Toxicology

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

2003 Annual Report of the American Association of Poison Control Centers Toxic Exposure Surveillance System

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Toxic Exposure Surveillance System (TESS) data are compiled by the American Association of Poison Control Centers (AAPCC) on behalf of US poison centers. These data are used to identify hazards early, focus prevention education, guide clinical research, direct training, and detect chem/bioterrorism incidents. 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).[1-20]

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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. Participating centers 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; Nebraska Regional 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; 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
2003	64	294.7	2,395,582	8.1
Total			36,216,578	

The cumulative AAPCC database now contains 36.2 mil2lion human poison exposure cases. This report includes 2,395,582 human exposure cases reported by 64 participating poison centers during 2003, an increase of 0.7% compared to 2002.

CHARACTERIZATION OF PARTICIPATING CENTERS

Of the 64 reporting centers, 62 submitted data for the entire year. Fifty-one of the 64 participating centers were certified as regional poison centers by the AAPCC at the end of 2003. The annual human exposure case volume by center ranged from 11,458 to 110,459 (mean 38,388) for centers participating for the entire year. Penetrance, calculated for states that were served by centers participating in TESS for the entire year, ranged from 5.9 to 17.6 exposures per 1,000 population with a mean of 8.1 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.

The entire population of the 50 states, the District of Columbia, and Puerto Rico (294.7 million) was served by the participating centers. Cases from Puerto Rico were only reported for a 7-month period. Extrapolations from the number of reported poison exposures 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 17.6 poison exposures/1,000 population reported for one state, 5.2 million poison exposures would have been reported to poison centers in 2003. Although this report focuses on the human exposure cases reported to TESS in 2003, the database also contains data (not presented here) on animal poison exposures (133,397 cases, primarily companion animals), human confirmed nonexposures (7,071), animal confirmed nonexposures (406), and information calls (1,167,776). An additional 4,500 duplicate human exposure reports (reported to more than one participating poison center) were excluded. This total of 3,708,732 cases and information calls reported to TESS in 2003 does not reflect the full extent of poison center effort. In addition, nearly 2.7 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 86) 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 49 states (and the District of Columbia) that were covered by participating centers for the entirety of both 2002 and 2003 shows an increase of 0.4% in the number of reported human poison exposures from 2002 to 2003.

Information call subcategories were implemented in TESS in 2002. A total of 1,167,776 information calls were reported to TESS in 2003, including 139,043 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. Overall, the volume of information calls handled by US poison centers increased 5.1% from 2002 to 2003.

The most frequent information call was for drug identification, comprising 617,414 calls to poison centers during the year. Of these, 103,020 (16.7%) could not be identified over the telephone. Of the drug identification calls, 74.4% were received from the public, 12.7% from health professionals, and 11.8% from law enforcement. Forty-six percent of drug identification requests involved drugs sometimes involved in abuse, however these cases were categorized based on the abuse potential, generally without knowledge of whether abuse was actually intended.

Drug information calls (174,631 calls) comprised 15.0% of all information calls. Of these 19.6% were questions about drug-drug interactions, 14.4% were questions about therapeutic use and indications, and 10.7% were questions about adverse effects. Environmental inquiries comprised 3.2% of all information calls. Of these, 26.0% related to clean-up of mercury thermometers and 12.8% involved pesticides. Poison information comprised 9.3% of information calls, with 11.8% of these involving food poisoning or food preparation practices and 10.8% involving plant toxicity.

REVIEW OF THE DATA

No changes to the data collection format were implemented in 2003. Prior revisions occurred in 1984, 1985, 1993, 2000, 2001, and 2002. Data reported after January 1, 2000 allow an unlimited number of substances for each case, a factor that should be considered when comparing substance data with prior years.

TABLE 1B. Distribution of Information Calls

Information Call Type	No. of Calls	%
Drug identification		
Public inquiry: Drug sometimes involved in abuse	227,392	19.47
Public inquiry: Drug not known to be abused	147,942	12.67
Public inquiry: Unknown abuse potential	10,156	0.87
Public inquiry: Unable to identify	74,081	6.34
Health professional inquiry: Drug sometimes involved in abuse	20,278	1.74
Health professional inquiry: Drug not known to be abused	37,163	3.18
Health professional inquiry: Unknown abuse potential	2,510	0.21
Health professional inquiry: Unable to identify	18,544	1.59
Law enforcement Inquiry: Drug sometimes involved in abuse	38,440	3.29
Law enforcement Inquiry: Drug not known to be abused	22,584	1.93
Law enforcement Inquiry: Unknown abuse potential	1,545	0.13
Law enforcement Inquiry: Unable to identify	10,395	0.89
Other drug identification	6,384	0.55
Subtotal	617,414	52.87
Drug information		
Adverse effects (no known exposure)	18,667	1.60
Brand/generic name clarifications	5,085	0.44
Calculations	514	0.04
Compatibility of parenteral medications	397	0.03
Compounding	1,085	0.09
Contraindications	2,551	0.22
Dietary supplement, herbal, and homeopathic	2,272	0.19
Dosage	15,213	1.30
Dosage form/formulation	4,913	0.42
Drug use during breast-feeding	8,902	0.76
Drug-drug interactions	34,312	2.94
Drug-food interactions	2,053	0.18
Foreign drug	3,066	0.26
Generic substitution	740	0.06
Indications/therapeutic use	25,157	2.15
Medication administration	3,335	0.29
Medication availability	1,736	0.15
Medication disposal	637	0.05
Pharmacokinetics	3,949	0.34
Pharmacology	2,790	0.24
Regulatory	1,699	0.15
Stability/storage	3,524	0.30
Therapeutic drug monitoring	1,129	0.10
Other drug info	30,905	2.65
Subtotal	174,631	14.95
Environmental information	37,428	3.21
Medical information	31,984	2.74
Occupational information	2,141	0.18
Poison information	108,991	9.33
Substance abuse	11,319	0.97
Teratogenicity information	6,431	0.55
Other information	38,394	3.29
Administrative (optional)	16,196	1.39
Caller referred (optional)	63,792	5.46
Prevention/safety/education (optional)	59,055	5.06
Total	1,167,776	100.00

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

	Site of Caller (%)	Site of Exposure (%)
Residence		
Own	75.7	89.7
Other	2.4	3.0
Health care facility	14.1	0.3
Workplace	1.5	2.0
School	0.7	1.5
Public area	0.4	1.2
Restaurant/food service	0.0	0.4
Other	5.0	0.9
Unknown	0.36	1.1

Of the 2,395,582 human exposures reported in 2003, 92.6% occurred at a residence (Table 2). Exposures occurred in the workplace in 2.0% of cases, in schools (1.5%), health care facilities (0.3%), and restaurants or food services (0.4%). Poison center peak call volumes were from 4 to 10 PM, although call frequency remained consistently high 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 6,563. Higher volumes were observed in the warmer months, with a mean of 7,017 per day in July compared to 6,123 consultations per day in January. 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 four year period from January 2000 through December 2003. The seasonal variation in exposures to nonpharmaceuticals parallels that of overall case volume.

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 39.0% of cases, and 52.0% 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, 7,949 occurred in pregnant women. Of those with known pregnancy duration, 32% occurred in the first trimester, 38% in the second trimester, and 30% in the third trimester. In 4.7% of cases (112,591 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 1,106 reported fatalities. Although responsible for the majority of poisoning reports, children younger than 6 years of age comprised just 3.1% (34) of the fatalities. Fifty-eight percent of poisoning fatalities occurred in 20- to 49-year-old individuals. A single substance was implicated in 91.7% of reports, and 2.8% of patients were exposed to more than two possibly poisonous drugs or products (Table 5). In contrast, 49% of fatal cases involved two or more drugs or products. The overwhelming majority of human exposures were acute (91.7%) compared to 53.6% of poi-

