Toxicology

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

2002 Annual Report of the American Association of Poison Control Centers Toxic Exposure Surveillance System

WILLIAM A. WATSON, PHARMD, TOBY L. LITOVITZ, MD, GEORGE C. RODGERS, JR, MD, PHD, WENDY KLEIN-SCHWARTZ, PHARMD, MPH, JESSICA YOUNISS, MBA, S. RUTHERFOORD ROSE, PHARMD, DOUGLAS BORYS, RPH, MARY E. MAY, BA, MPH

Toxic Exposure Surveillance System (TESS) data are compiled by the American Association of Poison Control Centers (AAPCC) on behalf 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 1A).[1-19]

The cumulative AAPCC database now contains 33.8 million human poison exposure cases. This report includes 2,380,028 human exposure cases reported by 64 participating poison centers during 2002, an increase of 4.9% compared to 2001 poisoning reports.

The American Association of Poison Control Centers gratefully acknowledges the generous financial contribution of McNeil Consumer and Specialty Pharmaceuticals in support of the compilation and production of this report.

US poison centers make possible the compilation and reporting of this comprehensive description of human exposures to potentially toxic substances through their meticulous documentation of each case using standardized definitions and compatible computer systems. Centers participating in this report include Regional Poison Control Center, Birmingham, AL; Alabama Poison Center, Tuscaloosa, AL; Arizona Poison and Drug Information Center, Tucson, AZ; Banner Poison Control Center, Phoenix, AZ; Arkansas Poison and Drug Information Center, Little Rock, AR; California Poison Control System—Fresno/Madera 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 Center, Tampa, FL; Florida Poison Information Center, Jacksonville, FL; Florida Poison Information Center, Miami, FL; Georgia Poison Center, Atlanta, GA; Illinois Poison Center, Chicago, IL; Indiana Poison Center, Indianapolis, IN; Iowa Statewide Poison Control 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; Northern New England Poison Center, Portland, ME; Maryland Poison Center, Baltimore, MD; Regional Center for Poison Control and Prevention Serving Massachusetts and Rhode Island, Boston, MA; Children's Hospital of Michigan Regional Poison Control Center, Detroit, MI; DeVos Children's Hospital Regional Poison Center, Grand Rapids, MI; Hennepin Regional Poison Center, Minneapolis, MN; Mississippi Regional Poison Control Center, Jackson, MS; Missouri 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; Long Island Regional Poison and Drug Information Center, Mineola, NY; Finger Lakes Regional Poison and Drug Information Center, Rochester, NY; Central New York Poison Center, Syracuse, NY; Western New York Poison Center, Buffalo, NY; Carolinas Poison Center, Charlotte, NC; 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; Penn State Poison Center, Hershey, PA; San Jorge Children's Hospital Poison Center, Santurce, PR; Palmetto Poison Center, Columbia, SC; Middle Tennessee Poison 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; and Children's Hospital of Wisconsin Poison Center, Milwaukee, WI.

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TABLE 1A. 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
1999	64	260.9	2,201,156	8.4
2000	63	270.6	2,168,248	8.0
2001	64	281.3	2,267,979	8.1
2002	64	291.6	2,380,028	8.2
Total			33,820,996	

CHARACTERIZATION OF PARTICIPATING CENTERS

Of the 64 reporting centers, 63 submitted data for the entire year. Fifty-two of the 64 participating centers were certified as regional poison centers by the AAPCC at the end of 2002. The annual human exposure case volume by center ranged from 11,473 to 104,507 (mean 37,756) for centers participating for the entire year. Penetrance, calculated for states that were served for the entire year by centers participating in TESS, ranged from 6.2 to 16.0 exposures per 1,000 population with a mean of 8.2 reported exposures per 1,000 population. Penetrance is defined as the number of human poison exposure cases reported per 1,000 individuals per year in the population served.

A total population of 291.6 million was served by the participating centers, including 49 entire states (all except North Dakota), the District of Columbia and Puerto Rico. Focusing on the population of the 50 states and DC, a total of 287.7 million of this 288.4 million population were served (99.8%). 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 16.0 poisonings/1,000 population reported for one state, 4.6 million poisonings would have been reported to poison centers in 2002. Although this report focuses on the human exposure cases reported to TESS in 2002, the database also contains data (not presented here) on animal poison exposures (130,010 cases, mostly pets), human confirmed nonexposures (7,239), animal confirmed nonexposures (453), and information calls (1,110,635). An additional 4,605 duplicate reports were excluded (cases reported to more than one participating poison center). This total of 3,632,974 cases and information calls reported to TESS in 2002 does not reflect the full extent of poison center effort. Nearly 2.6 million follow-up calls were placed by poison centers during the year to provide further patient guidance, confirm compliance with recommendations, and gather final outcome data. Follow-ups were done in 44% of human exposure cases. One follow-up call was made in 22% of cases; and multiple follow-up calls (range 2 to 97) were placed in 22% of cases.

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. Comparison of data from the 44 states that participated for the entirety of both 2001 and 2002 shows an increase of 2.9% in the number of reported poison exposures from 2001 to 2002.

Information call subcategories were implemented in TESS in 2002. A total of 1,110,635 information calls were reported to TESS, including 136,103 calls coded in optional reporting categories such as administrative, immediate referral, and prevention/safety/education (Table 1B). These latter call types were reported inconsistently as they were not required to be reported by participating poison centers.

The most frequent information call was for drug identification, comprising 557,515 calls to poison centers during the year. Of these, 105,069 (18.8%) could not be identified over the telephone. Of the drug identification calls, 74.2% were received from the public, 13.7% from health professionals, and 10.2% from law enforcement. It is important to note that these calls were categorized based on the abuse potential of the identified substance in the absence of any knowledge of whether abuse was actually intended.

Drug information calls (175,562 calls) comprised 15.8% of all information calls. Of these 19.0% were questions about drug-drug interactions, 12.6% were questions about therapeutic use and indications, and 12.0% were questions about adverse effects. Environmental inquiries comprised 3.7% of all information calls. Of these, 27.3% related to clean-up of mercury thermometers and 12.7% involved pesticides. Poison information comprised 10.5% of information calls, with 11.5% of these involving food poisoning or food preparation practices and 11.5% involving plant toxicity.

REVIEW OF THE DATA

Changes to the data collection format in 2002 included: 1) required submission of information calls, 2) sub-categorization of information calls into 91 subcategories, 3) expanded scenario coding options, 4) addition of "withdrawal" as an exposure reason, 5) addition of substance formulation field, and 6) implementation of generic codes to capture calls about weapons of mass destruction. Prior revisions occurred in 1984, 1985, 1993, 2000 and 2001. Data reported after January 1, 2000 allows an unlimited number of substances for each case, a factor that should be considered when comparing substance data with prior years.

Of the 2,380,028 human exposures reported in 2002, 92.3% occurred at a residence (Table 2). Exposures occurred in the workplace in 2.2% of cases, in schools (1.5%), health care facilities (0.3%), and restaurants or food services (0.4%). Poison center peak call volumes were between 4 to 10 PM, although call frequency remained consistently high

TABLE 1B. Distribution of Information Calls

Information Call Type	No. of Calls	%
Drug Identification		
Public inquiry: Drug sometimes involved in abuse	198,967	17.91
Public inquiry: Drug not known to be abused	129,209	11.63
Public inquiry: Unknown abuse potential	11,334	1.02
Public inquiry: Unable to identify	74,412	6.70
Health professional inquiry: Drug sometimes involved in abuse	19,388	1.75
Health professional inquiry: Drug not known to be abused	33,599	3.03
Health professional inquiry: Unknown abuse potential	2,503	0.23
Health professional inquiry: Unable to identify	21,131	1.90
Law Enforcement Inquiry: Drug sometimes involved in abuse	28,682	2.58
Law Enforcement Inquiry: Drug not known to be abused	17,365	1.56
Law Enforcement Inquiry: Unknown abuse potential	1,568	0.14
Law Enforcement Inquiry: Unable to identify	9,526	0.86
Other drug identification	9,831	0.89
Subtotal	557,515	50.20
Drug information		
Adverse effects (no known exposure)	21,052	1.90
Brand/generic name clarifications	5,128	0.46
Calculations	598	0.05
Compatibility of parenteral medications	492	0.04
Compounding	985	0.09
Contraindications	3,086	0.28
Dietary supplement, herbal, and homeopathic	2,929	0.26
Dosage	14,325	1.29
Dosage form/formulation	5,527	0.50
Drug use during breast-feeding	8,878	0.80
Drug-drug interactions	33,413	3.01
Drug-food interactions	1,979	0.18
Foreign drug	2,926	0.26
Generic substitution	738	0.07
Indications/therapeutic use	22,079	1.99
Medication administration	3,497	0.31
Medication availability	2,343	0.21
Medication disposal	659	0.06
Pharmacokinetics	4,387	0.39
Pharmacology	3,016	0.27
Regulatory	1,251	0.11
Stability/storage	3,195	0.29
Therapeutic drug monitoring	1,201	0.11
Other drug info	31,878	2.87
Subtotal	175,562	15.81
Environmental information	41,008	3.69
Medical information	33,167	2.99
Occupational information	2,471	0.22
Poison information	116,190	10.46
Substance Abuse	9,483	0.85
Teratogenicity information	6,072	0.55
Other information	33,064	2.98
Administrative (optional)	17,441	1.57
Caller Referred (optional)	52,594	4.74
Prevention/Safety/Education (optional)	66,068	5.95
Total	1,110,635	100.00

between 8 AM and midnight, with 90% of calls logged during this 16-hour period. The average number of human poison exposure consultations handled per day by all participating U.S. poison centers was 6,521. Higher volumes were observed in the warmer months, with a mean of 7,025 per day in June compared to 5,832 consultations per day in December. On average, ignoring time of day and seasonal fluctuations, U.S. poison centers handled one poison exposure every 13 seconds. Figure 1 shows the temporal consistency of TESS human exposure data and seasonal variation over the three year period of January 2000 through December 2002. Call volume was consistently lower on weekends and major holidays (Christmas, New Years, Thanksgiving weekend). Information calls to poison centers show an even more profound weekend decrease (Figure 2). There was a significant increase in information calls in early October 2001 associated with anthrax incidents and a second peak in late April 2002 in response to a nationally

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

	Site of Caller (%)	Site of Exposure (%)
Residence		
Own	75.6	89.2
Other	2.4	3.1
Health care facility	14.3	0.3
Workplace	1.6	2.2
School	0.7	1.5
Public area	0.4	1.3
Restaurant/food service	0.0	0.4
Other	4.8	1.0
Unknown	0.3	1.0

syndicated newspaper column highlighting poison centers. The apparent increase in information calls in January 2002 reflects a combination of 1) nationwide promotion of a single toll-free number for all poison control centers, 1-800-222-1222, beginning in January 2002; and 2) a newly instituted requirement for poison centers to report all information calls to TESS (although most also reported in 2001).

The age and gender distribution of human poison exposure victims is outlined in Table 3. Children younger than 3 years of age were involved in 39.1% of cases, and 51.6% occurred in children younger than 6 years. A male predominance is found among poison exposure victims younger than 13 years of age, but the gender distribution is reversed in teenagers and adults. Of all poison exposures captured, 8,309 occurred in pregnant women. Of those with known pregnancy duration, 32% occurred in the first trimester, 37% in the second trimester, and 31% in the third trimester. In 4.5% of cases (107,249 cases) multiple patients were implicated in the poison exposure episode (eg, siblings "shared" a household product, multiple patients inhaled vapors at a hazardous materials spill).

Fatalities differed from the total exposure data set in several ways. Table 4 presents the age and gender distribution for the 1,153 reported fatalities. Although responsible for the majority of poisoning reports, children younger than 6 years of age comprised just 2.0% (23) of the fatalities. Sixty-one percent of poisoning fatalities occurred in 20- to 49-year-old individuals.

A single substance was implicated in 91.9% of reports, and 2.7% of patients were exposed to more than two possibly poisonous drugs or products (Table 5). In contrast, 53% of fatal cases involved two or more drugs or products. The overwhelming majority of human exposures were acute (91.8%) compared to 52.7% of poison-related fatal exposures. Chronic exposures comprised 2.1% of all poison exposure reports, and acute-on-chronic exposures comprised 5.2%. (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 otherwise defined below. Most unintentional

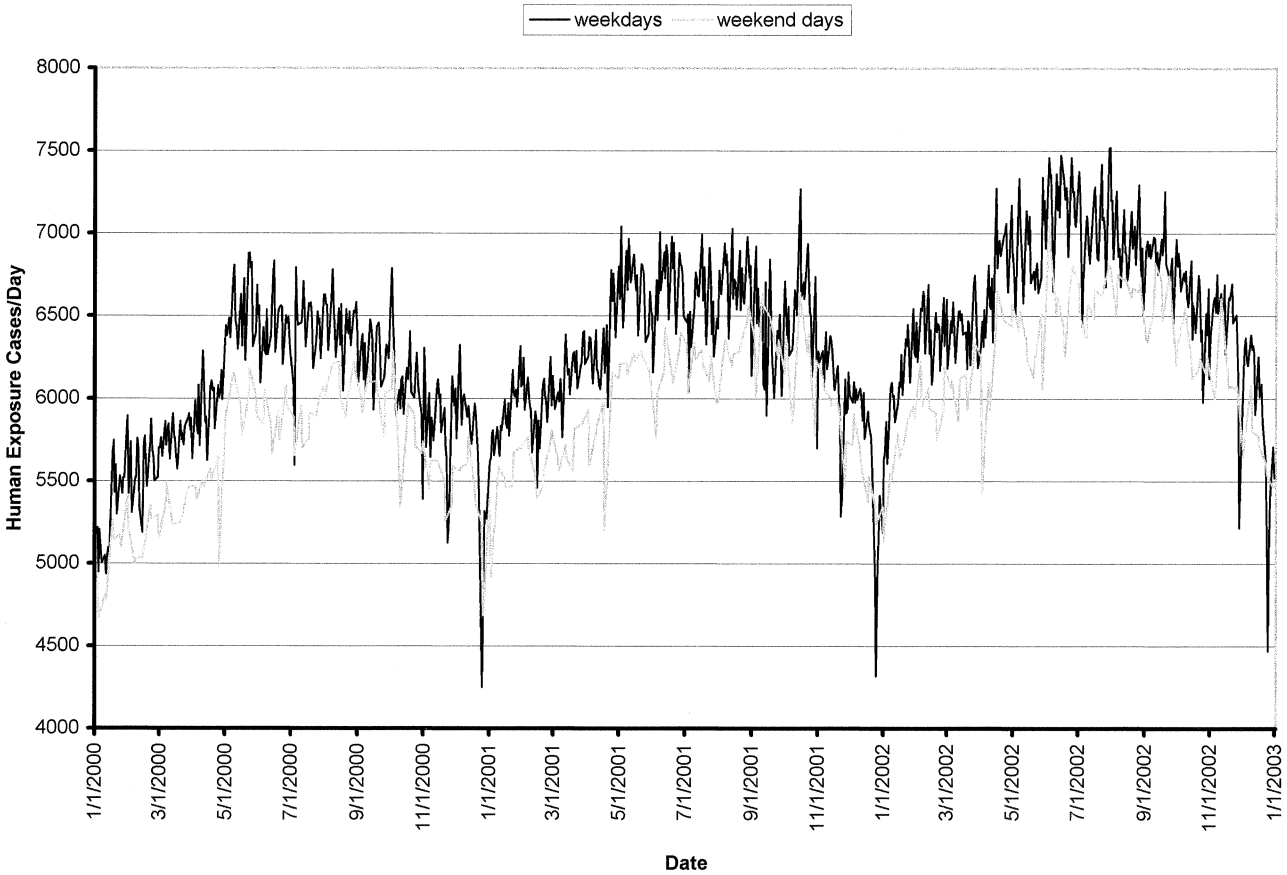

FIGURE 1. Frequency of Human Exposures Reported to US Poison Control Centers

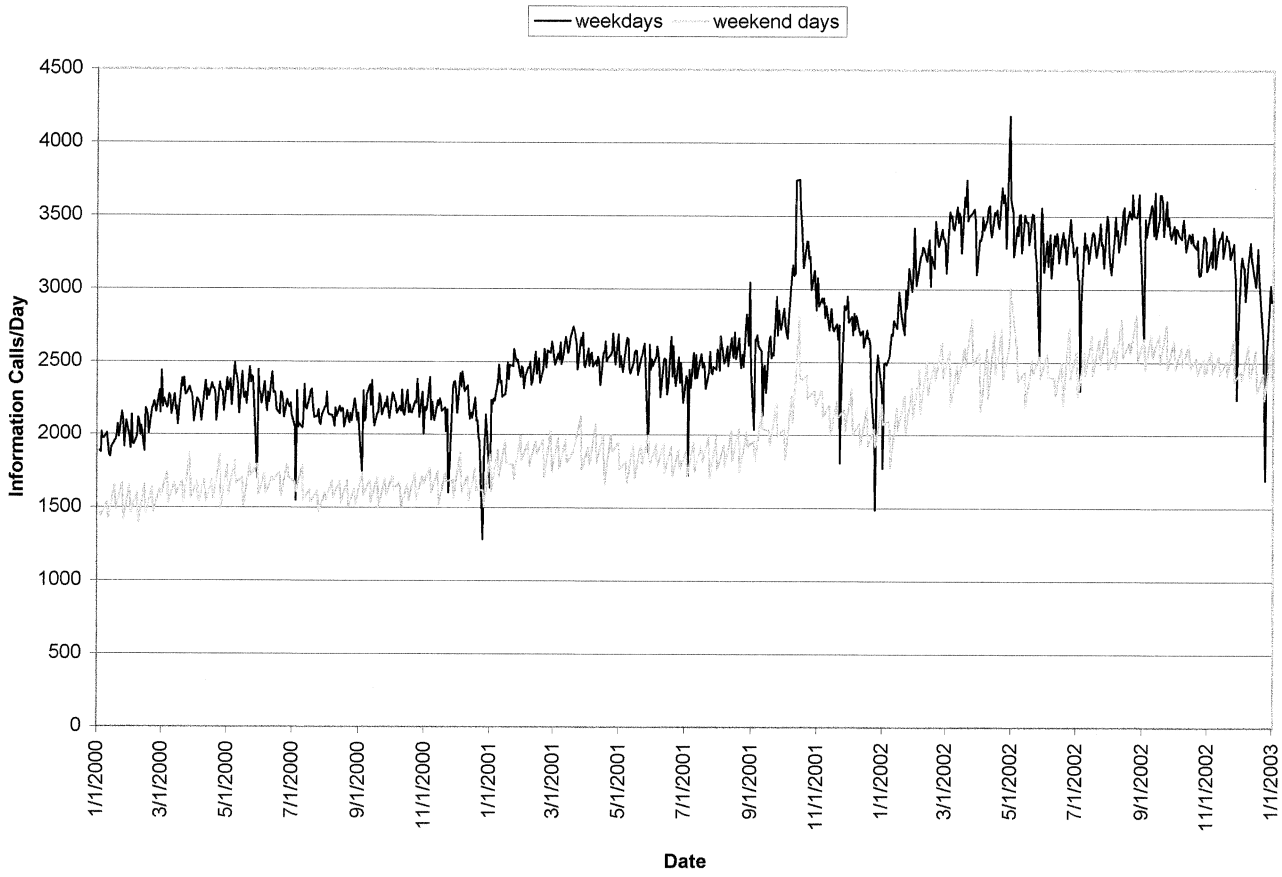

FIGURE 2. Frequency of Information Calls to US Poison Control Centers

TABLE 3. Age and Gender Distribution of Human Exposure Cases

	Male		Female		Unknown		Total		Cumulative Total	
Age (yr)	No.	Row %	No.	Row %	No.	Row %	No.	Col %	No.	Col %
<1	73,564	51.4	68,909	48.2	533	0.4	143,006	6.0	143,006	6.0
1	205,143	51.7	191,075	48.1	679	0.2	396,897	16.7	539,903	22.7
2	205,042	52.5	184,831	47.3	664	0.2	390,537	16.4	930,440	39.1
3	91,570	54.8	75,020	44.9	365	0.2	166,955	7.0	1,097,395	46.1
4	43,944	55.4	35,151	44.3	247	0.3	79,342	3.3	1,176,737	49.4
5	25,446	55.9	19,895	43.7	152	0.3	45,493	1.9	1,222,230	51.4
Unknown child ≤5	2,348	45.6	2,184	42.4	619	12.0	5,151	0.2	1,227,381	51.6
6-12	89,880	56.4	68,601	43.0	1,006	0.6	159,487	6.7	1,386,868	58.3
13-19	75,472	43.9	95,496	55.6	763	0.4	171,731	7.2	1,558,599	65.5
Unknown child	2,231	39.6	2,070	36.8	1,331	23.6	5,632	0.2	1,564,231	65.7
Total children (<20)	814,640	52.1	743,232	47.5	6,359	0.4	1,564,231	65.7	1,564,231	65.7
20-29	83,621	44.4	104,499	55.5	222	0.1	188,342	7.9	1,752,573	73.6
30-39	75,480	42.4	102,530	57.6	145	0.1	178,155	7.5	1,930,728	81.1
40-49	59,116	40.9	85,138	59.0	115	0.1	144,369	6.1	2,075,097	87.2
50-59	33,537	38.8	52,930	61.2	55	0.1	86,522	3.6	2,161,619	90.8
60-69	17,017	36.3	29,846	63.7	18	0.0	46,881	2.0	2,208,500	92.8
70-79	12,337	34.9	23,011	65.1	22	0.1	35,370	1.5	2,243,870	94.3
80-89	6,238	31.3	13,675	68.5	41	0.2	19,954	0.8	2,263,824	95.1
90-99	938	26.8	2,556	73.0	6	0.2	3,500	0.1	2,267,324	95.3
Unknown adult	38,784	38.6	58,546	58.3	3,097	3.1	100,427	4.2	2,367,751	99.5
Total adults	327,068	40.7	472,731	58.8	3,721	0.5	803,520	33.8	2,367,751	99.5
Unknown age	4,040	32.9	5,314	43.3	2,923	23.8	12,277	0.5	2,380,028	100.0
Total	1,145,748	48.1	1,221,277	51.3	13,003	0.5	2,380,028	100.0	2,380,028	100.0

TABLE 4. Distribution of Age and Gender for 1,153 Fatalities

Age (yr)	Male	Female	Unknown	Total	%	Cumulative Total	Cumulative %
<1	2	4	1	7	0.6	7	0.6
1	3	1	0	4	0.3	11	1.0
2	4	0	0	4	0.3	15	1.3
3	3	1	0	4	0.3	19	1.6
4	1	3	0	4	0.3	23	2.0
5	0	0	0	0	0.0	23	2.0
6-12	3	3	0	6	0.5	29	2.5
13-19	36	40	0	76	6.6	105	9.1
20-29	131	70	0	201	17.4	306	26.5
30-39	127	101	0	228	19.8	534	46.3
40-49	138	141	1	280	24.3	814	70.6
50-59	79	67	0	146	12.7	960	83.3
60-69	34	32	0	66	5.7	1,026	89.0
70-79	22	31	0	53	4.6	1,079	93.6
80-89	14	25	1	40	3.5	1,119	97.1
90-99	3	4	0	7	0.6	1,126	97.7
Unknown adult	15	5	0	20	1.7	1,146	99.4
Unknown	4	2	1	7	0.6	1,153	100.0
Total	619	530	4	1,153	100.0	1,153	100.0

exposures in children are reported 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 used as medications are included. Drug interactions resulting from unintentional administration of drugs or foods which 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 or euphoric effect. *Intentional abuse:* An exposure resulting from the intentional improper or incorrect use of a substance where the victim was likely attempting to achieve a euphoric or psychotropic effect. All recreational use of substances for any

TABLE 5. Number of Substances Involved in Human Exposure Cases

No. of Substances	No. of Cases	% of Cases
1	2,186,083	91.9
2	129,887	5.5
3	37,787	1.6
4	14,538	0.6
5	5,993	0.3
6	2,828	0.1
7	1,322	0.1
8	684	0.0
≥9	906	0.0
Total	2,380,028	100.0

TABLE 6A. Reason for Human Exposure Cases

Reason	No.	%
Unintentional		
General	1,498,801	63.0
Therapeutic error	193,194	8.1
Bite/sting	90,896	3.8
Misuse	90,637	3.8
Environmental	64,330	2.7
Food poisoning	42,690	1.8
Occupational	35,882	1.5
Unknown	4,167	0.2
Subtotal	2,020,597	84.9
Intentional		
Suspected suicide	181,894	7.6
Abuse	42,617	1.8
Misuse	41,246	1.7
Unknown	12,840	0.5
Subtotal	278,597	11.7
Other		
Malicious	8,801	0.4
Contamination/tampering	5,336	0.2
Withdrawal	420	0.0
Subtotal	14,557	0.6
Adverse Reaction		
Drug	41,215	1.7
Food	4,694	0.2
Other	11,224	0.5
Subtotal	57,133	2.4
Unknown	9,144	0.4
Total	2,380,028	100.0

TABLE 6B. Scenarios for Therapeutic Errors

	Number of Cases	< 6 Years (Row %)	6-12 Years (Row %)	13-19 Years (Row %)	> 19 Years (Row %)	Unknown (Row %)
Inadvertently took/given medication twice	67,810	25.8	12.9	5.9	55.0	0.3
Other incorrect dose	27,134	38.4	12.7	7.7	40.8	0.4
Wrong medication taken/given	20,697	18.5	13.7	6.7	60.8	0.4
Inadvertently took/given someone else's medication	20,322	21.9	19.3	7.1	51.4	0.3
Other/unknown therapeutic error	13,986	25.8	12.1	7.7	53.7	0.6
Medication doses given/taken too close together	11,835	28.2	10.9	7.7	52.9	0.3
Incorrect formulation or concentration given	9,070	51.3	18.5	4.9	25.0	0.3
Confused units of measure	5,899	60.9	15.1	5.6	18.2	0.2
Incorrect dosing route	5,085	19.3	8.0	5.3	66.5	0.9
Dispensing cup error	4,743	60.8	16.9	4.8	17.3	0.1
More than 1 product containing same ingredient	3,750	35.1	17.3	12.8	34.6	0.2
Incorrect formulation or concentration dispensed	2,552	44.0	17.1	5.0	33.4	0.5
Health professional/iatrogenic error	2,522	32.2	10.6	5.0	51.0	1.1
10-fold dosing error	1,375	62.5	5.5	3.3	28.1	0.5
Drug interaction	856	11.2	8.2	7.8	72.3	0.5
Exposure through breast milk	125	94.4	1.6	0.0	0.0	4.0

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. *Withdrawal:* Effect related to decline in blood concentration of a pharmaceutical or other substances after discontinuing therapeutic use or abuse of that substance. *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 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 (84.9%) of poison exposures was unintentional; suicidal intent was present in 7.6% of cases (Table 6A). Therapeutic errors comprised 8.1% of exposures (193,194 cases), with unintentional nonpharmaceutical product misuse comprising another 3.8% of exposures. The types of therapeutic errors observed in each age group are delineated in Table 6B. Approximately 35% of therapeutic errors involved double-dosing. Dispensing cup errors were seen in 4,743 cases, 10-fold dosing errors in 1,375 cases, iatrogenic or dispensing errors in 5,074 cases, and errors resulting from exposure to multiple products with common ingredients occurred in 3,750 cases.

Unintentional poisonings outnumbered intentional poisonings in all age groups (Table 7). In contrast, of the 1,153 human poisoning fatalities reported, 89% of adolescent deaths and 81% of adult deaths (older than 19 years of age) were intentional (Table 8).

Ingestion was the route of exposure in 76.0% of cases (Table 9), followed in frequency by dermal, inhalation, and ocular routes. For the 1,153 fatalities, ingestion, inhalation, and parenteral were the predominant exposure routes.

Clinical effects (signs, symptoms, or laboratory abnormalities) were coded in 30.4% of cases (16.6% had one effect, 7.9% had two effects, 3.9% had three effects, 1.3% had four effects, 0.4% had five effects, and 0.2% had more than five effects). Of 1,580,083 clinical effects coded, 80.7% were deemed related, 8.9% were considered not related, and 10.4% were coded as "unknown if related".

The majority of cases reported to poison centers were managed in a non-health care facility (76%), usually at the site of exposure, the patient's own home (Table 10). This includes the 2% of cases that were referred to a health care facility but refused to go. Treatment in a health care facility was rendered in 22.2% of cases. The percentage of patients treated in a health care facility varied considerably with age.

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	1,220,273	60.4	145,571	7.2	84,590	4.2	557,479	27.6	12,684	0.6	2,020,597	84.9
Intentional	996	0.4	8,497	3.0	78,785	28.3	186,815	67.1	3,504	1.3	278,597	11.7
Other	1,151	7.9	1,576	10.8	2,390	16.4	9,128	62.7	312	2.1	14,557	0.6
Adverse Reaction	4,437	7.8	3,201	5.6	4,582	8.0	44,165	77.3	748	1.3	57,133	2.4
Unknown	524	5.7	642	7.0	1,384	15.1	5,933	64.9	661	7.2	9,144	0.4
Total	1,227,381	51.6	159,487	6.7	171,731	7.2	803,520	33.8	17,909	0.8	2,380,028	100.0

*Includes unknown child and unknown age

TABLE 8. Distribution of Reason for Exposure and Age for 1,153 Fatalities

Reason	< 6 Years	6-12 Years	13-19 Years	> 19 Years	Unknown	Total
Unintentional						
General	6	1	0	5	0	12
Therapeutic error	4	2	1	47	0	54
Bite/sting	2	0	0	3	0	5
Misuse	0	0	1	20	0	21
Environmental	3	2	1	20	0	26
Food poisoning	0	0	0	0	0	0
Occupational	0	0	1	15	0	16
Unknown	0	0	0	5	0	5
Subtotal	15	5	4	115	0	139
Intentional						
Suicide	0	1	37	590	1	629
Abuse	0	0	21	127	2	150
Misuse	0	0	1	61	0	62
Unknown	0	0	9	63	1	73
Subtotal	0	1	68	841	4	914
Other						
Contamination/ tampering	0	0	0	0	0	0
Malicious	3	0	1	4	0	8
Subtotal	3	0	1	4	0	8
Adverse reaction	3	0	2	17	0	22
Unknown	2	0	1	64	3	70
Total	23	6	76	1,041	7	1,153

Only 10.5% of children under 6 years and only 13.9% of children between 6 and 12 years were managed in a health care facility compared to 48.3% of teenagers (13 to 19 years of age) and 35.9% of adults (over 19 years of age). Of cases managed in a health care facility, 54.3% were treated and released without admission, 13.8% were admitted for critical care, and 7.5% were admitted for noncritical care. Where treatment was provided in a health care facility,

TABLE 9. Distribution of Route of Exposure for Human Exposure Cases and 1,153 Fatalities

	All Exposure Cases		Fatal Exposure Cases	
Route	No.	%	No.	%
Ingestion	1,900,816	76.0	977	74.1
Dermal	193,822	7.8	22	1.7
Inhalation	154,167	6.2	103	7.8
Ocular	130,857	5.2	2	0.2
Bites and stings	90,896	3.6	6	0.5
Parenteral	11,113	0.4	53	4.0
Otic	2,563	0.1	0	0.0
Aspiration	1,562	0.1	24	1.8
Rectal	889	0.0	0	0.0
Vaginal	848	0.0	0	0.0
Other	2,885	0.1	3	0.2
Unknown	9,688	0.4	129	9.8
Total	2,500,106	100.0	1,319	100.0

NOTE: Multiple routes of exposure were observed in many poison exposure victims. Percentage is calculated on the total number of exposure routes (2,500,106 for all patients; 1,319 for fatal cases) rather than the total number of human exposures (2,380,028) or fatalities (1,153).

TABLE 10. Management Site of Human Exposure Cases

Site	No.	%
Managed on-site, non-health care facility	1,766,814	74.2
Managed in health care facility		
Treated and released	286,748	12.0
Admitted to critical care	72,877	3.1
Admitted to noncritical care	39,671	1.7
Admitted to psychiatry	43,360	1.8
Lost to follow-up; left AMA	85,437	3.6
Subtotal	528,093	22.2
Other	21,901	0.9
Refused referral	49,417	2.1
Unknown	13,803	0.6
Total	2,380,028	100.0

ABBREVIATION: AMA, against medical advice

32.1% of the patients were referred in by the poison center and 67.9% were already in or en route to the health care facility when the poison center was contacted. Health care facilities included acute care hospitals (81.9%), physician offices or clinics (10.3%), and freestanding emergency centers (3.3%).

Table 11 displays the medical outcome of the human poison exposure cases distributed by age, showing a greater rate of severe outcomes in the older age groups. Table 12 compares medical outcome and reason for exposure, and shows a greater frequency of serious outcomes in intentional exposures. Table 13 demonstrates an 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 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 systemic in nature than minor symptoms. Usually some form of treatment is indicated. Symptoms were not life-threatening and the patient had 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

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

Outcome	< 6 Years		6-12 Years		13-19 Years		> 19 Years		Unknown*		Total	
	No.	Col %	No.	Col %	No.	Col %	No.	Col %	No.	Col %	No.	Col %
No effect	306,867	25.0	24,730	15.5	27,377	15.9	88,966	11.1	2,154	12.0	450,094	18.9
Minor effect	108,540	8.8	27,880	17.5	43,729	25.5	183,303	22.8	2,417	13.5	365,869	15.4
Moderate effect	9,690	0.8	4,274	2.7	17,863	10.4	78,347	9.8	591	3.3	110,765	4.7
Major effect	720	0.1	257	0.2	1,886	1.1	12,352	1.5	61	0.3	15,276	0.6
Death	23	0.0	6	0.0	76	0.0	1,041	0.1	7	0.0	1,153	0.0
No follow-up, nontoxic	298,268	24.3	29,562	18.5	11,405	6.6	58,115	7.2	2,087	11.7	399,437	16.8
No follow-up, minimal toxicity	461,429	37.6	63,643	39.9	47,733	27.8	280,191	34.9	5,401	30.2	858,397	36.1
No follow-up, potentially toxic	23,467	1.9	4,862	3.0	17,096	10.0	65,186	8.1	4,629	25.8	115,240	4.8
Unrelated effect	18,377	1.5	4,273	2.7	4,566	2.7	36,019	4.5	562	3.1	63,797	2.7
Total	1,227,381	51.6	159,487	6.7	171,731	7.2	803,520	33.8	17,909	0.8	2,380,028	100.0

*Includes unknown child and unknown age

made to determine the outcome of the exposure 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. *Unrelated effect:* The exposure was probably not responsible for the effect. *Confirmed nonexposure:* This outcome option was coded 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 non-exposure are excluded from this report.

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 16 demonstrates the continuing decline in the use of ipecac-induced emesis in the treatment of poisoning.

Table 17A presents the most common substance categories involved in human exposures, 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 and antidepressants lead this list. While analgesics are the most frequently involved substance category for both deaths and non-lethal human exposures, there is otherwise little correlation between the frequency of exposures to a substance and the number of deaths. Table 19 shows little variation over the past 20 years in the percentage of cases reported to TESS that are fatal poisonings and in the percentage of reported fatalities due to suicide. In contrast, the percentage of reported fatalities involving children under 6 years has declined. A breakdown of plant exposures is provided for those most commonly implicated (Table 20).

A summary of the 1,153 fatal exposures is presented in Table 21. Each of these cases was verified and abstracted by the reporting poison center. After extensive review, those exposures determined to be either "probably" or "undoubtedly" responsible for the fatality were included in Table 21. Abstracts of selected interesting or unusual cases are presented in the Appendix. Table 21 also reports the highest blood concentration for the responsible agents where that information is known. In addition, Table 21 identifies those cases reported indirectly to the poison center (10.8% of cases) and those cases in which a pre-hospital cardiac and/or respiratory arrest occurred (39% of cases). Deaths are cat-

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

Outcome	Unintentional		Intentional		Other		Adverse Reaction		Unknown		Total	
	No.	Col %	No.	Col %	No.	Col %	No.	Col %	No.	Col %	No.	Col %
No effect	396,030	19.6	50,775	18.2	1,623	11.1	982	1.7	684	7.5	450,094	18.9
Minor effect	270,498	13.4	77,806	27.9	3,097	21.3	13,127	23.0	1,341	14.7	365,869	15.4
Moderate effect	50,680	2.5	49,842	17.9	985	6.8	7,846	13.7	1,412	15.4	110,765	4.7
Major effect	3,152	0.2	10,446	3.7	115	0.8	1,012	1.8	551	6.0	15,276	0.6
Death	139	0.0	914	0.3	8	0.1	22	0.0	70	0.8	1,153	0.0
No follow-up, nontoxic	392,747	19.4	4,241	1.5	1,088	7.5	1,118	2.0	243	2.7	399,437	16.8
No follow-up, minimal toxicity	800,333	39.6	30,342	10.9	4,863	33.4	21,367	37.4	1,492	16.3	858,397	36.1
No follow-up, potentially toxic	58,647	2.9	49,325	17.7	1,655	11.4	3,314	5.8	2,299	25.1	115,240	4.8
Unrelated effect	48,371	2.4	4,906	1.8	1,123	7.7	8,345	14.6	1,052	11.5	63,797	2.7
Total	2,020,597	84.9	278,597	11.7	14,557	0.6	57,133	2.4	9,144	0.4	2,380,028	100.0

TABLE 13. Duration of Clinical Effects by Medical Outcome

Duration of Effect	Minor Effect (Col %)	Moderate Effect (Col %)	Major Effect (Col %)
≤2 hours	39.5	7.1	2.9
>2 hours, ≤8 hours	25.5	22.3	8.4
>8 hours, ≤24 hours	17.1	30.2	25.4
>24 hours, ≤3 days	5.3	16.7	27.9
>3 days, ≤1 week	1.8	7.0	14.7
>1 week, ≤1 month	0.5	2.1	5.3
>1 month	0.2	0.6	1.3
Anticipated permanent	0.2	0.3	2.6
Unknown	10.0	13.9	11.5

egorized in Table 21 according to the agent deemed most responsible for the death by agreement of both the medical director of the reporting center and at least two additional clinical toxicologists. Additional agents implicated are listed below the primary agent.

The age distribution of reported fatalities is similar to that of past years. There were 23 fatalities reported in children <6 years of age, similar to the number reported in recent years. As a percentage of total fatalities, deaths in children <6 years of age have remained in the range of 2.0-2.7% over the last five years. The percentage of pediatric fatalities related to total pediatric calls has also remained essentially unchanged over the last five years at about 0.002%. By comparison, in 2002, 0.13% of all adult exposures reported were deaths. The reason for exposure in childhood deaths has shifted. While unintentional household poisonings due to curious toddlers were previously the predominant cause of these fatalities, in 2002 these deaths included 4 therapeutic errors, 3 environmental exposures, 3 adverse drug reactions, 3 malicious exposures, and 2 envenomations. Three deaths were related to carbon monoxide, three to cough/cold preparations, three to opioids, and two to household products (lamp oil and a detergent). All three malicious exposures involved the administration of antidepressants.

In the 6 to 12 year age range there were six deaths. In the 13-19 year age range there were 76 fatalities, similar to the 77 fatalities observed in 2001. This may signal the end of a steady five-year increase in reported adolescent fatalities. The most common reasons for the fatalities, as in previous years, were suicide (37) and intentional abuse (21). Only four fatalities in this age range were unintentional.

The most common classes of substance involved in the fatalities were analgesics, sedative/hypnotics/antipsychotics agents, antidepressants, stimulants and street drugs and cardiovascular agents (Table 18). Of the 380 fatalities where an analgesic was felt to be the primary cause of death, 47 were caused by acetaminophen alone as a single agent and 25 were caused by aspirin alone. Eighteen of the salicylate fatalities were acute and involved a single agent and had at least one premortem blood salicylate level. For those cases the mean level was 107 mg/dL (range 58-150 mg/dL). Six of these fatalities had maximum measured salicylate levels <100 mg/dL. Review of these cases suggests that dialysis is often instituted too late in the course of treatment to be

TABLE 14. Decontamination and Therapeutic Interventions

Therapy	No. of Patients	%
Decontamination only	1,201,902	50.5
Observation only	286,384	12.0
No therapy provided	230,555	9.7
Decontamination and other therapy	200,999	8.4
Other therapy only (no decontamination)	114,516	4.8
Unknown if therapy provided/patient refused	345,672	14.5

TABLE 15. Therapy Provided in Human Exposure Cases

Therapy	No.
Decontamination	
Dilution/irrigation	1,121,885
Activated charcoal, single dose	142,157
Cathartic	54,004
Gastric lavage	25,307
Ipecac syrup	13,555
Other emetic	7,689
Activated charcoal, multidose	7,370
Whole bowel irrigation	2,689
Measures to Enhance Elimination	
Hemodialysis	1,400
Hemoperfusion	30
Other extracorporeal procedure	27
Specific Antidote Administration	
N-acetylcysteine (oral)	13,567
Benzodiazapines	12,791
Naloxone	10,783
Calcium	2,943
Flumazenil	2,043
N-acetylcysteine (IV)	1,480
Atropine	889
Antivenom (excluding Fab)	690
Fomepizole	678
Glucagon	640
Antivenom (Fab)	593
Phytonadione	578
Ethanol	498
Insulin	465
Folate	404
Digoxin immune FAB	346
Pyridoxine	344
Physostigmine	307
Hyperbaric oxygen	282
Cardiac pacing	185
Succimer	149
Methylene blue	121
Octreotide	114
Pralidoxime (2-PAM)	111
Deferoxamine	86
EDTA	82
Dimercaprol (BAL)	77
Sodium thisulfate	57
Sodium nitrite	34
Amyl nitrite	17
Penicillamine	8
Other interventions	
Alkalinization	7,533
Organ transplantation	14
ECMO	8

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
1999	2,201,156	50.5	1.0	6.6
2000	2,168,248	52.7	0.8	6.7
2001	2,267,979	51.6	0.7	6.6
2002	2,380,028	51.6	0.6	6.3

useful. The number of deaths where oxycodone is the primary responsible agent continued to increase to 27 cases. There was also a substantial increase in the number of fatalities (75) where the primary substance was a long-acting opioid (long-acting formulation, methadone or patches). This is an increase from the 49 such cases reported in 2001.

TABLE 17A. Substances Most Frequently Involved in Human Exposures

Substance	No.	%*
Analgesics	256,843	10.8
Cleaning substances	225,578	9.5
Cosmetics and personal care products	219,877	9.2
Foreign bodies	119,323	5.0
Sedatives/hypnotics/antipsychotics	111,001	4.7
Topicals	105,815	4.4
Cough and cold preparations	100,612	4.2
Antidepressants	99,860	4.2
Bites/envenomations	98,585	4.1
Pesticides	96,112	4.0
Plants	84,578	3.6
Food products, food poisoning	75,813	3.2
Alcohols	69,215	2.9
Antihistamines	69,107	2.9
Antimicrobials	63,372	2.7
Cardiovascular drugs	61,056	2.6
Hydrocarbons	59,132	2.5
Chemicals	54,623	2.3

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 (2,380,028) rather than the total number of substances.

