 5 | 0.0 | 46 | 0.0 | 708 | 0.1 | 0 | 0.0 | 775 | 0.0 |
| No follow-up, nontoxic | 282,893 | 24.0 | 27,750 | 17.5 | 11,746 | 7.4 | 58,616 | 8.0 | 1,082 | 10.1 | 382,087 | 17.0 |
| No follow-up, minimal toxicity | 331,892 | 28.1 | 52,432 | 33.1 | 40,547 | 25.6 | 227,073 | 31.0 | 3,065 | 28.5 | 655,009 | 29.2 |
| No follow-up, potentially toxic | 14,374 | 1.2 | 3,240 | 2.0 | 13,275 | 8.4 | 52,753 | 7.2 | 3,159 | 29.4 | 86,801 | 3.9 |
| Unrelated effect | 20,180 | 1.7 | 5,105 | 3.2 | 5,187 | 3.3 | 42,469 | 5.8 | 362 | 3.4 | 73,303 | 3.3 |
| Total | 1,181,049 | 52.7 | 158,351 | 7.1 | 158,518 | 7.1 | 732,422 | 32.7 | 10,742 | 0.5 | 2,241,082 | 100.0 |

**TABLE 12.** Distribution of Medical Outcome by Reason for Exposure for Human Poison Exposure Cases

| | Unintentional | | Intentional | | Other | | Adverse Reaction | | Unknown | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Outcome | No. | Col % | No. | Col % | No. | Col % | No. | Col % | No. | Col % | No. | Col % |
| No effect | 514,142 | 26.5 | 47,324 | 20.1 | 1,482 | 11.6 | 815 | 1.8 | 440 | 7.6 | 564,203 | 25.2 |
| Minor effect | 301,343 | 15.5 | 64,446 | 27.4 | 2,982 | 23.3 | 9,986 | 22.1 | 815 | 14.1 | 379,572 | 16.9 |
| Moderate effect | 48,149 | 2.5 | 33,401 | 14.2 | 607 | 4.7 | 4,749 | 10.5 | 691 | 11.9 | 87,597 | 3.9 |
| Major effect | 2,735 | 0.1 | 8,160 | 3.5 | 83 | 0.6 | 418 | 0.9 | 339 | 5.9 | 11,735 | 0.5 |
| Death | 106 | 0.0 | 593 | 0.3 | 5 | 0.0 | 30 | 0.1 | 41 | 0.7 | 775 | 0.0 |
| No follow-up, nontoxic | 374,337 | 19.3 | 4,576 | 1.9 | 1,736 | 13.6 | 1,226 | 2.7 | 212 | 3.7 | 382,087 | 17.0 |
| No follow-up, minimal toxicity | 600,944 | 30.9 | 31,520 | 13.4 | 3,949 | 30.8 | 17,359 | 38.4 | 1,237 | 21.3 | 655,009 | 29.2 |
| No follow-up, potentially toxic | 42,434 | 2.2 | 39,808 | 16.9 | 919 | 7.2 | 2,432 | 5.4 | 1,208 | 20.8 | 86,801 | 3.9 |
| Unrelated effect | 58,085 | 3.0 | 5,153 | 2.2 | 1,048 | 8.2 | 8,205 | 18.1 | 812 | 14.0 | 73,303 | 3.3 |
| Total | 1,942,275 | 86.7 | 234,981 | 10.5 | 12,811 | 0.6 | 45,220 | 2.0 | 5,795 | 0.3 | 2,241,082 | 100.0 |

the skin or mucous membranes (eg, self-limited gastrointestinal symptoms, drowsiness, skin irritation, first degree dermal burn, sinus tachycardia without hypotension, and transient cough). *Moderate effect:* The patient exhibited signs or symptoms as a result of the exposure that were more pronounced, more prolonged, or more of a systemic nature than minor symptoms. Usually some form of treatment is indicated. Symptoms were not life-threatening and the patient has no residual disability or disfigurement (eg, corneal abrasion, acid-base disturbance, high fever, disorientation, hypotension that is rapidly responsive to treatment, and isolated brief seizures that respond readily to treatment). *Major effect:* The patient exhibited signs or symptoms as a result of the exposure that were life-threatening or resulted in significant residual disability or disfigurement (eg, repeated seizures or status epilepticus, respiratory compromise requiring intubation, ventricular tachycardia with hypotension, cardiac or respiratory arrest, esophageal stricture, and disseminated intravascular coagulation). *Death:* The patient died as a result of the exposure or as a direct complication of the exposure. Only those deaths that were probably or undoubtedly related to the exposure are coded here. *Not followed, judged as nontoxic exposure:* No follow-up calls were made to determine the patient's outcome because the substance implicated was nontoxic, the amount implicated was insignificant, or the route of exposure was unlikely to result in a clinical effect. *Not followed, minimal clinical effects possible:* No follow-up calls were made to determine the patient's outcome because the exposure was likely to result in only minimal toxicity of a trivial nature. (The patient was expected to experience no more than a minor effect.) *Unable to follow, judged as a potentially toxic exposure:* The patient was lost to follow-up, refused follow-up, or was not followed but the exposure was significant and may have resulted in a moderate, major, or fatal outcome.

**TABLE 13.** Duration of Clinical Effects by Medical Outcome

| Duration of Effect | Minor Effect (Col %) | Moderate Effect (Col %) | Major Effect (Col %) |
|---|---|---|---|
| ≤2 hours | 43.5 | 8.0 | 2.6 |
| >2 hours, ≤8 hours | 24.3 | 22.2 | 9.1 |
| >8 hours, ≤24 hours | 17.8 | 30.2 | 29.2 |
| >24 hours, ≤3 days | 6.7 | 17.9 | 28.9 |
| >3 days, ≤1 week | 2.0 | 7.9 | 13.3 |
| >1 week, ≤1 month | 0.6 | 2.9 | 5.5 |
| >1 month | 0.2 | 0.8 | 1.4 |
| Anticipated permanent | 0.0 | 0.2 | 2.6 |
| Unknown | 4.8 | 9.9 | 7.5 |

**TABLE 14.** Decontamination and Therapeutic Intervention

| Therapy | No. of Patients | % |
|---|---|---|
| Decontamination only | 1,336,438 | 59.6 |
| Observation only | 283,497 | 12.7 |
| No therapy provided | 267,616 | 11.9 |
| Decontamination and other therapy | 129,034 | 5.8 |
| Other therapy only (no decontamination) | 89,384 | 4.0 |
| Unknown if therapy provided/patient refused | 135,113 | 6.0 |

**TABLE 15.** Therapy Provided in Human Exposure Cases

| Therapy | No. |
|---|---|
| Decontamination | |
| Dilution/irrigation | 1,168,191 |
| Activated charcoal, single dose | 140,472 |
| Cathartic | 85,644 |
| Gastric lavage | 45,083 |
| Ipecac syrup | 26,653 |
| Activated charcoal, multidose | 11,662 |
| Other emetic | 6,380 |
| Whole bowel irrigation | 2,002 |
| Measures to Enhance Elimination | |
| Hemodialysis | 978 |
| Hemoperfusion | 48 |
| Other extracorporeal procedure | 26 |
| Specific Antidote Administration | |
| *N*-acetylcysteine (oral) | 10,481 |
| Naloxone | 7,611 |
| Flumazenil | 2,083 |
| Antivenin | 863 |
| Atropine | 825 |
| Ethanol | 656 |
| *N*-acetylcysteine (IV) | 646 |
| Hyperbaric oxygen | 471 |
| Phytonadione | 358 |
| Fab fragments | 296 |
| Pyridoxine | 273 |
| Deferoxamine | 221 |
| Dimercaprol (BAL) | 197 |
| Folate | 193 |
| Physostigmine | 168 |
| Succimer | 167 |
| Pralidoxime (2-PAM) | 161 |
| EDTA | 105 |
| Methylene blue | 85 |
| Sodium thiosulfate | 71 |
| Amyl nitrite | 48 |
| Sodium nitrite | 46 |
| Penicillamine | 38 |
| Hydroxocobalamin | 16 |
| Other intervention | |
| Alkalinization (with or without diuresis) | 6,680 |
| Transplantation | 9 |
| ECMO | 4 |

**TABLE 16.** Decontamination Trends

| Year | Human Exposures Reported | % of Exposures Involving Children <6 Years | Ipecac Administered (% of Exposures) | Activated Charcoal Administered (% of Exposures) |
|---|---|---|---|---|
| 1983 | 251,012 | 64.0 | 13.4 | 4.0 |
| 1984 | 730,224 | 64.1 | 12.9 | 4.0 |
| 1985 | 900,513 | 63.4 | 15.0 | 4.6 |
| 1986 | 1,098,894 | 63.0 | 13.3 | 5.2 |
| 1987 | 1,166,940 | 62.3 | 10.1 | 5.2 |
| 1988 | 1,368,748 | 61.8 | 8.4 | 6.5 |
| 1989 | 1,581,540 | 61.1 | 7.0 | 6.4 |
| 1990 | 1,713,462 | 60.8 | 6.1 | 6.7 |
| 1991 | 1,837,939 | 59.9 | 5.2 | 7.0 |
| 1992 | 1,864,188 | 58.8 | 4.3 | 7.3 |
| 1993 | 1,751,476 | 56.0 | 3.7 | 7.3 |
| 1994 | 1,926,438 | 54.1 | 2.7 | 6.8 |
| 1995 | 2,023,089 | 52.9 | 2.3 | 7.7 |
| 1996 | 2,155,952 | 52.8 | 1.8 | 7.3 |
| 1997 | 2,192,088 | 52.5 | 1.5 | 7.1 |
| 1998 | 2,241,082 | 52.7 | 1.2 | 6.8 |

**TABLE 17A.** Substances Most Frequently Involved in Human Exposures

| Substance | No. | %* |
|---|---|---|
| Cleaning substances | 229,500 | 10.2 |
| Analgesics | 215,067 | 9.6 |
| Cosmetics and personal care products | 210,224 | 9.4 |
| Plants | 122,578 | 5.5 |
| Foreign bodies | 103,696 | 4.6 |
| Cough and cold preparations | 99,924 | 4.5 |
| Bites/envenomations | 92,182 | 4.1 |
| Insecticides/pesticides (includes rodenticides) | 86,289 | 3.9 |
| Topicals | 83,455 | 3.7 |
| Food products, food poisoning | 78,690 | 3.5 |
| Sedatives/hypnotics/antipsychotics | 70,982 | 3.2 |
| Antidepressants | 67,872 | 3.0 |
| Hydrocarbons | 66,623 | 3.0 |
| Antimicrobials | 62,034 | 2.8 |
| Chemicals | 61,061 | 2.7 |
| Alcohols | 55,246 | 2.5 |

NOTE: Despite a high frequency of involvement, these substances are not necessarily the most toxic, but rather may only be the most readily accessible.
*Percentages are based on the total number of human exposures rather than the total number of substances.

*Unrelated effect:* The exposure was probably not responsible for the effect. *Confirmed nonexposure:* This outcome option was used during coding to designate cases where there was reliable and objective evidence that an exposure initially believed to have occurred actually never occurred (eg, all missing pills are later located). All cases coded as confirmed nonexposure are excluded from this report. In 1998 there were 6,808 such cases reported nationally.

Tables 14 and 15 outline the use of decontamination procedures, specific antidotes, and measures to enhance elimination in the treatment of patients reported in this database. These must be interpreted as minimum frequencies because of the limitations of telephone data gathering.

**TABLE 17B.** Substances Most Frequently Involved in Pediatric Exposures (Children Under 6 Years)

| Substance | No. | %* |
|---|---|---|
| Cosmetics and personal care products | 157,551 | 13.3 |
| Cleaning substances | 129,441 | 11.0 |
| Analgesics | 89,985 | 7.6 |
| Plants | 84,185 | 7.1 |
| Foreign bodies | 73,983 | 6.3 |
| Cough and cold preparations | 64,781 | 5.5 |
| Topicals | 63,623 | 5.4 |
| Insecticides/pesticides (includes rodenticides) | 46,447 | 3.9 |
| Vitamins | 39,396 | 3.3 |
| Antimicrobials | 36,597 | 3.1 |
| Gastrointestinal preparations | 35,391 | 3.0 |
| Arts/crafts/office supplies | 29,898 | 2.5 |
| Hydrocarbons | 26,018 | 2.2 |
| Antihistamines | 22,854 | 1.9 |
| Hormones and hormone antagonists | 22,655 | 1.9 |

NOTE: Despite a high frequency of involvement, these substances are not necessarily the most toxic, but rather may only be the most readily accessible.
*Percentages are based on the total number of exposures in children under 6 years, rather than the total number of substances.

**TABLE 17C.** Substances Most Frequently Involved in Adult Exposures (>19 years)

| Substance | No. | %* |
|---|---|---|
| Analgesics | 72,846 | 9.9 |
| Cleaning substances | 68,740 | 9.4 |
| Bites/envenomations | 51,747 | 7.1 |
| Sedatives/hypnotics/antipsychotics | 50,098 | 6.8 |
| Antidepressants | 42,044 | 5.7 |
| Food products, food poisoning | 38,841 | 5.3 |
| Chemicals | 30,585 | 4.2 |
| Cosmetics and personal care products | 29,780 | 4.1 |
| Alcohols | 28,217 | 3.9 |
| Hydrocarbons | 26,466 | 3.6 |
| Fumes/gases/vapors | 25,641 | 3.5 |
| Insecticides/pesticides (includes rodenticides) | 25,406 | 3.5 |
| Cardiovascular drugs | 21,953 | 3.0 |
| Plants | 18,949 | 2.6 |
| Antihistamines | 15,889 | 2.2 |

NOTE: Despite a high frequency of involvement, these substances are not necessarily the most toxic, but rather may only be the most readily accessible.
*Percentages are based on the total number of exposures in adults (over 19 years), rather than the total number of substances.

Ipecac syrup was administered in 1.2% of cases. In children under 6 years, ipecac syrup was most often administered outside a health care facility. This pattern was reversed in teenagers and adults, likely reflecting the greater proportion of these patients treated in emergency departments. Ipecac was used more often in children under 6 years (83.4% of all ipecac use). Table 16 demonstrates a steady decline in the use of ipecac-induced emesis in the treatment of poisoning, particularly during the past decade.

Table 17A presents the most common substance categories listed by frequency of exposure. Tables 17B and 17C present similar data for children and adults, respectively, and show the considerable differences between pediatric and adult poison exposures. Table 18 lists the substance categories with the largest number of reported deaths; analgesics

**TABLE 18.** Categories with Largest Numbers of Deaths

| Category | No. | % of All Exposures in Category |
|---|---|---|
| Analgesics | 264 | 0.108 |
| Antidepressants | 152 | 0.224 |
| Stimulants and street drugs | 118 | 0.345 |
| Cardiovascular drugs | 118 | 0.279 |
| Sedative/hypnotics/antipsychotics | 89 | 0.125 |
| Alcohols | 56 | 0.101 |
| Chemicals | 45 | 0.074 |
| Gases and fumes | 38 | 0.092 |
| Cleaning substances | 24 | 0.010 |
| Anticonvulsants | 20 | 0.090 |
| Asthma drugs | 18 | 0.114 |
| Antihistamines | 18 | 0.036 |
| Hydrocarbons | 18 | 0.027 |
| Automotive products | 16 | 0.108 |
| Hormones/hormone antagonists | 16 | 0.043 |
| Insecticides/pesticides (includes rodenticides) | 16 | 0.024 |

**TABLE 19.** 16-Year Comparisons of Fatality Data

| | Total Fatalities | | Suicides | | Pediatric Deaths (<6 years) | |
|---|---|---|---|---|---|---|
| Year | No. | % of Cases | No. | % of Deaths | No. | % of Deaths |
| 1983 | 95 | 0.038 | 60 | 63.2 | 10 | 10.5 |
| 1984 | 293 | 0.040 | 165 | 56.3 | 21 | 7.2 |
| 1985 | 328 | 0.036 | 178 | 54.3 | 20 | 6.1 |
| 1986 | 406 | 0.037 | 223 | 54.9 | 15 | 3.7 |
| 1987 | 397 | 0.034 | 226 | 56.9 | 22 | 5.5 |
| 1988 | 545 | 0.040 | 297 | 54.5 | 28 | 5.1 |
| 1989 | 590 | 0.037 | 323 | 54.7 | 24 | 4.1 |
| 1990 | 612 | 0.036 | 350 | 57.2 | 25 | 4.1 |
| 1991 | 764 | 0.042 | 408 | 53.4 | 44 | 5.8 |
| 1992 | 705 | 0.038 | 395 | 56.0 | 29 | 4.1 |
| 1993 | 626 | 0.036 | 338 | 54.0 | 27 | 4.3 |
| 1994 | 766 | 0.040 | 410 | 53.5 | 26 | 3.4 |
| 1995 | 724 | 0.036 | 405 | 55.9 | 20 | 2.8 |
| 1996 | 726 | 0.034 | 358 | 49.3 | 29 | 4.0 |
| 1997 | 786 | 0.036 | 418 | 53.2 | 25 | 3.2 |
| 1998 | 775 | 0.035 | 421 | 54.3 | 16 | 2.1 |

and antidepressants lead this list. Table 19 shows little variation over the past 16 years in the percentage of cases reported to TESS which are fatal poisonings and in the percentage of reported fatalities which are suicides. In contrast, the percentage of reported fatalities which involve children under 6 years has declined. A breakdown of plant exposures is provided for those most commonly implicated (Table 20).

A summary of the 775 fatal exposures is presented in Table 21. Each of these cases was abstracted and verified by the reporting center, with only those exposures deemed "probably" or "undoubtedly" responsible for the fatality included in this compendium. The highest blood concentration of implicated substances is provided where available to the reporting poison center. Prehospital cardiac and/or respiratory arrests occurred in 32% of all fatalities, and these are indicated in Table 21.

All fatality abstracts from participating centers were reviewed in detail. Selected representative, interesting or unusual cases are presented in the Appendix. Tricyclic antidepressants, acetaminophen, salicylates, opiates, cocaine, digoxin, carbon monoxide, and calcium channel blockers remain the most common agents associated with fatalities. More than half of the carbon monoxide fatalities (17 of 31) were unintentional (environmental) exposures occurring in the victim's own home, suggesting that many or all of these deaths would have been preventable if better environmental monitoring, such as carbon monoxide alarms, had been utilized. Even though tricyclic antidepressants are still widely prescribed and account for a significant number of fatalities due to intentional overdose, several deaths from serotonin syndrome were reported and represent the increased use of selective serotonin reuptake inhibitor drugs.

Four of 16 fatalities in children under 6 years were associated with hydrocarbon ingestion and aspiration. Progressive hypoxia and respiratory failure resulted despite aggressive pulmonary care. There were no deaths from iron preparations.

Hyperthermia was present in a significant number of

**TABLE 20.** Frequency of Plant Exposures by Plant Type

| Botanical Name | Common Name | Frequency |
|---|---|---|
| *Capsicum annuum* | Pepper | 5,374 |
| *Philodendron* spp. | Philodendron | 4,061 |
| *Ilex* spp. | Holly | 3,441 |
| *Spathiphyllum* spp. | Peace lily | 3,350 |
| *Euphorbia pulcherrima* | Poinsettia | 3,296 |
| *Phytolacca americana* | Pokeweed, inkberry | 2,861 |
| *Dieffenbachia* spp. | Dumbcane | 2,141 |
| *Toxicodendron radicans* | Poison ivy | 1,697 |
| *Crassula* spp. | Jade plant | 1,619 |
| *Epipremnum aureum* | Pothos, devil's ivy | 1,250 |
| *Chrysanthemum* spp. | Chrysanthemum | 1,093 |
| *Hedera helix* | English ivy | 1,083 |
| *Taxus* spp. | Yew | 1,046 |
| *Rhododendron* spp. | Rhododendron, azalea | 1,028 |
| *Eucalyptus* spp. | Eucalyptus | 1,027 |
| *Taraxacum officinale* | Dandelion | 948 |
| *Schlumbergera Bridgesii* | Christmas cactus | 886 |
| *Solanum dulcamara* | Climbing nightshade | 876 |
| *Malus* spp. | Apple [seeds] | 844 |
| *Pyracantha* spp. | Pyracantha | 830 |

NOTE: This table provides the frequency of plant exposures reported to poison centers and has no correlation with severity of toxicity. Several of the plants on the list pose little, if any, ingestion hazard.

deaths from salicylate, methamphetamine, olanzapine, and tranylcypromine, and is known to be associated with a poor prognosis. Early, aggressive temperature reduction procedures need to be emphasized in these patients.

Some trends to look for in the future were brought to our attention by the increased number of fatalities associated with metformin and olanzapine. Metformin deaths associated with lactic acidosis (n = 5) increased this year to more than the previous 2 years combined. Olanzapine was associated with 5 deaths in 1998 and only 2 in 1997.

Tables 22A and 22B provide comprehensive demographic data on patient age, reason for exposure, medical outcome, and use of a health care facility for all 2,241,082 exposures, presented by category. Table 22A focuses on nonpharmaceuticals; Table 22B presents drugs. Of the 2,402,766 substances logged in Tables 22A and 22B, 58.2% were nonpharmaceuticals and 41.8% were pharmaceuticals. The reason for the exposure was intentional for 25.9% of pharmaceutical substances implicated compared with only 3.9% of nonpharmaceutical substances. Correspondingly, treatment in a health care facility was provided in a higher percentage of exposures to pharmaceutical substances (34.6%) compared with nonpharmaceutical substances (16.3%). Pharmaceutical exposures also had more severe outcomes. Of substances implicated in fatal cases, 77.7% were pharmaceuticals, compared with only 41.8% in nonfatal cases. Similarly, 79.0% of substances implicated in major outcomes were pharmaceuticals.

In closing, we gratefully acknowledge the extensive contributions of each participating poison center and the assistance of the many health care providers who provided comprehensive data to the poison centers for inclusion in this database.

**TABLE 21.** Summary of Fatal Exposures Reported to TESS in 1998

| Case | Age | Substances | Chronicity | Route | Reason | Blood Concentrations | Interval After Exposure |
|---|---|---|---|---|---|---|---|
| NONPHARMACEUTICALS | | | | | | | |
| Alcohols | | | | | | | |
| 1[ip] | 35 yr | Ethanol | A/C | Ingestion | Int abuse | 566.4 mg/dL§ | |
| 2[p] | 37 yr | Ethanol | A | Ingestion | Int abuse | 250 mg/dL§ | |
| 3 | 52 yr | Ethanol | A/C | Ingestion | Int abuse | | |
| 4 | 56 yr | Ethanol<br>acetaminophen | C | Ingestion | Unknown | 97 µg/mL | |
| 5[p] | 54 yr | Ethanol<br>acetaminophen/codeine | C | Ingestion | Int abuse | 6 µg/mL¥ | |
| 6 | 70 yr | Ethanol<br>acetaminophen/propoxyphene | C | Ingestion | Int abuse | 64 µg/mL¥ | |
| 7[p] | 32 yr | Ethanol<br>clonazepam | A/C | Ingestion | Int suicide | 347 mg/dL | |
| 8[ap] | 48 yr | Ethanol<br>disulfiram | A/C | Ingestion | Int abuse | 82 mg/dL | |
| 9[p] | 48 yr | Ethanol<br>ethylene glycol | A/C | Ingestion | Int abuse | 140 mg/dL | |
| 10 | 51 yr | Ethanol<br>glipizide<br>insulin | U | Ing/Paren | Int unknown | | |
| 11[ip] | 22 yr | Ethanol<br>heroin<br>cannabinoids | A/C | Ing/Inh | Int abuse | 84 mg/dL§<br>morphine 65 ng/mL§<br>delta-9-THC 5.9 ng/mL§<br>delta-9-carboxy-THC 14 ng/mL§ | |

*(Continued on following page)*

**TABLE 21.** Summary of Fatal Exposures Reported to TESS in 1998 (Cont'd)

| Case | Age | Substances | Chronicity | Route | Reason | Blood Concentrations | Interval After Exposure |
|---|---|---|---|---|---|---|---|
| 12 | 45 yr | Ethanol<br>ibuprofen | C | Ingestion | Int abuse | | |
| 13 | 42 yr | Ethanol<br>isopropanol | A/C | Ingestion | Int abuse | 313 mg/dL<br>64 mg/dL | |
| 14[ip] | 40 yr | Ethanol<br>methadone | A | Ingestion | Int abuse | 81 mg/dL§<br>0.56 µg/mL§ | |
| 15[p] | 24 yr | Ethanol<br>mirtazapine<br>fluoxetine | A | Ingestion | Int abuse | | |
| 16 | 40 yr | Ethanol<br>unknown caustic | C | Ingestion | Int abuse | 13 mg/dL | |
| 17[p] | 69 yr | Isopropanol | A | Ingestion | Int suicide | 8.9 mg/dL | |
| 18[ap] | 12 mo | Isopropanol<br>boric acid roach powder | A | Ingestion | Malicious | 11 mg/dL§ | |
| 19 | 23 yr | Methanol | A | Ingestion | Int abuse | | |
| 20 | 27 yr | Methanol | A | Ingestion | Int unknown | 284 mg/dL | |
| 21[a] | 27 yr | Methanol | A | Ingestion | Int suicide | 230 mg/dL | |
| 22[a] | 31 yr | Methanol | U | Ingestion | Int abuse | 40 mg/dL | |
| 23 | 40 yr | Methanol | A | Ingestion | Unknown | 360 mg/dL | |
| 24 | 43 yr | Methanol | A | Ingestion | Int suicide | 538 mg/dL | |
| 25 | 43 yr | Methanol | A | Ingestion | Int suicide | 201 mg/dL | |
| 26[p] | 45 yr | Methanol | A | Ingestion | Int suicide | 148 mg/dL§ | |
| 27 | 61 yr | Methanol | A | Ingestion | Int suicide | 413 mg/dL | |
| 28 | 71 yr | Methanol | A | Ingestion | Int suicide | 127 mg/dL | |
| 29 | >19 yr | Methanol | A | Ingestion | Int misuse | | |
| 30 | 52 yr | Methanol<br>ethanol | U | Ingestion | Int unknown | 243 mg/dL | |
| *See also cases 30, 63, 96, 161, 239 thru 241, 273 thru 275, 316, 337, 339, 340, 380, 388, 391, 436, 437, 449, 469, 471 thru 474, 479, 524, 526, 547, 576, 625, 719, 720, and 727 (ethanol); 13 (isopropanol); 106 (rubbing alcohol).* | | | | | | | |
| Automotive products | | | | | | | |
| 31 | 17 yr | Antifreeze (ethylene glycol) | A | Ingestion | Int suicide | 172 mg/dL | |
| 32 | 21 yr | Antifreeze (ethylene glycol) | A | Ingestion | Int suicide | 52 mg/dL | |
| 33 | 24 yr | Antifreeze (ethylene glycol) | A | Ingestion | Int suicide | 272 mg/dL | |
| 34 | 34 yr | Antifreeze (ethylene glycol) | A | Ingestion | Int suicide | | |
| 35 | 38 yr | Antifreeze (ethylene glycol) | U | Ingestion | Malicious | | |
| 36 | 40 yr | Antifreeze (ethylene glycol) | A | Ingestion | Int suicide | | |
| 37 | 42 yr | Antifreeze (ethylene glycol) | A | Ingestion | Int suicide | | |
| 38 | 43 yr | Antifreeze (ethylene glycol) | A | Ingestion | Int suicide | 10 mg/dL<br>glycolic acid 110 mg/dL | |
| 39[p] | 58 yr | Antifreeze (ethylene glycol) | A | Ingestion | Int suicide | | |
| 40 | 65 yr | Antifreeze (ethylene glycol) | A | Ingestion | Int suicide | 140 mg/dL | |
| 41 | 69 yr | Antifreeze (ethylene glycol) | A | Ingestion | Int suicide | | |
| 42 | 83 yr | Antifreeze (ethylene glycol) | A | Ingestion | Unknown | 733 mg/dL | |
| 43 | 40 yr | Antifreeze (ethylene glycol)<br>acetaminophen | A | Ingestion | Int suicide | 6.9 mg/dL<br>6 µg/mL | |
| 44 | 32 yr | Antifreeze (ethylene glycol)<br>propylene glycol | A | Ingestion | Int unknown | 100 µg/dL | |
| 45[a] | 36 yr | Polyester resin/amorphous silicate/talc/styrene | A | Inhalation | Occ | | |
| 46 | 43 yr | Windshield washer fluid (methanol) | A | Ingestion | Int suicide | | |
| 47 | 48 yr | Windshield washer fluid (methanol) | A | Ingestion | Int suicide | 152 mg/dL | |
| 48 | 74 yr | Windshield washer fluid (methanol)<br>antifreeze (ethylene glycol) | A | Ingestion | Unint gen | 72.7 mg/dL§ | |
| 49[p] | 22 yr | Windshield washer fluid (methanol)<br>mineral spirits<br>acetaminophen | A | Ingestion | Int suicide | 50 µg/mL | |
| *See also cases 48, 231 (antifreeze, ethylene glycol); and 231 (windshield washer fluid, methanol).* | | | | | | | |
| Battery | | | | | | | |
| 50 | 38 yr | Battery acid (sulfuric acid) | A | Ingestion | Int suicide | | |
| 51 | 97 yr | Hearing aid battery in hearing aid | A | Ingestion | Unint gen | | |
| Bites and envenomations | | | | | | | |
| 52 | 72 yr | Hymenoptera stings | A | Bite/sting | Bite/sting | | |

*(Continued on following page)*

**TABLE 21.** Summary of Fatal Exposures Reported to TESS in 1998 (Cont'd)

| Case | Age | Substances | Chronicity | Route | Reason | Blood Concentrations | Interval After Exposure |
|---|---|---|---|---|---|---|---|
| 53[a] | 7 yr | *Loxosceles reclusa* | A | Bite/sting | Bite/sting | | |
| 54 | 66 yr | Unknown spider | A | Bite/sting | Bite/sting | | |
| Chemicals | | | | | | | |
| 55[a] | 76 yr | Copper paint powder | A | Ing/Inh | Unint gen | | |
| 53[a] | 7 yr | *Loxosceles reclusa* | A | Bite/sting | Bite/sting | | |
| 54 | 66 yr | Unknown spider | A | Bite/sting | Bite/sting | | |
| 56[p] | 19 yr | Cyanide | A | Ingestion | Int suicide | | |
| 57[p] | 20 yr | Cyanide, potassium | A | Ingestion | Int suicide | | |
| 58[p] | 26 yr | Cyanide | A | Ingestion | Int suicide | >5 µg/mL§ | |
| 59[p] | 34 yr | Cyanide, potassium | A | Ingestion | Int suicide | | |
| 60 | 41 yr | Cyanide | A | Ing/Inh | Malicious | | |
| 61[p] | 46 yr | Cyanide | A | Ingestion | Int suicide | | |
| 62[p] | 51 yr | Cyanide | A | Inhalation | Int suicide | 120 µg/mL§ | |
| 63[p] | 60s yr | Cyanide<br>ethanol | A | Ingestion | Int suicide | 54 µg/mL§<br>140 mg/dL§ | |
| 64 | 28 yr | Ethylene glycol | A | Ingestion | Int suicide | 26 mg/dL | |
| 65 | 36 yr | Ethylene glycol | A | Ingestion | Unknown | 167 mg/dL | |
| 66 | 37 yr | Ethylene glycol | A | Ingestion | Unknown | | |
| 67 | 42 yr | Ethylene glycol | A | Ingestion | Int suicide | 70 mg/dL | |
| 68 | 48 yr | Ethylene glycol | A | Ingestion | Int unknown | | |
| 69 | 49 yr | Ethylene glycol | A | Ingestion | Int suicide | 140 mg/dL | |
| 70 | 50 yr | Ethylene glycol | A | Ingestion | Int suicide | | |
| 71 | 67 yr | Ethylene glycol | A | Ingestion | Unknown | 110 mg/dL | |
| 72[i] | 27 yr | Ethylene glycol<br>benzodiazepines | A | Ingestion | Int suicide | | |
| 73 | 55 yr | Hydrochloric acid | A | Ingestion | Int suicide | | |
| 74 | >19 yr | Hydrofluoric acid (10%) | A | Ingestion | Int suicide | | |
| 75[a] | 62 yr | Nitric acid (70%) | A | Ingestion | Int suicide | | |
| 76 | 35 yr | Sodium azide | A | Ingestion | Int suicide | | |
| 77[p] | 46 yr | Strychnine | A | Ingestion | Unknown | 1.93 µg/mL§ | |
| 78 | 50 yr | Sulfuric acid<br>pyrethrins/piperonyl butoxide | A | Ingestion | Int suicide | | |
| 79[p] | 17 yr | Tetrafluoroethene | A | Inhalation | Int abuse | | |
| 80 | 54 yr | Unknown alkaline corrosive | A | Asp/Ing | Unknown | | |
| 81 | 80 yr | Unknown chemical (caustic) | A | Ingestion | Int suicide | | |
| *See also cases 137, 138 (cyanide); 9, 194 (ethylene glycol); 44 (propylene glycol); 734 (strychnine); 149, 150 (trichlorosilane); and 16 (unknown caustic).* | | | | | | | |
| Cleaning substances | | | | | | | |
| 82[p] | 31 yr | Anhydrous ammonia | A | Inhalation | Occ | | |
| 83 | 81 yr | Cationic detergent (25%) | A | Asp/Ing | Unint gen | | |
| 84[p] | 17 yr | Cleaning solution | A | Inhalation | Int abuse | | |
| 85 | >19 yr | Condenser coil cleaner (phosphoric acid/ hydrofluoric acid) | A | Ingestion | Int suicide | | |
| 86 | 80 yr | Dishwashing liquid (hand) | A | Asp/Ing | Unint gen | | |
| 87 | 77 yr | Drain opener (alkali) | A | Ingestion | Int suicide | | |
| 88 | 53 yr | Drain opener (alkali)<br>hydrogen peroxide<br>bleach | A | Ingestion | Int suicide | | |
| 89 | 49 yr | Drain opener (sodium hydroxide) | A | Ingestion | Int suicide | | |
| 90 | 42 yr | Drain opener (sulfuric acid, 85%) | A | Ingestion | Int suicide | | |
| 91 | 46 yr | Drain opener (sulfuric acid) | A | Ingestion | Int suicide | | |
| 92 | 51 yr | Drain opener (sulfuric acid) | A | Ingestion | Int suicide | | |
| 93 | 67 yr | Drain opener (sulfuric acid, 96%) | A | Derm/Ing | Int suicide | | |
| 94 | 73 yr | Drain opener (sulfuric acid, 60-100%) | A | Ingeston | Int suicide | | |
| 95[p] | 78 yr | Drain opener (sulfuric acid) | A | Inhalation | Env | | |
| 96 | 81 yr | Pine oil cleaner<br>ethanol | A | Ingestion | Unknown | 24 mg/dL | |
| 97[ap] | 43 yr | Pine oil/isopropanol cleaner | A | Asp/Ing | Unint gen | | |
| 98[p] | 77 yr | Pine oil/isopropanol cleaner | A | Asp/Ing | Unint gen | | |
| 99 | 82 yr | Pine oil/isopropanol cleaner | A | Asp/Ing | Unint gen | | |
| 100 | 74 yr | Pine oil/isopropanol cleaner<br>clonazepam | A | Ingestion | Int suicide | | |

*(Continued on following page)*

**TABLE 21.** Summary of Fatal Exposures Reported to TESS in 1998 (Cont'd)

| Case | Age | Substances | Chronicity | Route | Reason | Blood Concentrations | Interval After Exposure |
|---|---|---|---|---|---|---|---|
| 101 | 81 yr | Pine oil/isopropanol/potassium hydroxide cleaner | A | Ingestion | Unint gen | | |
| 102 | 32 yr | Rust remover (hydrofluoric acid, 6-8%) | A | Ingestion | Int suicide | | |
| 103 | 56 yr | Rust remover (hydrofluoric acid)<br>potassium chloride<br>albuterol | A/C | Ingestion | Int suicide | | |
| 104 | 84 yr | Toilet bowl cleaner (hydrochloric acid, 9.25%) | A | Ingestion | Int suicide | | |
| 105 | 90 yr | Toilet bowl claner (hydrochloric acid, 8.5-9.5%) | A | Ingestion | Int suicide | | |
| 106 | 40 yr | Toilet bowl cleaner (hydrochloric acid, 14.5%)<br>rubbing alcohol<br>zolpidem | U | Ingestion | Int suicide | | |
| *See also cases 88 (bleach); 271 (dishwasher detergent, alkaline); and 272 (disinfectant, phenol).* | | | | | | | |
| Cosmetics and personal care products | | | | | | | |
| 107 | 51 yr | Home permanent solution | A | Ingestion | Unint misuse | | |
| 108 | 77 yr | Mouthwash (ethanol)<br>acetaminophen | C | Ingestion | Int unknown | 330 µg/mL | 3 d |
| 109[a] | 4 yr | Nail polish remover (acetone) | A | Ingestion | Unint gen | | |
| *See also case 88 (hydrogen peroxide).* | | | | | | | |
| Fumes, gases and vapors | | | | | | | |
| 110[ap] | 46 yr | Ammonia | A | Derm/Inh | Occ | | |
| 111[p] | 3 yr | Carbon monoxide/smoke | A | Inhalation | Env | | |
| 112[p] | 4 yr | Carbon monoxide/smoke | A | Inhalation | Env | 34% | |
| 113 | 10 yr | Carbon monoxide | A | Inhalation | Env | 10.7% | |
| 114[p] | 20 yr | Carbon monoxide | A | Inhalation | Occ | 43% | |
| 115 | 20 yr | Carbon monoxide | U | Inhalation | Unknown | | |
| 116[p] | 20's yr | Carbon monoxide | U | Inhalation | Env | | |
| 117[tp] | 22 yr | Carbon monoxide | A | Inhalation | Env | | |
| 118[p] | 25 yr | Carbon monoxide | A | Inhalation | Int suicide | 51%§ | |
| 119[p] | 26 yr | Carbon monoxide/smoke | A | Inhalation | Env | 44% | |
| 120[p] | 30 yr | Carbon monoxide | A | Inhalation | Env | 50% | |
| 121 | 33 yr | Carbon monoxide/smoke | A | Inhalation | Env | 40% | |
| 122[p] | 35 yr | Carbon monoxide | A | Inhalation | Env | 50% | |
| 123[p] | 38 yr | Carbon monoxide | A | Inhalation | Int suicide | | |
| 124[p] | 38 yr | Carbon monoxide | A | Inhalation | Int suicide | 72%§ | |
| 125[p] | 40 yr | Carbon monoxide | A | Inhalation | Int suicide | 41% | |
| 126[a] | 45 yr | Carbon monoxide | A | Inhalation | Env | 30% | |
| 127[p] | 48 yr | Carbon monoxide | A | Inhalation | Int suicide | 56% | |
| 128[p] | 58 yr | Carbon monoxide | A | Inhalation | Int suicide | 64%§ | |
| 129[p] | 63 yr | Carbon monoxide/smoke | A | Inhalation | Env | 46%§ | |
| 130[p] | 66 yr | Carbon monoxide | A | Inhalation | Env | 35% | |
| 131[p] | 70's yr | Carbon monoxide | A | Inhalation | Env | | |
| 132[p] | 72 yr | Carbon monoxide | C | Inhalation | Env | 48%§ | |
| 133[p] | 73 yr | Carbon monoxide | A | Inhalation | Int suicide | 50% | |
| 134[p] | >19 yr | Carbon monoxide | A | Inhalation | Env | | |
| 135[p] | >19 yr | Carbon monoxide | A | Inhalation | Int suicide | | |
| 136[p] | 34 yr | Carbon monoxide<br>acetaminophen/hydrocodone<br>acetaminophen/propoxyphene | A | Ing/Inh | Int suicide | 3% | |
| 137[p] | 4 yr | Carbon monoxide<br>cyanide | A | Inhalation | Env | 50% | |
| 138[p] | 9 yr | Carbon monoxide<br>cyanide | A | Inhalation | Env | 33% | |
| 139[p] | 17 yr | Carbon monoxide<br>furniture polish (mineral oil, black oil)<br>topical essential oils | A | Ing/Inh | Int suicide | 39% | |
| 140 | 28 yr | Carbon monoxide<br>phenytoin (long-acting)<br>nortriptyline | U | Ing/Inh | Int suicide | <br>48%<br>25 µg/mL | |
| 141 | 42 yr | Carbon monoxide<br>zolpidem<br>diphenhydramine | A | Ing/Inh | Int suicide | 11% | |