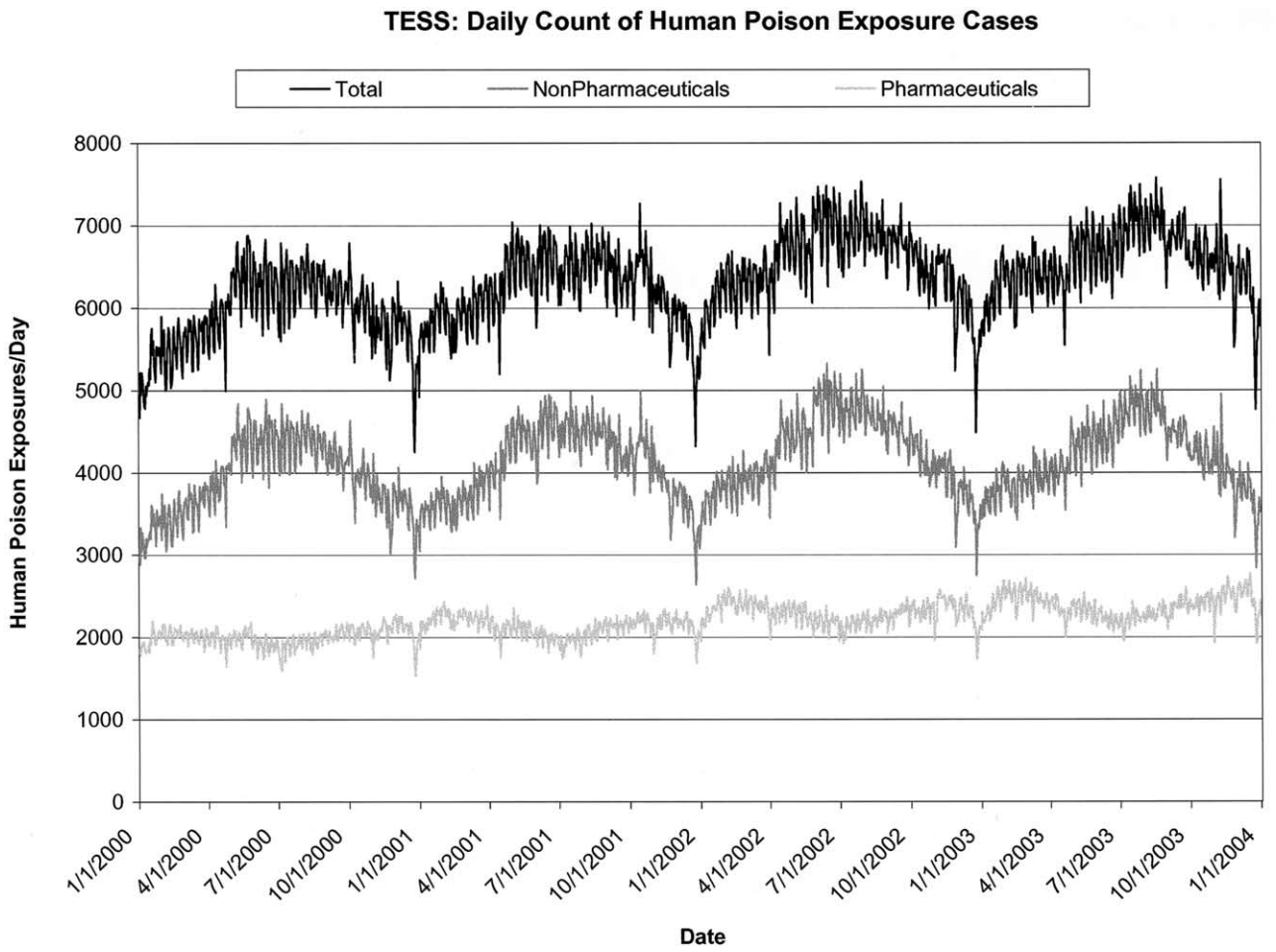

FIGURE 1. Frequency of Human Exposures Reported to US Poison Control Centers, 2000-2003. Cases categorized based on first substance listed.

son-related fatal exposures. Chronic exposures comprised 1.8% of all poison exposure reports, and acute-on-chronic exposures comprised 5.4%. (Chronic exposures were defined as continuous or repeated exposures occurring over 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 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 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

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	72,306	51.3	68,046	48.3	582	0.4	140,934	5.9	140,934	5.9
1	205,476	51.7	191,015	48.1	772	0.2	397,263	16.6	538,197	22.5
2	208,156	52.4	188,136	47.4	720	0.2	397,012	16.6	935,209	39.0
3	95,080	54.8	78,059	45.0	373	0.2	173,512	7.2	1,108,721	46.3
4	45,126	56.1	35,110	43.6	256	0.3	80,492	3.4	1,189,213	49.6
5	26,318	56.0	20,461	43.6	182	0.4	46,961	2.0	1,236,174	51.6
Unknown child ≤5	2,375	25.2	2,227	23.7	4,808	51.1	9,410	0.4	1,245,584	52.0
6-12	89,853	56.8	66,755	42.2	1,710	1.1	158,318	6.6	1,403,902	58.6
13-19	75,649	44.0	94,753	55.2	1,421	0.8	171,823	7.2	1,575,725	65.8
Unknown child	2,732	40.3	2,615	38.6	1,428	21.1	6,775	0.3	1,582,500	66.1
Total children (<20)	823,071	52.0	747,177	47.2	12,252	0.8	1,582,500	66.1	1,582,500	66.1
20-29	83,276	44.8	102,504	55.1	253	0.1	186,033	7.8	1,768,533	73.8
30-39	71,742	42.5	96,906	57.4	138	0.1	168,786	7.1	1,937,319	80.9
40-49	57,918	41.1	82,862	58.8	72	0.1	140,852	5.9	2,078,171	86.8
50-59	34,329	39.2	53,281	60.8	57	0.1	87,667	3.7	2,165,838	90.4
60-69	17,355	36.3	30,469	63.7	18	0.0	47,842	2.0	2,213,680	92.4
70-79	12,206	34.4	23,277	65.6	21	0.1	35,504	1.5	2,249,184	93.9
80-89	6,411	31.8	13,772	68.2	12	0.1	20,195	0.8	2,269,379	94.7
90-99	919	26.9	2,498	73.1	1	0.0	3,418	0.1	2,272,797	94.9
Unknown adult	42,073	38.9	62,817	58.0	3,398	3.1	108,288	4.5	2,381,085	99.4
Total adults	326,229	40.9	468,386	58.7	3,970	0.5	798,585	33.3	2,381,085	99.4
Unknown age	4,682	32.3	6,545	45.2	3,270	22.6	14,497	0.6	2,395,582	100.0
Total	1,153,982	48.2	1,222,108	51.0	19,492	0.8	2,395,582	100.0	2,395,582	100.0

blood concentration of a pharmaceutical or other substance 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 (84.7%) of poison exposures was unintentional; suicidal intent was present in 7.8% of cases (Table 6A). Therapeutic errors comprised 9.0% of exposures (215,052 cases), with unintentional nonpharmaceutical product misuse comprising another 3.7% of exposures. Therapeutic errors increased 11.3% compared to 2002. The types of therapeutic errors observed in each age group are delineated in Table 6B. Thirty-three percent of therapeutic errors involved double-dosing. Dispensing cup errors were seen in 5,352 cases, 10-fold dosing errors in 1,373 cases,

TABLE 4. Distribution of Age and Gender for 1,106 Fatalities

Age (yr)	Male	Female	Unknown	Total	%	Cumulative Total	Cumulative %
<1	4	4	2	10	0.9	10	0.9
1	8	1	0	9	0.8	19	1.7
2	2	3	0	5	0.5	24	2.2
3	1	3	0	4	0.4	28	2.5
4	3	0	0	3	0.3	31	2.8
5	1	2	0	3	0.3	34	3.1
6-12	3	4	0	7	0.6	41	3.7
13-19	30	27	8	65	5.9	106	9.6
20-29	123	60	0	183	16.6	289	26.1
30-39	114	101	0	215	19.4	504	45.6
40-49	136	112	0	248	22.4	752	68.0
50-59	78	67	0	145	13.1	897	81.1
60-69	39	39	0	78	7.1	975	88.2
70-79	25	32	0	57	5.2	1,032	93.3
80-89	19	19	0	38	3.4	1,070	96.8
90-99	4	3	0	7	0.6	1,077	97.4
Unknown adult	17	9	0	26	2.4	1,103	99.7
Unknown	1	1	1	3	0.3	1,106	100.0
Total	608	487	11	1,106	100.0	1,106	100.0

TABLE 5. Number of Substances Involved in Human Exposure Cases

No. of Substances	No. of Cases	% of Cases
1	2,196,152	91.7
2	133,184	5.6
3	38,712	1.6
4	15,110	0.6
5	6,257	0.3
6	2,912	0.1
7	1,446	0.1
8	740	0.0
≥9	1,069	0.0
Total	2,395,582	100.0

iatrogenic or dispensing errors in 5,455 cases, and errors resulting from exposure to multiple products with common ingredients occurred in 5,794 cases.

Unintentional poisonings outnumbered intentional poisonings in all age groups (Table 7). In contrast, of the 1,106 human poisoning fatalities reported, 88% 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 76.9% of cases (Table 9), followed in frequency by dermal, inhalation, and ocular routes. For the 1,106 fatalities, ingestion, inhalation, and parenteral were the predominant exposure routes.

Clinical effects (signs, symptoms, or laboratory abnormalities) were coded in 29.8% of cases (16.2% had one effect, 7.7% had two effects, 3.8% had three effects, 1.3% had four effects, 0.4% had five effects, and 0.3% had more than five effects). Of 1,575,818 clinical effects coded, 80.1% were deemed related, 8.9% were considered not related, and 11.0% 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 residence (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 21.9% of cases. The percentage of patients treated in a health care facility varied considerably with age. Only 10.1% of children under 6 years and only 13.1% of children between 6 and 12 years were managed in a health care facility compared to 48.1% of teenagers (13 to 19 years of age) and 36.4% of adults (over 19 years of age). Of cases managed in a health care facility, 52.9% were treated and released without admission, 14.3% were admitted for critical care, and 7.7% were admitted for noncritical care. Where treatment was provided in a health care facility, 32.3% of the patients were referred in by the poison center and 67.7% were already in or en route to the health care facility when the poison center was contacted. Health care facilities included acute care hospitals (83.3%), physician offices or clinics (8.9%), and freestanding emergency centers (3.2%).

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*

TABLE 6A. Reason for Human Exposure Cases

Reason	No.	%
Unintentional		
General	1,502,401	62.7
Therapeutic error	215,052	9.0
Misuse	89,620	3.7
Bite/sting	86,829	3.6
Environmental	60,493	2.5
Food poisoning	36,556	1.5
Occupational	32,952	1.4
Unknown	3,991	0.2
Subtotal	2,027,894	84.7
Intentional		
Suspected suicide	186,024	7.8
Abuse	42,303	1.8
Misuse	40,989	1.7
Unknown	14,529	0.6
Subtotal	283,845	11.9
Other		
Malicious	8,641	0.4
Contamination/tampering	4,777	0.2
Withdrawal	776	0.0
Subtotal	14,194	0.6
Adverse Reaction		
Drug	41,335	1.7
Food	5,006	0.2
Other	12,461	0.5
Subtotal	58,802	2.5
Unknown	10,847	0.5
Total	2,395,582	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	71,523	26.6	13.7	6.1	53.3	0.3
Other incorrect dose	30,009	39.1	13.7	7.5	39.4	0.3
Wrong medication taken/given	26,203	19.7	14.0	6.9	59.1	0.3
Inadvertently took/given someone else's medication	21,960	22.6	19.4	7.2	50.6	0.2
Medication doses given/taken too close together	16,445	28.2	11.6	8.3	51.6	0.3
Other/unknown therapeutic error	13,741	26.4	12.5	8.2	52.3	0.7
Confused units of measure	8,645	61.6	15.8	5.3	17.1	0.2
Incorrect formulation or concentration given	7,763	52.8	18.3	5.1	23.6	0.3
Incorrect dosing route	5,987	19.0	8.1	5.8	66.1	1.0
More than 1 product containing same ingredient	5,794	33.1	17.8	13.2	35.8	0.1
Dispensing cup error	5,352	63.3	18.3	4.8	13.4	0.2
Health professional/iatrogenic error	3,381	33.7	9.8	5.7	49.4	1.5
Incorrect formulation or concentration dispensed	2,074	44.2	17.4	5.7	32.4	0.3
10-fold dosing error	1,373	68.8	5.2	2.9	22.9	0.1
Drug interaction	1,040	11.6	9.9	7.2	70.3	1.0
Exposure through breast milk	116	94.0	1.7	0.0	2.6	1.7

nontoxic exposure: No follow-up calls were 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. Ipecac was administered in only 9,284 human poison exposures in 2003. A further decrease in ipecac syrup use in 2004 is expected in the wake of ipecac use guidelines issued in late 2003. A joint Guidelines Consensus Panel formed by the American Association of Poison Control Centers, American College of Medical Toxicology and American Academy of Clinical Toxicology issued a guideline which concluded that the circumstances in which ipecac syrup is the appropriate or desired method of gastric decontamination are rare.[21] The American Academy of Pediatrics went one step further, concluding not only that "ipecac should no longer be used routinely as a home treatment strategy", but also recommending disposal of ipecac currently in homes.[22]