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

Substance	No.	%*
Cosmetics and personal care products	162,946	13.3
Cleaning substances	126,830	10.3
Analgesics	90,295	7.4
Foreign bodies	87,490	7.1
Topicals	85,970	7.0
Plants	62,306	5.1
Cough and cold preparations	62,107	5.1
Pesticides	50,415	4.1
Vitamins	45,239	3.7
Gastrointestinal preparations	38,817	3.2
Antimicrobials	33,764	2.8
Antihistamines	32,283	2.6
Arts/crafts/office supplies	31,873	2.6
Hormones and hormone antagonists	28,247	2.3
Hyrdrocarbons	21,738	1.8

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 six years (1,227,381) rather than the total number of substances.

The second most common class of drugs primarily responsible for fatalities was antidepressants, accounting for 133 deaths. Of these fatalities, 45 (34%) were due to a single agent, amitriptyline being the most common (12 cases). Non-tricyclic agents continue to account for a significant percentage of antidepressant deaths.

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

Substance	No.	%*
Analgesics	110,215	13.7
Sedatives/hypnotics/antipsychotics	84,084	10.5
Cleaning substances	77,478	9.6
Antidepressants	65,236	8.1
Bites/envenomations	62,651	7.8
Food products, food poisoning	42,249	5.3
Alcohols	41,924	5.2
Cosmetics and personal care products	38,584	4.8
Cardiovascular drugs	37,150	4.6
Pesticides	36,465	4.5
Chemicals	31,854	4.0
Hydrocarbons	28,556	3.6
Fumes/gases/vapors	28,374	3.5
Anticonvulsants	23,597	2.9
Antihistamines	22,953	2.9
Stimulants and street drugs	22,844	2.8
Antimicrobials	20,558	2.6
Hormones and hormone antagonists	19,742	2.5
Cough and cold preparations	16,739	2.1
Plants	12,288	1.6

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 (803,520) rather than the total number of substances.

TABLE 18. Categories with Largest Numbers of Deaths

Category	No.	% of All Exposures in Category
Analgesics	659	.257
Sedative/hypnotics/psychotics	364	.328
Antidepressants	318	.318
Stimulants and street drugs	242	.528
Cardiovascular drugs	181	.296
Alcohols	139	.200
Chemicals	50	.091
Anticonvulsants	65	.181
Gases and fumes	44	.106
Antihistamines	71	.103
Muscle relaxants	52	.260
Hormones and hormone antagonists	33	.062
Cleaning substances	33	.013
Automotive products	30	.213
Cough and cold preparations	22	.022
Pesticides	18	.019

NOTE: Tables 18, 22A and 22B are based on an unlimited number of substances coded per exposure, while Table 21 only includes up to 3 substances per case.

The third most common class of drugs primarily responsible for fatalities was stimulants and street drugs, accounting for 126 deaths. There was an increase in the number of heroin fatalities, but the number of deaths associated with amphetamine, methamphetamine, and MDMA remained constant.

The vast majority (79%) of reported fatalities in 2002 were the result of an intentional action, similar to that observed in past years. The percentage of fatalities attributed to other reasons likewise remained essentially unchanged (Table 8). As in previous years a disturbing number of fatalities (54) were the result of therapeutic errors. There were also 22 deaths related to adverse drug reactions. As in 2001, no deaths were reported related to food poisoning.

TABLE 19. 20-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
1999	873	0.040	472	54.1	24	2.7
2000	920	0.042	476	51.7	20	2.2
2001	1,074	0.047	552	51.4	26	2.4
2002	1,153	0.048	629	54.6	23	2.0

TABLE 20. Frequency of Plant Exposures by Plant Type

Botanical Name	Common Name	Frequency
Spathiphyllum spp.	Peace lily	3,602
Philodendron spp.	Philodendron	2,880
Euphorbia pulcherrima	Poinsettia	2,620
Ilex spp.	Holly	2,427
Phytolacca americana	Pokeweed, inkberry	1,863
Ficus spp.	Rubber tree, weeping fig	1,612
Toxicodendron radicans	Poison ivy	1,500
Dieffenbachia spp.	Dumbcane	1,324
Crassula spp.	Jade plant	1,146
Epipremnum aureum	Pothos, devil's ivy	1,083
Capsicum annuum	Pepper	1,049
Rhododendron spp.	Rhododendron, azalea	1,047
Chrysanthemum spp.	Chrysanthemum	869
Nerium oleander	Oleander	847
Schlumbergera Bridgesii	Christmas cactus	841
Hedera helix	English ivy	769
Eucalyptus spp.	Eucalyptus	727
Malus spp.	Apple, crabapple (plant parts)	703
Nandina domestica	Heavenly bamboo	694
Saintpaulia ionantha	African violet	685

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

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 2,380,028 exposures, presented by substance categories. Table 22A focuses on nonpharmaceuticals; Table 22B presents drugs. Of the 2,688,520 substances logged in Tables 22A and 22B, 52.3% were nonpharmaceuticals and 47.7% were pharmaceuticals. The reason for the exposure was intentional for 29.4% of pharmaceutical substances implicated compared with only 5.0% of nonpharmaceutical substances. Correspondingly, treatment in a health care facility was provided in a higher percentage of exposures to pharmaceutical substances (38.7%) compared with nonpharmaceutical substances (16.7%). Pharmaceutical exposures also had more severe outcomes. Of substances implicated in fatal cases, 85.2% were pharmaceuticals, compared with only 47.7% of substances reported in nonfatal cases. Similarly, 84.4% 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. We especially acknowledge the dedicated efforts of the Specialists in Poison Information who meticulously coded more than 2.3 million poison exposures in 2002.

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
NONPHARMACEUTICALS							
Adhesives/glues							
1 ap	35 yr	adhesive (toluene)	A	Inhalation	Occ		
2 p	38 yr	contact cement (toluene/xylene)	U	Inhalation	Int abuse		
Alcohols							
3	49 yr	canned heat (ethanol/methanol)	A	Ingestion	Int suicide	ethanol 161 mg/dL	
4 aip	19 yr	ethanol	A	Ingestion	Int abuse	579 mg/dL	
5	20 yr	ethanol	A	Ingestion	Int unk		
6 ap	30 yr	ethanol	A	Ingestion	Int abuse	455 mg/dL	
7	48 yr	ethanol	C	Ingestion	Int abuse	320 mg/dL	
8 a	53 yr	ethanol	A/C	Ingestion	Int suicide	769 mg/dL	
9	56 yr	ethanol	A/C	Ingestion	Int abuse	257 mg/dL	
10	56 yr	ethanol	C	Ingestion	Int abuse	214 mg/dL	
11	Unk	ethanol	U	Ingestion	Int unk	468 mg/dL	
12	54 yr	ethanol acetaminophen	A/C	Ingestion	Int abuse	445 mg/dL	
13	51 yr	ethanol acetaminophen cocaine	A/C	Ing/Inh	Int abuse	73.7 μg/mL	
14	38 yr	ethanol benzodiazepine barbiturate	A	Ingestion	Int suicide		
15 p	45 yr	ethanol brake fluid other chemical	A	Ingestion	Int suicide	380 mg/dL	
16 p	38 yr	ethanol cocaine	A/C	Ingestion	Int suicide		
17	18 yr	ethanol cocaine amphetamine[A]	A	Ing/Inh/Unk	Int suicide		
18 ip	35 yr	ethanol diphenydramine	U	Ingestion	Int abuse		
19 p	29 yr	ethanol lisinopril/hydrochlorothiazide	A	Ingestion	Int suicide	489 mg/dL	
20	40's yr	ethanol opioid benzodiazepine[A]	A/C	Ingestion	Int unk		
21	45 yr	ethanol paroxetine lorazepam	A/C	Asp/Ing	Int suicide	250 mg/dL	
22 ip	41 yr	ethanol propoxyphene	A	Ingestion	Int unk	250 mg/dL 0.08 μg/mL§ norpropoxyphene 0.2 μg/mL§	
23	45 yr	ethanol trazodone risperidone[A]	A	Ingestion	Int suicide	214 mg/dL	10 h
24	38 yr	ethanol unknown drug	C	Ing/Unk	Int abuse		
25	58 yr	isopropanol	A/C	Ingestion	Int abuse		
26 p	31 yr	methanol	U	Ingestion	Unint misuse		
27	37 yr	methanol	A	Ingestion	Int abuse	170 mg/dL	
28 p	38 yr	methanol	U	Ingestion	Unint misuse	500 mg/dL§	
29 p	41 yr	methanol	A	Ingestion	Unknown	290 mg/dL	
30	46 yr	methanol	A	Ingestion	Int suicide	105 mg/dL	
31	47 yr	methanol	U	Ingestion	Unknown		
32	48 yr	methanol	A	Ingestion	Int suicide	62 mg/dL	
33	74 yr	methanol	A	Ingestion	Unknown	256 mg/dL	
34	>19 yr	methanol	A	Ingestion	Unknown		
35	29 yr	methanol alprazolam acetaminophen/hydrocodone	A	Ingestion	Int suicide		
36	40's yr	methanol ethylene glycol	A	Ingestion	Int suicide		
37	42 yr	methanol ethylene glycol	A	Ingestion	Int suicide	98 mg/dL 150 mg/dL	
38	39 yr	unknown alcohol	A	Ingestion	Int abuse		
See also cases 56, 80 thru 82, 93, 94, 104, 126, 214, 221, 224, 289, 290, 295 thru 299, 308, 315, 342, 377, 378, 391, 406, 408, 409, 413, 451, 475, 481, 521 thru 524, 585, 623, 629, 657 thru 661, 670, 685, 703, 731, 735, 745, 746, 764, 765, 768, 796, 829, 850, 860, 861, 874, 887, 890, 892, 897, 903, 916, 928, 945, 960, 973, 980, 984, 998, 1009, 1018, 1057 thru 1061, 1078, 1107 thru 1110, 1116, 1120, 1146 (ethanol); 66, 112, 746 (isopropanol).							
Automotive/aircraft/boat products							
39 p	19 yr	antifreeze (ethylene glycol)	A	Ingestion	Int suicide	187 mg/dL	
40	21 yr	antifreeze (ethylene glycol)	A	Ingestion	Int suicide		
41	23 yr	antifreeze (ethylene glycol)	A	Ingestion	Int suicide	125 mg/dL	
42	24 yr	antifreeze (ethylene glycol)	A	Ingestion	Int suicide	5 mg/dL	
43	28 yr	antifreeze (ethylene glycol)	A	Ingestion	Int suicide	192 mg/dL	
44	36 yr	antifreeze (ethylene glycol)	A	Ingestion	Int suicide	40 mg/dL	
45 p	40 yr	antifreeze (ethylene glycol)	A	Ingestion	Int suicide		
46	42 yr	antifreeze (ethylene glycol)	C	Ingestion	Int suicide		
47	43 yr	antifreeze (ethylene glycol)	A	Ingestion	Int suicide	205 mg/dL	
48 a	58 yr	antifreeze (ethylene glycol)	A	Ingestion	Int suicide		
49	60 yr	antifreeze (ethylene glycol)	A	Ingestion	Int suicide	31 mg/dL	
50	72 yr	antifreeze (ethylene glycol)	A	Ingestion	Int suicide	114 mg/dL	
51	78 yr	antifreeze (ethylene glycol)	A	Ingestion	Int suicide	437 mg/dL	5 h
52	21 yr	antifreeze (ethylene glycol) acetaminophen	A	Ingestion	Int suicide		
53 p	54 yr	antifreeze (ethylene glycol) chlorpheniramine cocaine	U	Ing/Unk	Int suicide		

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
54	89 yr	antifreeze (ethylene glycol) doxazosin	A	Ingestion	Int suicide	970 mg/dL	4 h
55	43 yr	antifreeze (ethylene glycol) drain opener hydrochloric acid	A	Ingestion	Int suicide		
56 a	45 yr	antifreeze (ethylene glycol) ethanol	A	Ingestion	Int suicide	916 mg/dL 29 mg/dL	 1 h
57	23 yr	antifreeze (ethylene glycol) marijuana	A	Ing/Unk	Unknown		
58	49 yr	antifreeze (ethylene glycol) tiagabine	A	Ingestion	Int suicide	74.6 mg/dL	20 h
59 p	59 yr	antifreeze (ethylene glycol) unknown drug	A	Ingestion	Int suicide	136 mg/dL§ glycolic acid 200 mg/dL§	
60	58 yr	antifreeze (ethylene glycol) valproic acid	A	Ingestion	Int suicide	16 mg/dL 172 μg/mL	24 h
61	52 yr	brake fluid (methanol)	A	Ingestion	Int suicide		
62 p	25 yr	carburetor cleaner (ketones/methylene chloride/toluene)	U	Ingestion	Int suicide		
63	>19 yr	gas line antifreeze (methanol)	U	Ingestion	Unknown		
64 p	41 yr	gas line antifreeze (methanol) amphetamine	A	Ing/Unk	Int suicide		
65 a	37 yr	unknown automotive product (methanol)	A	Ingestion	Int suicide	136 mg/dL	12 h
66	45 yr	windshield washer fluid (methanol) isopropanol cologne	C	Ingestion	Int suicide	131 mg/dL	
See also cases 15 (brake fluid); 888 (carburetor cleaner (methanol/methylene chloride/toluene)).							
Bites and envenomations							
67 a	28 yr	bat plant food	A	Bite/sting/Derm	Bite/sting		
68	3 yr	Crotalus adamanteus	A	Bite/sting	Bite/sting		
69 a	43 yr	Crotalus horridus horridus	A	Bite/sting	Bite/sting		
70	2 yr	scorpion, Centruroides species	A	Bite/sting	Bite/sting		
71 ap	54 yr	Triatoma (cone noses or kissing bugs)	A	Bite/sting	Bite/sting		
See also case 1019 (Centruroides sculpturatus).							
Chemicals							
72 a	44 yr	acrylamide	A	Ingestion	Int suicide		
73 a	29 yr	ammonia	A	Derm/Inh	Env		
74	33 yr	black liquor (sodium hydroxide/ sodium sulfide)	A	Derm/Ocu	Occ		
75	53 yr	black liquor (sodium hydroxide/ sodium sulfide)	A	Dermal	Occ		
76	50 yr	corrosive chemical	A	Ingestion	Int suicide		
77 p	43 yr	cyanide	A	Ingestion	Unint misuse		
78 p	59 yr	cyanide	A	Ingestion	Int suicide		
79 ap	65 yr	cyanide	A	Ingestion	Int suicide	1.68 μg/mL	2 h
80 p	44 yr	cyanide ethanol	A	Ingestion	Int suicide	3.6 μg/mL 210 mg/dL	
81 p	49 yr	cyanide ethanol	A	Ingestion	Int suicide		
82	55 yr	cyanide ethanol	A	Ingestion	Int suicide	 275 mg/dL	
83	25 yr	ethylene glycol	A	Ingestion	Int suicide	129 mg/dL glycolic acid 135 mg/dL	
84	29 yr	ethylene glycol	A	Ingestion	Int suicide	108.1 mg/dL	
85	39 yr	ethylene glycol	A	Ingestion	Int suicide	15 mg/dL	
86	41 yr	ethylene glycol	A	Ingestion	Unknown	9.7 mg/dL	
87	42 yr	ethylene glycol	A	Ingestion	Int suicide	130 mg/dL	
88	51 yr	ethylene glycol	A	Ingestion	Unknown	180 mg/dL glycolic acid 185 mg/dL	
89	57 yr	ethylene glycol	U	Ingestion	Unknown	34.2 mg/dL	
90 p	81 yr	ethylene glycol	A	Ingestion	Int suicide	92 mg/dL	
91	41 yr	ethylene glycol acetaminophen	A	Ingestion	Int suicide		
92	37 yr	ethylene glycol brodifacoum	A	Ingestion	Int suicide	58 mg/dL	
93	46 yr	ethylene glycol diazepam ethanol[A]	A	Ingestion	Int suicide	79 mg/dL 170 ng/mL§ nordiazepam 130 ng/mL§ 60 mg/dL	13 h 12 h
94	42 yr	ethylene glycol ethanol amitriptyline	U	Ingestion	Int suicide	19.6 mg/dL 215 mg/dL	
95	53 yr	ethylene glycol lithium orlistat[A]	A	Ingestion	Int suicide		
96	22 yr	ethylene glycol toluene olanzapine[A]	A/C	Ingestion	Int suicide	20 mg/dL	
97 a	68 yr	formaldehyde	A	Other	Ther err		
98	>19 yr	formaldehyde	A	Ingestion	Int suicide		
99	42 yr	hydrochloric acid	A	Ingestion	Int suicide		
100	37 yr	hydrofluoric acid	A	Ingestion	Int suicide		

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
101	35 yr	hydrofluoric acid, 10%/phosphoric acid, 5%	A	Ingestion	Int suicide		
102	60 yr	hydrofluoric acid, 5%/phosphoric acid, 25%	A	Ingestion	Unint misuse		
103 p	34 yr	hydrofluoric acid, 5-10%/sulfuric acid, 20-25%	A	Ingestion	Int suicide		
104	30 yr	hydrofluoric acid, 14%/phosphoric acid, 7.5% ethanol	A	Ingestion	Int suicide	 246 mg/dL	
105	49 yr	methyl bromide	A	Derm/Inh	Occ		
106 aip	35 yr	phenol cocaine	A	Unknown	Unknown	1,200 μg/mL§ 0.037 μg/dL§	
107	32 yr	propylene glycol	A	Unknown	Int suicide	441.44 mg/dL§	
108 a	59 yr	sodium azide	A	Ingestion	Int suicide		
109 a	45 yr	sodium azide sodium hydroxide	A	Derm/Inh	Occ		
110	52 yr	sulfuric acid	A	Asp/Ing	Int suicide		
See also cases 326 (boric acid); 154 (cyanide); 36, 37, 300, 301 (ethylene glycol); 55 (hydrochloric acid); 172 (hydrogen cyanide); 15 (other chemical); 109 (sodium hydroxide); 339 (unknown acid).							
Cleaning substances (household)							
111 ap	34 yr	bleach, household (hypochlorite)	A	Asp/Ing	Unknown		
112 a	40 yr	bleach, household (hypochlorite) isopropanol	A	Asp/Derm/Ing/Inh/Ocu	Malicious		
113 a	84 yr	detergents (anionic/nonionic)	A	Asp/Ing	Unint gen		
114	93 yr	detergents (anionic/nonionic)	A	Dermal	Unint misuse		
115	49 yr	drain opener	A	Ingestion	Unint misuse		
116	26 yr	drain opener (alkali) diphenoxylate/atropine quetiapine	A	Asp/Ing	Int suicide		
117	64 yr	drain opener (alkali/ammonia/thioglycolates)	A	Ingestion	Int suicide		
118 a	27 yr	drain opener (sodium hydroxide)	A	Ingestion	Int suicide		
119	49 yr	drain opener (sodium hydroxide)	A	Ingestion	Int suicide		
120	52 yr	drain opener (sulfuric acid)	A	Ingestion	Int suicide		
121 a	42 yr	drain opener (sulfuric acid) aspirin	A	Ingestion	Int suicide		
122	63 yr	drain opener (sulfuric acid, 94%)	A	Ingestion	Int suicide		
123 aip	13 mo	hand dishwashing detergent	A	Ingestion	Unint gen		
124	71 yr	hand dishwashing detergent	A	Asp/Ing	Unint gen		
125	57 yr	hydrochloric acid	A	Ingestion	Int suicide		
126	88 yr	hydrochloric acid household cleaning agent ethanol	A	Ingestion	Int suicide		
127	59 yr	hydrogen chloride/nonionic surfactants sodium hypochlorite	A	Ingestion	Int suicide		
128	88 yr	pine oil	A	Ingestion	Unint misuse		
129	53 yr	pine oil/isopropanol cleaner	A	Ingestion	Int suicide		
130 p	80 yr	pine oil/isopropanol cleaner	A	Ingestion	Int unk		
131 p	69 yr	rust remover (sodium bisulfite/sodium hydrosulfite) citalopram	A	Ingestion	Int suicide	 1,500 ng/mL§	
132	77 yr	sodium hydroxide/sodium hypochlorite	A	Ingestion	Unint gen		
133	>19 yr	sodium hydroxide/sodium nitrate/sodium chloride sodium hydroxide/sodium hypochlorite	A	Ingestion	Unknown		
134	50 yr	toilet bowl cleaner (hydrochloric acid) acetaminophen/diphenhydramine	A	Ingestion	Int suicide		
135	40 yr	toilet bowl cleaner (hydrochloric acid, 15-20%) toilet bowl cleaner (ammonium chloride salts) wrinkle remover (sodium lauryl sulfate/isopropanol)	A	Ingestion	Int suicide		
136	17 yr	toilet bowl cleaner (phosphoric acid)	A	Ingestion	Int suicide		
See also cases 55 (drain opener); 126 (household cleaning agent); 133 (sodium hydroxide/sodium hypochlorite); 127 (sodium hypochlorite); 135 (toilet bowl cleaner (ammonium chloride salts)); 135 (wrinkle remover (sodium lauryl sulfate/isopropanol)).							
Industrial cleaners							
See also case 688 (industrial cleaner (anionic/nonionic/glycol ethers)).							
Cosmetics/personal care products							
137 a	75 yr	denture cleaner	A	Derm/Ing	Unint misuse		
138 p	51 yr	toothpaste (fluoride) cocaine	A	Ingestion	Int suicide	 0.04 μg/mL§ benzoylecgonine 3.32 μg/mL§	
See also case 66 (cologne).							
Essential oils							
139	89 yr	unknown essential oil	A	Asp/Ing	Unint misuse		
Fertilizers							
See also case 67 (plant food).							

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
Foreign bodies/toys/miscellaneous							
See also cases 325, 340, 607, 622, 689, 833, 853, 857, 980 (activated charcoal).							
Fumes/gases/vapors							
140 ap	25 yr	argon	A	Inhalation	Occ		
141 ap	43 yr	argon	A	Inhalation	Occ		
142 ap	60 yr	carbon dioxide	A	Inhalation	Int suicide		
143 ip	13 yr	carbon monoxide	C	Inhalation	Env		
144 p	16 yr	carbon monoxide	A	Inhalation	Int suicide	57 %	
145 ip	22 yr	carbon monoxide	A	Inhalation	Occ		
146 p	24 yr	carbon monoxide	A	Inhalation	Env	30 %	
147 p	30 yr	carbon monoxide	A	Inhalation	Env		
148 p	38 yr	carbon monoxide	A	Inhalation	Int suicide	43.9 %	
149 p	45 yr	carbon monoxide	A	Inhalation	Unknown		
150 p	50 yr	carbon monoxide	A	Inhalation	Env		
151 p	70's yr	carbon monoxide	A	Inhalation	Env	72.3 %§	
152 p	80 yr	carbon monoxide	A	Inhalation	Env		
153 p	>19 yr	carbon monoxide	U	Inhalation	Env		
154	50 yr	carbon monoxide cyanide	A	Inhalation	Env	32 %	
155 ip	16 yr	carbon monoxide marijuana	A	Inhalation	Int suicide	71.1 %§	
156 ip	32 yr	carbon monoxide promethazine	A	Ing/Inh	Int suicide	79.3 %§ 120 ng/mL§	
157 p	10 mo	carbon monoxide/smoke	A	Inhalation	Env	11.1 %	1.75 h
158 p	2 yr	carbon monoxide/smoke	A	Inhalation	Env	43 %	
159 p	4 yr	carbon monoxide/smoke	A	Inhalation	Env		
160 p	6 yr	carbon monoxide/smoke	A	Inhalation	Env	16.9 %	
161 p	7 yr	carbon monoxide/smoke	A	Inhalation	Env	60 %	
162 ip	21 yr	carbon monoxide/smoke	A	Inhalation	Env	73 %§	
163 ip	27 yr	carbon monoxide/smoke	A	Inhalation	Env	70 %§	
164 ip	44 yr	carbon monoxide/smoke	A	Inhalation	Int suicide	37 %§	
165 p	55 yr	carbon monoxide/smoke	A	Inhalation	Env	49.5 %	
166 p	60 yr	carbon monoxide/smoke	A	Inhalation	Env	52 %	
167 p	60's yr	carbon monoxide/smoke	A	Inhalation	Env	46 %	
168 p	65 yr	carbon monoxide/smoke	A	Inhalation	Env	25 %	
169 ip	68 yr	carbon monoxide/smoke	A	Inhalation	Env	50 %§	
170	80 yr	carbon monoxide/smoke	A	Inhalation	Env	41 %	
171 p	>19 yr	carbon monoxide/smoke	A	Inhalation	Env	47 %	
172 p	33 yr	carbon monoxide/smoke hydrogen cyanide	A	Inhalation	Env	21 %	
173 p	45 yr	chloramine	A	Inhalation	Occ		
174	51 yr	chlorine	A	Inhalation	Int misuse		
175 ip	19 yr	hydrogen sulfide	A	Inhalation	Occ		
176 ip	25 yr	hydrogen sulfide	A	Inhalation	Occ		
177 p	43 yr	hydrogen sulfide	A	Asp/Ing/Inh	Occ	sulfide 0.9 μg/mL§	
178 p	45 yr	hydrogen sulfide	A	Inhalation	Occ		
179 p	49 yr	hydrogen sulfide	A	Inhalation	Occ		
180	70 yr	hydrogen sulfide	U	Inhalation	Env		
181 ip	34 yr	unknown fume	A	Inhalation	Unint misuse		
182 ip	36 yr	unknown fume	A	Inhalation	Unint misuse		
See also case 195 (carbon monoxide).							
Heavy metals							
183 i	89 yr	arsenic	U	Unknown	Malicious		
184 a	62 yr	cadmium	C	Unknown	Unknown	74 ng/mL§	
185 ap	19 mo	manganese/barium	A	Derm/Ing	Unint gen	manganese 390 ng/mL§ barium 760 ng/mL§	
Hydrocarbons							
186 p	21 yr	butane	A	Inhalation	Int abuse		
187 ap	13 yr	chlorofluorocarbon	A	Inhalation	Int suicide		
188 p	15 yr	chlorofluorocarbon	A	Inhalation	Int unk		
189 ap	62 yr	chlorofluorocarbon	A	Inhalation	Int suicide		
190 p	34 yr	difluoroethane	C	Inhalation	Int abuse		
191 aip	13 yr	gasoline	A	Inhalation	Int unk		
192 a	9 yr	hand cleaner (hydrocarbon)	A	Asp/Ing	Unint gen		
193 a	27 yr	hydrocarbon	A	Asp/Derm/ Ing/Inh	Occ		
194 a	9 mo	lamp oil	A	Asp/Ing	Unint gen		
195	53 yr	mineral spirit solvent carbon monoxide	A	Derm/Inh	Occ	22.5 %§	
196 a	53 yr	paint thinner	U	Inhalation	Int abuse		
197 p	17 yr	tetrafluoroethane	U	Inhalation	Int abuse		
198	26 yr	toluene	U	Unknown	Int unk		
See also cases 706 (motor oil); 96 (toluene).							
Mushrooms							
199 a	78 yr	Amanita phalloides	A	Ingestion	Unint misuse		
200	50 yr	Amanita species	A	Ingestion	Unint misuse		
201 a	75 yr	monomethylhydrazine	A	Ingestion	Unint misuse		
202 p	19 yr	Psilocybin species	U	Ingestion	Int abuse	psilocin 200 ng/mL§	
203 a	68 yr	unknown mushrooms	A	Ingestion	Unint misuse		
Paints and stripping agents							
204 p	35 yr	paint (oil-base)	A	Inhalation	Int abuse		
205	74 yr	paint stripping agent	A	Ingestion	Int suicide		
206 aip	27 yr	spray paint	A/C	Inhalation	Int abuse	toluene 1.3 μg/mL§ acetone 0.06 μg/mL§	

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
Pesticides: Fumigants							
207	40 yr	sulfuryl fluoride organophosphate	U	Unknown	Unknown		
Pesticides: Herbicides (incl. algaecides, defoliants, desiccants, plant growth regulators)							
208	31 yr	bentazone	A	Ingestion	Int suicide		
209 a	43 yr	chlorphenoxyacetic acid diphenhydramine	A	Ingestion	Int suicide		
210 a	80 yr	glyphosate	A	Ingestion	Int suicide		
211 a	58 yr	paraquat	A	Ingestion	Unint gen		
212	66 yr	paraquat	A	Ingestion	Unint misuse	33.7 μg/mL	
Pesticides: Insecticides (incl. insect growth regulators, molluscicides, nematicides)							
213 a	68 yr	acephate nortriptyline	A	Ingestion	Int suicide		
214 ap	79 yr	calcium cyanide ethanol	A	Ingestion	Int suicide	2.49 μg/mL§ 150 mg/dL§	
215 a	17 yr	dinitrophenol caffeine	A/C	Ingestion	Int suicide		
216 p	50 yr	malathion	A	Ingestion	Int suicide		
217 ap	40 yr	organophosphate	A	Derm/Ing	Unknown		
218	53 yr	organophosphate insecticide	A	Ing/Unk	Env		
See also case 207 (organophosphate).							
Pesticides: Rodenticides							
219 a	31 yr	brodifacoum	A/C	Ingestion	Int suicide		
220 a	38 yr	brodifacoum	A	Ingestion	Int suicide		
221 p	39 yr	strychnine ethanol ventafaxine[A]	U	Ing/Unk	Unknown	 60 mg/dL§	
See also cases 92 (brodifacoum); 904 (rodenticide).							
Plants							
222 ap	13 yr	Conium maculatum	A	Ingestion	Unint misuse		
223 p	13 yr	Datura stramonium	A	Ingestion	Int abuse		
Polishes and waxes							
224 p	25 yr	polish (isobutane/mineral oil) marijuana ethanol	A	Ing/Inh	Int abuse		
Swimming pool/aquarium							
225	49 yr	acidic pool cleaner	A	Ingestion	Int suicide		
PHARMACEUTICALS							
Analgesics							
226	11 yr	acetaminophen	C	Ingestion	Ther err	49 μg/mL	
227	19 yr	acetaminophen	A	Ingestion	Int suicide	171 μg/mL	
228	22 yr	acetaminophen	A	Ingestion	Int suicide	298 μg/mL	
229	22 yr	acetaminophen	C	Ingestion	Int misuse		
230	29 yr	acetaminophen	A	Ingestion	Int suicide	347 μg/mL	
231	30 yr	acetaminophen	A/C	Ingestion	Int misuse	73 μg/mL	
232	30 yr	acetaminophen	U	Ingestion	Int suicide	2.2 μg/mL	
233	30 yr	acetaminophen	A/C	Ingestion	Int misuse	25 μg/mL	
234	30 yr	acetaminophen	A	Ingestion	Int suicide		
235	30 yr	acetaminophen	A	Ingestion	Int suicide	200 μg/mL	29.5 h
236 a	31 yr	acetaminophen	U	Ingestion	Unknown	24 μg/mL	
237	31 yr	acetaminophen	C	Ingestion	Int misuse	131 μg/mL	
238	32 yr	acetaminophen	A	Ingestion	Int suicide	319 μg/mL	15 h
239	32 yr	acetaminophen	U	Ingestion	Int misuse	41 μg/mL	
240	33 yr	acetaminophen	A	Ingestion	Int suicide	196 μg/mL	33 h
241	34 yr	acetaminophen	C	Ingestion	Int unk	62 μg/mL	
242	35 yr	acetaminophen	A/C	Ingestion	Int suicide	131 μg/mL	
243 a	35 yr	acetaminophen	A	Ingestion	Int suicide	266 μg/mL	48 h
244 p	36 yr	acetaminophen	U	Ingestion	Unknown	56 μg/mL	
245	36 yr	acetaminophen	U	Ingestion	Int suicide	11 μg/mL	
246	37 yr	acetaminophen	C	Ingestion	Int unk	15 μg/mL	
247	38 yr	acetaminophen	C	Ingestion	Int misuse	36 μg/mL	48 h
248	39 yr	acetaminophen	A	Ingestion	Int suicide	79 μg/mL	19 h
249	39 yr	acetaminophen	A	Ingestion	Unknown		
250	40 yr	acetaminophen	A/C	Ingestion	Int suicide	64 μg/mL	
251	41 yr	acetaminophen	U	Ingestion	Unknown	6.6 μg/mL	
252	42 yr	acetaminophen	U	Ingestion	Int suicide		
253	42 yr	acetaminophen	A	Ingestion	Int suicide	174 μg/mL	19 h
254	42 yr	acetaminophen	U	Ingestion	Int suicide	117.8 μg/mL	
255	44 yr	acetaminophen	A	Ingestion	Int suicide	105 μg/mL	
256	44 yr	acetaminophen	A	Ingestion	Int suicide		
257	45 yr	acetaminophen	A	Ingestion	Int suicide		
258	45 yr	acetaminophen	U	Ingestion	Int suicide		
259 a	45 yr	acetaminophen	U	Ingestion	Int suicide	1,208 μg/mL	
260	45 yr	acetaminophen	A	Ingestion	Int suicide		
261	47 yr	acetaminophen	A/C	Ingestion	Ther err	102 μg/mL	
262	47 yr	acetaminophen	U	Ingestion	Int unk	118 μg/mL	
263	47 yr	acetaminophen	U	Ingestion	Int suicide	89 μg/mL	
264	48 yr	acetaminophen	C	Ingestion	Int misuse	136 μg/mL	
265	53 yr	acetaminophen	A	Ingestion	Int suicide	674 μg/mL	
266	57 yr	acetaminophen	C	Ingestion	Ther err		
267	62 yr	acetaminophen	A	Ingestion	Int suicide	75 μg/mL	18.5 h
268	67 yr	acetaminophen	A	Ingestion	Int suicide	527 μg/mL	
269	68 yr	acetaminophen	C	Ingestion	Ther err	85 μg/mL	
270	74 yr	acetaminophen	A	Ingestion	Int suicide	233 μg/mL	24 h
271	88 yr	acetaminophen	A	Ingestion	Int suicide	779 μg/mL	

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
272	>19 yr	acetaminophen	C	Ingestion	Int misuse		
273	35 yr	acetaminophen acetaminophen/antihistamine/decongestant	C	Ingestion	Ther err	46.4 μg/mL	
274	42 yr	acetaminophen acetaminophen/aspirin/caffeine	A/C	Ingestion	Int suicide	76 μg/mL	
275	29 yr	acetaminophen acetaminophen/dextromethorphan/doxylamine/psedudoephedrine	A	Ingestion	Int suicide	18 μg/mL	32 h
276	25 yr	acetaminophen acetaminophen/diphenhydramine	C	Ingestion	Int misuse		
277	16 yr	acetaminophen acetaminophen/hydrocodone acetaminophen/oxycodone[A]	A	Ingestion	Int suicide	126 μg/mL	8 h
278	36 yr	acetaminophen acetaminophen/hydrocodone amitriptyline/perphenazine	A	Ingestion	Int suicide	141 μg/mL	
279	40's yr	acetaminophen acetaminophen/hydrocodone fluoxetine[A]	C	Ingestion	Int suicide	337 μg/mL	
280	25 yr	acetaminophen acetaminophen/hydrocodone other cough/cold medication[A]	A/C	Ingestion	Unknown		
281	31 yr	acetaminophen alprazolam cocaine	A	Ing/Unk	Int suicide	50 μg/mL	33 h
282	73 yr	acetaminophen alprazolam lorazepam[A]	A/C	Ingestion	Int suicide	320 μg/mL	
283 p	40 yr	acetaminophen amitriptyline morphine (long-acting)[A]	A/C	Ingestion	Int suicide	17 μg/mL	
284	26 yr	acetaminophen aspirin	C	Ingestion	Int misuse	 5 mg/dL	
285	38 yr	acetaminophen aspirin	C	Ingestion	Int misuse	61.7 μg/mL 13 mg/dL	
286	40 yr	acetaminophen aspirin	C	Ingestion	Ther err	10.3 μg/mL 10.9 mg/dL	
287	51 yr	acetaminophen aspirin	A	Ingestion	Int suicide	60 μg/mL 14.9 mg/dL	
288	33 yr	acetaminophen aspirin diphenhydramine	A	Ingestion	Int suicide	9 μg/mL§ 16.5 mg/dL 0.12 μg/mL§	
289	33 yr	acetaminophen aspirin ethanol	C	Ingestion	Int misuse	50.5 μg/mL 40.3 mg/dL	
290	43 yr	acetaminophen aspirin ethanol	A	Ingestion	Int suicide	218 μg/mL 11 mg/dL 44 mg/dL	
291	69 yr	acetaminophen benzodiazepine	A	Ingestion	Int suicide	383 μg/mL	
292	15 yr	acetaminophen caffeine	A	Ingestion	Int suicide	96 μg/mL	19 h
293	39 yr	acetaminophen clonazepam	A	Ingestion	Int suicide	871 μg/mL	
294	48 yr	acetaminophen cocaine caffeine[A]	U	Ing/Unk	Int suicide	181 μg/mL 71 μg/mL	
295	19 yr	acetaminophen ethanol	A	Ingestion	Int suicide	214 μg/mL	24 h
296 a	22 yr	acetaminophen ethanol	C	Ingestion	Ther err		
297 ip	41 yr	acetaminophen ethanol	U	Ingestion	Int suicide	645 μg/mL§ 10 mg/dL§	
298	76 yr	acetaminophen ethanol	A/C	Ingestion	Ther err	75 μg/mL	5 h
299	51 yr	acetaminophen ethanol trazodone[A]	U	Ingestion	Int suicide	17.8 μg/mL 15 mg/dL	
300	35 yr	acetaminophen ethylene glycol	U	Ingestion	Int suicide	15 μg/mL 22 mg/dL	
301	46 yr	acetaminophen ethylene glycol	A	Ingestion	Int suicide	172 μg/mL 14 mg/dL	
302 p	55 yr	acetaminophen fentanyl patch	A	Derm/Ing	Int unk	98 μg/mL	
303	45 yr	acetaminophen fluoxetine	A	Ingestion	Int unk	84.1 μg/mL	30 h
304	35 yr	acetaminophen fluoxetine hydrochlorothiazide/valsartan[A]	C	Ingestion	Int misuse	77 μg/mL	
305	41 yr	acetaminophen fluoxetine zolpidem[A]	A/C	Ingestion	Int suicide	>200 μg/mL	
306	46 yr	acetaminophen hydrocodone	A	Ingestion	Int suicide	105.2 μg/mL 40 ng/mL§	
307	30 yr	acetaminophen ibuprofen	C	Ingestion	Int misuse	8 μg/mL	

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
308	27 yr	acetaminophen	A	Ingestion	Int suicide	5 μg/mL	16 h
		iron				139 μg/dL	16 h
		ethanol[A]					
309	21 yr	acetaminophen	U	Ingestion	Int suicide	58.7 μg/mL	
		lithium				1.8 mEq/L	
		risperidone					
310	40 yr	acetaminophen	U	Ingestion	Int suicide		
		oxycodone					
		tricyclic antidepressant					
311	14 yr	acetaminophen	A/C	Ingestion	Int suicide	170 μg/mL	
		phenobarbital				35 μg/mL	
312	18 yr	acetaminophen	U	Ingestion	Int unk	32 μg/mL	
		unknown drug					
313	26 yr	acetaminophen	A	Ingestion	Int suicide	282 μg/mL	
		unknown drug					
314	65 yr	acetaminophen	A/C	Ingestion	Int suicide	71.9 μg/mL	
		valproic acid					
315 p	44 yr	acetaminophen	A	Ingestion	Int suicide	84 μg/mL	
		venlafaxine					
		ethanol[A]				70 mg/dL	
316	40's yr	acetaminophen	U	Ingestion	Int suicide	170 μg/mL	
		zolpidem					
317	36 yr	acetaminophen (long-acting)	A/C	Ingestion	Int suicide	162 μg/mL	
		carbamazepine				34.4 μg/mL	
		diphenhydramine					
318	19 yr	acetaminophen/aspirin/caffeine	A	Ingestion	Int suicide	126 μg/mL¥	
		bupropion (long-acting)					
		aspirin[A]				65 mg/dL	
319	22 yr	acetaminophen/aspirin/caffeine	U	Ingestion	Int suicide	410 μg/mL¥	
						51.3 mg/dL¶	
		lorazepam					
320	41 yr	acetaminophen/codeine	C	Ingestion	Int misuse	15 μg/mL¥	
321	49 yr	acetaminophen/codeine	A	Ingestion	Unknown	228 μg/mL¥	
322	53 yr	acetaminophen/codeine	C	Ingestion	Int misuse	40 μg/mL¥	
323 p	76 yr	acetaminophen/codeine	A/C	Ingestion	Int suicide	47 μg/mL¥	
324 p	37 yr	acetaminophen/codeine	A	Ingestion	Int suicide	877.5 μg/mL¥	7 h
						codeine 12.2 μg/mL	
		acetaminophen/butalbital/caffeine					
325	49 yr	acetaminophen/codeine	A/C	Asp/Ing	Int suicide	261 μg/mL¥	
		activated charcoal					
326	77 yr	acetaminophen/codeine	A	Ingestion	Int suicide		
		boric acid					
327	76 yr	acetaminophen/codeine	A/C	Ingestion	Int suicide		
		lorazepam					
328	18 yr	acetaminophen/diphenhydramine	A	Ingestion	Int suicide	35 μg/mL¥	
329	21 yr	acetaminophen/diphenhydramine	A	Ingestion	Int suicide	29 μg/mL¥	23 h
330	24 yr	acetaminophen/diphenhydramine	A	Ingestion	Int suicide	386 μg/mL¥	1 d
331	25 yr	acetaminophen/diphenhydramine	A	Ingestion	Int suicide	51 μg/mL¥	
332	28 yr	acetaminophen/diphenhydramine	U	Ingestion	Int suicide	94 μg/mL¥	
333 a	32 yr	acetaminophen/diphenhydramine	A	Ingestion	Int suicide	540 μg/mL¥	
334	43 yr	acetaminophen/diphenhydramine	A	Ingestion	Int unk	546 μg/mL¥	
						diphenhydramine 5.36 μg/mL§	
335	47 yr	acetaminophen/diphenhydramine	U	Ingestion	Int suicide	103 μg/mL¥	
336	50 yr	acetaminophen/diphenhydramine	U	Ingestion	Int abuse	24.7 μg/mL¥	2 d
337	64 yr	acetaminophen/diphenhydramine	A/C	Ingestion	Int suicide	621 μg/mL¥§	
338	64 yr	acetaminophen/diphenhydramine	A	Ingestion	Int unk	336 μg/mL¥	
339	56 yr	acetaminophen/diphenhydramine	A/C	Ingestion	Int suicide	910 μg/mL¥	
		acetaminophen					
		unknown acid					
340	18 yr	acetaminophen/diphenhydramine	A	Asp/Ing	Int suicide	234.6 μg/mL¥	4 h
		activated charcoal					
341	23 yr	acetaminophen/diphenhydramine	A	Ingestion	Int suicide	28.6 μg/mL¥	48 h
		aspirin				11 mg/dL	
342 p	50's yr	acetaminophen/diphenhydramine	A	Ingestion	Int suicide	119 μg/mL¥§	
						diphenhydramine 2.3 μg/mL§	
		ethanol				242 mg/dL§	
343	27 yr	acetaminophen/hydrocodone	A	Ingestion	Int abuse	55 μg/mL¥	
344	29 yr	acetaminophen/hydrocodone	A/C	Ingestion	Int suicide	160 μg/mL¥	
345	37 yr	acetaminophen/hydrocodone	A/C	Ingestion	Int suicide	198 μg/mL¥	72 h
346 p	38 yr	acetaminophen/hydrocodone	U	Ingestion	Int suicide		
347	39 yr	acetaminophen/hydrocodone	A/C	Ingestion	Int misuse	74 μg/mL¥	19 h
348	39 yr	acetaminophen/hydrocodone	U	Ingestion	Unknown	6.6 μg/mL¥	
349	42 yr	acetaminophen/hydrocodone	A/C	Ingestion	Int suicide	23.2 μg/mL¥	
350	42 yr	acetaminophen/hydrocodone	C	Ingestion	Ther err	58 μg/mL¥	
351	42 yr	acetaminophen/hydrocodone	A/C	Ingestion	Int misuse	590 μg/mL¥	
						hydrocodone 1,300 ng/mL	
352 p	43 yr	acetaminophen/hydrocodone	A	Ingestion	Int suicide	107 μg/mL¥	
353	44 yr	acetaminophen/hydrocodone	A/C	Ingestion	Int suicide	67 μg/mL¥	
354	46 yr	acetaminophen/hydrocodone	A	Ingestion	Int suicide	133 μg/mL¥	2 d
355	48 yr	acetaminophen/hydrocodone	C	Ingestion	Int unk	143 μg/mL¥	
356	57 yr	acetaminophen/hydrocodone	C	Ingestion	Int suicide		
357	60's yr	acetaminophen/hydrocodone	A	Ingestion	Int suicide	905 μg/mL¥	4 h
358	65 yr	acetaminophen/hydrocodone	A	Ingestion	Int suicide	12.8 μg/mL¥	
359	76 yr	acetaminophen/hydrocodone	A/C	Ingestion	Int suicide	5 μg/mL¥	6 h
360	76 yr	acetaminophen/hydrocodone	U	Ingestion	Unknown	29 μg/mL¥	
361	>19 yr	acetaminophen/hydrocodone	A/C	Ingestion	Int suicide		
362	40 yr	acetaminophen/hydrocodone	C	Ingestion	Int suicide		
		acetaminophen/oxycodone					
		carisoprodol[A]					