*(Continued on following page)*

**TABLE 21.** Summary of Fatal Exposures Reported to TESS in 1998 (Cont'd)

| Case | Age | Substances | Chronicity | Route | Reason | Blood Concentrations | Interval After Exposure |
|---|---|---|---|---|---|---|---|
| 142[p] | 71 yr | Chloramine | A | Inhalation | Unint misuse | | |
| 143[p] | 20's yr | Difluoroethane | U | Inhalation | Occ | | |
| 144[ip] | >19 yr | Hydrogen sulfide | A | Inhalation | Occ | | |
| 145[ip] | >19 yr | Hydrogen sulfide | A | Inhalation | Occ | | |
| 146[p] | >19 yr | Hydrogen sulfide | A | Inhalation | Occ | | |
| 147[p] | 16 yr | Isobutane/propane propellant (air freshner) | A | Inhalation | Int abuse | | |
| 148[p] | 19 yr | Methane | A | Inhalation | Occ | | |
| 149[a] | 26 yr | Silicone tetrachloride<br>trichlorosilane | A | Derm/<br>Inh/Ocu | Occ | | |
| 150 | 55 yr | Silicone tetrachloride<br>trichlorosilane | A | Derm/<br>Inh/Ocu | Occ | | |
| Fungicides | | | | | | | |
| 151 | 85 yr | Triforine | A | Ingestion | Int suicide | | |
| Heavy metals | | | | | | | |
| 152 | 37 yr | Arsenic | A | Ingestion | Int suicide | 5.6 µg/mL§ | |
| 153[a] | 50 yr | Arsenic<br>cadmium | U | Unknown | Unknown | | |
| 154 | 29 yr | Arsenic trioxide | C | Parenteral | Adv rxn | arsenic 69 µg/mL | |
| 155[a] | 69 yr | Arsenic trioxide<br>strychnine (gopher bait) | A | Ingestion | Int suicide | arsenic 0.12 µg/mL | |
| 156[a] | 13 mo | Mercury | A | Inhalation | Env | 160 µg/L | |
| 157[a] | 38 yr | Mercury (elemental) | A | Inhalation | Unint misuse | 160 µg/L | |
| 158[i] | 52 yr | Mercuric chloride/potassium dichromate/<br>acetic acid/sodium sulfate solution | A | Ingestion | Unit misuse | mercury 34,100 µg/L§<br>chromium 12,300 µg/L§ | |
| *See also case 153 (cadmium).* | | | | | | | |
| Herbicides | | | | | | | |
| 159 | 69 yr | Glyphosate (41%) | A | Ingestion | Unknown | | |
| 160 | 56 yr | Paraquat<br>organophosphate | A | Ingestion | Unint misuse | | |
| 161 | 42 yr | Zinc chloride moss killer (62%)<br>ethanol | A | Ingestion | Int suicide | 341 mg/dL | |
| Hydrocarbons | | | | | | | |
| 162[p] | 16 yr | Butane | U | Inhalation | Int abuse | | |
| 163[ap] | 18 yr | Butane | A | Inhalation | Int abuse | | |
| 164[ip] | 19 yr | Butane | U | Inhalation | Int abuse | | |
| 165[p] | 19 yr | Butane | A/C | Inhalation | Int abuse | | |
| 166[ap] | 22 yr | Chlorofluorocarbons | A | Inhalation | Int abuse | | |
| 167[p] | 15 yr | Gasoline | U | Inhalation | Int abuse | | |
| 168 | 41 yr | Glue | A | Inhalation | Int abuse | | |
| 169 | 69 yr | Kerosene | A | Derm/Ing | Int suicide | | |
| 170[a] | 14 mo | Lamp oil | A | Asp/Ing | Unint gen | | |
| 171[ap] | 15 mo | Lighter fluid | A | Asp/Ing | Unint gen | | |
| 172[a] | 3 yr | Lighter fluid | A | Asp/Ing | Unint gen | | |
| 173 | 44 yr | Mineral spirits<br>acetaminophen | A | Asp/Ing | Int suicide | 89 µg/mL | |
| 174[a] | 15 mo | Motor oil | A | Asp/Ing | Unint gen | | |
| 175 | 41 yr | Paint thinner | A | Asp/Ing | Int suicide | | |
| 176[p] | 13 yr | Paint thinner<br>lighter fluid | A | Derm/<br>Ing/Inh | Int suicide | | |
| 177[p] | 35 yr | Voiatile hydrocarbon | A | Inhalation | Env | | |
| 178 | 68 yr | Volatile hydrocarbon | A | Asp/Ing | Int suicide | | |
| *See also cases 194 (hydrocarbon); 176 (lighter fluid); 49 (mineral spirits); and 731 (petroleum distillates).* | | | | | | | |
| Insecticides/pesticides (excluding rodenticides) | | | | | | | |
| 179[p] | 80 yr | Acephate | A | Ingestion | Int suicide | | |
| 180 | 30 yr | Chlorpyrifos | A | Ingestion | Int suicide | | |
| 181[p] | 22 yr | Diazinon | A | Ingestion | Int suicide | | |
| 182[p] | 39 yr | Diazinon | U | Derm/Unk | Int suicide | | |
| 183[p] | 17 yr | Malathion | A | Ingestion | Int suicide | | |
| 184[p] | 59 yr | Malathion<br>sertraline | A | Ingestion | Int suicide | 890 µg/mL§ | |

*(Continued on following page)*

**TABLE 21.** Summary of Fatal Exposures Reported to TESS in 1998 (Cont'd)

| Case | Age | Substances | Chronicity | Route | Reason | Blood Concentrations | Interval After Exposure |
|---|---|---|---|---|---|---|---|
| 185[p] | 40 yr | Organophosphate | A | Derm/Inh | Int suicide | | |
| 186[ap] | 49 yr | Organophosphate | A | Ingestion | Int suicide | | |
| 187 | 80 yr | Organophosphate | A | Derm/Ing | Unknown | | |
| 188 | 86 yr | Phosphorothioate (12.5%)/ petroleum distallates (64%) | A | Asp/Ing | Int suicide | | |
| 189[p] | 56 yr | Propoxur | A | Ingestion | Int suicide | 3.3 µg/mL§ | |
| 190 | 46 yr | Unknown insecticide | A | Derm/ Ing/Inh | Int misuse | | |
| *See also cases 18 (boric acid roach powder); 718 (lindane); 160 (organophosphate); and 78, 769 (pyrethrin/piperonyl butoxide).* | | | | | | | |
| Mushrooms | | | | | | | |
| 191 | 81 yr | Unknown mushroom | A | Ingestion | Unint gen | | |
| Plants | | | | | | | |
| 192 | 60's yr | Oleander extract | U | Parenteral | Int suicide | | |
| 193[a] | 61 yr | *Xanthorhiza simplicissima* | A/C | Ingestion | Int misuse | | |
| Polishes and waxes | | | | | | | |
| 194 | 61 yr | Chrome polish (oxalic acid) ethylene glycol hydrocarbon | A | Ingestion | Int suicide | 11.3 mg/dL | |
| *See also cases 139 (furniture polish, mineral oil/black oil).* | | | | | | | |
| Rodenticides | | | | | | | |
| 195 | 51 yr | Anticoagulant rodenticide | A | Ingestion | Int suicide | | |
| *See also cases 155 (strychnine gopher bait); and 735 (unknown rodenticide).* | | | | | | | |
| PHARMACEUTICALS | | | | | | | |
| Analgesics | | | | | | | |
| 196 | 19 yr | Acetaminophen/diphenhydramine | A | Ingestion | Int suicide | | |
| 197 | 20 yr | Acetaminophen | A | Ingestion | Int suicide | 183 µg/mL | |
| 198 | 25 yr | Acetaminophen | A | Ingestion | Int suicide | 92.1 µg/mL | |
| 199 | 27 yr | Acetaminophen | A | Ingestion | Int suicide | | |
| 200 | 28 yr | Acetaminophen | C | Ingestion | Int misuse | | |
| 201 | 28 yr | Acetaminophen | A | Ingestion | Int suicide | 51 µg/mL | |
| 202 | 29 yr | Acetaminophen | A | Ingestion | Int suicide | 276 µg/mL | 21 h |
| 203 | 30 yr | Acetaminophen | A | Ingestion | Int suicide | 38 µg/mL | |
| 204 | 30 yr | Acetaminophen | A | Ingestion | Int suicide | >200 µg/mL | 36 h |
| 205 | 30 yr | Acetaminophen | A | Ingestion | Int suicide | 31 µg/mL | 30 h |
| 206 | 35 yr | Acetaminophen | A | Ingestion | Int suicide | 25 µg/mL | |
| 207 | 35 yr | Acetaminophen | U | Ingestion | Int suicide | 66 µg/mL | |
| 208 | 37 yr | Acetaminophen | A | Ingestion | Int suicide | 40 µg/mL | 48 h |
| 209 | 41 yr | Acetaminophen | U | Ingestion | Int suicide | | |
| 210 | 44 yr | Acetaminophen | A | Ingestion | Int suicide | 7 µg/mL | 48 h |
| 211 | 44 yr | Acetaminophen | A/C | Ingestion | Int misuse | 18 µg/mL | |
| 212 | 45 yr | Acetaminophen | A | Ingestion | Int suicide | 47 µg/mL | |
| 213 | 45 yr | Acetaminophen | A | Ingestion | Int suicide | 49 µg/mL | |
| 214 | 45 yr | Acetaminophen | C | Ingestion | Int abuse | | |
| 215 | 45 yr | Acetaminophen | A | Ingestion | Int suicide | 644 µg/mL | |
| 216 | 47 yr | Acetaminophen | U | Ingestion | Int unknown | 127 µg/mL | |
| 217 | 48 yr | Acetaminophen | U | Ingestion | Unknown | 156 µg/mL | |
| 218 | 50 yr | Acetaminophen | C | Ingestion | Int misuse | | |
| 219 | 51 yr | Acetaminophen | U | Ingestion | Unknown | 59.3 µg/mL | |
| 220 | 65 yr | Acetaminophen | A | Ingestion | Int suicide | 100 µg/mL | |
| 221 | 68 yr | Acetaminophen | C | Ingestion | Ther error | 188 µg/mL | |
| 222 | 69 yr | Acetaminophen | A | Ingestion | Unknown | 116 µg/mL | |
| 223 | 81 yr | Acetaminophen | A | Ingestion | Unknown | 397 µg/mL | |
| 224 | 81 yr | Acetaminophen | U | Ingestion | Int suicide | 82 µg/mL | |
| 225 | 85 yr | Acetaminophen | U | Ingestion | Unknown | | |
| 226 | 87 yr | Acetaminophen | A | Ingestion | Int suicide | 108 µg/mL | 16 h |
| 227 | 38 yr | Acetaminophen acetaminophen/hydrocodone | C | Ingestion | Ther error | 70.9 µg/mL | |
| 228 | 50 yr | Acetaminophen acetaminophen/hydrocodone carisoprodol | A | Ingestion | Int suicide | 298 µg/mL | 16 h |

*(Continued on following page)*

**TABLE 21.** Summary of Fatal Exposures Reported to TESS in 1998 (Cont'd)

| Case | Age | Substances | Chronicity | Route | Reason | Blood Concentrations | Interval After Exposure |
|---|---|---|---|---|---|---|---|
| 229 | 73 yr | Acetaminophen<br>acetaminophen/hydrocodone<br>diazepam | A | Ingestion | Int suicide | 365 µg/mL | |
| 230 | 60 yr | Acetaminophen<br>acetaminophen/hydrocodone<br>digoxin | C | Ingestion | Ther error | <br><br>3.3 ng/mL | |
| 231 | 22 yr | Acetaminophen<br>antifreeze (ethylene glycol)<br>windshield washer fluid (methanol) | U | Ingestion | Int suicide | 45 µg/mL | |
| 232 | 69 yr | Acetaminophen<br>aspirin | C | Ingestion | Ther error | 50 µg/mL<br>3.6 mg/dL | |
| 233 | 75 yr | Acetaminophen<br>aspirin | U | Ingestion | Unknown | 114 µg/mL<br>42 mg/dL | |
| 234 | 67 yr | Acetaminophen<br>benzodiazepine<br>barbiturate | U | Ingestion | Int suicide | 183.3 µg/mL | |
| 235 | 34 yr | Acetaminophen<br>codeine<br>alprazolam | A | Ingestion | Int suicide | 10 µg/mL | |
| 236 | 20 yr | Acetaminophen<br>diphenhydramine | A | Ingestion | Int suicide | 148 µg/mL | 27 h |
| 237 | 45 yr | Acetaminophen<br>diphenhydramine | A | Ingestion | Int suicide | 365 µg/mL | |
| 238 | 67 yr | Acetaminophen<br>diphenhydramine | C | Ingestion | Unknown | | |
| 239 | 34 yr | Acetaminophen<br>ethanol | C | Ingestion | Ther error | 44 µg/mL | |
| 240[a] | 39 yr | Acetaminophen<br>ethanol | C | Ingestion | Ther error | 27 µg/mL | |
| 241 | 42 yr | Acetaminophen<br>ethanol | C | Ingestion | Int misuse | 90 µg/mL | |
| 242 | 45 yr | Acetaminophen<br>etodolac | A | Ingestion | Int suicide | 85 µg/mL | 2 d |
| 243 | 17 yr | Acetaminophen<br>flurbiprofen | A | Ingestion | Int suicide | | |
| 244 | 29 yr | Acetaminophen<br>hydrocodone/homatropine | U | Ingestion | Unknown | 29.5 µg/mL | |
| 245[a] | 25 yr | Acetaminophen<br>ibuprofen<br>ferrous sulfate | A | Ingestion | Int suicide | 225 µg/mL<br><br>295 µg/dL | 1 h<br><br>7 h |
| 246 | 37 yr | Acetaminophen<br>ketorolac<br>nabumetone | A | Ingestion | Int suicide | 190 µg/mL | |
| 247 | 61 yr | Acetaminophen<br>nefazodone<br>diphenhydramine | C | Ingestion | Int suicide | | |
| 248 | 61 yr | Acetaminophen<br>olanzapine | A | Ingestion | Int unknown | 183 µg/mL | |
| 249 | 31 yr | Acetaminophen<br>opiates | C | Ingestion | Ther error | 31 µg/mL | |
| 250 | 33 yr | Acetaminophen<br>opiates<br>benzodiazepine | U | Ingestion | Unknown | 40 µg/mL | |
| 251[p] | 46 yr | Acetaminophen<br>opiates<br>theophylline | A/C | Ingestion | Int suicide | 106.2 µg/mL<br><br>21.1 µg/mL | |
| 252 | 43 yr | Acetaminophen<br>risperidone | U | Ingestion | Int suicide | 43 µg/mL | 96 h |
| 253 | 80 yr | Acetaminophen<br>theophylline<br>lansoprazole | C | Ingestion | Unint unknown | | |
| 254[p] | 21 yr | Acetaminophen<br>tramadol<br>fluoxetine | U | Ingestion | Int suicide | 32.8 µg/mL | |
| 255 | 40 yr | Acetaminophen<br>tricyclic antidepressant | A | Ingestion | Int suicide | | |

*(Continued on following page)*

**TABLE 21.** Summary of Fatal Exposures Reported to TESS in 1998 (Cont'd)

| Case | Age | Substances | Chronicity | Route | Reason | Blood Concentrations | Interval After Exposure |
|---|---|---|---|---|---|---|---|
| 256[p] | 37 yr | Acetaminophen<br>tricyclic antidepressant<br>opiates | A | Ingestion | Int suicide | 94 µg/mL | |
| 257 | 30 yr | Acetaminophen<br>unknown street drug | A | Ingestion | Int suicide | 378 µg/mL | |
| 258 | 23 yr | Acetaminophen/codeine | A/C | Ingestion | Int suicide | 56 µg/mL¥ | |
| 259 | 45 yr | Acetaminophen/codeine | U | Ingestion | Int unknown | | |
| 260 | 60 yr | Acetaminophen/codeine | A | Ingestion | Int suicide | 113 µg/mL¥ | |
| 261 | 86 yr | Acetaminophen/codeine | U | Ingestion | Int suicide | 12.7 µg/mL¥ | |
| 262 | 66 yr | Acetaminophen/codeine<br>fentanyl | A/C | Ingestion | Int suicide | 79 µg/mL¥ | >24 h |
| 263 | 33 yr | Acetaminophen/codeine<br>iron | A | Ingestion | Int suicide | 236 µg/mL | |
| 264 | 53 yr | Acetaminophen/codeine<br>warfarin | U | Ingestion | Int unknown | 369 µg/mL¥ | |
| 265[p] | 59 yr | Acetaminophen/codeine<br>zolpidem | A/C | Ingestion | Int suicide | 12 µg/mL¥ | |
| 266 | 40 yr | Acetaminophen/diphenhydramine | A | Ingestion | Int suicide | 578 µg/mL¥ | |
| 267[p] | 83 yr | Acetaminophen/diphenhydramine | A | Ingestion | Int suicide | 52 µg/mL¥ | >12 hr |
| 268 | 90 yr | Acetaminophen/diphenhydramine | A | Ingestion | Int suicide | 139 µg/mL¥ | |
| 269 | 20 yr | Acetaminophen/diphenhydramine<br>aspirin | U | Ingestion | Int suicide | 28 mg/dL | 2 d |
| 270 | 67 yr | Acetaminophen/diphenhydramine<br>barbiturate | A | Ingestion | Int suicide | 406 µg/mL¥<br>>200 µg/mL | |
| 271[ap] | 41 yr | Acetaminophen/diphenhydramine<br>dishwasher detergent (alkaline) | A | Ingestion | Int suicide | 845 µg/mL¥ | <12 hr |
| 272 | 50 yr | Acetaminophen/diphenhydramine<br>disinfectant (phenol) | A | Ingestion | Int suicide | 88 µg/mL¥ | 4.5 h |
| 273 | 20 yr | Acetaminophen/diphenhydramine<br>ethanol | A | Ingestion | Int suicide | 148 µg/mL¥ | 24 h |
| 274 | 41 yr | Acetaminophen/diphenhydramine<br>ethanol | A | Ingestion | Int suicide | 200 µg/mL¥ | |
| 275 | 25 yr | Acetaminophen/diphenhydramine<br>ibuprofen<br>ethanol | A | Ingestion | Int suicide | 121 µg/mL¥ | 16 h |
| 276 | 28 yr | Acetaminophen/diphenhydramine<br>pindolol<br>fluoxetine | A | Ingestion | Int suicide | 123 µg/mL¥ | |
| 277 | 29 yr | Acetaminophen/diphenhydramine<br>sertraline | A/C | Ingestion | Int suicide | 3 µg/mL¥ | >24 h |
| 278 | 25 yr | Acetaminophen/hydrocodone | C | Ingestion | Int misuse | 61 µg/mL¥ | |
| 279 | 31 yr | Acetaminophen/hydrocodone | C | Ingestion | Int misuse | 58.4 µg/mL¥<br>hydrocodone 80 ng/mL | |
| 280 | 32 yr | Acetaminophen/hydrocodone | A | Ingestion | Int suicide | 368 µg/mL¥ | 60 h |
| 281 | 36 yr | Acetaminophen/hydrocodone | C | Ingestion | Int suicide | 154 µg/dL¥ | |
| 282 | 42 yr | Acetaminophen/hydrocodone | C | Ingestion | Int abuse | 42 µg/mL | |
| 283 | 44 yr | Acetaminophen/hydrocodone | C | Ingestion | Int misuse | 74 µg/mL¥ | |
| 284 | 46 yr | Acetaminophen/hydrocodone | C | Ingestion | Ther error | 52 µg/mL¥ | |
| 285[p] | 46 yr | Acetaminophen/hydrocodone | A | Ingestion | Int suicide | 461 µg/mL¥ | |
| 286[p] | 37 yr | Acetaminophen/hydrocodone<br>acetaminophen/propoxyphene<br>carisoprodol | A/C | Ingestion | Int abuse | 73 µg/mL¥ | |
| 287 | 49 yr | Acetaminophen/hydrocodone<br>alprazolam<br>clonazepam | A/C | Ingestion | Int suicide | 36 µg/mL¥ | |
| 288 | 41 yr | Acetaminophen/hydrocodone<br>carisoprodol | U | Ingestion | Int suicide | 208 µg/mL¥ | |
| 289 | 33 yr | Acetaminophen/hydrocodone<br>carisoprodol<br>alprazolam | A/C | Ingestion | Int suicide | | |
| 290 | 32 yr | Acetaminophen/hydrocodone<br>carisoprodol<br>aspirin | C | Ingestion | Int abuse | 82 µg/mL¥ | |
| 291 | 34 yr | Acetaminophen/hydrocodone<br>carisoprodol<br>diazepam | U | Ingestion | Int suicide | | |

*(Continued on following page)*

**TABLE 21.** Summary of Fatal Exposures Reported to TESS in 1998 (Cont'd)

| Case | Age | Substances | Chronicity | Route | Reason | Blood Concentrations | Interval After Exposure |
|---|---|---|---|---|---|---|---|
| 292 | 41 yr | Acetaminophen/hydrocodone<br>carisoprodol/aspirin/codeine | A/C | Ingestion | Int suicide | | |
| 293[p] | 55 yr | Acetaminophen/hydrocodone | A/C | Ingestion | Int suicide | 190 µg/mL¥ | |
| | | | | | | hydrocodone 18 ng/mL§ | |
| | | diazepam | | | | 270 ng/mL§ | |
| | | | | | | nordiazepam 612 ng/mL§ | |
| | | clonidine | | | | 4.4 ng/mL§ | |
| 294[p] | 43 yr | Acetaminophen/hydrocodone<br>phenytoin<br>hyoscyamine | A/C | Ingestion | Int suicide | 157 µg/mL¥ | |
| 295[p] | 86 yr | Acetaminophen/oxycodone<br>acetaminophen/propoxyphene | A/C | Ingestion | Int suicide | 175 µg/mL¥ | |
| 296[p] | 32 yr | Acetaminophen/oxycodone<br>diazepam<br>acetaminophen | A | Ingestion | Int suicide | 118.8 µg/mL¥ | 6-8 h |
| 297 | 46 yr | Acetaminophen/oxycodone<br>lorazepam | A/C | Ingestion | Int suicide | 15 µg/mL¥ | |
| 298[p] | 38 yr | Acetaminophen/oxycodone | C | Ingestion | Unknown | 16.3 µg/mL¥ | |
| | | oxycodone | | | | 500 ng/mL | |
| 299 | 34 yr | Acetaminophen/propoxyphene | A | Ingestion | Int unknown | 70 µg/mL¥ | |
| | | | | | | propoxyphene 0.98 µg/mL§ | |
| 300 | 39 yr | Acetaminophen/propoxyphene | A | Ingestion | Int suicide | | |
| 301 | 48 yr | Acetaminophen/propoxyphene | U | Ingestion | Int suicide | 29 µg/mL¥ | |
| 302 | 49 yr | Acetaminophen/propoxyphene | A/C | Ingestion | Int abuse | 53 µg/mL¥ | |
| 303 | 52 yr | Acetaminophen/propoxyphene | C | Ingestion | Int unknown | 147 µg/mL¥ | |
| 304 | 52 yr | Acetaminophen/propoxyphene | A | Ingestion | Int suicide | 230 µg/mL¥ | 20 h |
| 305 | 56 yr | Acetaminophen/propoxyphene | C | Ingestion | Int misuse | | |
| 306 | 70 yr | Acetaminophen/propoxyphene | A | Ingestion | Int suicide | 275 µg/mL¥ | |
| 307 | 73 yr | Acetaminophen/propoxyphene<br>acetaminophen/hydrocodone | A/C | Ingestion | Int suicide | 1.3 µg/mL¥ | |
| | | amitriptyline | | | | 469 ng/mL | |
| 308[p] | 30's yr | Acetaminophen/propoxyphene<br>alprazolam<br>carisoprodol | U | Ingestion | Int suicide | | |
| 309 | 53 yr | Acetaminophen/propoxyphene<br>amitriptyline | A/C | Ingestion | Int suicide | | |
| 310[p] | 26 yr | Acetaminophen/propoxyphene<br>amitriptyline<br>clonazepam | A | Ingestion | Int suicide | | |
| 311 | 35 yr | Acetaminophen/propoxyphene<br>baclofen | A | Ingestion | Int suicide | 58 µg/mL¥ | |
| 312[p] | 34 yr | Acetaminophen/propoxyphene<br>chlordiazepoxide<br>amphetamines | A | Ingestion | Int suicide | 47 µg/mL¥ | 4 h |
| 313[p] | 34 yr | Acetaminophen/propoxyphene<br>cocaine<br>marijuana | A/C | Ingestion | Int suicide | 200 µg/mL¥h | |
| 314 | 46 yr | Acetaminophen/propoxyphene<br>doxepin<br>venlafaxine | A | Ingestion | Int suicide | 54.3 µg/mL¥ | 12 |
| 315 | 70 yr | Acetaminophen/propoxyphene<br>hydrocodone/chlorpheniramine | A | Ingestion | Int suicide | | |
| 316[p] | 35 yr | Acetaminophen/propoxyphene<br>lorazepam<br>ethanol | A | Ingestion | Int suicide | | |
| 317 | 15 yr | Aspirin | A | Ingestion | Int suicide | 119 mg/dL | |
| 318 | 18 yr | Aspirin | A | Ingestion | Int suicide | 73 mg/dL | |
| 319[a] | 22 yr | Aspirin | A | Ingestion | Int suicide | 118 mg/dL | 2.5 h |
| 320 | 33 yr | Aspirin | C | Ingestion | Int misuse | 43 mg/dL | |
| 321[a] | 36 yr | Aspirin | A | Ingestion | Int suicide | 98.2 mg/dL | |
| 322 | 41 yr | Aspirin | A | Ingestion | Int suicide | 140 mg/dL | |
| 323 | 41 yr | Aspirin | A | Ingestion | Int suicide | 122 mg/dL | 4 h |
| 324 | 41 yr | Aspirin | A | Ingestion | Int suicide | >100 mg/dL | 4 h |
| 325 | 42 yr | Aspirin | A | Ingestion | Int suicide | 150 mg/dL | |
| 326 | 42 yr | Aspirin | A | Ingestion | Int suicide | 103 mg/dL | 5 h |
| 327 | 46 yr | Aspirin | A | Ingestion | Int suicide | 118 mg/dL | |

*(Continued on following page)*

**TABLE 21.** Summary of Fatal Exposures Reported to TESS in 1998 (Cont'd)

| Case | Age | Substances | Chronicity | Route | Reason | Blood Concentrations | Interval After Exposure |
|---|---|---|---|---|---|---|---|
| 328 | 51 yr | Aspirin | A | Ingestion | Int suicide | 154 mg/dL | |
| 329 | 52 yr | Aspirin | A | Ingestion | Int suicide | 110 mg/dL | |
| 330 | 55 yr | Aspirin | C | Ingestion | Int misuse | 112.4 mg/dL | |
| 331 | 56 yr | Aspirin | A | Ingestion | Int suicide | | |
| 332 | 60 yr | Aspirin | A | Ingestion | Int suicide | 65 mg/dL | |
| 333 | 62 yr | Aspirin | A | Ingestion | Int suicide | 80 mg/dL | 19 h |
| 334 | 89 yr | Aspirin | C | Ingestion | Ther error | 55 mg/dL | |
| 335 | 75 yr | Aspirin | A | Ingestion | Int suicide | 48 mg/dL | |
| | | acetaminophen | | | | 92 µg/mL | |
| 336 | 78 yr | Aspirin | A | Ingestion | Unknown | 92.8 mg/dL | |
| | | acetaminophen | | | | 133 µg/mL | |
| 337 | 57 yr | Aspirin | A | Ingestion | Int suicide | 37 mg/dL | |
| | | acetaminophen | | | | 133 µg/mL | |
| | | ethanol | | | | 186 mg/dL | |
| 338 | 62 yr | Aspirin | A | Ingestion | Int suicide | 98.9 mg/dL | |
| | | diphenhydramine | | | | | |
| | | acetaminophen | | | | 377 µg/mL | |
| 339 | 39 yr | Aspirin | U | Ingestion | Int suicide | 74 mg/dL | |
| | | ethanol | | | | 152 mg/dL | |
| 340 | 57 yr | Aspirin | A/C | Ingestion | Ther error | 76 mg/dL | |
| | | ethanol | | | | 42 mg/dL | |
| 341 | 16 yr | Aspirin | A | Ingestion | Int suicide | 100 mg/dL | |
| | | levothyroxine | | | | | |
| | | alprazolam | | | | | |
| 342 | 36 yr | Aspirin | A | Ingestion | Int suicide | 116 mg/dL | |
| | | nefazodone | | | | | |
| | | olanzapine | | | | | |
| 343 | 25 yr | Aspirin | A | Ingestion | Int suicide | 95.4 mg/dL | 5.5 h |
| | | risperidone | | | | | |
| 344 | 51 yr | Aspirin | A/C | Ingestion | Int suicide | 56.2 mg/dL | |
| | | verapamil | | | | | |
| | | acetaminophen | | | | 44 µg/mL | |
| 345 | 17 yr | Aspirin/phenyltoloxamine | A | Ingestion | Int suicide | 78 mg/dL¶ | |
| | | lisinopril | | | | | |
| | | troglitazone | | | | | |
| 346[p] | 5 yr | Codeine/guaifenesin | U | Ingestion | Unknown | | |
| 347 | 76 yr | Colchicine | A/C | Ingestion | Int suicide | | |
| | | nitroglycerin | | | | | |
| 348[a] | 50 yr | Colchicine | A/C | Ingestion | Int suicide | | |
| | | oxycodone | | | | | |
| 349[p] | 35 yr | Fentanyl | A | Unknown | Int suicide | | |
| 350 | 17 yr | Hydrocodone | U | Ingestion | Unknown | | |
| | | benztropine | | | | | |
| | | paroxetine | | | | | |
| 351[bp] | 39 yr | Hydrocodone | A/C | Ingestion | Int misuse | 32 ng/mL§ | |
| | | butalbital | | | | 0.51 µg/mL§ | |
| 352 | 36 yr | Hydrocodone | U | Ingestion | Int suicide | 330 ng/mL§ | |
| | | diazepam | | | | 51 ng/mL§ | |
| | | | | | | nordiazepam 130 ng/mL§ | |
| 353 | 19 yr | Ibuprofen | A | Ingestion | Int suicide | | |
| | | metoclopramide | | | | | |
| 354 | 40 yr | Meperidine | A/C | Parenteral | Malicious | 1.7 µg/mL§ | |
| | | | | | | normeperidine 0.8 µg/mL§ | |
| | | propoxyphene | | | | | |
| 355[p] | 25 yr | Methadone | A/C | Ingestion | Int suicide | | |
| 356 | 26 yr | Methadone | A | Ingestion | Int abuse | | |
| 357[p] | 28 yr | Methadone | A | Ingestion | Int suicide | | |
| 358[p] | 39 yr | Methadone | A | Ingestion | Int suicide | | |
| 359[p] | 41 yr | Methadone | U | Ingestion | Unknown | 0.33 µg/mL§ | |
| 360[p] | 44 yr | Methadone | A | Ingestion | Int suicide | | |
| 361 | 67 yr | Methadone | A/C | Ingestion | Int suicide | | |
| 362[p] | 41 yr | Methadone | A/C | Ingestion | Int unknown | 1.8 µg/mL§ | |
| | | acetaminophen/propoxyphene | | | | propoxyphene 0.56 µg/mL§ | |
| | | promethazine | | | | 0.36 µg/mL§ | |

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**TABLE 21.** Summary of Fatal Exposures Reported to TESS in 1998 (Cont'd)

| Case | Age | Substances | Chronicity | Route | Reason | Blood Concentrations | Interval After Exposure |
|---|---|---|---|---|---|---|---|
| 363[p] | 41 yr | Methadone<br>chlordiazepoxide | A/C | Ingestion | Int misuse | | |
| 364[p] | 20 yr | Methadone<br>diphenhydramine<br>acetaminophen | A | Ingestion | Int abuse | | |
| 365[p] | 31 yr | Methadone<br>oxycodone | C | Ingestion | Int abuse | | |
| 366 | 41 yr | Morphine | A | Ingestion | Int abuse | | |
| 367[p] | 38 yr | Morphine (long-acting)<br>acetaminophen/hydrocodone | A | Ingestion | Int misuse | | |
| 368[p] | 25 yr | Morphine<br>alprazolam | A | Ingestion | Int unknown | | |
| 369[p] | 14 yr | Morphine (long-acting)<br>alprazolam<br>orazepam | A | Ingestion | Int abuse | 5,900 ng/mL§<br>50 ng/mL§<br>30 ng/mL§ | |
| 370[p] | 40 yr | Morphine<br>benzodiazepines | U | Unknown | Int abuse | 300 ng/mL§ | |
| 371[p] | 28 yr | Morphine (long-acting)<br>doxepin<br><br>venlafaxine | A | Parenteral | Int abuse | opiate 2,800 ng/mL§<br>200 ng/mL§<br>nordoxepin 150 ng/mL§<br>450 ng/mL§ | |
| 372[p] | 24 yr | Morphine (long-acting)<br>oxycodone | A | Ingestion | Int abuse | | |
| 373 | 31 yr | Opiate | A | Parenteral | Int abuse | | |
| 374[p] | >19 yr | Opiate | U | Unknown | Unknown | | |
| 375[p] | >19 yr | Opiate | A/C | Parenteral | Int abuse | | |
| 376 | 48 yr | Opiate<br>barbiturates<br>tricyclic antidepressant | U | Unknown | Int suicide | | |
| 377 | 40 yr | Opiate<br>benzodiazepine | A/C | Ingestion | Int suicide | | |
| 378[p] | 56 yr | Opiate<br>benzodiazepine | A | Ingestion | Int suicide | | |
| 379 | 91 yr | Opiate<br>benzodiazepine<br>acetaminophen | U | Unknown | Unknown | <br><br>134 µg/mL | |
| 380[p] | 28 yr | Opiate<br>benzodiazepine<br>ethanol | U | Unknown | Int abuse | | |
| 381[a] | 2 yr | Phenylbutazone | A | Ingestion | Unint gen | | |
| 382 | 46 yr | Propoxyphene | A/C | Ingestion | Int suicide | | |
| 383 | 61 yr | Propoxyphene | A | Ingestion | Int suicide | | |
| 384[p] | 47 yr | Propoxyphene<br>alprazolam<br>bupropion | A | Ingestion | Int suicide | 1.86 µ/mL§<br>norpropoxyphene 6.60 µg/mL§<br>90 ng/mL§ | |
| 385[p] | 25 yr | Propoxyphene<br>naproxen<br>lorazepam | U | Ingestion | Int unknown | | |
| 386[lp] | 43 yr | Propoxyphene<br>nortriptyline | A/C | Ingestion | Int suicide | 7.3 µg/mL§<br>2,200 ng/mL§ | |
| 387 | 47 yr | Salicylate | A | Ingestion | Int suicide | 124.5 mg/dL | |
| 388 | 55 yr | Salicylate<br>ethanol<br>opiate | C | Ingestion | Unknown | 27 mg/dL<br>43 mg/dL | |
| 389 | 39 yr | Salicylate<br>methylphenidate<br>acetaminophen | A | Ingestion | Int suicide | 72 mg/mL<br><br>114 µg/mL | 4 h<br><br>4 h |
| 390 | 20 yr | Tramadol<br>benzodiazepine<br>marijuana | A | Ingestion | Int suicide | | |
| 391[p] | 43 yr | Tramadol<br>ethanol | A/C | Ingestion | Int suicide | 870 ng/mL§<br>249 mg/dL§ | |
| 392[lp] | 34 yr | Tramadol<br>nefazodone<br>diphenoxylate/atropine | A | Ingestion | Int suicide | | |

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**TABLE 21.** Summary of Fatal Exposures Reported to TESS in 1998 (Cont'd)

| Case | Age | Substances | Chronicity | Route | Reason | Blood Concentrations | Interval After Exposure |
|---|---|---|---|---|---|---|---|
| *See also cases 4, 43, 49, 108, 173, 296, 335, 336, 337, 338, 344, 364, 379, 389, 472, 593, 615, 639 (acetaminophen); 5, 427, 466, 481, 658, 748 (acetaminophen/codeine); 136, 227 thru 230, 307, 367, 428, 571, 715, 716 (acetaminophen/hydrocodone); 6, 136, 286, 295, 362, 467, 551, 574, 616 (acetaminophen/propoxyphene); 232, 233, 269, 290, 593, 615 (aspirin); 235 (codeine); 242 (etodolac); 262 (fentanyl); 243 (flurbiprofen); 659 (hydrocodone); 438 (hydromorphone); 12, 245, 275, 748 (ibuprofen); 246 (ketorolac); 14, 439, 473 (methadone); 768 (morphine); 246 (nabumetone); 385, 658 (naproxen); 249 thru 251, 256, 388, 493, 728 thru 730 (opiate); 470 (oxaprozin); 298, 348, 365, 372, 441, 661 (oxycodone); 354, 512, 577, 659, 685 (propoxyphene); 254, 600 (tramadol).* | | | | | | | |
| Anesthetics | | | | | | | |
| 393[ap] | 47 yr | Ether | A | Derm/Inh | Int suicide | | |
| 394[p] | 24 yr | Ketamine<br>heroin | A/C | Ing/Paren | Int abuse | | |
| 395 | 13 yr | Propofol | A | Parenteral | Adv rxn | | |
| Anticholinergic drugs | | | | | | | |
| 396 | 23 yr | Benztropine<br>risperidone | A/C | Ingestion | Int suicide | | |
| *See also cases 294 (hyoscyamine); and 350, 429, 455 (benztropine).* | | | | | | | |
| Anticoagulants | | | | | | | |
| 397 | 70 yr | Warfarin<br>digoxin | U | Ingestion | Unint unknown | <br>3.7 ng/mL | |
| *See cases 264, 572, 656 (warfarin).* | | | | | | | |
| Anticonvulsants | | | | | | | |
| 398 | 23 yr | Carbamazepine | A/C | Ingestion | Int suicide | 36.7 µg/mL | >18 h |
| 399 | 57 yr | Carbamazepine | C | Ingestion | Ther error | 35.1 µg/mL | |
| 400 | 63 yr | Carbamazepine<br>amitriptyline<br>thiothixene | A/C | Ingestion | Int suicide | | |
| 401 | 20 yr | Carbamazepine<br>nortriptyline | A/C | Ingestion | Int suicide | 38 µg/mL | |
| 402 | 30 yr | Carbamazepine<br>valproic acid | A/C | Ingestion | Int suicide | 29.5 µg/mL<br>784 µg/mL | |
| 403 | 18 yr | Carbamazepine<br>valproic acid<br>olanzapine | A | Ingestion | Int suicide | 38 µg/mL | |
| 404[a] | 2 yr | Fosphenytoin | A | Parenteral | Ther error | phenytoin >72 µg/mL | |
| 405 | 75 yr | Phenytoin | A | Parenteral | Adv rxn | | |
| 406[a] | 17 yr | Valproic acid | A | Ingestion | Int suicide | 2,250 µg/mL | |
| 407[a] | 58 yr | Valproic acid<br>amiodarone | C | Ingestion | Adv rxn | 134.4 µg/mL | |
| 408 | 29 yr | Valproic acid<br>verapamil | U | Ingestion | Int suicide | 555 µg/mL | 16 h |
| 409[p] | 38 yr | Valproic acid<br>zolpidem<br>temazepam | A/C | Ingestion | Int suicide | 598 µg/mL | |
| *See also cases 430, 491 (carbamazepine); 428, 444, 498, 585, 687 (gabapentin); 140, 294 (phenytoin); and 402, 403, 513 (valproic acid).* | | | | | | | |
| Antidepressants | | | | | | | |
| 410[p] | 29 yr | Amitriptyline | U | Ingestion | Int suicide | | |
| 411 | 34 yr | Amitriptyline | A | Ingestion | Int suicide | 522 ng/mL<br>nortriptyline 357 ng/mL | |
| 412[p] | 40 yr | Amitriptyline | A/C | Ingestion | Int suicide | | |
| 413[p] | 40 yr | Amitriptyline | A | Ingestion | Int suicide | | |
| 414[p] | 41 yr | Amitriptyline | A | Ingestion | Int suicide | | |
| 415[p] | 42 yr | Amitriptyline | A/C | Ingestion | Int suicide | | |
| 416 | 42 yr | Amitriptyline | A | Ingestion | Int suicide | | |
| 417 | 45 yr | Amitriptyline | C | Ingestion | Int suicide | 941 ng/mL# | |
| 418[p] | 47 yr | Amitriptyline | A/C | Ingestion | Int suicide | 280 ng/mL§<br>nortriptyline 40 ng/mL§ | |
| 419[p] | 50 yr | Amitriptyline | A/C | Ingestion | Int suicide | 2,151 ng/mL# | |
| 420[p] | 50 yr | Amitriptyline | A/C | Ingestion | Int suicide | | |
| 421 | 50 yr | Amitriptyline | A/C | Ingestion | Int suicide | | |
| 422 | 51 yr | Amitriptyline | U | Ingestion | Unknown | | |
| 423 | 51 yr | Amitriptyline | A/C | Ingestion | Int suicide | | |
| 424[p] | 52 yr | Amitriptyline | A/C | Ingestion | Int suicide | | |
| 425 | 63 yr | Amitriptyline | A/C | Ingestion | Int suicide | | |
| 426 | >19 yr | Amitriptyline | U | Ingestion | Int suicide | | |