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 sedative/hypnotics 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 poison-

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	1,238,088	61.1	144,317	7.1	84,189	4.2	546,630	27.0	14,670	0.7	2,027,894	84.7
Intentional	1,030	0.4	8,393	3.0	78,794	27.8	191,403	67.4	4,225	1.5	283,845	11.9
Other	1,069	7.5	1,462	10.3	2,473	17.4	8,821	62.2	369	2.6	14,194	0.6
Adverse Reaction	4,846	8.2	3,445	5.9	4,740	8.1	44,768	76.1	1,003	1.7	58,802	2.5
Unknown	551	5.1	701	6.5	1,627	15.0	6,963	64.2	1,005	9.3	10,847	0.5
Total	1,245,584	52.0	158,318	6.6	171,823	7.2	798,585	33.3	21,272	0.9	2,395,582	100.0

*Includes unknown child and unknown age

TABLE 8. Distribution of Reason for Exposure and Age for 1,106 Fatalities

Reason	< 6 Years	6-12 Years	13-19 Years	> 19 Years	Unknown	Total
Unintentional						
General	9	1	0	8	0	18
Therapeutic error	8	0	3	37	0	48
Bite/sting	2	0	0	3	0	5
Misuse	0	0	0	10	0	10
Environmental	7	1	1	25	0	34
Food poisoning	0	0	0	0	0	0
Occupational	0	0	1	26	0	27
Unknown	0	0	0	8	0	8
Subtotal	26	2	5	117	0	150
Intentional						
Suicide	0	0	21	571	0	592
Abuse	1	1	29	132	0	163
Misuse	0	0	2	43	1	46
Unknown	0	0	5	66	0	71
Subtotal	1	1	57	812	1	872
Other						
Contamination/tampering	0	0	0	0	0	0
Malicious	2	1	1	5	0	9
Withdrawal	0	0	0	1	0	1
Subtotal	2	1	1	6	0	10
Adverse Reaction	1	3	1	20	1	26
Unknown	4	0	1	42	1	48
Total	34	7	65	997	3	1,106

ings and in the percentage of reported fatalities due to suicide. A breakdown of plant exposures is provided for those most commonly implicated (Table 20).

A summary of the 1,106 fatal exposures is presented in Table 21. Each fatality reported to TESS 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, including most with multiple fatalities, are included in the Appendix. Table 21 also reports the highest blood concentrations for the responsible agents, where that information is known. In addition, Table 21 identifies those cases reported indirectly to the poison center (4.8% of cases) and those cases in which a pre-hospital cardiac and/or respiratory arrest occurred (36% of cases). Deaths are categorized in Table 21 according to the agent deemed most responsible for the death, by agreement of the medical director of the reporting center and at least two additional toxicologist reviewers. Additional agents implicated (up to a maximum of three total agents) are listed below the primary agent.

The total number of fatalities reported to participating poison centers in 2003 was 1,106, similar to the prior two years. The age distribution of fatalities was also similar to that in past years, with adults comprising the overwhelming majority of cases. Thirty-four fatalities were reported in

TABLE 9. Distribution of Route of Exposure for Human Exposure Cases and 1,106 Fatalities

	All Exposure Cases		Fatal Exposure Cases	
Route	No.	%	No.	%
Ingestion	1,931,737	76.9	920	71.9
Dermal	187,797	7.5	23	1.8
Inhalation	146,512	5.8	134	10.5
Ocular	129,790	5.2	4	0.3
Bites and stings	86,805	3.5	6	0.5
Parenteral	11,746	0.5	59	4.6
Otic	2,678	0.1	0	0.0
Aspiration	1,491	0.1	38	3.0
Rectal	955	0.0	1	0.1
Vaginal	814	0.0	0	0.0
Other	2,803	0.1	3	0.2
Unknown	10,320	0.4	91	7.1
Total	2,513,448	100.0	1,279	100.0

NOTE: Multiple routes of exposure were observed in many poison exposure victims. Percentage is calculated on the total number of exposure routes (2,513,448 for all patients; 1,279 for fatal cases) rather than the total number of human exposures (2,395,582) or fatalities (1,106).

TABLE 10. Management Site of Human Exposure Cases

Site	No.	%
Managed on-site, non-health care facility	1,783,552	74.5
Managed in health care facility		
Treated and released	277,844	11.6
Admitted to critical care	75,128	3.1
Admitted to noncritical care	40,661	1.7
Admitted to psychiatry	43,276	1.8
Lost to follow-up; left AMA	88,801	3.7
Subtotal	525,710	21.9
Other	22,166	0.9
Refused referral	48,794	2.0
Unknown	15,360	0.6
Total	2,395,582	100.0

ABBREVIATION: AMA, against medical advice

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	320,375	25.7	25,743	16.3	27,960	16.3	89,265	11.2	3,418	16.1	466,761	19.5
Minor effect	108,200	8.7	26,635	16.8	44,169	25.7	185,361	23.2	2,775	13.0	367,140	15.3
Moderate effect	9,922	0.8	4,128	2.6	17,928	10.4	78,705	9.9	726	3.4	111,409	4.7
Major effect	732	0.1	227	0.1	1,819	1.1	12,070	1.5	56	0.3	14,904	0.6
Death	34	0.0	7	0.0	65	0.0	997	0.1	3	0.0	1,106	0.0
No follow-up, nontoxic	281,034	22.6	27,218	17.2	10,784	6.3	54,403	6.8	2,164	10.2	375,603	15.7
No follow-up, minimal toxicity	487,632	39.1	66,305	41.9	47,463	27.6	275,972	34.6	5,979	28.1	883,351	36.9
No follow-up, potentially toxic	19,452	1.6	4,013	2.5	17,036	9.9	66,861	8.4	5,524	26.0	112,886	4.7
Unrelated effect	18,203	1.5	4,042	2.6	4,599	2.7	34,951	4.4	627	2.9	62,422	2.6
Total	1,245,584	52.0	158,318	6.6	171,823	7.2	798,585	33.3	21,272	0.9	2,395,582	100.0

*Includes unknown child and unknown age

children less than 6 years of age, more than in any year since 1991 and the second highest reported since TESS reporting began in 1983. Twenty-three deaths in this age range were reported in 2002, and that number had been fairly constant for the prior 5 years. There is no single factor apparently responsible for the increase, although environmental exposures and therapeutic errors doubled. As a percentage of total reported fatalities, 3.1% involved children less than 6 years of age, increased from the range of 2.0-2.7% reported over the last five years. The percentage of pediatric fatalities related to total pediatric calls was 0.003%; by comparison, 0.13% of all adult exposures reported were deaths.

Of the reported deaths in children less than 6 years of age, 9 were unintentional general, 7 were environmental (carbon monoxide), 8 were therapeutic errors and there were 2 deaths each from bites/stings and malicious intent. There was one death from an adverse drug reaction and one death associated with maternal drug abuse. Looking at the agents involved in these cases (with a focus on the primary substance), 12 deaths were associated with over-the-counter medications and 6 deaths were associated with prescription medications. Three of the prescription medications implicated contained opioids and 2 were anticonvulsants. There were 5 fatalities primarily related to nonpharmaceutical products, including two from herbicides. One death of note was related to the inappropriate use of salt as an emetic and one was attributed to the inappropriate use of a phosphate containing pediatric enema solution. Interestingly, there were no pediatric fatalities in which the primary substance was iron, antidepressants or cardiovascular agents. These are classes of therapeutic agents which have been problems in the past.

In the 6- to 12-year age range there were seven reported fatalities, including three adverse drug reactions and no suspected suicides. In the 13- to 19-year age range there were 65 reported fatalities. This number has dropped slightly for the last two years. As in past years, a small number of adolescent fatalities (7.7%) are unintentional.