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
363	25 yr	acetaminophen/hydrocodone alprazolam carisoprodol[A]	A	Ingestion	Int suicide	154 μg/mL¥	
364	54 yr	acetaminophen/hydrocodone amitriptyline gabapentin[A]	A/C	Ingestion	Int suicide		
365	35 yr	acetaminophen/hydrocodone amitriptyline morphine (long-acting)[A]	A	Ingestion	Int suicide	65.2 μg/mL¥	
366	53 yr	acetaminophen/hydrocodone aspirin/carisoprodol	A	Ingestion	Int suicide	41.9 μg/mL¥	
367	27 yr	acetaminophen/hydrocodone barbiturate benzodiazepine[A]	A	Ingestion	Int suicide		
368	26 yr	acetaminophen/hydrocodone carisoprodol	C	Ingestion	Int misuse	23 μg/mL¥	
369	38 yr	acetaminophen/hydrocodone carisoprodol	U	Ingestion	Int suicide	50 μg/mL¥	
370	46 yr	acetaminophen/hydrocodone carisoprodol	C	Ingestion	Int misuse	16 μg/mL¥	
371 p	59 yr	acetaminophen/hydrocodone carisoprodol	A/C	Ingestion	Int suicide	181 μg/mL¥	
372 p	59 yr	acetaminophen/hydrocodone carisoprodol alprazolam	U	Ingestion	Int suicide		
373 p	60 yr	acetaminophen/hydrocodone chlordiazepoxide	C	Ingestion	Unknown	25 μg/mL¥	
374 p	43 yr	acetaminophen/hydrocodone clonazepam	A/C	Ingestion	Int suicide		
375	38 yr	acetaminophen/hydrocodone diazepam	A/C	Ingestion	Int suicide		
376	52 yr	acetaminophen/hydrocodone diazepam	A	Ingestion	Int suicide	89.8 μg/mL¥	
377 p	27 yr	acetaminophen/hydrocodone ethanol	U	Ingestion	Int suicide		
378 i	61 yr	acetaminophen/hydrocodone lorazepam ethanol	A/C	Ingestion	Int suicide		
379 p	Unk	acetaminophen/hydrocodone marijuana	A/C	Ing/Inh	Int abuse		
380 p	36 yr	acetaminophen/hydrocodone morphine alprazolam[A]	U	Ingestion	Int suicide	hydrocodone 107 ng/mL§ 178 ng/mL§ 150 ng/mL§	
381	50 yr	acetaminophen/hydrocodone morphine (long-acting) clonidine	A	Ingestion	Int suicide		
382	43 yr	acetaminophen/hydrocodone oxycodone cyclobenzaprine[A]	A/C	Ingestion	Int suicide	47.3 μg/mL¥	
383	42 yr	acetaminophen/hydrocodone tramadol cyclobenzaprine[A]	A/C	Ingestion	Unknown		
384	42 yr	acetaminophen/hydrocodone trazodone	U	Ingestion	Int suicide		
385 p	19 yr	acetaminophen/oxycodone	U	Ingestion	Int unk	oxycodone 900 ng/mL§	
386 p	28 yr	acetaminophen/oxycodone	A	Ingestion	Int suicide	268 μg/mL¥	
387	29 yr	acetaminophen/oxycodone	U	Ingestion	Int suicide		
388	54 yr	acetaminophen/oxycodone	A	Ingestion	Int suicide	105 μg/mL¥	
389 ip	58 yr	acetaminophen/oxycodone	U	Ingestion	Unknown	9.91 μg/mL¥§ oxycodone 620 ng/mL§	
390	51 yr	acetaminophen/oxycodone aspirin	C	Ingestion	Int suicide	112.3 μg/mL¥ 12 mg/dL	
391 p	40 yr	acetaminophen/oxycodone diazepam ethanol[A]	A	Ingestion	Int suicide	25 μg/mL¥ 196 mg/dL	4 h
392 p	45 yr	acetaminophen/oxycodone methadone tricyclic antidepressant[A]	A/C	Ingestion	Int misuse		
393	30 yr	acetaminophen/oxycodone naproxen nabumetone	C	Ingestion	Int misuse		
394 p	26 yr	acetaminophen/propoxyphene	A	Ingestion	Int suicide		
395 p	33 yr	acetaminophen/propoxyphene	A	Ingestion	Int suicide		
396	38 yr	acetaminophen/propoxyphene	A	Ingestion	Int suicide	25.2 μg/mL¥	
397	47 yr	acetaminophen/propoxyphene	A/C	Ingestion	Int suicide		
398	53 yr	acetaminophen/propoxyphene	A	Ingestion	Int suicide	209 μg/mL¥	
399 p	66 yr	acetaminophen/propoxyphene	A/C	Ingestion	Ther err		
400	68 yr	acetaminophen/propoxyphene	A	Ingestion	Unknown	105 μg/mL¥	
401	80 yr	acetaminophen/propoxyphene	U	Ingestion	Int suicide	24.7 μg/mL¥	
402 ip	>19 yr	acetaminophen/propoxyphene	A	Ingestion	Int suicide		
403 ip	45 yr	acetaminophen/propoxyphene alprazolam	A	Ingestion	Int suicide	982 μg/mL¥§ propoxyphene 10.3 μg/mL§ norpropoxyphene 6.15 μg/mL§ 370 ng/mL§	
404	67 yr	acetaminophen/propoxyphene alprazolam	A	Ingestion	Int suicide	41.3 μg/mL¥	
405	99 yr	acetaminophen/propoxyphene aspirin	A/C	Ingestion	Int suicide		

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
406	42 yr	acetaminophen/propoxyphene	A	Ingestion	Int suicide	260 μg/mL¥§	
						propoxyphene 0.9 μg/mL§	
						norpropoxyphene 0.87 μg/mL§	
		aspirin				50.8 mg/dL	5 h
		ethanol				200 mg/dL§	
407	51 yr	acetaminophen/propoxyphene	U	Ingestion	Int suicide	454 μg/mL¥	4 h
		carbamazepine					
		bupropion					
408	45 yr	acetaminophen/propoxyphene	A/C	Ingestion	Int suicide	57 μg/mL¥	5 h
		ethanol					
409i	52 yr	acetaminophen/propoxyphene	A/C	Ingestion	Int misuse	51 μg/mL¥	
		ethanol					
		acetaminophen					
410	26 yr	acetaminophen/propoxyphene	A/C	Derm/Ing	Int abuse	504.1 μg/mL¥	
		fentanyl patch					
411 p	42 yr	acetaminophen/propoxyphene	A	Ingestion	Int suicide	240 μg/mL¥	
		venlafaxine					
412	48 yr	acetaminophen/propoxyphene	A/C	Ingestion	Int suicide	78.1 μg/mL¥	
		venlafaxine (long-acting)					
		tizanidine[A]					
413	39 yr	acetaminophen/tramadol	A	Ingestion	Int suicide	336 μg/mL¥	2 h
		acetaminophen/propoxyphene					
		ethanol				196.9 mg/dL	2 h
414	71 yr	acetaminophen/tramadol	A/C	Ingestion	Int suicide	180 μg/mL¥	
		dicyclomine					
		tramadol[A]					
415	39 yr	acetaminophen/tramadol	A	Ingestion	Int abuse	40 μg/mL¥	
		heroin					
416	17 yr	aspirin	U	Ingestion	Unknown	66.4 mg/dL	
417	21 yr	aspirin	A	Ingestion	Int suicide	118 mg/dL	3 h
418	27 yr	aspirin	A	Ingestion	Int suicide	99 mg/dL	
419	29 yr	aspirin	A	Ingestion	Int suicide	126 mg/dL	
420	29 yr	aspirin	A	Ingestion	Int suicide	150 mg/dL	
421	35 yr	aspirin	A	Ingestion	Int suicide	70.3 mg/dL	
422	36 yr	aspirin	A	Ingestion	Int suicide	100 mg/dL	
423	43 yr	aspirin	A	Ingestion	Int suicide	76 mg/dL	10 h
424	45 yr	aspirin	C	Ingestion	Int misuse	99 mg/dL	
425	47 yr	aspirin	A	Ingestion	Int suicide	108 mg/dL	
426	47 yr	aspirin	C	Ingestion	Int suicide	87 mg/dL	
427	48 yr	aspirin	A	Ingestion	Int suicide	119 mg/dL	
428	48 yr	aspirin	A	Ingestion	Int suicide	86 mg/dL	21 h
429	49 yr	aspirin	A	Ingestion	Int suicide	127 mg/dL	
430	50 yr	aspirin	A	Ingestion	Int suicide	93 mg/dL	4 h
431	55 yr	aspirin	A	Ingestion	Int suicide	106 mg/dL	
432	58 yr	aspirin	A	Ingestion	Int suicide	111 mg/dL	
433	59 yr	aspirin	A	Ingestion	Int suicide	104 mg/dL	22 h
434	59 yr	aspirin	A	Ingestion	Int suicide		
435	60's yr	aspirin	C	Ingestion	Int misuse	61.6 mg/dL	
436	72 yr	aspirin	A/C	Ingestion	Int suicide	43.7 mg/dL	
437	78 yr	aspirin	A/C	Ingestion	Int suicide	124 mg/dL	
438	80 yr	aspirin	A	Ingestion	Int suicide	136 mg/dL	4 h
439	82 yr	aspirin	A	Ingestion	Int suicide	137 mg/dL	24 h
440	83 yr	aspirin	A	Ingestion	Int suicide	58 mg/dL	
441	40 yr	aspirin	A	Ingestion	Int suicide	68 mg/dL	
		acetaminophen				46 μg/mL	
442 a	42 yr	aspirin	A	Ingestion	Int suicide	73 mg/dL	
		acetaminophen				130 μg/mL	16 h
443	63 yr	aspirin	A	Ingestion	Int suicide	70 mg/dL	
		acetaminophen				204 μg/mL	
444	33 yr	aspirin	U	Ing/Inh	Int misuse	60 mg/dL	
		acetaminophen				148 μg/mL	
		cocaine					
445	54 yr	aspirin	A	Ingestion	Int suicide	73 mg/dL	
		acetaminophen				685 μg/mL	
		ibuprofen					
446	48 yr	aspirin	A	Ingestion	Int suicide	90 mg/dL	
		acetaminophen/codeine				7.8 μg/mL¥	
		lorazepam					
447	29 yr	aspirin	A/C	Ingestion	Int suicide	60 mg/dL	
		acetaminophen/propoxyphene				120 μg/mL¥	
		naproxen[A]					
448	63 yr	aspirin	A	Ingestion	Int suicide	84.9 mg/dL	2 h
		amlodipine/benazepril					
449	35 yr	aspirin	A	Ing/Unk	Int suicide	141 mg/dL	
		cocaine					
450 p	42 yr	aspirin	A	Ingestion	Int suicide	85 mg/dL	
		cocaine					
		opioid[A]					
451	37 yr	aspirin	A	Ingestion	Int suicide	90 mg/dL	
		diphenhydramine					
		ethanol					
452	39 yr	aspirin	A	Ing/Paren/Unk	Int suicide	88 mg/dL	7 h
		methadone					
		amphetamine					
453	19 yr	aspirin	C	Ingestion	Int unk	163 mg/dL	
		methamphetamine				0.12 μg/mL§	
						d-amphetamine 0.05 μg/mL§	

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
454 p	>19 yr	aspirin	A	Ingestion	Int suicide		
		nonsteroidal antiinflammatory drug					
455 p	58 yr	aspirin	A	Ingestion	Int suicide	77.2 mg/dL	
		unknown drug					
456	53 yr	aspirin/butalbital/caffeine	A	Ingestion	Int suicide	8.6 mg/dL¶	
457	30 yr	aspirin/caffeine/orphenadrine/ phenacetin	A	Ingestion	Int suicide	647.5 mg/dL¶	
458 p	54 yr	aspirin/codeine	A/C	Ingestion	Int abuse		
		diazepam				330 ng/mL§	
459	4 yr	colchicine	A	Ingestion	Unint gen		
460	48 yr	colchicine	A	Ingestion	Int suicide		
461 a	56 yr	colchicine	A	Ingestion	Int unk		
462	82 yr	colchicine	A/C	Ing/Paren	Ther err		
463 a	83 yr	colchicine	A/C	Ingestion	Ther err		
464 p	30 yr	fentanyl	A	Ingestion	Int suicide	4.1 ng/mL§	
		alprazolam				350 ng/mL§	
		diphenhydramine[A]				1.38 μg/mL§	
465 ip	37 yr	fentanyl	A	Ingestion	Int suicide	9.7 ng/mL§	
		diazepam				77 ng/mL§	
		paroxetine[A]				450 ng/mL§	
466 p	49 yr	fentanyl	U	Ingestion	Int abuse	3.6 ng/mL	
		morphine (long-acting)				40 ng/mL	
		alprazolam[A]					
467 ap	4 yr	fentanyl patch	A	Dermal	Ther err		
468 ip	24 yr	fentanyl patch	A	Ingestion	Int abuse		
469 p	26 yr	fentanyl patch	A	Ingestion	Int unk		
470 ip	27 yr	fentanyl patch	A	Ingestion	Int abuse		
471 p	28 yr	fentanyl patch	A/C	Parenteral	Int abuse		
472 p	41 yr	fentanyl patch	A/C	Dermal	Int suicide		
473 p	58 yr	fentanyl patch	C	Dermal	Int unk	27.7 ng/mL	
474 p	41 yr	fentanyl patch	A/C	Ingestion	Int suicide	4.6 ng/mL	
						norfentanyl 6.3 ng/mL	
		acetaminophen/hydrocodone					
		carisoprodol[A]					
475 p	36 yr	fentanyl patch	A	Ingestion	Int abuse		
		ethanol				56.6 mg/dL	
476 p	19 yr	hydrocodone	A	Ingestion	Int unk	2,086 ng/mL§	
477 ip	38 yr	hydrocodone	A	Paren/Unk	Int abuse	50 ng/mL§	
						dihydrocodeine 40 ng/mL§	
		alprazolam				130 ng/mL§	
		meprobamate[A]					
478 ip	23 yr	hydrocodone	A/C	Ingestion	Int abuse	93 ng/mL§	
						dihydrocodeine 21 ng/mL§	
		carisoprodol				5.5 μg/mL§	
479 aip	4 yr	hydrocodone	A/C	Ingestion	Ther err	670 ng/mL§	
		chlorpheniramine				0.21 μg/mL§	
		guaifenesin					
480 p	23 yr	hydrocodone	A/C	Ingestion	Int suicide	150 ng/mL§	
		citalopram				1,980 ng/mL§	
		clonazepam[A]				100 ng/mL§	
481 ip	48 yr	hydrocodone	A/C	Ingestion	Int abuse	220 ng/mL§	
		ethanol				230 mg/dL§	
482 ip	24 yr	hydrocodone	U	Unknown	Int unk	80 ng/mL§	
		propoxyphene				0.09 μg/mL§	
						norpropoxyphene 0.9 μg/mL§	
		diazepam[A]					
483 a	16 yr	hydromorphone	A	Parenteral	Ther err		
484	48 yr	hydromorphone	U	Ingestion	Int suicide		
485 aip	7 yr	meperidine	C	Ingestion	Ther err	1.27 μg/mL§	
						normeperidine 0.76 μg/mL§	
486 ip	29 yr	meperidine	C	Ingestion	Ther err	0.89 μg/mL§	
		hydrocodone				70 ng/mL§	
		promethazine[A]				390 ng/mL§	
487 p	17 yr	methadone	U	Ing/Unk	Int abuse		
488 p	19 yr	methadone	U	Unknown	Int abuse		
489 p	21 yr	methadone	U	Ingestion	Int unk		
490 ip	24 yr	methadone	A	Unknown	Unknown		
491 p	26 yr	methadone	A	Ingestion	Int suicide		
492 ip	26 yr	methadone	A	Ingestion	Int abuse	0.1 μg/mL§	
						EDDP 0.05 μg/mL§	
493 ip	29 yr	methadone	A	Ingestion	Int misuse	0.34 μg/mL§	
						EDDP 0.12 μg/mL§	
494	33 yr	methadone	A	Ingestion	Unknown		
495 p	37 yr	methadone	A	Ingestion	Int suicide		
496 p	37 yr	methadone	A/C	Ingestion	Unknown		
497 ip	38 yr	methadone	A/C	Ingestion	Unint misuse	0.67 μg/mL§	
						EDDP 0.09 μg/mL§	
498 p	40 yr	methadone	A/C	Ingestion	Int suicide		
499 p	40 yr	methadone	A/C	Ingestion	Int abuse		
500 ip	41 yr	methadone	A/C	Ingestion	Int suicide	0.57 μg/mL§	
501	50 yr	methadone	A/C	Ingestion	Int misuse	0.68 μg/mL§	
502 ip	>19 yr	methadone	A	Ingestion	Int abuse	31 μg/mL§	
						EDDP 15 μg/mL§	
503	37 yr	methadone	A/C	Ingestion	Int suicide		
		acetaminophen				43 μg/mL	
		carisoprodol					
504 ip	34 yr	methadone	A/C	Ingestion	Int suicide		
		acetaminophen/hydrocodone					

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
505 ip	37 yr	methadone	U	Ing/Unk	Int unk	0.46 μg/mL§	
		acetaminophen/hydrocodone				hydrocodone 50 ng/mL§	
		paroxetine				9,800 ng/mL§	
506 p	24 yr	methadone	A	Ingestion	Int unk	0.2 μg/mL§	
		alprazolam					
507	42 yr	methadone	A/C	Ingestion	Int abuse		
		alprazolam				94.4 ng/mL	
508 ip	27 yr	methadone	U	Ingestion	Unknown	1.2 μg/mL§	
		alprazolam					
		acetaminophen/codeine[A]					
509 ip	61 yr	methadone	A/C	Ingestion	Int suicide	1.03 μg/mL§	
		alprazolam				180 ng/mL§	
		acetaminophen/hydrocodone				hydrocodone 100 ng/mL§	
510 ip	26 yr	methadone	A	Ing/Inh	Int misuse	0.72 μg/mL§	
		chlordiazepoxide				740 ng/mL§	
		marijuana					
511 ip	28 yr	methadone	A/C	Ingestion	Int unk	0.32 μg/mL§	
		chlorpheniramine				0.72 μg/mL§	
		mirtazapine				140 ng/mL§	
512 p	23 yr	methadone	A/C	Ingestion	Int unk	0.23 μg/mL§	
		clonazepam					
513 p	38 yr	methadone	A/C	Ingestion	Int abuse	0.4 μg/mL§	
		diazepam				200 ng/mL§	
						nordiazepam 550 ng/mL§	
514 ip	39 yr	methadone	U	Unknown	Unknown	0.09 μg/mL§	
		diazepam				180 ng/mL§	
						nordiazepam 160 ng/mL§	
515 ip	42 yr	methadone	A/C	Ingestion	Int misuse		
		diazepam					
		bupropion					
516 p	28 yr	methadone	A/C	Ing/Unk	Int misuse	0.64 μg/mL§	
		diazepam				41 ng/mL§	
						nordiazepam 163 ng/mL§	
		cocaine[A]				0.056 μg/mL§	
						benzolyecgonine 0.22 μg/mL§	
517 p	43 yr	methadone	U	Ingestion	Int unk	0.7 μg/mL§	
		diazepam				4,000 ng/mL§	
						nordiazepam 2,000 ng/mL§	
		fluoxetine				200 ng/mL§	
518 ip	44 yr	methadone	U	Unknown	Int unk	0.34 μg/mL§	
		diazepam				220 ng/mL§	
						nordiazepam 420 ng/mL§	
		hydrocodone					
519 p	50 yr	methadone	U	Ingestion	Unknown		
		diazepam					
		paroxetine					
520 aip	17 mo	methadone	A	Ingestion	Unknown	0.65 μg/mL§	
		diphenhydramine				1.2 μg/mL§	
521 p	39 yr	methadone	A/C	Ingestion	Int unk		
		ethanol					
522	41 yr	methadone	U	Ingestion	Unknown	0.74 μg/mL§	
		ethanol					
523 p	Unk	methadone	U	Ingestion	Int abuse		
		ethanol					
524 ip	47 yr	methadone	U	Ingestion	Int suicide	0.29 μg/mL§	
						EDDP 0.06 μg/mL§	
		ethanol				230 mg/dL§	
		citalopram					
525 i	28 yr	methadone	A	Ing/Unk	Int unk	0.37 μg/mL§	
						EDDP 0.35 μg/mL§	
		fentanyl				1.5 ng/mL§	
		diazepam				520 ng/mL§	
						nordiazepam 1,150 ng/mL§	
526 ip	17 yr	methadone	A/C	Ingestion	Int abuse	0.46 μg/mL§	
		gamma hydroxybutyrate				13 μg/mL§	
527	48 yr	methadone	A	Ing/Paren	Int abuse		
		heroin					
		cocaine[A]					
528 i	20 yr	methadone	A	Ing/Inh	Int abuse	0.21 μg/mL§	
		marijuana					
529 ip	52 yr	methadone	A	Ingestion	Int misuse	0.35 μg/mL§	
		marijuana				18.3 ng/mL§#	
530 ip	18 yr	methadone	A	Ingestion	Int unk	0.16 μg/mL§	
		olanzapine				160 ng/mL§	
531 p	50 yr	methadone	A/C	Ingestion	Int suicide		
		olanzapine					
		gabapentin					
532	30 yr	methadone	A/C	Ing/Unk	Int abuse		
		opioid					
		benzodiazepine					
533 p	30 yr	methadone	A/C	Ingestion	Int misuse		
		oxycodone					
		acetaminophen/hydrocodone					
534 p	47 yr	methadone	A	Ingestion	Int unk		
		oxycodone					
		alprazolam[A]					
535 p	43 yr	methadone	A	Ing/Unk	Unknown		
		oxycodone					
		clonazepam[A]					

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
536 ip	41 yr	methadone oxycodone doxepin[A]	A/C	Ingestion	Int misuse	0.4 μg/mL§ 140 ng/mL§ 200 ng/mL§ nordoxepin 250 ng/mL§	
537 ip	40 yr	methadone propoxyphene	A/C	Ingestion	Int misuse	0.34 μg/mL§ EDDP 0.09 μg/mL§ 1 μg/mL§ norpropoxyphene 2 μg/mL§	
538	39 yr	methadone quetiapine	A	Ingestion	Int suicide		
539 p	54 yr	methadone sertraline levothyroxine[A]	A	Ingestion	Int suicide		
540 p	18 yr	methadone venlafaxine	U	Ingestion	Int suicide		
541 p	26 yr	methadone venlafaxine acetaminophen/butalbital/caffeine[A]	A/C	Ingestion	Int suicide	0.35 μg/mL§ 350 ng/mL§	
542 ip	41 yr	methadone venlafaxine diphenhydramine	A	Unknown	Unknown	0.35 μg/mL§ 880 ng/mL§ 0.05 μg/mL§	
543 p	22 yr	methadone warfarin refecoxib	A	Ingestion	Int abuse		
544 p	20 yr	morphine	A/C	Ingestion	Int abuse		
545 p	23 yr	morphine	A/C	Ingestion	Int suicide		
546 p	34 yr	morphine	A	Unknown	Int suicide		
547 p	50's yr	morphine	A/C	Ingestion	Int suicide		
548 p	36 yr	morphine acetaminophen/oxycodone cocaine	A	Ing/Unk	Int misuse	200 ng/mL§ 12.9 μg/mL¥§ benzoylecgonine 0.12 μg/mL§	
549	42 yr	morphine acetaminophen/propoxyphene fentanyl patch[A]	U	Derm/Ing	Int unk		
550 p	17 yr	morphine alprazolam cocaine[A]	A/C	Ing/Inh/Unk	Int abuse		
551 p	38 yr	morphine alprazolam trazodone[A]	A	Ingestion	Int suicide		
552 p	59 yr	morphine amitriptyline	A/C	Ingestion	Int misuse	1,000 ng/mL§	
553	42 yr	morphine benzodiazepine amphetamine	A	Ingestion	Int suicide		
554 ip	35 yr	morphine carisoprodol meprobamate[A]	A	Unknown	Unknown	260 ng/mL§	
555 ip	34 yr	morphine codeine ephedrine[A]	A/C	Ingestion	Unint misuse	770 ng/mL§ 36 μg/mL§ 500 ng/mL§	
556 p	48 yr	morphine diazepam	A/C	Ingestion	Int suicide		
557	68 yr	morphine diazepam	A	Ingestion	Int suicide	4,961 ng/mL§ 130 ng/mL nordiazepam 50 ng/mL	
558 p	34 yr	morphine fentanyl patch alprazolam	A	Ingestion	Int suicide		
559 p	20 yr	morphine heroin	A/C	Parenteral	Int abuse		
560	83 yr	morphine lorazepam digoxin[A]	A/C	Ingestion	Ther err		
561 i	27 yr	morphine methadone	A	Unknown	Int abuse	20 ng/mL§	
562 ip	48 yr	morphine oxycodone cyclobenzaprine	U	Ing/Unk	Unknown	140 ng/mL§ 220 ng/mL§ 0.08 μg/mL§	
563 p	39 yr	morphine oxycodone trazodone	A/C	Ingestion	Int suicide		
564 ai	33 yr	morphine promethazine	A	Parenteral	Ther err	280 ng/mL§ 110 ng/mL§	
565 p	38 yr	morphine (long acting) morphine	A/C	Ingestion	Int suicide		
566 p	37 yr	morphine (long-acting)	A	Ingestion	Int suicide		
567	77 yr	morphine (long-acting)	A	Ingestion	Adv rxn		
568	42 yr	morphine (long-acting) fentanyl patch zolpidem	A	Derm/Ing	Int suicide		
569 p	49 yr	opioid	A	Ing/Unk	Int unk		
570 p	44 yr	opioid benzodiazepine barbiturate	A/C	Unknown	Int abuse		
571	55 yr	opioid tricyclic antidepressant	U	Unknown	Unknown		
572 p	24 yr	oxycodone	C	Ingestion	Int abuse		
573 p	41 yr	oxycodone	U	Ingestion	Int suicide	8,000 ng/mL§	

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
574 ip	47 yr	oxycodone	A/C	Ingestion	Int abuse	610 ng/mL§	
575 p	14 yr	oxycodone	A	Ing/Inh	Int abuse		
		alprazolam					
576 p	36 yr	oxycodone	A/C	Ingestion	Int unk	400 ng/mL§	
		alprazolam				8 ng/mL§	
577 p	56 yr	oxycodone	A/C	Ingestion	Int suicide		
		alprazolam					
		carisoprodol[A]					
578 p	23 yr	oxycodone	U	Unknown	Int abuse	321 ng/mL§	
		alprazolam				15 ng/mL§	
		marijuana				THC 10.1 ng/mL§	
						carboxy THC 24.6 ng/mL§	
579 p	33 yr	oxycodone	A	Ingestion	Int suicide		
		clonazepam					
		quetiapine[A]					
580 p	56 yr	oxycodone	A/C	Ingestion	Int suicide		
		clonazepam					
		venlafaxine[A]					
581 p	32 yr	oxycodone	A	Ing/Unk	Int abuse		
		cocaine					
582 p	23 yr	oxycodone	A/C	Ing/Paren	Int abuse		
		cocaine					
		cyclobenzaprine[A]					
583	43 yr	oxycodone	C	Ingestion	Int misuse		
		diazepam					
584 ip	47 yr	oxycodone	U	Ing/Unk	Int unk	180 ng/mL§	
		diazepam				27,400 ng/mL§	
						nordiazepam 590 ng/mL§	
		hydrocodone[A]				90 ng/mL§	
						dihydrocodeine 60 ng/mL§	
585	38 yr	oxycodone	A	Ing/Unk	Int abuse		
		ethanol				113 mg/dL	
		cocaine[A]					
586 p	31 yr	oxycodone	A	Ing/Paren	Int abuse	150 ng/mL§	
		heroin				morphine 170 ng/mL§	
		methadone[A]				0.16 μg/mL§	
587 p	39 yr	oxycodone	A	Ingestion	Int misuse		
		methadone				0.12 μg/mL	
588 p	19 yr	oxycodone	A	Ingestion	Int suicide		
		methadone					
		alprazolam[A]					
589 p	30 yr	oxycodone	A/C	Ingestion	Int unk		
		methadone					
		diazepam					
590 p	53 yr	oxycodone	A	Ingestion	Int suicide		
		propranolol					
		iron[A]					
591	30 yr	oxycodone	U	Ing/Paren	Unknown		
		tizanidine					
		acetaminophen/oxycodone[A]					
592	67 yr	oxycodone	A	Ingestion	Int suicide	224 ng/mL	
		venlafaxine				600 ng/mL	
						norvenlafaxine 142 ng/mL	
		alprazolam[A]				56 ng/mL	
593 ip	51 yr	oxycodone	U	Unknown	Int unk	330 ng/mL§	
		venlafaxine				5,270 ng/mL§	
		promethazine[A]				100 ng/mL§	
594 p	44 yr	oxycodone (long-acting)	A/C	Ingestion	Int suicide		
595	75 yr	oxycodone (long-acting)	A/C	Ingestion	Int suicide	840 ng/mL	
596	48 yr	oxycodone (long-acting)	A	Ingestion	Int suicide		
		acetaminophen				46.6 μg/mL	
597 p	39 yr	oxycodone (long-acting)	A/C	Ingestion	Int suicide		
		carisoprodol					
		fentanyl patch[A]					
598 p	36 yr	oxycodone (long-acting)	A/C	Ingestion	Int suicide		
		diazepam					
599	47 yr	pentazocine/naloxone	U	Unknown	Unknown		
		carbamazepine					
		diazepam					
600 p	59 yr	propoxyphene	A	Ingestion	Int unk		
601	44 yr	propoxyphene	A/C	Ingestion	Int suicide		
		alprazolam					
		quetiapine[A]					
602 p	22 yr	propoxyphene	A	Ingestion	Unknown	0.12 μg/mL§	
						norpropoxyphene 0.42 μg/mL§	
		diazepam				200 ng/mL§	
						nordiazepam 220 ng/mL§	
		morphine				47 ng/mL§	
603 ip	42 yr	propoxyphene	A	Ing/Unk	Int suicide	3 μg/mL§	
						norpropoxyphene 2.6 μg/mL§	
		diphenhydramine				0.54 μg/mL§	
		sertraline[A]				410 ng/mL§	
604 p	40 yr	tramadol	U	Ingestion	Int suicide		
605 ip	55 yr	tramadol	A/C	Ingestion	Int abuse	0.85 μg/mL§	
						nortramadol 0.084 μg/mL§	
		fentanyl				1.8 ng/mL§	
		meperidine				0.035 μg/mL§	
						normeperidine 0.15 μg/mL§	

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
See also cases 12, 13, 52, 91, 339, 409, 441 thru 445, 503, 596, 614, 679, 774, 775, 844, 899, 914, 925, 941, 1105, 1130 (acetaminophen); 274 (acetaminophen/aspirin/caffeine); 868 (acetaminophen/butalbital); 324, 541 (acetaminophen/butalbital/caffeine); 446, 508, 648, 719, 990 (acetaminophen/codeine); 134, 276 (acetaminophen/diphenhydramine); 35, 277 thru 280, 474, 504, 505, 509, 533, 628, 649 thru 651, 656, 797, 926, 942, 949, 967, 968, 1014, 1051, 1095, 1102 (acetaminophen/hydrocodone); 277, 362, 548, 591, 671, 690, 1054 (acetaminophen/oxycodone); 413, 447, 549, 652, 703, 781, 878, 968, 1015 (acetaminophen/propoxyphene); 121, 284 thru 290, 318, 341, 390, 405, 406, 614, 737, 844, 981 (aspirin); 776 (aspirin/butalbital/caffeine); 366 (aspirin/carisoprodol); 1054 (aspirin/oxycodone); 1014 (aspirin/pentazocine); 763 (celecoxib); 555, 655, 983 (codeine); 525, 605 (fentanyl); 302, 410, 549, 558, 568, 597, 795 (fentanyl patch); 786 (flunixin); 1063 (heroin); 306, 486, 518, 584, 930, 941, 1130 (hydrocodone); 307, 445, 715, 779, 875, 1064 (ibuprofen); 808 (ketoprofen); 605 (meperidine); 392, 452, 561, 586 thru 589, 654, 655, 665, 666, 693, 709, 710, 741, 742, 946, 964, 1007, 1011, 1016, 1060, 1063, 1065, 1066, 1113, 1132 (methadone); 380, 565, 602, 892, 944, 1068 (morphine); 283, 365, 381, 466 (morphine (long-acting)); 393 (nabumetone); 393, 447, 855, 881 (naproxen); 454 (nonsteroidal antiinflammatory drug); 20, 450, 532, 734, 755, 757, 812, 951 thru 955, 1053, 1069, 1070, 1116 (opioid); 310, 382, 533 thru 536, 562, 563, 671, 795, 936, 972, 1133, 1143, 1144 (oxycodone); 22, 482, 537, 759, 972, 983, 1068, 1072 (propoxyphene); 543 (refecoxib); 383, 414, 674, 993, 1118 (tramadol).							
Anesthetics							
606 aip	38 yr	isoflurane metoprolol diazepam[A]	A	Ing/Inh/Unk	Int unk	2.4 μg/mL§ 0.17 μg/mL§ 50 ng/mL§	
607 a	81 yr	lidocaine activated charcoal	A	Asp/Ing	Ther err		
608 p	32 yr	nitrous oxide	A	Inhalation	Int abuse		
Anticholinergic drugs							
609	20 yr	orphenadrine tricyclic antidepressant	A/C	Ingestion	Int suicide		
610 p	34 yr	trihexyphenidyl valproic acid quetiapine	A/C	Ingestion	Int suicide	377 μg/mL	
See also cases 956, 975 (benztropine).							
Anticoagulants							
611 a	72 yr	lepirudin	A	Parenteral	Ther err		
612	51 yr	warfarin	C	Ingestion	Adv rxn		
613	72 yr	warfarin	C	Ingestion	Adv rxn		
614	47 yr	warfarin aspirin acetaminophen[A]	A/C	Ingestion	Unknown	7 mg/dL 4.7 μg/mL	
See also cases 543, 832 (warfarin).							
Anticonvulsants							
615 a	23 yr	carbamazepine	A/C	Ingestion	Int suicide	116 μg/mL	2 d
616	95 yr	carbamazepine doxazosin	A/C	Ingestion	Int suicide	38.1 μg/mL	
617	24 yr	carbamazepine fluoxetine	A/C	Ingestion	Int suicide	28 μg/mL	
618	51 yr	carbamazepine olanzapine trazodone[A]	A	Ingestion	Int suicide	46.4 μg/mL 810 ng/mL 890 ng/mL	
619	45 yr	lamotrigine	A	Ingestion	Int suicide	87.2 μg/mL	
620	19 yr	lamotrigine bupropion citalopram[A]	A	Ingestion	Int suicide		
621	32 yr	lamotrigine venlafaxine olanzapine[A]	A	Ingestion	Int suicide		
622	84 yr	phenytoin activated charcoal	C	Asp/Ing	Ther err	59 μg/mL	
623	44 yr	phenytoin ethanol	A/C	Ingestion	Int suicide	79 μg/mL	
624	39 yr	topiramate chloral hydrate ziprasidone[A]	U	Ingestion	Int suicide		
625	20 yr	valproic acid	A/C	Ingestion	Int suicide	1,462 μg/mL	
626 p	37 yr	valproic acid	A	Ingestion	Int suicide	843 μg/mL	
627	60 yr	valproic acid	A/C	Ingestion	Int suicide	841 μg/mL	
628	22 yr	valproic acid acetaminophen/hydrocodone fluoxetine[A]	A/C	Ingestion	Int suicide	36.8 μg/mL 30 μg/mL¥	
629	54 yr	valproic acid ethanol phenobarbital	A	Ingestion	Int suicide	1,381 μg/mL 26 mg/dL 27.3 μg/mL	
630	27 yr	valproic acid lithium	A	Ingestion	Int suicide	239 μg/mL 1.3 mEq/L	
631	44 yr	valproic acid lithium sertraline[A]	A/C	Ingestion	Int suicide	3.9 mEq/L	
632	38 yr	valproic acid nefazodone citalopram	A/C	Ingestion	Int suicide	278 μg/mL	12 h
633	48 yr	valproic acid quetiapine	U	Ingestion	Int suicide	1,011 μg/mL	
634	35 yr	valproic acid risperidone clonazepam[A]	C	Ingestion	Unknown	93 μg/mL	
635 ap	18 yr	zonisamide	A/C	Ingestion	Int suicide	44 μg/mL§	
See also cases 317, 407, 599, 993 (carbamazepine); 364, 531, 662, 707, 708 (gabapentin); 992, 1000 (oxcarbazepine); 694, 801 (phenytoin); 58 (tiagabine); 712 (topiramate); 60, 314, 610, 728, 878, 908, 951, 975, 976, 1002 (valproic acid).							
Antidepressants							
636 ip	3 yr	amitriptyline	A	Ingestion	Malicious	4,600 ng/mL§ nortriptyline 2,900 ng/mL§	
637	31 yr	amitriptyline	A	Ingestion	Int suicide		
638 i	38 yr	amitriptyline	A/C	Ingestion	Malicious		

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
639	38 yr	amitriptyline	A	Ingestion	Int suicide		
640	39 yr	amitriptyline	A/C	Ingestion	Int suicide		
641	41 yr	amitriptyline	U	Ingestion	Int suicide		
642 p	43 yr	amitriptyline	U	Ingestion	Int suicide		
643 p	44 yr	amitriptyline	A/C	Ingestion	Int suicide		
644	47 yr	amitriptyline	A/C	Ingestion	Int suicide	nortriptyline 1,100 ng/mL	
645	65 yr	amitriptyline	A	Ingestion	Int suicide		
646	78 yr	amitriptyline	A	Ingestion	Int suicide	425 ng/mL§	
						nortriptyline 890 ng/mL§	
647	85 yr	amitriptyline	A/C	Ingestion	Int suicide	2,200 ng/mL§	7 h
						nortriptyline 1,000 ng/mL§	7 h
648 ip	>19 yr	amitriptyline	A/C	Parenteral	Int abuse		
		acetaminophen/codeine					
649 p	25 yr	amitriptyline	A	Ingestion	Int suicide		
		acetaminophen/hydrocodone					
650 p	52 yr	amitriptyline	U	Ingestion	Int suicide		
		acetaminophen/hydrocodone					
651	28 yr	amitriptyline	A	Ingestion	Int suicide		
		acetaminophen/hydrocodone				611 μg/mL¥	
		omeprazole[A]					
652 p	64 yr	amitriptyline	A/C	Ingestion	Int suicide		
		acetaminophen/propoxyphene					
		diazepam					
653 ip	38 yr	amitriptyline	A/C	Ingestion	Unint misuse	990 ng/mL§	
						nortriptyline 580 ng/mL§	
		alprazolam				78 ng/mL§	
654 p	40 yr	amitriptyline	A	Ingestion	Unknown	480 ng/mL§	
						nortriptyline 170 ng/mL§	
		clonazepam				6 ng/mL§	
						7-aminoclonazepam 110 ng/mL§	
		methadone[A]				0.026 μg/mL§	
655 ip	31 yr	amitriptyline	A/C	Ingestion	Unint misuse	2,200 ng/mL§	
		codeine				380 ng/mL§	
		methadone[A]				470 ng/mL§	
656	50 yr	amitriptyline	A/C	Ingestion	Int suicide		
		doxepin					
		acetaminophen/hydrocodone					
657	19 yr	amitriptyline	A	Ingestion	Int suicide		
		ethanol					
658	41 yr	amitriptyline	A	Ingestion	Int suicide		
		ethanol					
659 p	42 yr	amitriptyline	U	Ingestion	Int suicide	5,520 ng/mL§	
						nortriptyline 3,940 ng/mL§	
		ethanol				164 mg/dL	
660 p	48 yr	amitriptyline	A	Ingestion	Int suicide		
		ethanol					
661	Unk	amitriptyline	A	Ingestion	Int suicide		
		ethanol					
662	34 yr	amitriptyline	A	Ingestion	Int suicide		
		gabapentin					
		hydroxyzine					
663 p	40 yr	amitriptyline	A/C	Ingestion	Int suicide		
		hydrochlorothiazide/triamterene					
664 p	42 yr	amitriptyline	A	Ingestion	Int suicide		
		imipramine					
		atenolol					
665 p	44 yr	amitriptyline	A	Ingestion	Int suicide		
		methadone					
666 ip	29 yr	amitriptyline	A	Ing/Unk	Int suicide	510 ng/mL§	
						nortriptyline 530 ng/mL§	
		methadone				0.25 μg/mL§	
		promethazine[A]				80 ng/mL§	
667	63 yr	amitriptyline	C	Ingestion	Unknown	828 ng/mL	
		metoprolol					
		amlodipine[A]					
668 ip	24 yr	amitriptyline	A	Ingestion	Int suicide	3,200 ng/mL§	
						nortriptyline 420 ng/mL§	
		montelukast					
669	37 yr	amitriptyline	U	Ingestion	Int suicide		
		nitroglycerin					
670	35 yr	amitriptyline	U	Ingestion	Int suicide	1,800 ng/mL§	
						nortriptyline 1,600 ng/mL§	
		olanzapine				200 ng/mL§	
		ethanol				80 mg/dL	1 h
671	27 yr	amitriptyline	U	Ingestion	Int suicide		
		oxycodone					
		acetaminophen/oxycodone[A]					
672 p	41 yr	amitriptyline	A	Ingestion	Int unk		
		prochlorperazine					
		disulfiram[A]					
673 p	16 yr	amitriptyline	A	Ingestion	Int suicide		
		skeletal muscle relaxant					
674	47 yr	amitriptyline	A	Ingestion	Int suicide	36,000 ng/mL§#	
		tramadol				5.9 μg/mL§	
675	53 yr	amitriptyline	A	Ingestion	Int suicide	80 ng/mL§	
						nortriptyline 100 ng/mL§	
		verapamil				0.26 μg/mL§	
						norverapamil 0.17 μg/mL§	
		zolpidem[A]					