*(Continued on following page)*

**TABLE 21.** Summary of Fatal Exposures Reported to TESS in 1998 (Cont'd)

| Case | Age | Substances | Chronicity | Route | Reason | Blood Concentrations | Interval After Exposure |
|---|---|---|---|---|---|---|---|
| 427 | 62 yr | Amitriptyline<br>acetaminophen/codeine<br>diazepam | A/C | Ingestion | Int suicide | | |
| 428 | 39 yr | Amitriptyline<br>acetaminophen/<br>hydrocodone<br>gabapentin | A/C | Ingestion | Int suicide | | |
| 429[p] | 36 yr | Amitriptyline<br>benztropine | U | Ingestion | Int suicide | | |
| 430 | 36 yr | Amitriptyline<br>carbamazepine | A | Ingestion | Int suicide | | |
| 431[p] | 24 yr | Amitriptyline<br>chlordiazepoxide<br>fluoxetine | A | Ingestion | Int suicide | | |
| 432 | 40 yr | Amitriptyline<br>cocaine<br>chlordiazepoxide/<br>clidinium bromide | A/C | Ing/Inh | Int suicide | | |
| 433[a] | 47 yr | Amitriptyline<br>cyclobenzaprine<br>benzodiazepines | A | Ingestion | Int suicide | | |
| 434 | 51 yr | Amitriptyline<br><br>diazepam | A/C | Ingestion | Int suicide | 1,600 ng/mL§<br>nortriptyline 1,650 ng/mL§<br>200 ng/mL§<br>nordiazepam 200 ng/mL§ | |
| 435[p] | 36 yr | Amitriptyline<br>diphenhydramine | A/C | Ingestion | Int suicide | | |
| 436[p] | 45 yr | Amitriptyline<br><br>ethanol | C | Ingestion | Int unknown | 1,990 ng/mL§<br>nortriptyline 340 ng/mL§<br>90 mg/dL§ | |
| 437[p] | 70 yr | Amitriptyline<br>ethanol | U | Ingestion | Int suicide | | |
| 438 | 69 yr | Amitriptyline<br>hydroxyzine<br>hydromorphone | A/C | Ingestion | Int suicide | | |
| 439[p] | 44 yr | Amitriptyline<br>methadone<br>benzodiazepines | A | Ingestion | Int suicide | | |
| 440 | 74 yr | Amitriptyline<br>nifedipine<br>metoprolol | U | Ingestion | Int suicide | | |
| 441[p] | 40 yr | Amitriptyline<br><br>oxycodone (long-acting)<br>diphenhydramine | A/C | Ingestion | Int suicide | 56,000 ng/mL§<br>nortriptyline 3,100 ng/mL§<br>21,000 ng/mL§<br>14 µg/mL§ | |
| 442 | 50's yr | Amitriptyline<br>perphenazine<br>alprazolam | A/C | Ingestion | Int suicide | | |
| 443 | 41 yr | Amitriptyline<br>phenothiazine | A | Ingestion | Int suicide | | |
| 444[p] | 62 yr | Amitriptyline<br>sertraline<br>gabapentin | A | Ingestion | Int suicide | | |
| 445 | 26 yr | Amitriptyline<br><br>trazodone | A | Ingestion | Int suicide | 6,500 ng/mL§<br>nortriptyline 2,700 ng/mL§ | |
| 446[p] | 32 yr | Amitriptyline/<br>perphenazine | A | Ingestion | Int suicide | | |
| 447 | 28 yr | Bupropion | A/C | Ingestion | Int suicide | | |
| 448 | 71 yr | Bupropion | A | Ingestion | Int suicide | | |
| 449[a] | 28 yr | Bupropion<br>ethanol | A | Ingestion | Int suicide | 160 mg/dL | |
| 450[p] | 22 yr | Bupropion<br>fluoxetine | A | Ingestion | Int suicide | | |
| 451[ap] | 2 yr | Desipramine | A | Ingestion | Unint gen | 3,900 ng/mL§ | |
| 452[p] | 44 yr | Desipramine | A/C | Ingestion | Int suicide | | |
| 453 | 57 yr | Desipramine | A | Ingestion | Int suicide | | |

*(Continued on following page)*

**TABLE 21.** Summary of Fatal Exposures Reported to TESS in 1998 (Cont'd)

| Case | Age | Substances | Chronicity | Route | Reason | Blood Concentrations | Interval After Exposure |
|---|---|---|---|---|---|---|---|
| 454[P] | 24 yr | Desipramine<br>clonazepam | A | Ingestion | Int suicide | | |
| 455 | 41 yr | Desipramine<br>clonazepam<br>benztropine | A/C | Ingestion | Int suicide | | |
| 456 | 13 yr | Desipramine<br>fluoxetine | A | Ingestion | Int suicide | | |
| 457 | 41 yr | Desipramine<br>paroxetine | A | Ingestion | Int suicide | | |
| 458[P] | 3 yr | Doxepin | A | Ingestion | Unint gen | | |
| 459[P] | 16 yr | Doxepin | A | Ingestion | Int suicide | | |
| 460[P] | 30's yr | Doxepin | A | Ingestion | Int suicide | | |
| 461 | 32 yr | Doxepin | A | Ingestion | Int suicide | | |
| 462 | 33 yr | Doxepin | A/C | Ingestion | Int suicide | | |
| 463[P] | 36 yr | Doxepin | A/C | Ingestion | Int unknown | 5,330 ng/mL§<br>desmethyldoxepin 680 ng/mL§ | |
| 464[P] | 46 yr | Doxepin | A | Ingestion | Int suicide | | |
| 465 | 67 yr | Doxepin | U | Ingestion | Int suicide | | |
| 466[P] | 14 yr | Doxepin<br>acetaminophen/codeine | A | Ingestion | Int suicide | 1,900 ng/mL§<br>35 µg/mL¥<br>codeine 0.23 µg/mL§ | |
| 467[P] | 55 yr | Doxepin<br>acetaminophen/<br>propoxyphene | A | Ingestion | Int suicide | | |
| 468[P] | 63 yr | Doxepin<br>clonazepam | U | Ingestion | Int suicide | | |
| 469[P] | 46 yr | Doxepin<br>clonazepam<br>ethanol | A/C | Ingestion | Int suicide | 193 mg/dL | |
| 470 | 43 yr | Doxepin<br>diphenoxylate/atropine<br>oxaprozin | A | Ingestion | Int suicide | | |
| 471 | 36 yr | Doxepin<br>ethanol | A | Ingestion | Int suicide | | |
| 472[P] | 38 yr | Doxepin<br>ethanol<br>acetaminophen | A | Ingestion | Int suicide | 200 mg/dL | |
| 473[P] | 44 yr | Doxepin<br>ethanol<br>methadone | U | Ingestion | Int unknown | 2,330 ng/mL§<br>desmethyldoxepin 350 ng/mL§<br>0.16 µg/mL§ | |
| 474 | 50's yr | Doxepin<br>lorazepam<br>ethanol | A | Ingestion | Int suicide | | |
| 475[P] | 37 yr | Doxepin<br>methamphetamine | A | Ing/Unk | Int suicide | 6,470 ng/mL§<br>desmethyldoxepin 4,490 ng/mL§<br>0.21 µg/mL<br>amphetamine 0.11 µg/mL | |
| 476 | 48 yr | Doxepin<br>paroxetine | A/C | Ingestion | Int suicide | | |
| 477[P] | 23 yr | Doxepin<br>sertraline | A/C | Ingestion | Int suicide | 5,300 ng/mL§<br>220 ng/mL§ | |
| 478 | 30 yr | Fluoxetine<br>lithium<br>haloperidol | U | Ingestion | Adv rxn | 1.7 mEq/L | |
| 479[P] | 28 yr | Fluoxetine<br>lorazepam<br>ethanol | U | Ingestion | Int unknown | 132 mg/dL | |
| 480 | 13 yr | Imipramine | A | Ingestion | Int suicide | | |
| 481 | 33 yr | Imipramine<br>acetaminophen/codeine<br>flurazepam | A | Ingestion | Int suicide | 1,207 ng/mL# | |
| 482 | 22 yr | Imipramine<br>bupropion<br>secobarbital | A | Ingestion | Int suicide | | |

*(Continued on following page)*

**TABLE 21.** Summary of Fatal Exposures Reported to TESS in 1998 (Cont'd)

| Case | Age | Substances | Chronicity | Route | Reason | Blood Concentrations | Interval After Exposure |
|---|---|---|---|---|---|---|---|
| 483[p] | 50 yr | Imipramine<br>clonazepam<br>clorazepate | A/C | Ingestion | Int suicide | | |
| 484 | 40 yr | Lithium | A/C | Ingestion | Int suicide | 4.3 mEq/L | |
| 485 | 42 yr | Lithium | A/C | Ingestion | Int suicide | 3.0 mEq/L | |
| 486 | 70 yr | Lithium<br>fluoxetine<br>trazodone | C | Ingestion | Ther error | 1.7 mEq/L | |
| 487 | 63 yr | Mirtazepine<br>theophylline (long-acting) | A/C | Ingestion | Int suicide | 21 µg/mL | |
| 488[p] | 40's yr | Nortriptyline | A | Ingestion | Int suicide | | |
| 489[p] | 51 yr | Nortriptyline | A | Ingestion | Int suicide | | |
| 490[p] | 39 yr | Nortriptyline<br>alprazolam | A/C | Ingestion | Int suicide | | |
| 491[p] | 57 yr | Nortriptyline<br>carbamazepine<br>paroxetine | A/C | Ingestion | Int suicide | | |
| 492[p] | 51 yr | Nortriptyline<br>doxepin | A/C | Ingestion | Int suicide | | |
| 493[p] | 20 yr | Nortriptyline<br>methamphetamine<br>opiates | A/C | Ingestion | Int suicide | | |
| 494 | 39 yr | Nortriptyline<br>phencyclidine | A/C | Ingestion | Int abuse | | |
| 495 | 29 yr | Phenelzine<br>venlafaxine<br>clonazepam | A/C | Ingestion | Int suicide | | |
| 496 | 45 yr | Sertraline | A/C | Ingestion | Int suicide | | |
| 497 | 70 yr | Sertraline | A | Ingestion | Int suicide | | |
| 498 | 46 yr | Sertraline<br>zolpidem<br>gabapentin | U | Ingestion | Int suicide | | |
| 499[ap] | 34 yr | Tranylcypromine<br>clonazepam | A | Ingestion | Int suicide | | |
| 500 | 25 yr | Tranylcypromine<br>diphenhydramine<br>fluoxetine | A/C | Ingestion | Int suicide | 220 ng/mL<br>14 µg/mL<br>1012 ng/mL | |
| 501[a] | 69 yr | Tranylcypromine<br>fluoxetine | A/C | Ingestion | Int suicide | | |
| 502 | 39 yr | Tranylcypromine<br>fluoxetine<br>risperidone | C | Ingestion | Adv rxn | | |
| 503 | 47 yr | Tranylcypromine<br>haloperidol | C | Ingestion | Adv rxn | | |
| 504[p] | 58 yr | Tranylcypromine<br>pemoline<br>lithium | A/C | Ingestion | Adv rxn | | |
| 505[p] | 40 yr | Trazodone<br>barbiturates | A/C | Ingestion | Int suicide | | |
| 506[p] | 25 yr | Trazodone<br>clonazepam | A | Ingestion | Int suicide | | |
| 507[p] | 8 yr | Tricyclic antidepressant | A | Ingestion | Int suicide | 2200 ng/mL# | |
| 508[p] | 44 yr | Tricyclic antidepressant | A | Ingestion | Int suicide | | |
| 509[p] | 59 yr | Tricyclic antidepressant | A | Ingestion | Int suicide | 782 ng/mL# | |
| 510[p] | 50 yr | Tricyclic antidepressant<br>benzodiazepine | U | Ingestion | Int suicide | | |
| 511[p] | 20 yr | Tricyclic antidepressant<br>cocaine | U | Unknown | Unknown | | |
| 512 | 48 yr | Tricyclic antidepressant<br>propoxyphene<br>benzodiazepine | U | Ingestion | Int unknown | | |
| 513 | 43 yr | Tricyclic antidepressant<br>venlafaxine<br>valproic acid | A/C | Ingestion | Int suicide | | |
| 514[a] | 19 yr | Venlafaxine | A | Ingestion | Int suicide | | |

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**TABLE 21.** Summary of Fatal Exposures Reported to TESS in 1998 (Cont'd)

| Case | Age | Substances | Chronicity | Route | Reason | Blood Concentrations | Interval After Exposure |
|---|---|---|---|---|---|---|---|
| 515[p] | 26 yr | Venlafaxine | A/C | Ingestion | Int suicide | 8.72 µg/mL§ | |
| | | | | | | desmethylvenlafaxine 0.96 µg/mL§ | |
| | | amitriptyline | | | | 158 ng/mL§ | |
| | | | | | | nortriptyline 800 ng/mL§ | |
| | | pseudoephedrine | | | | 1.6 µg/mL§ | |
| *See also cases 307, 309, 310, 400, 515, 523, 617, 639, 656, 687 (amitriptyline); 384, 482, 545, 595 (bupropion); 589 (desipramine); 314, 371, 492 (doxepin); 15, 254, 276, 431, 450, 456, 486, 500 thru 502, 552, 584, 667, 678 (fluoxetine); 478, 504, 549, 670 (lithium); 15 (mirtazapine); 247, 342, 392, 691 (nefazodone); 140, 386, 401 (nortriptyline); 350, 457, 476, 491, 587, 679 (paroxetine); 184, 277, 444, 477, 523, 666 (sertraline); 445, 486, 662, 674 (trazodone); 255, 256, 376 (tricyclic antidepessant); and 314, 371, 495, 513 (venlafaxine).* | | | | | | | |
| Antihistamines | | | | | | | |
| 516 | 16 yr | Diphenhydramine | A | Ingestion | Int suicide | | |
| 517 | 22 yr | Diphenhydramine | A | Ingestion | Int suicide | | |
| 518[p] | 23 yr | Diphenhydramine | A | Ingestion | Int suicide | 37.69 µg/mL§ | |
| 519[p] | 26 yr | Diphenhydramine | A | Ingestion | Int suicide | | |
| 520 | 33 yr | Diphenhydramine | A | Ingestion | Int suicide | | |
| 521[p] | 35 yr | Diphenhydramine | A | Ingestion | Int suicide | | |
| 522[p] | 60 yr | Diphenhydramine | A | Ingestion | Int suicide | | |
| 523[p] | 24 yr | Diphenhydramine | A | Ingestion | Int suicide | | |
| | | amitriptyline sertraline | | | | 76 ng/mL# | |
| 524[p] | 25 yr | Diphenhydramine | A | Ingestion | Int suicide | | |
| | | ethanol | | | | | |
| 525[p] | 43 yr | Hydroxyzine | A | Ingestion | Int suicide | | |
| *See also cases 141, 236 thru 238, 247, 338, 364, 435, 441, 500 (diphenhydramine); and 438 (hydroxyzine).* | | | | | | | |
| Antimicrobials | | | | | | | |
| 526 | 34 yr | Chloroquine | A | Ingestion | Int suicide | 290 mg/dL | |
| | | ethanol | | | | | |
| 527 | 40 yr | Didanosine | C | Ingestion | Adv rxn | | |
| | | stavudine | | | | | |
| 528 | 33 yr | Isoniazid | C | Ingestion | Adv rxn | | |
| 529[a] | 8 yr | Rimantadine | C | Ingestion | Ther error | | |
| 530 | 32 yr | Stavudine | C | Ingestion | Adv rxn | | |
| | | didanosine nelfinavir | | | | | |
| 531[p] | 18 yr | Tilmicosin | A | Parenteral | Int suicide | 15 µg/mL§ | |
| *See also cases 645 (ciprofloxacin); 530 (didanosine); 530 (nelfinavir); 527 (stavudine); and 545 (vancomycin).* | | | | | | | |
| Asthma therapies | | | | | | | |
| 532 | 55 yr | Theophylline | A/C | Ingestion | Int suicide | 72 µg/mL | |
| 533 | 55 yr | Theophylline | U | Ingestion | Unknown | 69 µg/mL | |
| 534[a] | 65 yr | Theophylline | A/C | Ingestion | Int misuse | 55 µg/mL | |
| 535 | 66 yr | Theophylline (long-acting) | C | Ingestion | Unknown | 31.8 µg/mL | |
| 536 | 67 yr | Theophylline | A | Ingestion | Int suicide | >160 µg/mL | |
| 537 | 68 yr | Theophylline | U | Ingestion | Int unknown | 130 µg/mL | |
| 538 | 69 yr | Theophylline (long-acting) | C | Ingestion | Ther error | 35 µg/mL | |
| 539[a] | 69 yr | Theophylline | C | Ingestion | Unint unknown | 60 µg/mL | |
| 540 | 72 yr | Theophylline | C | Ingestion | Ther error | 39 µg/mL | |
| 541 | 74 yr | Theophylline | C | Ingestion | Ther error | 37.1 µg/mL | |
| 542 | 75 yr | Theophylline | C | Ingestion | Ther error | 99 µg/mL | |
| 543 | 76 yr | Theophylline | C | Ingestion | Int unknown | 37 µg/mL | |
| 544 | 47 yr | Theophylline | A/C | Ingestion | Int suicide | 72 µg/mL | |
| | | diltiazem | | | | | |
| 545[p] | 47 yr | Theophylline | C | Ingestion | Unint | 33 µg/mL | |
| | | vancomycin | | | unknown | | |
| | | bupropion | | | | | |
| *See also cases 103 (albuterol); and 251, 253, 487 (theophylline).* | | | | | | | |
| Cardiovascular drugs | | | | | | | |
| 546[a] | 41 yr | Acebutolol | A/C | Ingestion | Int suicide | | |
| 547[p] | 83 yr | Amlodipine | A | Ingestion | Int suicide | | |
| | | ethanol | | | | | |
| 548 | 69 yr | Amlodipine | A/C | Ingestion | Int suicide | | |
| | | metoprolol | | | | | |
| 549 | 53 yr | Amlodipine | A | Ingestion | Int suicide | | |
| | | nifedipine | | | | | |
| | | lithium | | | | | |

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**TABLE 21.** Summary of Fatal Exposures Reported to TESS in 1998 (Cont'd)

| Case | Age | Substances | Chronicity | Route | Reason | Blood Concentrations | Interval After Exposure |
|---|---|---|---|---|---|---|---|
| 550 | 50 yr | Amlodipine<br>quinapril<br>simvastatin | A | Ingestion | Int suicide | | |
| 551[p] | 59 yr | Atenolol<br>calcium channel blocker<br>acetaminophen/propoxyphene | A | Ingestion | Int suicide | 124 µg/mL¥ | |
| 552[p] | 49 yr | Atenolol<br>sildenafil<br>fluoxetine | A | Ingestion | Int suicide | | |
| 553 | 33 yr | Atenolol<br>verapamil (long-acting) | A/C | Ingestion | Ther error | | |
| 554 | 80 yr | Bisoprolol<br>verapamil<br>amlodipine | A/C | Ingestion | Int suicide | | |
| 555 | 80 yr | Cardiosvascular drug, unknown type<br>lorazepam | A | Ingestion | Int suicide | | |
| 556 | 79 yr | Carvedilol | A/C | Ingestion | Ther error | | |
| 557 | 36 yr | Clonidine | A | Ingestion | Int suicide | | |
| 558 | 37 yr | Clonidine<br>cocaine | A/C | Ingestion | Int abuse | 9.8 ng/mL§ | |
| 559 | 56 yr | Digoxin | A/C | Ingestion | Int suicide | >5 ng/mL | |
| 560[a] | 75 yr | Digoxin | C | Ingestion | Ther error | 6.8 ng/mL | |
| 561 | 76 yr | Digoxin | C | Ingestion | Ther error | 5.4 ng/mL | |
| 562 | 78 yr | Digoxin | U | Ingestion | Unint unknown | 5.6 ng/mL | |
| 563 | 78 yr | Digoxin | C | Ingestion | Ther error | 3.07 ng/mL | |
| 564 | 79 yr | Digoxin | C | Ingestion | Ther error | 4.4 ng/mL | |
| 565 | 81 yr | Digoxin | C | Ingestion | Ther error | 3.5 ng/mL | |
| 566 | 84 yr | Digoxin | C | Ingestion | Ther error | 3 ng/mL | |
| 567 | 85 yr | Digoxin | C | Ingestion | Ther error | 2.3 ng/mL | |
| 568 | 85 yr | Digoxin | C | Ingestion | Unknown | 3.9 ng/mL | |
| 569 | 89 yr | Digoxin | U | Ingestion | Unknown | 4.3 ng/mL | |
| 570 | 94 yr | Digoxin | A | Ingestion | Int suicide | 20 ng/mL | 12 h |
| 571 | 60 yr | Digoxin<br>acetaminophen/hydrocodone<br>diazepam | A | Ingestion | Int suicide | 16 ng/mL | |
| 572 | 80 yr | Digoxin<br>amiodarone<br>warfarin | C | Ingestion | Ther error | 6.1 ng/mL | |
| 573 | 47 yr | Digoxin<br>amlodipine<br>glipizide | A | Ingestion | Int suicide | | |
| 574 | 79 yr | Digoxin<br>diazepam<br>acetaminophen/propoxyphene | A/C | Ingestion | Int suicide | 10 ng/mL | |
| 575[a] | 48 yr | Digoxin<br>disopyramide | A/C | Ingestion | Int suicide | 7 ng/mL | 5 hr |
| 576 | 72 yr | Digoxin<br>ethanol | A/C | Ingestion | Int suicide | 14 ng/mL | 6 hr |
| 577 | 95 yr | Digoxin<br>propoxyphene<br>cyclobenzaprine | A/C | Ingestion | Int suicide | 3.6 ng/mL | |
| 578[a] | 22 yr | Diltiazem (long-acting) | A | Ingestion | Int suicide | | |
| 579 | 30 yr | Diltiazem (long-acting) | A | Ingestion | Int suicide | | |
| 580 | 64 yr | Diltiazem (long-acting) | A/C | Ingestion | Int suicide | | |
| 581 | 76 yr | Diltiazem (long-acting) | C | Ingestion | Adv rxn | | |
| 582 | 51 yr | Diltiazem (long-acting)<br>alprazolam | A | Ingestion | Int suicide | | |
| 583 | 88 yr | Diltiazem (long-acting)<br>digoxin | U | Ingestion | Unknown | | |
| 584 | 70 yr | Diltiazem<br>fluoxetine | A | Ingestion | Int suicide | | |
| 585 | 37 yr | Diltiazem<br>gabapentin | A | Ingestion | Int suicide | | |
| 586 | 65 yr | Diltiazem<br>glipizide | A/C | Ingestion | Int suicide | | |

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**TABLE 21.** Summary of Fatal Exposures Reported to TESS in 1998 (Cont'd)

| Case | Age | Substances | Chronicity | Route | Reason | Blood Concentrations | Interval After Exposure |
|---|---|---|---|---|---|---|---|
| 587 | 45 yr | Diltiazem<br>paroxetine<br>cocaine | A/C | Ing/Inh | Int suicide | | |
| 588[a] | 69 yr | Enalapril<br>temazepam<br>alprazolam | A/C | Ingestion | Int suicide | | |
| 589 | 36 yr | Metoprolol<br>desipramine | A | Ing/Paren | Ther error | 0.14 µg/mL§<br>470 ng/mL§ | |
| 590 | 16 yr | Metoprolol (long-acting)<br>verapamil | A | Ingestion | Int suicide | 17.84 µg/mL§<br>1.64 µg/mL§ | |
| 591[a] | 79 yr | Mibefradil<br>nifedipine<br>propranolol | A/C | Ingestion | Adv rxn | | |
| 592 | 75 yr | Nifedipine (long-acting) | A/C | Ingestion | Int suicide | | |
| 593 | 84 yr | Nifedipine (long-acting)<br>acetaminophen<br>aspirin | A/C | Ingestion | Int suicide | <100.4 µg/mL | 7 h |
| 594 | 36 yr | Nifedipine (long-acting)<br>atenolol<br>clonidine | A/C | Ingestion | Int suicide | | |
| 595 | 77 yr | Nifedipine (long-acting)<br>bupropion<br>tolcapone | A | Ingestion | Int suicide | | |
| 596 | 54 yr | Nifedipine (long-acting)<br>metoprolol | A | Ingestion | Int suicide | | |
| 597 | 60's yr | Procainamide | A | Parenteral | Ther error | | |
| 598[a] | 2 yr | Propranolol (long-acting)<br>insulin | A | Ing/Paren | Malicious | <100 µg/mL | |
| 599[p] | 44 yr | Propranolol<br>risperidone<br>clonazepam | A/C | Ingestion | Int suicide | | |
| 600 | 45 yr | Propranolol<br>tramadol<br>zolpidem | A | Ingestion | Int suicide | | |
| 601 | 91 yr | Quinidine | A | Ingestion | Int suicide | | |
| 602 | 92 yr | Quinidine | A | Ingestion | Int suicide | 7.0 µg/mL | |
| 603 | 17 yr | Verapamil | A | Ingestion | Int suicide | | |
| 604 | 28 yr | Verapamil | A | Ingestion | Int suicide | | |
| 605 | 32 yr | Verapamil (long-acting) | A/C | Ingestion | Int suicide | | |
| 606 | 43 yr | Verapamil (long-acting) | A/C | Ingestion | Int suicide | | |
| 607[p] | 48 yr | Verapamil | U | Ingestion | Int suicide | | |
| 608 | 48 yr | Verapamil (long-acting) | A | Ingestion | Int suicide | | |
| 609 | 59 yr | Verapamil | A/C | Ingestion | Int suicide | | |
| 610 | 61 yr | Verapamil | A | Ingestion | Int suicide | 7.7 µg/mL§<br>norverapamil 4.0 µg/mL§ | |
| 611 | 69 yr | Verapamil (long-acting) | A/C | Ingestion | Int suicide | 1.4 µg/mL | |
| 612 | 69 yr | Verapamil (long-acting) | A/C | Ingestion | Int suicide | | |
| 613 | 70 yr | Verapamil (long-acting) | A | Ingestion | Unint unknown | | |
| 614 | 84 yr | Verapamil (long-acting) | A/C | Ingestion | Ther error | | |
| 615 | 67 yr | Verapamil<br>acetaminophen<br>aspirin | A | Ingestion | Int suicide | <br>101 µg/mL<br>87.7 mg/dL | |
| 616 | 86 yr | Verapamil<br>acetaminophen/propoxyphene<br>diazepam | A | Ingestion | Int suicide | <br>223 µg/mL¥ | |
| 617 | 20 yr | Verapamil (long-acting)<br>amitriptyline | A/C | Ingestion | Int suicide | | |
| 618 | 43 yr | Verapamil<br>atenolol | A | Ingestion | Int suicide | | |
| 619 | 41 yr | Verapamil (long-acting)<br>bisoprolol<br>glyburide | A | Ingestion | Int suicide | | |
| 620[p] | 46 yr | Verapamil (long-acting)<br>clonazepam | A | Ingestion | Int suicide | | |
| 621[p] | 35 yr | Verapamil<br>clorazepate<br>hydrochlorothiazide | A/C | Ingestion | Int unknown | | |

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**TABLE 21.** Summary of Fatal Exposures Reported to TESS in 1998 (Cont'd)

| Case | Age | Substances | Chronicity | Route | Reason | Blood Concentrations | Interval After Exposure |
|---|---|---|---|---|---|---|---|
| 622 | 28 yr | Verapamil (long-acting)<br>cocaine<br>risperidone | A | Ingestion | Int suicide | | |
| 623[p] | 80 yr | Verapamil<br>digoxin | C | Ingestion | Ther error | | |
| 624 | 84 yr | Verapamil<br>digoxin | C | Ingestion | Ther error | 2.7 ng/mL | |
| 625 | 54 yr | Verapamil (long-acting)<br>ethanol | A | Ingestion | Int suicide | | |
| 626 | 50 yr | Verapamil<br>labetalol | C | Ingestion | Ther error | | |
| 627[p] | 60 yr | Verapamil (long-acting)<br>levothyroxine | A/C | Ingestion | Int suicide | | |
| 628 | 58 yr | Verapamil (long-acting)<br>metoprolol | A | Ingestion | Int suicide | | |
| 629 | 81 yr | Verapamil (long-acting)<br>metoprolol (long-acting) | A/C | Ingestion | Int suicide | | |
| 630 | 69 yr | Verapamil<br>nadolol | C | Ingestion | Ther error | | |
| 631[p] | 60 yr | Verapamil<br>propranolol | U | Ingestion | Int unknown | | |

*See also cases 407, 572 (amiodarone); 554, 573 (amlodipine); 594, 618 (atenolol); 619 (bisoprolol); 551 (calcium channel blocker); 293, 594 (clonidine); 230, 397, 583, 623, 624 (digoxin); 544 (diltiazem); 575 (disopyramide); 626 (labetalol); 345 (lisinopril); 440, 548, 596, 628, 629 (metoprolol); 630 (nadolol); 440, 549, 591, 680 (nifedipine); 347 (nitroglycerin); 276 (pindolol); 591, 631 (propranolol); 550 (quinapril); 550 (simvastatin); and 344, 408, 553, 554, 590 (verapamil).*

Cough and cold preparations

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 632[p] | 51 yr | Hydrocodone | U | Ingestion | Int suicide | | |
| 633[lp] | 16 yr | Phenylpropanolamine/guaifenesin | A | Ingestion | Int suicide | | |
| 634 | 40 yr | Propylhexedrine inhaler | A | Ingestion | Int misuse | | |

*See also cases 315 (hydrocodone/chlorpheniramine); 244 (hydrocodone/homatropine); 650 (oxymetazoline); and 515 (pseudoephedrine).*

Diuretics

*See also case 621 (hydrochlorothiazide).*

Electrolytes and minerals

*See also cases 245 (ferrous sulfate); 263 (iron); 103 (potassium chloride).*

Gastrointestinal preparations

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 635[a] | 33 yr | Baking sode<br>zolpidem | A | Ingestion | Int suicide | sodium 174 mEq/L<br>bicarbonate 39 mEql/L | |
| 636 | 45 yr | Magnesium hydroxide | A | Ingestion | Ther error | magnesium 10.2 mEq/L | |
| 637[a] | 92 yr | Magnesium hydroxide | C | Ingestion | Ther error | magnesium 10 mEq/L | |

*See also cases 432 (chlordiazepoxide/clidinium bromide); 392, 470 (diphenoxylate/atropine); 253 (lansoprazole); 353 (metoclopramide); 733 (sodium bicarbonate); 685 (trimethobenzamide).*

Hormones and hormone antagonists

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 638 | 53 yr | Glyburide | U | Ingestion | Unknown | | |
| 639 | 68 yr | Glyburide<br>amitriptyline<br>acetaminophen | A | Ingestion | Int suicide | 255 µg/mL | |
| 640 | 40 yr | Insulin | A/C | Parenteral | Int suicide | | |
| 641 | 51 yr | Insulin<br>cocaine<br>benzodiazepine | A | Paren/unk | Int suicide | | |
| 642 | 49 yr | Metformin | C | Ingestion | Adv rxn | | |
| 643 | 57 yr | Metformin | C | Ingestion | Adv rxn | | |
| 644 | 71 yr | Metformin | C | Ingestion | Ther error | | |
| 645 | 60 yr | Metformin<br>ciprofloxacin | C | Ingestion | Adv rxn | | |
| 646 | 42 yr | Metformin<br>glyburide | A/C | Ingestion | Int suicide | | |
| 647 | 80 yr | Methimazole | C | Ingestion | Adv rxn | | |

*See also cass 10, 573, 586 (glipizide); 619, 646 (glyburide); 10, 598 (insulin); 341, 627 (levothyroxine); and 345 (troglitazone).*

Miscellaneous drugs

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 648[a] | 69 yr | Aconite | A | Ingestion | Int suicide | | |
| 649[ap] | 27 yr | Gamma hydroxybutyrate<br>methamphetamine | A/C | Ingestion | Int abuse | 2,900 µg/mL§<br>0.12 µg/mL§ | |

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**TABLE 21.** Summary of Fatal Exposures Reported to TESS in 1998 (Cont'd)

| Case | Age | Substances | Chronicity | Route | Reason | Blood Concentrations* | Interval After Exposure |
|---|---|---|---|---|---|---|---|
| 650[p] | 33 yr | Ma huang extract<br>oxymetazoline nasal spray<br>creatine | C | Ingestion | Adv rxn | | |
| 651[p] | 49 yr | Sildenafil | C | Ingestion | Adv rxn | | |
| 652[a] | 65 yr | Sildenafil | A | Ingestion | Adv rxn | | |
| 653[a] | 27 yr | Succinylcholine | A | Parenteral | Adv rxn | | |
| 654 | 36 yr | Vecuronium<br>diazepam<br>gamma hydroxybutyrate | A | Ing/Paren | Ther error | | |
| *See also cases 650 (creatine); 8 (disulfiram); 654 (gamma hydroxybutyrate); 552 (sildenafil); and 595 (tolcapone).* | | | | | | | |
| Muscle relaxants | | | | | | | |
| 655 | 73 yr | Baclofen | A | Ingestion | Int suicide | | |
| 656[p] | 34 yr | Baclofen<br>amitriptyline<br>warfarin | A/C | Ingestion | Int suicide | | |
| 657 | 43 yr | Carisoprodol | A/C | Ingestion | Int abuse | | |
| 658 | 39 yr | Carisoprodol<br>acetaminophen/codeine<br>naproxen | A | Ingestion | Int suicide | 6 µg/mL¥ | |
| 659[p] | 28 yr | Carisoprodol<br>proproxyphene<br>hydrocodone | A | Ingestion | Int suicide | 25.2 µg/mL<br>190 ng/mL | |
| 660[p] | 45 yr | Chlorzoxazone | A | Ingestion | Adv rxn | | |
| *See also cases 311 (baclofen); 228, 286, 288 thru 291, 308, 681 (carisoprodol); 292 (carisoprodol/aspirin/codeine); and 433, 577, 667 (cyclobenzaprine).* | | | | | | | |
| Sedatives/hypnotics/antipsychotics | | | | | | | |
| 661[p] | 57 yr | Alprazolam<br>oxycodone | C | Ingestion | Int suicide | | |
| 662[a] | 88 yr | Buspirone<br>trazodone | C | Ingestion | Adv rxn | | |
| 663[p] | 38 yr | Clonazepam | A | Ingestion | Int suicide | | |
| 664 | 78 yr | Clonazepam | A/C | Ingestion | Int suicide | | |
| 665 | 42 yr | Clozapine | A/C | Ingestion | Unknown | 2,560 ng/mL | |
| 666[p] | 40 yr | Diazepam<br>sertraline | A | Ingestion | Int suicide | | |
| 667 | 54 yr | Diazepam | A | Ingestion | Int suicide | 140 ng/mL | 14 d |
| | | | | | | nordiazepam 940 ng/mL | 14 d |
| | | fluoxetine | | | | 410 ng/mL | 14 d |
| | | cyclobenzaprine | | | | norfluoxetine 690 ng/mL | 14 d |
| 668 | 76 yr | Flunitrazepam | A | Ingestion | Int suicide | | |
| 669[a] | 64 yr | Fluphenazine | A/C | Ing/Paren | Adv rxn | | |
| 670 | 35 yr | Fluphenazine<br>lithium | C | Ingestion | Adv rxn | | |
| 671 | 49 yr | Haloperidol | C | Ingestion | Adv rxn | | |
| 672 | 74 yr | Haloperidol | C | Parenteral | Adv rxn | | |
| 673 | 87 yr | Haloperidol<br>mesoridazine | A/C | Ing/Paren | Adv rxn | | |
| 674[p] | 67 yr | Lorazepam<br>trazodone | A | Ingestion | Int suicide | | |
| 675[p] | 21 yr | Olanzapine | A/C | Ing/Inh | Int abuse | 1700 ng/mL§ | |
| 676 | 33 yr | Olanzapine | U | Ingestion | Unknown | | |
| 677[a] | 38 yr | Olanzapine | A | Ingestion | Int suicide | | |
| 678[p] | 40 yr | Olanzapine<br>benztropine<br>fluoxetine | A | Ingestion | Int unknown | | |
| 679[a] | 35 yr | Olanzapine<br>paroxetine | A | Ingestion | Adv rxn | | |
| 680 | 75 yr | Phenobarbital<br>nifedipine<br>diazepam | A | Ingestion | Int suicide | 45 µg/mL | |
| 681 | 37 yr | Phenobarbital/ergotamine/bellafoline<br>carisoprodol<br>diazepam | A/C | Ingestion | Int suicide | phenobarbital 21 µg/mL | |
| 682[p] | 16 yr | Prochlorperazine | A | Ingestion | Int suicide | | |
| 683[p] | 44 yr | Quetiapine | U | Ingestion | Adv rxn | | |
| 684 | 72 yr | Secobarbital | A | Ingestion | Int suicide | | |

*(Continued on following page)*

**TABLE 21.** Summary of Fatal Exposures Reported to TESS in 1998 (Cont'd)

| Case | Age | Substances | Chronicity | Route | Reason | Blood Concentrations | Interval After Exposure |
|---|---|---|---|---|---|---|---|
| 685[p] | 18 yr | Secobarbital<br>propoxyphene<br>trimethobenzamide | A | Ingestion | Int suicide | | |
| 686[a] | 74 yr | Temazepam | A | Ingestion | Int suicide | | |
| 687 | 79 yr | Temazepam<br>gabapentin<br>amitriptyline | A | Ingestion | Int suicide | 2,330 ng/mL | |

*See also cases 235, 287, 289, 308, 341, 368, 369, 384, 442, 490, 582, 588, 725 (alprazolam); 234, 270, 376, 505 (barbiturate); 72, 234, 250, 370, 377 thru 380, 390, 433, 439, 510, 512, 641, 718, 750 (benzodiazepine); 351 (butalbital); 312, 363, 431 (chlordiazepoxide); 7, 100, 287, 310, 454, 455, 468, 469, 483, 495, 499, 506, 599, 620 (clonazepam); 483, 621 (clorazepate); 229, 291, 293, 296, 352, 427, 434, 571, 574, 616, 654, 680, 681, 726, 768 (diazepam); 481 (flurazepam); 478, 503 (haloperidol); 297, 316, 369, 385, 474, 479, 555 (lorazepam); 673 (mesoridazine); 248, 342, 403 (olanzapine); 442 (perphenazine); 443 (phenothiazine); 362 (promethazine); 252, 343, 396, 502, 599, 622 (risperidone); 482 (secobarbital); 409, 588 (temazepam); 400 (thiothixene); and 106, 141, 265, 409, 498, 600, 635 (zolpidem).*

Stimulants and street drugs

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 688 | 23 yr | Amphetamine | A | Ingestion | Int abuse | | |
| 689 | 27 yr | Amphetamine | A | Parenteral | Int abuse | | |
| 690 | 18 yr | Amphetamine<br>marijuana | A | Ing/Inh | Int abuse | | |
| 691 | 28 yr | Amphetamine<br>nefazodone | A | Ingestion | Int abuse | | |
| 692[p] | 20 yr | Caffeine | A | Ingestion | Int abuse | | |
| 693[p] | 19 yr | Cocaine | A | Ingestion | Int misuse | | |
| 694 | 19 yr | Cocaine | A | Ingestion | Unint gen | | |
| 695[p] | 22 yr | Cocaine | A | Ingestion | Int misuse | | |
| 696[p] | 22 yr | Cocaine | A | Inhalation | Int abuse | | |
| 697[p] | 24 yr | Cocaine (crack) | A/C | Inhalation | Int abuse | | |
| 698[p] | 24 yr | Cocaine | U | Ingestion | Int misuse | | |
| 699[p] | 25 yr | Cocaine | A | Unknown | Int abuse | | |
| 700 | 29 yr | Cocaine | A | Unknown | Int abuse | 0.02 µg/mL<br>benzoylecgonine 7.47 µg/mL<br>ecgonine methyl ester 2.42 µg/mL | |
| 701 | 30 yr | Cocaine (crack) | A | Unknown | Int abuse | | |
| 702 | 33 yr | Cocaine | A | Unknown | Int abuse | | |
| 703[p] | 33 yr | Cocaine | U | Unknown | Int unknown | | |
| 704 | 35 yr | Cocaine | A | Inhalation | Int unknown | | |
| 705 | 35 yr | Cocaine | U | Unknown | Int abuse | | |
| 706 | 36 yr | Cocaine (crack) | A | Inhalation | Int abuse | | |
| 707[p] | 37 yr | Cocaine | A | Unknown | Int abuse | benzoylecgonine 0.52 µg/mL<br>ecgonine methyl ester 0.2 µg/mL | |
| 708 | 39 yr | Cocaine | A | Inhalation | Int abuse | | |
| 709[p] | 40 yr | Cocaine | A/C | Parenteral | Int abuse | | |
| 710 | 40 yr | Cocaine | U | Unknown | Int abuse | | |
| 711 | 40 yr | Cocaine | U | Unknown | Int abuse | | |
| 712[p] | 50 yr | Cocaine (crack) | A | Inhalation | Int abuse | | |
| 713 | 57 yr | Cocaine | U | Unknown | Int abuse | | |
| 714 | >19 yr | Cocaine | U | Unknown | Int abuse | | |
| 715[p] | 20 yr | Cocaine<br>acetaminophen/hydrocodone | C | Unknown | Int abuse | 29 µg/mL§ | |
| 716[p] | 21 yr | Cocaine<br>acetaminophen/hydrocodone | C | Unknown | Int abuse | 89 µg/mL§<br>hydrocodone 0.7 µg/mL§ | |
| 717 | 34 yr | Cocaine<br>amphetamines<br>tetrahydrocannabinol | A | Inh/Paren | Int abuse | | |
| 718[p] | 47 yr | Cocaine<br>benzodiazepine<br>lindane | c | Derm/Ing | Unint<br>unknown | | |
| 719 | 23 yr | Cocaine<br>ethanol | A | Unknown | Int abuse | | |
| 720[a] | 40 yr | Cocaine (crack)<br>ethanol | A | Ing/Inh | Int abuse | | |
| 721[p] | 23 yr | Cocaine<br>heroin | A | Ingestion | Int misuse | | |
| 722[ap] | 25 yr | Cocaine<br>heroin | A | Inh/Paren | Int abuse | benzoylecgonine 0.55 µg/mL§ | |