The most common classes of substances involved in fatalities were analgesics, stimulants and street drugs, antidepressants, cardiovascular agents and sedative/hypnotics/antipsychotics. Of the 375 fatalities where an analgesic was felt to be the primary responsible agent, 62 were associated with acetaminophen as a single agent, 52 with acetaminophen and at least one other substance, and 100 with acetaminophen in a combination product, usually containing an opioid. There were 23 fatalities where aspirin alone was considered responsible. More than half of these patients did not have salicylate concentrations that exceeded 100 mg/dL. Most of these cases did not receive dialysis in a useful time frame, suggesting that more aggressive and earlier use of dialysis may be indicated in the treatment of large salicylate ingestions. Decreases were observed in the numbers of deaths attributed primarily to either methadone (38 cases versus 57 in 2002) or oxycodone (22 cases versus 27 in

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	411,547	20.3	51,505	18.1	1,563	11.0	1,124	1.9	1,022	9.4	466,761	19.5
Minor effect	267,984	13.2	79,422	28.0	3,144	22.2	14,829	25.2	1,761	16.2	367,140	15.3
Moderate effect	49,797	2.5	50,986	18.0	984	6.9	7,975	13.6	1,667	15.4	111,409	4.7
Major effect	2,919	0.1	10,514	3.7	130	0.9	740	1.3	601	5.5	14,904	0.6
Death	150	0.0	872	0.3	10	0.1	26	0.0	48	0.4	1,106	0.0
No follow-up, nontoxic	369,461	18.2	3,991	1.4	841	5.9	1,021	1.7	289	2.7	375,603	15.7
No follow-up, minimal toxicity	825,689	40.7	30,163	10.6	4,882	34.4	20,956	35.6	1,661	15.3	883,351	36.9
No follow-up, potentially toxic	53,394	2.6	51,483	18.1	1,583	11.2	3,704	6.3	2,722	25.1	112,886	4.7
Unrelated effect	46,953	2.3	4,909	1.7	1,057	7.4	8,427	14.3	1,076	9.9	62,422	2.6
Total	2,027,894	84.7	283,845	11.9	14,194	0.6	58,802	2.5	10,847	0.5	2,395,582	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	38.9	6.8	2.7
>2 hours, ≤8 hours	25.6	21.9	7.9
>8 hours, ≤24 hours	16.7	30.2	26.2
>24 hours, ≤3 days	5.4	17.0	28.3
>3 days, ≤1 week	1.7	6.6	15.5
>1 week, ≤1 month	0.5	2.0	5.3
>1 month	0.2	0.5	1.1
Anticipated permanent	0.2	0.3	2.4
Unknown	10.9	14.8	10.5

2002), either as single agents or with other agents. There continued to be a large number of cases involving either methadone or long-acting opioid preparations. In three fatal cases, the contents of fentanyl patches were apparently injected intravenously, and two fatalities involved fentanyl transmucosal lozenges, one of which was reported as unintentional in an 11-year-old.

Stimulants and street drugs were the second most common category implicated as the primary cause of death, accounting for 124 deaths, virtually the same as in 2002. This is the first year that antidepressants have not been the second most common class causing death. The number of cases with cocaine implicated as the primary cause of death was essentially unchanged from 2002 (53 cases versus 52 in 2002). The number of heroin related fatalities, however, declined after a significant increase last year (23 cases versus 40 in 2002). There was also a significant increase in methamphetamine-related deaths (23 cases versus 13 in 2002), and no change in the number of MDMA related fatalities.

The third most common class of drugs associated with fatalities was antidepressants, accounting for 112 deaths. Amitriptyline, either alone or in combination, is the single most commonly implicated agent, as in past years. Newer agents continue to result in numerous deaths, although no one drug appears disproportionately responsible.

The vast majority (79%) of reported fatalities in 2003, as in past years, were the result of intentional actions. The percentage of fatalities attributable to other reasons remained little changed from previous years (Table 8). A disturbing number of deaths continue to occur because of therapeutic errors (48 cases versus 54 in 2002). Adverse drug reactions also accounted for 26 deaths. There were more deaths reported in 2003 related to occupational exposures (27 cases) than in recent years. As in 2002 there were no reported fatalities from either food poisoning or tampering.

TABLE 14. Decontamination and Therapeutic Interventions

Therapy	No. of Patients	%
Decontamination only	1,199,622	50.1
Observation only	292,117	12.2
No therapy provided	226,882	9.5
Decontamination and other therapy	181,254	7.6
Other therapy only (no decontamination)	125,088	5.2
Unknown if therapy provided/patient refused	370,619	15.5

TABLE 15. Therapy Provided in Human Exposure Cases

Therapy	No.
Decontamination	
Dilution/irrigation	1,108,359
Activated charcoal, single dose	134,619
Cathartic	48,839
Gastric lavage	20,327
Ipecac syrup	9,284
Other emetic	8,227
Whole bowel irrigation	2,798
Measures to Enhance Elimination	
Activated charcoal, multidose	5,793
Hemodialysis	1,509
Hemoperfusion	27
Other extracorporeal procedure	22
Specific Antidote Administration	
N-acetylcysteine (oral)	14,710
Benzodiazepine	14,235
Naloxone	11,452
Calcium	5,228
Flumazenil	2,074
N-acetylcysteine (IV)	1,886
Atropine	926
Fomepizole	830
Antivenom (Fab)	828
Glucagon	640
Phytonadione	559
Insulin	499
Digoxin immune FAB	446
Ethanol	426
Hyperbaric oxygen	385
Folate	370
Pyridoxine	341
Antivenom (excluding Fab)	335
Physostigmine	237
Succimer	199
Cardiac pacing	158
Methylene blue	130
Octreotide	130
Pralidoxime (2-PAM)	117
Deferoxamine	91
Dimercaprol (BAL)	84
EDTA	81
Sodium thiosulfate	57
Sodium nitrite	34
Penicillamine	13
Amyl nitrite	12
Other interventions	
Alkalinization	7,875
Organ transplantation	23
ECMO	3

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 2,395,582 exposures, presented by substance categories. Table 22A focuses on nonpharmaceuticals; Table 22B presents drugs. Of the 2,715,213 substances logged in Tables 22A and 22B, 50.8% were nonpharmaceuticals and 49.2% were pharmaceuticals. The reason for the

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
2003	2,395,582	52.0	0.4	5.9

exposure was intentional for 29.0% of pharmaceutical substances implicated compared to 5.1% of nonpharmaceutical substances. Correspondingly, treatment in a health care facility was provided in a higher percentage of exposures to pharmaceutical substances (38.1%) compared with nonpharmaceutical substances (16.4%). Pharmaceutical exposures also had more severe outcomes. Of substances implicated in fatal cases, 84.7% were pharmaceuticals, compared to 49.2% of substances reported in nonfatal cases. Similarly, 85.3% of substances implicated in major outcomes were pharmaceuticals.

TABLE 17A. Substances Most Frequently Involved in Human Exposures

Substance	No.	%*
Analgesics	269,962	11.3
Cleaning substances	225,436	9.4
Cosmetics and personal care products	223,187	9.3
Foreign bodies	124,177	5.2
Sedatives/hypnotics/antipsychotics	117,655	4.9
Topicals	113,131	4.7
Cough and cold preparations	112,173	4.7
Antidepressants	101,331	4.2
Pesticides	97,677	4.1
Bites/envenomations	94,247	3.9
Plants	77,169	3.2
Antihistamines	70,251	2.9
Alcohols	69,524	2.9
Food products, food poisoning	69,122	2.9
Cardiovascular drugs	66,401	2.8
Antimicrobials	65,623	2.7
Vitamins	57,801	2.4
Hydrocarbons	55,310	2.3
Chemicals	49,882	2.1

NOTE: Despite a high frequency of involvement, these substances are not necessarily the most toxic, but rather may be the most readily accessible.
*Percentages are based on the total number of human exposures (2,395,582) 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	166,874	13.4
Cleaning substances	121,048	9.7
Analgesics	97,463	7.8
Foreign bodies	92,166	7.4
Topicals	92,091	7.4
Cough and cold preparations	68,493	5.5
Plants	57,778	4.6
Pesticides	50,938	4.1
Vitamins	45,352	3.6
Antimicrobials	35,152	2.8
Antihistamines	32,622	2.6
Arts/crafts/office supplies	31,211	2.5
Gastrointestinal preparations	29,770	2.4
Hormones and hormone antagonists	23,787	1.9
Electrolytes and minerals	22,337	1.8

NOTE: Despite a high frequency of involvement, these substances are not necessarily the most toxic, but rather may be the most readily accessible.
*Percentages are based on the total number of exposures in children under six years (1,245,584) rather than the total number of substances.

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

Substance	No.	%*
Analgesics	114,599	14.4
Sedatives/hypnotics/antipsychotics	88,656	11.1
Cleaning substances	71,063	8.9
Antidepressants	65,344	8.2
Bites/envenomations	59,840	7.5
Alcohols	42,324	5.3
Cardiovascular drugs	40,896	5.1
Food products, food poisoning	38,491	4.8
Cosmetics and personal care products	38,053	4.8
Pesticides	36,964	4.6
Chemicals	29,177	3.7
Hydrocarbons	27,263	3.4
Fumes/gases/vapors	26,100	3.3
Anticonvulsants	25,442	3.2
Antihistamines	23,227	2.9
Stimulants and street drugs	21,859	2.7
Antimicrobials	21,187	2.7
Hormones and hormone antagonists	19,827	2.5
Cough and cold preparations	18,657	2.3
Muscle relaxants	15,964	2.0

NOTE: Despite a high frequency of involvement, these substances are not necessarily the most toxic, but rather may be the most readily accessible.
*Percentages are based on the total number of exposures in adults over 19 years (798,585) rather than the total number of substances.

TABLE 18. Categories with Largest Numbers of Deaths

Category	No.	% of All Exposures in Category
Analgesics	656	.243
Sedative/hypnotics/antipsychotics	329	.280
Antidepressants	274	.270
Stimulants and street drugs	225	.521
Cardiovascular drugs	162	.244
Alcohols	121	.174
Anticonvulsants	88	.229
Antihistamines	64	.091
Gases and fumes	61	.159
Muscle relaxants	59	.276
Chemicals	43	.086
Hormones and hormone antagonists	41	.085
Pesticides	41	.042
Cleaning substances	25	.011
Gastrointestinal preparations	24	.054

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

TABLE 20. Frequency of Plant Exposures by Plant Type

Botanical Name	Common Name	Frequency
Spathiphyllum spp.	Peace lily	3,173
Euphorbia pulcherrima	Poinsettia	2,541
Philodendron spp.	Philodendron	2,525
Ilex spp.	Holly	2,338
Phytolacca americana	Pokeweed, inkberry	1,931
Ficus spp.	Rubber tree, weeping fig	1,436
Toxicodendron radicans	Poison ivy	1,405
Crassula spp.	Jade plant	1,082
Dieffenbachia spp.	Dumbcane	1,053
Schlumbergera Bridgesii	Christmas cactus	952
Solanum spp.	Nightshade, Jerusalem cherry	932
Malus spp.	Apple, crabapple (plant parts)	930
Epipremnum aureum	Pothos, devil's ivy	915
Chrysanthemum spp.	Chrysanthemum	793
Nerium oleander	Oleander	792
Hedera helix	English ivy	748
Taraxacum officinale	Dandelion	747
Rhododendron spp.	Rhododendron, azalea	742
Cactus spp.	Cactus	680
Caladium spp.	Caladium	638

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.