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
676 p	40 yr	amitriptyline zolpidem	A/C	Ingestion	Int suicide		
677 p	40 yr	amitriptyline zolpidem clonazepam[A]	A	Ingestion	Int suicide		
678 ip	15 yr	bupropion	A	Ingestion	Int abuse		
679 p	38 yr	bupropion acetaminophen alprazolam	A	Ingestion	Int suicide	1,440 ng/mL§ 281.9 μg/mL§ 38.5 ng/mL§	
680	50 yr	bupropion lorazepam diphenhydramine	A/C	Ingestion	Int suicide		
681 p	24 yr	bupropion methylenedioxymethamphetamine	A	Ingestion	Int suicide		
682 p	17 yr	bupropion risperidone sertraline	A	Ingestion	Int suicide	19,500 ng/mL§ 174 ng/mL§# 100 ng/mL§	
683	34 yr	bupropion sertraline caffeine	A	Ingestion	Int suicide	3,040 ng/mL§ 127 ng/mL§ norsertraline 418 ng/mL§	
684 p	29 yr	bupropion (long-acting) citalopram zolpidem[A]	A	Ingestion	Int suicide		
685	30 yr	bupropion (long-acting) zolpidem ethanol	A	Ingestion	Int suicide	274 mg/dL	
686 p	18 yr	citalopram	A/C	Ingestion	Int suicide	7,100 ng/mL§	
687 p	27 yr	citalopram	A	Ingestion	Int suicide		
688 p	51 yr	citalopram industrial cleaner (anionic/nonionic/glycol ethers)	A	Ingestion	Int suicide		
689	16 yr	citalopram quetiapine activated charcoal	A	Asp/Ing	Int suicide		
690 p	25 yr	clomipramine acetaminophen/oxycodone	A	Ingestion	Int suicide	1,000 ng/mL§ oxycodone 800 ng/mL§	
691	65 yr	clomipramine quetiapine fluoxetine	A/C	Ingestion	Int suicide	310 ng/mL§ 500 ng/mL§ norfluoxetine 220 ng/mL§	
692	60's yr	desipramine	U	Ingestion	Unknown		
693	54 yr	desipramine citalopram methadone	A	Ingestion	Int suicide		
694	17 yr	desipramine dextromethorphan phenytoin[A]	A/C	Ingestion	Int suicide	170 ng/mL§ 22 μg/mL§ 12.7 μg/mL§	
695 p	17 yr	doxepin	A/C	Ingestion	Int suicide	689 ng/mL#	
696 p	22 yr	doxepin	U	Ingestion	Int suicide		
697 p	25 yr	doxepin	A/C	Ingestion	Int suicide		
698 p	30 yr	doxepin	A	Ingestion	Int suicide		
699	42 yr	doxepin	A	Ingestion	Int suicide		
700 p	51 yr	doxepin	A	Ingestion	Int suicide		
701	53 yr	doxepin	A/C	Ingestion	Int suicide	829 ng/mL	36 h
702 p	83 yr	doxepin	A/C	Ingestion	Int suicide		
703 p	47 yr	doxepin acetaminophen/propoxyphene ethanol	A	Ingestion	Int suicide	12,000 ng/mL§ nordoxepin 1,000 ng/mL§ propoxyphene 1.4 μg/mL§ norpropoxyphene 1.1 μg/mL§ 50 mg/dL§	
704 p	45 yr	doxepin bupropion (long-acting) clorazepate[A]	A	Ingestion	Int suicide		
705 ip	4 mo	doxepin carbinoxamine chlorpheniramine[A]	A	Ingestion	Malicious	5,490 ng/mL§ 0.13 μg/mL§ 0.07 μg/mL§	
706	74 yr	doxepin diazepam motor oil	A/C	Ingestion	Int suicide	2,900 ng/mL nordoxepin 700 ng/mL 480 ng/mL	
707 p	27 yr	doxepin gabapentin olanzapine[A]	A/C	Ingestion	Int suicide		
708	52 yr	doxepin gabapentin sertraline[A]	A/C	Ingestion	Int suicide		
709 p	50 yr	doxepin methadone heroin	A/C	Ing/Unk	Int abuse	180 ng/mL nordoxepin 100 ng/mL	
710 p	44 yr	doxepin methadone venlafaxine	A/C	Ingestion	Int suicide	1,900 ng/mL§ 2.9 μg/mL§ 400 ng/mL§	
711	33 yr	doxepin quetiapine chlordiazepoxide	A/C	Ingestion	Int suicide		
712 p	55 yr	doxepin topiramate	A	Ingestion	Int suicide		

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
713 p	36 yr	doxepin	A/C	Ingestion	Int suicide		
		venlafaxine					
		trazodone[A]					
714 p	48 yr	fluoxetine	U	Unknown	Int suicide	500 ng/mL§	
715	47 yr	fluoxetine	A	Ingestion	Int suicide		
		quetiapine					
		ibuprofen					
716 p	47 yr	fluoxetine	A/C	Ingestion	Int suicide	2,100 ng/mL§	
						norfluoxetine 1,100 ng/mL§	
		ziprasidone				83 ng/mL	
		clonazepam					
717	46 yr	imipramine	U	Ingestion	Int suicide	10,470 ng/mL§	
						desipramine 1,000 ng/mL§	
718	>19 yr	imipramine	A	Ingestion	Int suicide		
719 ip	58 yr	imipramine	U	Ingestion	Int suicide		
		acetaminophen/codeine				25 μg/mL¥	15 h
						codeine 2 μg/mL§	
		dextromethorphan/guaifenesin/ pseudoephedrine[A]					
720	46 yr	imipramine	A	Ingestion	Int suicide		
		amphetamine					
		citalopram[A]					
721	21 yr	imipramine	A	Ingestion	Int suicide	15,000 ng/mL§	
		sertraline				800 ng/mL§	
722	34 yr	lithium	C	Ingestion	Ther err	2.5 mEq/L	
723	41 yr	lithium	A/C	Ingestion	Int unk	9.6 mEq/L	
724 p	50 yr	lithium	U	Ingestion	Int suicide		
725 i	51 yr	lithium	U	Ingestion	Unknown	6.8 mEq/L	
726	74 yr	lithium	C	Ingestion	Adv rxn		
727	86 yr	lithium	C	Ingestion	Ther err	2.8 mEq/L	
728	32 yr	lithium	A	Ingestion	Int suicide	9.2 mEq/L	
		valproic acid				402 μg/mL	
729	51 yr	lithium	A	Ingestion	Int suicide	12.5 mEq/L	
		venlafaxine					
730 p	24 yr	maprotiline	U	Ingestion	Int suicide		
		alprazolam					
		risperidone[A]					
731	44 yr	mirtazapine	A/C	Ingestion	Int suicide		
		quetiapine					
		ethanol				51 mg/dL	
732	38 yr	nortriptyline	A	Ingestion	Int suicide		
733	>19 yr	nortriptyline	A	Ingestion	Int suicide		
734	36 yr	nortriptyline	A/C	Ingestion	Int suicide		
		benzodiazepine					
		opioid					
735 i	37 yr	nortriptyline	A/C	Ingestion	Int suicide		
		ethanol					
		paroxetine[A]					
736	72 yr	nortriptyline	A/C	Ingestion	Int suicide		
		propranolol					
		zolpidem[A]					
737 p	61 yr	paroxetine	A	Ingestion	Int suicide		
		aspirin					
		alprazolam					
738 p	27 yr	paroxetine	U	Ing/Unk	Int suicide		
		clonazepam					
739	43 yr	paroxetine	C	Ingestion	Adv rxn		
		risperidone					
		bupropion (long-acting)[A]					
740 ap	3 yr	sertraline	A	Ingestion	Malicious	1,300 ng/mL§	
						norsertraline 580 ng/mL§	
741 ip	27 yr	sertraline	A/C	Ingestion	Int suicide	1,200 ng/mL§	
						norsertraline 1,700 ng/mL§	
		methadone				0.36 μg/mL§	
742 ip	50 yr	sertraline	A/C	Ingestion	Int suicide	970 ng/mL§	
		methadone				0.2 μg/mL§	
		chlorpromazine				34 ng/mL§	
743 p	54 yr	sertraline	A	Ingestion	Int suicide		
		olanzapine					
		clonazepam[A]					
744	47 yr	tranylcypromine	A/C	Ingestion	Ther err		
		paroxetine					
		quetiapine					
745	25 yr	trazodone	A	Ingestion	Int suicide		
		ethanol					
746 p	46 yr	trazodone	A	Ingestion	Int suicide	4,438 ng/mL	
		ethanol				389 mg/dL	
		isopropanol				28 mg/dL	
						acetone 37 mg/dL	
747	25 yr	trazodone	A	Ingestion	Int suicide		
		olanzapine					
748 p	47 yr	tricyclic antidepressant	A/C	Ingestion	Int suicide	1,061 ng/mL	
749 p	47 yr	tricyclic antidepressant	A	Ingestion	Int suicide	980 ng/mL	12 h
750 i	48 yr	tricyclic antidepressant	A/C	Ingestion	Int suicide		
751 p	49 yr	tricyclic antidepressant	A/C	Ingestion	Unknown	466 ng/mL	
752	59 yr	tricyclic antidepressant	U	Ingestion	Int unk		
753 p	64 yr	tricyclic antidepressant	A	Ingestion	Int suicide		

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
754 p	29 yr	tricyclic antidepressant alprazolam clonazepam[A]	A	Ingestion	Int suicide	95 ng/mL	
755 p	18 yr	tricyclic antidepressant benzodiazepine opioid[A]	U	Ing/Unk	Int unk		
756	22 yr	tricyclic antidepressant fluoxetine	A	Ingestion	Int suicide		
757 p	19 yr	tricyclic antidepressant opioid benzodiazepine	A/C	Ingestion	Int suicide		
758 p	42 yr	tricyclic antidepressant pentobarbital guarana/ma huang/other botanicals	U	Ingestion	Int suicide		
759 p	52 yr	tricyclic antidepressant propoxyphene	U	Ingestion	Unknown		
760	25 yr	venlafaxine	U	Ingestion	Int suicide		
761 a	33 yr	venlafaxine	A	Ingestion	Int suicide	66,000 ng/mL§ norvenlafaxine 4,000 ng/mL§	
762	44 yr	venlafaxine	A/C	Ingestion	Int suicide		
763	51 yr	venlafaxine celecoxib paroxetine	A	Ingestion	Int suicide	45,000 ng/mL§	
764	49 yr	venlafaxine ethanol	A	Ingestion	Int suicide	3,800 ng/mL norvenlafaxine 480 ng/mL	
765	40's yr	venlafaxine ethanol methamphetamine[A]	A	Ing/Unk	Int unk	90,400 ng/mL§	
766 ip	28 yr	venlafaxine phenelzine nortriptyline[A]	A/C	Ingestion	Adv rxn	800 ng/mL§ 500 ng/mL§	
767	25 yr	venlafaxine (long-acting) bupropion (long-acting)	A	Ingestion	Int suicide		
768 p	52 yr	venlafaxine (long-acting) ethanol	A/C	Ingestion	Int suicide	340 mg/dL	

See also cases 94, 283, 364, 365, 552, 821, 848, 859 (amitriptyline); 278 (amitriptyline/perphenazine); 407, 515, 620, 794, 807, 905, 946 (bupropion); 318, 704, 739, 767 (bupropion (long-acting)); 131, 480, 524, 620, 632, 684, 693, 720, 797, 804, 830, 845, 871, 905, 982, 998, 1007 (citalopram); 536, 656, 922, 1104 (doxepin); 279, 303 thru 305, 517, 617, 628, 691, 756, 805, 897, 985, 1008, 1110 (fluoxetine); 664 (imipramine); 95, 309, 630, 631 (lithium); 840 (loxapine); 511 (mirtazapine); 632 (nefazodone); 213, 766 (nortriptyline); 21, 465, 505, 519, 735, 744, 763, 775, 805, 836, 842, 947, 961, 973, 1011 (paroxetine); 766 (phenelzine); 539, 603, 631, 682, 683, 708, 721, 877, 947, 986 (sertraline); 23, 299, 384, 551, 563, 618, 713, 780, 864, 948, 1119 (trazodone); 310, 392, 571, 609, 863, 1129 (tricyclic antidepressant); 221, 315, 411, 540 thru 542, 580, 592, 593, 621, 710, 713, 729, 803, 809, 864, 879, 906, 987, 992, 1003 (venlafaxine); 412 (venlafaxine (long-acting)).

Antihistamines

769 p	18 yr	diphenhydramine	A	Ingestion	Int suicide		
770 p	19 yr	diphenhydramine	A	Ingestion	Int suicide		
771 p	30 yr	diphenhydramine	A	Ingestion	Int suicide		
772 p	46 yr	diphenhydramine	A	Ingestion	Int suicide		
773	86 yr	diphenhydramine	A	Ingestion	Int suicide		
774 p	36 yr	diphenhydramine acetaminophen	A	Ingestion	Int suicide	950 μg/mL	
775	30 yr	diphenhydramine acetaminophen paroxetine[A]	A	Ingestion	Int suicide	84 μg/mL	
776 ip	33 yr	diphenhydramine aspirin/butalbital/caffeine marijuana[A]	A/C	Ing/Unk	Int suicide		
777	18 yr	diphenhydramine diazepam	A	Ingestion	Int suicide	8.4 μg/mL 7,800 ng/mL	
778	30's yr	diphenhydramine doxylamine diphenhydramine[A]	A	Ingestion	Int suicide	24 μg/mL§	
779 p	25 yr	diphenhydramine pseudoephedrine ibuprofen	A	Ingestion	Int suicide		
780 p	41 yr	diphenhydramine trazodone	A/C	Ingestion	Int suicide		
781	19 yr	meclizine acetaminophen/propoxyphene	A	Ingestion	Int suicide		
782	21 yr	promethazine	A	Ingestion	Int suicide		

See also cases 893 (brompheniramine); 705 (carbinoxamine); 53, 479, 511, 705 (chlorpheniramine); 977 (cimetidine); 18, 209, 288, 317, 451, 464, 520, 542, 603, 680, 778, 821, 833, 896, 930, 969, 1017, 1022, 1106 (diphenhydramine); 778 (doxylamine); 662, 887, 977 (hydroxyzine); 156, 486, 564, 593, 666, 931 (promethazine).

Antimicrobials

783 a	30 d	amphotericin B	A	Parenteral	Adv rxn		
784	48 yr	ciprofloxacin	C	Parenteral	Ther err		
785	33 yr	tilmicosin	A	Parenteral	Int suicide		
786 ap	47 yr	tilmicosin flunixin	A	Parenteral	Int suicide		

Antineoplastics

787	67 yr	hydroxyurea methotrexate	C	Ingestion	Ther err		
788 a	49 yr	vincristine	U	Oth/Paren	Ther err		

See also case 787 (methotrexate)

Asthma therapies

789	50 yr	theophylline	C	Ingestion	Ther err	30 μg/mL	
790	59 yr	theophylline	A/C	Ingestion	Int suicide	118.4 μg/mL	

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
791	66 yr	theophylline	C	Ingestion	Ther err	33.6 μg/mL	
792	76 yr	theophylline	C	Ingestion	Ther err	36.8 μg/mL	
793	91 yr	theophylline	A/C	Ingestion	Int misuse	82 μg/mL	
794	20 yr	theophylline	A/C	Ing/Inh	Int suicide	105 μg/mL	
		bupropion					
		heroin					
795	60 yr	theophylline	A/C	Derm/Ing	Int misuse	30 μg/mL	
		fentanyl patch					
		oxycodone[A]					
796	60 yr	theophylline	A/C	Ingestion	Int suicide	129.9 μg/mL	
		lisinopril					
		ethanol				5 mg/dL	
See also case 668 (montelukast).							
Cardiovascular drugs							
797	32 yr	acebutolol	A	Ingestion	Int suicide		
		acetaminophen/hydrocodone					
		citalopram[A]					
798 a	77 yr	amiodarone	C	Ingestion	Ther err		
799	89 yr	amlodipine	A/C	Ingestion	Ther err		
800	38 yr	amlodipine	A/C	Ing/Unk	Int suicide	1.7 μg/mL	
		cocaine					
801	42 yr	amlodipine	A	Ingestion	Int suicide		
		isosorbide mononitrate					
		phenytoin					
802	85 yr	amlodipine	A/C	Ingestion	Int suicide		
		lovastatin					
803	76 yr	amlodipine	A/C	Ingestion	Int suicide		
		metoprolol					
		venlafaxine[A]					
804	46 yr	amlodipine	A/C	Ingestion	Int suicide		
		olanzapine					
		citalopram[A]					
805	62 yr	amlodipine	A	Ingestion	Int suicide		
		paroxetine				418 ng/mL	
		fluoxetine[A]				234 ng/mL	
						norfluoxetine 70 ng/mL	
806	48 yr	amlodipine	A	Ingestion	Int suicide	0.58 μg/mL§	
		propranolol				2.1 μg/mL§	
		lorazepam[A]					
807	76 yr	atenolol	A/C	Ingestion	Int suicide	25 μg/mL§	
		amlodipine				0.88 μg/mL§	
		bupropion				400 ng/mL§	
808 p	39 yr	atenolol	A/C	Ingestion	Int suicide		
		ketoprofen					
		oxazepam					
809	22 yr	atenolol	A	Ingestion	Int suicide		
		venlafaxine					
		lorazepam[A]					
810	55 yr	clonidine	A	Ingestion	Int suicide		
811	49 yr	clonidine	A/C	Ingestion	Int suicide		
		amlodipine					
		atenolol[A]					
812	43 yr	clonidine	A/C	Ing/Unk	Int suicide		
		opioid					
		benzodiazepine					
813	70 yr	digoxin	C	Ingestion	Ther err	4.1 ng/mL	
814	70's yr	digoxin	C	Ingestion	Ther err	3.3 ng/mL	
815 p	71 yr	digoxin	C	Ingestion	Adv rxn	3.5 ng/mL	
816	79 yr	digoxin	C	Ingestion	Unknown	3.5 ng/mL	
817	82 yr	digoxin	C	Ingestion	Ther err	7.5 ng/mL	
818	87 yr	digoxin	C	Ingestion	Ther err	5 ng/mL	
819	89 yr	digoxin	C	Ingestion	Adv rxn	2.3 ng/mL	
820	99 yr	digoxin	C	Ingestion	Ther err	2.2 ng/mL	
821	59 yr	digoxin	A/C	Ingestion	Int suicide	0.75 ng/mL§	
		amitriptyline				160 ng/mL§	
						nortriptyline 350 ng/mL§	
		diphenhydramine[A]				0.28 μg/mL§	
822	87 yr	digoxin	C	Ingestion	Ther err	3.3 ng/mL	
		atenolol					
823	71 yr	digoxin	A	Ingestion	Int suicide		
		clorazepate					
824	26 yr	diltiazem	A/C	Ingestion	Int suicide		
825 p	44 yr	diltiazem	A/C	Ingestion	Int suicide		
826	58 yr	diltiazem	A/C	Ingestion	Int suicide		
827	55 yr	diltiazem	A/C	Ingestion	Int suicide		
		atenolol					
		lisinopril[A]					
828	30 yr	diltiazem	A	Ingestion	Int suicide		
		benazepril					
		simvastatin					
829 p	44 yr	diltiazem	A/C	Ingestion	Int suicide	7.7 μg/mL§	
		captopril					
		ethanol				23 mg/dL	
830	81 yr	diltiazem	A/C	Ingestion	Int suicide		
		citalopram					
831	69 yr	diltiazem	A	Ingestion	Int suicide		
		clonidine					

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
832	91 yr	diltiazem	A/C	Ingestion	Ther err		
		digoxin				4.8 ng/mL	
		warfarin[A]					
833	55 yr	diltiazem	A	Asp/Ing	Int suicide	0.16 μg/mL§	
		diphenhydramine					
		activated charcoal					
834	84 yr	diltiazem	U	Ingestion	Int suicide		
		enalapril					
835 p	52 yr	diltiazem	A/C	Ingestion	Int suicide		
		olanzapine					
836	60 yr	diltiazem	A	Ingestion	Int suicide		
		paroxetine					
837	72 yr	diltiazem	A	Ing/Paren	Ther err		
		propranolol					
838	40's yr	diltiazem (long-acting)	A/C	Ingestion	Int suicide		
839	73 yr	diltiazem (long-acting)	A/C	Ingestion	Int suicide		
		isosorbide mononitrate					
		lisinopril					
840	48 yr	diltiazem (long-acting)	A	Ingestion	Int suicide		
		loxapine					
		isosorbide dinitrate[A]					
841	32 yr	diltiazem (long-acting)	A/C	Ingestion	Int unk		
		metformin					
842	50 yr	diltiazem (long-acting)	A/C	Ingestion	Int suicide		
		paroxetine					
843	44 yr	enalapril	A/C	Ingestion	Int suicide		
844	34 yr	metoprolol	A/C	Ingestion	Int suicide		
		acetaminophen				77 μg/mL	
		aspirin[A]				50 mg/dL	
845	54 yr	metoprolol	A/C	Ingestion	Int suicide		
		citalopram					
		indoramin[A]					
846 p	16 yr	metoprolol	A	Ingestion	Int suicide		
		unknown drug					
847	50 yr	metoprolol (long-acting)	A/C	Ingestion	Int suicide		
		amiodarone					
		temazepam					
848	48 yr	metoprolol (long-acting)	A	Ingestion	Int suicide		
		amitriptyline				1,200 ng/mL	
849	61 yr	metoprolol (long-acting)	A/C	Ingestion	Ther err		
		diltiazem (long-acting)					
850	47 yr	metoprolol (long-acting)	A/C	Ingestion	Int suicide		
		ethanol					
		ramipril[A]					
851 ap	16 mo	nifedipine	A	Ingestion	Unint gen		
852	65 yr	nifedipine	A/C	Ingestion	Int suicide		
853	91 yr	nifedipine	A	Asp/Ing	Int suicide		
		amiodarone					
		activated charcoal					
854	55 yr	nifedipine	U	Ingestion	Int suicide		
		atenolol					
855	49 yr	nifedipine	A	Ingestion	Int suicide		
		lisinopril					
		naproxen					
856 a	38 yr	nifedipine (long-acting)	A	Ingestion	Ther err		
857 a	59 yr	propafenone	A/C	Asp/Ing	Unknown		
		activated charcoal					
858	46 yr	propranolol	A	Ingestion	Int suicide		
859 p	36 yr	propranolol	A/C	Ingestion	Int suicide		
		amitriptyline					
		carisoprodol[A]					
860	27 yr	propranolol	A/C	Ing/Inh	Int suicide	2.1 μg/mL§	
		chlorpromazine				140 ng/mL§	
		ethanol[A]				110 mg/dL§	
861	42 yr	propranolol	A/C	Ingestion	Int unk		
		ethanol					
862 ap	29 yr	propranolol	A	Ingestion	Int suicide	13 μg/mL§	
		iron polysaccharide				15,000 μg/dL§	
863	47 yr	propranolol	A/C	Ingestion	Int suicide		
		tricyclic antidepressant				32 ng/mL	
864 p	53 yr	propranolol	A	Ingestion	Int suicide	200 μg/mL§	
		venlafaxine				490,000 ng/mL§	
						norvenlafaxine 2,600 ng/mL§	
		trazodone[A]				4,100 ng/mL§	
865 p	40 yr	verapamil	A	Ingestion	Int suicide	10 μg/mL	
866	47 yr	verapamil	A/C	Ingestion	Ther err		
867 p	63 yr	verapamil	A	Ingestion	Int suicide		
868	36 yr	verapamil	A/C	Ingestion	Int suicide		
		acetaminophen/butalbital					
		propranolol (long acting)[A]					
869	45 yr	verapamil	A/C	Ingestion	Int suicide		
		alprazolam					
870	50's yr	verapamil	A/C	Ingestion	Int suicide		
		amlodipine					
		ziprasidone					
871	45 yr	verapamil	A	Ingestion	Int suicide	0.58 μg/mL§	
		atenolol					
		citalopram					

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
872	45 yr	verapamil benzodiazepine	A	Ingestion	Int suicide		
873 a	24 yr	verapamil captopril	A/C	Ingestion	Int suicide		
874	39 yr	verapamil ethanol	A	Ingestion	Int suicide		
875	50 yr	verapamil ibuprofen	A/C	Ingestion	Int suicide		
876	83 yr	verapamil propranolol	A/C	Ingestion	Int suicide		
877	73 yr	verapamil sertraline lisinopril	A/C	Ingestion	Int suicide		
878 p	55 yr	verapamil valproic acid acetaminophen/propoxyphene[A]	A/C	Ingestion	Int suicide	64.2 μg/mL¥	
879	28 yr	verapamil venlafaxine bupropion[A]	U	Ing/Unk	Int suicide		
880	43 yr	verapamil ziprasidone clonazepam[A]	A	Ingestion	Int suicide		
881	14 yr	verapamil (long acting) naproxen	A	Ingestion	Int suicide	1.9 μg/mL§	
882	42 yr	verapamil (long-acting)	A/C	Ingestion	Int suicide	0.435 μg/mL	
883	58 yr	verapamil (long-acting)	A/C	Ingestion	Int misuse	5.54 μg/mL norverapamil 2.49 μg/mL	
884	77 yr	verapamil (long-acting)	A/C	Ingestion	Ther err		
885	78 yr	verapamil (long-acting)	A	Ingestion	Int suicide		
886	>19 yr	verapamil (long-acting)	A	Ingestion	Unknown		
887	40 yr	verapamil (long-acting) hydroxyzine ethanol	A/C	Ingestion	Int suicide		
888	18 yr	verapamil (long-acting) metoprolol carburetor cleaner (methanol/methylene chloride/ toluene)	A	Ingestion	Int suicide		
889	38 yr	verapamil/trandolapril methylphenidate	A	Ingestion	Int suicide		
890	47 yr	verapamil/trandolapril (long-acting) ethanol	A/C	Ingestion	Int suicide		

See also cases 1113 (acebutolol); 847, 853 (amiodarone); 667, 807, 811, 870, 1010 (amlodipine); 448 (amlodipine/benazepril); 664, 811, 822, 827, 854, 871 (atenolol) 828 (benazepril); 829, 873 (captopril); 381, 831 (clonidine); 560, 832 (digoxin); 849 (diltiazem (long-acting)); 54, 616 (doxazosin); 834 (enalapril); 304 (hydrochlorothiazide/valsartan); 845 (indoramin); 801, 840 (isosorbide dinitrate); 839 (isosorbide mononitrate); 796, 827, 839, 855, 877 (lisinopril); 19 (lisinopril/hydrochlorothiazide); 802 (lovastatin); 606, 667, 803, 888 (metoprolol); 669 (nitroglycerin); 590, 736, 806, 837, 876 (propranolol); 868 (propranolol (long acting)); 850 (ramipril); 828 (simvastatin); 675 (verapamil).

Cold and cough preparations

891 ai	4 mo	brompheniramine/pseudoephedrine	A	Ingestion	Ther err	brompheniramine 0.86 μg/mL§ pseudoephedrine >10 μg/mL§	
892	15 yr	chlorpheniramine/dextromethorphan ethanol morphine	A	Ingestion	Int abuse		
893 ap	3 yr	chlorpheniramine/dextromethorphan/ pseudoephedrine brompheniramine	A	Ingestion	Unint gen	chlorpheniramine 0.04 μg/mL§ dextromethorphan 0.009 μg/mL§ pseudoephedrine 4.8 μg/mL§ 0.19 μg/mL§	
894 ap	2 yr	chlorpheniramine/hydrocodone	A	Ingestion	Ther err		
895 p	51 yr	promethazine/dextromethorphan	A	Ingestion	Int suicide		
896	24 yr	pseudoephedrine ephedrine diphenhydramine[A]	U	Ing/Unk	Int unk	0.002 μg/mL§ 0.004 μg/mL§	

See also cases 273 (acetaminophen/antihistamine/decongestant); 275 (acetaminophen/dextromethorphan/doxylamine/pseudoephedrine); 936 (acetaminophen/doxylamine/dextromethorphan/pseudoephedrine); 694 (dextromethorphan); 719 (dextromethorphan/guaifenesin/pseudoephedrine); 479 (guaifenesin); 280 (other cough/cold medication); 779, 1077 (pseudoephedrine).

Dietary supplements/herbals/homeopathic

897 p	34 yr	guarana/ma huang/other botanicals ethanol fluoxetine	C	Ingestion	Int abuse	ephedrine 0.42 μg/mL 130 ng/mL norfluoxetine 270 ng/mL	
898	40 yr	unknown herbal supplement	U	Ingestion	Adv rxn		

See also cases 987 (ephedra); 758 (guarana/ma huang/other botanicals).

Diuretics

899	82 yr	furosemide acetaminophen alprazolam	A	Ingestion	Int suicide	 164.7 μg/mL	 4 h

See also case 663 (hydrochlorothiazide/triamterene).

Electrolytes and minerals

900 a	59 yr	iron dextran	A	Parenteral	Ther err	1,897 μg/dL	

See also cases 308, 590 (iron); 862 (iron polysaccharide).

Gastrointestinal preparations

901 p	40's yr	diphenoxylate/atropine	A	Ingestion	Int suicide		

See also cases 414 (dicyclomine); 116 (diphenoxylate/atropine); 651 (omeprazole); 95 (orlistat).

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
Hormones and hormone antagonists							
902	45 yr	corticosteroid	C	Ingestion	Adv rxn		
903	27 yr	glyburide	A	Ingestion	Int suicide		
		metformin					
		ethanol					
904	69 yr	insulin	A/C	Ing/Paren	Int suicide		
		benzodiazepine					
		rodenticide					
905 p	53 yr	insulin	A/C	Ing/Paren	Int suicide		
		bupropion					
		citalopram[A]					
906	54 yr	insulin	A	Ing/Paren	Malicious	24 μU/mL	
		diazepam					
		venlafaxine					
907	24 yr	insulin	A/C	Paren/Unk	Int suicide		
		phencyclidine					
908 a	48 yr	levothyroxine	U	Ingestion	Int misuse		
		olanzapine					
		valproic acid					
909	64 yr	metformin	C	Ingestion	Ther err		
910	68 yr	metformin	C	Ingestion	Adv rxn		
911	69 yr	metformin	C	Ingestion	Adv rxn		
912	70 yr	metformin	C	Ingestion	Ther err		
913	77 yr	metformin	C	Ingestion	Adv rxn		
914	75 yr	metformin	C	Ingestion	Adv rxn	25 μg/mL	
		acetaminophen				46 μg/mL	
915 p	78 yr	metformin	A/C	Ingestion	Int suicide		
		glipizide					
		acarbose[A]					
916	47 yr	metformin	A/C	Ingestion	Int suicide	91 μg/mL§	
		glipizide				3.2 μg/mL§	
		ethanol[A]				41 mg/dL	
917	44 yr	metformin	A/C	Ingestion	Int suicide		
		quetiapine					
		olanzapine[A]					
See also cases 915, 916 (glipizide); 999 (glipizide (long-acting)); 539 (levothyroxine); 841, 903, 999 (metformin).							
Miscellaneous drugs							
918 a	21 yr	disulfiram	C	Ingestion	Adv rxn		
919 a	17 yr	quinine	A	Ingestion	Int unk	14 μg/mL	
920	65 yr	sildenafil	A	Ingestion	Adv rxn		
See also cases 915 (acarbose); 672 (disulfiram).							
Muscle relaxants							
921	64 yr	baclofen	U	Ingestion	Int suicide		
		clonazepam					
922 p	64 yr	baclofen	A/C	Ingestion	Int suicide		
		quetiapine					
		doxepin[A]					
923 p	37 yr	carisoprodol	A/C	Ingestion	Int suicide		
924 p	40 yr	carisoprodol	U	Ingestion	Int suicide		
925	18 yr	carisoprodol	A	Ingestion	Int suicide		
		acetaminophen				46 μg/mL	
926 p	45 yr	carisoprodol	A	Ingestion	Int suicide		
		acetaminophen/hydrocodone					
927 p	44 yr	carisoprodol	A/C	Ingestion	Int suicide		
		alprazolam					
928 p	50 yr	carisoprodol	A	Ingestion	Int suicide		
		alprazolam					
		ethanol					
929	18 yr	carisoprodol	U	Ingestion	Int suicide		
		cyclobenzaprine					
930 ip	23 yr	carisoprodol	A	Ingestion	Int suicide	20 μg/mL§	
						meprobamate 5.97 μg/mL§	
		diphenhydramine				13.9 μg/mL§	
		hydrocodone[A]				180 ng/mL§	
931	47 yr	carisoprodol	A/C	Ingestion	Int suicide		
		promethazine					
932	46 yr	cyclobenzaprine	A/C	Ingestion	Ther err		
933	51 yr	cyclobenzaprine	C	Ingestion	Int misuse		
934 ip	48 yr	cyclobenzaprine	A/C	Ingestion	Int misuse	200 ng/mL§	
		bultalbital					
		alprazolam				41 ng/mL§	
935	32 yr	cyclobenzaprine	A	Ing/Unk	Int suicide		
		cocaine					
936	29 yr	cyclobenzaprine	A/C	Ingestion	Int abuse		
		oxycodone					
		acetaminophen/doxylamine/					
		dextromethorphan/					
		pseudoephedrine[A]					
See also cases 362, 363, 368 thru 372, 474, 478, 503, 554, 577, 597, 859, 943, 957 (carisoprodol); 382, 383, 562, 582, 929, 997, 1105 (cyclobenzaprine); 673 (skeletal muscle relaxant); 412, 591 (tizanidine).							
Sedative/hypnotics/antipsychotics							
937	30 yr	alprazolam	A	Ingestion	Int unk		
938 p	32 yr	alprazolam	A/C	Ingestion	Int suicide		
939	40 yr	alprazolam	U	Ingestion	Int suicide		
940 p	44 yr	alprazolam	A	Ingestion	Int suicide		

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
941	24 yr	alprazolam	U	Ingestion	Unknown		
		acetaminophen				28.8 μg/mL	
		hydrocodone					
942 ip	27 yr	alprazolam	U	Ingestion	Unknown		
		acetaminophen/hydrocodone					
943 p	60 yr	alprazolam	A/C	Ingestion	Int suicide		
		carisoprodol					
944 ip	27 yr	alprazolam	A	Ingestion	Int suicide	460 ng/mL§	
		diazepam				120 ng/mL§	
						nordiazepam 90 ng/mL§	
		morphine					
945 p	54 yr	alprazolam	U	Ingestion	Int suicide		
		ethanol				180 mg/dL	
946 p	47 yr	alprazolam	A/C	Ing/Unk	Int suicide	90 ng/mL§	
		methadone				0.36 μg/mL§	
		bupropion[A]					
947	51 yr	alprazolam	A/C	Ingestion	Int suicide		
		paroxetine					
		sertraline					
948 p	54 yr	alprazolam	A/C	Ingestion	Int suicide		
		trazodone					
949	72 yr	alprazolam	A/C	Ingestion	Int suicide		
		zolpidem					
		acetaminophen/hydrocodone[A]					
950	56 yr	barbiturate	A	Ingestion	Int suicide		
951	62 yr	barbiturate	A	Ing/Unk	Int suicide		
		opioid					
		valproic acid					
952 p	44 yr	barbiturate	A	Ing/Unk	Int unk		
		opioid					
		cocaine[A]					
953 p	34 yr	benzodiazepine	A	Ingestion	Int suicide		
		opioid					
954 p	32 yr	benzodiazepine	U	Ingestion	Int suicide		
		opioid					
		barbiturate					
955	22 yr	benzodiazepine	U	Ing/Oth/Unk	Int suicide		
		opioid					
		cocaine					
956	37 yr	buspirone	A	Ingestion	Int suicide		
		olanzapine					
		benztropine[A]					
957 ip	28 yr	butalbital	U	Unknown	Int unk	0.53 μg/mL§	
		meprobamate				10 μg/mL§	
		carisoprodol[A]					
958 ai	4 mo	chloral hydrate	A	Ingestion	Adv rxn	trichloroethanol 24 μg/mL	3 h
959 p	46 yr	chloral hydrate	A	Ingestion	Int suicide		
960	43 yr	chloral hydrate	A	Ingestion	Int suicide	trichloroethanol 5,300 μg/mL§	
		ethanol				80 mg/dL§	
961	44 yr	chlorpromazine	A	Ingestion	Int suicide		
		paroxetine					
962 p	25 yr	clonazepam	A	Ingestion	Int unk		
963	24 yr	clonazepam	A/C	Ingestion	Int suicide		
		clozapine					
964	43 yr	clonazepam	A/C	Ing/Paren	Unknown		
		heroin					
		methadone					
965 p	58 yr	clorazepate	A	Ingestion	Int suicide		
966	40's yr	clozapine	A/C	Ingestion	Ther err		
967 p	39 yr	diazepam	U	Ingestion	Int unk		
		acetaminophen/hydrocodone					
		diazepam					
968 p	47 yr	diazepam	A/C	Derm/Ing	Ther err	55 ng/mL§	
						nordiazepam 105 ng/mL§	
		acetaminophen/propoxyphene				propoxyphene 0.05 μg/mL§	
						norpropoxyphene 0.05 μg/mL§	
		acetaminophen/hydrocodone[A]				hydrocodone 10 ng/mL§	
969 ip	33 yr	diazepam	U	Unknown	Unknown	460 ng/mL§	
						nordiazepam 160 ng/mL§	
		diphenhydramine				0.06 μg/mL§	
		methamphetamine[A]				0.81 μg/mL§	
970 p	53 yr	diazepam	A/C	Ingestion	Unknown		
		flurazepam					
971	82 yr	diazepam	A/C	Ingestion	Int suicide		
		lorazepam					
972 p	33 yr	diazepam	U	Ing/Inh	Int suicide	1,200 ng/mL§	
						nordiazepam 600 ng/mL§	
		oxycodone					
		propoxyphene[A]					
973 ip	42 yr	diazepam	A	Ingestion	Int abuse	99 ng/mL§	
						nordiazepam 150 ng/mL§	
		parozetine				240 ng/mL§	
		ethanol				448 mg/dL§	
974	43 yr	fluphenazine	A	Ingestion	Int suicide		
975	>19 yr	haloperidol	U	Ingestion	Int suicide		
		benztropine					
		valproic acid				18 μg/mL	

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
976	19 yr	haloperidol risperidone valproic acid	A	Parenteral	Adv rxn		
977 p	75 yr	lorazepam hydroxyzine cimetidine[A]	A	Ingestion	Int suicide		
978 p	12 yr	olanzapine	A	Ing/Unk	Int suicide		
979 p	34 yr	olanzapine	A/C	Ing/Unk	Int unk		
980	47 yr	olanzapine activated charcoal ethanol[A]	A	Asp/Ing	Int suicide	 194 mg/dL	
981	31 yr	olanzapine aspirin ziprasidone	A	Asp/Ing	Int suicide	310 ng/mL 10.4 mg/dL	6 h 6 h
982 p	47 yr	olanzapine citalopram	A/C	Ingestion	Int suicide		
983 p	30's yr	olanzapine codeine propoxyphene	U	Unknown	Int unk	872 ng/mL§ 1.07 μg/mL§ 0.1 μg/mL§ norpropoxyphene 1.76 μg/mL§	
984	42 yr	olanzapine ethanol	A/C	Ingestion	Int unk		
985 p	30 yr	olanzapine fluoxetine unknown drug	U	Ingestion	Int suicide	180 ng/mL§ 260 ng/mL§ norfluoxetine 120 ng/mL§	
986 p	44 yr	olanzapine sertraline alprazolam	U	Ingestion	Int suicide		
987	43 yr	olanzapine venlafaxine ephedra	U	Ingestion	Int suicide		
988 ap	50 yr	pentobarbital	A	Unknown	Int suicide		
989	65 yr	pentobarbital	A	Parenteral	Int suicide		
990	57 yr	perphenazine acetaminophen/codeine	U	Ingestion	Int suicide		
991	77 yr	phenobarbital diazepam	A/C	Ingestion	Int suicide	242 μg/mL	
992	46 yr	phenobarbital oxcarbazepine venlafaxine[A]	A	Ingestion	Int suicide		
993	43 yr	phenobarbital tramadol carbamazepine	A/C	Ingestion	Int suicide	58 μg/mL 29 μg/mL	1 d 1 d
994	25 yr	quetiapine	A	Ingestion	Int suicide		
995	41 yr	quetiapine	A/C	Ingestion	Int unk		
996	82 yr	quetiapine	A	Ingestion	Int suicide		
997	42 yr	quetiapine cyclobenzaprine clonazepam[A]	A	Ing/Unk	Int suicide		
998	37 yr	quetiapine ethanol citalopram[A]	A/C	Ing/Unk	Int suicide	1,200 ng/mL§ 324 mg/dL	
999	36 yr	quetiapine glipizide (long-acting) metformin[A]	A/C	Ingestion	Unint gen		
1000 p	39 yr	quetiapine oxcarbazepine olanzapine[A]	A/C	Ingestion	Int suicide	4,900 ng/mL§	
1001	19 yr	quetiapine phencyclidine valproic acid[A]	A/C	Ing/Inh	Int suicide		
1002	20 yr	quetiapine risperidone valproic acid	A	Ingestion	Int suicide	16,200 ng/mL 36 μg/mL	
1003	23 yr	quetiapine venlafaxine	A/C	Ingestion	Int suicide		
1004 p	8 mo	secobarbital	A	Unknown	Unknown		
1005	84 yr	temazepam	A	Ingestion	Int suicide		
1006	Unk	temazepam	U	Ingestion	Unknown		
1007 p	19 yr	temazepam citalopram methadone	U	Ingestion	Malicious	 0.1 μg/mL§	
1008	80 yr	temazepam fluoxetine chlorpromazine[A]	A/C	Ingestion	Int suicide	520 ng/mL§ 100 ng/mL§ 700 ng/mL§	
1009	30's yr	unknown sleep aid ethanol	A	Ingestion	Int suicide		
1010	24 yr	ziprasidone amlodipine	A/C	Ingestion	Int suicide	260 ng/mL	
1011 p	38 yr	ziprasidone paroxetine methadone[A]	A	Ingestion	Int suicide		
1012	42 yr	ziprasidone quetiapine	A/C	Ingestion	Int suicide		
1013 p	36 yr	zolpidem	A	Ingestion	Int unk		
1014	46 yr	zolpidem acetaminophen/hydrocodone aspirin/pentazocine[A]	A	Ingestion	Int suicide		

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
1015 p	34 yr	zolpidem acetaminophen/propoxyphene	A	Ingestion	Int suicide		
1016 p	43 yr	zolpidem alprazolam methadone	U	Ingestion	Int unk		
1017 p	89 yr	zolpidem diphenhydramine	U	Ingestion	Int suicide		
1018	79 yr	zolpidem ethanol	A/C	Ingestion	Int suicide	1,600 ng/mL§	

See also cases 35, 281, 282, 363, 372, 380, 403, 404, 464, 466, 477, 506 thru 509, 534, 550, 551, 558, 575 thru 578, 588, 592, 601, 653, 679, 730, 737, 754, 869, 899, 927, 928, 934, 986, 1016, 1096 (alprazolam); 14, 367, 570, 954, 1055, 1129 (barbiturate); 14, 20, 291, 367, 532, 553, 570, 734, 755, 757, 812, 872, 904, 1055, 1056, 1062, 1066, 1076, 1103 (benzodiazepine); 934 (bultalbital); 879 (bupropion); 624 (chloral hydrate); 373, 510, 711 (chlordiazepoxide); 742, 860, 1008 (chlorpromazine); 293, 374, 480, 512, 535, 579, 580, 634, 654, 677, 716, 738, 743, 754, 880, 921, 997 (clonazepam); 704, 823 (clorazepate); 963 (clozapine); 93, 375, 376, 391, 458, 465, 482, 513 thru 519, 525, 556, 557, 583, 584, 589, 598, 599, 602, 606, 652, 706, 777, 906, 944, 967, 991, 1079, 1143, (diazepam); 970 (flurazepam); 21, 282, 319, 327, 378, 446, 560, 680, 806, 809, 971 (lorazepam); 477, 554, 957 (meprobamate); 96, 530, 531, 618, 621, 670, 707, 743, 747, 804, 835, 908, 917, 956, 1000 (olanzapine); 808 (oxazepam); 758 (pentobarbital); 311, 629 (phenobarbital); 672 (prochlorperazine); 116, 538, 579, 601, 610, 633, 689, 691, 711, 715, 731, 744, 917, 922, 1012 (quetiapine); 23, 309, 634, 682, 730, 739, 976, 1002 (risperidone); 847, 1118 (temazepam); 624, 716, 870, 880, 981 (ziprasidone); 305, 316, 568, 675 thru 677, 684, 685, 736, 949 (zolpidem).