*(Continued on following page)*

**TABLE 21.** Summary of Fatal Exposures Reported to TESS in 1998 (Cont'd)

| Case | Age | Substances | Chronicity | Route | Reason | Blood Concentrations | Interval After Exposure |
|---|---|---|---|---|---|---|---|
| 723[p] | 29 yr | Cocaine<br>heroin | A | Parenteral | Int abuse | | |
| 724 | 46 yr | Cocaine<br>heroin | A/C | Unknown | Int abuse | | |
| 725 | 20 yr | Cocaine<br>heroin<br>alprazolam | U | Unknown | Int abuse | 5 µg/mL<br>1000 ng/mL<br>981 ng/mL | |
| 726 | 21 yr | Cocaine (crack)<br>heroin<br>diazepam | U | Ingestion | Int abuse | | |
| 727[p] | 43 yr | Cocaine<br>heroin<br>ethanol | A | Ing/Paren | Int abuse | | |
| 728[p] | 29 yr | Cocaine<br>opiates | U | Unknown | Int unknown | | |
| 729[p] | 38 yr | Cocaine<br>opiates | A | Inh/Paren | Int abuse | | |
| 730[p] | 38 yr | Cocaine<br>opiates<br>marijuana | A | Ing/Inh | Int abuse | | |
| 731[p] | 29 yr | Cocaine<br>petroleum distillates<br>marijuana | A/C | Derm/Inh | Int abuse | 0.41 µg/mL<br>benzoylecgonine 1.98 µg/mL | |
| 732 | 40's yr | Cocaine<br>phencyclidine | U | Unknown | Int abuse | | |
| 733 | 33 yr | Cocaine<br>sodium bicarbonate | U | Unknown | Unknown | sodium 199 mEq/L<br>bicarbonate 47 mEq/L | |
| 734[p] | 32 yr | Cocaine<br>strychnine | U | Unknown | Int unknown | | |
| 735 | 38 yr | Cocaine<br>unknown rodenticide | A | Ing/Inh | Int abuse | | |
| 736 | 45 yr | Ephedrine | A/C | Ingestion | Ther error | | |
| 737[p] | 19 yr | Heroin | A | Parenteral | Int abuse | opiate 370 ng/mL§ | |
| 738[p] | 20 yr | Heroin | A | Parenteral | Unint unknown | | |
| 739[p] | 21 yr | Heroin | A | Unknown | Int abuse | | |
| 740[ip] | 22 yr | Heroin | A/C | Unknown | Int abuse | morphine 80 ng/mL§ | |
| 741[p] | 25 yr | Heroin | A | Parenteral | Int abuse | | |
| 742 | 26 yr | Heroin | U | Parenteral | Int abuse | | |
| 743[p] | 30 yr | Heroin | A | Parenteral | Int abuse | morphine 110 ng/mL§ | |
| 744[a] | 33 yr | Heroin (body packer) | U | Ingestion | Int misuse | morphine 20.6 µg/mL§<br>6 monoacetylmorphine 0.08 µg/mL§ | |
| 745[p] | 33 yr | Heroin | A | Parenteral | Int abuse | | |
| 746[ip] | 37 yr | Heroin | A | Parenteral | Int abuse | morphine 59 ng/mL§ | |
| 747 | 39 yr | Heroin | A | Parenteral | Int abuse | | |
| 748 | 24 yr | Heroin<br>acetaminophen/codeine<br>ibuprofen | U | Ing/Unk | Int unknown | | |
| 749 | 37 yr | Heroin<br>amphetamines | A | Parenteral | Int abuse | | |
| 750[p] | 48 yr | Heroin<br>benzodiazepine | A/C | Ing/Paren | Int abuse | | |
| 751[p] | 20 yr | Heroin<br>cocaine | A | Parenteral | Int abuse | | |
| 752 | 22 yr | Heroin<br>cocaine | A | Ing/Paren | Int abuse | | |
| 753[p] | 27 yr | Heroin<br>cocaine | A/C | Parenteral | Int abuse | | |
| 754[p] | 44 yr | Heroin<br>cocaine | A | Parenteral | Int abuse | | |
| 755[p] | 24 yr | Heroin<br>cocaine<br>amphetamine | A/C | Ing/Inh/<br>Paren | Int abuse | | |
| 756[p] | 14 yr | Methamphetamine | A | Unknown | Int abuse | | |
| 757 | 23 yr | Methamphetamine | A | Ingestion | Int misuse | | |

*(Continued on following page)*

**TABLE 21.** Summary of Fatal Exposures Reported to TESS in 1998 (Cont'd)

| Case | Age | Substances | Chronicity | Route | Reason | Blood Concentrations | Interval After Exposure |
|---|---|---|---|---|---|---|---|
| 758[p] | 25 yr | Methamphetamine | C | Unknown | Int abuse | | |
| 759 | 29 yr | Methamphetamine | A/C | Unknown | Int abuse | 0.35 µg/mL§ | |
| 760 | 30 yr | Methamphetamine | A/C | Inhalation | Int abuse | | |
| 761 | 30 yr | Methamphetamine | A | Ingestion | Int abuse | | |
| 762[p] | 32 yr | Methamphetamine | A | Ingestion | Int misuse | 14.1 µg/mL§ | |
| 763[a] | 39 yr | Methamphetamine | A/C | Parenteral | Int abuse | | |
| 764[p] | 41 yr | Methamphetamine | U | Ingestion | Int abuse | | |
| 765 | 44 yr | Methamphetamine | A | Ingestion | Int misuse | | |
| 766 | 68 yr | Methamphetamine | C | Inhalation | Int abuse | | |
| 767[p] | 54 yr | Methamphetamine<br>amphetamine | A/C | Parenteral | Int abuse | 382 µg/mL§<br>472 µg/mL§ | |
| 768[p] | 17 yr | Methamphetamine (crystal)<br>morphine<br>diazepam | A/C | Ing/Paren | Int abuse | | |
| 769[p] | 23 yr | Methamphetamine<br>pyrethrin/piperonyl butoxide | A | Unknown | Int abuse | | |
| 770[ap] | 16 yr | Methylenedioxymethamphetamine | A | Ingestion | Int abuse | | |
| 771[p] | 19 yr | Methylenedioxymethamphetamine | A | Ingestion | Int abuse | | |
| 772 | 22 yr | Methylenedioxymethamphetamine | A | Ingestion | Int abuse | | |
| 773 | 22 yr | Methylenedioxymethamphetamine | C | Ingestion | Int unknown | | |
| 774[p] | 25 yr | Methylenedioxymethamphetamine<br>cocaine | C | Ingestion | Int abuse | | |

*See also cases 312, 717, 749, 755, 767 (amphetamine); 11 (cannabinoids); 313, 432, 511, 558, 587, 622, 641, 751 thru 755, 774 (cocaine); 11, 394, 721 thru 727 (heroin); 313, 390, 690, 730, 731 (marijuana); 475, 493, 649 (methamphetamine); 389 methylphenidate; 504 (pemoline); 494, 732 (phencyclidine); 717 (tetrahydrocannabinoids); and 257 (unknown street drug).*

Topical preparations
*See also case 139 (topical essential oils).*

Veterinary drugs

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 775 | >19 yr | Pentobarbital/phenytoin veterinary euthanasia solution | A | Parenteral | Int suicide | pentobarbital 285 µg/mL§<br>phenytoin 35 µg/mL§ | |

*See also case 531 (tilmicosin).*

ABBREVIATIONS: C, chronic exposure; A, acute exposure; A/C, acute on chronic; U, unknown; Ocu, ocular; Inh, inhalation; Ing, ingestion; Adv rxn, adverse reaction; Env, environmental; Int, intentional; Occ, occupational; Ther error, therapeutic error; Unint gen, unintentional general

[p]Prehospital (cardiac and/or respiratory) arrest

[i]Reported to poison center indirectly (by coroner, medical examiner, or from other source) after the fatality occurred.

§ Concentration obtained postmortem

¥ Acetaminophen concentration

¶ Salicylate concentration

# Concentration includes metabolite and parent compound

[a]Abstract provided in Appendix

The term "long-acting" is used throughout for all sustained release, extended release, delayed release, or long-acting formulations.

**TABLE 22A.** Demographic Profile of Exposure Cases by Generic Category of Substances and Products: Nonpharmaceuticals

| Substance Implicated In the Exposure | No. of Exposures | Age (yr) | | | Reason | | | | Treated in Health Care Facility | Outcome | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | <6 | 6–19 | >19 | Unint | Int | Other | Adv Rxn | | None | Minor | Moderate | Major | Death |
| Adhesives/glues | | | | | | | | | | | | | | |
| Cyanoacrylates | 11,434 | 3,693 | 2,545 | 4,304 | 11,207 | 141 | 52 | 22 | 2,489 | 1,712 | 2,413 | 563 | 6 | 0 |
| Epoxy | 879 | 285 | 54 | 480 | 860 | 9 | 1 | 9 | 281 | 197 | 227 | 63 | 2 | 0 |
| Toluene/xylene | 1,493 | 910 | 265 | 271 | 1,414 | 58 | 13 | 5 | 241 | 386 | 347 | 38 | 5 | 0 |
| Non-toxic | 1,579 | 1,045 | 398 | 124 | 1,525 | 41 | 10 | 3 | 63 | 287 | 110 | 6 | 0 | 0 |
| Unknown | 5,041 | 2,768 | 707 | 1,347 | 4,839 | 123 | 28 | 46 | 808 | 1,219 | 869 | 166 | 12 | 1 |
| *Category totals | 20,426 | 8,701 | 3,969 | 6,526 | 19,845 | 372 | 104 | 85 | 3,882 | 3,801 | 3,966 | 836 | 25 | 1 |
| Alcohols | | | | | | | | | | | | | | |
| Ethanol (beverage) | 30,609 | 1,619 | 5,015 | 21,990 | 5,291 | 24,155 | 344 | 573 | 20,544 | 3,567 | 9,305 | 4,444 | 965 | 42 |
| Ethanol (other) | 2,660 | 1,574 | 260 | 729 | 2,488 | 136 | 8 | 24 | 348 | 881 | 412 | 38 | 8 | 0 |
| Higher alcohols | 197 | 94 | 26 | 69 | 184 | 12 | 0 | 1 | 51 | 68 | 40 | 5 | 1 | 0 |

*(Continued on following page)*

**TABLE 22A.** Demographic Profile of Exposure Cases by Generic Category of Substances and Products: Nonpharmaceuticals

| Substance Implicated In the Exposure | No. of Exposures | Age (yr) | | | Reason | | | | Treated in Health Care Facility | Outcome | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | <6 | 6–19 | >19 | Unint | Int | Other | Adv Rxn | | None | Minor | Moderate | Major | Death |
| Isopropanol | 11,216 | 7,310 | 998 | 2,574 | 10,068 | 1,039 | 59 | 20 | 2,052 | 3,761 | 2,178 | 327 | 57 | 3 |
| Methanol | 1,041 | 221 | 168 | 569 | 890 | 129 | 9 | 1 | 556 | 264 | 257 | 80 | 24 | 10 |
| Rubbing alcohol | | | | | | | | | | | | | | |
| Ethanol, with methyl salicylate | 36 | 24 | 6 | 5 | 34 | 2 | 0 | 0 | 8 | 14 | 4 | 0 | 1 | 0 |
| Ethanol, without methyl salicylate | 450 | 327 | 37 | 81 | 420 | 29 | 1 | 0 | 53 | 173 | 78 | 5 | 1 | 0 |
| Isopropanol, with methyl salicylate | 293 | 217 | 24 | 50 | 269 | 22 | 1 | 0 | 78 | 121 | 59 | 7 | 1 | 0 |
| Isopropanol, without methyl salicylate | 8,085 | 5,520 | 659 | 1,786 | 7,316 | 708 | 46 | 5 | 1,246 | 2,826 | 1,424 | 158 | 26 | 0 |
| Unknown rubbing alcohol | 18 | 6 | 0 | 10 | 14 | 4 | 0 | 0 | 8 | 6 | 5 | 1 | 0 | 1 |
| Other alcohol | 43 | 17 | 10 | 13 | 37 | 3 | 0 | 2 | 8 | 14 | 7 | 3 | 0 | 0 |
| Unknown alcohol | 598 | 97 | 121 | 341 | 250 | 321 | 6 | 13 | 269 | 99 | 131 | 52 | 16 | 0 |
| *Category totals | 55,246 | 17,026 | 7,324 | 28,217 | 27,261 | 26,560 | 474 | 639 | 25,221 | 11,794 | 13,900 | 5,120 | 1,100 | 56 |
| Arts/crafts/office supplies | | | | | | | | | | | | | | |
| Artist paints, non-water-color | 1,166 | 728 | 175 | 236 | 1,128 | 29 | 4 | 3 | 117 | 325 | 149 | 18 | 0 | 0 |
| Chalk | 1,949 | 1,762 | 127 | 50 | 1,921 | 20 | 3 | 4 | 43 | 414 | 57 | 0 | 0 | 0 |
| Clay | 1,989 | 1,681 | 177 | 105 | 1,962 | 17 | 2 | 7 | 83 | 368 | 71 | 9 | 0 | 0 |
| Crayon | 2,538 | 2,285 | 172 | 71 | 2,524 | 12 | 1 | 1 | 52 | 432 | 39 | 5 | 0 | 0 |
| Glazes | 233 | 102 | 61 | 67 | 226 | 6 | 1 | 0 | 40 | 77 | 30 | 4 | 1 | 0 |
| Office supplies: miscellaneous | 485 | 182 | 41 | 203 | 474 | 6 | 2 | 2 | 67 | 128 | 80 | 13 | 1 | 0 |
| Pencil | 3,647 | 1,866 | 1,430 | 293 | 3,544 | 57 | 39 | 1 | 152 | 523 | 317 | 11 | 1 | 0 |
| Pens/ink | 15,765 | 10,768 | 4,239 | 608 | 15,355 | 338 | 33 | 32 | 401 | 3,469 | 555 | 30 | 1 | 0 |
| Typewriter correction fluid | 2,624 | 1,742 | 626 | 224 | 2,471 | 133 | 14 | 2 | 170 | 867 | 246 | 17 | 1 | 0 |
| Water color | 3,818 | 3,103 | 394 | 270 | 3,771 | 37 | 2 | 5 | 71 | 787 | 191 | 7 | 0 | 0 |
| Other | 6,847 | 5,378 | 751 | 619 | 6,724 | 90 | 18 | 13 | 272 | 1,425 | 324 | 43 | 3 | 0 |
| Unknown | 400 | 301 | 60 | 29 | 394 | 5 | 0 | 1 | 19 | 82 | 18 | 2 | 0 | 0 |
| *Category totals | 41,461 | 29,898 | 8,253 | 2,775 | 40,494 | 750 | 119 | 71 | 1,487 | 8,897 | 2,077 | 159 | 8 | 0 |
| Automotive/aircraft/boat products | | | | | | | | | | | | | | |
| Ethylene glycol | 5,376 | 803 | 735 | 3,225 | 4,932 | 372 | 47 | 6 | 1,745 | 1,220 | 1,089 | 327 | 81 | 9 |
| Glycols: other | 1,821 | 481 | 202 | 997 | 1,747 | 59 | 10 | 1 | 575 | 452 | 648 | 97 | 8 | 0 |
| Glycol and methanol | 74 | 25 | 16 | 28 | 72 | 2 | 0 | 0 | 24 | 23 | 28 | 0 | 0 | 0 |
| Hydrocarbons | 3,533 | 1,568 | 449 | 1,307 | 3,380 | 111 | 29 | 7 | 894 | 1,050 | 1,076 | 149 | 8 | 0 |
| Methanol | 1,388 | 417 | 214 | 654 | 1,285 | 85 | 12 | 2 | 585 | 464 | 378 | 55 | 10 | 6 |
| Non-toxic | 26 | 21 | 4 | 1 | 25 | 1 | 0 | 0 | 2 | 9 | 6 | 0 | 0 | 0 |
| Other | 2,452 | 1,115 | 316 | 885 | 2,365 | 54 | 20 | 10 | 729 | 532 | 763 | 165 | 6 | 1 |
| Unknown | 140 | 48 | 11 | 72 | 134 | 4 | 1 | 1 | 61 | 27 | 40 | 12 | 0 | 0 |
| *Category totals | 14,810 | 4,478 | 1,947 | 7,169 | 13,940 | 688 | 119 | 27 | 4,615 | 3,777 | 4,028 | 805 | 113 | 16 |
| Batteries | | | | | | | | | | | | | | |
| Automotive batteries | 1,782 | 137 | 239 | 1,177 | 1,762 | 13 | 3 | 1 | 521 | 169 | 694 | 169 | 0 | 0 |
| Disc batteries | | | | | | | | | | | | | | |
| Alkaline ($MnO_2$) | 51 | 35 | 11 | 3 | 49 | 0 | 0 | 0 | 39 | 33 | 4 | 1 | 0 | 0 |
| Lithium | 71 | 22 | 3 | 32 | 65 | 6 | 0 | 0 | 42 | 32 | 8 | 6 | 0 | 0 |
| Mercuric oxide | 6 | 1 | 4 | 1 | 6 | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 0 | 0 |
| Nickel cadmium | 12 | 2 | 1 | 8 | 12 | 0 | 0 | 0 | 2 | 3 | 3 | 1 | 0 | 0 |
| Silver oxide | 33 | 24 | 4 | 3 | 32 | 0 | 0 | 0 | 24 | 17 | 1 | 0 | 0 | 0 |
| Zinc-air | 61 | 24 | 13 | 22 | 55 | 4 | 0 | 0 | 43 | 40 | 1 | 0 | 0 | 0 |
| Other | 3 | 2 | 1 | 0 | 3 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 |
| Unknown | 1,826 | 1,142 | 455 | 202 | 1,775 | 46 | 0 | 0 | 1,203 | 977 | 70 | 18 | 6 | 1 |
| Dry cell batteries | 4,785 | 2,349 | 1,227 | 942 | 4,552 | 192 | 20 | 12 | 712 | 1,228 | 1,002 | 174 | 6 | 0 |
| Other batteries | 89 | 28 | 20 | 33 | 89 | 0 | 0 | 0 | 19 | 19 | 35 | 5 | 0 | 0 |
| Unknown batteries | 22 | 5 | 7 | 6 | 21 | 0 | 0 | 0 | 3 | 6 | 4 | 0 | 0 | 0 |
| *Category totals | 8,741 | 3,771 | 1,985 | 2,429 | 8,421 | 261 | 23 | 13 | 2,611 | 2,530 | 1,822 | 374 | 12 | 1 |
| Bites and envenomations | | | | | | | | | | | | | | |
| Coelenterate | 1,177 | 151 | 544 | 431 | 1,172 | 1 | 2 | 2 | 154 | 14 | 419 | 48 | 0 | 0 |
| Fish | 1,427 | 40 | 223 | 1,087 | 1,418 | 3 | 0 | 5 | 420 | 55 | 427 | 132 | 1 | 0 |
| Other/unknown marine animal | 548 | 321 | 64 | 145 | 535 | 6 | 3 | 4 | 80 | 104 | 67 | 15 | 0 | 0 |
| Insects | | | | | | | | | | | | | | |
| Ant/fire ant | 2,818 | 1,105 | 389 | 1,214 | 2,796 | 4 | 16 | 2 | 280 | 93 | 834 | 116 | 6 | 0 |
| Bee/wasp/hornet | 14,884 | 2,827 | 3,106 | 8,123 | 14,863 | 10 | 0 | 9 | 1,357 | 306 | 5,394 | 596 | 23 | 1 |

*(Continued on following page)*

**TABLE 22A.** Demographic Profile of Exposure Cases by Generic Category of Substances and Products: Nonpharmaceuticals (Cont'd)

| Substance Implicated In the Exposure | No. of Exposures | Age (yr) | | | Reason | | | | Treated in Health Care Facility | Outcome | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | <6 | 6–19 | >19 | Unint | Int | Other | Adv Rxn | | None | Minor | Moderate | Major | Death |
| Caterpillar | 2,704 | 705 | 688 | 1,202 | 2,682 | 4 | 3 | 15 | 200 | 72 | 771 | 47 | 1 | 0 |
| Centipede/millipede | 139 | 39 | 29 | 59 | 138 | 1 | 0 | 0 | 12 | 12 | 31 | 0 | 0 | 0 |
| Mosquito | 334 | 133 | 62 | 119 | 334 | 0 | 0 | 0 | 41 | 14 | 75 | 11 | 0 | 0 |
| Scorpion | 12,845 | 1,023 | 2,619 | 8,918 | 12,837 | 8 | 0 | 0 | 767 | 173 | 6,112 | 458 | 15 | 0 |
| Tick | 3,127 | 769 | 696 | 1,448 | 3,119 | 3 | 0 | 3 | 537 | 164 | 520 | 61 | 4 | 0 |
| Other insect | 16,207 | 3,408 | 2,966 | 9,000 | 15,984 | 29 | 140 | 44 | 2,215 | 653 | 4,011 | 982 | 16 | 0 |
| Mammals | | | | | | | | | | | | | | |
| Bat | 358 | 52 | 85 | 196 | 350 | 1 | 0 | 1 | 204 | 62 | 41 | 7 | 0 | 0 |
| Cat | 885 | 134 | 214 | 474 | 884 | 0 | 1 | 0 | 391 | 27 | 165 | 18 | 0 | 0 |
| Dog | 1,843 | 378 | 730 | 675 | 1,834 | 6 | 0 | 1 | 1,105 | 29 | 292 | 63 | 2 | 0 |
| Fox | 22 | 2 | 8 | 9 | 22 | 0 | 0 | 0 | 12 | 0 | 4 | 0 | 0 | 0 |
| Human | 69 | 22 | 16 | 27 | 60 | 0 | 9 | 0 | 25 | 2 | 11 | 3 | 0 | 0 |
| Raccoon | 151 | 9 | 41 | 83 | 149 | 1 | 0 | 1 | 75 | 12 | 19 | 4 | 0 | 0 |
| Rodents/lagomorphs | 1,755 | 470 | 664 | 536 | 1,732 | 5 | 13 | 3 | 323 | 122 | 399 | 19 | 0 | 0 |
| Skunk | 272 | 31 | 76 | 138 | 270 | 2 | 0 | 0 | 31 | 29 | 66 | 6 | 0 | 0 |
| Other mammal | 1,568 | 266 | 499 | 678 | 1,558 | 3 | 0 | 5 | 628 | 161 | 353 | 27 | 0 | 0 |
| Reptile: other/unknown | 1,202 | 397 | 437 | 316 | 1,181 | 12 | 1 | 7 | 255 | 90 | 304 | 30 | 1 | 0 |
| Snakes | | | | | | | | | | | | | | |
| Copperhead | 557 | 27 | 126 | 373 | 556 | 1 | 0 | 0 | 478 | 8 | 195 | 253 | 9 | 0 |
| Coral | 61 | 7 | 14 | 40 | 61 | 0 | 0 | 0 | 49 | 3 | 29 | 9 | 1 | 0 |
| Cottonmouth | 104 | 4 | 19 | 77 | 104 | 0 | 0 | 0 | 83 | 9 | 45 | 24 | 5 | 0 |
| Crotalid: unknown | 2 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 |
| Rattlesnake | 889 | 38 | 168 | 649 | 882 | 4 | 1 | 2 | 776 | 25 | 225 | 328 | 120 | 0 |
| Exotic snakes | | | | | | | | | | | | | | |
| Poisonous | 100 | 10 | 14 | 70 | 99 | 1 | 0 | 0 | 74 | 4 | 29 | 37 | 3 | 0 |
| Nonpoisonous | 235 | 16 | 77 | 124 | 234 | 0 | 0 | 0 | 82 | 12 | 71 | 7 | 1 | 0 |
| Nonpoisonous snake bite | 2,197 | 211 | 963 | 907 | 2,194 | 1 | 0 | 1 | 535 | 110 | 804 | 45 | 0 | 0 |
| Unknown snake | 1,807 | 165 | 555 | 1,002 | 1,799 | 6 | 1 | 1 | 1,113 | 64 | 807 | 253 | 26 | 0 |
| Spiders | | | | | | | | | | | | | | |
| Black widow | 2,452 | 216 | 364 | 1,775 | 2,449 | 1 | 1 | 0 | 823 | 253 | 850 | 324 | 7 | 0 |
| Brown recluse | 2,319 | 226 | 310 | 1,566 | 2,313 | 2 | 1 | 1 | 1,049 | 68 | 493 | 538 | 22 | 1 |
| Other spider | 9,253 | 1,219 | 1,843 | 5,544 | 9,227 | 11 | 3 | 4 | 1,489 | 303 | 2,798 | 556 | 13 | 1 |
| Tarantula | 256 | 29 | 93 | 122 | 250 | 1 | 0 | 4 | 52 | 12 | 93 | 9 | 0 | 0 |
| Unknown insect or spider | 7,577 | 1,102 | 1,310 | 4,598 | 7,565 | 2 | 3 | 2 | 1,174 | 234 | 1,920 | 263 | 1 | 0 |
| Other/unknown animal bite | 38 | 8 | 8 | 21 | 38 | 0 | 0 | 0 | 13 | 1 | 6 | 0 | 0 | 0 |
| *Category totals | 92,182 | 15,560 | 20,021 | 51,747 | 91,691 | 129 | 198 | 117 | 16,904 | 3,300 | 28,681 | 5,289 | 277 | 3 |
| Building and construction products | | | | | | | | | | | | | | |
| Caulking compounds and putties | 3,659 | 2,609 | 237 | 729 | 3,615 | 22 | 4 | 18 | 301 | 939 | 301 | 65 | 2 | 0 |
| Cement, concrete | 1,866 | 442 | 154 | 1,084 | 1,835 | 15 | 3 | 11 | 760 | 239 | 418 | 364 | 13 | 0 |
| Insulation | | | | | | | | | | | | | | |
| Asbestos | 552 | 101 | 103 | 273 | 298 | 1 | 236 | 17 | 65 | 70 | 14 | 14 | 0 | 0 |
| Fiberglass | 1,647 | 621 | 282 | 639 | 1,613 | 8 | 10 | 14 | 197 | 224 | 334 | 47 | 4 | 0 |
| Urea/formaldehyde | 102 | 54 | 8 | 36 | 101 | 0 | 0 | 1 | 22 | 16 | 18 | 5 | 0 | 0 |
| Other | 366 | 198 | 29 | 114 | 360 | 4 | 0 | 2 | 35 | 77 | 61 | 6 | 0 | 0 |
| Unknown | 39 | 21 | 0 | 14 | 39 | 0 | 0 | 0 | 3 | 5 | 2 | 0 | 0 | 0 |
| Soldering flux | 519 | 199 | 50 | 234 | 513 | 4 | 0 | 1 | 174 | 109 | 129 | 46 | 2 | 0 |
| Other construction product | 2,294 | 1,385 | 151 | 614 | 2,253 | 20 | 6 | 14 | 345 | 536 | 358 | 97 | 0 | 0 |
| Unknown construction product | 92 | 29 | 9 | 47 | 88 | 0 | 2 | 2 | 29 | 15 | 17 | 6 | 1 | 0 |
| *Category totals | 11,136 | 5,659 | 1,023 | 3,784 | 10,715 | 74 | 261 | 80 | 1,931 | 2,230 | 1,652 | 650 | 22 | |
| Chemicals | | | | | | | | | | | | | | |
| Acetone | 1,498 | 523 | 175 | 694 | 1,412 | 51 | 11 | 12 | 501 | 329 | 379 | 101 | 5 | 0 |
| Acids | | | | | | | | | | | | | | |
| Hydrochloric | 3,366 | 180 | 533 | 2,283 | 3,265 | 59 | 19 | 16 | 1,182 | 300 | 1,186 | 469 | 12 | 1 |
| Hydrofluoric | 1,701 | 170 | 119 | 1,249 | 1,665 | 24 | 3 | 3 | 1,293 | 190 | 657 | 358 | 31 | 2 |
| Other | 5,634 | 620 | 831 | 3,533 | 5,480 | 77 | 39 | 25 | 2,372 | 706 | 1,920 | 810 | 31 | 5 |
| Unknown | 515 | 39 | 72 | 333 | 478 | 17 | 15 | 0 | 234 | 59 | 168 | 84 | 5 | 0 |
| Alkali | 5,720 | 1,179 | 1,020 | 2,981 | 5,543 | 94 | 45 | 28 | 2,592 | 843 | 1,809 | 905 | 52 | 3 |
| Ammonia | 5,882 | 1,374 | 787 | 3,149 | 5,593 | 195 | 58 | 18 | 1,880 | 746 | 1,984 | 731 | 30 | 2 |
| Borates/boric acid | 3,352 | 1,817 | 310 | 1,108 | 3,117 | 163 | 41 | 21 | 601 | 992 | 346 | 49 | 6 | 0 |
| Chlorates | 52 | 13 | 14 | 21 | 51 | 1 | 0 | 0 | 14 | 10 | 10 | 4 | 0 | 0 |
| Cyanide | 359 | 13 | 38 | 271 | 301 | 33 | 18 | 1 | 242 | 69 | 94 | 35 | 4 | 10 |
| Dioxin | 7 | 2 | 1 | 4 | 7 | 0 | 0 | 0 | 4 | 2 | 0 | 0 | 0 | 0 |

*(Continued on following page)*

**TABLE 22A.** Demographic Profile of Exposure Cases by Generic Category of Substances and Products: Nonpharmaceuticals (Cont'd)

| Substance Implicated In the Exposure | No. of Exposures | Age (yr) | | | Reason | | | | Treated in Health Care Facility | Outcome | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | <6 | 6–19 | >19 | Unint | Int | Other | Adv Rxn | | None | Minor | Moderate | Major | Death |
| Formaldehyde/formalin | 1,512 | 201 | 305 | 838 | 1,384 | 79 | 16 | 25 | 596 | 214 | 439 | 130 | 5 | 0 |
| Glycol: ethylene | 905 | 151 | 131 | 536 | 710 | 142 | 26 | 3 | 429 | 198 | 136 | 63 | 67 | 18 |
| Glycol: other | 1,604 | 595 | 319 | 587 | 1,514 | 63 | 15 | 8 | 471 | 390 | 435 | 81 | 8 | 1 |
| Ketones | 1,048 | 253 | 96 | 633 | 1,025 | 10 | 7 | 2 | 496 | 198 | 337 | 86 | 4 | 0 |
| Methylene chloride | 854 | 100 | 94 | 516 | 831 | 13 | 4 | 2 | 432 | 145 | 287 | 105 | 9 | 0 |
| Nitrates and nitrites | 1,103 | 275 | 418 | 325 | 995 | 58 | 35 | 11 | 252 | 263 | 198 | 37 | 5 | 0 |
| Phenol/creosote | 1,701 | 225 | 240 | 1,022 | 1,648 | 25 | 6 | 19 | 664 | 186 | 514 | 202 | 3 | 0 |
| Strychnine | 40 | 27 | 2 | 10 | 33 | 5 | 1 | 0 | 19 | 18 | 4 | 0 | 1 | 0 |
| Toluene diisocyanate | 785 | 105 | 75 | 515 | 768 | 9 | 1 | 6 | 243 | 116 | 176 | 54 | 2 | 0 |
| Other chemicals | 20,396 | 6,384 | 3,137 | 9,073 | 18,456 | 544 | 864 | 407 | 5,609 | 4,146 | 3,885 | 1,166 | 95 | 3 |
| Unknown chemicals | 3,027 | 1,520 | 437 | 904 | 2,890 | 37 | 58 | 34 | 366 | 541 | 321 | 69 | 3 | 0 |
| *Category totals | 61,061 | 15,766 | 9,154 | 30,585 | 57,166 | 1,699 | 1,282 | 640 | 20,492 | 10,661 | 15,285 | 5,539 | 378 | 45 |
| Cleaning substances (household) | | | | | | | | | | | | | | |
| Ammonia cleaners (all purpose) | 3,400 | 1,501 | 313 | 1,425 | 3,256 | 121 | 14 | 6 | 614 | 739 | 864 | 169 | 3 | 0 |
| Automatic dishwasher detergents | | | | | | | | | | | | | | |
| Granules | 5,884 | 5,134 | 196 | 485 | 5,842 | 23 | 16 | 1 | 257 | 2,590 | 1,013 | 38 | 3 | 1 |
| Liquids | 3,096 | 2,582 | 120 | 333 | 3,073 | 11 | 4 | 6 | 232 | 1,146 | 645 | 55 | 1 | 0 |
| Rinse agents | 1,306 | 1,243 | 25 | 29 | 1,302 | 3 | 0 | 1 | 38 | 384 | 213 | 9 | 0 | 0 |
| Other/unknown | 1,051 | 822 | 58 | 139 | 1,041 | 6 | 4 | 0 | 69 | 404 | 173 | 24 | 0 | 0 |
| Bleaches | | | | | | | | | | | | | | |
| Borate | 511 | 238 | 56 | 182 | 462 | 12 | 23 | 14 | 72 | 125 | 130 | 20 | 1 | 0 |
| Hypochlorite | 54,685 | 21,461 | 6,126 | 23,947 | 51,972 | 1,948 | 504 | 175 | 9,553 | 9,729 | 16,623 | 2,541 | 61 | 0 |
| Nonhypochlorite | 1,105 | 527 | 93 | 403 | 1,063 | 22 | 5 | 15 | 161 | 264 | 264 | 39 | 0 | 0 |
| Other/unknown | 242 | 110 | 31 | 81 | 226 | 7 | 1 | 8 | 40 | 46 | 74 | 7 | 0 | 0 |
| Carpet/upholstery cleaners | 5,068 | 3,740 | 343 | 872 | 4,926 | 61 | 16 | 61 | 447 | 1,492 | 953 | 92 | 4 | 0 |
| Cleansers | | | | | | | | | | | | | | |
| Anionic/nonionic | 3,920 | 2,876 | 261 | 696 | 3,788 | 101 | 15 | 15 | 434 | 1,162 | 732 | 86 | 3 | 0 |
| Other/unknown | 1,348 | 806 | 141 | 357 | 1,288 | 34 | 14 | 10 | 230 | 348 | 308 | 50 | 3 | 0 |
| Disinfectants | | | | | | | | | | | | | | |
| Hypochlorite | 8,932 | 5,270 | 931 | 2,446 | 8,681 | 160 | 44 | 43 | 1,402 | 2,335 | 2,338 | 422 | 14 | 0 |
| Phenol | 3,901 | 2,556 | 393 | 811 | 3,718 | 137 | 26 | 16 | 572 | 1,043 | 993 | 97 | 7 | 2 |
| Pine oil | 10,482 | 7,030 | 887 | 2,308 | 9,934 | 448 | 55 | 24 | 1,796 | 3,486 | 2,300 | 212 | 9 | 6 |
| Other/unknown | 3,081 | 1,760 | 383 | 794 | 2,915 | 123 | 18 | 21 | 622 | 825 | 829 | 95 | 5 | 0 |
| Drain cleaners | | | | | | | | | | | | | | |
| Acid | 1,056 | 92 | 95 | 722 | 1,025 | 27 | 3 | 0 | 356 | 124 | 347 | 187 | 8 | 6 |
| Alkali | 4,112 | 668 | 360 | 2,643 | 3,817 | 248 | 26 | 14 | 1,369 | 593 | 1,323 | 591 | 51 | 3 |
| Other/unknown | 470 | 84 | 40 | 303 | 450 | 15 | 1 | 3 | 114 | 78 | 140 | 48 | 4 | 0 |
| Fabric softeners/ antistatic agents | | | | | | | | | | | | | | |
| Aerosol/spray | 48 | 21 | 4 | 20 | 46 | 0 | 1 | 1 | 3 | 8 | 12 | 0 | 0 | 0 |
| Dry/powder | 3 | 2 | 0 | 1 | 3 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 |
| Liquid | 1,328 | 1,101 | 76 | 135 | 1,299 | 16 | 4 | 9 | 96 | 476 | 199 | 14 | 0 | 0 |
| Solid/sheet | 370 | 312 | 26 | 28 | 355 | 7 | 0 | 7 | 10 | 112 | 22 | 3 | 0 | 0 |
| Other/unknown | 50 | 37 | 7 | 6 | 48 | 1 | 0 | 1 | 7 | 15 | 7 | 1 | 0 | 0 |
| Glass cleaners | | | | | | | | | | | | | | |
| Ammonia | 2,014 | 1,610 | 160 | 213 | 1,943 | 54 | 12 | 3 | 149 | 664 | 353 | 19 | 0 | 0 |
| Anionic/nonionic | 42 | 31 | 4 | 7 | 42 | 0 | 0 | 0 | 4 | 12 | 11 | 0 | 0 | 0 |
| Isopropanol | 6,996 | 5,573 | 591 | 703 | 6,735 | 201 | 50 | 7 | 578 | 2,091 | 1,340 | 67 | 2 | 0 |
| Other/unknown | 3,842 | 3,008 | 348 | 398 | 3,700 | 114 | 19 | 7 | 322 | 1,212 | 707 | 39 | 1 | 0 |
| Hand dishwashing | | | | | | | | | | | | | | |
| Anionic/nonionic | 8,200 | 5,543 | 670 | 1,790 | 7,920 | 105 | 86 | 88 | 462 | 1,590 | 1,824 | 96 | 5 | 1 |
| Other/unknown | 1,219 | 699 | 133 | 348 | 1,159 | 12 | 15 | 32 | 84 | 184 | 229 | 16 | 1 | 0 |
| Laundry additives | | | | | | | | | | | | | | |
| Bluing/brightening agent | 62 | 41 | 12 | 8 | 61 | 0 | 0 | 1 | 10 | 21 | 5 | 2 | 0 | 0 |
| Detergent booster | 65 | 25 | 0 | 37 | 57 | 0 | 0 | 8 | 19 | 9 | 25 | 7 | 1 | 0 |
| Enzyme/microbiological additive | 92 | 69 | 3 | 17 | 90 | 0 | 0 | 2 | 15 | 23 | 18 | 1 | 0 | 0 |
| Water softener | 109 | 15 | 10 | 71 | 97 | 0 | 8 | 4 | 5 | 35 | 5 | 0 | 0 | 0 |
| Other/unknown | 615 | 458 | 48 | 95 | 583 | 3 | 1 | 28 | 54 | 169 | 97 | 13 | 1 | 0 |