In March 2003, real-time monitoring of cases submitted to TESS was initiated. Sixty-one of the 62 US poison centers (all except Puerto Rico) submit data to TESS in near real-time, with most centers submitting every 4 to 10 minutes. Monitoring incoming cases for events of potential public health importance is undertaken by automated queries of the database at intervals as frequently as hourly. Query results are sent to clinical toxicologists for review to determine whether the outliers identified are of potential public health importance. When appropriate, additional information is obtained from reporting poison centers, and public health issues are brought to the attention of the National Center for Environmental Health/Agency for Toxic Substances Disease Registry at the Centers for Disease Control and Prevention. Affected state or local health departments are also alerted.

Continuous monitoring focuses on poison center call volume, counts for subsets of poison center calls, distribu-

TABLE 19. 21-Year Comparisons of Fatality Data

	Total Fatalities		Suicides		Pediatric Deaths (<6 Years)	
Year	No.	% of Cases	No.	% of Deaths	No.	% of Deaths
1983	95	.038	60	63.2	10	10.5
1984	293	.040	165	56.3	21	7.2
1985	328	.036	178	54.3	20	6.1
1986	406	.037	223	54.9	15	3.7
1987	397	.034	226	56.9	22	5.5
1988	545	.040	297	54.5	28	5.1
1989	590	.037	323	54.7	24	4.1
1990	612	.036	350	57.2	25	4.1
1991	764	.042	408	53.4	44	5.8
1992	705	.038	395	56.0	29	4.1
1993	626	.036	338	54.0	27	4.3
1994	766	.040	410	53.5	26	3.4
1995	724	.036	405	55.9	20	2.8
1996	726	.034	358	49.3	29	4.0
1997	786	.036	418	53.2	25	3.2
1998	775	.035	421	54.3	16	2.1
1999	873	.040	472	54.1	24	2.7
2000	920	.042	476	51.7	20	2.2
2001	1,074	.047	552	51.4	26	2.4
2002	1,153	.048	629	54.6	23	2.0
2003	1,106	.046	592	53.5	34	3.1

tion of coded clinical effects, and identification of cases that meet specific surveillance case definitions. Outliers include significant increases in the volume of 1) cases that a poison center receives per hour, 2) any of 131 specific clinical effects, 3) carbon monoxide cases per day, 4) cases implicating contaminated water, or 5) cases that involve food poisoning or food products. In addition, at 1 to 12 hour intervals, automated queries identify cases that meet surveillance case definitions for nerve agents, cyanide, arsenic, botulism, and puffer fish ingestions with neurologic effects. Most of these monitors are implemented in response to public health issues or concerns and discontinued when the threat lessens. Previous case definitions included both early and late paraquat/diquat toxicity and anticoagulant rodenticides. Cases coded as specific substances, for example ricin, are also monitored. Figure 2 shows clinical effects outliers detected nationally after attendees at a church function in New Sweden, Maine unknowingly ingested arsenic-contaminated coffee on April 27, 2003.

Surveillance processes continue to be developed, refined and evaluated. AAPCC has efforts currently underway to augment toxicosurveillance at the local level, enhance GIS capabilities, monitor product outliers and clinical effects associations using Bayesian approaches, improve surveillance efficiency and efficacy, explore dose-response curves to better define toxic doses, and enhance cluster analysis using spatial-temporal analytical methods.

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 nearly 2.4 million poison exposures in 2003.

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
NONPHARMACEUTICALS							
Adhesives/glues							
See also cases 63 (adhesive (toluene/xylene)); 209 (unknown adhesive).							
Alcohols							
1 p	4 mo	ethanol	U	Ingestion	Unknown		
2	40 yr	ethanol	A/C	Ingestion	Int abuse	102 mg/dL	
3 p	43 yr	ethanol	A	Ingestion	Int unk	320 mg/dL§	
4	50 yr	ethanol	C	Ingestion	Int abuse	341 mg/dL	
5 a	87 yr	ethanol	A	Other	Ther err		
6 p	>19 yr	ethanol	U	Ingestion	Int unk	205 mg/dL	
7	43 yr	ethanol	A	Ingestion	Int suicide	256 mg/dL	
		acetaminophen/diphenhydramine				239 μg/mL¥	
8 p	50's yr	ethanol	C	Ingestion	Int abuse	260 mg/dL	
		alprazolam					
		acetaminophen/codeine				5.7 μg/mL¥	
9 p	37 yr	ethanol	U	Ingestion	Int abuse	381 mg/dL	
		methylenedioxymethamphetamine					
10 i	69 yr	ethanol	A/C	Ing/Unk	Withdrawal		
		phencyclidine					
		amphetamine					
11 p	47 yr	isopropyl alcohol	A	Ingestion	Int suicide	6 mg/dL§	
						acetone 21.5 mg/dL§	
12 af	teen	methanol	A	Ingestion	Int abuse		
13 af	teen	methanol	A	Ingestion	Int abuse		
14 af	teen	methanol	A	Ingestion	Int abuse		
15 af	teen	methanol	A	Ingestion	Int abuse		
16 af	teen	methanol	A	Ingestion	Int abuse		
17 af	teen	methanol	A	Ingestion	Int abuse		
18 af	teen	methanol	A	Ingestion	Int abuse		
19 af	teen	methanol	A	Ingestion	Int abuse		
20	20 yr	methanol	C	Ingestion	Int suicide	57 mg/dL	
21	32 yr	methanol	A	Ingestion	Int suicide	28 mg/dL§	
22	37 yr	methanol	A	Ingestion	Int abuse	240 mg/dL	
23	43 yr	methanol	A	Ingestion	Int unk	132 mg/dL	12 h
24	56 yr	methanol	U	Ingestion	Int suicide	4 mg/dL	
25 p	65 yr	methanol	U	Ingestion	Int suicide	107.5 mg/dL	
26	56 yr	methanol	A	Ingestion	Int suicide		
		ethanol					
See also cases 26, 64, 70, 76, 91, 138, 195, 201, 212, 215, 218, 291, 292, 312 thru 315, 335, 350, 355 thru 358, 361, 386, 387, 391, 395, 396, 423, 426, 433, 434, 468, 471, 472, 528 thru 531, 552, 564, 568, 582, 583, 616, 617, 662, 676, 685, 699, 702, 718, 726, 742, 759, 762, 765, 821, 822, 842, 858, 920, 929, 933, 937, 964, 1012, 1015 thru 1017, 1031, 1058, 1059, 1062, 1095 (ethanol); 473, 946 (isopropanol); 399, 1027 (methanol).							