Serums, toxoids, vaccines							
1019	2 yr	antivenom, Centruroides Centruroides sculpturatus	A	Bite/sting/ Paren	Adv rxn		
Stimulants and street drugs							
1020	39 yr	amphetamine	A	Parenteral	Int abuse		
1021 p	39 yr	amphetamine	A	Unknown	Int abuse		
1022 p	17 yr	amphetamine diphenhydramine methamphetamine[A]	A	Ingestion	Int abuse	0.56 μg/mL§ 0.04 μg/mL§ 0.01 μg/mL§	
1023	Unk	amphetamines	U	Unknown	Unknown		
1024 aip	16 yr	cocaine	A	Asp/Ing	Int misuse		
1025 p	22 yr	cocaine	A	Ingestion	Int misuse		
1026	23 yr	cocaine	A	Ingestion	Int misuse		
1027 p	24 yr	cocaine	U	Ingestion	Int misuse	0.62 μg/mL ecgoninemethylester 4.3 μg/mL benzoylecgonine 3.5 μg/mL	
1028	24 yr	cocaine	A	Ing/Inh	Int misuse		
1029	25 yr	cocaine	A	Inhalation	Int abuse		
1030 p	26 yr	cocaine	A	Parenteral	Int unk		
1031	26 yr	cocaine	A	Ingestion	Int misuse		
1032	26 yr	cocaine	A	Ingestion	Int misuse		
1033 p	27 yr	cocaine	A	Ingestion	Int abuse		
1034 ip	27 yr	cocaine	U	Unknown	Int unk		
1035 i	29 yr	cocaine	A	Unknown	Int abuse	0.22 μg/mL	
1036 p	33 yr	cocaine	U	Unknown	Int abuse		
1037	34 yr	cocaine	U	Unknown	Int abuse		
1038	34 yr	cocaine	A	Ingestion	Int misuse		
1039	36 yr	cocaine	A/C	Inhalation	Int abuse		
1040	38 yr	cocaine	A	Unknown	Int suicide		
1041	38 yr	cocaine	A	Ingestion	Int misuse		
1042	39 yr	cocaine	U	Parenteral	Int abuse		
1043	40 yr	cocaine	A/C	Unknown	Int abuse		
1044	40 yr	cocaine	U	Unknown	Unknown		
1045 i	46 yr	cocaine	C	Unknown	Int unk		
1046 p	47 yr	cocaine	A	Ingestion	Int misuse		
1047	47 yr	cocaine	U	Unknown	Int unk		
1048	56 yr	cocaine	U	Unknown	Int abuse		
1049	>19 yr	cocaine	U	Unknown	Unknown		
1050	Unk	cocaine	U	Unknown	Unknown		
1051 p	42 yr	cocaine acetaminophen/hydrocodone	A/C	Ing/Unk	Int abuse	91 μg/mL¥	
1052 p	21 yr	cocaine amphetamine	A	Parenteral	Int abuse		
1053 p	38 yr	cocaine amphetamine opioid[A]	U	Unknown	Int abuse		
1054 p	21 yr	cocaine aspirin/oxycodone acetaminophen/oxycodone	A	Unknown	Int suicide		
1055	25 yr	cocaine benzodiazepine barbiturate[A]	A	Unknown	Int suicide		
1056 p	37 yr	cocaine benzodiazepine phencyclidine	U	Ing/Inh	Int abuse		
1057 i	25 yr	cocaine ethanol	A	Ing/Unk	Int misuse	3.85 μg/mL§ 40 mg/dl§	
1058	37 yr	cocaine ethanol	U	Ing/Inh	Int abuse		
1059	40 yr	cocaine ethanol	A	Ing/Unk	Int abuse	33 mg/dL	
1060	30 yr	cocaine ethanol methadone[A]	U	Ing/Unk	Int abuse	80 mg/dL	
1061	30's yr	cocaine ethanol unknown drug	A	Unknown		60 mg/dL	
1062 p	29 yr	cocaine heroin benzodiazepine[A]	A	Ing/Unk	Int suicide		

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
1063 ip	39 yr	cocaine	A/C	Ing/Inh	Int abuse	0.024 μg/mL§	
						benzoylecgonine 1.2 μg/mL§	
		heroin				morphine 40 ng/mL§	
		methadone[A]				0.007 μg/mL§	
1064	42 yr	cocaine	A	Ing/Inh	Unknown		
		ibuprofen					
1065 ip	43 yr	cocaine	U	Unknown	Int unk	0.1 μg/mL§	
		methadone				1.3 μg/mL§	
1066 p	17 yr	cocaine	A/C	Ing/Inh/Unk	Int abuse		
		methadone				0.06 μg/mL	
		benzodiazepine					
1067 p	20 yr	cocaine	A/C	Ing/Unk	Int abuse		
		methylenedioxymethamphetamine					
1068 p	22 yr	cocaine	A/C	Unknown	Int abuse		
		morphine					
		propoxyphene					
1069	33 yr	cocaine	A	Inh/Unk	Int abuse		
		opioid					
1070	34 yr	cocaine	A	Unknown	Int abuse		
		opioid					
1071	>19 yr	cocaine	U	Unknown	Int abuse		
		phencyclidine					
1072	43 yr	cocaine	A	Ing/Inh/Unk	Int abuse		
		propoxyphene					
		marijuana					
1073 p	26 yr	cocaine (crack)	A	Ingestion	Int unk		
1074	32 yr	cocaine (crack)	A	Inhalation	Int abuse		
1075	38 yr	cocaine (crack)	A	Ingestion	Int misuse		
1076	46 yr	ephedrine	A	Ingestion	Int suicide		
		benzodiazepine					
1077 ip	45 yr	ephedrine	C	Ingestion	Adv rxn		
		pseudoephedrine					
		amphetamine					
1078 p	20 yr	gamma hydroxybutyrate	A	Ing/Unk	Int suicide		
		cocaine					
		ethanol[A]					
1079 p	28 yr	gamma hydroxybutyrate	A	Ing/Inh	Int suicide		
		diazepam					
		marijuana					
1080 p	18 yr	heroin	U	Unknown	Int abuse		
1081 ip	24 yr	heroin	A	Parenteral	Int abuse		
1082 p	25 yr	heroin	A	Parenteral	Int abuse		
1083 p	26 yr	heroin	U	Parenteral	Int abuse		
1084 ip	27 yr	heroin	A	Unknown	Int abuse		
1085 p	28 yr	heroin	A	Unknown	Int suicide		
1086 ip	32 yr	heroin	A	Unknown	Int abuse		
1087 p	33 yr	heroin	A	Parenteral	Int unk		
1088 ip	34 yr	heroin	A	Parenteral	Int abuse		
1089	39 yr	heroin	A	Inh/Unk	Int abuse		
1090 ip	42 yr	heroin	A	Parenteral	Int abuse	morphine 190 ng/mL§	
1091	45 yr	heroin	C	Unknown	Int abuse		
1092 p	49 yr	heroin	A	Parenteral	Int abuse		
1093	55 yr	heroin	C	Parenteral	Int abuse		
1094	>19 yr	heroin	U	Parenteral	Int abuse		
1095	30 yr	heroin	U	Ing/Unk	Int abuse		
		acetaminophen/hydrocodone					
1096 ip	35 yr	heroin	A/C	Ing/Paren	Int abuse		
		alprazolam					
1097	26 yr	heroin	U	Ing/Inh	Int abuse		
		amphetamine					
		marijuana					
1098 p	22 yr	heroin	A/C	Parenteral	Int abuse	morphine 780 ng/mL§	
		cocaine				0.032 μg/mL§	
						benzoylecgonine 1.76 μg/mL§	
1099 p	26 yr	heroin	U	Unknown	Int abuse		
		cocaine					
1100 ip	28 yr	heroin	A/C	Inh/Paren	Int abuse	morphine 250 ng/mL§	
		cocaine				benzoylecgonine 0.06 μg/mL§	
1101 p	58 yr	heroin	U	Inh/Paren	Int abuse		
		cocaine					
1102 p	27 yr	heroin	A/C	Ing/Inh/Paren	Int abuse	morphine 2,320 ng/mL	
		cocaine					
		acetaminophen/hydrocodone					
1103 p	38 yr	heroin	A	Parenteral	Int suicide		
		cocaine					
		benzodiazepine					
1104 p	25 yr	heroin	A	Ing/Inh	Int suicide		
		cocaine					
		doxepin[A]					
1105 p	26 yr	heroin	A/C	Ing/Paren	Int abuse		
		cyclobenzaprine					
		acetaminophen					
1106 p	18 yr	heroin	U	Unknown	Int abuse		
		diphenhydramine					
1107 ip	29 yr	heroin	A	Unknown	Int abuse	morphine 360 ng/mL§	
		ethanol				43 mg/dL§	
1108 p	33 yr	heroin	A	Ing/Unk	Int abuse		
		ethanol				242 mg/dL	

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
1109 ip	33 yr	heroin	A/C	Ing/Inh	Int abuse	morphine 77 ng/mL§	
		ethanol				307 mg/dL§	
		cocaine					
1110 p	30 yr	heroin	A	Asp/Ing/Paren	Int suicide	morphine 150 ng/mL§	
		fluoxetine				1,100 ng/mL§	
						norfluoxetine 710 ng/mL§	
		ethanol[A]				9 mg/dL	
1111 ip	20 yr	heroin	A/C	Ing/Inh	Int abuse	morphine 85 ng/mL§	
		marijuana				delta 9 carboxy THC 18 ng/mL§	
1112 ip	24 yr	heroin	A	Unknown	Int abuse	morphine 250 ng/mL§	
		marijuana				delta 9 THC 3.7 ng/mL§	
						delta 9 carboxy THC 9.9 ng/mL§	
1113	23 yr	heroin	A	Ing/Unk	Int suicide		
		methadone					
		acebutolol[A]					
1114 p	21 yr	heroin	U	Unknown	Int abuse		
		methylenedioxymethamphetamine					
1115 ip	22 yr	heroin	A	Ing/Inh	Int abuse	morphine 100 ng/mL§	
		methylenedioxymethamphetamine				0.11 μg/mL§	
		cocaine[A]				benzoylecgonine 0.091 μg/mL§	
1116 ip	42 yr	heroin	A	Ing/Paren	Int abuse	morphine 66 ng/mL§	
		opioid					
		ethanol				135 mg/dL§	
1117 ip	15 yr	heroin	A/C	Ing/Inh	Int abuse		
		tramadol				2.3 μg/mL§	
						nortramadol 0.39 μg/mL§	
		marijuana					
1118 p	60 yr	heroin	A/C	Ing/Paren	Int abuse		
		tramadol					
		temazepam[A]					
1119 p	27 yr	heroin	A	Ing/Paren	Int abuse		
		trazodone					
1120 ip	50 yr	marijuana	A	Ing/Inh	Int abuse		
		ethanol				430 mg/dL§	
1121	20's yr	methamphetamine	A	Unknown	Int abuse		
1122	27 yr	methamphetamine	A	Ingestion	Int misuse		
1123 a	27 yr	methamphetamine	A	Ingestion	Int misuse	16 μg/mL§	
1124	29 yr	methamphetamine	A	Ingestion	Int unk	6.3 μg/mL§	
						amphetamine 0.11 μg/mL§	
1125	31 yr	methamphetamine	U	Ing/Paren	Int misuse		
1126 p	36 yr	methamphetamine	A	Ing/Unk	Int abuse	0.64 μg/mL§	
1127	43 yr	methamphetamine	A	Inhalation	Int abuse		
1128	>19 yr	methamphetamine	A/C	Ingestion	Int misuse		
1129	20 yr	methamphetamine	U	Ingestion	Int suicide		
		barbiturate					
		tricyclic antidepressant[A]					
1130 ip	27 yr	methamphetamine	U	Unknown	Unknown	0.27 μg/mL§	
		hydrocodone				600 ng/mL§	
		acetaminophen[A]				38.1 μg/mL§	
1131	34 yr	methamphetamine	A	Inhalation	Int abuse		
		marijuana					
1132	36 yr	methamphetamine	A/C	Ing/Unk	Int abuse		
		methadone					
1133 ip	39 yr	methamphetamine	A	Ing/Unk	Int unk	2.21 μg/mL§	
		oxycodone				530 ng/mL§	
1134 p	16 yr	methylenedioxymethamphetamine	A	Ingestion	Int abuse		
1135 ap	16 yr	methylenedioxymethamphetamine	A	Ingestion	Int abuse	1.32 μg/mL§	
1136	18 yr	methylenedioxymethamphetamine	A	Ingestion	Int abuse		
1137 p	18 yr	methylenedioxymethamphetamine	A	Unknown	Int abuse		
1138	20 yr	methylenedioxymethamphetamine	A	Ingestion	Int abuse	0.74 μg/mL	
1139 p	20 yr	methylenedioxymethamphetamine	A	Ingestion	Int abuse		
1140 p	20 yr	methylenedioxymethamphetamine	U	Ingestion	Int abuse		
1141 p	29 yr	methylenedioxymethamphetamine	A	Ingestion	Int abuse		
1142 p	32 yr	methylenedioxymethamphetamine	U	Ing/Inh	Int abuse		
		cocaine					
		unknown drug					
1143 ip	21 yr	methylenedioxymethamphetamine	U	Ing/Unk	Int unk	0.22 μg/mL§	
		diazepam				510 ng/mL§	
						nordiazepam 1,330 ng/mL§	
		oxycodone				470 ng/mL§	
1144	18 yr	methylenedioxymethamphetamine	A	Ingestion	Int abuse		
		oxycodone					
1145 i	20 yr	phencyclidine	U	Unknown	Unknown		

See also cases 17, 64, 452, 553, 720, 1052, 1053, 1077, 1097 (amphetamine); 215, 292, 294, 683 (caffeine); 13, 16, 17, 53, 106, 138, 281, 294, 444, 449, 450, 516, 527, 548, 550, 581, 582, 585, 800, 935, 952, 955, 1078, 1098 thru 1104, 1109, 1115, 1142 (cocaine); 555, 896 (ephedrine); 526 (gamma hydroxybutyrate); 415, 527, 559, 586, 709, 794, 964, 1062 (heroin); 57, 155, 224, 379, 510, 528, 529, 578, 776, 1072, 1079, 1097, 1111, 1112, 1117, 1131 (marijuana); 453, 765, 969, 1022 (methamphetamine); 681, 1067, 1114, 1115 (methylenedioxymethamphetamine); 889 (methylphenidate); 907, 1001, 1056, 1071 (phencyclidine).

Topical preparations							
1146	51 yr	camphor	A	Ingestion	Int abuse		
		methyl salicylate				97.9 mg/dL	
		ethanol				84 mg/dL	

See also case 1146 (methyl salicylate).

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2002 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
Unknown drug							
1147	17 yr	unknown drug	A	Inhalation	Adv rxn		
1148 p	27 yr	unknown drug	A	Unknown	Int suicide		
1149 p	28 yr	unknown drug	U	Ingestion	Int suicide		
1150 p	29 yr	unknown drug	U	Ingestion	Unknown		
1151	37 yr	unknown drug	A	Ingestion	Int suicide		
1152	43 yr	unknown drug	U	Unknown	Unknown		
1153	59 yr	unknown drug	A	Ingestion	Unknown		
See also cases 24, 59, 312, 313, 455, 846, 985, 1061, 1142 (unknown drug).							

ABBREVIATIONS: C, chronic exposure; A, acute exposure; A/C, acute on chronic; U, unknown; Ocu, ocular; Ot, otic; Inh, inhalation; Ing, ingestion; Adv rxn, adverse reaction; Env, environmental; Int, intentional; Occ, occupational; Paren, parenteral; 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
[A] Additional substances not listed
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

	No. of Exposures	Age			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Adhesives/glues														
Cyanoacrylate	11,356	3,955	2,341	4,938	11,072	185	55	30	2,498	1,172	2,342	445	5	0
Epoxy	817	304	66	441	786	13	3	13	239	127	162	59	5	0
Toluene/xylene	1,199	719	177	297	1,141	43	7	5	179	265	208	32	2	1
Non-toxic	1,722	1,145	426	143	1,652	59	7	2	62	189	101	8	1	0
Unknown	4,381	2,260	568	1,520	4,201	93	28	54	844	734	726	160	3	1
Category total	19,475	8,383	3,578	7,339	18,852	393	100	104	3,822	2,487	3,539	704	16	2
Alcohols														
Ethanol: beverage	42,233	1,223	6,149	34,395	5,508	35,228	373	665	31,410	4,213	13,401	8,793	1,706	120
Ethanol: other	5,594	4,120	469	987	5,274	256	37	20	490	1,558	713	91	13	1
Higher alcohol	248	118	22	103	235	7	4	2	79	66	61	21	2	0
Isopropanol	8,998	5,497	764	2,694	7,769	1,113	58	23	1,833	2,607	1,620	384	59	3
Methanol	1,049	284	144	611	882	123	14	7	524	243	244	89	32	13
Rubbing alcohols														
Ethanol with methyl salicylate	47	29	1	17	41	6	0	0	10	15	9	2	0	0
Ethanol without methyl salicylate	389	276	25	86	358	28	2	1	50	138	57	7	0	0
Isopropanol with methyl salicylate	370	263	21	86	335	33	1	1	74	132	64	10	2	0
Isopropanol without methyl salicylate	9,104	6,014	708	2,356	8,205	803	62	12	1,360	2,313	1,476	229	26	1
Unknown rubbing alcohol	173	99	15	58	150	20	2	1	34	33	23	7	0	0
Other	304	208	29	66	291	7	2	2	33	91	41	6	0	0
Unknown	706	123	110	465	282	392	8	12	389	102	157	107	34	1
Category total	69,215	18,254	8,457	41,924	29,330	38,016	563	746	36,286	11,511	17,866	9,746	1,874	139
Arts/crafts/office supplies														
Artist paint, non-water color	3,450	2,464	470	500	3,380	46	2	18	128	504	204	26	2	0
Chalk	1,618	1,465	115	33	1,593	23	2	0	30	216	42	5	0	0
Clay	1,909	1,624	188	90	1,886	17	0	6	53	210	70	4	0	0
Crayon	2,715	2,425	211	68	2,682	28	2	3	43	263	63	3	0	0
Glaze	172	76	46	49	171	1	0	0	16	31	20	3	0	0
Office supplies: miscellaneous	354	144	35	172	342	7	3	1	31	70	49	5	0	0
Pencil	3,139	1,556	1,292	261	3,023	76	32	0	110	229	258	13	0	0
Pen/Ink	21,834	12,800	8,162	757	21,265	461	50	43	424	2,702	600	27	3	0
Typewriter correction fluid	2,326	1,625	484	207	2,198	117	9	0	160	608	185	20	1	0
Water color	1,385	1,190	116	73	1,364	16	0	4	23	129	39	1	0	0
Other	8,363	6,201	1,390	720	8,145	157	35	19	258	1,055	336	45	1	0
Unknown	430	303	89	35	408	19	0	2	20	85	13	0	0	0
Category total	47,695	31,873	12,598	2,965	46,457	968	135	96	1,296	6,102	1,879	152	7	0
Automotive/aircraft/boat products														
Brake fluid	1,528	382	146	985	1,441	73	7	2	582	327	517	88	16	2
Ethylene glycol	5,102	610	756	3,675	4,474	526	53	14	1,750	965	953	341	132	22
Glycol: other	136	65	11	58	134	2	0	0	33	30	26	5	1	0
Glycol and methanol	212	72	23	114	203	4	3	1	65	57	47	9	2	0
Hydrocarbon	3,073	1,284	380	1,393	2,860	175	20	16	907	754	835	162	18	1
Methanol	1,500	352	234	902	1,286	178	23	5	666	407	380	85	23	5
Non-toxic	23	15	4	4	23	0	0	0	4	6	1	2	0	0
Other	2,163	875	359	913	2,064	57	17	24	618	330	680	146	7	0
Unknown	303	79	51	167	266	32	2	1	133	63	94	27	1	0
Category total	14,040	3,734	1,964	8,211	12,751	1,047	125	63	4,758	2,939	3,533	865	200	30
Batteries														
Automotive battery	1,468	107	194	1,150	1,442	10	1	12	404	86	567	126	2	0
Disc batteries														
Alkaline (MnO2)	90	62	13	13	88	1	0	0	70	52	7	1	0	0
Lithium	134	46	27	52	123	9	0	2	60	38	17	9	5	0
Mercuric oxide	15	9	4	2	15	0	0	0	8	5	2	0	0	0
Nickel cadmium	10	4	2	4	10	0	0	0	0	2	2	1	0	0
Silver oxide	52	25	11	16	47	4	0	0	28	28	2	0	0	0
Zinc-air	87	29	13	45	83	4	0	0	63	58	4	0	0	0
Other	16	7	6	3	15	1	0	0	6	9	2	0	0	0
Unknown	2,207	1,312	657	227	2,144	56	3	1	1,424	1,023	105	27	1	0
Dry cell battery	5,543	2,815	1,393	1,297	5,311	187	32	3	747	1,180	1,125	176	3	0
Other	116	39	28	49	113	3	0	0	14	24	27	7	0	0
Unknown	134	41	37	56	128	6	0	0	23	24	43	13	1	0
Category total	9,872	4,496	2,385	2,914	9,519	281	36	18	2,847	2,529	1,903	360	12	0

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

	No. of Exposures	Age			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Bites and envenomations														
Aquatic														
Coelenterate	1,329	116	649	556	1,326	1	0	1	123	39	556	74	3	0
Fish	1,389	33	249	1,094	1,385	1	1	2	410	11	422	146	4	0
Other/unknown	492	205	90	185	471	14	2	4	83	37	98	27	2	0
Insects														
Ant/fire ant	2,708	948	391	1,352	2,676	7	19	5	220	73	692	143	7	0
Bee/wasp/hornet	12,632	2,494	2,425	7,650	12,613	11	2	6	1,046	140	4,138	671	16	0
Caterpillar	2,428	539	628	1,241	2,409	9	3	7	188	76	679	76	0	0
Centipede/millipede	2,051	315	390	1,323	2,044	2	2	2	131	60	512	71	0	0
Mosquito	1,084	225	190	652	1,078	0	1	3	154	12	199	44	1	0
Scorpion	15,687	1,305	3,044	11,300	15,679	5	0	3	941	172	2,878	508	8	2
Tick	3,130	781	617	1,688	3,122	2	1	4	485	104	462	78	1	0
Other	17,527	3,490	2,892	11,029	17,359	36	85	25	2,547	408	3,543	996	14	1
Mammals														
Bat	374	50	59	249	373	0	0	0	170	87	51	7	0	1
Cat	818	122	173	502	816	0	0	2	413	15	203	40	0	0
Dog	1,618	269	687	640	1,612	1	0	2	1,071	56	462	100	2	0
Fox	13	0	3	10	13	0	0	0	10	2	3	2	0	0
Human	83	15	21	45	76	2	4	0	31	1	17	10	0	0
Raccoon	111	17	25	65	111	0	0	0	54	6	29	0	0	0
Rodent/lagomorph	1,824	432	657	694	1,808	5	5	4	404	79	385	30	0	0
Skunk	258	36	60	154	245	5	5	1	19	18	59	2	0	0
Other	1,294	217	440	609	1,284	3	0	1	583	73	231	31	0	0
Reptile: other/unknown	1,096	363	368	352	1,066	14	4	7	204	63	316	36	2	0
Snakes														
Copperhead	889	43	185	656	887	2	0	0	784	13	336	398	30	0
Coral	88	5	26	57	88	0	0	0	75	5	37	20	1	0
Cottonmouth	173	2	40	129	173	0	0	0	138	4	73	56	8	0
Crotaline: unknown	25	1	9	15	25	0	0	0	19	4	10	7	1	0
Rattlesnake	1,150	53	178	902	1,137	9	3	1	1,014	28	235	567	94	2
Exotic snakes														
Poisonous	125	3	14	106	122	3	0	0	108	2	38	52	7	0
Nonpoisonous	155	11	58	83	155	0	0	0	65	3	49	9	0	0
Unknown if poisonous	7	0	3	4	7	0	0	0	4	0	4	0	0	0
Nonpoisonous snake	1,976	211	797	958	1,974	1	0	1	523	102	719	59	0	0
Unknown snake	2,145	161	655	1,303	2,143	1	0	0	1,369	79	928	395	34	0
Spiders														
Black widow	2,786	215	415	2,138	2,782	4	0	0	897	149	769	391	11	0
Brown recluse	2,944	244	406	2,264	2,935	0	0	1	1,084	52	604	664	34	0
Necrotizing spider: other	235	31	43	158	235	0	0	0	66	7	49	21	3	0
Tarantula	273	19	91	160	266	4	1	2	50	11	95	13	0	0
Other spider	12,408	1,432	2,209	8,655	12,383	12	6	2	1,761	246	2,868	749	8	0
Unknown insect or spider	4,813	615	798	3,380	4,805	1	1	3	614	24	859	189	4	0
Other/unknown bite/ envenomation	447	62	80	293	447	0	0	0	123	9	168	39	2	0
Category total	98,585	15,080	20,065	62,651	98,130	155	145	89	17,981	2,270	23,776	6,721	297	6
Building and construction products														
Caulking compound and putty	2,704	1,858	175	662	2,664	17	2	21	238	469	213	45	1	0
Cement, concrete	1,894	462	130	1,283	1,841	18	8	25	709	190	417	379	14	0
Insulation														
Asbestos	194	24	30	134	193	1	0	0	28	26	9	5	0	0
Fiberglass	1,492	565	262	657	1,438	20	8	23	176	119	309	48	1	0
Urea/formaldehyde	116	36	12	66	114	1	0	1	21	19	15	6	0	0
Other	256	130	19	106	253	1	0	1	35	39	37	6	0	0
Unknown	80	29	12	39	79	0	0	0	14	8	15	5	0	0
Soldering flux	345	126	43	174	338	1	3	2	113	55	93	29	3	0
Other	2,349	1,439	144	748	2,306	17	7	18	313	374	328	76	4	0
Unknown	127	26	11	87	118	7	0	2	37	21	22	14	2	0
Category total	9,557	4,695	838	3,956	9,344	83	28	93	1,684	1,320	1,458	613	25	0
Chemicals														
Acetone	1,251	377	168	695	1,140	78	10	10	386	216	320	97	8	0
Acids														
Hydrochloric	3,452	179	615	2,613	3,288	80	40	32	1,293	275	1,206	452	22	2
Hydrofluoric	1,159	49	62	956	1,136	14	1	3	917	163	391	293	23	5
Other	5,348	523	861	3,877	5,120	111	39	55	2,108	460	1,850	777	42	2
Unknown	467	31	80	351	432	10	15	8	193	25	144	77	4	0

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

	No. of Exposures	Age			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Alkali	5,175	985	839	3,286	4,944	117	44	56	2,284	610	1,508	824	63	3
Ammonia	5,287	1,113	707	3,421	4,938	214	60	51	1,654	622	1,642	550	34	1
Borate/boric acid	2,724	1,317	315	1,071	2,501	150	39	24	481	614	299	53	5	1
Chlorate	64	18	17	29	63	0	1	0	16	17	8	14	0	0
Cyanide	224	10	17	185	159	25	25	3	140	39	48	16	10	8
Dioxin	10	2	0	8	10	0	0	0	3	4	2	0	0	0
Ethylene glycol	975	143	100	692	688	226	11	2	516	235	124	106	122	18
Formaldehyde/formalin	1,260	139	322	765	1,063	139	22	20	477	172	370	90	9	2
Glycol: other	1,198	402	242	544	1,109	54	7	20	406	207	302	83	17	1
Ketone	714	227	63	416	690	11	2	8	315	123	220	78	4	0
Methylene chloride	694	154	88	448	665	22	3	3	263	116	198	58	7	0
Nitrate and nitrite	1,062	278	376	400	961	75	17	5	230	207	201	35	7	0
Phenol/creosote	906	89	130	672	883	7	1	13	355	100	277	115	5	1
Strychnine	46	14	5	27	27	13	2	2	23	8	4	6	3	0
Toluene diisocyanate	764	132	85	542	746	8	1	7	185	71	165	47	1	0
Other/unknown	21,843	7,201	3,436	10,856	20,145	657	444	474	5,595	3,720	4,167	1,216	106	6
Category total	54,623	13,383	8,528	31,854	50,708	2,011	784	796	17,840	8,004	13,446	4,987	492	50
Cleaning substances (household)														
Ammonia cleaner	2,418	971	249	1,172	2,258	111	24	15	437	393	555	153	10	0
Automatic dishwasher detergents														
Granular	4,450	3,733	137	565	4,411	18	14	6	204	1,398	697	41	3	0
Liquid or gel	3,830	3,277	103	445	3,797	15	10	8	260	1,160	722	56	3	0
Tablet	789	728	13	47	786	2	1	0	29	296	89	1	0	0
Rinse agent	1,280	1,202	19	57	1,272	7	0	1	54	262	147	10	0	0
Other/unknown	1,057	819	46	189	1,037	1	9	9	69	284	151	16	0	0
Bleaches														
Borate	728	367	71	275	690	19	6	11	115	124	168	31	2	0
Hypochlorite	53,100	20,801	5,537	26,301	49,862	2,128	568	419	9,922	7,484	15,122	2,456	56	2
Nonhypochlorite	645	272	74	291	606	27	7	4	114	92	191	19	4	0
Other/unknown	540	210	58	254	501	20	11	6	134	77	173	29	4	0
Carpet/upholstery cleaner	5,410	4,105	299	987	5,242	70	34	60	597	1,218	856	90	3	0
Cleansers														
Anionic/nonionic	2,481	1,828	128	515	2,404	65	4	7	257	583	352	44	1	0
Other/unknown	2,305	1,392	184	711	2,170	86	18	25	397	555	468	77	4	0
Disinfectants														
Hypochlorite	4,298	2,041	491	1,740	4,103	100	34	56	944	694	1,158	287	5	1
Phenol	1,735	1,072	181	475	1,629	73	18	7	302	328	420	62	2	0
Pine oil	5,540	3,156	525	1,800	4,989	422	56	53	1,256	1,354	1,224	168	18	3
Other/unknown	4,328	2,624	477	1,164	4,081	141	41	53	659	839	991	131	5	0
Drain openers														
Acid: hydrochloric	298	25	22	246	267	23	0	8	79	38	107	39	3	0
Acid: sulfuric	512	43	35	431	501	8	1	2	195	44	174	101	6	2
Acid: other/unknown	174	17	12	143	167	7	0	0	56	10	66	24	1	1
Alkali	3,747	506	311	2,869	3,458	213	27	36	1,152	452	1,071	493	59	7
Other/unknown	756	107	72	559	708	33	8	6	183	97	202	60	7	2
Fabric softeners/antistatic agents														
Aerosol/spray	98	66	10	21	93	3	0	1	3	20	10	3	0	0
Dry/powder	8	2	1	5	8	0	0	0	1	0	3	0	0	0
Liquid	1,114	896	57	156	1,071	31	0	10	106	279	127	10	0	0
Solid/sheet	450	398	16	34	437	5	1	6	12	105	29	4	0	0
Other/unknown	22	18	0	3	22	0	0	0	3	10	2	0	0	0
Glass cleaners														
Ammonia	1,564	1,225	136	201	1,492	59	8	3	127	407	224	20	0	0
Anionic/nonionic	255	183	23	47	244	11	0	0	33	56	47	5	1	0
Isopropanol	7,855	6,213	644	974	7,480	281	68	12	688	1,840	1,187	106	3	0
Other/unknown	1,944	1,413	209	318	1,810	114	14	3	247	496	379	26	4	0
Hand dishwashing														
Anionic/nonionic	6,190	4,061	483	1,617	5,866	103	95	120	442	818	1,307	82	0	2
Other/unknown	1,908	1,180	166	554	1,776	40	40	51	149	226	401	25	0	0
Laundry additives														
Bluing/brightening agent	86	31	16	39	78	2	2	4	13	19	21	6	0	0
Detergent booster	66	40	8	18	61	3	1	1	3	17	13	2	0	0
Enzyme/microbiological additive	81	48	7	25	79	1	0	1	11	19	15	2	0	0
Water softener	64	11	8	42	50	0	1	10	7	8	8	0	0	0
Other/unknown	589	471	27	89	561	14	1	13	49	129	98	7	0	1
Laundry detergents														
Granular	6,079	5,000	303	757	5,921	95	27	32	611	1,278	1,462	81	2	0

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

	No. of Exposures	Age			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Liquid	4,411	3,185	289	923	4,242	115	13	37	563	715	1,125	95	5	2
Soap	134	91	10	33	125	3	1	5	10	20	27	2	0	0
Other/unknown	272	198	13	59	257	5	4	4	41	62	55	6	0	0
Laundry prewash/stain removers														
Dry solvent-based	2	2	0	0	2	0	0	0	0	0	0	0	0	0
Liquid solvent-based	1,201	1,001	58	139	1,180	10	9	1	138	372	170	18	0	0
Spray solvent-based	271	233	14	23	267	3	1	0	41	67	64	6	1	0
Other/unknown solvent-based	61	46	3	12	57	0	3	1	8	5	14	1	0	0
Dry surfactant-based	178	156	3	19	177	1	0	0	9	23	20	0	0	0
Liquid surfactant-based	2,133	1,901	66	158	2,105	13	10	3	255	419	392	52	3	0
Spray surfactant-based	541	497	12	31	533	3	5	0	99	111	114	22	2	0
Other/unknown surfactant-based	85	74	3	7	85	0	0	0	7	15	15	1	0	0
Other/unknown	595	443	36	114	589	4	0	1	71	159	112	17	2	0
Miscellaneous cleaners														
Acid	2,305	1,349	146	803	2,217	46	7	30	355	549	455	95	1	0
Alkali	9,895	6,141	736	2,974	9,524	245	53	63	2,262	2,048	2,413	559	20	0
Anionic/nonionic	6,777	4,467	525	1,717	6,471	157	57	83	878	1,494	1,232	137	7	0
Cationic	2,253	1,025	252	953	2,129	98	16	5	649	375	540	125	4	0
Ethanol	316	185	54	76	300	10	3	3	48	70	76	9	1	0
Glycols	1,123	558	211	348	1,077	30	5	10	207	191	286	34	1	0
Isopropanol	2,972	1,644	685	628	2,822	97	33	12	414	610	692	66	3	0
Methanol	61	22	10	29	58	3	0	0	22	10	24	3	0	0
Phenol	52	28	5	19	48	4	0	0	12	10	17	3	0	0
Other/unknown	11,458	6,936	1,038	3,411	11,094	181	83	88	1,507	2,623	2,132	233	15	1
Oven cleaners														
Acid	29	16	3	10	27	0	2	0	6	8	6	1	0	0
Alkali	2,682	571	351	1,715	2,564	49	32	35	1,042	262	797	437	27	0
Detergent	5	1	1	3	4	0	1	0	1	1	0	1	0	0
Other/unknown	392	86	59	244	378	9	3	2	151	31	123	48	2	0
Rust removers														
Alkali	27	6	1	20	27	0	0	0	4	3	13	1	0	0
Anionic/nonionic	3	1	0	2	3	0	0	0	0	0	1	1	0	0
Hydrofluoric acid	472	73	24	370	446	10	2	11	207	93	211	71	2	0
Other acid	372	119	37	214	365	6	0	1	118	54	132	37	0	0
Other/unknown	325	60	16	245	288	13	2	21	68	30	114	23	0	1
Spot removers/dry cleaning agents														
Anionic/nonionic	473	384	22	65	466	5	0	2	68	93	93	17	0	0
Glycol	119	79	7	32	115	1	1	2	17	27	18	3	0	0
Perchloroethylene	27	13	3	11	26	1	0	0	9	9	8	1	0	0
Isopropanol	7	3	1	3	6	1	0	0	0	4	2	0	0	0
Other halogenated hydrocarbon	74	27	6	41	67	2	3	1	15	15	17	4	0	0
Other nonhalogenated hydrocarbon	214	117	17	79	202	9	1	2	55	55	58	1	0	0
Other/unknown	141	88	10	41	138	0	0	3	14	34	29	2	0	0
Starch/fabric finish/sizing	771	636	65	69	738	29	2	2	26	153	50	3	0	0
Toilet bowl cleaners														
Acid	2,749	935	262	1,529	2,584	125	11	25	834	440	951	270	16	6
Alkali	2,018	1,419	94	491	1,962	44	1	7	325	547	394	55	2	0
Other/unknown	3,186	2,529	119	517	3,109	56	4	13	314	843	323	56	3	1
Wall/floor/tile cleaners														
Acid	3,224	1,421	245	1,535	3,107	72	14	29	821	548	1,167	261	6	0
Alkali	9,900	6,439	767	2,622	9,363	334	55	136	1,799	2,272	2,518	396	12	0
Anionic/nonionic	2,040	1,239	177	610	1,972	47	7	10	383	405	457	72	2	0
Cationic	1,933	1,254	146	524	1,835	73	8	12	341	457	398	69	5	0
Ethanol	45	37	2	6	45	0	0	0	2	19	4	0	0	0
Glycol	2,175	1,584	151	429	2,102	50	4	17	253	552	363	53	1	0
Isopropanol	1,881	1,184	160	521	1,766	90	7	15	334	475	387	50	2	0
Other/unknown	1,376	768	125	460	1,293	34	10	33	254	287	335	59	4	0
Wheel cleaner: HF/bifluoride	110	18	7	85	109	1	0	0	75	10	44	27	0	0
Category total	212,660	121,841	18,205	71,105	202,454	6,440	1,622	1,784	35,052	41,184	49,425	8,270	355	32
Industrial cleaners														
Acid	2,864	997	204	1,638	2,747	82	11	20	713	505	656	201	8	0
Alkali	4,073	1,345	513	2,183	3,853	139	54	22	1,806	560	1,340	557	30	0
Anionic/nonionic	1,374	732	146	489	1,295	48	16	14	325	234	366	63	0	1
Cationic	1,195	469	184	531	1,104	70	15	4	412	195	366	74	0	0
Disinfectant	572	111	97	359	505	42	22	3	265	81	199	50	0	0
Other/unknown	2,840	1,335	309	1,173	2,664	88	59	24	887	483	867	217	11	0