*(Continued on following page)*

**TABLE 22A.** Demographic Profile of Exposure Cases by Generic Category of Substances and Products: Nonpharmaceuticals (Cont'd)

| Substance Implicated In the Exposure | No. of Exposures | Age (yr) | | | Reason | | | | Treated in Health Care Facility | Outcome | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | <6 | 6–19 | >19 | Unint | Int | Other | Adv Rxn | | None | Minor | Moderate | Major | Death |
| Laundry detergents | | | | | | | | | | | | | | |
| Granules | 7,577 | 6,403 | 355 | 727 | 7,389 | 97 | 34 | 53 | 707 | 2,264 | 1,875 | 120 | 5 | 0 |
| Liquids | 3,544 | 2,510 | 268 | 679 | 3,395 | 80 | 17 | 51 | 433 | 819 | 943 | 81 | 4 | 0 |
| Soaps | 165 | 103 | 10 | 43 | 159 | 5 | 0 | 1 | 12 | 34 | 29 | 1 | 0 | 0 |
| Other/unknown | 152 | 80 | 13 | 47 | 137 | 4 | 1 | 10 | 22 | 36 | 34 | 8 | 0 | 0 |
| Laundry prewash/stain removers | | | | | | | | | | | | | | |
| Dry solvent-based | 112 | 102 | 2 | 7 | 111 | 1 | 0 | 0 | 8 | 27 | 11 | 2 | 0 | 0 |
| Liquid solvent-based | 420 | 333 | 15 | 65 | 415 | 1 | 1 | 3 | 29 | 134 | 63 | 7 | 0 | 0 |
| Spray solvent-based | 423 | 346 | 16 | 53 | 419 | 1 | 1 | 2 | 50 | 126 | 101 | 17 | 0 | 0 |
| Other/unknown solvent-based | 39 | 26 | 4 | 4 | 37 | 1 | 0 | 1 | 5 | 15 | 5 | 1 | 0 | 0 |
| Dry surfactant-based | 307 | 257 | 18 | 28 | 302 | 2 | 2 | 1 | 18 | 101 | 47 | 5 | 0 | 0 |
| Liquid surfactant-based | 2,048 | 1,752 | 104 | 164 | 2,021 | 12 | 11 | 3 | 189 | 589 | 457 | 44 | 0 | 0 |
| Spray surfactant-based | 286 | 243 | 14 | 25 | 284 | 1 | 1 | 0 | 34 | 84 | 88 | 11 | 0 | 0 |
| Other/unknown surfactant-based | 19 | 16 | 0 | 3 | 18 | 0 | 0 | 1 | 3 | 3 | 5 | 0 | 0 | 0 |
| Other/unknown | 42 | 26 | 4 | 12 | 41 | 0 | 0 | 0 | 12 | 16 | 11 | 2 | 0 | 0 |
| Miscellaneous cleaner | | | | | | | | | | | | | | |
| Acid | 807 | 271 | 82 | 398 | 783 | 14 | 4 | 3 | 212 | 178 | 252 | 48 | 4 | 0 |
| Alkali | 8,229 | 4,257 | 788 | 2,776 | 7,921 | 200 | 46 | 49 | 2,436 | 2,072 | 2,409 | 687 | 21 | 0 |
| Anionic/nonionic | 8,357 | 5,497 | 716 | 1,865 | 8,030 | 189 | 48 | 81 | 1,101 | 2,055 | 1,742 | 178 | 5 | 0 |
| Cationic | 3,074 | 1,444 | 373 | 1,070 | 2,902 | 131 | 25 | 12 | 854 | 720 | 899 | 151 | 9 | 1 |
| Ethanol | 1,103 | 808 | 117 | 156 | 1,058 | 32 | 8 | 4 | 103 | 299 | 296 | 13 | 0 | 0 |
| Glycols | 3,669 | 2,793 | 275 | 553 | 3,591 | 44 | 20 | 14 | 413 | 1,202 | 755 | 71 | 1 | 0 |
| Isopropanol | 2,192 | 1,304 | 408 | 401 | 2,114 | 57 | 11 | 8 | 290 | 634 | 581 | 46 | 1 | 0 |
| Methanol | 32 | 18 | 5 | 8 | 30 | 2 | 0 | 0 | 8 | 8 | 11 | 2 | 0 | 0 |
| Phenol | 326 | 181 | 34 | 96 | 302 | 20 | 0 | 3 | 60 | 75 | 108 | 8 | 2 | 0 |
| Other/unknown | 3,124 | 1,729 | 315 | 926 | 2,998 | 62 | 32 | 28 | 647 | 822 | 730 | 154 | 3 | 0 |
| Oven cleaner | | | | | | | | | | | | | | |
| Acid | 23 | 16 | 1 | 5 | 22 | 1 | 0 | 0 | 4 | 9 | 2 | 1 | 0 | 0 |
| Alkali | 3,949 | 917 | 756 | 1,937 | 3,847 | 60 | 21 | 17 | 1,396 | 796 | 1,236 | 525 | 23 | 0 |
| Detergent type | 26 | 8 | 2 | 13 | 25 | 1 | 0 | 0 | 6 | 6 | 5 | 1 | 0 | 0 |
| Other/unknown | 293 | 59 | 44 | 158 | 281 | 5 | 4 | 2 | 106 | 45 | 102 | 34 | 1 | 0 |
| Rust remover | | | | | | | | | | | | | | |
| Alkali | 27 | 7 | 4 | 15 | 24 | 1 | 0 | 2 | 9 | 8 | 6 | 2 | 0 | 0 |
| Hydrofluoric acid | 979 | 96 | 71 | 728 | 948 | 22 | 2 | 4 | 540 | 146 | 441 | 181 | 8 | 1 |
| Other acid | 661 | 255 | 49 | 323 | 631 | 19 | 3 | 7 | 160 | 185 | 170 | 43 | 3 | 0 |
| Other/unknown | 292 | 50 | 28 | 186 | 280 | 3 | 1 | 8 | 59 | 44 | 98 | 30 | 1 | 0 |
| Spot removers/dry cleaning agents | | | | | | | | | | | | | | |
| Anionic/nonionic | 540 | 410 | 33 | 81 | 531 | 3 | 1 | 5 | 53 | 156 | 113 | 15 | 0 | 0 |
| Glycol | 126 | 80 | 10 | 30 | 125 | 1 | 0 | 0 | 16 | 36 | 26 | 2 | 1 | 0 |
| Perchloroethylene | 60 | 34 | 5 | 19 | 58 | 2 | 0 | 0 | 17 | 22 | 10 | 1 | 0 | 0 |
| Other halogenated hydrocarbon | 150 | 53 | 15 | 73 | 142 | 3 | 1 | 3 | 44 | 34 | 36 | 8 | 0 | 0 |
| Isopropanol | 15 | 4 | 5 | 5 | 15 | 0 | 0 | 0 | 8 | 3 | 6 | 0 | 0 | 0 |
| Other nonhalogenated hydrocarbon | 128 | 71 | 16 | 36 | 121 | 5 | 1 | 1 | 20 | 40 | 40 | 3 | 0 | 0 |
| Other/unknown | 236 | 177 | 18 | 34 | 232 | 2 | 1 | 1 | 25 | 67 | 59 | 5 | 0 | 0 |
| Starch/fabric finishes/sizing | 1,235 | 1,050 | 90 | 76 | 1,202 | 23 | 2 | 7 | 54 | 344 | 144 | 6 | 1 | 0 |
| Toilet bowl cleaner | | | | | | | | | | | | | | |
| Acid | 4,100 | 1,406 | 418 | 1,961 | 3,893 | 191 | 6 | 9 | 1,093 | 850 | 1,364 | 438 | 13 | 3 |
| Alkali | 892 | 643 | 37 | 182 | 880 | 10 | 1 | 1 | 98 | 323 | 137 | 13 | 0 | 0 |
| Other/unknown | 2,207 | 1,711 | 110 | 338 | 2,164 | 37 | 4 | 1 | 203 | 719 | 216 | 31 | 5 | |
| Wall/floor/tile cleaner | | | | | | | | | | | | | | |
| Acid | 3,947 | 1,839 | 310 | 1,528 | 3,852 | 70 | 7 | 15 | 997 | 887 | 1,476 | 334 | 2 | 0 |
| Alkali | 9,890 | 6,276 | 811 | 2,524 | 9,616 | 170 | 53 | 42 | 1,865 | 2,612 | 3,170 | 428 | 8 | 0 |
| Anionic/nonionic | 897 | 581 | 67 | 216 | 876 | 15 | 1 | 3 | 156 | 259 | 185 | 21 | 0 | 0 |
| Cationic | 1,591 | 1,091 | 111 | 333 | 1,550 | 24 | 5 | 12 | 224 | 452 | 441 | 60 | 1 | 0 |
| Ethanol | 3 | 2 | 1 | 0 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 |
| Glycols | 1,755 | 1,212 | 127 | 362 | 1,711 | 29 | 4 | 9 | 179 | 521 | 348 | 43 | 0 | 0 |
| Isopropanol | 1,106 | 784 | 82 | 208 | 1,069 | 20 | 1 | 16 | 160 | 305 | 248 | 38 | 4 | 0 |
| Methanol | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| Other/unknown | 472 | 226 | 48 | 165 | 451 | 9 | 6 | 5 | 103 | 95 | 119 | 28 | 1 | 0 |
| *Category totals | 220,353 | 126,602 | 20,150 | 64,495 | 211,923 | 5,702 | 1,372 | 1,130 | 35,440 | 54,811 | 56,767 | 9,010 | 315 | 24 |

*(Continued on following page)*

**TABLE 22A.** Demographic Profile of Exposure Cases by Generic Category of Substances and Products: Nonpharmaceuticals (Cont'd)

| Substance Implicated In the Exposure | No. of Exposures | Age (yr) | | | Reason | | | | Treated in Health Care Facility | Outcome | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | <6 | 6–19 | >19 | Unint | Int | Other | Adv Rxn | | None | Minor | Moderate | Major | Death |
| Industrial cleaners | | | | | | | | | | | | | | |
| Acids | 1,543 | 460 | 169 | 778 | 1,504 | 24 | 8 | 6 | 602 | 261 | 514 | 206 | 8 | 0 |
| Alkali | 3,458 | 850 | 519 | 1,731 | 3,315 | 88 | 43 | 8 | 1,734 | 523 | 1,305 | 499 | 14 | 0 |
| Anionic/nonionic | 1,086 | 585 | 123 | 324 | 1,039 | 33 | 6 | 6 | 257 | 265 | 316 | 35 | 1 | 0 |
| Cationic | 1,266 | 366 | 227 | 571 | 1,170 | 72 | 16 | 6 | 494 | 233 | 423 | 110 | 4 | 0 |
| Other/unknown | 1,794 | 578 | 238 | 841 | 1,710 | 46 | 32 | 6 | 665 | 304 | 597 | 171 | 2 | 0 |
| *Category totals | 9,147 | 2,839 | 1,276 | 4,245 | 8,738 | 263 | 105 | 32 | 3,752 | 1,586 | 3,155 | 1,021 | 29 | 0 |
| Cosmetics/personal care products | | | | | | | | | | | | | | |
| Bath oil, bubble bath | 9,124 | 8,478 | 380 | 241 | 9,013 | 41 | 8 | 56 | 202 | 2,439 | 1,019 | 22 | 2 | 0 |
| Creams, lotions, make-up | 19,247 | 15,524 | 1,240 | 2,210 | 18,585 | 279 | 38 | 330 | 755 | 4,794 | 1,414 | 108 | 4 | 0 |
| Dental care products | | | | | | | | | | | | | | |
| Denture cleaning | 1,444 | 280 | 79 | 1,026 | 1,407 | 22 | 9 | 3 | 80 | 433 | 128 | 9 | 0 | 0 |
| Toothpaste with fluoride | 20,430 | 17,865 | 976 | 1,467 | 19,652 | 172 | 41 | 554 | 416 | 6,746 | 1,425 | 56 | 2 | 0 |
| Toothpaste without fluoride | 723 | 572 | 51 | 89 | 704 | 10 | 1 | 8 | 23 | 220 | 50 | 2 | 0 | 0 |
| Other | 1,558 | 938 | 188 | 370 | 1,492 | 20 | 3 | 41 | 112 | 406 | 238 | 13 | 1 | 0 |
| Deodorants | 10,906 | 9,202 | 708 | 914 | 10,277 | 133 | 27 | 467 | 351 | 2,535 | 1,027 | 62 | 1 | 0 |
| Depilatories | 999 | 328 | 148 | 461 | 758 | 50 | 7 | 184 | 194 | 174 | 272 | 87 | 5 | 0 |
| Douches | 180 | 137 | 13 | 29 | 170 | 4 | 2 | 4 | 13 | 62 | 11 | 0 | 0 | 0 |
| Eye products | 1,613 | 1,165 | 102 | 299 | 1,581 | 10 | 4 | 18 | 114 | 356 | 210 | 35 | 0 | 0 |
| Hair care products | | | | | | | | | | | | | | |
| Coloring agents | 1,971 | 850 | 209 | 791 | 1,763 | 19 | 4 | 183 | 434 | 421 | 581 | 116 | 2 | 0 |
| Rinses, conditioners, relaxers | 4,026 | 3,070 | 313 | 560 | 3,894 | 60 | 4 | 64 | 1,065 | 1,176 | 887 | 220 | 4 | 0 |
| Shampoos | 8,951 | 7,015 | 722 | 1,081 | 8,629 | 216 | 13 | 88 | 587 | 2,222 | 1,640 | 107 | 6 | 0 |
| Sprays | 3,459 | 2,245 | 515 | 606 | 3,015 | 389 | 32 | 15 | 535 | 933 | 812 | 69 | 9 | 0 |
| Other | 3,488 | 2,339 | 298 | 724 | 3,245 | 94 | 9 | 135 | 650 | 942 | 655 | 152 | 5 | 1 |
| Lipsticks/balms, with camphor | 786 | 726 | 34 | 22 | 781 | 1 | 2 | 2 | 10 | 193 | 44 | 1 | 0 | 0 |
| Lipsticks/balms, without camphor | 2,502 | 2,335 | 97 | 64 | 2,474 | 10 | 5 | 13 | 37 | 472 | 82 | 1 | 0 | 0 |
| Mouthwash | | | | | | | | | | | | | | |
| Ethanol | 12,564 | 3,935 | 2,499 | 5,464 | 11,465 | 986 | 48 | 39 | 1,022 | 3,302 | 1,164 | 154 | 21 | 1 |
| Fluoride | 2,097 | 1,383 | 554 | 150 | 2,070 | 20 | 0 | 4 | 40 | 662 | 70 | 3 | 0 | 0 |
| Non-ethanol | 345 | 147 | 82 | 106 | 298 | 42 | 1 | 2 | 41 | 107 | 41 | 7 | 2 | 0 |
| Unknown | 408 | 72 | 209 | 105 | 340 | 39 | 19 | 10 | 53 | 36 | 185 | 12 | 2 | 0 |
| Nail products | | | | | | | | | | | | | | |
| Polish | 10,537 | 9,224 | 813 | 441 | 10,396 | 117 | 9 | 10 | 594 | 2,966 | 1,744 | 62 | 2 | 0 |
| Polish removers: acetone | 3,646 | 2,834 | 356 | 422 | 3,553 | 72 | 14 | 5 | 364 | 1,320 | 646 | 37 | 1 | 1 |
| Polish removers: other | 2,490 | 1,939 | 276 | 246 | 2,431 | 45 | 11 | 3 | 209 | 868 | 473 | 28 | 1 | 0 |
| Polish removers: unknown | 10,590 | 7,818 | 1,302 | 1,266 | 10,284 | 222 | 60 | 13 | 1,018 | 3,466 | 2,003 | 80 | 2 | 0 |
| Other miscellaneous | 4,751 | 2,643 | 921 | 1,012 | 4,680 | 33 | 10 | 27 | 1,355 | 1,094 | 1,315 | 321 | 5 | 0 |
| Perfume, cologne, aftershave | 26,253 | 22,897 | 1,919 | 1,287 | 25,656 | 392 | 123 | 65 | 1,436 | 8,786 | 4,684 | 138 | 6 | 0 |
| Peroxide | 15,552 | 7,498 | 1,769 | 5,482 | 15,062 | 331 | 46 | 96 | 1,070 | 3,513 | 2,757 | 161 | 14 | 0 |
| Powders: talc | 4,677 | 4,170 | 251 | 225 | 4,608 | 46 | 9 | 12 | 351 | 1,284 | 1,116 | 64 | 3 | 0 |
| Powders: without talc | 1,368 | 1,305 | 41 | 17 | 1,357 | 4 | 5 | 2 | 38 | 277 | 306 | 11 | 0 | 0 |
| Soaps | 15,917 | 12,267 | 1,271 | 2,166 | 15,332 | 188 | 109 | 274 | 766 | 4,245 | 2,437 | 109 | 3 | 0 |
| Suntan/sunscreen products | 7,622 | 6,350 | 771 | 437 | 7,365 | 21 | 7 | 226 | 379 | 1,632 | 1,923 | 57 | 3 | 0 |
| *Category totals | 210,224 | 157,551 | 19,107 | 29,780 | 202,337 | 4,088 | 680 | 2,953 | 14,314 | 58,082 | 31,359 | 2,304 | 106 | 3 |
| Deodorizers | | | | | | | | | | | | | | |
| Air fresheners | 13,893 | 11,620 | 1,218 | 915 | 13,625 | 191 | 46 | 23 | 908 | 3,986 | 2,969 | 108 | 6 | 1 |
| Diaper pail deodorizers | 363 | 347 | 4 | 11 | 360 | 3 | 0 | 0 | 16 | 163 | 18 | 1 | 0 | 0 |
| Toilet bowl deodorizers | 898 | 812 | 37 | 43 | 883 | 14 | 1 | 0 | 73 | 401 | 85 | 2 | 0 | 0 |
| Other | 3,818 | 2,630 | 379 | 696 | 3,699 | 70 | 22 | 25 | 484 | 1,157 | 745 | 60 | 2 | 0 |
| Unknown | 87 | 58 | 9 | 18 | 81 | 3 | 1 | 2 | 16 | 23 | 20 | 1 | 0 | 0 |
| *Category totals | 19,059 | 15,467 | 1,647 | 1,683 | 18,648 | 281 | 70 | 50 | 1,497 | 5,730 | 3,837 | 172 | 8 | 1 |
| Dyes | | | | | | | | | | | | | | |
| Fabric | 902 | 712 | 93 | 87 | 886 | 7 | 1 | 8 | 68 | 266 | 50 | 1 | 0 | 0 |
| Food dye (eg, Easter egg) | 1,093 | 879 | 152 | 51 | 1,058 | 20 | 5 | 10 | 22 | 294 | 36 | 3 | 0 | 0 |
| Leather | 112 | 98 | 4 | 9 | 110 | 1 | 0 | 1 | 5 | 30 | 5 | 0 | 0 | 0 |
| Other | 744 | 454 | 197 | 72 | 708 | 19 | 3 | 14 | 69 | 245 | 44 | 14 | 0 | 0 |

*(Continued on following page)*

**TABLE 22A.** Demographic Profile of Exposure Cases by Generic Category of Substances and Products: Nonpharmaceuticals (Cont'd)

| Substance Implicated In the Exposure | No. of Exposures | Age (yr) | | | Reason | | | | Treated in Health Care Facility | Outcome | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | <6 | 6–19 | >19 | Unint | Int | Other | Adv Rxn | | None | Minor | Moderate | Major | Death |
| Unknown | 58 | 35 | 9 | 12 | 50 | 1 | 1 | 6 | 18 | 13 | 8 | 0 | 1 | 0 |
| *Category totals | 2,909 | 2,178 | 455 | 231 | 2,812 | 48 | 10 | 39 | 182 | 848 | 143 | 18 | 1 | 0 |
| Essential oils | 4,066 | 2,785 | 460 | 697 | 3,832 | 106 | 18 | 101 | 523 | 1,057 | 1,197 | 72 | 5 | 0 |
| Fertilizers | | | | | | | | | | | | | | |
| Household plant food | 4,903 | 3,090 | 655 | 1,025 | 4,842 | 30 | 24 | 7 | 122 | 1,391 | 165 | 9 | 2 | 0 |
| Outdoor fertilizers | 3,790 | 2,596 | 386 | 704 | 3,753 | 16 | 15 | 5 | 160 | 1,138 | 230 | 27 | 2 | 0 |
| Plant hormones | 158 | 68 | 19 | 55 | 149 | 6 | 0 | 1 | 28 | 47 | 15 | 5 | 0 | 0 |
| Other | 418 | 233 | 53 | 104 | 404 | 5 | 5 | 4 | 30 | 131 | 30 | 5 | 1 | 0 |
| Unknown | 2,098 | 1,390 | 241 | 384 | 2,056 | 15 | 12 | 15 | 190 | 520 | 214 | 38 | 0 | 0 |
| *Category totals | 11,367 | 7,377 | 1,354 | 2,272 | 11,204 | 72 | 56 | 32 | 530 | 3,227 | 654 | 84 | 5 | 0 |
| Fire extinguishers | 3,251 | 284 | 1,008 | 1,603 | 3,066 | 66 | 103 | 5 | 816 | 501 | 1,040 | 185 | 5 | 0 |
| Food products/food poisoning | 78,690 | 22,469 | 12,873 | 38,841 | 73,762 | 528 | 1,067 | 3,216 | 6,270 | 9,964 | 11,314 | 2,160 | 46 | 0 |
| Foreign bodies/toys/ miscellaneous | | | | | | | | | | | | | | |
| Ashes | 598 | 530 | 27 | 36 | 594 | 1 | 2 | 1 | 28 | 124 | 59 | 3 | 0 | 0 |
| Bubble blowing solutions | 4,640 | 4,332 | 227 | 72 | 4,625 | 5 | 8 | 1 | 112 | 970 | 1,121 | 18 | 1 | 0 |
| Charcoal | 958 | 737 | 70 | 126 | 923 | 20 | 8 | 7 | 63 | 231 | 75 | 20 | 1 | 0 |
| Christmas ornaments | 1,144 | 989 | 72 | 73 | 1,136 | 1 | 4 | 1 | 90 | 295 | 61 | 2 | 0 | 0 |
| Coins | 3,610 | 2,879 | 652 | 59 | 3,563 | 39 | 2 | 2 | 1,085 | 1,089 | 313 | 44 | 1 | 0 |
| Desiccants | 30,774 | 27,647 | 1,917 | 981 | 30,562 | 142 | 53 | 10 | 838 | 6,265 | 224 | 9 | 0 | 0 |
| Feces/urine | 5,151 | 4,242 | 282 | 539 | 5,022 | 27 | 95 | 5 | 144 | 1,022 | 177 | 24 | 0 | 0 |
| Glass | 2,203 | 765 | 338 | 908 | 2,097 | 9 | 82 | 10 | 265 | 388 | 236 | 20 | 0 | 0 |
| Incense | 291 | 245 | 25 | 18 | 280 | 8 | 1 | 2 | 12 | 86 | 23 | 1 | 0 | 0 |
| Soil | 2,418 | 2,103 | 108 | 183 | 2,402 | 6 | 3 | 7 | 67 | 510 | 112 | 9 | 0 | 0 |
| Thermometer | 18,324 | 8,414 | 5,041 | 3,818 | 18,164 | 100 | 50 | 5 | 1,048 | 4,217 | 252 | 11 | 0 | 0 |
| Toys | 8,852 | 5,942 | 2,661 | 186 | 8,747 | 78 | 14 | 8 | 410 | 1,773 | 1,434 | 28 | 0 | 0 |
| Other | 24,607 | 15,080 | 6,522 | 2,519 | 23,774 | 322 | 327 | 152 | 1,988 | 5,048 | 3,057 | 195 | 4 | 0 |
| Unknown | 126 | 78 | 24 | 17 | 111 | 3 | 10 | 1 | 16 | 32 | 18 | 1 | 0 | 0 |
| *Category totals | 103,696 | 73,983 | 17,966 | 9,535 | 102,000 | 761 | 659 | 212 | 6,166 | 22,050 | 7,162 | 385 | 7 | 0 |
| Fumes/gases/vapors | | | | | | | | | | | | | | |
| Carbon dioxide | 530 | 42 | 173 | 263 | 491 | 31 | 6 | 2 | 124 | 71 | 131 | 32 | 8 | 0 |
| Carbon monoxide | 17,480 | 2,319 | 2,792 | 10,516 | 17,005 | 418 | 16 | 8 | 6,452 | 2,336 | 5,091 | 1,467 | 178 | 31 |
| Chloramine | 3,611 | 115 | 245 | 2,967 | 3,488 | 111 | 1 | 10 | 903 | 188 | 1,437 | 536 | 5 | 1 |
| Chlorine: acid mixed with hypochlorite | 758 | 26 | 76 | 592 | 737 | 21 | 0 | 0 | 214 | 27 | 304 | 130 | 1 | 0 |
| Chlorine: other | 6,187 | 473 | 1,209 | 3,800 | 6,039 | 76 | 33 | 32 | 1,901 | 381 | 2,401 | 1,121 | 20 | 0 |
| Methane and natural gas | 4,648 | 776 | 785 | 2,623 | 4,582 | 47 | 9 | 2 | 1,153 | 854 | 1,251 | 236 | 12 | 1 |
| Hydrogen sulfide | 1,370 | 122 | 154 | 866 | 1,364 | 1 | 0 | 1 | 413 | 149 | 327 | 156 | 16 | 3 |
| Polymer fume fever | 2 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Propane/simple asphyxiants | 2,836 | 256 | 658 | 1,607 | 2,574 | 251 | 5 | 2 | 899 | 366 | 838 | 261 | 19 | 0 |
| Other | 2,438 | 253 | 319 | 1,631 | 2,384 | 25 | 6 | 17 | 807 | 329 | 665 | 202 | 9 | 2 |
| Unknown | 1,235 | 108 | 169 | 774 | 1,202 | 9 | 8 | 10 | 310 | 89 | 337 | 62 | 0 | 0 |
| *Category totals | 41,095 | 4,490 | 6,580 | 25,641 | 39,868 | 990 | 84 | 84 | 13,176 | 4,790 | 12,782 | 4,204 | 268 | 38 |
| Fungicides | | | | | | | | | | | | | | |
| Carbamate fungicide | 258 | 72 | 28 | 146 | 251 | 0 | 0 | 6 | 65 | 60 | 49 | 19 | 0 | 0 |
| Mercurial fungicide | 10 | 4 | 3 | 3 | 10 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 |
| Non-mercurial fungicide | 480 | 66 | 34 | 266 | 453 | 4 | 1 | 20 | 141 | 73 | 153 | 14 | 2 | 0 |
| Phthalimide fungicide | 187 | 92 | 29 | 60 | 183 | 2 | 0 | 2 | 28 | 59 | 24 | 6 | 0 | 0 |
| Other/unknown | 400 | 103 | 48 | 204 | 378 | 6 | 1 | 14 | 93 | 78 | 105 | 10 | 1 | 1 |
| *Category totals | 1,335 | 337 | 142 | 679 | 1,275 | 12 | 2 | 42 | 328 | 275 | 331 | 49 | 3 | 1 |
| Heavy metals | | | | | | | | | | | | | | |
| Aluminum | 990 | 450 | 98 | 382 | 946 | 15 | 8 | 13 | 139 | 161 | 83 | 30 | 3 | 0 |
| Arsenic (excluding pesticides) | 956 | 90 | 79 | 681 | 724 | 30 | 112 | 10 | 546 | 155 | 98 | 70 | 11 | 4 |
| Barium | 25 | 1 | 8 | 13 | 19 | 0 | 0 | 6 | 8 | 1 | 7 | 2 | 0 | 0 |
| Cadmium | 104 | 17 | 10 | 68 | 99 | 1 | 0 | 1 | 41 | 25 | 16 | 4 | 3 | 1 |
| Copper | 1,151 | 210 | 352 | 492 | 1,080 | 39 | 11 | 15 | 358 | 208 | 320 | 69 | 3 | 1 |
| Fireplace flame colors | 27 | 18 | 9 | 0 | 27 | 0 | 0 | 0 | 3 | 8 | 9 | 0 | 0 | 0 |
| Gold | 5 | 2 | 0 | 3 | 4 | 0 | 0 | 1 | 1 | 3 | 1 | 0 | 0 | 0 |

*(Continued on following page)*

**TABLE 22A.** Demographic Profile of Exposure Cases by Generic Category of Substances and Products: Nonpharmaceuticals (Cont'd)

| Substance Implicated In the Exposure | No. of Exposures | Age (yr) | | | Reason | | | | Treated in Health Care Facility | Outcome | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | <6 | 6–19 | >19 | Unint | Int | Other | Adv Rxn | | None | Minor | Moderate | Major | Death |
| Lead | 3,406 | 1,557 | 557 | 1,092 | 3,262 | 53 | 36 | 12 | 1,318 | 742 | 179 | 96 | 7 | 0 |
| Manganese | 74 | 11 | 23 | 32 | 67 | 2 | 0 | 3 | 31 | 12 | 7 | 9 | 1 | 0 |
| Mercury | 4,039 | 1,039 | 1,224 | 1,385 | 3,670 | 235 | 47 | 43 | 932 | 1,169 | 158 | 68 | 12 | 3 |
| Metal fume fever | 1,136 | 15 | 62 | 963 | 1,130 | 3 | 1 | 2 | 311 | 30 | 350 | 146 | 6 | 0 |
| Selenium | 165 | 76 | 13 | 67 | 141 | 7 | 2 | 14 | 37 | 37 | 19 | 6 | 2 | 0 |
| Thallium | 82 | 16 | 5 | 33 | 70 | 3 | 5 | 4 | 26 | 17 | 10 | 3 | 0 | 0 |
| Other | 907 | 272 | 128 | 438 | 826 | 22 | 10 | 42 | 324 | 191 | 145 | 61 | 6 | 0 |
| Unknown | 32 | 7 | 5 | 16 | 24 | 0 | 7 | 0 | 12 | 4 | 2 | 1 | 0 | 0 |
| *Category totals | 13,099 | 3,781 | 2,573 | 5,665 | 12,089 | 410 | 239 | 166 | 4,087 | 2,763 | 1,404 | 565 | 54 | 9 |
| Herbicides | | | | | | | | | | | | | | |
| Carbamate herbicide | 35 | 6 | 3 | 23 | 35 | 0 | 0 | 0 | 13 | 2 | 14 | 5 | 0 | 0 |
| 2,4-D or 2,4,5-T | 2,663 | 792 | 237 | 1,287 | 2,534 | 28 | 5 | 87 | 524 | 604 | 435 | 87 | 8 | 0 |
| Diquat | 536 | 141 | 30 | 339 | 508 | 7 | 1 | 19 | 154 | 122 | 126 | 34 | 1 | 0 |
| Paraquat | 120 | 4 | 10 | 98 | 113 | 4 | 1 | 2 | 85 | 14 | 29 | 15 | 4 | 1 |
| Paraquat/diquat | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Triazine herbicide | 413 | 81 | 49 | 226 | 399 | 3 | 3 | 7 | 137 | 70 | 86 | 26 | 1 | 0 |
| Urea herbicide | 69 | 18 | 7 | 37 | 65 | 1 | 0 | 3 | 23 | 18 | 11 | 7 | 0 | 0 |
| Other | 6,439 | 1,765 | 606 | 3,476 | 6,007 | 38 | 14 | 371 | 1,427 | 1,611 | 1,396 | 162 | 8 | 2 |
| Unknown | 285 | 80 | 42 | 143 | 274 | 2 | 4 | 5 | 74 | 35 | 55 | 6 | 1 | 0 |
| *Category totals | 10,560 | 2,887 | 984 | 5,629 | 9,935 | 83 | 28 | 494 | 2,437 | 2,476 | 2,152 | 342 | 23 | 3 |
| Hydrocarbons | | | | | | | | | | | | | | |
| Benzene | 130 | 10 | 10 | 91 | 120 | 0 | 7 | 1 | 69 | 15 | 27 | 15 | 2 | 0 |
| Carbon tetrachloride | 54 | 5 | 3 | 37 | 45 | 8 | 0 | 1 | 28 | 7 | 18 | 3 | 2 | 0 |
| Diesel fuel | 879 | 184 | 90 | 518 | 849 | 22 | 5 | 2 | 233 | 120 | 280 | 44 | 1 | 0 |
| Fluorochlorocarbons/propellants | 7,868 | 636 | 1,104 | 5,093 | 7,564 | 234 | 46 | 13 | 1,571 | 1,439 | 1,834 | 465 | 19 | 2 |
| Gasoline | 21,976 | 6,825 | 4,268 | 9,522 | 20,632 | 1,235 | 78 | 12 | 3,351 | 4,486 | 8,662 | 566 | 29 | 1 |
| Halogenated hydrocarbon: other | 844 | 156 | 102 | 491 | 797 | 30 | 5 | 10 | 356 | 130 | 300 | 86 | 8 | 0 |
| Kerosene | 2,949 | 1,670 | 374 | 746 | 2,799 | 86 | 49 | 6 | 865 | 764 | 914 | 186 | 22 | 1 |
| Lighter fluid/naphtha | 4,312 | 2,246 | 478 | 1,363 | 4,009 | 204 | 69 | 15 | 1,267 | 1,116 | 1,303 | 270 | 14 | 3 |
| Lubricating oils/motor oil | 3,996 | 2,695 | 361 | 811 | 3,911 | 50 | 28 | 3 | 552 | 1,504 | 621 | 80 | 1 | 1 |
| Mineral seal oil | 196 | 168 | 9 | 17 | 194 | 2 | 0 | 0 | 20 | 107 | 13 | 4 | 0 | 0 |
| Mineral spirits/varsol | 5,333 | 2,339 | 763 | 1,956 | 5,025 | 223 | 64 | 14 | 1,204 | 1,315 | 1,547 | 227 | 20 | 4 |
| Toluene/xylene | 2,312 | 507 | 287 | 1,296 | 2,135 | 144 | 14 | 11 | 949 | 365 | 793 | 211 | 15 | 0 |
| Turpentine | 1,064 | 360 | 176 | 462 | 921 | 114 | 13 | 9 | 278 | 223 | 304 | 41 | 6 | 0 |
| Other | 6,989 | 3,304 | 1,012 | 2,233 | 6,685 | 211 | 36 | 46 | 1,630 | 1,794 | 1,908 | 368 | 24 | 5 |
| Unknown | 7,721 | 4,913 | 627 | 1,830 | 7,514 | 130 | 48 | 27 | 2,168 | 2,436 | 1,920 | 486 | 34 | 1 |
| *Category totals | 66,623 | 26,018 | 9,664 | 26,466 | 63,200 | 2,693 | 462 | 170 | 14,541 | 15,821 | 20,444 | 3,052 | 197 | 18 |
| Insecticides/pesticides (excluding rodenticides) | | | | | | | | | | | | | | |
| Arsenic pesticides | 399 | 287 | 28 | 73 | 390 | 8 | 1 | 0 | 62 | 186 | 15 | 4 | 0 | 0 |
| Borates/boric acid | 3,118 | 2,511 | 159 | 382 | 3,041 | 63 | 10 | 1 | 293 | 1,085 | 130 | 17 | 1 | 1 |
| Carbamate only | 4,039 | 1,686 | 367 | 1,679 | 3,852 | 104 | 32 | 44 | 861 | 1,055 | 618 | 171 | 15 | 1 |
| Carbamate with other pesticide | 1,084 | 364 | 125 | 530 | 1,020 | 32 | 7 | 22 | 205 | 219 | 242 | 55 | 3 | 0 |
| Chlorinated hydrocarbon only | 2,782 | 1,144 | 508 | 999 | 2,562 | 113 | 6 | 95 | 994 | 921 | 570 | 99 | 22 | 0 |
| Chlorinated hydrocarbon with other pesticide | 146 | 40 | 18 | 83 | 143 | 0 | 1 | 2 | 30 | 25 | 24 | 6 | 0 | 0 |
| Metaldehyde | 332 | 209 | 15 | 90 | 324 | 0 | 1 | 7 | 48 | 131 | 22 | 1 | 0 | 0 |
| Nicotine | 11 | 0 | 4 | 6 | 9 | 1 | 0 | 1 | 5 | 1 | 4 | 3 | 0 | 0 |
| Organophosphate only | 12,885 | 4,173 | 1,063 | 6,527 | 12,250 | 307 | 63 | 231 | 3,198 | 3,136 | 2,271 | 567 | 50 | 11 |
| With carbamate | 1,247 | 460 | 139 | 602 | 1,177 | 41 | 13 | 12 | 183 | 292 | 196 | 37 | 3 | 0 |
| With chlorinated hydrocarbon | 216 | 44 | 21 | 127 | 205 | 4 | 0 | 7 | 45 | 34 | 49 | 7 | 1 | 0 |
| With other pesticide | 2,044 | 601 | 206 | 1,031 | 1,962 | 34 | 16 | 31 | 359 | 437 | 511 | 66 | 3 | 0 |
| With carbamate and chlorinated hydrocarbon | 40 | 9 | 5 | 23 | 39 | 1 | 0 | 0 | 6 | 4 | 8 | 0 | 1 | 0 |
| Piperonyl butoxide only | 184 | 66 | 30 | 80 | 169 | 5 | 2 | 7 | 43 | 38 | 43 | 12 | 0 | 0 |
| Piperonyl butoxide/pyrethrin | 7,823 | 2,817 | 1,241 | 3,315 | 7,250 | 197 | 52 | 315 | 1,494 | 1,582 | 1,764 | 409 | 15 | 2 |
| Pyrethrins only | 8,396 | 2,866 | 1,062 | 3,925 | 7,802 | 206 | 47 | 321 | 1,844 | 1,712 | 1,964 | 387 | 15 | 0 |