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
Automotive/aircraft/boat products							
27	19 yr	antifreeze (ethylene glycol)	A	Ingestion	Int suicide	394 mg/dL	
28	22 yr	antifreeze (ethylene glycol)	A	Ingestion	Int suicide		
29 p	24 yr	antifreeze (ethylene glycol)	A	Ingestion	Int suicide		
30	27 yr	antifreeze (ethylene glycol)	A	Ingestion	Int suicide	605.4 mg/dL	
31	38 yr	antifreeze (ethylene glycol)	A	Ingestion	Int suicide		
32	38 yr	antifreeze (ethylene glycol)	A	Ingestion	Int suicide	68 mg/dL	
33	39 yr	antifreeze (ethylene glycol)	A	Ingestion	Int suicide	22 mg/dL	
34	42 yr	antifreeze (ethylene glycol)	A	Ingestion	Int suicide		
35	47 yr	antifreeze (ethylene glycol)	U	Ingestion	Unknown		
36	50 yr	antifreeze (ethylene glycol)	A	Ingestion	Int suicide	181.2 mg/dL	
37	81 yr	antifreeze (ethylene glycol)	A	Ingestion	Unint gen		
38 ip	47 yr	antifreeze (ethylene glycol) metoprolol paroxetine[A]	A	Ingestion	Int suicide	565 mg/dL§ 1.7 μg/mL§ 190 ng/mL§	
39	35 yr	antifreeze (ethylene glycol) permethrin	A	Ingestion	Int suicide	9.8 mg/dL	
40	32 yr	antifreeze (ethylene glycol) sertraline	A	Ingestion	Unknown	0.027 mg/dL§ 20 ng/mL§	
41 p	33 yr	brake fluid (diethylene glycol/ polyalkylene glycols)	A	Ingestion	Int suicide		
42	42 yr	windshield washer fluid (methanol)	A	Ingestion	Int suicide	83 mg/dL	14 h
See also cases 211 (antifreeze (ethylene glycol)); 304 (carburetor cleaner (methanol)); 330 (ethylene glycol).							
Bites and envenomations							
43 p	48 yr	*Bitis nasicornis*	A	Bite/sting	Bite/sting		
44 ap	3 mo	fire ants	A	Bite/sting	Bite/sting		
45 a	2 yr	*Hymenoptera* (yellow jacket)	A	Bite/sting	Bite/sting		
46 a	40 yr	*Loxosceles reclusa* (brown recluse spider)	A	Bite/sting	Bite/sting		
47	44 yr	tick unknown mushrooms	U	Bite/sting/Ing	Bite/sting		
See also case 424 (Crotalus viridis lotosus).							
Chemicals							
48 a	31 yr	ammonia (anhydrous)	A	Derm/Inh	Unknown		
49	68 yr	ammonia (anhydrous)	A	Derm/Inh/Ocu	Occ		
50 ap	>19 yr	ammonia (anhydrous)	A	Derm/Inh	Unknown		
51 ap	>19 yr	ammonia (anhydrous)	A	Derm/Inh	Unknown		
52 p	49 yr	ammonium hydroxide	A	Ingestion	Unknown		
53 ap	17 yr	cyanide	A	Ingestion	Malicious	9.2 μg/mL	
54 p	21 yr	cyanide	A	Ingestion	Int suicide	>7.5 μg/mL§	
55 p	25 yr	cyanide	A	Unknown	Int suicide	19.6 μg/mL	
56 p	48 yr	cyanide	A	Ingestion	Int suicide		
57 p	72 yr	cyanide	A	Ingestion	Int suicide	5.6 μg/mL	
58 p	>19 yr	cyanide	A	Ingestion	Int suicide		
59	88 yr	cyanide carbon monoxide/smoke	A	Inhalation	Env		
60 p	56 yr	cyanide potassium hydroxide	A	Derm/Ing/Inh	Occ	0.78 μg/mL§	
61 p	40 yr	ethylene glycol	A	Ingestion	Int suicide	55 mg/dL	
62	45 yr	ethylene glycol	A	Ingestion	Int suicide	171 mg/dL	
63	42 yr	ethylene glycol adhesive (toluene/xylene)	A/C	Ing/Inh	Int abuse		
64	30 yr	ethylene glycol ethanol	A	Ingestion	Int suicide	203 mg/dL 16 mg/dL	20 h 20 h
65	53 yr	ethylene glycol gabapentin levothyroxine[A]	A	Ingestion	Int suicide	112 mg/dL	6 h
66	40 yr	ethylene glycol warfarin	A	Ingestion	Int suicide	323 mg/dL	
67	50 yr	hydrochloric acid	A	Ingestion	Int suicide		
68	53 yr	hydrochloric acid	A	Ingestion	Int suicide		
69	83 yr	hydrochloric acid	A	Ingestion	Int suicide		
70	55 yr	hydrochloric acid ethanol	A	Ingestion	Int suicide	 336 mg/dL	
71	20 yr	hydrochloric acid, 36%	A	Ingestion	Int suicide		
72	>19 yr	hydrofluoric acid	A	Derm/Inh	Occ		
73	59 yr	hydrofluoric acid sulfuric acid phosphoric acid[A]	A	Ingestion	Unint misuse		
74	30 yr	hypochlorite, calcium	A	Derm/Inh/Ocu	Occ		
75	79 yr	lye	A	Ingestion	Int suicide		
76 a	27 yr	methylethylketone peroxide ethanol	A	Ingestion	Int suicide		
77 ap	43 yr	phosphorus pentasulfide	A	Derm/Inh	Occ		
78	27 yr	potassium hydroxide	A	Dermal	Occ		
79 a	31 yr	silicone	U	Parenteral	Adv rxn		

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
80 p	30 yr	strychnine	U	Ingestion	Int suicide		
81 p	46 yr	sulfur	A	Inhalation	Occ		
82	52 yr	sulfuric acid	A	Derm/Ocu	Malicious		
See also cases 219 (acetone); 170 (borax); 1060 (cocaine); 153 (cyanide); 316 (ethylene glycol); 73 (phosphoric acid); 60 (potassium hydroxide); 73 (sulfuric acid).							
Cleaning substances (household)							
83	78 yr	automatic dishwasher detergent	A	Ingestion	Unint gen		
84	78 yr	automatic dishwasher detergent (alkali)	A	Ingestion	Unint gen		
85	71 yr	detergents (anionic/nonionic)	A	Asp/Ing	Unint misuse		
86	80 yr	dishwashing detergent (anionic/nonionic)	A	Ingestion	Unint gen		
87	54 yr	drain opener (sodium hydroxide)	A	Ingestion	Int suicide		
88 p	55 yr	drain opener (sodium hydroxide)	A	Ingestion	Int suicide		
89	71 yr	drain opener (sodium hydroxide)	A	Ingestion	Int suicide		
90	90 yr	drain opener (sodium hydroxide)	A	Ingestion	Int suicide		
91	54 yr	drain opener (sodium hydroxide) ethanol	A	Ingestion	Int suicide		
92 a	37 yr	drain opener (sulfuric acid, 10-15%)	A	Derm/Ing	Int suicide		
93	48 yr	household cleaner, cationic	A	Ingestion	Int suicide		
94	86 yr	laundry detergent (anionic/nonionic/ sodium carbonate)	A	Asp/Ing	Malicious		
95	70's yr	pine oil/isopropyl alcohol cleaner	A	Ingestion	Unint gen		
96 p	83 yr	pine oil/isopropyl alcohol cleaner	A	Asp/Ing	Unint misuse		
97 a	40 yr	rust remover (hydrofluoric acid, 8%)	A	Ingestion	Int suicide		
98	60 yr	toilet bowl cleaner (hydrochloric acid)	A	Ingestion	Int suicide		
99 ip	73 yr	toilet bowl cleaner (hydrochloric acid) other sedative/hypnotic	U	Ingestion	Int suicide		
100	49 yr	toilet bowl cleaner (hydrochloric acid, 9.5%)	A	Ingestion	Int suicide		
101	44 yr	toilet bowl cleaner (hydrochloric acid, 15-20%)	A	Ingestion	Int suicide		
102	89 yr	toilet bowl cleaner, acid	A	Ingestion	Int suicide		
103	94 yr	unknown disinfectant	A	Ingestion	Int suicide		
See also cases 793 (cleaner); 1059 (drain opener (sulfuric acid)); 197 (sodium hypochlorite).							
Industrial cleaners							
See also case 304 (brake cleaner).							
Cosmetics/personal care products							
104	100 yr	liquid hand soap	A	Asp/Ing	Unint gen		
105 a	12 mo	moisturizing hair lotion	U	Asp/Ing	Unint gen		
106 p	35 yr	mouthwash (ethanol) codeine/guaifenesin acetaminophen[A]	A	Ingestion	Int unk		
107 p	41 yr	nail polish remover	A	Ingestion	Int suicide		
See also case 666 (perfume).							
Deodorizers							
108 ap	11 yr	air freshener (aerosol)	A	Inhalation	Int abuse		
109 p	18 yr	air freshener (aerosol)	U	Inhalation	Int abuse		
Foreign bodies/toys/miscellaneous							
110 a	29 yr	foreign body cocaine heroin	A	Asp/Ing/Rect	Int misuse	0.3 μg/mL morphine 480 ng/mL	
See also cases 218, 817 (activated charcoal).							
Fumes/gases/vapors							
111	48 yr	acetylene	A	Inhalation	Unint misuse		
112 ip	14 mo	carbon monoxide	A	Inhalation	Env		
113 ip	14 mo	carbon monoxide	A	Inhalation	Env		
114 ip	15 yr	carbon monoxide	A	Inhalation	Env	57 %	
115 ip	20 yr	carbon monoxide	A	Inhalation	Env	42 %§	
116 aip	21 yr	carbon monoxide	C	Inhalation	Env		
117 p	22 yr	carbon monoxide	A	Inhalation	Int suicide	23.5 %	
118 aip	23 yr	carbon monoxide	C	Inhalation	Env		
119 ip	24 yr	carbon monoxide	A	Inhalation	Env	55 %§	
120 ip	27 yr	carbon monoxide	A	Inhalation	Env		
121 p	28 yr	carbon monoxide	A	Inhalation	Int suicide	80.8 %	
122 aip	31 yr	carbon monoxide	C	Inhalation	Env		
123 p	32 yr	carbon monoxide	A	Inhalation	Int suicide	46 %	
124 p	36 yr	carbon monoxide	C	Inhalation	Env	38 %§	
125 p	38 yr	carbon monoxide	C	Inhalation	Env	19 %§	