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

	No. of Exposures	Age			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Category total	12,918	4,989	1,453	6,373	12,168	469	177	87	4,408	2,058	3,794	1,162	49	1
Cosmetics/personal care products														
Baby oil	2,735	2,552	49	127	2,702	18	6	9	177	745	212	15	1	0
Bath oil/bubble bath	6,751	6,280	270	185	6,672	48	6	23	199	1,387	640	22	0	0
Cream/lotion/make-up	22,526	18,891	1,065	2,510	21,881	249	58	327	867	3,662	1,462	129	10	0
Dental care products														
Denture cleaner	1,539	236	65	1,227	1,494	32	7	4	96	314	145	13	1	1
Toothpaste with fluoride	24,087	21,965	954	1,129	23,462	284	47	287	411	4,852	1,218	40	1	1
Toothpaste without fluoride	1,686	1,401	95	187	1,614	15	8	48	41	329	99	4	0	0
Other	2,267	1,043	358	855	1,902	32	4	327	175	317	341	25	2	0
Deodorant	11,403	9,698	620	1,065	10,697	117	32	552	332	1,636	1,099	54	3	0
Depilatory	2,217	599	334	1,262	1,502	85	12	618	494	192	675	229	0	0
Douche	124	103	6	14	115	3	2	4	7	36	7	1	0	0
Eye product	1,380	1,126	63	186	1,351	10	1	17	81	208	123	18	0	0
Hair care products														
Coloring agent	2,276	950	239	1,064	1,971	30	4	269	419	360	534	110	5	0
Curl activator	41	30	3	8	40	1	0	0	7	11	4	1	0	0
Oil	238	198	15	24	230	4	3	1	33	58	37	6	0	0
Permanent wave solution	455	200	27	226	396	6	1	49	146	68	107	51	2	0
Relaxer: sodium hydroxide	775	574	38	159	747	7	2	18	360	182	240	84	3	0
Relaxer: other alkaline	857	639	47	167	828	4	1	23	356	205	311	77	2	0
Relaxer: other non-alkaline	58	46	1	11	58	0	0	0	15	11	20	2	0	0
Rinse/conditioner/relaxer	2,448	1,970	181	291	2,345	76	6	19	238	554	284	42	1	0
Shampoo	7,476	5,883	634	934	7,109	285	22	53	485	1,273	1,241	79	3	0
Spray	2,360	1,499	367	488	2,026	304	12	9	391	524	456	60	6	0
Other	2,722	1,947	251	509	2,587	55	10	65	363	554	469	79	7	0
Lipstick/balm: with camphor	982	901	51	28	972	8	0	2	28	167	72	2	0	0
Lipstick/balm: without camphor	4,075	3,804	161	101	4,018	30	1	23	66	473	138	9	1	0
Mouthwash														
Ethanol	16,204	4,058	2,917	9,137	14,763	1,329	51	31	1,318	2,798	1,242	295	35	0
Non-ethanol	730	356	123	247	669	51	1	7	66	180	63	5	0	0
Fluoride	2,557	1,791	575	185	2,520	28	0	6	60	532	93	2	0	0
Unknown	152	30	42	78	131	18	0	3	24	18	29	4	0	0
Nail products														
Acrylic nail adhesive	1,417	527	503	373	1,392	18	6	1	455	167	396	102	1	0
Acrylic nail primer	210	159	7	43	205	2	0	3	94	33	84	19	0	0
Acrylic nail remover	41	28	6	7	41	0	0	0	6	8	14	1	0	0
Polish	11,251	10,152	597	474	11,135	83	16	15	613	2,185	1,534	70	1	0
Polish remover: acetone	3,704	2,815	328	550	3,596	79	13	13	346	1,140	621	39	1	0
Polish remover: other	2,373	1,830	228	308	2,290	58	14	10	225	728	413	14	0	0
Polish remover: unknown	7,764	5,622	865	1,253	7,489	215	42	10	774	1,865	1,252	73	6	0
Other	2,295	1,353	251	678	2,250	15	1	26	562	450	557	125	3	0
Perfume/cologne/aftershave	20,424	17,614	1,522	1,244	19,801	458	109	38	1,262	5,278	3,685	138	10	1
Peroxide	16,604	7,100	1,543	7,850	15,890	363	79	255	1,205	2,569	2,686	226	11	0
Powder: talc	3,518	3,101	188	219	3,445	45	13	13	306	715	754	58	0	0
Powder: without talc	2,773	2,618	71	82	2,749	18	2	4	97	500	487	23	0	0
Soap	16,652	12,706	1,273	2,620	15,841	324	108	370	827	2,626	2,161	119	2	0
Suntan/sunscreen	9,730	8,551	676	479	9,517	30	8	171	357	1,293	1,884	57	1	0
Category total	219,877	162,946	17,609	38,584	210,443	4,837	708	3,723	14,384	41,203	27,889	2,522	119	3
Deodorizers														
Air fresheners														
Aerosol	2,710	1,934	461	310	2,497	181	20	9	306	491	717	61	2	0
Liquid	4,124	2,291	561	1,196	3,970	84	25	17	594	998	699	41	4	0
Solid	5,247	4,688	175	369	5,206	22	16	2	248	1,062	712	30	1	0
Other/unknown	2,944	2,339	308	291	2,867	57	8	9	252	585	716	32	3	0
Diaper pail deodorizer	63	57	0	6	62	1	0	0	5	17	5	0	0	0
Toilet bowl deodorizer	981	901	31	46	973	4	4	0	91	325	76	4	0	0
Other	4,962	3,669	389	881	4,800	109	21	26	614	1,135	831	82	5	0
Unknown	100	61	17	22	87	4	6	3	13	26	19	2	0	0
Category total	21,131	15,940	1,942	3,121	20,462	462	100	66	2,123	4,639	3,775	252	15	0
Dyes														
Fabric	588	432	72	84	577	3	1	6	42	139	36	3	0	0
Food	1,269	1,048	167	48	1,220	27	4	18	27	193	54	1	1	0
Leather	149	118	16	15	143	5	0	1	6	38	9	0	0	0
Other	619	308	192	112	576	19	3	21	78	131	52	11	10	0
Unknown	74	45	9	19	64	1	0	8	11	13	9	2	1	0
Category total	2,699	1,951	456	278	2,580	55	8	54	164	514	160	17	12	0

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

	No. of Exposures	Age			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Essential oils														
Clove oil	592	413	46	129	569	10	3	9	73	138	134	8	0	0
Cinnamon oil	519	359	89	68	472	32	2	13	51	31	257	5	0	0
Eucalyptus oil	393	252	29	105	367	15	1	9	81	139	80	11	2	0
Pennyroyal oil	25	3	3	18	14	11	0	0	4	2	3	0	0	0
Tea tree oil	271	158	22	90	258	4	0	9	41	68	48	9	0	0
Other/unknown	5,442	4,231	355	824	5,256	92	16	75	538	1,353	1,095	73	3	1
Category total	7,242	5,416	544	1,234	6,936	164	22	115	788	1,731	1,617	106	5	1
Fertilizers														
Household plant food	3,533	2,167	432	923	3,482	22	22	4	135	652	154	12	0	0
Outdoor fertilizer	4,554	3,071	438	1,012	4,481	19	21	25	219	891	267	33	1	0
Plant hormone	90	37	7	46	84	2	0	4	19	19	11	2	0	0
Other	1,858	1,083	200	515	1,815	15	10	15	247	330	133	20	0	0
Unknown	597	377	61	143	585	3	2	5	45	94	39	6	0	1
Category total	10,632	6,735	1,138	2,639	10,447	61	55	53	665	1,986	604	73	1	1
Fire extinguishers	3,955	324	1,193	2,352	3,568	107	204	38	898	656	1,125	187	2	0
Food products/food poisoning	75,813	20,587	12,036	42,249	70,035	740	1,131	3,718	5,963	5,777	12,187	2,682	85	0
Foreign bodies/toys/miscellaneous														
Ash	523	451	14	56	510	5	3	5	19	68	42	8	0	0
Bubble blowing solution	5,164	4,827	238	88	5,141	15	6	2	159	662	1,115	30	0	0
Charcoal	585	456	36	87	555	19	2	8	42	96	37	8	6	9
Christmas ornament	1,027	743	83	199	1,022	2	0	3	70	179	77	5	0	0
Coin	3,665	2,965	587	99	3,590	61	7	0	1,106	1,016	352	47	3	0
Desiccant	44,290	40,124	2,543	1,382	43,947	224	93	9	1,175	5,210	275	14	0	0
Feces/urine	6,408	5,291	341	728	6,202	45	144	8	156	795	186	14	1	0
Glass	2,339	816	305	1,194	2,194	31	101	8	278	321	189	25	0	0
Glow product	7,315	3,524	3,458	287	7,167	138	7	2	413	908	1,658	44	1	0
Incense, punk	319	284	12	21	312	2	1	4	12	62	29	2	0	0
Soil	2,770	2,388	143	228	2,742	11	7	8	91	353	141	15	0	0
Thermometers														
Mercury	14,993	6,388	3,637	4,700	14,896	71	16	5	904	2,477	141	16	0	0
Other	1,937	775	537	585	1,911	12	10	3	70	370	80	0	0	0
Unknown	192	81	46	64	192	0	0	0	9	11	2	0	0	0
Toy	8,295	5,562	2,449	257	8,184	79	17	14	420	1,005	994	20	1	0
Other	19,010	12,499	3,286	3,062	18,225	315	213	232	1,730	2,836	1,337	174	14	0
Unknown	491	316	82	88	459	7	20	5	45	76	47	6	0	0
Category total	119,323	87,490	17,797	13,125	117,249	1,037	647	316	6,699	16,445	6,702	428	26	9
Fumes/gases/vapors														
Carbon dioxide	636	50	227	337	580	39	6	9	119	91	105	47	4	1
Carbon monoxide	15,904	2,125	2,530	10,889	15,403	403	17	36	5,493	2,239	4,589	1,367	184	31
Chloramine	2,993	119	258	2,579	2,902	75	1	15	698	144	1,020	406	12	1
Chlorine: acid mixed with hypochlorite	686	21	64	595	666	17	1	1	188	34	312	132	0	0
Chlorine: other	6,661	469	1,311	4,782	6,434	141	7	70	2,020	422	2,633	1,026	21	1
Hydrogen sulfide	1,418	149	159	1,064	1,410	1	0	5	398	133	462	113	25	6
Methane and natural gas	5,469	847	1,469	3,053	5,405	40	13	8	944	972	1,715	211	11	0
Polymer fume fever	10	0	2	8	10	0	0	0	1	1	2	2	0	0
Propane/simple asphyxiant	2,865	291	625	1,902	2,627	197	3	11	963	369	820	254	16	2
Other	2,126	217	227	1,573	2,053	38	8	25	650	413	550	166	10	0
Unknown	2,458	141	383	1,592	2,369	14	55	8	471	490	743	109	3	2
Category total	41,226	4,429	7,255	28,374	39,859	965	111	188	11,945	5,308	12,951	3,833	286	44
Heavy metals														
Aluminum	1,074	475	94	471	1,035	9	11	12	120	226	73	19	1	0
Arsenic (excluding pesticide)	1,199	183	86	902	871	20	142	18	611	159	97	77	9	1
Barium	6	1	1	4	6	0	0	0	3	2	1	0	2	0
Cadmium	96	9	2	83	82	0	2	1	49	15	14	10	0	1
Copper	1,053	211	305	491	990	28	13	15	278	147	296	49	3	0
Fireplace flame colors	9	8	0	1	9	0	0	0	0	2	1	0	0	0
Gold	14	4	1	9	14	0	0	0	9	5	3	0	0	0
Lead	9,347	6,002	1,564	1,705	9,174	44	40	14	6,708	658	179	87	15	0
Manganese	68	6	24	37	55	2	0	6	33	4	12	8	2	0
Mercury: elemental	1,846	265	501	1,039	1,710	63	23	13	438	574	129	36	2	0
Mercury: other/unknown	432	170	39	220	399	6	4	13	86	90	25	16	2	0
Metal fume fever	884	10	50	820	860	5	1	18	239	14	251	110	0	0

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

	No. of Exposures	Age			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Selenium	119	56	7	54	101	10	2	6	21	25	11	1	0	0
Thallium	51	6	2	42	39	1	5	3	37	24	2	5	2	0
Other	1,271	422	184	651	1,171	30	15	42	330	171	155	59	6	1
Unknown	63	14	4	44	50	0	4	2	29	10	7	3	1	0
Category total	17,532	7,842	2,864	6,573	16,566	218	262	163	8,991	2,126	1,256	480	45	3
Hydrocarbons														
Benzene	116	18	18	78	109	6	0	0	65	15	22	14	1	0
Carbon tetrachloride	43	9	2	31	42	0	0	0	13	18	4	1	0	0
Diesel fuel	1,013	187	124	688	962	37	9	3	257	141	315	42	1	0
Fluorochlorocarbon/propellant	7,955	615	1,356	5,759	7,418	435	59	24	1,423	1,757	1,631	391	20	5
Gasoline	20,334	5,340	3,646	11,180	19,063	1,095	110	28	3,176	3,085	7,489	615	26	1
Halogenated hydrocarbon: other	560	138	71	344	526	20	6	7	243	86	171	58	3	0
Kerosene	2,389	1,260	275	835	2,296	57	21	8	728	504	647	191	14	0
Lamp oil	2,856	2,412	105	329	2,814	35	5	2	1,015	920	720	256	19	1
Lighter fluid/naphtha	3,428	1,746	355	1,279	3,179	194	36	14	1,001	769	953	219	14	0
Lubricating oil/motor oil	5,056	3,116	498	1,412	4,866	122	51	6	847	1,556	873	120	5	1
Mineral seal oil	221	183	23	15	218	2	0	0	41	86	40	6	0	0
Mineral spirits/varsol	3,431	1,383	395	1,631	3,215	156	38	17	924	620	948	175	13	2
Toluene/xylene	1,643	335	182	1,107	1,482	114	19	12	726	197	522	165	16	2
Turpentine	823	279	102	430	705	87	17	7	235	170	199	37	5	0
Other	7,194	3,750	761	2,589	6,897	178	53	53	1,675	1,828	1,479	343	20	1
Unknown	2,070	967	232	849	1,955	65	24	15	576	477	489	117	8	2
Category total	59,132	21,738	8,145	28,556	55,747	2,603	448	196	12,945	12,229	16,502	2,750	165	15
Lacrimators														
Capsicum defense spray	3,948	779	1,295	1,784	3,284	130	435	37	620	77	1,791	145	1	0
Lacrimator: CN	1,622	294	522	767	1,279	56	229	17	322	58	774	95	2	0
Lacrimator: CS	143	37	51	53	121	5	12	3	36	5	81	9	0	0
Other	149	17	28	103	147	0	0	2	16	9	34	0	0	0
Unknown	95	13	25	55	73	1	20	0	30	1	43	3	0	0
Category total	5,957	1,140	1,921	2,762	4,904	192	696	59	1,024	150	2,723	252	3	0
Matches/fireworks/explosives														
Explosive	265	141	60	61	241	18	4	0	61	48	40	13	2	0
Firework	556	417	87	48	537	13	4	2	59	158	56	11	4	0
Match	1,282	1,207	26	45	1,272	10	0	0	40	272	19	5	0	0
Other	60	23	16	19	57	3	0	0	17	14	11	10	0	0
Unknown	6	5	0	1	6	0	0	0	2	1	1	0	0	0
Category total	2,169	1,793	189	174	2,113	44	8	2	179	493	127	39	6	0
Mushrooms														
Coprine	21	13	0	8	18	2	0	1	8	7	3	4	0	0
Cyclopeptide	56	9	13	34	37	16	0	0	51	10	9	21	3	2
Gastrointestinal irritant	177	65	23	89	145	30	0	2	76	40	61	27	1	0
Hallucinogenic	766	29	438	285	137	612	10	6	543	43	128	341	11	1
Ibotenic acid	31	1	14	16	8	21	1	1	19	2	8	11	3	0
Miscellaneous, nontoxic	253	105	34	112	219	15	0	18	41	63	42	13	0	0
Monomethylhydrazine	66	1	15	50	60	3	0	3	29	24	15	11	1	1
Muscarine	8	2	0	6	7	1	0	0	7	1	4	1	1	0
Orellanine	4	0	2	2	2	1	0	1	2	0	0	1	0	0
Other potentially toxic	36	16	2	17	31	2	1	1	20	11	6	10	2	0
Unknown	7,304	4,919	1,113	1,231	6,313	887	11	71	2,498	3,550	881	408	23	1
Category total	8,722	5,160	1,654	1,850	6,977	1,590	23	104	3,294	3,751	1,157	848	45	5
Paints and stripping agents														
Paints														
Anti-algae	40	3	4	32	40	0	0	0	14	10	15	4	1	0
Anti-corrosion	74	11	10	53	68	1	1	4	26	9	17	6	0	0
Oil-base	4,018	1,259	760	1,968	3,723	201	32	56	819	580	1,012	201	10	2
Water-base	6,683	5,071	435	1,156	6,580	31	15	53	456	964	481	57	4	0
Stains	987	439	80	463	958	3	0	24	127	164	207	25	0	0
Stripping agents														
Methylene chloride	1,095	177	116	793	1065	14	3	12	335	77	433	100	3	0
Other	1,020	206	64	744	972	14	1	30	331	100	330	115	1	1
Unknown	275	89	20	163	264	4	2	3	82	32	81	26	0	0
Varnish, lacquer	1,271	368	141	738	1,225	21	2	23	235	151	284	72	1	0
Other paint/varnish/lacquer	1,368	562	125	645	1,326	18	8	15	219	299	260	55	1	0
Unknown paint/varnish/lacquer	7,896	4,864	702	2,278	7,626	161	29	69	979	1,185	828	179	8	1
Category total	24,727	13,049	2,457	9,033	23,847	468	93	289	3,623	3,571	3,948	840	29	4

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

	No. of Exposures	Age			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Pesticides														
Fungicides (non-medicinal)														
Carbamate	181	55	13	113	175	3	0	2	53	24	49	6	1	0
Copper compound	25	2	3	20	22	2	0	1	14	4	11	2	1	0
Mercurial	2	1	1	0	2	0	0	0	0	0	0	0	0	0
Non-mercurial	60	15	2	43	58	1	0	1	15	14	11	4	0	0
Phthalimide	125	61	11	51	123	1	0	1	26	23	14	5	0	0
Wood preservative	480	98	33	344	463	6	0	10	115	52	102	15	1	0
Other/unknown	625	182	42	394	584	11	5	23	152	96	134	26	1	0
Fumigants														
Aluminum phosphide	97	2	7	83	95	2	0	0	62	10	23	14	4	0
Metam sodium	10	0	2	8	10	0	0	0	8	2	4	0	0	0
Methyl bromide	4	0	0	4	4	0	0	0	2	0	2	0	0	0
Sulfuryl fluoride	458	56	66	331	450	0	5	2	42	79	69	8	3	1
Other	43	3	4	36	42	1	0	0	21	3	17	6	0	0
Unknown	68	10	6	51	67	1	0	0	12	7	18	4	0	0
Herbicides (includes algicides, defoliants, dessicants, plant growth regulators)														
Carbamate	42	7	9	26	36	6	0	0	18	12	8	2	2	0
2,4-D or 2,4,5-T	455	163	37	250	438	8	3	5	89	64	75	19	2	0
Chlorophenoxy	1,717	443	200	1,057	1,641	29	7	31	421	299	416	66	4	1
Diquat	355	83	24	246	332	8	0	15	89	89	86	14	4	0
Glyphosate	4,472	1,217	397	2,814	4,191	43	20	212	868	1,087	1,144	104	5	1
Paraquat	75	1	6	68	69	1	2	2	54	4	17	11	2	2
Triazine	352	65	33	249	340	5	1	3	109	60	86	21	0	0
Urea	93	24	21	48	89	3	1	0	21	11	16	4	1	0
Other	1,623	418	177	1,006	1,573	16	7	24	434	265	332	63	2	1
Unknown	378	94	73	207	359	5	5	5	92	40	93	11	0	0
Insecticides (includes insect growth regulators, molluscicides, nematicides)														
Arsenic pesticide	422	336	10	72	419	2	0	0	45	154	10	1	0	0
Borate/boric acid	3,818	3,215	145	446	3,736	57	17	8	280	968	143	19	3	0
Carbamate only	3,022	1,319	257	1,422	2,856	82	28	49	574	562	424	96	17	0
Carbamate with other insecticide	723	199	87	432	659	26	20	14	134	126	142	31	1	0
Chlorinated hydrocarbon only	1,522	598	231	683	1,399	55	5	56	543	449	319	58	9	0
Chlorinated hydrocarbon with other insecticide	242	96	24	120	238	1	0	2	30	48	43	3	3	0
Insect growth regulator	160	72	18	64	154	1	0	5	33	32	31	12	0	0
Metaldehyde	199	120	14	65	190	6	2	1	40	60	17	0	1	0
Nicotine	15	3	1	11	14	0	1	0	4	5	2	0	0	0
Organophosphate	8,031	2,391	674	4,861	7,567	209	52	168	2,072	1,702	1,614	401	65	4
Organophosphate/carbamate	189	57	18	114	178	9	0	2	40	31	39	9	1	0
Organophosphate/chlorinated hydrocarbon	42	8	10	23	39	3	0	0	15	5	8	1	1	0
Organophosphate/other insecticide	1,338	340	142	839	1,271	29	14	19	303	226	301	93	1	1
Organophosphate/ carbamate/chlorinated hydrocarbon	22	1	1	20	22	0	0	0	2	6	4	0	0	0
Piperonyl butoxide only	30	10	5	15	26	1	0	2	9	5	12	1	1	0
Piperonyl butoxide/pyrethrin	1,123	417	140	560	1,055	34	5	29	183	154	202	47	1	0
Pyrethrins only	877	307	102	457	827	31	1	17	170	119	164	39	3	0
Pyrethrin	4,967	1,837	595	2,489	4,644	111	27	174	890	890	1,175	201	9	0
Pyrethroid	12,475	3,915	1,356	7,067	11,506	355	86	496	2,260	2,096	3,010	537	25	0
Rotenone	84	31	11	42	77	2	1	4	12	24	17	4	0	0
Veterinary insecticide	151	54	12	84	144	3	1	3	27	37	24	0	0	0
Other	7,611	4,588	643	2,313	7,351	101	25	119	799	1,419	747	139	13	2
Unknown	3,848	1,040	436	2,283	3,470	138	109	96	906	489	727	184	10	0
Repellents														
Bird, dog, deer or other mammal repellent	205	94	30	81	200	1	0	2	20	45	41	4	0	0
Insect repellent with DEET	5,321	3,629	802	867	4,981	56	43	230	478	1,160	1,343	92	8	0
Insect repellent without DEET	1,196	938	138	113	1,158	11	3	24	88	260	159	19	0	0
Insect repellent: unknown	2,183	1,498	338	329	2,112	17	11	37	152	333	389	43	1	0
Naphthalene	1,883	1,367	113	380	1,831	31	8	10	404	740	135	23	4	0
Paradichlorobenzene	123	76	7	39	120	1	1	0	14	40	11	1	0	0
Other moth repellent	40	29	2	9	38	0	2	0	5	12	1	1	0	0

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

	No. of Exposures	Age			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Unknown moth repellent	2,003	1,301	145	540	1,940	39	11	9	384	651	157	21	0	0
Rodenticides														
ANTU	1	0	0	1	1	0	0	0	0	1	0	0	0	0
Anticoagulant: warfarin-type	462	388	17	53	433	22	5	0	139	183	9	6	0	0
Anticoagulant: long-acting, superwarfarin	17,100	15,185	463	1,384	16,348	612	90	27	5,128	5,705	264	122	40	3
Bromethalin	389	334	11	38	367	18	2	2	133	147	10	2	0	0
Cholecalciferol	27	25	0	2	26	1	0	0	8	12	1	0	0	0
Cyanide	2	0	0	2	1	1	0	0	1	0	1	0	0	0
Monofluoroacetate	2	1	0	0	2	0	0	0	2	2	0	0	0	0
Strychnine	124	14	11	94	58	38	21	0	68	23	11	10	7	1
Vacor	3	2	0	1	3	0	0	0	0	2	0	0	0	0
Zinc phosphide	146	68	13	62	118	22	4	1	68	49	19	3	3	0
Other	791	562	62	151	743	25	15	7	111	187	47	7	2	1
Unknown	1,460	950	91	388	1,211	154	79	4	630	440	63	26	12	0
Category total	96,112	50,415	8,342	36,465	90,696	2,457	745	1,954	19,921	21,844	14,563	2,661	274	18
Photographic products														
Developer/fixing/stop bath	457	35	168	251	444	4	1	8	132	45	161	25	1	0
Photographic coating fluid	24	14	6	4	24	0	0	0	1	6	1	0	0	0
Other	822	285	96	432	786	30	1	3	125	138	196	40	1	0
Unknown	9	2	3	4	8	0	0	1	1	2	3	0	0	0
Category total	1,312	336	273	691	1,262	34	2	12	259	191	361	65	2	0
Plant														
Amygdalin/cyanogenic glycoside	2,653	1,804	433	399	2,513	70	8	57	131	582	95	15	1	0
Anticholinergic	1,072	343	475	240	523	523	9	10	613	179	124	358	34	1
Cardiac glycoside	2,054	1,292	373	381	1,946	87	3	16	282	578	129	35	2	0
Colchicine	12	10	0	2	12	0	0	0	1	4	0	0	0	0
Depressant	277	171	37	67	220	44	0	11	49	43	27	6	1	0
Dermatitis	13,569	7,070	1,983	4,404	12,503	385	171	479	1,170	1,480	2,244	422	9	0
Gastrointestinal irritant	14,102	11,155	1,225	1,650	13,553	291	34	202	884	3,017	1,083	169	4	0
Hallucinogenic	478	159	166	127	274	180	2	21	173	93	65	83	4	0
Nicotine	142	39	39	64	121	10	1	3	58	30	40	19	0	0
Non-toxic	15,094	12,445	1,368	1,179	14,605	193	14	270	413	1,708	624	79	9	0
Oxalate	11,932	10,585	739	578	11,751	131	3	42	393	3,117	1,372	80	3	0
Solanine	1,286	969	120	188	1,239	26	2	18	127	421	90	12	0	0
Stimulant	202	126	25	49	187	9	1	3	42	68	19	10	1	1
Toxalbumin	177	64	29	82	153	17	2	3	70	49	40	7	1	0
Other toxic	4,592	3,425	587	558	4,373	103	5	105	425	1,166	345	67	7	0
Unknown toxic or unknown if toxic	16,936	12,649	1,857	2,320	16,378	267	46	216	1,211	3,607	1,297	197	11	0
Category total	84,578	62,306	9,456	12,288	80,351	2,336	301	1,456	6,042	16,142	7,594	1,559	87	2
Polishes and waxes	8,910	7,166	526	1,170	8,701	148	33	22	1,053	2,965	1,432	130	9	1
Radioisotopes	374	21	62	279	340	6	7	18	108	32	40	24	0	0
Sporting equipment														
Fishing bait	73	47	21	5	66	5	2	0	4	10	4	0	0	0
Fishing product: other	21	15	3	3	21	0	0	0	2	5	2	0	0	0
Golf ball	37	1	23	13	36	1	0	0	10	4	11	1	0	0
Gun bluing	51	24	3	23	50	1	0	0	25	18	17	1	0	0
Hunting product: other	381	204	74	100	339	22	17	1	113	103	36	4	0	0
Other	166	104	49	13	161	2	1	0	20	58	9	2	0	0
Unknown	2	2	0	0	2	0	0	0	0	1	0	0	0	0
Category total	731	397	173	157	675	31	20	1	174	199	79	8	0	0
Swimming pool/aquarium	10,586	4,508	1,969	3,909	10,038	101	20	415	1,882	1,618	3,147	643	16	1
Tobacco products	7,866	6,779	242	836	7,370	371	48	66	1,642	2,736	1,697	277	10	1
Weapons of mass destruction														
Anthrax	192	9	4	174	84	4	96	2	33	28	14	3	1	0
Other biological weapon	63	6	5	52	61	0	1	0	5	1	4	0	0	0
Other chemical weapon	7	0	1	5	4	0	2	0	3	0	2	1	0	0
Suspicious powder in envelope/ package	231	10	13	203	63	1	160	0	50	67	11	0	0	0
Other suspicious powder	138	5	9	118	48	2	83	0	16	24	5	5	0	0
Other suspicious substance	90	2	6	78	18	0	71	0	16	20	8	0	0	0
Category total	721	32	38	630	278	7	413	2	123	140	44	9	1	0

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

	No. of Exposures	Age			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Other/unknown nondrug substances	27,217	11,808	4,610	10,194	23,391	707	1,731	791	4,753	3,839	4,434	915	108	1
Total number of non-pharmaceuticals	1,407,184	727,036	180,962	486,815	1,304,548	69,604	11,551	17,697	235,616	230,689	246,733	55,180	4,678	369
% of nonpharmaceuticals		51.7%	12.9%	34.6%	92.7%	4.9%	0.8%	1.3%	16.7%	16.4%	17.5%	3.9%	0.3%	0.0%
% of all substances	52.3%	27.0%	6.7%	18.1%	48.5%	2.6%	0.4%	0.7%	8.8%	8.6%	9.2%	2.1%	0.2%	0.0%

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

	No. of Exposures	Age			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	29,967	7,225	10,214	12,341	14,455	15,043	12	328	17,349	8,237	4,593	2,313	586	63
Pediatric formulation	20,159	18,065	1,838	216	19,725	323	8	89	2,546	4,369	371	74	10	0
Unknown formulation	8,251	1,987	2,610	3,561	3,463	4,539	5	103	5,386	2,070	1,504	885	306	56
Acetaminophen in combination with:														
Aspirin with other ingredient	1,636	495	456	675	805	750	0	68	818	381	335	128	11	2
Aspirin without other ingredient	4,539	1,535	1,290	1,679	2,361	1,971	2	191	2,267	1,191	883	314	20	1
Codeine	5,901	1,055	1,236	3,573	2,366	3,007	3	463	3,385	1,334	1,376	589	126	16
Hydrocodone	17,386	1,582	2,648	12,959	5,672	10,282	13	1,183	10,541	2,875	4,318	2,033	531	66
Oxycodone	5,431	585	732	4,048	2,056	2,744	11	522	2,923	898	1,262	623	156	18
Propoxyphene	6,018	680	786	4,507	2,123	3,538	3	292	3,840	1,219	1,508	739	211	28
Other opioid	1,179	120	217	831	441	630	1	83	624	169	230	157	38	9
Other drug: adult formulation	19,260	2,682	4,788	11,645	6,286	12,294	12	544	12,718	4,016	4,834	2,559	439	26
Other drug: pediatric formulation	58	46	9	3	55	1	0	2	4	6	7	2	0	0
Aspirin alone														
Adult formulation	5,744	1,925	1,540	2,239	2,982	2,593	2	135	3,100	1,623	981	670	64	12
Pediatric formulation	729	503	117	107	631	79	0	17	196	266	43	26	2	0
Unknown formulation	10,728	2,029	3,539	5,057	3,800	6,605	6	207	7,496	2,422	2,324	1,864	266	48
Aspirin in combination with:														
Carisoprodol	329	15	33	273	57	255	0	13	265	35	105	78	20	0
Codeine	255	31	30	191	83	158	0	11	170	41	64	36	13	1
Oxycodone	201	19	29	150	69	113	0	14	123	30	40	23	7	1
Propoxyphene	39	5	4	30	16	23	0	0	28	4	11	3	4	0
Other opioid	67	2	9	54	14	45	0	8	49	11	18	10	3	0
Other drug: adult formulation	1,801	352	304	1,136	827	835	2	116	993	365	423	198	45	5
Other drug: pediatric formulation	2	2	0	0	2	0	0	0	0	2	0	0	0	0
Nonaspirin salicylate	1,116	583	153	377	863	210	2	36	356	297	145	80	9	0
Opioids														
Codeine	1,282	474	280	519	796	380	2	97	440	249	227	74	17	3
Meperidine	558	42	59	447	198	250	1	95	337	83	129	96	21	4
Methadone	2,747	156	260	2,300	712	1,697	8	206	1,956	222	493	649	345	89
Morphine	2,327	208	269	1,815	967	1,064	7	234	1,361	283	437	366	147	37
Oxycodone	4,883	415	563	3,839	1,867	2,593	8	295	2,895	645	1,071	751	294	44
Pentazocine	187	10	18	158	72	78	1	31	99	21	51	20	4	2
Propoxyphene	519	47	47	419	160	324	1	24	351	88	117	86	28	15
Tramadol	2,400	286	293	1,794	826	1,316	1	213	1,585	475	590	387	103	8
Other/unknown	5,321	593	631	4,037	1,768	2,558	16	814	3,245	621	1,190	1,016	402	62
Other nonsteroidal anti-inflammatory drugs														
Colchicine	235	44	24	166	149	58	2	24	139	48	51	29	13	5
Cox-2 inhibitor	6,568	2,335	698	3,488	4,249	1,754	7	525	2,469	1,730	830	459	126	8
Ibuprofen	65,726	37,823	13,890	13,692	47,357	17,051	28	1,118	18,575	16,299	6,222	1,839	253	12
Ibuprofen with hydrocodone	43	3	2	37	19	19	0	4	21	8	8	6	0	0
Indomethacin	661	155	85	416	335	257	0	63	316	149	130	48	20	0
Ketoprofen	403	194	65	140	280	103	0	17	134	138	41	13	1	1
Naproxen	12,627	2,594	3,531	6,407	5,986	5,829	5	750	5,818	3,094	2,252	818	115	9
Other	5,929	1,872	776	3,222	3,958	1,580	4	353	2,068	1,429	861	384	94	6
Unknown	12	1	4	7	4	6	1	1	7	3	0	0	0	0
Phenacetin	3	0	0	3	1	2	0	0	2	0	1	1	0	0
Phenazopyridine	1,115	789	101	220	959	89	0	64	285	438	133	28	7	0
Salicylamide	18	11	2	4	14	4	0	0	8	7	3	1	0	0
Other	2,239	684	228	1,317	1,474	463	5	283	645	325	620	181	42	2
Unknown	244	36	86	116	60	166	0	15	162	41	63	20	2	0
Category total	256,843	90,295	54,494	110,215	141,363	103,679	179	9,651	118,095	58,257	40,895	20,676	4,901	659
Anesthetics														
Inhalation anesthetics														
Nitrous oxide	201	14	57	129	111	57	2	29	106	9	47	40	4	1
Other	216	16	44	148	165	30	10	9	104	24	77	21	7	1
Unknown	2	1	0	1	0	1	0	1	2	1	1	0	0	0
Ketamine and analogs	342	12	101	223	65	248	11	13	284	30	80	109	35	0

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

	No. of Exposures	Age			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Local/topical anesthetics														
Dibucaine	47	37	1	9	46	0	0	1	2	17	2	0	1	0
Lidocaine	1,772	945	207	611	1,571	78	3	117	378	460	258	80	13	1
Other/unknown	6,253	4,495	500	1,233	5,853	120	23	251	880	2,143	629	122	15	0
Other	33	12	2	17	22	3	0	7	14	4	5	5	2	0
Unknown	5	2	0	3	2	1	0	2	4	0	1	0	2	0
Category total	8,871	5,534	912	2,374	7,835	538	49	430	1,774	2,688	1,100	377	79	3
Anticholinergic drugs	5,780	1,661	720	3,379	3,539	1,778	4	387	2,926	1,390	1,046	811	194	10
Anticoagulants														
Glycoprotein IIA/IIB inhibitor	9	0	0	9	8	1	0	0	9	5	1	1	0	0
Heparin	164	27	6	127	100	13	0	50	102	21	13	37	15	0
Warfarin (excluding rodenticide)	2,684	832	89	1,754	1,997	365	5	298	1,181	655	163	372	100	7
Other antiplatelet	1,224	315	33	872	1,027	133	1	59	383	373	80	75	16	3
Other	48	21	3	22	33	4	2	9	29	12	2	1	7	1
Unknown	26	15	0	11	20	3	1	2	16	7	2	1	1	0
Category total	4,155	1,210	131	2,795	3,185	519	9	418	1,720	1,073	261	487	139	11
Anticonvulsants														
Carbamazepine	5,645	1,528	1,121	2,969	3,438	1,841	2	268	3,423	1,105	1,463	898	268	8
Phenytoin	4,017	593	321	3,073	2,103	1,378	6	432	2,701	859	915	758	117	5
Primidone	347	50	28	268	283	47	1	15	134	66	100	23	3	0
Succinimide	96	40	32	24	82	14	0	0	30	31	14	4	0	0
Valproic acid	10,062	1,118	2,376	6,497	4,083	5,432	12	410	6,736	2,326	2,467	1,536	440	21
Other	15,662	1,891	2,906	10,762	6,504	8,160	17	816	10,100	3,283	4,004	2,431	772	31
Unknown	7	2	0	4	3	4	0	0	3	3	2	1	0	0
Category total	35,836	5,222	6,784	23,597	16,496	16,876	38	1,941	23,127	7,673	8,965	5,651	1,600	65
Antidepressants														
Cyclic antidepressants														
Amitriptyline	7,513	923	915	5,619	2,277	4,919	11	168	5,839	1,083	1,739	1,944	846	54
Amoxapine	17	4	3	10	6	8	0	2	10	3	3	1	1	0
Desipramine	207	27	33	147	86	106	0	11	146	35	47	38	20	3
Doxepin	1,576	111	127	1,327	392	1,130	2	29	1,262	182	410	423	180	23
Imipramine	1,058	237	339	475	582	411	0	48	650	264	222	151	53	6
Maprotiline	27	2	6	19	12	13	0	1	17	7	2	6	3	1
Nortriptyline	1,110	132	132	840	412	607	2	68	751	204	233	209	85	8
Protriptyline	28	5	4	19	12	15	0	1	19	7	7	6	2	0
Other cyclic antidepressant	1,423	103	203	1,108	472	834	5	39	1,091	173	316	435	199	14
Unknown cyclic antidepressant	46	4	5	37	7	34	0	1	45	1	7	12	10	9
Cyclic antidepressant formulated with a benzodiazepine	53	8	7	38	24	28	0	0	37	11	14	10	4	0
Cyclic antidepressant formulated with a phenothiazine	140	17	9	112	51	84	0	3	100	18	29	42	15	1
Lithium	4,954	301	802	3,822	1,630	2,593	9	596	3,877	898	1,181	1,247	280	15
MAO inhibitor	317	42	4	268	181	84	0	50	171	77	38	61	26	2
SSRI	46,244	7,615	11,188	27,080	17,058	26,733	32	2,079	30,027	11,965	10,667	6,047	1,302	93
Trazodone	12,573	784	1,951	9,722	3,161	8,927	8	382	9,591	2,309	4,157	2,115	453	23
Other	22,484	3,510	4,281	14,533	8,642	12,597	16	1,035	15,748	5,280	5,354	3,952	1,137	66
Unknown	90	11	16	60	20	63	1	4	63	10	20	9	2	0
Category total	99,860	13,836	20,025	65,236	35,025	59,186	86	4,517	69,444	22,527	24,446	16,708	4,618	318
Antihistamines														
Diphenhydramine: unknown if OTC or Rx	21,684	9,742	3,828	8,006	13,667	7,273	24	613	8,673	4,735	4,014	2,303	358	29
Diphenhydramine: Rx	225	103	40	81	155	64	0	6	73	63	32	21	0	0
Diphenhydramine: OTC	6,224	2,713	1,080	2,407	3,642	2,226	7	120	2,538	1,242	1,170	686	100	5
H2 receptor antagonist	8,201	4,984	879	2,295	6,777	1,123	4	267	1,970	2,345	700	343	73	2
Other	32,773	14,741	7,708	10,164	23,769	7,659	21	1,165	10,865	8,550	4,631	2,206	373	35
Category total	69,107	32,283	13,535	22,953	48,210	18,345	56	2,171	24,119	16,935	10,547	5,559	904	71
Antimicrobials														
Antibiotics														
Systemic	38,503	18,184	6,603	13,507	28,157	5,177	21	5,032	7,949	6,436	4,102	1,511	239	11
Topical	8,221	6,216	542	1,423	7,954	80	3	180	230	1,284	412	40	2	0
Unknown	593	148	167	274	287	174	1	130	216	102	115	29	5	0

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

	No. of Exposures	Age			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Antifungals														
Systemic	1,393	680	168	536	1,073	115	1	200	342	322	121	74	16	1
Topical	8,120	6,158	378	1,556	7,884	67	15	150	336	1,349	534	47	3	0
Unknown	21	8	2	11	19	0	0	1	7	3	3	4	0	0
Anthelmintics														
Diethylcarbamazine	109	64	6	38	108	1	0	0	6	22	2	0	0	0
Piperazine	420	315	41	61	401	14	1	2	68	141	23	6	0	0
Other	917	565	90	260	866	13	0	34	128	225	91	27	3	0
Unknown	17	10	2	5	15	2	0	0	4	3	3	0	0	0
Antiparasitics														
Antimalarial	561	139	81	335	403	98	1	56	262	159	67	56	12	1
Metronidazole	1,406	366	169	859	855	280	0	268	370	259	201	63	8	0
Other	73	37	10	26	65	4	0	4	18	16	6	2	1	0
Antituberculars														
Isoniazid	415	69	175	171	173	187	0	47	295	106	54	54	90	0
Rifampin	73	18	6	49	36	13	0	23	30	14	11	10	5	0
Other	23	2	0	21	5	4	0	13	12	2	4	2	2	0
Antivirals														
Amantadine	90	21	15	53	55	27	0	8	44	19	15	15	4	0
Anti-influenza agent: other	190	62	27	100	146	25	0	17	48	44	16	14	0	0
Antiretroviral	729	153	39	532	374	262	2	85	417	180	118	87	31	0
Systemic	948	296	127	521	644	176	0	121	306	197	98	73	11	1
Topical	188	71	31	85	174	1	0	13	9	24	17	3	0	0
Unknown	179	54	27	97	111	42	0	25	65	34	29	14	2	0
Other	169	125	13	31	158	4	0	7	19	38	10	5	0	1
Unknown	14	3	4	7	9	3	0	2	5	7	1	1	0	0
Category total	63,372	33,764	8,723	20,558	49,972	6,769	45	6,418	11,186	10,986	6,053	2,137	434	15
Antineoplastics	1,172	232	82	839	869	71	1	222	533	230	147	119	35	3
Asthma therapies														
Albuterol	7,001	5,420	876	679	6,376	333	17	266	1,307	1,937	899	372	11	0
Aminophylline/theophylline	1,030	170	94	757	668	257	0	86	585	202	162	242	39	8
Terbutaline and other beta-2 agonist	2,761	1,308	577	866	2,443	171	6	138	383	656	306	119	11	0
Other beta agonist	608	160	187	258	531	43	0	33	194	94	183	72	4	0
Leukotriene antagonist/ inhibitor	8,419	6,694	1,049	660	8,033	312	0	67	1,147	2,597	282	89	18	2
Other	624	321	70	228	511	62	1	47	121	156	50	40	4	0
Unknown	19	3	8	8	10	9	0	0	8	7	4	4	0	0
Category total	20,462	14,076	2,861	3,456	18,572	1,187	24	637	3,745	5,649	1,886	938	87	10
Cardiovascular drugs														
ACE inhibitor	10,988	3,776	671	6,491	8,820	1,799	6	332	4,120	3,938	890	887	164	19
Alpha blocker	1,555	407	68	1,067	1,224	232	1	86	875	522	170	176	26	4
Angiotensin receptor blocker	3,408	1,002	187	2,206	2,883	399	1	117	1,134	1,195	251	221	48	3
Antiarrhythmic: other	1,177	232	38	903	1,019	99	1	51	451	425	82	83	37	4
Antihyperlipidemic	5,048	1,864	275	2,891	4,209	555	0	261	1,353	1,358	354	250	79	7
Antihypertensive	1,387	471	431	478	1,126	208	1	44	636	478	192	152	19	1
Beta blocker	14,113	3,501	1,056	9,485	10,584	3,053	10	392	6,862	5,097	1,225	1,582	391	39
Calcium antagonist	9,585	2,256	514	6,781	7,437	1,853	4	245	4,919	3,494	815	1,126	365	68
Cardiac glycoside	2,923	753	128	2,035	2,297	256	0	333	1,469	916	217	489	154	13
Clonidine	5,222	1,638	1,732	1,828	3,620	1,404	7	145	3,212	1,205	1,192	1,080	171	6
Hydralazine	212	56	16	137	167	43	0	1	103	81	21	28	2	0
Long-acting nitrate	800	252	21	523	691	92	0	16	307	307	68	83	10	1
Nitroglycerin	2,146	1,157	84	892	1,793	285	4	59	703	937	168	126	22	5
Nitroprusside	41	3	2	34	16	0	0	24	38	7	2	7	2	0
Vasodilator: other/unknown	350	131	12	202	282	39	1	27	119	110	34	23	9	1
Vasopressor	5	1	1	3	3	0	0	2	2	0	2	1	0	0
Other	2,028	705	158	1,152	1,709	225	0	91	570	500	153	129	30	10
Unknown	68	17	9	42	31	32	0	3	43	16	12	13	0	0
Category total	61,056	18,222	5,403	37,150	47,911	10,574	36	2,229	26,716	20,586	5,848	6,456	1,529	181
Cold and cough preparations	100,612	62,107	21,496	16,739	82,183	15,021	52	3,090	22,704	22,782	14,564	4,719	320	22
Diagnostic agents	486	76	48	359	392	12	0	79	210	59	104	32	7	0