*(Continued on following page)*

**TABLE 22A.** Demographic Profile of Exposure Cases by Generic Category of Substances and Products: Nonpharmaceuticals (Cont'd)

| Substance Implicated In the Exposure | No. of Exposures | Age (yr) | | | Reason | | | | Treated in Health Care Facility | Outcome | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | <6 | 6–19 | >19 | Unint | Int | Other | Adv Rxn | | None | Minor | Moderate | Major | Death |
| Repellants (insect) | 7,252 | 4,942 | 1,302 | 870 | 6,905 | 50 | 33 | 254 | 720 | 1,852 | 1,655 | 108 | 3 | 0 |
| Rotenone | 122 | 38 | 15 | 54 | 115 | 1 | 2 | 4 | 20 | 31 | 23 | 5 | 0 | 0 |
| Veterinary insecticide | 5,005 | 2,347 | 691 | 1,713 | 4,779 | 90 | 9 | 120 | 545 | 1,278 | 867 | 103 | 4 | 0 |
| Other | 4,895 | 3,167 | 296 | 1,206 | 4,758 | 46 | 7 | 76 | 537 | 1,296 | 388 | 72 | 2 | 0 |
| Unknown | 3,969 | 1,068 | 482 | 2,091 | 3,677 | 89 | 96 | 84 | 999 | 629 | 693 | 202 | 10 | 1 |
| *Category totals | 65,989 | 28,839 | 7,777 | 25,406 | 62,429 | 1,392 | 398 | 1,634 | 12,491 | 15,944 | 12,057 | 2,331 | 148 | 16 |
| Lacrimators | | | | | | | | | | | | | | |
| Capsicum/peppers | 226 | 95 | 91 | 30 | 208 | 2 | 12 | 3 | 27 | 9 | 130 | 4 | 0 | 0 |
| Lacrimators: CN | 3,371 | 838 | 1,283 | 997 | 2,822 | 81 | 429 | 5 | 629 | 158 | 1,853 | 121 | 3 | 0 |
| Lacrimators: CS | 172 | 73 | 49 | 40 | 163 | 0 | 8 | 0 | 38 | 9 | 95 | 5 | 0 | 0 |
| Other | 92 | 11 | 32 | 44 | 70 | 2 | 19 | 1 | 18 | 9 | 47 | 3 | 0 | 0 |
| Unknown | 356 | 83 | 103 | 144 | 296 | 7 | 48 | 0 | 75 | 17 | 187 | 18 | 1 | 0 |
| *Category totals | 4,217 | 1,100 | 1,558 | 1,255 | 3,559 | 92 | 516 | 9 | 787 | 202 | 2,312 | 151 | 4 | 0 |
| Matches/fireworks/explosives | | | | | | | | | | | | | | |
| Explosives | 283 | 152 | 72 | 51 | 254 | 14 | 11 | 2 | 67 | 70 | 44 | 21 | 2 | 0 |
| Fireworks | 445 | 349 | 73 | 21 | 435 | 9 | 1 | 0 | 62 | 157 | 47 | 14 | 1 | 0 |
| Matches | 1,559 | 1,421 | 66 | 57 | 1,537 | 14 | 4 | 2 | 42 | 461 | 25 | 5 | 0 | 0 |
| Other | 52 | 25 | 13 | 12 | 45 | 6 | 0 | 1 | 20 | 18 | 14 | 1 | 0 | 0 |
| Unknown | 4 | 3 | 0 | 0 | 4 | 0 | 0 | 0 | 2 | 1 | 1 | 0 | 0 | 0 |
| *Category totals | 2,343 | 1,950 | 224 | 141 | 2,275 | 43 | 16 | 5 | 193 | 707 | 131 | 41 | 3 | 0 |
| Moth repellants | | | | | | | | | | | | | | |
| Naphthalene | 1,937 | 1,512 | 121 | 259 | 1,899 | 18 | 14 | 5 | 430 | 893 | 138 | 30 | 2 | 0 |
| Paradichlorobenzene | 62 | 35 | 3 | 22 | 60 | 2 | 0 | 0 | 6 | 16 | 13 | 1 | 0 | 0 |
| Other | 96 | 75 | 5 | 15 | 95 | 1 | 0 | 0 | 11 | 44 | 5 | 0 | 0 | 0 |
| Unknown | 2,767 | 1,906 | 209 | 521 | 2,662 | 80 | 10 | 10 | 530 | 1,087 | 186 | 65 | 2 | 0 |
| *Category totals | 4,862 | 3,528 | 338 | 817 | 4,716 | 101 | 24 | 15 | 977 | 2,040 | 342 | 96 | 4 | 0 |
| Mushrooms | | | | | | | | | | | | | | |
| Coprine | 17 | 10 | 6 | 1 | 12 | 3 | 1 | 1 | 6 | 13 | 1 | 1 | 0 | 0 |
| Cyclopeptide | 40 | 11 | 8 | 21 | 27 | 11 | 0 | 1 | 31 | 11 | 6 | 7 | 4 | 0 |
| Gastrointestinal irritants | 208 | 102 | 28 | 73 | 180 | 17 | 0 | 11 | 59 | 75 | 53 | 22 | 0 | 0 |
| Hallucinogenic | 623 | 53 | 331 | 206 | 129 | 481 | 5 | 2 | 385 | 57 | 125 | 209 | 7 | 0 |
| Ibotenic acid | 23 | 4 | 5 | 12 | 9 | 13 | 1 | 0 | 18 | 4 | 5 | 4 | 2 | 0 |
| Miscellaneous, non-toxic | 174 | 70 | 24 | 68 | 154 | 1 | 0 | 18 | 25 | 51 | 39 | 9 | 1 | 0 |
| Monomethylhydrazine | 77 | 8 | 12 | 51 | 68 | 2 | 0 | 7 | 33 | 10 | 23 | 9 | 0 | 0 |
| Muscarine | 6 | 3 | 0 | 3 | 5 | 1 | 0 | 0 | 4 | 4 | 0 | 1 | 0 | 0 |
| Orellanine | 3 | 1 | 1 | 0 | 2 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 |
| Other potentially toxic | 12 | 6 | 4 | 2 | 11 | 1 | 0 | 0 | 7 | 7 | 1 | 0 | 0 | 0 |
| Unknown | 8,656 | 6,528 | 1,130 | 891 | 7,981 | 575 | 12 | 75 | 2,388 | 5,193 | 813 | 248 | 20 | 1 |
| *Category totals | 9,839 | 6,796 | 1,549 | 1,328 | 8,578 | 1,106 | 19 | 115 | 2,957 | 5,426 | 1,066 | 510 | 35 | 1 |
| Paints and stripping agents | | | | | | | | | | | | | | |
| Paint: anti-algae | 13 | 1 | 4 | 8 | 13 | 0 | 0 | 0 | 4 | 1 | 3 | 0 | 0 | 0 |
| Paint: anti-corrosion | 93 | 21 | 10 | 53 | 92 | 0 | 0 | 1 | 25 | 8 | 25 | 8 | 0 | 0 |
| Paint: oil-base | 4,329 | 1,192 | 945 | 1,882 | 4,042 | 232 | 23 | 26 | 958 | 737 | 1,235 | 262 | 13 | 1 |
| Paint: water-base | 4,323 | 3,125 | 265 | 767 | 4,262 | 27 | 3 | 28 | 331 | 984 | 384 | 37 | 1 | 0 |
| Stains | 1,107 | 475 | 121 | 429 | 1,086 | 13 | 0 | 7 | 158 | 261 | 244 | 36 | 1 | 0 |
| Stripping agents | | | | | | | | | | | | | | |
| Methylene chloride | 1,353 | 250 | 100 | 875 | 1,305 | 30 | 2 | 13 | 514 | 131 | 541 | 130 | 4 | 0 |
| Other | 802 | 155 | 85 | 477 | 772 | 17 | 3 | 7 | 252 | 110 | 279 | 79 | 2 | 0 |
| Unknown | 319 | 98 | 25 | 163 | 310 | 5 | 2 | 2 | 98 | 55 | 116 | 17 | 0 | 0 |
| Varnishes, lacquers | 1,016 | 319 | 106 | 488 | 984 | 17 | 6 | 3 | 238 | 164 | 247 | 59 | 4 | 1 |
| Wood preservatives | 641 | 152 | 62 | 378 | 617 | 6 | 4 | 14 | 153 | 114 | 129 | 27 | 1 | 0 |
| Other paint/varnish/lacquer | 1,354 | 628 | 148 | 515 | 1,326 | 17 | 2 | 7 | 286 | 258 | 263 | 56 | 3 | 0 |
| Unknown paint/varnish/lacquer | 11,566 | 7,155 | 1,161 | 2,790 | 11,245 | 186 | 40 | 86 | 1,415 | 2,270 | 1,178 | 228 | 16 | 0 |
| *Category totals | 26,916 | 13,571 | 3,032 | 8,825 | 26,054 | 550 | 85 | 194 | 4,432 | 5,093 | 4,644 | 939 | 45 | 2 |
| Photographic products | | | | | | | | | | | | | | |
| Developers/fixing/stop baths | 608 | 65 | 197 | 262 | 591 | 8 | 5 | 4 | 204 | 84 | 185 | 53 | 0 | 0 |
| Photographic coating fluids | 2 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| Other | 416 | 204 | 53 | 148 | 402 | 7 | 3 | 3 | 70 | 85 | 97 | 7 | 0 | 0 |
| Unknown | 17 | 6 | 1 | 8 | 16 | 1 | 0 | 0 | 3 | 3 | 3 | 2 | 0 | 0 |
| *Category totals | 1,043 | 276 | 251 | 419 | 1,011 | 16 | 8 | 7 | 278 | 172 | 286 | 62 | 0 | 0 |

*(Continued on following page)*

**TABLE 22A.** Demographic Profile of Exposure Cases by Generic Category of Substances and Products: Nonpharmaceuticals (Cont'd)

| Substance Implicated In the Exposure | No. of Exposures | Age (yr) | | | Reason | | | | Treated in Health Care Facility | Outcome | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | <6 | 6–19 | >19 | Unint | Int | Other | Adv Rxn | | None | Minor | Moderate | Major | Death |
| Plants | | | | | | | | | | | | | | |
| Amygdalin/cyanogenic glycosides | 3,170 | 2,302 | 518 | 306 | 3,074 | 42 | 3 | 46 | 151 | 904 | 92 | 26 | 2 | 0 |
| Anticholinergic | 1,025 | 288 | 517 | 187 | 483 | 529 | 6 | 7 | 607 | 217 | 167 | 336 | 35 | 0 |
| Cardiac glycosides | 2,553 | 1,825 | 385 | 305 | 2,464 | 74 | 4 | 10 | 329 | 1,047 | 137 | 24 | 2 | 1 |
| Colchicine | 16 | 11 | 2 | 3 | 16 | 0 | 0 | 0 | 2 | 5 | 0 | 0 | 0 | 0 |
| Depressants | 292 | 78 | 30 | 158 | 146 | 72 | 1 | 72 | 112 | 59 | 46 | 25 | 2 | 0 |
| Dermatitis | 28,648 | 11,812 | 5,852 | 9,246 | 26,209 | 449 | 786 | 1,084 | 2,498 | 3,489 | 8,808 | 750 | 20 | 0 |
| Gastrointestinal irritants | 20,771 | 16,776 | 1,814 | 1,911 | 20,163 | 311 | 17 | 261 | 1,227 | 6,665 | 1,580 | 168 | 7 | 0 |
| Hallucinogenic | 386 | 188 | 66 | 120 | 275 | 80 | 1 | 30 | 113 | 123 | 37 | 37 | 2 | 0 |
| Nicotine | 237 | 99 | 57 | 66 | 227 | 5 | 3 | 2 | 79 | 45 | 76 | 15 | 2 | 0 |
| Non-toxic plant | 20,723 | 17,091 | 1,962 | 1,426 | 20,204 | 161 | 9 | 334 | 586 | 4,067 | 769 | 76 | 5 | 0 |
| Oxalate | 13,933 | 12,269 | 998 | 571 | 13,751 | 125 | 10 | 45 | 433 | 5,273 | 1,820 | 63 | 3 | 0 |
| Solanine | 2,103 | 1,704 | 159 | 203 | 2,035 | 23 | 1 | 43 | 246 | 915 | 144 | 18 | 1 | 0 |
| Stimulants | 1,016 | 425 | 174 | 386 | 720 | 168 | 1 | 123 | 417 | 334 | 165 | 115 | 6 | 1 |
| Toxalbumins | 245 | 97 | 61 | 71 | 228 | 15 | 0 | 1 | 111 | 101 | 48 | 6 | 0 | 0 |
| Other | 3,762 | 2,731 | 456 | 491 | 3,541 | 87 | 11 | 120 | 361 | 1,128 | 377 | 64 | 7 | 1 |
| Unknown | 23,698 | 16,489 | 3,189 | 3,499 | 22,618 | 459 | 70 | 528 | 1,852 | 7,043 | 1,751 | 284 | 11 | 1 |
| *Category totals | 122,578 | 84,185 | 16,240 | 18,949 | 116,154 | 2,600 | 923 | 2,706 | 9,124 | 31,415 | 16,017 | 2,007 | 105 | 4 |
| Polishes and waxes | 7,640 | 5,901 | 601 | 960 | 7,400 | 161 | 41 | 37 | 871 | 2,923 | 1,276 | 120 | 3 | 2 |
| Radioisotopes | 191 | 15 | 19 | 114 | 165 | 2 | 6 | 8 | 62 | 13 | 8 | 10 | 0 | 0 |
| Rodenticides | | | | | | | | | | | | | | |
| Anticoagulant: standard | 1,705 | 1,471 | 71 | 140 | 1,625 | 64 | 11 | 2 | 575 | 687 | 21 | 6 | 3 | 1 |
| Anticoagulant: long-acting | 16,019 | 14,383 | 490 | 1,006 | 15,404 | 517 | 62 | 11 | 5,307 | 6,740 | 210 | 66 | 25 | 0 |
| Barium carbonate | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cyanide | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Monofluoroacetate | 4 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 0 |
| Strychnine | 186 | 35 | 20 | 113 | 97 | 49 | 29 | 4 | 99 | 44 | 13 | 15 | 5 | 3 |
| Vacor | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| Other | 1,029 | 715 | 79 | 209 | 960 | 55 | 11 | 2 | 278 | 391 | 65 | 21 | 2 | 0 |
| Unknown | 1,356 | 1,004 | 79 | 220 | 1,192 | 114 | 39 | 6 | 636 | 467 | 40 | 13 | 4 | 1 |
| *Category totals | 20,300 | 17,608 | 739 | 1,693 | 19,282 | 799 | 152 | 25 | 6,898 | 8,329 | 350 | 122 | 39 | 5 |
| Sporting equipment | | | | | | | | | | | | | | |
| Fishing bait | 84 | 58 | 19 | 6 | 79 | 3 | 1 | 1 | 7 | 18 | 6 | 0 | 0 | 0 |
| Fishing products, other | 27 | 21 | 3 | 2 | 27 | 0 | 0 | 0 | 3 | 7 | 3 | 0 | 0 | 0 |
| Golf balls | 64 | 7 | 44 | 10 | 59 | 5 | 0 | 0 | 16 | 7 | 24 | 3 | 0 | 0 |
| Gun bluing | 47 | 17 | 5 | 24 | 45 | 0 | 0 | 2 | 25 | 10 | 13 | 6 | 0 | 0 |
| Hunting products, other | 427 | 238 | 93 | 81 | 390 | 24 | 10 | 0 | 135 | 136 | 44 | 6 | 1 | 0 |
| Other | 218 | 137 | 56 | 22 | 208 | 6 | 2 | 0 | 32 | 80 | 15 | 4 | 0 | 0 |
| Unknown | 4 | 0 | 2 | 2 | 4 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 |
| *Category totals | 871 | 478 | 222 | 147 | 812 | 38 | 13 | 3 | 220 | 258 | 106 | 19 | 1 | 0 |
| Swimming pool/aquarium | 7,724 | 3,567 | 1,374 | 2,527 | 7,534 | 74 | 14 | 92 | 1,293 | 1,676 | 2,057 | 509 | 10 | 0 |
| Tobacco products | 8,937 | 7,923 | 364 | 591 | 8,651 | 166 | 40 | 66 | 1,668 | 3,495 | 1,995 | 131 | 7 | 0 |
| Other/unknown nondrug substances | 15,558 | 5,764 | 2,649 | 5,931 | 13,095 | 584 | 1,076 | 434 | 3,980 | 2,831 | 2,669 | 729 | 94 | 0 |
| Total number of nonpharmaceutical substances | 1,399,545 | 731,408 | 186,852 | 419,797 | 1,315,937 | 54,360 | 10,866 | 15,748 | 227,433 | 311,495 | 270,468 | 50,172 | 3,505 | 249 |
| % of nonpharmaceutical substances | | 52.3% | 13.4% | 30.0% | 94.0% | 3.9% | 0.8% | 1.1% | 16.3% | 22.3% | 19.3% | 3.6% | 0.3% | 0.0% |
| % of all substances | 58.2% | 30.4% | 7.8% | 17.5% | 54.8% | 2.3% | 0.5% | 0.7% | 9.5% | 13.0% | 11.3% | 2.1% | 0.1% | 0.0% |

NOTE: Patients with unknown age, reason, or medical outcome were omitted from the respective tabulations.
ABBREVIATIONS: Adv rxn, adverse reaction; Int, intentional; Unint, unintentional.

**TABLE 22B.** Demographic Profile of Exposure Cases by Generic Category of Substances and Products: Pharmaceuticals

| Substance Implicated In the Exposure | No. of Exposures | Age (yr) | | | Reason | | | | Treated in Health Care Facility | Outcome | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | <6 | 6–19 | >19 | Unint | Int | Other | Adv Rxn | | None | Minor | Moderate | Major | Death |
| Analgesics | | | | | | | | | | | | | | |
| Acetaminophen only | | | | | | | | | | | | | | |
| Adult formulation | 26,768 | 6,640 | 9,650 | 9,699 | 12,853 | 13,553 | 22 | 261 | 15,316 | 8,942 | 3,862 | 1,376 | 440 | 36 |
| Pediatric formulation | 30,759 | 27,780 | 2,634 | 296 | 30,305 | 347 | 10 | 88 | 3,458 | 9,521 | 467 | 46 | 16 | 0 |
| Unknown formulation | 9,358 | 2,712 | 2,991 | 3,313 | 4,386 | 4,771 | 6 | 111 | 5,541 | 2,709 | 1,386 | 584 | 267 | 34 |
| Acetaminophen in combination with: | | | | | | | | | | | | | | |
| Aspirin (with other ingredients) | 4,630 | 1,613 | 1,301 | 1,572 | 2,469 | 1,910 | 5 | 222 | 2,094 | 1,425 | 882 | 237 | 15 | 0 |
| Aspirin (no other ingredients) | 19 | 5 | 5 | 8 | 10 | 8 | 0 | 1 | 10 | 6 | 3 | 3 | 0 | 0 |
| Codeine | 6,237 | 1,170 | 1,201 | 3,582 | 2,609 | 3,151 | 0 | 449 | 3,473 | 1,548 | 1,533 | 400 | 108 | 14 |
| Oxycodone | 3,480 | 485 | 429 | 2,344 | 1,392 | 1,705 | 2 | 351 | 1,821 | 716 | 829 | 295 | 70 | 4 |
| Propoxyphene | 5,333 | 636 | 730 | 3,684 | 1,821 | 3,235 | 1 | 238 | 3,399 | 1,217 | 1,398 | 527 | 178 | 24 |
| Other narcotics | 10,341 | 1,101 | 1,532 | 7,119 | 3,822 | 5,662 | 5 | 795 | 5,716 | 2,073 | 2,569 | 839 | 204 | 28 |
| Other drugs, adult formulations | 14,475 | 2,354 | 3,547 | 7,925 | 5,018 | 9,052 | 9 | 323 | 9,191 | 3,687 | 3,592 | 1,368 | 264 | 13 |
| Other drugs, pediatric formulations | 54 | 19 | 10 | 24 | 30 | 20 | 0 | 3 | 24 | 17 | 9 | 2 | 1 | 0 |
| Aspirin alone | | | | | | | | | | | | | | |
| Adult formulations | 4,092 | 1,519 | 1,239 | 1,242 | 2,205 | 1,800 | 3 | 73 | 2,095 | 1,341 | 706 | 309 | 31 | 8 |
| Pediatric formulations | 458 | 377 | 54 | 24 | 425 | 26 | 0 | 7 | 102 | 194 | 25 | 6 | 0 | 0 |
| Unknown formulations | 9,713 | 1,941 | 3,615 | 3,787 | 3,432 | 5,996 | 8 | 213 | 6,520 | 2,621 | 2,018 | 1,254 | 191 | 25 |
| Aspirin in combination with: | | | | | | | | | | | | | | |
| Codeine | 415 | 67 | 48 | 279 | 143 | 244 | 0 | 24 | 262 | 95 | 97 | 55 | 20 | 1 |
| Oxycodone | 207 | 32 | 26 | 133 | 76 | 110 | 1 | 18 | 117 | 45 | 47 | 14 | 6 | 0 |
| Propoxyphene | 46 | 7 | 7 | 28 | 19 | 25 | 0 | 2 | 27 | 9 | 10 | 8 | 1 | 0 |
| Other narcotics | 35 | 4 | 7 | 24 | 12 | 18 | 0 | 5 | 21 | 8 | 9 | 4 | 1 | 0 |
| Other drugs, adult formulations | 1,837 | 401 | 411 | 956 | 831 | 890 | 2 | 98 | 990 | 431 | 436 | 176 | 34 | 1 |
| Other drugs, pediatric formulations | 4 | 4 | 0 | 0 | 4 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 |
| Narcotics | | | | | | | | | | | | | | |
| Codeine | 1,265 | 507 | 255 | 427 | 800 | 352 | 2 | 99 | 417 | 344 | 231 | 43 | 14 | 2 |
| Meperidine | 643 | 78 | 89 | 411 | 247 | 300 | 1 | 89 | 376 | 117 | 155 | 71 | 17 | 1 |
| Methadone | 914 | 61 | 66 | 726 | 262 | 544 | 1 | 83 | 688 | 87 | 174 | 184 | 113 | 13 |
| Morphine | 1,085 | 123 | 115 | 783 | 510 | 478 | 4 | 82 | 594 | 206 | 215 | 124 | 51 | 8 |
| Oxycodone | 943 | 116 | 78 | 674 | 474 | 369 | 1 | 85 | 458 | 155 | 213 | 93 | 28 | 6 |
| Pentazocine | 234 | 16 | 21 | 188 | 87 | 104 | 0 | 38 | 127 | 32 | 67 | 32 | 6 | 0 |
| Propoxyphene | 581 | 75 | 61 | 399 | 198 | 354 | 1 | 22 | 369 | 125 | 115 | 68 | 38 | 10 |
| Other/unknown | 3,527 | 480 | 442 | 2,356 | 1,431 | 1,598 | 3 | 444 | 1,906 | 622 | 812 | 428 | 165 | 22 |
| Nonaspirin salicylates | 1,069 | 538 | 149 | 364 | 780 | 226 | 2 | 59 | 355 | 373 | 157 | 52 | 11 | 1 |
| Other nonsteroidal antiinflammatory drugs | | | | | | | | | | | | | | |
| Colchicine | 156 | 41 | 10 | 97 | 105 | 35 | 0 | 15 | 78 | 48 | 26 | 14 | 4 | 2 |
| Ibuprofen | 52,751 | 31,802 | 10,253 | 9,662 | 39,397 | 12,425 | 19 | 830 | 13,519 | 18,305 | 4,240 | 808 | 97 | 4 |
| Indomethacin | 755 | 220 | 95 | 400 | 434 | 256 | 1 | 59 | 301 | 227 | 127 | 37 | 6 | 0 |
| Other | 18,897 | 5,685 | 4,026 | 8,380 | 11,079 | 6,524 | 7 | 1,220 | 7,036 | 5,978 | 2,635 | 646 | 100 | 5 |
| Unknown | 5 | 2 | 0 | 2 | 3 | 1 | 0 | 1 | 2 | 0 | 2 | 1 | 0 | 0 |
| Phenacetin | 7 | 1 | 2 | 3 | 2 | 4 | 0 | 1 | 5 | 0 | 2 | 2 | 0 | 0 |
| Phenazopyridine | 963 | 750 | 76 | 125 | 848 | 58 | 1 | 55 | 227 | 455 | 110 | 21 | 0 | 0 |
| Salicylamide | 90 | 71 | 6 | 12 | 78 | 8 | 0 | 3 | 23 | 43 | 7 | 1 | 0 | 0 |
| Other analgesic | 2,818 | 534 | 341 | 1,758 | 1,484 | 948 | 0 | 378 | 1,142 | 519 | 852 | 229 | 46 | 2 |
| Unknown analgesic | 103 | 18 | 36 | 40 | 31 | 58 | 1 | 11 | 66 | 20 | 16 | 7 | 1 | 0 |
| *Category totals | 215,067 | 89,985 | 45,558 | 72,846 | 130,112 | 77,165 | 118 | 6,856 | 87,867 | 64,264 | 30,034 | 10,364 | 2,544 | 264 |
| Anesthetics | | | | | | | | | | | | | | |
| Inhalation anesthetics | | | | | | | | | | | | | | |
| Nitrous oxide | 208 | 19 | 83 | 93 | 95 | 81 | 2 | 28 | 86 | 23 | 48 | 18 | 2 | 0 |
| Other | 182 | 15 | 27 | 124 | 155 | 22 | 1 | 3 | 81 | 21 | 72 | 20 | 3 | 1 |
| Unknown | 3 | 0 | 2 | 1 | 2 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| Ketamine and analogs | 235 | 8 | 78 | 127 | 37 | 177 | 10 | 5 | 193 | 27 | 49 | 63 | 22 | 1 |
| Local and topical anesthetics | 7,188 | 5,176 | 618 | 1,203 | 6,704 | 177 | 30 | 266 | 1,164 | 2,802 | 850 | 133 | 25 | 0 |

*(Continued on following page)*

**TABLE 22B.** Demographic Profile of Exposure Cases by Generic Category of Substances and Products: Pharmaceuticals (Cont'd)

| Substance Implicated In the Exposure | No. of Exposures | Age (yr) | | | Reason | | | | Treated in Health Care Facility | Outcome | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | <6 | 6–19 | >19 | Unint | Int | Other | Adv Rxn | | None | Minor | Moderate | Major | Death |
| Other anesthetic | 35 | 2 | 4 | 22 | 20 | 4 | 0 | 10 | 25 | 5 | 6 | 4 | 5 | 1 |
| Unknown anesthetic | 5 | 1 | 0 | 3 | 1 | 2 | 0 | 1 | 5 | 0 | 0 | 0 | 1 | 0 |
| *Category totals | 7,856 | 5,221 | 812 | 1,573 | 7,014 | 463 | 43 | 314 | 1,555 | 2,879 | 1,025 | 238 | 58 | 3 |
| Anticholinergic drugs | 4,750 | 1,506 | 665 | 2,421 | 2,713 | 1,692 | 10 | 290 | 2,575 | 1,336 | 901 | 654 | 109 | 4 |
| Anticoagulants | | | | | | | | | | | | | | |
| Heparin | 78 | 13 | 7 | 48 | 67 | 3 | 0 | 8 | 38 | 13 | 8 | 9 | 3 | 0 |
| Warfarin (excluding rodenticides) | 1,658 | 725 | 77 | 802 | 1,356 | 235 | 4 | 56 | 661 | 570 | 69 | 88 | 47 | 2 |
| Other | 350 | 131 | 13 | 191 | 290 | 19 | 0 | 38 | 108 | 133 | 31 | 12 | 3 | 0 |
| Unknown | 8 | 3 | 1 | 4 | 4 | 3 | 1 | 0 | 5 | 3 | 0 | 0 | 0 | 0 |
| *Category totals | 2,094 | 872 | 98 | 1,045 | 1,717 | 260 | 5 | 102 | 812 | 719 | 108 | 109 | 53 | 2 |
| Anticonvulsants | | | | | | | | | | | | | | |
| Carbamazepine | 6,499 | 1,916 | 1,405 | 2,965 | 3,913 | 2,223 | 8 | 288 | 3,994 | 1,605 | 1,620 | 957 | 320 | 8 |
| Phenytoin | 4,289 | 896 | 425 | 2,772 | 2,344 | 1,498 | 3 | 371 | 2,816 | 1,101 | 976 | 617 | 117 | 4 |
| Succinimides | 81 | 36 | 23 | 19 | 73 | 4 | 0 | 3 | 23 | 25 | 10 | 1 | 1 | 0 |
| Valproic acid | 8,583 | 1,059 | 2,155 | 4,962 | 3,479 | 4,701 | 7 | 329 | 5,656 | 2,453 | 2,060 | 952 | 299 | 6 |
| Other | 2,666 | 382 | 409 | 1,741 | 1,364 | 1,086 | 1 | 199 | 1,439 | 720 | 614 | 242 | 94 | 2 |
| Unknown | 9 | 1 | 3 | 4 | 6 | 3 | 0 | 0 | 5 | 0 | 0 | 1 | 0 | 0 |
| *Category totals | 22,127 | 4,290 | 4,420 | 12,463 | 11,179 | 9,515 | 19 | 1,190 | 13,933 | 5,904 | 5,280 | 2,770 | 831 | 20 |
| Antidepressants | | | | | | | | | | | | | | |
| Cyclic antidepressants | | | | | | | | | | | | | | |
| Amitriptyline | 8,148 | 1,038 | 991 | 5,710 | 2,428 | 5,455 | 3 | 172 | 6,487 | 1,387 | 1,837 | 1,765 | 1,102 | 49 |
| Amoxapine | 58 | 10 | 6 | 38 | 23 | 31 | 0 | 4 | 40 | 8 | 12 | 14 | 7 | 0 |
| Desipramine | 528 | 63 | 97 | 342 | 202 | 290 | 1 | 31 | 379 | 110 | 110 | 104 | 53 | 8 |
| Doxepin | 2,221 | 158 | 199 | 1,751 | 526 | 1,616 | 1 | 60 | 1,783 | 294 | 553 | 514 | 250 | 23 |
| Imipramine | 2,071 | 446 | 720 | 835 | 1,064 | 906 | 2 | 81 | 1,319 | 611 | 437 | 284 | 129 | 4 |
| Maprotiline | 44 | 5 | 9 | 29 | 12 | 30 | 0 | 1 | 35 | 9 | 9 | 11 | 5 | 0 |
| Nortriptyline | 1,554 | 161 | 209 | 1,084 | 556 | 898 | 4 | 80 | 1,089 | 307 | 353 | 278 | 102 | 9 |
| Protriptyline | 20 | 1 | 4 | 13 | 1 | 18 | 0 | 1 | 17 | 2 | 5 | 4 | 4 | 0 |
| Other cyclic antidepressants | 660 | 60 | 95 | 465 | 224 | 395 | 2 | 33 | 490 | 163 | 153 | 131 | 32 | 0 |
| Unknown cyclic antidepressant | 25 | 3 | 3 | 19 | 5 | 18 | 0 | 0 | 24 | 4 | 1 | 5 | 6 | 4 |
| Cyclic antidepressant formulated with a benzodiazepine | 84 | 16 | 10 | 55 | 29 | 52 | 0 | 2 | 61 | 22 | 19 | 16 | 8 | 0 |
| Cyclic antidepressant formulated with a phenothiazine | 295 | 57 | 32 | 192 | 108 | 179 | 0 | 6 | 233 | 68 | 66 | 53 | 33 | 1 |
| Lithium | 4,486 | 313 | 835 | 3,115 | 1,542 | 2,458 | 3 | 406 | 3,429 | 998 | 1,059 | 893 | 212 | 5 |
| MAO inhibitors | 440 | 37 | 11 | 352 | 200 | 144 | 1 | 93 | 274 | 104 | 63 | 101 | 22 | 7 |
| SSRIs | 27,079 | 4,285 | 6,798 | 14,577 | 9,234 | 16,418 | 21 | 1,275 | 17,478 | 8,498 | 6,007 | 2,248 | 380 | 21 |
| Trazodone | 10,078 | 783 | 1,437 | 7,242 | 2,744 | 6,807 | 5 | 464 | 7,245 | 2,353 | 3,202 | 1,153 | 200 | 9 |
| Other antidepressant | 10,024 | 1,400 | 1,832 | 6,202 | 3,879 | 5,423 | 8 | 656 | 6,645 | 2,667 | 2,302 | 1,424 | 360 | 12 |
| Unknown antidepressant | 57 | 13 | 12 | 23 | 16 | 37 | 1 | 2 | 40 | 12 | 15 | 3 | 0 | 0 |
| *Category totals | 67,872 | 8,849 | 13,300 | 42,044 | 22,793 | 41,175 | 52 | 3,367 | 47,068 | 17,617 | 16,203 | 9,001 | 2,905 | 152 |
| Antihistamines | | | | | | | | | | | | | | |
| Diphenhydramine, (OTC) | 18,356 | 9,524 | 2,917 | 5,479 | 12,611 | 5,350 | 15 | 333 | 6,789 | 5,429 | 3,779 | 1,331 | 169 | 12 |
| Diphenhydramine, (Rx) | 316 | 85 | 60 | 162 | 155 | 145 | 1 | 13 | 171 | 90 | 63 | 35 | 5 | 1 |
| Diphenhydramine, unknown if OTC or Rx | 5,939 | 2,054 | 1,155 | 2,538 | 3,204 | 2,504 | 6 | 195 | 2,832 | 1,395 | 1,221 | 699 | 95 | 3 |
| $H_2$ receptor antagonists | 5,408 | 3,014 | 656 | 1,576 | 4,392 | 800 | 4 | 200 | 1,203 | 1,891 | 395 | 115 | 18 | 0 |
| Other | 19,939 | 8,177 | 5,051 | 6,134 | 14,140 | 5,003 | 11 | 718 | 7,331 | 6,663 | 3,129 | 1,132 | 124 | 2 |
| *Category totals | 49,958 | 22,854 | 9,839 | 15,889 | 34,502 | 13,802 | 37 | 1,459 | 18,326 | 15,468 | 8,587 | 3,312 | 411 | 18 |
| Antimicrobials | | | | | | | | | | | | | | |
| Antibiotics: systemic | 38,349 | 21,220 | 6,308 | 9,677 | 29,774 | 4,241 | 22 | 4,225 | 6,555 | 9,737 | 3,492 | 810 | 56 | 3 |
| Antibiotics: topical | 7,171 | 5,422 | 521 | 1,060 | 6,987 | 59 | 3 | 114 | 197 | 1,740 | 340 | 34 | 4 | 0 |
| Antibiotics: unknown | 1,051 | 334 | 285 | 385 | 584 | 255 | 1 | 208 | 322 | 223 | 174 | 39 | 4 | 0 |
| Antifungals: systemic | 1,210 | 685 | 136 | 349 | 977 | 85 | 0 | 146 | 221 | 368 | 100 | 28 | 4 | 0 |
| Antifungals: topical | 8,578 | 6,613 | 465 | 1,312 | 8,364 | 48 | 13 | 151 | 277 | 2,167 | 581 | 30 | 0 | 0 |

*(Continued on following page)*

**TABLE 22B.** Demographic Profile of Exposure Cases by Generic Category of Substances and Products: Pharmaceuticals (Cont'd)

| Substance Implicated In the Exposure | No. of Exposures | Age (yr) | | | Reason | | | | Treated in Health Care Facility | Outcome | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | <6 | 6–19 | >19 | Unint | Int | Other | Adv Rxn | | None | Minor | Moderate | Major | Death |
| Antifungals: unknown | 6 | 2 | 0 | 4 | 5 | 0 | 0 | 1 | 1 | 2 | 1 | 0 | 0 | 0 |
| Anthelmintics: diethylcarbamazine | 330 | 196 | 19 | 107 | 322 | 6 | 1 | 1 | 23 | 120 | 12 | 2 | 0 | 0 |
| Anthelmintics: piperazine | 526 | 416 | 37 | 62 | 512 | 13 | 1 | 0 | 62 | 208 | 18 | 1 | 1 | 0 |
| Anthelmintic: other | 796 | 360 | 100 | 250 | 756 | 9 | 1 | 26 | 242 | 245 | 156 | 34 | 0 | 0 |
| Anthelmintics: unknown | 24 | 15 | 1 | 7 | 20 | 3 | 0 | 1 | 6 | 12 | 0 | 1 | 0 | 0 |
| Antiparasitics: antimalarial | 417 | 118 | 50 | 224 | 302 | 61 | 1 | 50 | 173 | 130 | 49 | 41 | 6 | 1 |
| Antiparasitics: metronidazole | 1,203 | 361 | 165 | 624 | 764 | 221 | 0 | 215 | 304 | 283 | 164 | 35 | 1 | 0 |
| Antiparasitics: other | 135 | 63 | 11 | 56 | 98 | 11 | 0 | 26 | 30 | 38 | 13 | 3 | 0 | 0 |
| Antituberculars: isoniazid | 452 | 91 | 151 | 195 | 192 | 219 | 0 | 36 | 329 | 117 | 58 | 57 | 70 | 1 |
| Antituberculars: rifampin | 44 | 17 | 9 | 17 | 29 | 10 | 0 | 5 | 24 | 10 | 6 | 4 | 1 | 0 |
| Antituberculars: other | 19 | 3 | 7 | 9 | 14 | 5 | 0 | 0 | 6 | 5 | 3 | 0 | 0 | 0 |
| Antituberculars: unknown | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 |
| Antivirals: systemic | 1,477 | 526 | 160 | 723 | 1,003 | 362 | 4 | 101 | 557 | 469 | 178 | 64 | 9 | 5 |
| Antivirals: topical | 46 | 26 | 5 | 15 | 43 | 1 | 0 | 2 | 3 | 13 | 8 | 0 | 0 | 0 |
| Antivirals: unknown | 70 | 30 | 12 | 21 | 43 | 20 | 0 | 7 | 22 | 17 | 8 | 3 | 0 | 0 |
| Other antimicrobial | 122 | 96 | 6 | 17 | 116 | 2 | 0 | 4 | 12 | 45 | 11 | 1 | 0 | 0 |
| Unknown antimicrobial | 7 | 2 | 1 | 4 | 6 | 0 | 0 | 1 | 2 | 1 | 0 | 0 | 0 | 0 |
| *Category totals | 62,034 | 36,597 | 8,449 | 15,118 | 50,912 | 5,631 | 47 | 5,320 | 9,369 | 15,951 | 5,372 | 1,187 | 156 | 10 |
| Antineoplastic | 1,065 | 323 | 67 | 587 | 895 | 59 | 1 | 106 | 405 | 348 | 133 | 45 | 8 | 0 |
| Asthma therapies | | | | | | | | | | | | | | |
| Aminophylline/theophylline | 2,079 | 421 | 280 | 1,306 | 1,344 | 566 | 2 | 139 | 1,237 | 511 | 379 | 392 | 72 | 16 |
| Terbutaline and other beta-2 agonists | 10,283 | 7,812 | 1,440 | 932 | 9,396 | 572 | 23 | 284 | 2,753 | 3,712 | 1,550 | 672 | 23 | 1 |
| Other beta agonists | 980 | 247 | 303 | 392 | 480 | 462 | 2 | 32 | 476 | 224 | 176 | 147 | 11 | 0 |
| Other | 2,449 | 1,682 | 372 | 355 | 2,216 | 162 | 0 | 64 | 356 | 932 | 124 | 39 | 6 | 1 |
| Unknown | 12 | 2 | 6 | 4 | 6 | 4 | 0 | 2 | 4 | 1 | 2 | 2 | 0 | 0 |
| *Category totals | 15,803 | 10,164 | 2,401 | 2,989 | 13,442 | 1,766 | 27 | 521 | 4,826 | 5,380 | 2,231 | 1,252 | 112 | 18 |
| Cardiovascular drugs | | | | | | | | | | | | | | |
| ACE inhibitors | 7,027 | 2,795 | 465 | 3,531 | 5,779 | 1,040 | 1 | 197 | 2,531 | 3,168 | 506 | 370 | 54 | 3 |
| Alpha blockers | 1,326 | 477 | 69 | 728 | 1,104 | 167 | 0 | 52 | 598 | 594 | 151 | 86 | 13 | 0 |
| Antiarrhythmics | 1,098 | 258 | 40 | 751 | 963 | 104 | 1 | 27 | 435 | 478 | 93 | 56 | 26 | 6 |
| Antihypertensives | 6,185 | 2,105 | 2,021 | 1,920 | 4,636 | 1,337 | 8 | 168 | 3,402 | 1,988 | 1,252 | 893 | 138 | 2 |
| Beta blockers | 8,698 | 2,342 | 923 | 5,083 | 6,399 | 2,046 | 3 | 229 | 4,377 | 3,665 | 779 | 859 | 206 | 21 |
| Calcium antagonists | 8,666 | 2,197 | 557 | 5,605 | 6,560 | 1,845 | 2 | 222 | 4,721 | 3,584 | 834 | 911 | 277 | 61 |
| Cardiac glycosides | 2,972 | 971 | 148 | 1,782 | 2,393 | 327 | 2 | 214 | 1,509 | 1,106 | 222 | 398 | 112 | 23 |
| Hydralazine | 162 | 63 | 9 | 83 | 135 | 20 | 1 | 5 | 62 | 60 | 20 | 18 | 1 | 0 |
| Long-acting nitrates | 577 | 228 | 34 | 296 | 503 | 67 | 0 | 7 | 189 | 251 | 68 | 20 | 3 | 0 |
| Nitroglycerin | 2,297 | 1,361 | 119 | 748 | 1,993 | 260 | 0 | 39 | 676 | 1,137 | 161 | 75 | 10 | 1 |
| Nitroprusside | 35 | 0 | 1 | 33 | 17 | 1 | 0 | 17 | 34 | 6 | 3 | 5 | 4 | 0 |
| Other vasodilator | 387 | 163 | 33 | 170 | 328 | 27 | 1 | 31 | 119 | 151 | 34 | 19 | 1 | 0 |
| Unknown types of vasodilators | 5 | 1 | 1 | 3 | 3 | 2 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 0 |
| Vasopressor | 17 | 3 | 3 | 10 | 12 | 3 | 0 | 2 | 13 | 3 | 10 | 2 | 0 | 0 |
| Other cardiovascular drug | 2,739 | 1,098 | 356 | 1,188 | 2,417 | 193 | 0 | 127 | 709 | 830 | 331 | 116 | 7 | 0 |
| Unknown cardiovascular drug | 53 | 23 | 3 | 22 | 36 | 16 | 0 | 1 | 28 | 17 | 5 | 4 | 3 | 1 |
| *Category totals | 42,244 | 14,085 | 4,782 | 21,953 | 33,278 | 7,455 | 19 | 1,338 | 19,404 | 17,038 | 4,472 | 3,832 | 855 | 118 |
| Cold and cough preparations | 99,924 | 64,781 | 17,986 | 15,795 | 86,584 | 10,254 | 58 | 2,848 | 19,319 | 31,230 | 14,749 | 2,834 | 188 | 4 |
| Diagnostic agents | 474 | 100 | 40 | 269 | 403 | 22 | 1 | 45 | 196 | 95 | 90 | 27 | 6 | 0 |
| Diuretics | | | | | | | | | | | | | | |
| Furosemide | 1,638 | 815 | 131 | 645 | 1,417 | 178 | 1 | 33 | 499 | 581 | 205 | 86 | 11 | 0 |
| Thiazide | 1,679 | 783 | 150 | 701 | 1,414 | 217 | 0 | 46 | 525 | 646 | 161 | 67 | 6 | 0 |
| Other | 1,427 | 674 | 141 | 562 | 1,165 | 202 | 2 | 51 | 442 | 504 | 141 | 53 | 7 | 0 |
| Unknown | 290 | 140 | 17 | 121 | 231 | 46 | 1 | 11 | 102 | 102 | 30 | 14 | 4 | 0 |
| *Category totals | 5,034 | 2,412 | 439 | 2,029 | 4,227 | 643 | 4 | 141 | 1,568 | 1,833 | 537 | 220 | 28 | 0 |
| Electrolytes and minerals | | | | | | | | | | | | | | |
| Calcium | 3,726 | 3,167 | 215 | 304 | 3,605 | 64 | 4 | 51 | 198 | 958 | 152 | 26 | 3 | 0 |
| Fluoride | 3,830 | 3,378 | 299 | 126 | 3,763 | 34 | 4 | 28 | 243 | 1,411 | 321 | 19 | 1 | 1 |
| Iron | 3,948 | 2,506 | 550 | 813 | 3,170 | 680 | 2 | 87 | 1,566 | 1,580 | 520 | 138 | 16 | 1 |