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
126	40 yr	carbon monoxide	A	Inhalation	Env		
127 ip	40 yr	carbon monoxide	A	Inhalation	Env		
128	42 yr	carbon monoxide	A	Inhalation	Env		
129 ip	46 yr	carbon monoxide	A	Inhalation	Env	68 %§	
130	48 yr	carbon monoxide	A	Inhalation	Env		
131 p	53 yr	carbon monoxide	U	Inhalation	Occ		
132 ip	63 yr	carbon monoxide	A	Inhalation	Env		
133 p	65 yr	carbon monoxide	A	Inhalation	Int suicide		
134 p	67 yr	carbon monoxide	A	Inhalation	Env	55 %	
135 p	78 yr	carbon monoxide	A	Inhalation	Int suicide		
136	>19 yr	carbon monoxide	A	Inhalation	Int suicide		
137 a	39 yr	carbon monoxide citalopram diazepam[A]	A/C	Ing/Inh	Int suicide	3 %	
138 p	47 yr	carbon monoxide ethanol	A	Inhalation	Env	30 % 26.9 mg/dL	7 h 7 h
139	61 yr	carbon monoxide propane	A	Inhalation	Env	43 %	
140 ip	18 mo	carbon monoxide/smoke	A	Inhalation	Env	10 %	
141 ip	23 mo	carbon monoxide/smoke	A	Inhalation	Env		
142 p	3 yr	carbon monoxide/smoke	A	Inhalation	Env	30 %	
143 p	4 yr	carbon monoxide/smoke	A	Inhalation	Env	37 %§	
144 ip	5 yr	carbon monoxide/smoke	A	Inhalation	Env		
145	7 yr	carbon monoxide/smoke	A	Inhalation	Env	19 %	
146 p	34 yr	carbon monoxide/smoke	A	Inhalation	Env	51 %§	
147	41 yr	carbon monoxide/smoke	A	Inhalation	Env	22 %	2 h
148 p	44 yr	carbon monoxide/smoke	A	Inhalation	Env	54 %	
149 p	49 yr	carbon monoxide/smoke	A	Inhalation	Env	60 %	
150	50 yr	carbon monoxide/smoke	A	Inhalation	Env	41 %	
151 p	64 yr	carbon monoxide/smoke	A	Inhalation	Env	38 %	
152 p	82 yr	carbon monoxide/smoke	A	Inhalation	Env	38 %	
153	72 yr	carbon monoxide/smoke cyanide	A	Inhalation	Malicious	40 %	
154	45 yr	carbon monoxide/smoke hexane	A	Derm/Inh	Occ		
155 p	49 yr	chlorine	A	Inhalation	Unint misuse		
156 aip	39 yr	chlorine gas	A	Inhalation	Occ		
157 p	45 yr	diphenylmethane diisocyanate pseudoephedrine diphenhydramine	A/C	Ing/Inh	Occ	 9.9 μg/mL§ 0.45 μg/mL§	
158 p	18 yr	helium	A	Inhalation	Int misuse		
159 ap	35 yr	hydrogen sulfide	A	Inhalation	Occ		
160 ap	36 yr	hydrogen sulfide	A	Inhalation	Occ		
161 ap	33 yr	methane	A	Inhalation	Occ		
162 ap	35 yr	methane	A	Inhalation	Occ		
163 ap	42 yr	methane hydrogen sulfide	A	Inhalation	Occ		
164	22 yr	products of combustion n-hexane	A	Derm/Inh	Occ		
165 ap	25 yr	sodium bisulfide	A	Asp/Ing/Inh	Occ		
166 ip	31 yr	unknown gas	A	Inhalation	Occ		
See also cases 59, 788 (carbon monoxide/smoke); 163 (hydrogen sulfide); 139 (propane).							
Heavy metals							
167	47 yr	arsenic	A	Ingestion	Int suicide		
168	78 yr	arsenic	A	Ingestion	Malicious	total arsenic 0.35 μg/mL§ inorganic arsenic 0.3 μg/mL§	
169	31 yr	cadmium zinc copper[A]	A	Inhalation	Occ		
170 a	38 yr	silver borax	A	Inhalation	Int misuse		
See also case 169 (copper).							
Hydrocarbons							
171 ap	13 yr	butane	U	Inhalation	Int abuse		
172 ap	16 yr	chlorofluorocarbon	A	Inhalation	Occ		
173 ap	24 yr	chlorofluorocarbon	A	Inhalation	Int abuse		
174 p	27 yr	chlorofluorocarbon	U	Inhalation	Int abuse		
175 ap	18 yr	gasoline	A	Derm/Inh	Int abuse		
176	28 yr	gasoline	A/C	Inhalation	Int abuse		
177 a	43 yr	gasoline	A	Derm/Inh	Occ		
178 p	62 yr	hydrocarbons/xylene dextromethorphan/guaifenesin	A	Ingestion	Int suicide		
179 ap	11 mo	lamp oil	A	Asp/Ing	Unint gen		
180 ap	47 yr	lamp oil	A	Asp/Ing	Int misuse		
181	32 yr	lighter fluid (hydrocarbons)	A	Derm/Ing	Int suicide		
182 a	22 yr	paint thinner	A	Asp/Ing	Unint gen		
183	43 yr	paint thinner (toluene/xylene)	A	Inhalation	Int abuse		
See also cases 210 (gasoline); 154 (hexane); 164 (n-hexane); 188 (paint thinner).							

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
Matches/fireworks/explosives							
184 p	37 yr	sodium perchlorate	A	Derm/Inh	Occ		
Mushrooms							
185	45 yr	mushroom, monomethylhydrazine	A	Ingestion	Int suicide		
186	82 yr	unknown mushroom	A/C	Ingestion	Unint misuse		
See also cases 535 (hallucinogenic mushroom); 47 (unknown mushrooms).							
Paints and stripping agents							
187 p	46 yr	paint	A	Inhalation	Int abuse		
188 f	27 yr	paint paint thinner	A	Derm/Inh/Ocu	Occ		
See also case 321 (metallic spray paint).							
Pesticides: Fumigants							
189 a	28 yr	aluminum phosphide	A	Ing/Inh	Int suicide		
190 a	42 yr	aluminum phosphide	A	Ingestion	Int suicide		
Pesticides: Herbicides (incl. algaecides, defoliants, desiccants, plant growth regulators)							
191 a	4 mo	arsenical herbicide	A	Ingestion	Unint gen		
192	64 yr	chlorophenoxy herbicide	U	Ingestion	Int suicide		
193 ap	3 yr	chlorophenoxy herbicide glyphosate carbaryl[A]	A	Ingestion	Unint gen		
194 a	29 yr	diquat	A	Ingestion	Int suicide	37.3 μg/mL	
195	35 yr	diquat ethanol	A	Ingestion	Int suicide		
196 a	45 yr	glyphosate	A	Asp/Ing	Int suicide		
197	54 yr	glyphosate aldicarb sodium hypochlorite[A]	A	Ingestion	Int suicide		
198	34 yr	glyphosate, 18%	A	Ingestion	Int suicide		
199 a	49 yr	paraquat	A	Ingestion	Unint misuse	0.92 μg/mL	
200	75 yr	paraquat	A	Derm/Unk	Occ		
201	61 yr	unknown herbicide ethanol	A	Ingestion	Int unk	200 mg/dL	
See also case 193 (glyphosate).							
Pesticides: Insecticides (incl. insect growth regulators, molluscicides, nematicides)							
202 ip	49 yr	diazinon	A	Ingestion	Int suicide		
203	73 yr	diazinon	A	Asp/Ing	Unint misuse		
204	84 yr	diazinon	A	Ingestion	Unint misuse		
205	99 yr	diazinon chlorpyrifos malathion	A	Ingestion	Int suicide		
206	50 yr	dichlorvos	A	Ingestion	Int suicide		
207	40 yr	malathion	A	Ingestion	Int suicide		
208	43 yr	malathion	A	Ingestion	Int suicide		
209	24 yr	malathion unknown adhesive	A	Asp/Ing	Int suicide		
210	62 yr	malathion/methoxychlor gasoline	A	Derm/Unk	Occ		
211 p	22 yr	organophosphate antifreeze (ethylene glycol)	A	Ingestion	Int suicide		
212	52 yr	organophosphate ethanol	A	Ingestion	Int suicide	118 mg/dL	
213	73 yr	organophosphate insecticide	U	Unknown	Int unk		
214 ap	7 yr	permethrin/xylene	U	Asp/Ing	Malicious		
215	61 yr	unknown insecticide ethanol	A	Ingestion	Unint misuse	200 mg/dL	
See also cases 197 (aldicarb); 193 (carbaryl); 205 (chlorpyrifos); 497 (diazinon); 394 (dimethoate); 205 (malathion); 1026 (organophosphate); 39 (permethrin).							
Pesticides: Rodenticides							
216 a	46 yr	brodifacoum	A	Ingestion	Malicious	180 ng/mL	
217 ip	>19 yr	strychnine	A	Unknown	Unknown	1.9 μg/mL§	
See also cases 472 (long-acting anticoagulant rodenticide); 334 (rodenticide).							
Plants							
218 a	34 yr	*Artemisia* species (absinth) ethanol activated charcoal	A	Asp/Ing	Int abuse	26 mg/dL	12 h
219 a	61 yr	*Ricinus communis* (ricin) acetone	A	Parenteral	Int suicide		
220	50 yr	*Taxus chinensis* (yew)	A	Ingestion	Unknown		