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

	No. of Exposures	Age			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Dietary supplements/ herbals/ homeopathic														
Amino acids														
Creatine	262	67	64	130	139	44	1	75	129	33	32	38	2	0
Other amino acid dietary supplement	208	121	27	58	166	20	0	20	47	40	15	6	3	0
Cultural medicines														
Ayurvedic	5	1	0	3	3	1	0	1	1	3	1	1	0	0
Asian	106	33	13	56	76	7	0	21	45	18	23	7	1	0
Hispanic	4	2	0	2	2	1	0	1	2	1	0	0	0	0
Other	37	10	3	24	18	10	2	1	22	0	10	1	2	0
Botanical products														
Blue cohosh	1	0	1	0	1	0	0	0	0	0	0	0	0	0
Ginkgo biloba	290	140	38	109	195	41	0	50	91	69	31	12	4	0
Echinacea	473	322	48	101	385	29	0	58	80	116	29	12	2	0
Ginseng	393	183	71	135	244	87	1	60	131	90	59	33	5	0
Kava kava	257	79	38	137	135	80	0	39	129	56	39	32	5	0
Ma huang/ephedra (single ingredient)	1,556	457	316	775	759	540	0	248	843	337	352	274	20	1
Citrus aurantium (single ingredient)	4	3	0	1	3	1	0	0	3	2	0	1	0	0
St. John's wort	313	133	55	123	198	76	0	38	116	93	44	22	1	0
Valerian	282	78	47	153	136	89	3	46	131	63	57	25	3	0
Yohimbe	117	16	8	91	53	20	0	43	73	13	22	35	3	0
Multi-botanical with ma huang	8,770	2,616	2,405	3,690	4,085	3,430	12	1,180	4,827	1,887	2,049	1,531	88	2
Multi-botanical without ma huang or citrus aurantium	1,058	524	140	391	703	182	1	165	335	263	152	72	5	0
Multi-botanical with citrus aurantium	40	18	6	16	28	7	0	5	14	16	7	3	1	0
Other single ingredient botanical	1,633	819	121	684	1,200	138	7	275	408	295	192	79	11	0
Homeopathic	4,766	4,217	196	346	4,420	174	4	159	499	1,193	181	51	1	0
Hormonal products														
Androgen/precursor	24	6	7	11	10	7	0	7	14	4	3	5	2	0
Phytoestrogen	112	45	7	60	69	14	0	27	38	11	18	9	0	0
Glandular	28	11	4	12	19	1	0	7	7	5	2	3	0	0
Melatonin	53	22	15	15	35	15	0	3	20	14	10	1	1	0
Other dietary supplements														
Blue-green algae	58	26	8	24	49	3	0	6	14	3	9	3	2	0
Glucosamine (with or without chondroitin)	132	85	13	34	111	12	0	9	20	32	7	6	0	0
Other single ingredient non-botanical	139	67	16	56	100	15	1	22	44	24	16	12	1	0
Unknown supplement/ homeopathic	1,807	689	347	755	1,073	410	7	287	748	328	275	196	32	1
Category total	22,928	10,790	4,014	7,992	14,415	5,454	39	2,853	8,831	5,009	3,635	2,470	195	4
Diuretics														
Furosemide	2,734	994	155	1,579	2,274	350	0	96	999	833	324	219	49	5
Thiazide	2,457	885	195	1,370	1,896	484	1	66	948	743	248	202	49	3
Other	2,307	830	169	1,296	1,849	339	0	102	777	698	237	158	31	0
Unknown	330	118	26	185	235	53	3	35	140	86	35	52	8	0
Category total	7,828	2,827	545	4,430	6,254	1,226	4	299	2,864	2,360	844	631	137	8
Electrolytes and minerals														
Calcium	3,917	2,790	393	687	3,662	155	4	84	399	878	182	61	11	0
Chromium, trivalent	278	52	35	187	274	0	0	4	75	26	36	4	2	0
Colloidal silver	2	1	0	1	1	0	0	1	1	0	0	1	0	0
Fluoride	3,730	3,273	320	134	3,651	38	2	36	169	911	274	7	0	0
Iron	3,833	2,157	511	1,137	3,073	547	36	163	1,181	1,070	412	140	19	4
Magnesium	794	300	119	371	664	49	17	58	179	212	71	37	10	0
Potassium	1,895	689	150	1,048	1,566	246	4	72	617	590	183	111	20	1
Selenium	1	0	0	1	1	0	0	0	0	0	0	0	0	0
Sodium	2,509	1,536	559	400	2,292	161	31	23	276	513	353	35	1	0
Zinc	1,570	900	136	512	1,443	45	3	71	202	314	205	42	4	0
Multi-mineral dietary supplement	58	39	2	17	49	3	2	3	9	12	2	2	0	0

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

	No. of Exposures	Age			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Multi-mineral, multi-herbal dietary supplement	177	96	22	58	120	27	0	29	52	28	25	17	0	0
Other	515	328	53	131	409	48	3	53	114	133	46	12	2	0
Unknown	8	7	0	1	8	0	0	0	1	3	1	0	0	0
Category total	19,287	12,168	2,300	4,685	17,213	1,319	102	597	3,275	4,690	1,790	469	69	5
Eye/ear/nose/throat preparations														
Nasal preparations														
Tetrahydrozoline	62	49	4	9	59	1	2	0	18	31	8	1	1	0
Other decongestant	2,095	940	255	890	1,886	81	6	118	308	619	323	52	4	0
Other	609	370	42	193	585	7	1	14	42	88	83	13	0	0
Unknown	16	4	1	11	13	0	0	3	4	3	3	0	0	0
Ophthalmic preparations														
Contact lens product	3,274	1,847	293	1,122	3,209	35	5	23	429	381	588	119	3	0
Glaucoma therapy	164	47	6	111	136	5	0	22	43	31	23	11	1	0
Tetrahydrozoline	1,335	881	154	287	1,166	65	84	11	362	606	127	17	2	0
Other sympathomimetic	647	276	89	271	512	39	40	55	161	203	90	24	2	0
Other	1,434	749	151	515	1,316	30	11	75	176	196	159	52	4	0
Unknown	41	12	10	15	24	3	4	8	10	7	12	2	0	0
Otic preparations														
Combination product	1,141	764	126	241	1,120	6	5	9	84	304	287	9	0	0
Other	2,623	1,235	249	1,123	2,589	20	4	10	272	368	715	57	0	0
Unknown	35	11	3	20	35	0	0	0	3	4	10	1	0	0
Steroid, topical for eye/nose/throat	475	200	69	204	437	8	1	29	28	58	102	5	1	0
Throat preparations														
Lozenge without local anesthetic	785	606	79	98	742	24	0	17	40	130	47	2	0	0
Lozenge with local anesthetic	259	145	62	50	225	20	2	12	26	63	25	2	0	0
Other	351	198	87	66	302	25	5	18	71	105	46	5	1	0
Unknown	9	2	4	3	6	1	1	1	0	0	5	1	0	0
Category total	15,355	8,336	1,684	5,229	14,362	370	171	425	2,077	3,197	2,653	373	19	0
Gastrointestinal preparations														
Antacids														
Salicylate-containing	2,525	1,964	218	339	2,284	96	1	138	241	610	102	26	3	0
Proton pump inhibitor	5,470	2,154	453	2,829	4,085	1,070	1	296	1,649	1,445	527	326	92	6
Other	18,073	16,286	755	988	17,644	269	21	131	536	2,612	433	79	9	0
Antidiarrheals														
Diphenoxylate/atropine	513	192	62	256	319	157	1	30	334	164	80	51	19	3
Loperamide	1,066	563	137	364	859	132	2	72	322	370	114	41	9	0
Non-opioid	430	348	30	52	402	14	1	12	32	77	12	2	0	0
Paregoric	29	18	3	8	23	5	0	1	10	8	6	2	0	0
Other opioid	2	1	0	1	2	0	0	0	0	0	0	0	0	0
Antispasmodics														
Anticholinergic	1,109	329	184	590	612	420	1	66	611	294	213	172	27	1
Other	126	41	16	69	76	34	0	15	61	32	24	7	7	0
Laxative	13,614	9,251	1,307	3,011	12,099	880	194	410	1,721	2,175	1,757	219	30	1
Other	10,160	7,653	536	1,937	9,100	634	7	402	1,566	2,141	584	331	53	5
Unknown	48	17	3	28	24	17	1	5	19	8	8	2	0	0
Category total	53,165	38,817	3,704	10,472	47,529	3,728	230	1,578	7,102	9,936	3,860	1,258	249	16
Hormones and hormone antagonists														
Androgen	599	233	60	302	370	158	1	66	202	119	71	38	6	1
Corticosteroid	12,145	6,842	1,463	3,784	10,407	593	16	1,097	1,552	1,841	784	454	93	2
Estrogen	4,124	2,595	195	1,328	3,670	342	1	106	785	943	238	141	33	1
Insulin	2,446	120	137	2,163	1,839	464	14	98	973	742	134	487	65	4
Oral contraceptive	10,602	8,603	1,020	936	9,742	593	11	248	931	1,858	362	50	4	0
Oral hypoglycemics														
Biguanide	3,374	761	289	2,312	2,563	655	3	139	1,413	1,157	316	310	61	14
Sulfonylurea	3,964	1,498	208	2,241	3,079	708	2	146	2,645	1,669	273	758	129	4
Thiazolidinedione	1,295	527	70	695	1,056	188	0	46	599	569	93	120	22	2
Other/unknown	414	163	24	227	332	72	1	7	262	191	29	75	10	0
Progestin	1,394	727	151	508	1,175	112	0	105	253	291	82	30	10	0
Selective estrogen receptor modulator	680	263	35	381	607	40	0	29	147	207	44	28	6	0
Thyroid preparation	9,438	4,730	720	3,959	8,418	855	3	143	1,899	2,018	488	303	59	5
Other hormone	2,098	986	442	662	1,578	399	6	108	570	541	248	80	7	0

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

	No. of Exposures	Age			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Other hormone antagonist	481	194	52	232	405	48	0	24	109	120	31	14	2	0
Unknown hormone or antagonist	18	5	1	12	11	6	0	1	6	3	1	4	1	0
Category total	53,072	28,247	4,867	19,742	45,252	5,233	58	2,363	12,346	12,269	3,194	2,892	508	33
Miscellaneous drugs														
Allopurinol	427	211	20	196	363	45	0	19	143	145	27	26	5	0
Disulfiram	420	14	16	376	107	228	5	72	223	46	96	65	9	2
L-dopa and related drug	940	254	19	663	807	86	0	42	320	255	111	84	12	2
Ergot alkaloid	348	148	45	154	219	87	0	40	213	124	57	29	6	0
Neuromuscular blocking agent	12	1	1	8	6	3	0	3	8	2	0	3	1	0
Nicotine pharmaceutical	808	320	79	404	557	72	1	176	168	185	137	53	1	0
Other	17,261	7,226	1,841	8,076	14,031	1,741	72	1,337	4,508	3,821	2,671	1,002	176	8
Category total	20,216	8,174	2,021	9,877	16,090	2,262	78	1,689	5,583	4,578	3,099	1,262	210	12
Muscle relaxants														
Carisoprodol (formulated alone)	7,364	334	790	6,176	1,512	5,574	4	150	5,847	827	2,593	1,445	388	27
Cyclobenzaprine	5,769	915	836	3,963	2,059	3,468	5	173	4,031	1,082	1,614	1,007	262	13
Methocarbamol	1,427	154	227	1,035	502	835	1	71	920	270	370	184	40	2
Other	5,268	884	615	3,725	2,174	2,677	2	334	3,327	1,055	1,222	889	301	9
Unknown	188	11	47	127	25	156	0	5	140	29	56	17	5	1
Category total	20,016	2,298	2,515	15,026	6,272	12,710	12	733	14,265	3,263	5,855	3,542	996	52
Narcotic antagonists	317	14	26	272	91	161	2	52	227	37	72	72	13	0
Radiopharmaceuticals	18	2	1	14	9	0	0	9	5	2	4	0	0	0
Sedative/hypnotics/ antipsychotics														
Atypical antipsychotic	25,252	1,873	5,525	17,681	7,659	16,374	27	912	19,291	4,173	7,228	5,710	1,448	78
Barbiturates														
Long-acting	2,942	599	258	2,058	1,604	1,198	9	67	1,654	537	602	463	182	11
Short/intermediate-acting	588	36	90	454	181	373	1	17	445	71	194	109	42	8
Unknown type	43	4	1	37	9	30	0	1	40	1	14	17	3	2
Benzodiazepine	58,797	5,524	6,347	46,316	14,321	42,108	295	1,273	44,153	8,915	19,481	9,684	2,601	207
Buspirone	2,542	302	345	1,873	938	1,454	3	115	1,693	536	678	355	82	7
Chloral hydrate	247	74	34	137	97	119	1	27	181	23	91	52	17	4
Ethchlorvynol	12	4	1	7	7	5	0	0	5	1	2	2	1	0
Glutethimide	1	0	0	1	0	1	0	0	1	0	0	0	0	0
Meprobamate	127	10	10	106	39	80	0	3	96	18	30	33	13	3
Methaqualone	19	0	3	15	1	17	0	0	14	0	7	4	0	0
Phenothiazine	5,224	808	691	3,691	2,282	2,423	10	417	3,441	985	1,168	1,094	254	11
Sleep aid (OTC)	1,062	89	174	785	229	812	0	10	790	176	301	216	30	1
Other	13,835	922	2,118	10,681	3,656	9,374	12	631	10,099	2,041	4,729	2,298	509	32
Unknown	310	9	46	242	45	239	14	6	241	29	71	63	11	0
Category total	111,001	10,254	15,643	84,084	31,068	74,607	372	3,479	82,144	17,506	34,596	20,100	5,193	364
Serums, toxoids, vaccines	2,082	464	267	1,311	1,522	10	4	536	616	173	440	103	10	1
Stimulants and street drugs														
Amphetamine	11,392	3,114	5,007	3,199	7,140	3,647	54	428	5,844	2,668	2,245	1,757	237	21
Amyl/butyl nitrite	88	11	13	61	39	45	3	0	42	11	15	9	0	0
Caffeine	4,836	809	2,225	1,764	1,832	2,644	19	300	2,250	548	1,248	810	23	4
Cocaine	6,869	85	797	5,881	559	6,032	43	41	6,141	783	1,430	2,206	625	91
Diet aids														
Phenylpropanolamine	193	58	46	87	97	84	0	11	111	55	40	29	5	0
Phenylpropanolamine and caffeine	33	8	8	16	12	17	0	4	13	5	7	4	0	0
Other: OTC	253	74	67	111	125	85	0	43	127	47	47	34	1	0
Other: Rx	62	13	19	30	24	26	1	11	41	8	16	11	2	0
Unknown	140	27	50	62	44	79	0	16	96	32	38	22	0	0
Ephedrine	1,923	430	414	1,064	721	1,068	4	111	1,188	338	421	385	35	4
GHB and analog/ precursor	1,386	12	265	1,084	154	883	263	13	1,181	30	264	487	272	3
Hallucinogenic amphetamine	2,185	23	858	1,258	246	1,752	127	30	1,751	116	443	723	143	15
Heroin	1,990	5	184	1,774	146	1,751	9	18	1,800	162	362	613	279	49
LSD	208	1	93	108	28	163	14	1	149	12	40	79	13	0

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

	No. of Exposures	Age			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Marijuana	3,711	125	1,542	2,002	489	3,018	66	56	2,973	316	1,005	998	256	28
Mescaline/peyote	118	18	29	69	79	37	0	1	49	6	21	21	5	0
Methamphetamine	2,454	93	429	1,884	378	1,949	55	12	1,929	140	435	742	132	18
Methylphenidate	6,513	1,324	3,667	1,495	4,508	1,734	7	222	2,712	1,616	1,104	763	66	3
Phencyclidine	918	16	286	605	100	739	25	7	825	41	215	367	96	6
Phenylpropanolamine look-alike drug	5	0	4	1	1	4	0	0	4	0	3	1	0	0
Other stimulant	124	17	29	77	28	86	0	9	85	13	20	31	5	0
Other hallucinogen	68	0	38	28	7	58	0	1	64	0	13	41	5	0
Unknown hallucinogen	8	0	5	3	1	4	3	0	5	0	0	0	1	0
Other stimulant/street drug	45	5	15	25	11	29	1	3	31	8	7	10	1	0
Unknown stimulant/ street drug	273	16	96	156	32	190	33	11	201	18	56	65	18	0
Category total	45,795	6,284	16,186	22,844	16,801	26,124	727	1,349	29,612	6,973	9,495	10,208	2,220	242
Topical preparations														
Acne preparation	2,947	1,776	580	578	2,772	77	2	94	198	591	373	33	2	0
Boric acid/borate	196	103	10	81	185	4	3	4	24	44	19	3	0	0
Calamine	3,003	2,139	186	666	2,972	19	1	11	140	513	170	5	0	0
Camphor	8,817	6,852	526	1,426	8,589	158	13	51	922	2,774	1,103	77	9	1
Camphor/methyl salicylate	1,825	1,569	80	172	1,791	6	2	25	167	627	251	9	0	0
Diaper care/rash product	50,262	48,456	650	1,066	50,205	34	3	15	450	6,514	824	19	1	0
Hexachlorophene antiseptic	103	77	6	20	99	1	0	3	12	20	14	1	0	0
Hydrogen peroxide	8,222	3,282	751	4,156	8,029	133	15	37	439	997	1,067	57	3	0
Iodine or iodide antiseptic	1,646	568	308	742	1,389	165	18	66	419	361	362	50	5	0
Mercury antiseptic	197	139	19	39	175	14	0	8	21	56	11	3	0	0
Methyl salicylate	10,104	7,954	726	1,397	9,933	72	17	77	891	2,344	1,923	64	7	1
Minoxidil	46	27	1	18	40	1	0	5	14	17	4	2	0	0
Podophyllin	63	14	9	38	46	9	0	8	19	9	16	3	0	0
Silver nitrate	206	32	86	84	178	7	2	17	40	13	59	11	0	0
Topical steroid	7,758	5,599	522	1,614	7,616	39	3	95	168	990	365	26	2	0
Wart preparation	1,620	1,073	190	353	1,547	35	5	33	213	365	283	35	1	0
Topical steroid with antibiotic	1,407	1,084	93	221	1,377	9	1	20	55	245	97	8	0	0
Other liniment	2,794	1,743	173	863	2,580	21	3	188	206	544	609	30	3	0
Other topical antiseptic	4,599	3,483	344	757	4,400	101	12	81	414	1,143	497	40	3	0
Category total	105,815	85,970	5,260	14,291	103,923	905	100	838	4,812	18,167	8,047	476	36	2
Veterinary drugs	3,382	1,378	252	1,719	3,247	40	15	78	345	799	569	73	1	0
Vitamins														
Multiple vitamin tablets: adult formulations														
No iron, no fluoride	2,873	1,793	307	760	2,445	222	3	200	379	579	224	56	5	0
With iron, no fluoride	6,757	4,680	554	1,508	6,073	560	2	116	974	1,739	351	92	9	1
With iron carbonyl (no fluoride)	56	46	1	9	52	3	0	0	7	21	1	1	0	0
With iron, with fluoride	87	59	13	15	76	6	0	4	12	17	8	0	1	0
No iron, with fluoride	33	27	5	1	31	2	0	0	1	5	1	1	0	0
Multiple vitamin tablets: pediatric formulations														
No iron, no fluoride	7,795	6,774	952	50	7,642	136	2	13	213	1,419	167	5	0	0
With iron, no fluoride	18,420	16,693	1,602	105	18,175	216	3	23	1,392	4,558	661	33	0	0
With iron carbonyl (no fluoride)	16	14	2	0	16	0	0	0	1	4	0	0	0	0
With iron, with fluoride	371	348	22	0	369	2	0	0	34	73	15	2	0	0
No iron, with fluoride	1,405	1,348	53	3	1,396	8	1	0	36	246	20	0	0	0
Multiple vitamin liquids: adult formulations														
No iron, no fluoride	130	76	19	35	100	18	0	12	33	38	16	3	1	0
With iron, no fluoride	213	116	16	81	187	18	0	8	30	44	14	6	0	0
With iron, with fluoride	6	6	0	0	6	0	0	0	0	1	0	0	0	0
No iron, with fluoride	177	173	4	0	177	0	0	0	4	30	0	0	0	0

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

	No. of Exposures	Age			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Multiple vitamin liquids: pediatric formulations														
No iron, no fluoride	285	257	24	4	278	3	0	4	8	64	11	0	0	0
With iron, no fluoride	576	558	15	3	566	4	0	6	43	121	31	2	0	0
With iron, with fluoride	80	77	2	1	79	1	0	0	2	20	3	0	0	0
No iron, with fluoride	431	416	11	3	427	3	0	1	16	72	5	0	0	0
Multiple vitamins, unspecified adult formulations														
No iron, no fluoride	63	30	16	17	44	9	0	10	13	10	8	2	0	0
With iron, no fluoride	1,823	1,210	185	422	1,583	194	1	44	345	501	119	32	6	0
With iron, with fluoride	23	18	2	3	22	1	0	0	3	6	3	0	0	0
No iron, with fluoride	28	27	1	0	28	0	0	0	0	2	0	0	0	0
Multiple vitamins, unspecified pediatric formulations														
No iron, no fluoride	172	142	28	2	168	3	0	1	11	29	2	0	0	0
With iron, no fluoride	731	667	62	2	725	4	0	2	59	190	29	0	0	0
With iron, with fluoride	12	11	1	0	12	0	0	0	1	5	0	0	0	0
No iron, with fluoride	65	63	2	0	65	0	0	0	0	13	2	0	0	0
Other vitamins														
Vitamin A	2,789	2,494	71	213	2,695	43	0	48	100	455	64	15	2	0
Niacin (B3)	2,578	534	336	1,686	1,254	261	1	1,053	394	122	845	89	4	0
Pyridoxine (B6)	394	239	45	110	294	75	0	24	116	85	43	22	10	0
Other B complex vitamins	2,492	1,763	127	588	2,154	211	1	116	380	498	160	60	12	0
Vitamin C	2,349	1,774	260	308	2,148	131	1	64	217	459	119	18	3	0
Vitamin D	284	151	26	106	242	23	1	17	63	61	26	8	1	0
Vitamin E	1,979	1,523	81	369	1,841	67	2	66	227	401	92	25	1	1
Other	995	593	85	307	798	74	2	118	157	184	132	20	7	0
Unknown	825	539	148	135	681	101	2	38	183	242	48	26	2	0
Category total	57,313	45,239	5,078	6,846	52,849	2,399	22	1,988	5,454	12,314	3,220	518	64	2
Unknown drug	16,134	3,984	3,600	8,155	7,308	5,744	1,053	1,200	9,923	2,905	2,467	2,328	606	21
Total number of pharmaceuticals	1,281,336	543,764	203,177	526,639	839,757	376,847	3,568	52,256	495,780	275,013	199,702	111,445	25,373	2,130
% of pharmaceuticals		42.4%	15.9%	41.1%	65.5%	29.4%	0.3%	4.1%	38.7%	21.5%	15.6%	8.7%	2.0%	0.2%
% of all substances	47.7%	20.2%	7.6%	19.6%	31.2%	14.0%	0.1%	1.9%	18.4%	10.2%	7.4%	4.1%	0.9%	0.1%

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AAPCC's 2002 fatality verification process involved the preparation and review of abstracts on over 1400 fatalities reported to poison centers, some of which were eventually determined to be unrelated to a poison exposure. The review process requires the dedication and commitment of hundreds of poison center staff members . . . more than could possibly be listed here. The following fatality abstract authors were identified by their poison centers as having made a major contribution to this effort. These individuals are acknowledged for their commitment to toxicosurveillance through the careful verification and preparation of clinical abstracts of poisoning cases. Without the dedicated contributions of these individuals, this report would not be possible.

Akhtar, Jawaid
Albertson, Timothy E.
Alsop, Judith A.
Arnold, Thomas
Artalejo, III, Leo
Baer, Alexander B.
Banner, William
Barker, Kim
Baskin, Doreen
Bayer, Marc
Benitez, John G.
Bernstein, Jeffrey N.
Beuhler, Michael C.
Bilden, Elisabeth F.
Bond, G. Randall
Borys, Douglas J.
Bosse, George M.
Bottei, E.
Boyer, Leslie V.
Brooker, Jill B.
Brooks, Daniel E.
Bronstein, Alvin C.
Brown, Kelly L.
Burkhart, Keith K.
Burns, Michele M.
Cantor, Richard
Caperino-Crean, Laura
Caraccio, Thomas R.
Caravati, E. Martin
Casavant, Marcel J.
Chyka, Peter A.
Clancy, Cathleen
Cleary, Jean
Cobb, Douglas
Cook, Debbie
Courtemanche, Lin
Donovan, J. Ward
Dorough, Lois I.
Doyon, Suzanne
Durback-Morris, Lynn F.
Eisenga, Bernard H.
Fernández, Miguel
Finke, Daniel
Fisher, John
Ford, Marsha
Fowler, Janet
Fuller, Julee
Furbee, R. Brent
Gaar, Gregory G.
Geller, Richard J.
Geller, Robert J.
Gummin, David
Hantsch, Christina
Haynes, Jr, John F.
Henretig, Fred M.
Hoffman, Robert S.
Holmes, Becky L.
Holstege, Christopher P.
Horowitz, Zane
Hughes, Michael P.
Johnson, Paul B.
Kay, Tama
Kemmerer, David A.
Keyes, Daniel C.
Kimball, Twyla A.
Kunisaki, Thomas
Lavonas, Eric
Lawrence, Ruth A.
Lewis-Younger, Cynthia
Lieber, Betty
Ling, Louis J.
Lloyd, Jim
Lofton, Amanda
LoVecchio, Frank
Lovely, Perry L.
Lowry, Jennifer
Marraffa, Jeanna M.
Marcus, Steven M.
McGoodwin, Lee
McGuigan, Michael A.
McKinney, Patrick E.
McNally, Jude T.
Mercurio-Zappala, Maria
Michels, Jill
Morgan, Brent
Morgan, David L.
Mowry, James B.
Mrvos, Rita
Muller, Allison A.
Nester, Mary Lou
Nichols, Michele
NYC Toxicology Fellows
O'Donnell, Sandra J.
Oller, Lisa
Olson, Kent R.
Omslaer, Judith C.
O'Malley, Gerald F.
Nikkanen, Heikki E.
Perez, Alberto
Joshi, Prashant
Reed, Michael D.
Richardson, William
Rivera, Hector L.
Rivera, Wilfredo
Robertson, William O.
Rose, S. Rutherfoord
Rossi, Pamala
Ryan, Mark
Salhanick, Steven D.
Scalzo, Anthony J.
Schultz, Debora
Scruton, Susan
Seger, Donna
Seifert, Steven A.
Serafin, David
Shum, Shu
Simmons, Henry F.
Smith, Greg
Smolinske, Susan C.
Speranza, Vincent C.
Spiller, Henry A.
Stremski, Ernest
Stork, Christine M.
Teter, Cynthia
Tharratt, R. Steven
Thomas, Jerry D.
Thomas, Richard
Thompson, Jon
Tong, Tri
Wahl, Michael
Wallace Kevin L.
Warfield, Sharita
Waszolek, Kathleen
Weisman, Richard S.
White, Suzanne R.
Willis, Branch
Winbery, Stephen L.

APPENDIX

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

Case 1. A 35-year-old plumber had a respiratory arrest after exposure to a **toluene-based adhesive** in an unventilated well. He developed asystole and expired after transport to an emergency department (ED).

Case 4. A 19-year-old man was found on a college campus the morning after a fraternity party. He was intubated and brought to the ED. He was comatose with no neurological function. A blood **ethanol** concentration was 579 mg/dL. He was admitted to the ICU. He had no neurological improvement and was declared brain dead three days later. Postmortem toxicologic analysis did not detect other substances.

Case 6. A 30-year-old man had a cardiopulmonary arrest on a houseboat. Two physicians were present and continued CPR up to 45 minutes prior to the arrival of EMS. He was resuscitated and transported to a local hospital, then to a tertiary care facility. Dopamine and norepinephrine were required to maintain an adequate blood pressure. Pupils were fixed and dilated and he exhibited no neurological response. A blood **ethanol** concentration was 455 mg/dL. The patient continued to deteriorate and expired approximately 24 hours after arrival at the hospital. An autopsy showed hypoxic encephalopathy secondary to acute ethanol intoxication.

Case 8. A 53-year-old woman ingested a liter of vodka in a suicide attempt. After an unknown time, the patient became unresponsive requiring mechanical ventilation, with a systolic blood pressure of 70 mm Hg and heart rate, 70 beats/min. Arterial blood gas was pH, 7.15; pCO_2, 28 mm Hg; and pO_2, 239 mm Hg. A blood **ethanol** concentration was 769 mg/dL. Hemodialysis was performed to increase ethanol clearance. Both AST and ALT enzyme concentrations were greater than 5,000 U/L. Acetaminophen was not detected. The patient received intensive supportive care but expired six days after admission due to complications of hepatic failure.

Case 48. A 58-year-old man presented in the ED with a history of intentional ingestion of **antifreeze** containing **ethylene glycol**. He was medically cleared and admitted to a psychiatry unit. The following morning he was found in cardiopulmonary arrest and was resuscitated and transferred to the ICU where he was ventilated and given vasopressors. His arterial pH at that time was 6.68. Fomepizole was administered. The patient died 24 hours after admission. Postmortem showed hypoxic encephalopathy, gastrointestinal hemorrhage, and gastritis.

Case 56. A 45-year-old man was found unresponsive in the back yard of his mother's house after drinking from a one-gallon container of **antifreeze**. On arrival at the ED he was vomiting copious amounts of green fluid, and urine and stool were green. The patient was intubated for respiratory support. Vital signs were stable. Laboratory results showed: pH, 7.13; pCO_2, 41 mm Hg; pO_2, 111 mm Hg; bicarbonate, 13 mEq/L; glucose, 154 mg/dL; BUN, 21 mg/dL; creatinine, 1.3 mg/dL; anion gap, 22 mEq/L; serum osmolality, 505 mOsm/kg; calculated osmolar gap, 188.7 mOsm/kg; and blood **ethanol**, 29 mg/dL. The patient became agitated and combative and was sedated with midazolam. He received two doses of fomepizole and hemodialysis was instituted. The patient's feet became dusky and cold; no dorsalis pulses were palpable. Femoral pulses were weak bilaterally. Radial and brachial pulses were good. Twelve hours post ingestion, the patient's urine output decreased from 200 to 120 mL/hr. His systolic blood pressure dropped to 72 mm Hg and heart rate was 120 beats/min. He was given an IV fluid bolus. Doppler studies showed no blood flow to his right lower leg and markedly decreased blood flow to the left lower leg. The **ethylene glycol** concentration was reported as 916 mg/dL. The next morning, the patient's pupils were fixed and dilated and he had no gag reflex. His hypotension was unresponsive to fluid boluses, but later in the day his blood pressure increased to 200/120 mm Hg. Hemodialysis was repeated. He remained comatose with fixed, dilated pupils. He expired later that day.

Case 65. A 37-year-old prisoner was found unresponsive in his cell on morning rounds. He was transported to the ED where he was comatose and in respiratory distress. A chest x-ray revealed bilateral infiltrates. In the ICU his pH was 6.7; serum osmolality, 370 mOsm/kg; and creatinine, 2.4 mg/dL. Further history revealed that the patient had worked in the prison motor pool the day before presentation. Toxic alcohol poisoning was suspected. An ethanol bolus was given followed by a continuous infusion. Urine did not fluoresce and there were no oxalate crystals. Hemodialysis was initiated. The patient required vasopressors during dialysis. The following morning the patient showed clinical signs of cerebral herniation and subsequently had a cardiopulmonary arrest and died. A **methanol** concentration obtained prior to dialysis was 136 mg/dL.

Case 67. A 28-year-old man arrived at the hospital with headache, nausea, vomiting and hallucinations. He had been exposed to a liquid **plant food** 2 days prior. He was endotracheally intubated for respiratory depression and became progressively encephalopathic. Additional history 10 days later implicated a **bat bite** 3 weeks prior while the patient was in the attic of his house. He had not received rabies immune globulin as there originally was no history of a bite. The patient continued to deteriorate clinically with seizures and cardiovascular instability. He died on the 15th hospital day when supportive care was withdrawn.

Case 69. A 43-year-old man was reportedly bitten by a **timber rattlesnake** (***Crotalus horridus horridus***) while he was trying to capture the snake. He was unstable in the ED one hour after the bite, requiring endotracheal intubation and epinephrine for a blood pressure of 60/47 mm Hg. He was treated with 10 vials of crotaline polyvalent antivenom, diphenhydramine, corticosteroids, morphine and diazepam. He was transferred to another hospital. An additional 16 vials of crotaline polyvalent antivenom were administered. Dopamine and epinephrine were administered for hypotension. Four hours after admission there was laboratory evidence of disseminated intravascular coagulation. Six vials of crotaline polyvalent immune Fab (ovine) were administered. Over the next few hours his condition appeared to stabilize and vasopressors were discontinued. Several hours later epistaxis and bleeding from his mouth began. An additional 7 vials of crotaline polyvalent antivenom, fresh frozen plasma, platelets and cryoprecipitate were administered. Renal failure developed and required hemodialysis.

By the third day he had developed multisystem organ failure. He expired on the tenth hospital day.

Case 71. A 54-year-old woman was possibly envenomated by **cone noses** (***Triatoma* genus of the *Reduviid* family**, common name kissing bugs) while sleeping. She was in a sleeping bag outside the house and told her husband that she thought she was having an allergic reaction. She experienced a cardiopulmonary arrest and CPR was performed. Epinephrine was administered. There was ST wave depression on ECG, her pupils were fixed and dilated and the CT scan of her head was unremarkable. Despite aggressive care she could not be resuscitated.

Case 72. A 44-year-old technician at a medical school in Mexico ingested 25 grams of **acrylamide** at work. He had a history of heart disease. He presented to the ED 2 hours post ingestion with dizziness and vomiting, and complained of hallucinations, blurred vision, and paresthesias in both hands. Oxygen and activated charcoal were administered. The patient developed cardiogenic shock with a mean arterial blood pressure of 50 mm Hg while receiving dopamine, norepinephrine and phenylephrine. Endotracheal intubation was performed and the initial arterial blood gas was pH, 7.44; pCO_2, 29 mm Hg; pO_2, 137 mm Hg; and bicarbonate, 8 mEq/L. The patient also received an intravenous vitamin B complex with pyridoxine 600 mg. He became oliguric with a serum creatinine of 4.6 mg/dL. His AST and ALT increased into the 300's U/L. Approximately 21 hours post ingestion the patient had renal failure, hypokalemia, and cardiovascular collapse. He expired approximately 48 hours post ingestion.

Case 73. A 29-year-old motor vehicle passenger was exposed to **anhydrous ammonia** that was presumably intended for use by a methamphetamine laboratory. The patient was in a single motor vehicle crash and was transported to the ED for treatment of trauma, and dermal and inhalation exposure to anhydrous ammonia. She was decontaminated and intubated for management of respiratory distress. Adequate oxygenation could not be maintained. She had a cardiorespiratory arrest and died despite resuscitation efforts. It is believed that the anhydrous ammonia container leaked in the vehicle and toxicity from the fumes caused the motor vehicle crash.

Case 79. A 65-year-old woman was found unresponsive after reportedly ingesting **cyanide** from an unknown source. She had a cardiac arrest en route to the ED and was resuscitated with atropine and epinephrine. She was given amyl nitrite en route and sodium nitrite and sodium thiosulfate in the ED. Her initial pH was 6.89; lactic acid, 5.1 mg/dL; and methemoglobin, 2.5%. Her whole blood cyanide was 1.68 μg/mL. She remained unresponsive and died 2 days after admission.

Case 97. A 68-year-old man with a history of prostate cancer underwent surgery and 200 mL **formaldehyde** (1%) was instilled in the bladder. The bladder perforated and the formaldehyde leaked into the peritoneum. The patient was treated with low-dose dopamine for a blood pressure of 95/50 mm Hg. Arterial blood gas pH was 7.24 and bicarbonate 12 mEq/L. Treatment included sodium bicarbonate, multiple-dose activated charcoal and hemodialysis. His heart rate was 150 beats/min and his systolic blood pressure dropped to 60 to 70 mm Hg. Norepinephrine therapy was initiated. The patient developed acute respiratory distress syndrome and was mechanically ventilated. After hemodialysis, his arterial blood gas pH was 7.34; pCO_2, 38 mm Hg; pO_2, 66 mm Hg; bicarbonate, 21 mEq/L; and oxygen saturation 82% on 100% oxygen. Other labs included: creatine kinase, 2681 U/L; serum osmolality, 317 mOsm/kg; calculated osmolal gap 23 mOsm/kg; sodium, 128 mEq/L; potassium, 4.9 mEq/L; chloride, 94mEq/L; bicarbonate, 13 mEq/L; glucose, 550 mg/dL; BUN, 18 mg/dL; creatinine, 2.0 mg/dL; calcium, 7.2 mg/dL; phosphate, 4.6 mg/dL; total protein, 5.1 g/dL; albumin, 2.2 g/dL and total bilirubin 1.0 mg/dL. Despite aggressive therapy the patient died the night of admission. The cause of death was listed as formaldehyde toxicity secondary to a bladder fistula which resulted from prostatic carcinoma.

Case 106. A 35-year-old woman with a history of heroin and cocaine abuse was found dead in rigor mortis. An odor of volatile chemicals was noted in the room. At autopsy, **phenol** concentrations were 1,200 μg/mL in serum and 13,000 μg/mL in gastric contents. The serum **cocaine** concentration was 0.037 μg/mL. There were no gastric or epigastric burns. The esophageal tissue was described as "firm, as if embalmed".

Case 108. A 59-year-old chemist walked into the ED 30 minutes after reportedly ingesting one gram of **sodium azide** in a suicide attempt. In the ED the patient rapidly developed tachypnea, respiratory distress and decreased mental status. His blood pressure was 94/44 mm Hg and his heart rate was 120 beats/min. He underwent endotracheal intubation, developed intractable hypotension and expired two hours after presentation.

Case 109. A 45-year-old man suffered 11% body-surface-area burns after a workplace explosion of a 6% **sodium azide**, 30-50% caustic soda (**sodium hydroxide**) solution. He was decontaminated at the scene. On arrival at the ED his systolic blood pressure was 85 mm Hg with a heart rate of 75 beats/min. His initial arterial blood pH was 7.26 with a calculated bicarbonate of 10 mEq/L. Five hours after exposure his blood pressure was 50 mm Hg despite IV fluids and a dopamine infusion. His lactate was 20 mmol/L. He developed refractory hypotension and metabolic acidosis despite fluid resuscitation, a bicarbonate infusion and maximal vasopressor support. He died 11 hours post exposure. Postmortem examination revealed burns, cerebral edema, pulmonary edema and a pelvic fracture.

Case 111. A 34-year-old man reportedly ingested an unknown amount of **household bleach** (**sodium hypochlorite**) for an unknown reason. While his wife claimed that it was commercial bleach, the product was later identified as common household bleach. When EMS arrived the patient was combative. He vomited during endotracheal intubation and had a cardiac arrest prior to arrival at the ED. He could not be resuscitated. Postmortem examination revealed dark mucosal discolorations on the lesser curvature of the stomach and pulmonary congestion and edema. Gastric contents pH was 6.0.

Case 112. A 40-year-old man had a small amount of **household bleach** (**sodium hypochlorite**) and **rubbing alcohol (isopropanol)** thrown on his face and mouth during an argument. He presented at the ED with shortness of breath. Oxygen saturation was 77% and pulmonary edema was noted on chest x-ray. Ocular irritation was present. Over the next 12 hours he experienced emesis, tachypnea

and progressive dyspnea with oxygen saturation of 50%. Severe acute respiratory distress syndrome required endotracheal intubation. Hypotension and metabolic acidosis developed and were treated with fluids and dopamine. Evaluation for ingestion of other substances was negative. No alternate explanation or additional history of the actual exposure was identified. He stabilized over the next two days. He then developed pneumonia and was treated with antibiotics. Further clinical deterioration occurred and the patient died 20 days after exposure. The police charged his assailant with causing his demise.

Case 113. An 84-year-old woman with Alzheimer's disease ingested an unknown amount of a heavy duty liquid laundry **detergent** (**anionic/nonionic**). In the ED she was foaming at the mouth and had an arterial oxygen saturation of 70-80%. Hematemesis was noted and she was intubated and admitted to the ICU. Vital signs were: systolic blood pressure, 60-70 mm Hg; heart rate, 100 beats/min; respiratory rate, 18 breaths/min; and afebrile. Pertinent laboratory results included sodium, 150 mEq/L; potassium, 2.3 mEq/L; chloride, 111 mEq/L; bicarbonate, 14 mEq/L; and blood glucose 299 mg/dL. A chest x-ray revealed bilateral pulmonary infiltrates. The patient was treated with supportive respiratory care and dopamine and norepinephrine for hypotension. Twelve hours after arrival the patient had no respiratory effort. The patient expired within 24 hours.

Case 118. A 27-year-old man was brought to the ED with hematemesis. He stated that he had ingested an alkaline **drain opener** (**sodium hydroxide**) in a suicide attempt. He was hemodynamically stable but required endotracheal intubation in the ED. Endoscopy showed necrosis of the entire esophagus and gastric mucosa with burns extending into the proximal duodenum. He was admitted to the ICU and corticosteroids and antibiotics were started. He was extubated 7 days post-ingestion. He experienced intermittent fevers that were treated with antibiotics. Two episodes of hematemesis occurred 15 days after the ingestion. A chest x-ray 20 days post ingestion showed an enlarged cardiac silhouette. CT scan confirmed a pericardial effusion secondary to esophageal perforation. Pericardiocentesis removed 450 mL of turbid fluid. The patient continued to do poorly and died secondary to cardiac tamponade 29 days after the ingestion.

Case 121. A 42-year-old man, when informed that he was to be fired from his job, reportedly ingested a **sulfuric acid-based drain opener** and an unknown amount of aspirin. The patient presented to the ED with complaints of mouth, throat and abdominal pain. The patient was intubated. Full thickness burns and edema were seen on endoscopy. The patient developed abdominal free air and became acidotic and hypotensive. The serum aspirin concentration was undetectable. The patient was started on a dopamine infusion. Necrotic bowel was found at surgery. He underwent a total gastrectomy and removal of most of his small bowel. The patient left the operating room in disseminated intravascular coagulation with a hemoglobin of 3 g/dL. He expired three days after the ingestion.