*(Continued on following page)*

**TABLE 22B.** Demographic Profile of Exposure Cases by Generic Category of Substances and Products: Pharmaceuticals (Cont'd)

| Substance Implicated In the Exposure | No. of Exposures | Age (yr) | | | Reason | | | | Treated in Health Care Facility | Outcome | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | <6 | 6–19 | >19 | Unint | Int | Other | Adv Rxn | | None | Minor | Moderate | Major | Death |
| Magnesium | 529 | 200 | 89 | 211 | 461 | 26 | 5 | 34 | 122 | 131 | 79 | 29 | 4 | 0 |
| Potassium | 1,117 | 522 | 99 | 454 | 943 | 138 | 2 | 31 | 283 | 444 | 95 | 33 | 10 | 1 |
| Sodium | 2,226 | 1,432 | 483 | 272 | 2,091 | 96 | 28 | 10 | 280 | 685 | 371 | 31 | 2 | 0 |
| Zinc | 2,807 | 1,946 | 217 | 568 | 2,628 | 54 | 1 | 120 | 245 | 647 | 229 | 62 | 6 | 0 |
| Other | 691 | 451 | 84 | 142 | 558 | 77 | 1 | 55 | 131 | 234 | 46 | 16 | 2 | 0 |
| Unknown | 2 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| *Category totals | 18,876 | 13,603 | 2,036 | 2,891 | 17,220 | 1,170 | 47 | 416 | 3,068 | 6,091 | 1,813 | 354 | 44 | 3 |
| Eye/ear/nose/throat preparations | | | | | | | | | | | | | | |
| Nasal preparations | | | | | | | | | | | | | | |
| Tetrahydrazoline | 76 | 56 | 5 | 12 | 69 | 1 | 2 | 4 | 18 | 33 | 4 | 0 | 1 | 0 |
| Other decongestant | 2,282 | 1,061 | 321 | 809 | 2,074 | 104 | 9 | 92 | 411 | 848 | 355 | 38 | 3 | 1 |
| Other | 582 | 390 | 41 | 127 | 552 | 3 | 2 | 23 | 21 | 133 | 70 | 6 | 0 | 0 |
| Unknown | 12 | 6 | 2 | 4 | 12 | 0 | 0 | 0 | 2 | 1 | 1 | 0 | 0 | 0 |
| Ophthalmic preparations | | | | | | | | | | | | | | |
| Contact lens products | 3,915 | 2,175 | 356 | 1,175 | 3,862 | 29 | 3 | 18 | 481 | 786 | 798 | 133 | 1 | 0 |
| Glaucoma therapies | 135 | 53 | 9 | 68 | 107 | 6 | 0 | 22 | 31 | 39 | 25 | 7 | 0 | 0 |
| Tetrahydrozoline | 1,782 | 1,204 | 214 | 321 | 1,602 | 65 | 96 | 16 | 609 | 891 | 179 | 38 | 1 | 0 |
| Other ophthalmic sympathomimetics | 536 | 259 | 91 | 160 | 462 | 17 | 6 | 51 | 147 | 201 | 77 | 8 | 0 | 0 |
| Other | 1,029 | 497 | 126 | 358 | 936 | 25 | 10 | 57 | 149 | 209 | 171 | 43 | 1 | 0 |
| Unknown | 28 | 9 | 4 | 12 | 24 | 0 | 1 | 3 | 7 | 4 | 7 | 2 | 0 | 0 |
| Otic preparations | | | | | | | | | | | | | | |
| Combination products | 1,117 | 779 | 127 | 184 | 1,112 | 2 | 1 | 2 | 100 | 367 | 261 | 16 | 1 | 0 |
| Other | 2,217 | 1,209 | 219 | 679 | 2,187 | 11 | 2 | 17 | 179 | 461 | 614 | 41 | 1 | 0 |
| Unknown | 21 | 10 | 1 | 10 | 20 | 0 | 0 | 1 | 3 | 1 | 5 | 2 | 0 | 0 |
| Steroids-topical for eye/nose/throat | 810 | 385 | 142 | 244 | 750 | 28 | 1 | 30 | 57 | 143 | 139 | 10 | 0 | 0 |
| Throat preparations | | | | | | | | | | | | | | |
| Lozenges without local anesthetics | 715 | 576 | 59 | 75 | 668 | 25 | 0 | 22 | 36 | 205 | 33 | 3 | 0 | 0 |
| Lozenges with local anesthetics | 245 | 154 | 51 | 35 | 226 | 9 | 0 | 10 | 15 | 65 | 12 | 1 | 1 | 0 |
| Other | 439 | 237 | 126 | 68 | 365 | 59 | 1 | 14 | 84 | 163 | 63 | 8 | 1 | 0 |
| Unknown | 7 | 6 | 1 | 0 | 7 | 0 | 0 | 0 | 3 | 5 | 1 | 0 | 0 | 0 |
| *Category totals | 15,948 | 9,066 | 1,895 | 4,341 | 15,035 | 384 | 134 | 382 | 2,353 | 4,555 | 2,815 | 356 | 11 | 1 |
| Gastrointestinal preparations | | | | | | | | | | | | | | |
| Antacids: salicylate-containing | 2,447 | 1,969 | 229 | 216 | 2,288 | 74 | 0 | 81 | 184 | 811 | 96 | 12 | 1 | 0 |
| Antacids: other | 17,406 | 15,831 | 683 | 800 | 17,072 | 184 | 18 | 121 | 421 | 4,163 | 389 | 25 | 2 | 3 |
| Antidiarrheals: diphenoxylate/atropine | 1,105 | 560 | 143 | 377 | 827 | 202 | 0 | 74 | 485 | 424 | 153 | 65 | 15 | 1 |
| Antidiarrheals: non-narcotic | 543 | 431 | 36 | 67 | 505 | 15 | 0 | 22 | 39 | 152 | 27 | 3 | 0 | 0 |
| Antidiarrheals: paregoric | 64 | 45 | 1 | 14 | 54 | 3 | 1 | 5 | 19 | 28 | 6 | 3 | 1 | 0 |
| Antidiarrheals: other narcotic | 222 | 106 | 35 | 75 | 182 | 12 | 0 | 27 | 43 | 90 | 21 | 4 | 1 | 0 |
| Antispasmodics: anticholinergic | 1,109 | 382 | 206 | 483 | 612 | 421 | 0 | 69 | 596 | 344 | 243 | 108 | 22 | 0 |
| Antispasmodics: other | 13 | 6 | 0 | 6 | 11 | 1 | 0 | 0 | 7 | 3 | 3 | 1 | 0 | 0 |
| Laxatives | 13,784 | 9,613 | 1,309 | 2,585 | 12,397 | 799 | 139 | 418 | 1,647 | 3,125 | 2,144 | 222 | 6 | 1 |
| Other | 7,234 | 5,549 | 472 | 1,094 | 6,565 | 392 | 6 | 256 | 1,195 | 2,206 | 431 | 157 | 17 | 1 |
| Unknown | 1,769 | 899 | 136 | 646 | 1,403 | 246 | 1 | 117 | 390 | 656 | 128 | 44 | 5 | 0 |
| *Category totals | 45,696 | 35,391 | 3,250 | 6,363 | 41,916 | 2,349 | 165 | 1,190 | 5,026 | 12,002 | 3,641 | 644 | 70 | 6 |
| Hormones and hormone antagonists | | | | | | | | | | | | | | |
| Androgens | 493 | 213 | 55 | 201 | 334 | 96 | 0 | 60 | 148 | 133 | 40 | 28 | 6 | 0 |
| Corticosteroids | 8,593 | 5,180 | 1,004 | 2,141 | 7,655 | 360 | 6 | 558 | 776 | 2,137 | 507 | 103 | 7 | 0 |
| Estrogens | 3,398 | 2,452 | 181 | 703 | 3,176 | 128 | 1 | 89 | 306 | 1,050 | 94 | 20 | 1 | 0 |
| Insulin | 1,343 | 123 | 100 | 1,016 | 933 | 366 | 11 | 24 | 556 | 447 | 107 | 209 | 47 | 3 |
| Oral contraceptives | 8,375 | 6,928 | 808 | 553 | 7,765 | 503 | 5 | 93 | 610 | 2,315 | 247 | 14 | 1 | 0 |
| Oral hypoglycemics | 4,581 | 1,813 | 357 | 2,280 | 3,601 | 831 | 2 | 130 | 2,887 | 2,093 | 371 | 623 | 96 | 10 |
| Progestins | 1,165 | 639 | 173 | 314 | 1,015 | 59 | 2 | 84 | 135 | 320 | 51 | 11 | 0 | 0 |
| Thyroid preparations | 6,844 | 4,110 | 643 | 1,895 | 6,313 | 440 | 1 | 80 | 1,159 | 2,071 | 236 | 96 | 13 | 2 |
| Other hormones | 2,210 | 1,086 | 358 | 689 | 1,646 | 459 | 1 | 96 | 536 | 684 | 257 | 49 | 7 | 0 |
| Other hormone antagonists | 298 | 110 | 33 | 140 | 253 | 33 | 0 | 11 | 71 | 109 | 15 | 4 | 0 | 1 |

*(Continued on following page)*

**TABLE 22B.** Demographic Profile of Exposure Cases by Generic Category of Substances and Products: Pharmaceuticals (Cont'd)

| Substance Implicated In the Exposure | No. of Exposures | Age (yr) | | | Reason | | | | Treated in Health Care Facility | Outcome | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | <6 | 6–19 | >19 | Unint | Int | Other | Adv Rxn | | None | Minor | Moderate | Major | Death |
| Unknown hormones or antagonists | 6 | 1 | 1 | 2 | 4 | 2 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 |
| *Category totals | 37,306 | 22,655 | 3,713 | 9,934 | 32,695 | 3,277 | 29 | 1,225 | 7,186 | 11,359 | 1,926 | 1,157 | 178 | 16 |
| Miscellaneous drugs | | | | | | | | | | | | | | |
| Allopurinol | 284 | 148 | 27 | 95 | 246 | 29 | 0 | 9 | 57 | 115 | 13 | 5 | 2 | 0 |
| L-dopa and related drugs | 678 | 230 | 19 | 411 | 594 | 50 | 0 | 29 | 213 | 233 | 107 | 41 | 5 | 0 |
| Dietary supplements/ homeopathic | 6,914 | 4,397 | 704 | 1,629 | 5,421 | 679 | 17 | 773 | 1,369 | 2,219 | 667 | 165 | 19 | 0 |
| Disulfiram | 473 | 20 | 24 | 382 | 125 | 281 | 11 | 52 | 264 | 57 | 104 | 65 | 6 | 1 |
| Ergot alkaloids | 523 | 248 | 67 | 191 | 351 | 116 | 0 | 55 | 299 | 206 | 100 | 36 | 5 | 0 |
| Methysergide | 6 | 6 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| Neuromuscular blocking agents | 27 | 5 | 4 | 16 | 10 | 5 | 0 | 11 | 21 | 3 | 8 | 1 | 3 | 1 |
| Nicotine pharmaceuticals | 725 | 189 | 81 | 415 | 423 | 73 | 1 | 225 | 149 | 135 | 162 | 55 | 0 | 0 |
| Other | 10,294 | 4,441 | 995 | 4,344 | 8,591 | 835 | 45 | 787 | 2,429 | 2,965 | 1,557 | 441 | 56 | 5 |
| *Category totals | 19,924 | 9,684 | 1,921 | 7,483 | 15,767 | 2,068 | 74 | 1,941 | 4,801 | 5,935 | 2,718 | 809 | 96 | 7 |
| Muscle relaxants | | | | | | | | | | | | | | |
| Carisoprodol (formulated alone) | 4,956 | 289 | 495 | 3,875 | 1,121 | 3,657 | 6 | 116 | 3,799 | 646 | 1,719 | 738 | 261 | 8 |
| Cyclobenzaprine | 4,285 | 823 | 690 | 2,540 | 1,683 | 2,478 | 1 | 91 | 2,935 | 1,034 | 1,152 | 594 | 169 | 1 |
| Methocarbamol | 1,204 | 176 | 167 | 773 | 458 | 695 | 0 | 38 | 724 | 281 | 306 | 98 | 19 | 0 |
| Other | 2,055 | 404 | 262 | 1,266 | 871 | 1,041 | 1 | 120 | 1,299 | 442 | 490 | 245 | 135 | 4 |
| Unknown | 30 | 7 | 7 | 13 | 8 | 19 | 0 | 2 | 19 | 4 | 7 | 3 | 1 | 0 |
| *Category totals | 12,530 | 1,699 | 1,621 | 8,467 | 4,141 | 7,890 | 8 | 367 | 8,776 | 2,407 | 3,674 | 1,678 | 585 | 13 |
| Narcotic antagonist | 222 | 6 | 16 | 174 | 48 | 135 | 0 | 38 | 166 | 28 | 55 | 36 | 6 | 0 |
| Radiopharmaceuticals | 14 | 0 | 1 | 12 | 6 | 0 | 0 | 8 | 7 | 1 | 0 | 2 | 0 | 0 |
| Sedative/hypnotics/ antipsychotics | | | | | | | | | | | | | | |
| Barbiturates: long-acting | 3,583 | 807 | 329 | 2,288 | 2,046 | 1,417 | 4 | 80 | 1,904 | 867 | 775 | 456 | 196 | 2 |
| Barbiturates: short-acting | 1,095 | 82 | 145 | 785 | 318 | 729 | 1 | 37 | 791 | 199 | 339 | 140 | 56 | 5 |
| Barbiturates: unknown type | 9 | 0 | 1 | 8 | 1 | 6 | 0 | 0 | 8 | 1 | 4 | 1 | 0 | 2 |
| Benzodiazepines | 40,004 | 4,483 | 4,038 | 28,954 | 10,468 | 27,977 | 405 | 803 | 28,913 | 7,294 | 13,244 | 4,662 | 1,177 | 53 |
| Chloral hydrate | 355 | 116 | 43 | 176 | 156 | 146 | 6 | 45 | 253 | 53 | 124 | 54 | 27 | 0 |
| Ethchlorvynol | 88 | 8 | 2 | 72 | 15 | 72 | 0 | 0 | 70 | 8 | 23 | 25 | 7 | 0 |
| Glutethimide | 4 | 1 | 1 | 2 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 |
| Meprobamate | 158 | 17 | 10 | 122 | 51 | 99 | 0 | 8 | 114 | 21 | 37 | 27 | 15 | 0 |
| Methaqualone | 35 | 3 | 4 | 27 | 5 | 29 | 1 | 0 | 26 | 3 | 11 | 3 | 1 | 0 |
| Phenothiazines | 8,364 | 1,193 | 1,203 | 5,607 | 3,365 | 4,313 | 10 | 601 | 5,813 | 1,961 | 1,873 | 1,584 | 294 | 9 |
| Sleep aids (OTC) | 1,618 | 102 | 246 | 1,158 | 299 | 1,305 | 2 | 8 | 1,205 | 346 | 457 | 231 | 26 | 0 |
| Other | 15,418 | 1,234 | 2,613 | 10,743 | 4,537 | 9,973 | 13 | 761 | 11,103 | 3,123 | 4,639 | 2,249 | 507 | 17 |
| Unknown | 251 | 23 | 42 | 156 | 52 | 186 | 5 | 3 | 201 | 38 | 61 | 34 | 3 | 1 |
| *Category totals | 70,982 | 8,069 | 8,677 | 50,098 | 21,315 | 46,254 | 447 | 2,346 | 50,403 | 13,914 | 21,587 | 9,466 | 2,310 | 89 |
| Serum, toxoids, vaccines | 1,774 | 347 | 248 | 976 | 1,327 | 42 | 1 | 400 | 532 | 195 | 370 | 71 | 7 | 0 |
| Stimulants and street drugs | | | | | | | | | | | | | | |
| Amphetamines | 15,217 | 4,283 | 6,375 | 4,135 | 9,149 | 5,468 | 95 | 386 | 7,708 | 4,299 | 2,812 | 1,934 | 242 | 31 |
| Amyl/butyl nitrites | 107 | 13 | 9 | 72 | 47 | 55 | 4 | 0 | 55 | 19 | 20 | 24 | 1 | 0 |
| Caffeine | 6,175 | 1,005 | 3,188 | 1,795 | 2,300 | 3,529 | 20 | 283 | 2,813 | 879 | 1,930 | 747 | 24 | 1 |
| Cocaine | 4,555 | 96 | 618 | 3,555 | 450 | 3,975 | 47 | 28 | 3,976 | 656 | 951 | 1,104 | 344 | 54 |
| Diet aids: phenylpropanolamine | 1,403 | 453 | 500 | 415 | 717 | 631 | 0 | 48 | 786 | 436 | 256 | 182 | 13 | 0 |
| Diet aids: phenylpropanol-amine and caffeine | 263 | 76 | 81 | 92 | 118 | 121 | 0 | 23 | 157 | 71 | 53 | 32 | 4 | 0 |
| Diet aids: other, OTC | 339 | 145 | 66 | 121 | 190 | 87 | 0 | 60 | 151 | 107 | 60 | 27 | 0 | 0 |
| Diet aids: other, Rx | 412 | 123 | 88 | 185 | 172 | 214 | 1 | 21 | 307 | 128 | 105 | 49 | 7 | 0 |
| Diet aids: unknown | 193 | 53 | 59 | 70 | 82 | 75 | 0 | 36 | 101 | 54 | 41 | 17 | 2 | 0 |
| Heroin | 1,562 | 16 | 148 | 1,311 | 109 | 1,413 | 5 | 18 | 1,377 | 150 | 285 | 416 | 207 | 28 |
| LSD | 1,151 | 18 | 743 | 327 | 136 | 945 | 52 | 8 | 824 | 78 | 221 | 394 | 29 | 0 |
| Marijuana | 1,762 | 123 | 830 | 706 | 324 | 1,340 | 28 | 43 | 1,181 | 168 | 401 | 364 | 53 | 1 |
| Mescaline/peyote | 155 | 44 | 32 | 67 | 122 | 29 | 0 | 3 | 54 | 15 | 34 | 18 | 1 | 0 |
| Phencyclidine | 372 | 17 | 128 | 208 | 57 | 286 | 12 | 0 | 315 | 32 | 58 | 115 | 43 | 2 |
| Phenylpropanolamine look-alike drugs | 27 | 5 | 7 | 13 | 10 | 15 | 0 | 2 | 17 | 5 | 7 | 5 | 0 | 0 |
| Other stimulants | 487 | 82 | 162 | 225 | 143 | 327 | 1 | 16 | 320 | 109 | 122 | 83 | 5 | 0 |
| Other hallucinogens | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*(Continued on following page)*

**TABLE 22B.** Demographic Profile of Exposure Cases by Generic Category of Substances and Products: Pharmaceuticals (Cont'd)

| Substance Implicated In the Exposure | No. of Exposures | Age (yr) | | | Reason | | | | Treated in Health Care Facility | Outcome | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | <6 | 6–19 | >19 | Unint | Int | Other | Adv Rxn | | None | Minor | Moderate | Major | Death |
| Unknown hallucinogens | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| Other street drugs | 17 | 1 | 6 | 7 | 1 | 14 | 2 | 0 | 13 | 1 | 2 | 4 | 1 | 0 |
| Unknown stimulant/street drugs | 47 | 2 | 19 | 22 | 6 | 32 | 7 | 0 | 31 | 3 | 9 | 13 | 0 | 1 |
| *Category totals | 34,245 | 6,555 | 13,059 | 13,327 | 14,133 | 18,557 | 274 | 975 | 20,187 | 7,210 | 7,368 | 5,528 | 976 | 118 |
| Topical preparations | | | | | | | | | | | | | | |
| Acne preparations | 2,092 | 1,132 | 493 | 408 | 1,929 | 45 | 8 | 108 | 150 | 547 | 331 | 27 | 1 | 0 |
| Boric acid/borates | 246 | 144 | 24 | 67 | 227 | 15 | 1 | 3 | 37 | 86 | 25 | 2 | 0 | 0 |
| Calamine | 4,175 | 3,157 | 252 | 708 | 4,126 | 30 | 5 | 12 | 206 | 1,077 | 252 | 9 | 0 | 0 |
| Camphor | 8,945 | 6,987 | 610 | 1,196 | 8,726 | 146 | 9 | 59 | 1,036 | 3,551 | 1,378 | 52 | 9 | 0 |
| Camphor/methyl salicylate | 1,237 | 1,020 | 56 | 141 | 1,207 | 6 | 1 | 23 | 143 | 472 | 219 | 6 | 0 | 0 |
| Diaper products | 29,203 | 27,646 | 714 | 747 | 29,096 | 42 | 7 | 55 | 311 | 6,947 | 823 | 15 | 0 | 0 |
| Hexachlorophene antiseptic | 151 | 88 | 13 | 45 | 143 | 5 | 0 | 3 | 27 | 48 | 19 | 0 | 0 | 0 |
| Hydrogen peroxide | 7,888 | 3,562 | 807 | 3,243 | 7,675 | 141 | 18 | 46 | 470 | 1,802 | 1,459 | 58 | 1 | 1 |
| Iodine or iodide antiseptics | 1,779 | 635 | 363 | 680 | 1,523 | 183 | 20 | 46 | 391 | 511 | 355 | 46 | 1 | 0 |
| Mercury antiseptics | 399 | 264 | 18 | 47 | 321 | 15 | 0 | 3 | 47 | 131 | 16 | 3 | 0 | 0 |
| Methyl salicylate | 10,240 | 7,556 | 908 | 1,579 | 10,020 | 81 | 23 | 110 | 897 | 3,121 | 2,153 | 75 | 2 | 0 |
| Podophyllin | 61 | 17 | 11 | 27 | 50 | 5 | 0 | 5 | 27 | 18 | 12 | 2 | 0 | 0 |
| Silver nitrate | 232 | 27 | 83 | 100 | 212 | 7 | 0 | 13 | 52 | 28 | 70 | 15 | 0 | 0 |
| Topical steroids | 7,255 | 5,219 | 504 | 1,333 | 7,112 | 52 | 2 | 87 | 179 | 1596 | 403 | 29 | 0 | 0 |
| Topical steroid with antibiotics | 1,246 | 928 | 112 | 177 | 1,215 | 10 | 0 | 20 | 58 | 317 | 141 | 6 | 0 | 0 |
| Wart preparation | 1,648 | 1,038 | 238 | 333 | 1,576 | 29 | 3 | 39 | 177 | 481 | 322 | 32 | 2 | 0 |
| Other liniment | 2,584 | 1,381 | 202 | 887 | 2,355 | 25 | 1 | 199 | 215 | 566 | 752 | 21 | 3 | 0 |
| Other topical antiseptic | 4,134 | 2,822 | 434 | 792 | 3,946 | 104 | 10 | 71 | 411 | 1,320 | 508 | 47 | 0 | 0 |
| *Category totals | 83,455 | 63,623 | 5,842 | 12,510 | 81,459 | 941 | 108 | 902 | 4,834 | 22,619 | 9,238 | 445 | 19 | 1 |
| Veterinary drugs | 3,702 | 1,899 | 271 | 1,346 | 3,599 | 58 | 26 | 15 | 302 | 1,076 | 558 | 35 | 1 | 0 |
| Vitamins | | | | | | | | | | | | | | |
| Multiple vitamins tablets: adult formulations | | | | | | | | | | | | | | |
| No iron, no fluoride | 2,409 | 1,676 | 235 | 459 | 2,087 | 143 | 2 | 168 | 227 | 619 | 161 | 17 | 1 | 0 |
| With iron, no fluoride | 5,781 | 3,991 | 648 | 1,045 | 5,105 | 573 | 2 | 92 | 1,072 | 2,165 | 357 | 57 | 2 | 0 |
| With iron, with fluoride | 75 | 65 | 6 | 4 | 72 | 3 | 0 | 0 | 9 | 27 | 7 | 0 | 0 | 0 |
| No iron, with fluoride | 47 | 43 | 4 | 0 | 46 | 1 | 0 | 0 | 2 | 21 | 2 | 0 | 0 | 0 |
| Multiple vitamins tablets: pediatric formulations | | | | | | | | | | | | | | |
| No iron, no fluoride | 7,252 | 6,324 | 873 | 50 | 7,141 | 100 | 0 | 9 | 231 | 2,138 | 171 | 9 | 0 | 0 |
| With iron, no fluoride | 16,125 | 14,256 | 1,777 | 84 | 15,858 | 231 | 2 | 26 | 1,591 | 6,111 | 856 | 50 | 0 | 0 |
| With iron, with fluoride | 811 | 786 | 19 | 5 | 811 | 0 | 0 | 0 | 28 | 236 | 20 | 0 | 0 | 0 |
| No iron, with fluoride | 1,404 | 1,328 | 69 | 4 | 1,397 | 4 | 0 | 3 | 50 | 375 | 35 | 2 | 0 | 0 |
| Multiple vitamins liquids: adult formulations | | | | | | | | | | | | | | |
| No iron, no fluoride | 51 | 31 | 9 | 11 | 46 | 2 | 0 | 3 | 4 | 10 | 5 | 1 | 0 | 0 |
| With iron, no fluoride | 93 | 51 | 13 | 26 | 75 | 10 | 0 | 7 | 13 | 24 | 11 | 1 | 0 | 0 |
| With iron, with fluoride | 2 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |
| No iron, with fluoride | 2 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Multiple vitamins liquids: pediatric formulations | | | | | | | | | | | | | | |
| No iron, no fluoride | 238 | 229 | 8 | 1 | 233 | 1 | 0 | 4 | 12 | 70 | 11 | 2 | 0 | 0 |
| With iron, no fluoride | 533 | 512 | 14 | 7 | 524 | 1 | 0 | 8 | 44 | 161 | 38 | 2 | 0 | 0 |
| With iron, with fluoride | 96 | 93 | 1 | 1 | 95 | 0 | 0 | 1 | 6 | 25 | 7 | 0 | 0 | 0 |
| No iron, with fluoride | 434 | 420 | 10 | 2 | 428 | 3 | 0 | 3 | 16 | 135 | 17 | 0 | 0 | 0 |
| Multiple vitamins, unspecified adult formulations | | | | | | | | | | | | | | |
| No iron, no fluoride | 41 | 24 | 5 | 11 | 31 | 1 | 0 | 7 | 6 | 11 | 1 | 1 | 0 | 0 |
| With iron, no fluoride | 1,991 | 1,416 | 263 | 277 | 1,761 | 181 | 1 | 44 | 393 | 679 | 151 | 17 | 0 | 0 |
| With iron, with fluoride | 5 | 3 | 1 | 1 | 4 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 0 | 0 |
| No iron, with fluoride | 17 | 15 | 2 | 0 | 17 | 0 | 0 | 0 | 2 | 9 | 0 | 0 | 0 | 0 |
| Multiple vitamins, unspecified pediatric formulations | | | | | | | | | | | | | | |
| No iron, no fluoride | 30 | 25 | 5 | 0 | 29 | 0 | 0 | 1 | 0 | 5 | 4 | 0 | 0 | 0 |
| With iron, no fluoride | 55 | 50 | 4 | 1 | 55 | 0 | 0 | 0 | 7 | 21 | 7 | 0 | 0 | 0 |

*(Continued on following page)*

**TABLE 22B.** Demographic Profile of Exposure Cases by Generic Category of Substances and Products: Pharmaceuticals (Cont'd)

| Substance Implicated In the Exposure | No. of Exposures | Age (yr) | | | Reason | | | | Treated in Health Care Facility | Outcome | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | <6 | 6–19 | >19 | Unint | Int | Other | Adv Rxn | | None | Minor | Moderate | Major | Death |
| With iron, with fluoride | 7 | 6 | 0 | 1 | 7 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 |
| No iron, with fluoride | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other vitamins | | | | | | | | | | | | | | |
| Vitamin A | 2,146 | 1,857 | 80 | 186 | 2,081 | 28 | 0 | 36 | 85 | 493 | 59 | 11 | 0 | 0 |
| Niacin (B3) | 2,244 | 461 | 367 | 1,286 | 1,065 | 232 | 1 | 941 | 350 | 158 | 879 | 56 | 2 | 0 |
| Pyridoxine (B6) | 355 | 219 | 43 | 86 | 275 | 55 | 0 | 25 | 82 | 97 | 36 | 8 | 5 | 0 |
| Other B complex vitamins | 1,439 | 987 | 105 | 311 | 1,243 | 97 | 1 | 91 | 177 | 353 | 80 | 11 | 0 | 0 |
| Vitamin C | 2,650 | 2,067 | 316 | 236 | 2478 | 89 | 9 | 66 | 133 | 735 | 153 | 7 | 0 | 0 |
| Vitamin D | 192 | 113 | 10 | 65 | 168 | 16 | 0 | 8 | 43 | 61 | 14 | 5 | 1 | 0 |
| Vitamin E | 1,726 | 1,383 | 111 | 203 | 1,625 | 62 | 2 | 36 | 107 | 464 | 56 | 11 | 1 | 0 |
| Other | 679 | 454 | 72 | 139 | 577 | 38 | 0 | 63 | 96 | 191 | 66 | 5 | 1 | 0 |
| Unknown | 779 | 508 | 114 | 135 | 647 | 64 | 7 | 58 | 131 | 236 | 53 | 19 | 1 | 0 |
| *Category totals | 49,709 | 39,396 | 5,184 | 4,638 | 45,984 | 1,935 | 27 | 1,702 | 4,920 | 15,636 | 3,257 | 292 | 14 | 0 |
| Unknown drugs | 12,536 | 3,420 | 2,671 | 5,624 | 6,089 | 4,590 | 759 | 647 | 7,469 | 2,716 | 1,936 | 1,470 | 616 | 1 |
| Total number of pharmaceutical substances | 1,003,221 | 477,452 | 159,261 | 335,205 | 700,505 | 259,552 | 2,540 | 36,451 | 347,253 | 285,806 | 150,678 | 58,188 | 13,197 | 868 |
| % of pharmaceutical substances | | 47.6% | 15.9% | 33.4% | 69.8% | 25.9% | 0.3% | 3.6% | 34.6% | 28.5% | 15.0% | 5.8% | 1.3% | 0.1% |
| % of all substances | 41.8% | 19.9% | 6.6% | 14.0% | 29.2% | 10.8% | 0.1% | 1.5% | 14.5% | 11.9% | 6.3% | 2.4% | 0.5% | 0.0% |

## REFERENCES


1. Veltri JC, Litovitz TL: 1983 Annual Report of the American Association of Poison Control Centers National Data Collection System. Am J Emerg Med 1984;2:420-443
2. Litovitz TL, Veltri JC: 1984 Annual Report of the American Association of Poison Control Centers National Data Collection System. Am J Emerg Med 1985;3:423-450
3. Litovitz TL, Normann SA, Veltri JC: 1985 Annual Report of the American Association of Poison Control Centers National Data Collection System. Am J Emerg Med 1986;4:427-458
4. Litovitz TL, Martin TG, Schmitz B: 1986 Annual Report of the American Association of Poison Control Centers National Data Collection System. Am J Emerg Med 1987;5:405-445
5. Litovitz TL, Schmitz BF, Matyunas N, et al: 1987 Annual Report of the American Association of Poison Control Centers National Data Collection System. Am J Emerg Med 1988;6:479-515
6. Litovitz TL, Schmitz BF, Holm KC: 1988 Annual Report of the American Association of Poison Control Centers National Data Collection System. Am J Emerg Med 1989;7:495-545
7. Litovitz TL, Schmitz BF, Bailey KM: 1989 Annual Report of the American Association of Poison Control Centers National Data Collection System. Am J Emerg Med 1990;8:394-442
8. Litovitz TL, Bailey KM, Schmitz BF, et al: 1990 Annual Report of the American Association of Poison Control Centers National Data Collection System. Am J Emerg Med 1991;9:461-509
9. Litovitz TL, Holm KC, Bailey KM, et al: 1991 Annual Report of the American Association of Poison Control Centers National Data Collection System. Am J Emerg Med 1992;10:452-505
10. Litovitz TL, Holm KC, Clancy C, et al: 1992 Annual Report of the American Association of Poison Control Centers Toxic Exposure Surveillance System. Am J Emerg Med 1993;11:494-555
11. Litovitz TL, Clark LR, Soloway RA: 1993 Annual Report of the American Association of Poison Control Centers Toxic Exposure Surveillance System. Am J Emerg Med 1994;12:546-584
12. Litovitz TL, Felberg L, Soloway RA, et al: 1994 Annual Report of the American Association of Poison Control Centers Toxic Exposure Surveillance System. Am J Emerg Med 1995;13:551-597
13. Litovitz TL, Felberg L, White S, et al: 1995 Annual Report of the American Association of Poison Control Centers Toxic Exposure Surveillance System. Am J Emerg Med 1996;14:487-537
14. Litovitz TL, Smilkstein M, Felberg L, et al: 1996 Annual Report of the American Association of Poison Control Centers Toxic Exposure Surveillance System. Am J Emerg Med 1997;15:447-500
15. Litovitz TL, Klein-Schwartz W, Dyer KS, et al: 1997 Annual Report of the American Association of Poison Control Centers Toxic Exposure Surveillance System. Am J Emerg Med 1998;16:443-497


## APPENDIX

### Drug and chemical concentrations provided in these abstracts were obtained on blood, serum, or plasma unless otherwise indicated.

**Case 8.** A 48-year-old man with a history of chronic alcohol abuse was taking **disulfiram** when he began drinking **ethanol** again. He experienced nausea and vomiting and decreased mental status. En route to the hospital he had a cardiac arrest and was resuscitated. A urine drug screen for salicylates and acetaminophen was negative. Initial labs revealed: blood ethanol concentration, 82 mg/dL; prothrombin time (PT), 14 sec; arterial pH, 7.03; $P_{CO_2}$, 75 mm Hg; potassium, 2.5 mEq/L; and magnesium, 2.1 mEq/L. The patient became unresponsive with fixed and dilated pupils and decorticate posturing. He expired 12 hours after presentation.

**Case 18.** A 12-month-old boy was administered one tablespoon of 100% **boric acid roach powder** followed by ½ cup of **isopropanol.** The child vomited the first dose and was administered a second dose. The following morning the child was found dead at home with developing rigor mortis. On autopsy, a coffee ground-like substance was noted in the mouth, tracheobronchial tree, esophagus, and stomach. The lungs contained aspirated vegetable material and acute bronchial pneumonia was present. The toxicology screen was positive for isopropanol, acetone, and ethanol.

**Case 21.** A 27-year-old man presented with hyperventilation and metabolic acidosis of unclear etiology. His initial ABGs revealed: pH, 6.79; $P_{CO_2}$, 20 mm Hg; $P_{O_2}$, 225 mm Hg; and bicarbonate, 5 mEq/L. Salicylate and ethylene glycol concentrations were negative. The serum **methanol** concentration was 230 mg/dL. The patient was started on a fomepizole infusion and received hemodialysis. A computed tomography (CT) scan of the head revealed bilateral basal ganglia hemorrhages and cerebral edema. The patient had uncontrollable intracranial hypertension and died.

**Case 22.** A 31-year-old man presented to the ED with severe headache and altered mental status after several days of flu-like

symptoms. Examination revealed unresponsive dilated pupils and normal vital signs. The patient received physostigmine and suffered 2 seizures within an hour. A CT scan of the brain and lumbar puncture were normal. Initial laboratories showed: pH, 6.4; $P_{CO_2}$, 56 mm Hg; $P_{O_2}$, 110 mm Hg; bicarbonate, 3 mEq/L; and serum **methanol** concentration, 40 mg/dL. The patient was given intravenous fomepizole, leucovorin, and sodium bicarbonate. He underwent hemodialysis for 6 hours which corrected his acidosis and cleared the methanol. However, the patient remained comatose and was declared brain dead 2 days after presentation.

**Case 45.** A 36-year-old man applied a light-weight body filler to his car which contained saturated **polyester resin, amorphous silicate, talc,** and **styrene** monomer. He then sanded his car and subsequently developed pneumonia and was admitted to the intensive care unit (ICU) the day of the exposure. He required endotracheal intubation, supplemental oxygen, and lorazepam. All cultures were negative and no cause of the pneumonia was determined. Two weeks post exposure he was weaned from the ventilator but remained incoherent and confused. A chest tube was inserted to drain pleural fluid. However, his respiratory status deteriorated, requiring another ICU admission 2 months after exposure. He eventually died in the hospital.

**Case 53.** A 7-year-old girl complained of headache, nausea, vomiting, and fever after a possible insect bite the previous evening. She had a red, swollen ecchymotic lesion on her back which extended around to her left arm. A **Loxosceles reclusa (brown recluse spider)** bite was suspected and she was prescribed ibuprofen and antibiotics for possible infection. She was admitted to the hospital later that evening for intravenous (IV) fluids and her lab results were as follows: white blood cell count (WBC), 32,000/μL; platelets, 111,000/μL; blood urea nitrogen (BUN), 32 mg/dL; alanine transanimase (ALT), 83 U/L; and aspartate transanimase (AST), 429 U/L. She developed significant hemolysis and urinalysis revealed red blood cell casts. The next morning she developed ventricular tachycardia and torsades de pointes and she died. Laboratory results after resuscitation revealed "total hemolysis" and a platelet count of 61,000/μL.

**Case 55.** A 76-year-old man with dementia was found coughing with fine **copper paint powder** around his mouth at a day care center where art projects were being performed. In the emergency department (ED) the patient demonstrated bronchospasm which improved with bronchodilator therapy. He had a normal chest radiograph but was admitted to the ICU for observation. He later developed increasing respiratory distress with oxygen saturations falling precipitously. He died shortly after admission from respiratory failure. On autopsy a suspension of light brownish-yellow particles was found in the stomach. The lungs revealed diffuse pulmonary edema, tracheitis, and had a grayish-green discoloration. The product was identified as a 100% copper powder.

**Case 75.** A 62-year-old woman ingested an unknown amount of 70% **nitric acid solution.** She had oral burns and third degree burns on her chest, breasts, and hands from vomited nitric acid. During endotracheal intubation, dry greenish discoloration of the oral pharynx and vocal chords was noted. Even though the patient had been "hosed down" at home, several hospital employees complained of burning to their throats, lips, and eyes after attending the patient. She developed a metabolic acidosis with arterial pH, 7.1; and $P_{CO_2}$, 37 mm Hg. Endoscopy was unsuccessful due to extreme soft tissue swelling and a chest radiograph showed diffuse haziness around the heart border. Bronchoscopy revealed a scarred trachea. During the next several days metabolic acidosis continued and she developed oliguric renal failure. She required dopamine for hypotension and continuous bicarbonate infusion for the acidosis. After 8 days, mechanical ventilation was withdrawn and she expired soon afterward.

**Case 97.** A 43-year-old woman with a history of Down's syndrome was found with an empty bottle of **pine oil/isopropanol cleaner.** She was vomiting pine-scented emesis. The patient rapidly became unresponsive and was intubated at the scene for respiratory arrest, then transported to the hospital. In the ED, orogastric lavage yielded pine-scented fluid. Activated charcoal was instilled. Initial blood pressure was 100/62 mm Hg, heart rate 124 beats/min, and temperature 34.4°C. She developed progressive bradycardia, then asystole, and was resuscitated with atropine and epinephrine. Arterial blood gas showed a $P_{CO_2}$ of 78 mm Hg; $P_{O_2}$, 124 mm Hg; and pH, 7.01 (on 100% $O_2$). A serum bicarbonate was 7 mEq/L. A chest radiograph revealed infiltrates at both bases. She required a dopamine infusion to maintain an adequate blood pressure. The following day she suffered recurrent bradycardia with ST segment elevations, sustained a cardiac arrest, then died.

**Case 109.** A 4-year-old girl arrived at an ED unresponsive and seizing after ingesting an unknown amount of **acetone nail polish remover.** She was intubated and received phenobarbital for status epilepticus. Hypotension required the use of dopamine, dobutamine, and phenylephrine. A severe metabolic acidosis and ketonuria were noted as well as fixed and dilated pupils. The seizures resolved but the patient continued to be unresponsive and recorded no brain wave activity on electroencephalogram. The patient was pronounced dead 3 days after the ingestion from presumed anoxic brain injury.

**Case 110.** A 46-year-old man and coworker were dismantling an ammonia cooling unit when a sudden discharge of **ammonia gas** occurred. The victim was found unresponsive on the basement floor by paramedics. His initial cardiac rhythm was asystole and the paramedics were unable to intubate him secondary to upper airway edema. The patient was pronounced dead shortly after arrival in the ED. At autopsy he was found to have chemical burns of the face and extreme hemorrhagic congestion of the mucosal surfaces of the airway with marked pulmonary congestion and edema.

**Case 126.** A 45-year-old man arrived in the ED unresponsive after 2 days of exposure to a faulty gas furnace. Initial vital signs were: heart rate, 88 beats/min; blood pressure, 100/71 mm Hg; temperature, 104.5°F; and agonal respirations requiring intubation. The patient had pinpoint pupils and no response to pain. Initial laboratories included **carboxyhemoglobin** 30%, and creatine kinase 1,307 U/L. CT of the brain 1 day after admission revealed lucent areas of the globus pallidus bilaterally. Two days after admission, he had decerebrate posturing to pain and was extubated. One week after admission he suffered a respiratory arrest secondary to pneumonia and was reintubated. The patient died 9 days after admission.

**Case 149.** An explosion at a silicon production plant resulted in the sudden release of **silicon tetrachloride** and **trichlorosilane** gases. A total of 6 employees was exposed. This 26-year-old man required endotracheal intubation and suffered third degree burns to the face and knees, traumatic glaucoma and retinal ischemia, burns to the pharynx and larynx, adult respiratory distress syndrome, and pneumonia. He died approximately 5 weeks after exposure. Autopsy demonstrated necrotizing tracheitis and tracheobronchitis, diffuse consolidation of the lungs, and multiple third degree burns.