Case 123. A 13-month-old girl was found dead at home. The child was thought to have been drinking liquid **hand dishwashing detergent**. On postmortem examination the abdomen, stomach and intestines were markedly dilated with the intraluminal presence of detergent and bubbles. There was no evidence of either corrosive injury or aspiration. A toxicology screen was negative. A partially-filled 8 ounce bottle of liquid detergent (citric scent) was found at home.

Case 137. A 75-year-old woman unintentionally applied **denture powder** to her dentures while they were still in her mouth. On ED evaluation she was found to have severe burns to the lips, mouth and oropharynx with swelling and drooling. She required endotracheal intubation for respiratory distress secondary to increased secretions and irritation. She developed profound hypotension and died.

Cases 140 and 141. Two male workers, ages 25 and 43 years, were cleaning a 1500 gallon tank containing **argon** gas when they fell in the tank. Both workers were found unresponsive and slightly cyanotic when they were removed from the tank. They were in cardiopulmonary arrest when they presented at the ED. Neither patient could be successfully resuscitated. Autopsy findings were consistent with asphyxia from argon gas.

Case 142. A 60-year-old man was found at home in cardiopulmonary arrest with a plastic bag over his head. The bag was attached to a canister of **carbon dioxide**. The patient was resuscitated in the ED and admitted to the ICU on multiple vasopressors. He did not regain consciousness and died on the third hospital day. The cause of death was determined to be anoxic encephalopathy due to carbon dioxide poisoning.

Case 184. A 62-year-old man died after two years of chronic respiratory and renal disease. Autopsy showed a blood **cadmium** concentration of 74 ng/mL (normal less than 5 ng/mL). The patient had worked on the railroad and was a machine operator for 30 years, but no definitive source of the cadmium was discovered despite an extensive investigation of home and work sites. Death was attributed to cadmium toxicity from an unknown source.

Case 185. A 19-month-old boy was transported to the ED by paramedics who described him as "black and smoking". In the ED the child was in cardiopulmonary arrest. He was noted to have a black sticky material on his arms and shoulders, a blackened and swollen oropharynx and "smoke" coming from his nasopharynx. His oropharyngeal secretions burned holes in the hospital bed sheets. An emergency tracheostomy was done but the child could not be resuscitated. The substance was determined to be a **manganese/barium** compound from an unknown source. Upon postmortem examination no injury was found below the aryepiglottic folds. Postmortem blood concentrations were: manganese, 390 ng/mL; and barium, 760 ng/mL.

Case 187. A 13-year-old boy was found dead with a plastic bag tightly bound over his head. The bag was connected to a can of a **chlorofluorocarbon**. A suicide note was found at the scene.

Case 189. A 62-year-old man was transported to the ED after having been found at home in cardiac arrest with a bag over his head. The bag was connected to a **chlorofluorocarbon** source. CPR and endotracheal intubation were performed at the scene. On arrival at the ED his heart rate was 30 beats/min and his pupils were fixed and dilated. He was started on a dopamine infusion and admitted to the ICU. The patient expired the following morning.

Case 191. A 13-year-old boy was found in cardiopulmonary arrest slumped over the **gasoline** tank of an all-terrain vehicle. The patient could not be resuscitated.

Case 192. A 9-year-old mentally retarded boy presented to the ED after ingesting an unknown amount of a **hydrocarbon-based hand cleaner**. In the ED he was tachycardic and hypoxic on 100% oxygen. A chest x-ray showed bilateral pulmonary infiltrates. He was admitted to the PICU where he was intubated and mechanically ventilated. A tracheal culture grew gram negative bacteria. Over the next day he became unresponsive with evidence of sepsis and disseminated intravascular coagulation. His condition deteriorated and he expired on his second hospital day.

Case 193. A 27-year-old man was apparently immersed in an unknown **hydrocarbon** liquid in a manhole for approximately one hour while working. He presented to the ED with evidence of pulmonary aspiration. He was intubated and decontaminated. Oxygen saturation prior to intubation was 70-80%. A chest x-ray showed extensive pneumonitis and high ventilator peak pressures were necessary for oxygenation. Arterial blood gas revealed: pH, 7.253; pO_2, 69 mm Hg; pCO_2, 34 mm Hg; base excess, 12 mmol/L; and 91% saturation on 100% oxygen. The WBC was 40,000/μL. The patient's blood pressure was normal and his heart rate 130-140 beats/min. He expired approximately 6 hours after the exposure.

Case 194. A 9-month-old girl was brought to the ED in respiratory distress after ingesting an unknown amount of **lamp oil**. During transfer to another facility the child decompensated and was intubated and started on vasopressors. A chest x-ray showed bilateral pulmonary white out. The child's respiratory status and blood pressure both improved over the next 12 hours. By 36 hours after admission, however, the child had fixed pupils and no spontaneous respirations. On the sixth hospital day supportive care was withdrawn and the child expired.

Case 196. A 53-year-old man was found unresponsive at home. Two containers of **paint thinner** and a soaked pad were found next to him. In the ED his vital signs were normal with a respiratory rate of 12 breaths/min. An endotracheal tube was placed and he was treated with aggressive supportive care. In the ICU he had multiple seizures. He did not regain consciousness and was diagnosed with hypoxic brain injury. His family made his status DNR and he died 15 days after admission.

Case 199. A 78-year-old man cooked and ate five mushrooms that he picked from under a tree in a wooded area near his home. The mushrooms were later thought to be ***Amanita phalloides***. Approximately 14 hours after ingestion he developed nausea and vomiting, followed several hours later by non-bloody, non-mucoid diarrhea and muscle cramping. Laboratory results were AST, 134 U/L; ALT, 95 U/L; PT, 12.6 s; BUN, 37 mg/dL; creatinine, 2.2 mg/dL; and glucose, 180 mg/dL. He was transferred to the regional poison treatment center and treated with multiple doses of activated charcoal, high dose penicillin and lactulose. Due to progressive acidosis and coagulopathy he was transferred to a liver transplant center where he was determined not to be a suitable candidate. He died from multisystem organ failure 12 days after exposure.

Case 201. A 75-year-old woman ate a soup containing an unknown amount of what were described as "beefsteak or red morel" **monomethylhydrazine mushrooms**. She developed vomiting and diarrhea about five hours after ingestion. Her husband had eaten the same soup and vomited shortly after ingestion, but developed no other symptoms. The patient had no history of ethanol use. She presented to an ED approximately seven hours after ingestion where her systolic blood pressure was 30 to 50 mm Hg. Hypotension transiently responded to IV fluids. However, her blood pressure dropped again requiring dopamine and dobutamine. Initial laboratory values were: BUN, 24 mg/dL; creatinine, 1.3 mg/dL; and glucose, 227 mg/dL; with normal hepatic enzymes. An arterial blood gas was: pH, 7.0; pCO_2, 32 mm Hg; pO_2, 160 mm Hg; and bicarbonate, 8 mEq/L. She was admitted to an ICU at which time her blood pressure was 80/30 mm Hg with vasopressor support. She was awake and alert. The next morning the patient exhibited alternating periods of tachycardia and bradycardia followed by a cardiopulmonary arrest from which she was resuscitated. She was intubated but was later able to be extubated. She was oliguric with 25 mL urine output over approximately an 18-hour period. Repeat laboratory values showed: BUN, 30 mg/dL; creatinine, 2.1 mg/dL; AST, 68 U/L; WBC, 30,000/μL; troponin, 0.17 ng/mL; and serum myoglobin, 1409 ng/mL. After the cardiopulmonary arrest, the patient was unresponsive and remained hypotensive despite vasopressor support. Oxygen saturation was 86% with 100% oxygen by non-rebreather mask. She was not reintubated as her family did not want further heroic lifesaving efforts. The patient's condition continued to deteriorate and she expired on the second hospital day.

Case 203. A 68-year-old man was transferred to a local health care facility 48 hours after the ingestion of **unknown mushrooms**. He presented with renal insufficiency, metabolic acidosis and hepatitis. His laboratory studies revealed: total bilirubin, 4 mg/dL; transaminases, in the 2000 U/L range; and INR, 2.1. Over the next few days, his renal and hepatic failure worsened despite supportive care and hemodialysis. The patient expired 12 days post ingestion.

Case 206. A 27-year-old woman was found dead in her home. She had a past history of chronic inhalation abuse and had recently been sick for 3-4 days, with vomiting and diarrhea. Silver colored **paint** was found on the palms of her hands and on her lower extremity. Postmortem blood analysis showed a toluene concentration of 1.3 μg/mL and an acetone concentration of 0.06 μg/mL.

Case 209. A 43-year-old woman was brought to the ED after ingesting an estimated two ounces of a **chlorophenoxy herbicide** and unknown amount of **diphenhydramine** at an unknown time prior to presentation. In the ED she was unresponsive and there was evidence of vomiting prior to arrival. Her pupils were 2 to 3 mm and sluggishly reactive. Her heart rate was 95 beats/min; blood pressure, 130/60 mm Hg; and oxygen saturation, 100% on room air. Urine output was minimal. An ECG showed a QTc of 600 msec. Naloxone was given without effect. Her lower extremities were noted to be cool although pedal pulses were present. She was intubated and sedated. Activated charcoal was given. She was transferred to a toxicology treatment center where she received 10 liters of fluid with bicarbonate during the first 24 hours. She developed acute renal failure requiring hemodialysis, a corrosive colitis requiring a hemicolectomy, acute respiratory distress syndrome, sepsis, hepatic failure and encephalopathy. She died 42 days post ingestion.

Case 210. An 80-year-old suicidal man ingested three tablespoonfuls of a **glyphosate**-containing herbicide mixed

in orange juice. He was admitted to the ICU where he had an arterial blood pH of 7.16 with a pCO_2 of 67 mm Hg. His serum potassium was 5.9 mEq/L. ICU treatment included a bicarbonate infusion to treat respiratory acidosis and sodium polystyrene sulfonate to treat hyperkalemia. The patient developed ventricular ectopy which progressed to asystole. The family elected to withdraw treatment and he died.

Case 211. A 58-year-old man unintentionally ingested **paraquat methosulfate** from a soda can. The presence of paraquat was confirmed analytically. He presented with symptoms of gastritis and esophagitis. Pulmonary congestion and oliguria began two days post ingestion and required endotracheal intubation and hemodialysis the following day. Low oxygen saturations were tolerated, with a maximum of 40% oxygen delivered by ventilator. After a brief period of initial hypertension requiring nitroglycerin, he became hypotensive and subsequently required dopamine to maintain an adequate blood pressure. He expired on the 18th hospital day.

Case 213. A 68-year-old woman was found unconscious on her bathroom floor next to empty bottles of a concentrated **acephate** insecticide and **nortriptyline**. Some vomitus was on the floor. Increased secretions from her mouth and nose were observed by EMS. An endotracheal tube was placed and atropine (2 mg) was administered without response. In the ED her systolic blood pressure was 54 mm Hg; heart rate, 135 beats/min; and oxygen saturation, 87%. Rales were present. ECG intervals were within normal limits. She was given atropine, 10 mg IV every 15 minutes, as well as a 2.0 g dose of intravenous pralidoxime. Her total initial atropine dose was 130 mg. Vasopressors were used to treat hypotension and sodium bicarbonate was infused to correct a metabolic acidosis (pH 7.1). Activated charcoal and sorbitol were administered via nasogastric tube. The patient was placed on an atropine infusion at an initial rate of 90 mg/hr. Intermittently the atropine infusion was stopped, and the pulmonary secretions recurred. She also received a continuous pralidoxime infusion at 1250 mg/hr. She deteriorated clinically and developed intractable hypotension, respiratory failure, renal failure and evidence of early disseminated intravascular coagulation. She developed ventricular tachycardia and the atropine infusion was reduced with resolution of the dysrhythmia. She had a cardiac arrest and died on the fifth hospital day, while still receiving atropine and pralidoxime. Her plasma cholinesterase concentration, collected upon arrival at the ED, was 100 IU/L (normal 1400-5600 IU/L), or 7% of the lower limit of normal for that lab. Another specimen, sent to a different lab and collected two days after her presentation, had a serum cholinesterase of 218 IU/L (normal 3200-7200 IU/L) which was 6.8% of lower limit of normal for that lab.

Case 214. A 79-year-old man with a history of depression and coronary artery disease phoned his son to say "goodbye". He indicated that he had just ingested ant poison. He was found at home unresponsive with agonal respirations. A product containing 42% **calcium cyanide** was found nearby. He was intubated at the scene and resuscitated. Heart rate and blood pressure were restored. Approximately 5 hours later he arrested and could not be resuscitated. Postmortem blood analysis revealed: cyanide, 2.49 μg/mL; **ethanol**, 150 mg/dL; and lidocaine, 1.3 μg/mL.

Case 215. A 17-year-old girl presented to the ED approximately 5 hours after ingesting an unknown number of tablets which she had bought on the street for weight reduction. She had been taking one tablet daily for several days before the overdose. In the ED she had tachycardia, diaphoresis and a fluctuating mental status. She developed a fever which was difficult to control. Her ECG revealed a prolonged QT interval. Laboratory analysis revealed a potassium of 9 mEq/L. She then developed ventricular tachycardia, arrested and died about 6 hours after ED arrival. Postmortem blood analysis revealed **dinitrophenol** and **caffeine**.

Case 217. A 40-year-old man was found unconscious after spraying an unknown substance in the garden of his mother's farm. Paramedics found the patient incontinent of urine and stool, diaphoretic, with pinpoint pupils and bronchospasm. An endotracheal tube was placed and he was given atropine in the field. In the ED he was decontaminated with copious amounts of water. A strong odor of insecticide was present. He received a total of 12.5 mg atropine and 1 gram pralidoxime. Heart rate was 120 beats/min and blood pressure 123/75 mm Hg. He was mechanically ventilated and paralyzed. He had a large anion gap acidosis. **Organophosphate** poisoning and either ethylene glycol or methanol were suspected. The patient was vigorously decontaminated again. He received a single dose of activated charcoal. The patient was admitted to the ICU. Laboratory values included pH, 7.25; pCO_2, 21.5 mm Hg; pO_2, 152 mm Hg; bicarbonate, 9.2 mEq/L; oxygen saturation 98% on 50% oxygen. He received 3 additional mg of atropine and secretions were minimal thereafter. He had very short-lived episodes of tremors. Charcoal stools smelled of insecticide. The next morning the patient's arterial blood pH was 6.93. He had been receiving atropine and pralidoxime and his lungs were clear. He still smelled strongly of insecticide. There was concern about the potential for ethylene glycol poisoning so the patient was hemodialyzed with no correction of the acidosis. The patient became hypotensive, and dopamine and norepinephrine were initiated to maintain a blood pressure of 80/50 mm Hg. Oxygen saturations were in the 70-80% range on 100% oxygen. The patient expired the next day after the family decided to withdraw supportive care. At autopsy, plasma and RBC cholinesterase values were 339 and 5,602 IU/L respectively (laboratory reference values not known).

Case 219. A 31-year-old man was admitted to the hospital after reportedly ingesting 2 to 3 boxes of a **brodifacoum rodenticide** daily for the three prior days. His INR was 5.8 on admission. The patient was treated with phytonadione and discharged to a psychiatric facility the following day. Over the next three months the patient had three additional hospital admissions and one additional psychiatric admission. His INR normalized while he was in the hospital and receiving phytonadione, but became abnormal (values to >100) within a few days after hospital discharge. He denied further ingestions and it was believed that his compliance with outpatient phytonadione therapy was poor. He died after a bleeding episode three months later.

Case 220. A 38-year-old man was brought to the ED after having been found by roommates comatose with dried blood in the corner of his mouth. A CT scan revealed subarachnoid and intracranial hemorrhage. His PTT was

134 s and his PT too high to measure. He remained unresponsive and died when supportive care was withdrawn approximately 24 hours after admission. By history he had ingested **brodifacoum** in a suicide attempt approximately one month prior to this admission. He had been treated at a local hospital and discharged on large oral doses of phytonadione. He had been followed up at least once at an ambulatory clinic.

Case 222. A 13-year-old girl ingested ***Conium maculatum*** (poison hemlock) after mistaking it for parsley. She developed giddiness, flushing, diaphoresis, nausea and vomiting. She sought relief by bathing. She then began to develop dystaxia, dyspnea, marked tongue edema and ascending paralysis. She became cyanotic and seized. Paramedics found her hypothermic and in cardiopulmonary arrest with blood tinged sputum and fixed and dilated pupils. An orotracheal tube was placed and she was resuscitated. Gastric lavage yielded plant fragments and activated charcoal was administered. CT of the head showed evidence of hypoxic ischemic injury and she was declared brain dead 36 hours after presentation. A plant sample was positively identified. At autopsy she was found to have an underlying subclinical myelitis which was believed to have contributed to her outcome. A companion had ingested a similar quantity of the plant and had less severe symptoms.

Case 236. A 31-year-old woman presented to the emergency department in status epilepticus with a blood glucose of 28 mg/dL. She had significant elevations in her liver transaminases (AST and ALT both greater than 3,000 U/L) and an **acetaminophen** concentration of 24 μg/mL. She was intubated and her seizures were controlled with benzodiazepines. She received activated charcoal, N-acetylcysteine therapy was initiated, and she was admitted to the intensive care unit. Her transaminases continued to rise, peaked in the 6,000 U/L range on the third hospital day, and then rapidly declined. INR, bilirubin, and ammonia concentration rose steadily despite lactulose and vitamin K therapy. Despite maximal supportive care and N-acetylcysteine therapy the patient's condition continued to deteriorate. Aggressive care was stopped at the family's request and she died on the sixth hospital day.

Case 243. A 35-year-old man reportedly ingested approximately 250 **acetaminophen** tablets. He was brought to the ED approximately 48 hours after the ingestion because he was groggy. His other medications included clonidine, amlodipine, propranolol, furosemide, atorvastatin, quinapril, nefazodone, bupropion, olanzapine, clonazepam, rabeprazole and warfarin. He presented with normal vital signs and mild alteration of his mental status. Laboratory values included: acetaminophen, 266 μg/mL; AST, 577 U/L; AST, 594 U/L; bilirubin, 3.4 mg/dL; INR, 4.7; creatinine, 1.6 mg/dL; and platelet count, 87,000/μL. Intravenous N-acetylcysteine therapy was initiated. Hypotension developed concurrent to therapy and the intravenous N-acetylcysteine was discontinued. The patient's clinical status progressively deteriorated and he required vasopressors and endotracheal intubation. His liver enzymes continued to rise and peaked at $>$4,500 U/L on his third hospital day. His coagulopathy persisted and required phytonadione and fresh frozen plasma. The patient was transferred to a tertiary care hospital where he died on the eighth day of hospitalization.

Case 259. A 45-year-old woman with history of schizophrenia treated with haloperidol and olanzapine was found unresponsive in her bed at an assisted living facility. She had been engaging in normal activities that day and had not shown any signs of illness. In the ED she was found to have decreased respirations and was intubated. Her ECG was described as normal. Significant initial laboratory values were serum bicarbonate, 6 mEq/L; blood glucose, 59 mg/dL; AST, 638 U/L; ALT, 599 U/L; creatinine, 2.0 mg/dL; PT, 15.8 s; PTT, 46.7 s; INR, 2.1; amylase, 1,091 U/L. The initial diagnosis was sepsis and antibiotic therapy was initiated. The following day, because of an increase in her ALT to 1,033 U/L and AST to 1,332 U/L, an **acetaminophen** concentration was measured with a result of 256 μg/mL. Analysis of an admission blood sample revealed an acetaminophen concentration of 1,208 μg/mL. She was started on oral N-acetylcysteine. Her condition deteriorated and she died two days later.

Case 296. A 22-year-old woman with Crohn's disease was known to be taking more than 5 grams of **acetaminophen** daily for pain. For five days prior to admission she had also been binge drinking **ethanol** and had reportedly been taking an additional 10 to 20 acetaminophen tablets daily (unknown strength). On presentation to the ED she had nausea and vomiting, and was jaundiced, agitated and confused. She was intubated and soon became unresponsive. Her transaminases peaked at several thousand U/L and her INR at 16, with a peak total bilirubin of 14.6 mg/dL. The patient received oral N-acetylcysteine without improvement. She was declared brain dead two days after presentation.

Case 333. A 32-year-old woman intentionally ingested 150 tablets of **acetaminophen** (500 mg) in combination with **diphenhydramine** (25 mg). EMS personnel found the patient naked and combative at home. The time of ingestion was unknown. Naloxone (2 mg) was administered without effect. Vomitus was in the patient's hair, ears and on her face. In the ED her vital signs were normal except for a heart rate of 115 beats/min. She received metoclopramide and oral N-acetylcysteine was initiated. The patient became agitated and combative. An initial acetaminophen concentration was 540 μg/mL, liver enzymes were minimally elevated, and bicarbonate was 12 mEq/L. The patient was sedated with diazepam and physostigmine (2 mg) was given with improvement in mental status. A sodium bicarbonate infusion was initiated and the patient was transferred to the regional poison treatment center for intravenous N-acetylcysteine. Approximately 18 hours post ingestion, she developed a sudden decrease in mental status, respiratory distress, and oxygen desaturation accompanied by sinus tachycardia and hypotension. She was intubated, sedated with propofol, and vasopressor support was initiated. Laboratory values showed: anion gap, 22 mEq/L; BUN, 10 mg/dL; creatinine, 1.0 mg/dL; ALT, 333 U/L; PT, 25.5 s; and INR, 3.74. At 24 hours post ingestion, ALT was 1,860 U/L and her acetaminophen concentration was 177 μg/mL. She received two courses of hemodialysis. She remained unresponsive. A CT scan was negative for cerebral edema. She was placed on the waiting list for a liver transplant but her coagulopathy worsened and she developed pulmonary

hemorrhage and renal failure. The family elected to withdraw life support and the patient expired four days post ingestion.

Case 442. A 42-year-old woman was found minimally responsive by her boyfriend. In the ED she was intubated and ventilated for airway protection. She was thought to have ingested an unknown quantity of **aspirin** and **acetaminophen**. Initial laboratory values showed: pH, 7.2; bicarbonate, 9 mEq/L; and anion gap, 30 mEq/L. An acetaminophen concentration approximately 16 hours after ingestion was 130 μg/mL and the salicylate concentration was 73 mg/dL. Hemodialysis was recommended but the patient became hypotensive despite intravenous fluids and dopamine. She then precipitously became bradycardic, arrested and could not be resuscitated. Death occurred 4.5 hours after presenting in the ED.

Case 461. A 56-year-old man presented to the ED stating that he had inadvertently ingested 69 of his **colchicine** pills approximately 1.5 hours before arrival. He was asymptomatic. The patient was admitted and treated with gastric lavage, whole bowel irrigation, and multidose activated charcoal. In the ICU he remained asymptomatic and stable until approximately 15 hours after arrival when he began to experience severe emesis, hypoxia, and respiratory distress with frequent ventricular premature beats. Electrolytes and liver function tests were normal. His respiratory status and mental status continued to worsen. He became anuric with acute renal failure and developed leukopenia. On the morning of the second hospital day his blood pressure became labile and his respiratory status worsened further. He was intubated, vasopressors were started, and a cannula was inserted for hemodialysis. Later in the afternoon of the second hospital day the patient arrested. He was resuscitated and placed on epinephrine and norepinephrine infusions. He became progressively more cyanotic and was refractory to therapy. He expired from multisystem organ failure on the third hospital day.

Case 463. An 83-year-old nursing home patient was prescribed **colchicine** for acute gouty arthritis. She was incorrectly given 6 tablets (0.6 mg) every hour for 4 hours. At the end of 4 hours the patient began complaining of nausea, vomiting and abdominal pain. She was taken to the ED 11 hours after the first dose of colchicine was administered. At presentation the patient had tachycardia and tachypnea and was vomiting and retching. She was treated with ondansetron for nausea; fluids; and a dose of corticosteroids (she was on chronic corticosteroids for ulcerative colitis). The patient developed an arrhythmia and sudden death occurred 14 hours after arrival at the hospital.

Case 467. A 4-year-old girl was found unresponsive at home by her grandmother. EMS was called and the child was asystolic and cold. CPR was initiated, but the child could not be resuscitated. ED staff noted one **fentanyl patch** on the child and two additional marks on her skin where other patches had been. The history was that the grandmother had applied the patches to relieve the child's pain. The grandmother also reported that the child had an apparent seizure at home. It is unknown how many patches had been used and when they were applied. A urine drug screen was negative.

Case 479. A 4-year-old boy was found unresponsive at home by his mother. EMS was called and the child was transported to the local hospital where he was in cardiopulmonary arrest and could not be resuscitated. The child had been suffering from a cold and sore throat. He had been receiving a **hydrocodone** syrup. The child had been given a dose and had fallen asleep with snoring respirations. The father, with the same name as the boy, had also been receiving a hydrocodone-based medication, and the mother may have administered the father's medication to the child. Postmortem heart blood drug concentrations were: hydrocodone, 670 ng/mL; **chlorpheniramine**, 0.21 μg/mL; and **guaifenesin**, detected. Hydrocodone measured in bile was 300 ng/mL.

Case 483. A 16-year-old girl was hospitalized for control of chronic pain with **hydromorphone** administered by patient-controlled analgesia infusion. She was supposed to have received a 2 mg total dose administered as a 0.1 mg/mL solution. Instead she received a 1 mg/mL admixture administered over several hours, with an estimated total dose of 16 mg. She became unresponsive, apneic and hypotensive. She was intubated and given naloxone boluses followed by a continuous naloxone infusion with only minimal improvement in her mental status. She was transferred to a tertiary pediatric facility where her neurologic status continued to deteriorate. She expired two days after the exposure.

Case 485. A 7-year-old obese boy received **meperidine** at home for pain control after an outpatient tonsillectomy and adenoidectomy. His mother noticed he was very lethargic and discontinued the meperidine. The day following his surgery he was found dead at home. Postmortem analysis reported heart blood meperidine, 1.27 μg/mL; heart blood normeperidine, 0.76 μg/mL; CSF meperidine, 0.86 μg/mL; and CSF normeperidine, 0.40 μg/mL. The medical examiner determined the cause of death was meperidine intoxication complicated by pneumonia.

Case 520. A 17-month-old boy was found in cardiopulmonary arrest at home by his mother. He arrived in the ED in full arrest, cold and cyanotic. Resuscitation efforts were unsuccessful. There was a question as to whether the child had ingested some of his mother's **methadone**. Postmortem toxicologic analysis of the child's blood revealed methadone, 0.65 μg/mL; and **diphenhydramine**, 1.2 μg/mL. The cause of death was determined to be multiple drug overdose. The mother was subsequently indicted for the death of her son.

Case 564. A hospitalized 33-year-old man was found dead in his bed after undergoing an uncomplicated Nissen fundoplication to manage acid reflux disease. Post-operative medications included **promethazine** and a **morphine** pump. It was believed that the pump had inadvertently been set improperly or loaded with a higher concentration of morphine than normally used. Postmortem analysis of blood revealed morphine, 280 ng/mL; and promethazine, 110 ng/mL.

Case 606. A 38-year-old hospital security guard was found face down and unresponsive in an operating room. It is unknown if resuscitation was attempted on site. The guard had been known to steal drugs from the hospital and had attempted suicide once previously. Postmortem toxicology was significant for blood concentrations of **isoflurane**, 2.4 μg/mL; **metoprolol**, 0.17 μg/mL; **diazepam**, 50 ng/mL;

and meperidine, 0.05 μg/mL. His urine toxicology screen also showed the presence of paroxetine, butorphanol, morphine and THC.

Case 607. An 81-year-old man with end-stage prostate cancer was admitted to the hospital for intractable pain. He was given 60 mL of 2% viscous **lidocaine** to gargle, but unintentionally swallowed it. Thirty minutes after the incident he was reportedly asymptomatic. **Activated charcoal** was administered. He vomited and possibly aspirated the activated charcoal. He expired the following day.

Case 611. A 72-year-old man with a history of superior mesenteric artery thrombosis received parenteral **lepirudin** as a bolus instead of an infusion. He received a dose of 24 mg, calculated to be 0.44 mg/kg. Immediately after receiving the lepirudin he complained of numbness all over and then lost consciousness. Cardiac rhythms of atrial and ventricular fibrillation were noted. He expired shortly after the drug was administered.

Case 615. A 23-year-old man intentionally ingested **carbamazepine** in a suicide attempt. He presented to the ED with a carbamazepine concentration of 44 μg/mL. He received one dose of activated charcoal in the ED. In the ICU he developed status epilepticus, requiring intubation and ventilation, and had QRS prolongation. His repeat carbamazepine concentration after two days was 116 μg/mL. The patient suffered a cardiac arrest and died.

Case 635. An 18-year-old woman was found unresponsive after the ingestion of an estimated 60 **zonisamide** capsules. She experienced multiple tonic-clonic seizures and had copious airway secretions. During transport to the ED she experienced a cardiopulmonary arrest. Treatment with atropine, epinephrine and sodium bicarbonate resulted in a wide complex tachycardia. Treatment over the next hour with additional sodium bicarbonate and dopamine resulted in a narrow complex rhythm. A CT scan 24 hours after admission showed massive cerebral edema with tonsillar herniation. Brain death was confirmed. There was no evidence of anoxic injury to any other organ system. No other substances were involved by history although a TLC urine drug screen was positive for metabolites of mirtazapine, diphenhydramine and caffeine. Only caffeine was confirmed by GC/MS. There was no record of past mirtazapine availability or use and it is not known how zonisamide metabolites migrate in this TLC system. The highest serum zonisamide concentration was 44 μg/mL (therapeutic up to 40 μg/mL). The coroner ruled that her death was due to a zonisamide overdose.

Case 740. A 3-year-old boy was found dead by police, face down in a creek, after having been reported missing about 2 hours previously. Autopsy findings were consistent with drowning. Postmortem toxicologic analysis showed a blood **sertraline** concentration of 1,300 ng/mL and a norsertraline concentration of 580 ng/mL. The mother confessed to having given the child two sertraline capsules to quiet him down. The manner of death was listed as homicide.

Case 761. A 33-year-old woman was found seizing in her car with more than 100 **venlafaxine** tablets of various strengths. She had threatened suicide. In the ED she was in status epilepticus. Her blood pressure was 90/60 mm Hg with a heart rate of 150 beats/min. Her ECG showed sinus tachycardia. She rapidly developed ventricular fibrillation and pulseless electrical activity. She could not be resuscitated and died approximately 2 hours after the ingestion. At autopsy, tablet fragments and activated charcoal were found in the stomach. Postmortem drug concentrations were: venlafaxine (160,000 ng/mL in aortic blood, 66,000 ng/mL in femoral blood and 340,000 ng/g in the liver) and o-desmethylvenlafaxine (15,000 ng/mL in aortic blood, 4,000 ng/mL in femoral blood and 25,000 ng/g in liver).

Case 783. A 30-day-old infant born at 25 weeks gestation, weighing 1 kg, was administered 1 mg of intravenous **amphotericin B** for treatment of gram negative sepsis. The baby developed bradycardia and hypotension after the drug was administered. He was subsequently removed from the ventilator and died.

Case 786. A 47-year-old man reportedly injecting 12 mL of **tilmicosin** and possibly an unknown amount of **flunixin** (both veterinary products) into his thigh in a presumed suicide attempt. The tilmicosin had reportedly expired. When EMS arrived 40 minutes later he was in respiratory arrest and hypotensive. He was ventilated on the way to the ED where he was started on dobutamine with minimal improvement. He then went into ventricular fibrillation and could not be resuscitated in spite of several rounds of defibrillation.

Case 788. A 49-year-old man was receiving **vincristine** intravenously and cytarabine intrathecally. The vincristine was administered intrathecally instead of intravenously. About 12 hours later the error was identified. The patient received continuous spinal drainage but expired two days later.

Case 798. A 77-year-old woman with a history of diabetes, hypertension, hypercholesterolemia, atrial fibrillation, myocardial infarction and CVA was sent to the ED when her physician noted an INR of 5.8 during a routine evaluation. The patient revealed that she had been taking **amiodarone** 400 mg three times each day for 2 months. It was intended that she take that dose for three weeks, then switch to a lower maintenance dose. Over the course of the hospitalization her AST rose to 4,610 U/L and her bilirubin to 3 mg/dL. No other identifiable cause was determined for her liver function abnormalities. The patient developed clinical signs of sepsis and died.

Case 851. A 16-month-old boy was ataxic and unable to stand after awakening from a nap. A partially filled **nifedipine** prescription was found in his bed. He was transported by car to the ED where he was found to be pulseless with agonal respirations. CPR was initiated. Several boluses of calcium chloride, sodium bicarbonate and epinephrine were administered followed by continuous infusions of calcium chloride and epinephrine. Heart rate and blood pressure were transiently stabilized. An initial arterial blood pH was 6.6. An intracardiac pacemaker was placed which initially captured. The child experienced recurrent episodes of bradycardia and hypotension, each treated with calcium and epinephrine. Glucagon was administered without effect. The child expired 17 hours after presentation.

Case 856. A 38-year-old woman presented to the hospital with a history of hypertension, congestive heart failure, end stage renal disease, pulmonary edema and pneumonia. Her blood pressure was 240/120 mm Hg at presentation. She was treated with intravenous nitroglycerin but then refused therapy as it caused headaches. She was placed on a labe-

talol infusion and had a generalized seizure and was intubated. A CT scan of her head was performed with no abnormalities found. She was then given intravenous nitroprusside and the labetalol was discontinued. She improved and was weaned off the nitroprusside after 12 to 14 hours. **Sustained release nifedipine** therapy was initiated. Approximately 3 to 4 hours later she suffered a cardiopulmonary arrest. She was resuscitated and started on norepinephrine, dopamine, and dobutamine for treatment of hypotension. The following morning she was weaned off norepinephrine and dopamine and her blood pressure was stable at 140/110 mm Hg. Therapy with oral labetalol (200 mg) and sustained release nifedipine (90 mg) was started. Approximately 1 to 2 hours later she suffered another cardiopulmonary arrest. She was successfully resuscitated and norepinephrine, dopamine and dobutamine were re-initiated at maximum infusion rates. She was also given 10 mL of 3% calcium gluconate that increased her heart rate from 40 to 60 beats/min but did not increase her blood pressure. She received 1 mg of glucagon with no response. External cardiac pacing captured, but had no effect on her blood pressure. She arrested again and was resuscitated with atropine and epinephrine. At that time she had a junctional rhythm at 60 beats/min and a blood pressure of 100/50 mm Hg, though both started to decline. It was determined that the oral medications (including the sustained release nifedipine) had been crushed and administered via the nasogastric tube. There was no response to a bolus of intravenous calcium and the patient expired.

Case 857. A 59-year-old man stated that he unintentionally tipped his bottle of **propafenone** back too far and ingested all 30 tablets at once. The patient went to the ED where he was given **activated charcoal**. He had a cardiopulmonary arrest and aspirated the charcoal he was drinking. The patient was resuscitated and intubated. He was transferred to a tertiary care facility where an EEG showed diffuse slowing, consistent with anoxic encephalopathy. After several days, life support was withdrawn and the patient expired.

Case 862. A 29-year-old man with a history of bipolar disease and prior suicide attempts was heard to collapse in his bedroom. He was brought to the ED in cardiopulmonary arrest and could not be resuscitated. An empty bottle of 100 **iron polysaccharide** 150 mg capsules was found near the patient. The patient had vomited before his collapse. No other information about the ingestion was known. Postmortem toxicology analysis revealed a heart blood iron concentration of 15,000 μg/dL, a heart blood **propranolol** concentration of 13 μg/mL and a femoral blood propranolol concentration of 4 μg/mL.

Case 873. A 24-year-old prisoner ingested 60 **verapamil** 80 mg tablets and 40 **captopril** 25 mg tablets. When the ingestion was discovered about 6 hours later, he was taken to the infirmary. He underwent gastric lavage with no tablet fragments seen. He was transported to the ED where he had hypotension (80/40 mm Hg), bradycardia (50 to 60 beats/min), and a serum calcium of 7.8 mg/dL. His arterial blood pH was 7.28; pCO_2, 36 mm Hg; and pO_2, 96 mm Hg. He was given intravenous calcium chloride and calcium gluconate. Dopamine was also started for hypotension and decreased urine output. The patient complained of continuous back pain and was restless. He was given activated charcoal by nasogastric tube. His abdomen became distended. The patient was dusky and his pupils were dilated and less responsive to light. He then developed ventricular fibrillation. CPR and defibrillation were performed without success. He died about 2 hours after ED presentation.

Case 891. A 4-month-old infant died after receiving a cold and allergy preparation containing **pseudoephedrine** and **brompheniramine** for a flu-like illness. The caregiver had been pouring the medicine from the bottle directly into the child's mouth. Postmortem heart blood concentration of pseudoephedrine was greater than 10 μg/mL; and brompheniramine, 0.86 μg/mL.

Case 893. A 3-year-old boy was found unresponsive by his mother. The child was intubated in the field and CPR was initiated. Resuscitation efforts were unsuccessful. The child had been treated for the previous three days for an upper respiratory infection. An empty bottle of a cough and cold preparation containing **chlorpheniramine**, **pseudoephedrine** and **dextromethorphan** was found. The child also had access to **brompheniramine**. Postmortem GC/MS analysis of cardiac blood revealed the following drug concentrations: chlorpheniramine 0.04 μg/mL, brompheniramine 0.19 μg/mL, dextromethorphan 0.009 μg/mL and pseudoephedrine 4.8 μg/mL.

Case 894. A 2-year-old, 15 kg boy was prescribed a cough and cold preparation containing **hydrocodone** (10 mg/5 mL) and **chlorpheniramine** (8 mg/5 mL) for cough suppression, to be administered at 1.5 mL per dose. A 30 mL bottle was dispensed. He received a single dose and was found dead 3 hours later. It was found that 10 mL were missing from the bottle.

Case 900. A 59-year-old woman, admitted for treatment of cellulitis, received 1.5 grams of intravenous **iron dextran** for treatment of anemia. She had been otherwise well except for Valley Fever. Her serum iron was 1,897 μg/dL one day after iron administration. Over the next five days her lab values rose to: ALT, 1,914 U/L; AST, 9,943 U/L; INR, 6.9; and serum ammonia, 157 μmol/L. She developed mental status changes followed by obtundation and a seizure, fixed and dilated pupils, intermittent ventricular tachycardia and fibrillation, minimal response to pain, and hyperkalemia. She was mechanically ventilated and on vasopressors. Intravenous deferoxamine was started and maximal supportive care continued. She had a cardiac arrest in the helicopter during transfer to a tertiary care facility and died.

Case 908. A 48-year-old woman was brought to the ED following an overdose of her mother's **levothyroxine**. The time of ingestion was unknown. The patient had overdosed on four previous occasions and was being treated for a bipolar affective disorder with **olanzapine** and **valproic acid**. She had reportedly taken 7 to 10 tablets of these in addition to the levothyroxine. On presentation to the ED her rectal temperature was 40 °C; blood pressure, 223/114 mm Hg; heart rate, 151 beats/min; respirations, 40 breaths/min; and oxygen saturation, 88% on room air and 97% on 6 liters of oxygen via nasal cannula. The patient appeared to be in thyroid storm, and propranolol and benzodiazepines were recommended. Within 20 minutes of arrival to the ED the patient suffered a tonic-clonic seizure, went into ventricular fibrillation and became pulseless and apneic. The patient was intubated, defibrillated three times and started on intravenous dopamine, epinephrine and atropine. A transcutane-

ous pacemaker was placed, but the only response was pulseless electrical activity. The patient did not respond to further resuscitation efforts and was pronounced dead.

Case 918. A 21-year-old man was receiving court-ordered **disulfiram**. He developed fulminant hepatic failure thought to be secondary to the disulfiram. He underwent a liver transplant and died of post operative complications.

Case 919. A 17-year-old medical center employee was found sitting with a cup containing pills and complaining of hearing loss, dizziness and "not feeling well". The pills were identified as **quinine**. He had previously been known to go through the trash looking for medications. The patient was brought to the ED where he became hypotensive and then had a cardiac arrest. After a difficult endotracheal intubation he was resuscitated but had persistent cardiac dysrhythmias. The patient was started on vasopressors and a sodium bicarbonate infusion. He became progressively more hypotensive with an idioventricular rhythm that did not respond to calcium. He was also started on mannitol for presumed anoxic encephalopathy. He developed acidosis, hypotension, acute respiratory distress syndrome and multiorgan failure and expired the next day. A blood quinine concentration done several hours after admission was 14 μg/mL.

Case 958. A 4-month-old, 9 kg infant, received 450 mg of **chloral hydrate** for sedation before a CT scan. The level of sedation was inadequate 30 minutes after dosing and the child was administered an additional 225 mg. Three hours later the child had a cardiopulmonary arrest and died. A trichloroethanol concentration at the time of attempted resuscitation was 24 μg/mL.

Case 988. A 50-year-old HIV positive suicidal man who worked in an animal shelter was found at home with agonal breathing after an overdose of veterinary **pentobarbital**. The route of administration was unknown. He arrived in the ED in cardiopulmonary arrest. He was intubated and started on an epinephrine infusion with restoration of a heart rhythm. Over several hours his cardiovascular status deteriorated and he died 9 to 10 hours after the exposure.

Case 1024. A 16-year-old boy ingested several zipper-sealed bags of **cocaine** while fleeing from authorities. He immediately collapsed. EMS was unable to intubate him and he died. At autopsy bags of cocaine were found lodged in the trachea, causing asphyxia.

Case 1123. Paramedics and police were called to the residence of a 27-year-old man because of his altered mental status. In the ED he was normotensive and described as alert and oriented. He gave the history that three days previously he had swallowed a balloon containing **methamphetamine**. The day prior to admission he noticed balloon fragments in his stool and his family began to notice behavioral changes. In the hospital his mental status deteriorated rapidly. The medical record indicates that he was found "swinging from an IV ceiling mount" while simultaneously "masturbating, barking and meowing". Shortly afterwards he collapsed. His rectal temperature was 42.2 °C. His temperature was lowered with external cooling and he was intubated. The patient was initially hypertensive but became hypotensive. His heart rate was 170 beats/min. The patient became acidotic and developed a gastrointestinal bleed. He also required vasopressor therapy for hypotension, which became intractable. Nineteen hours after admission the patient had a cardiopulmonary arrest and could not be resuscitated. Autopsy revealed both pulmonary and cerebral edema. Multiple "ruptured small balloons with firm contents" were found in the stomach and intestinal tract, together with necrosis throughout the small and large intestines. Postmortem methamphetamine blood concentrations were 16 μg/mL (heart) and 10 μg/mL (femoral).

Case 1135. A 16-year-old girl at a party told her friends that she took **methylenedioxymethamphetamine (MDMA)**, although the ingestion was not witnessed. Later that evening she was feeling ill and was given a lot of water to drink. She later vomited and went to bed. The next morning her friend went back to the scene of the party looking for her. The patient was found on the bedroom floor. They believed that she had a pulse at that time. They transported her by car to the ED; she arrived in asystole. CPR was initiated but the patient did not survive. Postmortem toxicology revealed a blood methylenedioxymethamphetamine concentration of 1.32 μg/mL.