**Case 153.** A 50-year-old man who was an environmental manager in an industrial plant where **cadmium,** lead, and **arsenic** were available (although he did not work directly with these chemicals), reported nausea, vomiting, and orthostatic hypotension upon presentation to the ED. He was treated with IV fluids and an antiemetic and admitted to the ICU. His initial laboratory results were: AST, 53 U/L; ALT, 33 U/L; and lactic dehydrogenase (LDH), 208 U/L. The patient was started on dimercaprol therapy due to a suspicion of heavy metal exposure. He subsequently developed respiratory depression requiring intubation and mechanical ventilation followed by severe hypotension requiring high doses of vasopressors. He developed a fever (38.2°C). His serum toxicology screen was negative. Results of his initial heavy metal laboratory results were: urine arsenic, 7,500 μg/24 h (normal less than 120 μg/24 h) and cadmium 9.7 μg/24 hrs (normal less than 3 μg/24 hrs). He was treated with British antilewisite (BAL). By the seventh hospital

day the patient had developed complete renal failure and recurrent acidosis and was treated with continuous arteriovenous hemofiltration and sodium bicarbonate. The patient's clinical condition continued to deteriorate and he died 9 days after presentation.

**Case 155.** A 69-year-old man with history of chronic renal insufficiency, congestive heart failure, and diabetes mellitus ingested 4 teaspoonsful of **arsenic trioxide** and possibly an unknown quantity of **strychnine**-containing gopher bait. He began vomiting 2 hours after ingestion and was sent to the ED with persistent vomiting, hypotension, tachycardia, hypoxemia, and acute renal failure. Abdominal radiographs demonstrated irregular metallic densities in the gastrointestinal tract. He received dimercaprol intramuscularly every 4 hours and d-penicillamine orally. Serum arsenic concentration was 0.12 μg/mL on admission. Spot urine arsenic concentration was 770 μg/L before chelation and a 24 hour urine arsenic concentration was 3,770 μg/L with chelation. His hypotension failed to respond to dopamine infusion. He underwent hemodialysis but died 60 hours after the ingestion.

**Case 156 and 157.** A 13-month-old boy was exposed to an **elemental mercury** vapor during a home gold ore smelting operation which involved heating a pan of elemental mercury in the kitchen. The child presented with vomiting, tachypnea, tachycardia, and pulmonary infiltrates. He was treated with antibiotics, endotracheal intubation, and mechanical ventilation. Once the history of mercury exposure was obtained, dimercaptosuccinic acid 10 mg/kg by nasogastric tube was administered to the patient. His mercury concentrations were: spot urine, 190 μg/L; 24 hour urine, 120 μg/L; and blood, 160 μg/L. The child developed acute respiratory distress syndrome and died after 25 days in the hospital. Post mortem exam of the lungs revealed severe chemical pneumonitis with diffuse bilateral pleural adhesions. His mother was also exposed and died from the exposure after 10 days in the hospital.

**Case 163.** An 18-year-old man was found with respiratory depression shortly after "huffing" **butane.** He subsequently developed respiratory and cardiac arrest and was unable to be resuscitated.

**Case 166.** A 22-year-old woman inhaled **chlorofluorocarbons** at home from a 5 gallon container. She suffered a cardiac arrest and the paramedics found her in ventricular fibrillation. Resuscitation with naloxone, atropine, epinephrine, sodium bicarbonate, lidocaine, dopamine, and bretylium was unsuccessful and she expired approximately 1 hour after the exposure.

**Case 170.** A 14-month-old boy ingested a mouthful of **lamp oil.** He was coughing shortly after the exposure and arrived in the ED approximately 1 hour post ingestion in respiratory distress. He was endotracheally intubated and his oxygen saturation by pulse oximetry was 80% on 100% supplemental oxygen. Lamp oil was suctioned from the child's lungs and progressive hypoxia ensued. The child suffered a cardiopulmonary arrest during air transport to a tertiary care facility. Autopsy revealed a chemical pneumonitis.

**Case 171.** A 15-month-old boy ingested **lighter fluid** and presented to the ED 20 minutes later, unresponsive with gasping respirations. The patient was endotracheally intubated and an arterial blood gas revealed: pH, 6.9; and bicarbonate, 14 mEq/L. Chest radiograph revealed bilateral patchy infiltrates and the patient experienced recurrent episodes of bradycardia. The patient's hematocrit was 26% and evidence of disseminated intravascular coagulation was present. He required dopamine and fluid boluses to maintain his blood pressure but remained hypoxic despite 100% oxygen and high positive end-expiratory pressure. The patient's acidosis was resistant to treatment with sodium bicarbonate and he developed progressive respiratory failure and expired 5 hours after the ingestion.

**Case 172.** A 3-year-old boy was found by his mother slumped over and smelling of charcoal **lighter fluid.** The boy arrived at the ED in severe respiratory distress and was endotracheally intubated. His chest X-ray revealed bilateral perihilar infiltrates, and copious frothy, bloody secretions were suctioned from the endotracheal tube. His pulmonary status worsened, requiring 6 cm of positive end-expiratory pressure and an $F_iO_2$ of 100% to maintain a $Po_2$ of 62 mm Hg. Dopamine was required to maintain an adequate blood pressure. He became febrile and his respiratory status declined until his death 4 days after ingestion.

**Case 174.** A 15-month-old boy ingested a "swallow" of **motor oil.** Upon presentation to the ED 1 hour later, the child was lethargic and tachypneic. His oxygen saturation was 88% on room air and his chest radiograph was normal. Eight hours after presentation, he responded to touch and voice and his respiratory rate was 50 to 70 breaths/min with rales on lung exam. Thirty-three hours after presentation, respiratory rate was 90 to 100 breaths/min and a repeat chest radiograph revealed right upper and right middle lobe infiltrates. He was afebrile and on 1.5 L/min of supplemental oxygen. By the fourth hospital day, he was receiving clindamycin and claforan for pneumonia. His ventilator was changed to a high frequency oscillating ventilator. He subsequently became hypotensive and required dopamine infusion. His chest radiograph showed "white out" of the entire right and majority of the left lung. Six days post ingestion a resolving pneumopericardium was noted. On the tenth day the patient developed episodes of tachycardia, decreased oxygen saturation, seizure-like activity, and hyponatremia. He was placed on extracorporeal membrane oxygenation (ECMO) and received surfactants. Hematuria developed 20 days post ingestion, followed by hemolysis and pneumothorax at 23 days. The patient developed renal failure and severe hypotension 46 days after the ingestion and died 51 days post ingestion.

**Case 186.** A 49-year-old man ingested an unknown **organophosphate** and was found incontinent of urine and stool at home. He had a grand mal seizure and became apneic upon arrival of emergency medical services (EMS). The ED physical findings included diaphoresis, miosis, salivation, obtundation, muscle fasciculations, and a heart rate of 30 beats/min. He was given atropine 2 mg every 15 minutes, pralidoxime (1 g twice followed by a 500 mg/h drip), and activated charcoal via a nasogastric tube. The patient was initially hypertensive with a systolic blood pressure of 250 mm Hg but subsequently developed hypotension. Dopamine was administered and the patient was continued on atropine and pralidoxime infusions. He developed hyperthermia with a rectal temperature of 41.4°C and was treated with cooling blankets. A plasma cholinesterase level was <1.0 U/mL. He developed hemodynamic instability and died approximately 14 hours after presentation.

**Case 193.** A 61-year-old woman presented with acute hepatic failure of unclear etiology. An acetaminophen concentration was 0 μg/mL. She became hypotensive with a bleeding diathesis and expired 1 day after presentation. Subsequently, the family provided a history of her making an herbal tea which she shared with a friend. The friend died several weeks earlier from acute hepatic failure. The plant was later identified as **Xanthorhiza simplicissima (yellow root)**. Liver biopsy revealed massive hepatic necrosis.

**Case 240.** A 38-year-old woman presented with a history of nausea and vomiting and admitted to taking 10 to 14 tablets of **acetaminophen** (500 mg/tab) daily for several days. Her past medical history included alcoholic liver disease but current **ethanol** intake was unknown. Initial laboratory results showed: AST, 13,500 U/L; PT, 100 sec; and international normalized ratio (INR), 11. Her plasma acetaminophen concentration was 27 μg/mL an unknown time after the last dose. Over the next 24 hours the patient received N-acetylcysteine via nasogastric tube but became encephalopathic and unresponsive. Her ammonia concentration reached 520 μg/dL and she expired.

**Case 245.** A 25-year-old man with a history of alcohol abuse ingested **acetaminophen** (57 g), **ibuprofen** (20 g), **ferrous sulfate** (22 g), and an unknown amount of ethanol. He was alert with no gastrointestinal symptoms. Vital signs were: heart rate, 100 beats/min; blood pressure, 150/56 mm Hg; respiratory rate, 20 breaths/min; and afebrile. He was treated with activated charcoal orally and

IV fluids. Radiopaque pills were identified on radiograph and his initial laboratory values included: pH, 7.31; $P_{CO_2}$, 36 mm Hg; potassium, 3.5 mEq/L; bicarbonate, 21 mEq/L; creatinine, 0.7 mg/dL; 4-hour post ingestion acetaminophen concentration, 142 μg/mL; and serum iron concentration, 279 μg/dL. Oral N-acetylcysteine therapy was begun which he tolerated well, but missed 3 doses during the first day. Approximately 36 hours post ingestion he became comatose and required endotracheal intubation. Liver function tests were: AST, 13,813 U/L; ALT, 6,882 U/L; alkaline phosphatase, 204 U/L; and bilirubin, 4 mg/dL. Arterial blood gas was: pH, 6.87; $P_{CO_2}$, 16 mm Hg; $P_{O_2}$, 178 mm Hg; and bicarbonate, 18 mEq/L. Coagulation studies revealed PT, >60 sec; and partial thromboplastin time (PTT), 104 sec. The patient received fresh frozen plasma and packed red blood cells, but despite aggressive treatment he never regained consciousness and expired 3 days post ingestion from fulminant hepatic failure.

**Case 271.** A 41-year-old woman ingested an unknown amount of **acetaminophen** formulated with **diphenhydramine** and automatic **dishwasher detergent tablets (alkaline corrosive)**. The patient was found unresponsive and her initial laboratory values were: acetaminophen, 845 μg/mL at less than 12 hours post ingestion; salicylate, <5 mg/dL; AST, 450 U/L; ALT, 307 U/L; PT, 13.0 sec; arterial pH, 7.10; $P_{CO_2}$, 25 mm Hg; $P_{O_2}$, 600 mm Hg; and bicarbonate, 11 mEq/L. Vital signs were: systolic blood pressure, 120 mm Hg; and heart rate, 125 beats/min. She was given N-acetylcysteine and ethanol infusions. Endoscopy revealed superficial esophageal inflammation. The patient subsequently developed adult respiratory distress syndrome and required vasopressor support for hypotension. The patient's cardiac and respiratory status continued to deteriorate until her death.

**Case 319.** A 22-year-old woman ingested 100 tablets of 325 mg **aspirin** (738 mg/kg) 2.5 hours prior to presentation. In the ED she was alert with blood pressure, 126/80 mm Hg; heart rate, 130 beats/min; respiratory rate, 24 breaths/min; and afebrile. Initial laboratory results were: sodium, 141 mEq/L; potassium, 4.8 mEq/L; chloride, 113 mEq/L; $CO_2$, 14 mEq/L; glucose, 123 mg/dL; BUN, 8.3 mg/dL; creatinine, 0.5 mg/dL; calcium, 7.9 mg/dL; magnesium, 2.6 mg/dL; AST, 27 U/L; PT, 13.5 sec; PTT, 33.2 sec; pH, 7.37; $P_{O_2}$, 116 mm Hg; $P_{CO_2}$, 24 mm Hg; and urine pH, 5.5. Her salicylate concentration was 118 mg/dL at 2.5 hours post ingestion. Blood ethanol was 36.2 mg/dL and serum acetaminophen concentration was negative. At 6 hours post ingestion the salicylate concentration was 103.6 mg/dL; blood pH, 7.47; $P_{O_2}$, 106 mm Hg; and $P_{CO_2}$, 25 mm Hg on 35% supplemental oxygen. The patient was confused with a blood pressure of 139/107 mm Hg and afebrile. At 12 hours post ingestion the patient became unresponsive, requiring intubation which delayed emergency hemodialysis. She developed noncardiogenic pulmonary edema and underwent hemodialysis which was terminated after 3 hours because of hemodynamic instability. She subsequently sustained a cardiopulmonary arrest and expired approximately 16 hours after ingestion.

**Case 321.** A 36-year-old man ingested approximately 200 **aspirin** tablets over a 12-hour period. Upon arrival to the ED he was diaphoretic with a systolic blood pressure of 130 mm Hg; heart rate, 140 beats/minute; and respiratory rate, 22 breaths/minute. His serum salicylate concentration was 54.7 mg/dL; potassium, 3.6 mEq/L; bicarbonate, 19 mEq/L; and glucose, 116 mg/dL. Arterial blood gas was pH, 7.46; $P_{O_2}$, 92 mm Hg; and $P_{CO_2}$, 23 mm Hg. He was admitted to the intensive care unit where a repeat salicylate concentration was 98.2 mg/dL, and his temperature was 39.8°C. He was placed on a cooling blanket and given ondansetron for repeated vomiting. A hemodialysis catheter was placed, however, the patient developed ventricular tachycardia and expired before dialysis could be initiated.

**Case 348.** A 50-year-old man ingested 50 **colchicine** 0.6 mg tablets and 8 **oxycodone** tablets. He began vomiting 3 hours after the ingestion and presented to an ED 24 hours after the ingestion. He was hypotensive and developed tachypnea and decreased urinary output over the next 6 hours. His urine output dropped to 5 mL/hr despite adequate hydration. He rapidly became acidotic and had a cardiac arrest 42 hours post ingestion.

**Case 381.** A 2-year-old boy ingested an unknown quantity of **phenylbutazone** 100 mg tablets 3 hours prior to arrival in the ED. His heart rate was 120 beats/min; respiratory rate, 20 breaths/min; and blood pressure, 94/59 mm Hg. He experienced 2 seizures which were treated with diazepam. Several hours later he began exhibiting posturing movements. He was intubated and eventually required epinephrine to maintain a systolic blood pressure of 90 mm Hg. Frequent seizures ensued despite treatment with phenytoin and diazepam. He developed a coagulopathy (PT 35 sec, PTT 50 sec) and metabolic acidosis. He had a cardiac arrest 3 days after the ingestion.

**Case 393.** A 47-year-old male health care professional with a history of diabetes mellitus and drug abuse was noted to be lethargic at home. His wife later found him cyanotic and unresponsive and initiated CPR. His bed was soaked in **ether** and another can of ether was found in the back yard. He presented in full cardiac arrest to the hospital and was resuscitated. Upon admission he had nonreactive pupils; heart rate, 120 beats/min; blood pressure, 200/100 mm Hg; glucose, 344 mg/dL; pH, 7.05; $P_{CO_2}$, 49 mm Hg; BUN, 21 mg/dL; creatinine, 1.5 mg/dL; and creatine kinase, 33 U/L. The patient received intravenous bicarbonate for acidosis. The next day a CT of the head showed diffuse cerebral edema and he was started on dexamethasone. He remained unresponsive and required nitroprusside infusion for hypertension and verapamil for supraventricular tachycardia. Urine toxicology screen was negative. On the third hospital day brain death was diagnosed by electroencephalogram (EEG), life support was removed, and he expired. Autopsy revealed anoxic encephalomalacia secondary to acute ether intoxication.

**Case 404.** A 2-year-old boy with history of seizure disorder was admitted to the intensive care unit in status epilepticus and metabolic acidosis. He received lorazepam and **fosphenytoin** IV. Shortly after the administration of the fosphenytoin, he went into ventricular tachycardia followed by ventricular fibrillation and cardiac arrest. He was resuscitated and required a vasopressor infusion to maintain a systolic blood pressure of 70 to 80 mm Hg. The child continued to be profoundly hypotensive despite multiple vasopressors and expired 18 hours after the exposure. It was discovered that the patient received 3 10 mL vials of fosphenytoin (1500 mg phenytoin Eq) instead of 3 mL of fosphenytoin (150 mg phenytoin equivalent). His phenytoin level was greater than 72 μg/mL, declining to 40 μg/mL after multiple doses of activated charcoal prior to his death.

**Case 406.** A 17-year-old man allegedly ingested an unknown number of **valproic acid** 500 mg tablets, gabapentin 300 mg tablets, and nefazodone 100 mg tablets. One hour after ingestion he was lethargic with a blood pressure of 140/70 mm Hg; heart rate, 98 beats/min; respiratory rate, 24 breaths/min; and temperature, 37.0°C. Glasgow Coma Score was 13. He rapidly deteriorated, was endotracheally intubated, and underwent gastric lavage and received activated charcoal. Subsequent serum valproic acid concentration was 2,250 μg/mL. A post hemodialysis valproic acid concentration was 730 μg/mL. The gabapentin concentration was 16.0 μg/mL; nefazodone was undetectable. The patient developed refractory hypotension and expired approximately 54 hours after presentation.

**Case 407.** A 58-year-old man with a history of dementia and congestive heart failure was taking **valproic acid** and **amiodarone** chronically. He began complaining of nausea and vomiting and was transferred from a psychiatric facility to a hospital with the following labs: AST, 1,738 U/L; ALT, 1,639 U/L; INR, 2.8; valproic acid concentration, 134.4 μg/mL; and platelet count, 39,000/μL. The patient developed fulminant hepatic failure and subsequent renal failure. He was not a candidate for liver transplantation and died 6 days after admission.

**Case 433.** A 47-year-old woman was found unresponsive following an overdose of **amitriptyline, cyclobenzaprine,** and

**benzodiazepines.** At the hospital she had a Glasgow Coma Score of 3, was intubated, and received activated charcoal. Her bicarbonate concentration was 20 mEq/L and the QRS interval was 104 msec on her initial electrocardiogram (ECG). Her drug screen was positive for tricyclic antidepressants and benzodiazepines. The patient remained stable over the next 24 hours and began to awaken and was making purposeful movements. Approximately 38 hours after ingestion, the patient experienced an acute tonic clonic seizure and ventricular tachycardia. Resuscitation efforts included lidocaine, cardioversion, diazepam, epinephrine, magnesium, bicarbonate, potassium, thiamine, and a pacemaker, but were unsuccessful.

**Case 449.** A 28-year-old man with a history of **ethanol** abuse ingested 9 grams of **bupropion.** He had 2 generalized tonic clonic seizures at home, vomited and aspirated. He had another seizure upon arrival to the ED and was given lorazepam and phenytoin IV. Shortly after arrival, he developed bradycardia and then cardiac arrest. He was resuscitated and admitted to the ICU. A chest radiograph showed a left lower lobe infiltrate and a head CT scan was normal. Initial potassium was 4.3 mEq/L; total creatine kinase, 92 U/L; AST, 18 U/L; and amylase, 62 U/L. He became hypotensive and was managed with dopamine, norepinephrine, and epinephrine. Twenty-four hours after admission the patient was unresponsive with a Glasgow Coma Score of 3. No brain wave activity was detected. Life support measures were discontinued approximately 40 hours after the overdose. Autopsy revealed aspiration pneumonia, hemorrhagic gastritis, and ischemic colon.

**Case 451.** A 2-year-old girl reportedly ingested 20 to 25 tablets of 50 mg **desipramine.** She vomited at home and the mother drove the child by private automobile to the ED. During transport the child became apneic and unresponsive and the car was stopped and bystanders began CPR. Paramedics found the child pulseless and apneic and the cardiac monitor revealed asystole. She received advanced cardiac life support and was transported to the ED where continued resuscitation efforts were unsuccessful and she died. Post mortem blood desipramine concentration was 3,900 ng/mL.

**Case 499.** A 34-year-old man was found unresponsive with pill bottles of **tranylcypromine** and **clonazepam.** He was intubated by prehospital personnel and presented to the ED with fixed and dilated pupils, blood pressure, 95/35 mm Hg; heart rate, 158 beats/min; respiratory rate, 32 breaths/min; and temperature, 42.2°C, rectally. He demonstrated diffuse muscle rigidity and flushing. His serum potassium was 6.4 mEq/L and creatine kinase was elevated consistent with rhabdomyolysis. Activated charcoal was administered. Electrocardiogram showed sinus tachycardia and CT scan of the head was negative for intracranial hemorrhage. His temperature was reduced with cool mist fans and muscular rigidity was reduced with neuromuscular blocking agents and dantrolene. Cardiovascular shock and renal failure developed on the second hospital day and the hypotension was refractory to intravenous fluids and vasopressors. He died on the third hospital day. Autopsy indicated pulmonary and cerebral edema.

**Case 501.** A 69-year-old woman ingested unknown quantities of **tranylcypromine** and **fluoxetine.** Upon presentation she was lethargic and afebrile with a blood pressure of 187/113 mm Hg. Within 7 hours of admission, her temperature rose to 42.2°C and an electrocardiogram revealed sinus tachycardia with peaked T-waves. She was intubated and developed arrhythmias which were treated with labetalol, lidocaine, dopamine, and cardioversion. On the second hospital day she developed renal failure and rhabdomyolysis. Muscle rigidity and tremor were observed and treated with phenytoin. She remained unresponsive and her temperature continued to fluctuate despite cooling blankets and ice water lavage. The patient expired on the third hospital day due to serotonin syndrome.

**Case 514.** A 19-year-old man with a history of Wolff-Parkinson-White syndrome was found post-ictal at home after ingesting 180 tablets of 75 mg **venlafaxine.** He had a seizure en route to the ED and was given diazepam. His blood pressure was 132/62 mm Hg, and heart rate, 170 beats/min which decreased to 130 beats/min after diazepam. The urine toxicology screen was negative; glucose, 85 mg/dL; anion gap, 12 mEq/L; creatine kinase, 4,646 U/L; pH, 7.27; $P_{CO_2}$, 49 mm Hg; and $P_{O_2}$, 155 mm Hg. The next day the patient developed ventricular tachycardia. He was resuscitated and started on dopamine and phenylephrine for hypotension, but then expired on the second hospital day.

**Case 529.** An 8-year-old girl was given more than 65 mL of **rimantadine suspension** (50 mg/5mL) over a 24 hour period. The child was dead on arrival to the ED and the medical examiner determined the death was secondary to a rimantadine overdose with pulmonary edema.

**Case 534.** A 65-year-old woman presented to the ED complaining of nausea, dyspnea, and nasal congestion of 1 to 2 days duration. Her past medical history was significant for asthma for which she was recently started on **theophylline** 200 mg 3 times daily. She admitted to taking extra theophylline over the past 2 days due to progressive shortness of breath. Shortly after presentation, she developed focal left-sided facial and left arm seizures which became generalized. Her heart rate increased from 110 beats/min to 220 beats/min. Her initial theophylline concentration was 39 μg/mL. She was intubated, mechanically ventilated, and given activated charcoal. She subsequently received intravenous phenobarbital and benzodiazepines with poor control of her seizures. She was given intravenous esmolol which decreased her heart rate to 140 beats/min. The theophylline concentration 4 hours after presentation was 55 μg/mL. She had a bradycardic arrest in the ICU and was resuscitated with atropine and discontinuation of the esmolol drip. She underwent hemodialysis and hemoperfusion 8 hours after presentation with a pretreatment theophylline concentration of 42 μg/mL and a post treatment theophylline concentration of 5.9 μg/mL. Her focal seizure activity was controlled with IV thiopental and propofol. EEG testing on the second hospital day indicated nonconvulsive status epilepticus. The cerebrospinal fluid (CSF) fluid analysis was normal. Serum and urine drug screens were positive for barbiturates and benzodiazepine only. She died on the third hospital day.

**Case 539.** A 69-year-old woman who was taking **theophylline** for asthma presented because of seizure activity. She was intubated and placed on a mechanical ventilator and given lorazepam for seizure control. Her initial theophylline concentration was 60 μg/mL. Vital signs were: heart rate, 106 beats/min; and blood pressure, 104/70 mm Hg. Activated charcoal was administered via a nasogastric tube. The patient continued to have intermittent seizure activity which was treated with further doses of lorazepam. Additional labs included: BUN, 48 mg/dL; creatinine, 3.5 mg/dL; and an arterial blood pH, 7.27. There was no history of acute overdose. The patient was transferred to another hospital for charcoal hemoperfusion which was performed approximately 10.5 hours after initial presentation. On the second hospital day her mental status had improved. Digoxin was administered for atrial fibrillation and lidocaine for occasional episodes of ventricular tachycardia. Her theophylline concentration was 12.9 μg/mL. Despite supportive care, the patient could not be weaned off the ventilator and she expired on the third hospital day.

**Case 546.** A 41-year-old paraplegic woman with a history of ventricular arrhythmias presented to the ED approximately 30 minutes after ingesting 20, 200 mg **acebutolol** tablets. Initial vital signs were: heart rate, 56 beats/min; and blood pressure, 50 mm Hg/palpable. Her initial ECG showed a QTc interval of 502 msec. Laboratory studies revealed an acetaminophen concentration less than 10 μg/mL; salicylates, less than 2 mg/dL; ethanol, 170 mg/dL; and a urine drug screen positive for benzodiazepines and opiates. The patient received intravenous glucagon 7 mg, 4 ampules of calcium chloride, 5 units of insulin, 2 ampules of $D_{50}W$, and 2 ampules of sodium bicarbonate, but expired 2.5 hours after the ingestion.

**Case 560.** A 75-year-old woman with a history of metastatic colon cancer and renal failure was started on **digoxin** 2 weeks prior to admission. She arrived in the ED alert, in atrial fibrillation with a

wide QRS complex. Her systolic blood pressure was 80 mm Hg; serum potassium, 6.1 mEq/L; and digoxin concentration, 6.8 ng/mL. She received a 500 mL bolus of intravenous fluid and 2 vials of digoxin-specific fab fragments with improvement in her blood pressure. Five hours after admission her heart rate was 90 to 100 beats/min; serum potassium, 7.7 mEq/L; and QRS interval was narrow on the ECG. She was administered intravenous $D_{50}W$, insulin, and sodium bicarbonate, with a subsequent serum potassium of 7.0 mEq/L. She was also started on sodium polystyrene sulfonate enemas. Twelve hours after admission, her total digoxin concentration was 13 ng/mL and serum potassium 6.5 mEq/L. Her blood pressure was 120/60 mm Hg and her heart rate was 85 beats/min. By 32 hours after admission, she was lethargic. Total digoxin concentration was 3.3 ng/mL; and serum potassium, 5.8 mEq/L. Subsequently her blood pressure decreased to 78/57 mm Hg with heart rate, 113 beats/min. She continued to be hypotensive and expired on the seventh hospital day.

**Case 575.** A 48-year-old woman reportedly ingested 15 **digoxin** 0.25 mg tablets and 1,500 mg of **disopyramide.** She arrived in the ED 5 hours after the ingestion, alert with blood pressure, 88/49 mm Hg; heart rate, 40 beats/min; and junctional rhythm on the cardiac monitor. She underwent gastric lavage and received a loading dose of activated charcoal. She was intubated and started on a dopamine infusion resulting in a blood pressure of 115/57 mm Hg. The 5-hour post ingestion digoxin concentration was 7 ng/mL and a total of 7 vials of digoxin-specific fab fragments were administered without effect. Over the next several hours the patient had 4 episodes of ventricular tachycardia, was cardioverted and given a loading dose of lidocaine, and had a temporary pacemaker inserted. Episodes of bradycardia were treated with magnesium sulfate. The patient had several episodes of resuscitated cardiac arrest but expired 15 hours after presentation despite maximal doses of dopamine, dobutamine, norepinephrine, and a total of 8 vials of digoxin-specific fab fragments.

**Case 578.** A 22-year-old man ingested an unknown number of **diltiazem** (long-acting, 180 mg) tablets, 2 hours prior to arrival in the ED. His systolic blood pressure was 70 mm Hg and cardiac monitor revealed a wide complex idioventricular rhythm with a rate of 30 beats/min. The patient was endotracheally intubated and received intravenous naloxone 2 mg, calcium chloride 2 gm, and epinephrine. There was no response to this therapy, and a transvenous pacemaker was placed with good capture at a heart rate of 100 beats/min. Additional calcium was given to achieve an ionized calcium of 3 times normal. He also received glucagon 10 mg and high dose epinephrine with no response. An intravenous bolus of regular insulin 1 U/kg followed by a 1 U/kg/hr infusion for 2 hours was administered but the patient continued to demonstrate hyperglycemia (glucose 800 mg/dL) and refractory metabolic acidosis. The patient expired 8 hours after ingestion.

**Case 588.** A 69-year-old woman ingested **enalapril, temazepam,** and **alprazolam,** and presented 4 hours later drowsy and hypotensive. She was given a dose of flumazenil with some improvement in mental status. She required dopamine to maintain her blood pressure and was admitted to the ICU. She became unresponsive despite flumazenil and had episodes of bigeminy and trigeminy. The following day she developed ventricular tachycardia and was resuscitated but expired later that day despite supportive care.

**Case 591.** A 79-year-old woman with hypertension was taking **mibefradil** 100 mg and a long-acting **propranolol** 160 mg preparation daily. Her mibefradil was changed to **nifedipine** 60 mg and 1 hour after her first dose she collapsed at home and presented to the ED with a systolic blood pressure of 60 mm Hg and heart rate of 40 beats/min. She had also taken mibefradil and propranolol earlier that day. She received IV fluids, calcium, dopamine infusion, and norepinephrine infusion with improvement of systolic blood pressure to the 90 to 100 mm Hg range. Cardiac monitor revealed a junctional rhythm at 55 beats/min and she received atropine and calcium without change in the rhythm. The patient received 1 mg of glucagon approximately 12 hours after presentation when her blood pressure and heart rate continued to decline. Several minutes after the initial dose of glucagon, her cardiac rhythm changed from junctional bradycardia to asystole. Resuscitation was unsuccessful and autopsy revealed a normal heart without evidence of myocardial infarction or pulmonary embolism.

**Case 598.** A 2-year-old boy was brought to the ED by his parents stating he may have ingested ½ tablet of **propranolol** extended release 160 mg. The patient was comatose and seizing with systolic blood pressure, 70 mm Hg; heart rate, 157 beats/min; and respiratory rate, 38 breaths/min. Initial laboratory results revealed: blood glucose, 6 mg/dL; lactate, 2 mg/dL; arterial pH, 7.26; $P_{CO_2}$, 24 mm Hg; and $P_{O_2}$, 284 mm Hg on 100% oxygen. Hypoglycemia was treated with 20% dextrose and seizures were treated with intravenous lorazepam. CT scan of the brain showed diffuse cerebral edema. The patient also received glucagon 1 mg and continuous glucose infusion. A repeat glucose was 284 mg/dL. The patient died from cerebral edema 2½ days after admission. A propranolol concentration was <100 μg/mL and analysis of C-peptide and **insulin** levels was "inconclusive."

**Case 635.** A 33-year-old woman ingested an unknown amount of **baking soda** and **zolpidem.** Several hours later she presented to an ED seizing and febrile with a heart rate of 130 beats/min. Her serum sodium was 174 mEq/L; potassium, 2.4 mEq/L; chloride, 112 mEq/L; bicarbonate, 39 mEq/L; and glucose, 48 mg/dL. She was given a benzodiazepine, phenobarbital, and pyridoxine (5 g) intravenously for seizure activity. A CT scan of the head showed brain stem herniation and she was declared brain dead 6 hours after admission.

**Case 637.** A 92-year-old man with metastatic prostate carcinoma had been taking large amounts of **magnesium hydroxide** for constipation. He presented to the ED unresponsive and flaccid, with a blood pressure of 95/55 mm Hg. His serum magnesium was 10 mEq/L; BUN, 32 mg/dL; and creatinine, 1.3 mg/dL. He had previously requested no heroic life saving measures and subsequently experienced a cardiopulmonary arrest and died.

**Case 648.** A 69-year-old woman ingested approximately 15 mL of **aconite** solution which had been prescribed in 1961. Upon presentation she was lethargic and had normal vital signs. During evaluation in the ED, she developed ventricular tachycardia followed by ventricular fibrillation and pulseless electrical activity. The patient did not respond to advanced cardiac life support (ACLS) and was pronounced dead 42 minutes after presentation.

**Case 649.** A 27-year-old man had been ingesting **gamma hydroxybutyrate (GHB)** on a daily basis for several months. After ingesting approximately one half cup of GHB, he became unresponsive in 5 minutes and could not be aroused for 2 hours. Paramedics were called and arrived 2.5 hours after the ingestion. The patient was pulseless and apneic with pulseless electrical activity on the cardiac monitor. He was transported to an ED where he could not be resuscitated. Autopsy revealed left ventricular hypertrophy; blood GHB concentration, 2,900 μg/mL; urine GHB concentration, 27,000 μg/mL; and blood **methamphetamine** concentration, 0.12 μg/mL. The heart weighed 500 g and the left ventricle measured 1.7 to 2.0 cm in thickness.

**Case 652.** A 65-year-old man on imipramine, amitriptyline, and phenytoin collapsed in the shower at home after taking a dose of **sildenafil.** In the ED he complained of visual changes and was hypotensive with a heart rate of 140 beats/min. IV fluids and vasopressors were started with no improvement in blood pressure. He was admitted to the intensive care unit with continued vasopressor therapy but died 5 hours after admission.

**Case 653.** A 27-year-old man jumped off a bridge onto a car and was being treated for multiple fractures and respiratory decompensation. He was intubated using **succinylcholine.** He subsequently developed whole body rigidity, fever, and rhabdomyolysis. He was treated with dantrolene which temporarily decreased

the rigidity for 30 minutes. The patient was given dantrolene every 6 hours. He remained persistently acidotic and expired 48 hours after the succinylcholine was administered.

**Case 662.** An 88-year-old man with a history of dementia was chronically taking **buspirone. Trazodone** was added to his medication regimen and several days later he developed altered mental status, rigidity, and rhabdomyolysis. There was no history of overdose and infectious disease and neurological evaluations were negative. He was diagnosed with "central serotonin syndrome." Palliative care was provided and he died approximately 36 hours after presentation.

**Case 669.** A 64-year-old man who had previously been exposed to oral and intramuscular **fluphenazine** became unresponsive with fixed pupils and developed hypothermia approximately 24 hours after receiving intramuscular fluphenazine. The initial vital signs were: blood pressure, 170/80 mm Hg; heart rate, 123 beats/min; and respiratory rate, 27 breaths/min. A CT scan of the head and lumbar puncture were negative for intracranial hemorrhage. Initial laboratory revealed: sodium, 144 mEq/L; potassium, 4.8 mEq/L; chloride, 110 mEq/L; BUN, 58 mg/dL; creatinine, 2.9 mg/dL; glucose, 300 mg/dL; bicarbonate, 13.6 mEq/L; and creatine kinase, 4,924 U/L. Dantrolene, intravenous fluids, external cooling, and benzodiazepines were administered. Despite this therapy, rhabdomyolysis ensued and the platelet count decreased to 24,000/μL. The patient remained unresponsive and hyperthermic and expired 22 days after admission from neuroleptic malignant syndrome.

**Case 677.** A 38-year-old man ingested an unknown amount of **olanzapine** in a suicide attempt. His regular medications included olanzapine and naproxen. The patient presented to an ED with heart rate, 142 beats/min; and blood pressure, 176/63 mm Hg. Gastric lavage was performed and activated charcoal was administered. Four hours after presentation vital signs were: heart rate, 100 beats/min; blood pressure, 70/46 mm Hg; and temperature, 41.6°C. He became comatose and required endotracheal intubation. CT of the brain suggested intracranial hemorrhage. The patient was placed on a cooling blanket. Serum glucose was 1,616 mg/dL, anion gap, 17 mEq/L; acetone, negative; serum bicarbonate, 20 mEq/L; creatinine, 1.8 mg/dL; potassium, 2.6 mEq/L; creatine kinase, 323 U/L; amylase, 35 U/L; AST, 15 U/L; ALT, 41 U/L, and bilirubin, 0.6 mg/dL. Serum salicylate, acetaminophen, and lithium concentrations were negative as was urine drug screen testing for drugs of abuse. He was admitted to the intensive care unit where he expired 3 hours later. Autopsy confirmed the diagnosis of cerebral hemorrhage.

**Case 679.** A 35-year-old man was chronically taking **olanzapine** 10 mg twice a day when he took one **paroxetine** 20 mg tablet at bedtime. He subsequently developed altered mental status, tremors, extreme muscle rigidity and a temperature of 41.2°C. His blood pressure was 118/60 mm Hg; heart rate, 140 beats/min; and respiratory rate, 20 breaths/min. The patient was "packed in ice" and activated charcoal was administered by nasogastric tube. His rigidity did not respond to 6 mg of lorazepam and 240 mg of dantrolene. The patient's temperature rose to 108°F and he became hypotensive. Six hours after admission his PT was greater than 30 sec and he was bleeding from intravenous access sites. His blood pressure continued to decrease and required high doses of norepinephrine. The patient expired from refractory hypotension and bleeding approximately 15 hours after admission.

**Case 686.** A 74-year-old woman presented to the ED 48 hours after ingesting **temazepam** in a suicide attempt. Significant central nervous system (CNS) depression, hypoxia, tachycardia, and hypotension were reported. The toxicology screen was positive only for benzodiazepines and negative for acetaminophen and salicylates. The patient received multiple doses of flumazenil, IV fluids, and supplemental oxygen. Approximately 21 hours after presentation, she developed asystole and was not resuscitated due to a terminal cancer diagnosis.

**Case 720.** A 40-year-old man inhaled ¼ gram of crack **cocaine** and ingested **ethanol** (4 beers) then presented to the ED complaining of chest pain. He was diaphoretic, lethargic, and ashen upon arrival. His initial vital signs were: heart rate, 124 beats/min; blood pressure, 180/110 mm Hg; and oxygen saturation by pulse oximeter, 92%. Cardiac monitor showed atrial fibrillation with ST segment elevations. Within several minutes the patient developed pulseless ventricular tachycardia. He was cardioverted and regained consciousness with restoration of the original rhythm. He received intravenous lidocaine 100 mg bolus followed by an infusion of 2 mg/min. He developed a second episode of ventricular tachycardia, again responding to cardioversion. He received a loading dose and maintenance infusion of bretylium. Responsiveness decreased and he was intubated. Cardiac rhythm deteriorated to ventricular fibrillation which was unresponsive to epinephrine, procainamide, magnesium, benzodiazepine, atropine, and defibrillation. Laboratory studies were remarkable for creatine kinase, 126 U/L (MB fraction 1.4%); troponin-I, <0.2 ng/mL; and myoglobin, 313 μg/L. Drug screens were positive for cocaine only. Autopsy revealed severe pulmonary edema.

**Case 722.** A 22-year-old woman was found seizing and unresponsive at home. She attended a night club the previous evening where she used Ecstasy (**methylenedioxymethamphetamine**). On presentation to the ED she had a heart rate of 140 beats/min and a temperature of 42.2°C. She was intubated for respiratory distress, aggressively cooled, and given IV fluids and vasopressors for hypotension. A CT scan of the head revealed a massive intracranial hemorrhage. She subsequently developed severe metabolic acidosis and disseminated intravascular coagulation. Brain death was diagnosed and her organs were harvested for transplant.

**Case 744.** A 33-year-old man had a syncopal episode at an airport and was brought to the hospital unconscious. He was noted to have pinpoint pupils and was begun on a naloxone intravenous infusion. His urine was positive for opiates. Approximately 10 hours after arrival, he aspirated and had a cardiac arrest. Chest radiograph showed bilateral infiltrates consistent with aspiration or adult respiratory distress syndrome (ARDS). Resuscitation was unsuccessful and autopsy revealed cardiomegaly, pulmonary edema, hepatomegaly, and 337 g of drug in wrappings within the stomach. Morphine and 6-mono-acetyl-morphine were detected in his blood and stomach, supporting a diagnosis of **heroin** body-packing.

**Case 763.** A 39-year-old man with a history of **methamphetamine** abuse was acting violently on the street and chased by police when he collapsed and became unresponsive. In the ED, his temperature exceeded 42.2°C. He was intubated and placed on a ventilator. Electrocardiogram revealed ST segment depression in lateral leads. Serum pH was 7.25. Aggressive cooling measures were initiated, but the patient's temperature remained between 41.1 to 42.2°C. The patient subsequently developed disseminated intravascular coagulation which did not reverse with aggressive therapy. Right jugular venous catheterization was complicated by tension pneumothorax and hemorrhage in the neck and mediastinum. He expired on the second hospital day.

**Case 770.** A 16-year-old woman took some pills thought to be "Mexican diet pills." Shortly after the exposure, she began "acting strange" and complained of intense thirst. The patient ingested an estimated 3 L of water and was noted to be "foaming at the mouth." She continued to deteriorate over the next 2 hours and suffered a cardiac arrest. She was resuscitated and brought to the ED where a chest radiograph revealed pulmonary edema and a CT scan of the head revealed cerebral edema. Her sodium concentration was 121 mEq/L and potassium 2.1 mEq/L. Her toxicology screen was positive for amphetamines. The patient died approximately 21 hours after arriving at the hospital. The product was presumed to contain **methylenedioxymethamphetamine.**