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
Sporting equipment							
221 a	24 yr	gun bluing (selenium)	A	Ingestion	Int suicide	30 μg/mL	
Tobacco products							
See also case 900 (tobacco).							
Other/unknown nondrug substances							
222	75 yr	unknown substance	A	Ingestion	Int suicide		
223 i	83 yr	unknown substance	U	Unknown	Unknown		
PHARMACEUTICALS							
Analgesics							
224	5 mo	acetaminophen	C	Ingestion	Ther err	81 μg/mL	
225 a	22 mo	acetaminophen	C	Ingestion	Ther err		
226 a	4 yr	acetaminophen	U	Ingestion	Unknown	29 μg/mL	
227 a	5 yr	acetaminophen	C	Ingestion	Ther err	187.3 μg/mL	12 h
228	18 yr	acetaminophen	C	Ingestion	Ther err	34 μg/mL	
229	18 yr	acetaminophen	A	Ingestion	Int suicide	317.8 μg/mL	
230	20 yr	acetaminophen	A	Ingestion	Int unk	53.5 μg/mL	2 d
231	21 yr	acetaminophen	A	Ingestion	Int suicide		
232	22 yr	acetaminophen	A	Ingestion	Int suicide	24 μg/mL	4 d
233	25 yr	acetaminophen	C	Ingestion	Int misuse	62 μg/mL	5 d
234	27 yr	acetaminophen	A	Ingestion	Int suicide		
235	28 yr	acetaminophen	A	Ingestion	Int suicide	418 μg/mL	4 h
236	28 yr	acetaminophen	A	Ingestion	Int suicide		
237	29 yr	acetaminophen	A	Ingestion	Int suicide		
238	30 yr	acetaminophen	U	Ingestion	Int suicide	111 μg/mL	
239	30 yr	acetaminophen	C	Ingestion	Ther err	92 μg/mL	
240	30 yr	acetaminophen	A	Ingestion	Int suicide		
241 p	30 yr	acetaminophen	A	Ingestion	Int suicide	2.5 μg/mL	
242	31 yr	acetaminophen	U	Ingestion	Int suicide	57 μg/mL	
243	31 yr	acetaminophen	A	Ingestion	Int suicide	73 μg/mL	36 h
244 ap	32 yr	acetaminophen	U	Ingestion	Unknown	47 μg/mL	
245	32 yr	acetaminophen	A	Ingestion	Int suicide		
246 a	33 yr	acetaminophen	A	Ingestion	Adv rxn		
247	34 yr	acetaminophen	A	Ingestion	Int suicide	74 μg/mL	
248	36 yr	acetaminophen	U	Ingestion	Int suicide	6 μg/mL	
249 a	36 yr	acetaminophen	A	Ingestion	Int suicide	596 μg/mL	
250	36 yr	acetaminophen	C	Ingestion	Int suicide	151.4 μg/mL	
251	37 yr	acetaminophen	A	Ingestion	Int suicide	188 μg/mL	
252	38 yr	acetaminophen	U	Ingestion	Int suicide	25 μg/mL§	
253	39 yr	acetaminophen	A/C	Ingestion	Int misuse	216 μg/mL	
254	39 yr	acetaminophen	A/C	Ingestion	Int misuse	150 μg/mL	
255	40 yr	acetaminophen	A	Ingestion	Int suicide	70 μg/mL	
256	41 yr	acetaminophen	A	Ingestion	Int suicide	294 μg/mL	31 h
257	42 yr	acetaminophen	A	Ingestion	Int suicide	368 μg/mL	
258	42 yr	acetaminophen	A/C	Ingestion	Int unk	360 μg/mL	1 d
259	44 yr	acetaminophen	C	Ingestion	Int unk	71 μg/mL	
260	44 yr	acetaminophen	C	Ingestion	Int misuse		
261	45 yr	acetaminophen	A	Ingestion	Int suicide	94.4 μg/mL	
262	48 yr	acetaminophen	A	Ingestion	Int suicide	69 μg/mL	
263	48 yr	acetaminophen	C	Ingestion	Ther err	35 μg/mL	
264	48 yr	acetaminophen	C	Ingestion	Ther err		
265	49 yr	acetaminophen	A	Ingestion	Int suicide	155 μg/mL	
266	50 yr	acetaminophen	A	Ingestion	Int suicide		
267	54 yr	acetaminophen	A	Ingestion	Int suicide	328 μg/mL	
268	55 yr	acetaminophen	A	Ingestion	Int suicide	10 μg/mL	48 h
269	57 yr	acetaminophen	C	Ingestion	Int misuse	167 μg/mL	
270	58 yr	acetaminophen	A	Ingestion	Int suicide	342 μg/mL	13.5 h
271 p	58 yr	acetaminophen	A/C	Ingestion	Int suicide	186 μg/mL	
272	61 yr	acetaminophen	U	Ingestion	Unknown	18.8 μg/mL	
273	63 yr	acetaminophen	A	Ingestion	Int suicide	495 μg/mL	
274	63 yr	acetaminophen	A	Ingestion	Int suicide	261 μg/mL	
275	65 yr	acetaminophen	A	Ingestion	Int unk	19.3 μg/mL	3 d
276	67 yr	acetaminophen	C	Ingestion	Int misuse	438 μg/mL	
277	72 yr	acetaminophen	C	Ingestion	Int misuse	85 μg/mL	12 h
278	72 yr	acetaminophen	C	Ingestion	Unknown	13 μg/mL	
279	74 yr	acetaminophen	A/C	Ingestion	Ther err		
280	75 yr	acetaminophen	C	Ingestion	Int misuse	101 μg/mL	
281	76 yr	acetaminophen	A	Ingestion	Int suicide	45 μg/mL	
282	80 yr	acetaminophen	U	Ingestion	Ther err		
283	83 yr	acetaminophen	A	Ingestion	Int suicide	717 μg/mL	18 h
284	84 yr	acetaminophen	U	Ingestion	Unknown	315 μg/mL	
285	17 yr	acetaminophen acetaminophen/caffeine/pyrilamine	A	Ingestion	Int suicide	58 μg/mL	24 h
286	29 yr	acetaminophen acetaminophen/codeine	C	Ingestion	Int suicide	37 μg/mL	

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
287	50 yr	acetaminophen acetaminophen/hydrocodone	U	Ingestion	Int suicide	42 μg/mL	
288	55 yr	acetaminophen acetaminophen/hydrocodone acetaminophen/propoxyphene	A	Ingestion	Int suicide		
289	42 yr	acetaminophen acetaminophen/hydrocodone carisoprodol[A]	A/C	Ingestion	Int suicide	20.9 μg/mL	
290	40 yr	acetaminophen acetaminophen/hydrocodone cyclobenzaprine[A]	A/C	Ingestion	Int suicide	88 μg/mL	
291	31 yr	acetaminophen acetaminophen/hydrocodone ethanol[A]	C	Ingestion	Int unk	3.9 μg/mL	
292	64 yr	acetaminophen acetaminophen/hydrocodone ethanol	A/C	Ingestion	Int suicide	68.9 μg/mL§ hydrocodone 50 ng/mL§ 13 mg/dL	
293 a	16 yr	acetaminophen acetaminophen/hydrocodone ibuprofen[A]	A	Ingestion	Int suicide	1,285 μg/mL	
294	41 yr	acetaminophen acetaminophen/hydrocodone ibuprofen	C	Ingestion	Int misuse	20 μg/mL	12 h
295	79 yr	acetaminophen acetaminophen/oxycodone	C	Ingestion	Ther err	10 μg/mL	
296	84 yr	acetaminophen acetaminophen/propoxyphene	C	Ingestion	Ther err	103.9 μg/mL	
297	41 yr	acetaminophen amitriptyline acetaminophen/oxycodone[A]	A	Ingestion	Int suicide	124 μg/mL	
298	67 yr	acetaminophen amlodipine/benazepril rofecoxib[A]	A/C	Ingestion	Int misuse	132 μg/mL	
299 p	36 yr	acetaminophen atenolol chlordiazepoxide[A]	A	Ingestion	Int suicide	700 μg/mL	
300	36 yr	acetaminophen benzodiazepine cocaine	A	Ingestion	Int suicide	767 μg/mL	
301 p	44 yr	acetaminophen benzodiazepine opioid[A]	A	Ingestion	Int suicide	133 μg/mL	
302	46 yr	acetaminophen benzodiazepine phencyclidine	U	Ingestion	Int suicide	456 μg/mL	
303	59 yr	acetaminophen benzodiazepine tricyclic antidepressant	U	Ingestion	Int suicide	250 μg/mL	
304	40 yr	acetaminophen carburetor cleaner (methanol) brake cleaner	C	Ing/Inh	Int misuse		
305	26 yr	acetaminophen carisoprodol	U	Ingestion	Int suicide	15 μg/mL	
306	38 yr	acetaminophen carisoprodol	A/C	Ingestion	Int unk	129 μg/mL	
307	40 yr	acetaminophen citalopram clonazepam[A]	A/C	Ingestion	Int suicide	515 μg/mL	
308	27 yr	acetaminophen cocaine	A	Ing/Unk	Int suicide		
309	54 yr	acetaminophen diazepam tramadol[A]	C	Ingestion	Int suicide	7 μg/mL	
310	31 yr	acetaminophen diphenhydramine	C	Ingestion	Int unk	3.7 μg/mL	15 h
311	33 yr	acetaminophen diphenhydramine	A	Ingestion	Int suicide	533 μg/mL	
312	37 yr	acetaminophen ethanol	C	Asp/Ing	Int misuse	76 μg/mL	
313	46 yr	acetaminophen ethanol	A/C	Ingestion	Int misuse	40 μg/mL	
314	64 yr	acetaminophen ethanol	A	Ingestion	Int suicide	79.9 μg/mL 123 mg/dL	
315	37 yr	acetaminophen ethanol iron	C	Ingestion	Int misuse	 353 μg/dL	
316	24 yr	acetaminophen ethylene glycol	A	Ingestion	Int suicide	101.5 μg/mL 19.9 mg/dL	11 h 21 h

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
317	19 yr	acetaminophen hydrocodone	A	Ingestion	Int suicide	37 μg/mL	
318	42 yr	acetaminophen hydroxyzine	U	Ingestion	Int suicide	171 μg/mL	
319	45 yr	acetaminophen isoniazid aspirin[A]	C	Ingestion	Int misuse	137 μg/mL 5.4 mg/dL	
320	29 yr	acetaminophen marijuana	A	Ing/Inh	Int suicide	154.8 μg/mL	36 h
321 p	34 yr	acetaminophen metallic spray paint diphenhydramine	U	Ing/Inh	Unknown		
322	18 yr	acetaminophen naproxen cough/cold medication	A	Ingestion	Int suicide	261 μg/mL	9.5 h
323	45 yr	acetaminophen olanzapine	U	Ingestion	Int suicide	285 μg/mL	
324	58 yr	acetaminophen olanzapine buspirone[A]	A	Ingestion	Int suicide	434 μg/mL	
325	60 yr	acetaminophen opioid	U	Ingestion	Unknown	60 μg/mL	
326	37 yr	acetaminophen opioid amphetamine[A]	A	Ingestion	Int suicide		
327	60 yr	acetaminophen opioid benzodiazepine	A/C	Ing/Inh/Unk	Int abuse	48 μg/mL	
328	35 yr	acetaminophen oxcarbazepine amphetamine/dextroamphetamine (long-acting)[A]	A/C	Ingestion	Int suicide	56 μg/mL	
329	22 yr	acetaminophen oxcarbazepine mirtazapine	A	Ingestion	Int suicide	99 μg/mL	20 h
330	30 yr	acetaminophen oxycodone ethylene glycol[A]	A	Ingestion	Int suicide		
331 p	37 yr	acetaminophen phencyclidine	A	Ingestion	Int suicide	435 μg/mL	
332	42 yr	acetaminophen promethazine propoxyphene[A]	U	Ingestion	Unknown	187 μg/mL§ 65 ng/mL§ 3.02 μg/mL§	
333	41 yr	acetaminophen propranolol	C	Ingestion	Int suicide	11 μg/mL	
334	39 yr	acetaminophen rodenticide	U	Ingestion	Int suicide	135 μg/mL	
335	26 yr	acetaminophen temazepam ethanol	A	Ingestion	Int suicide	336 μg/mL	
336	63 yr	acetaminophen zolpidem alprazolam	A	Ingestion	Int suicide	22 μg/mL	
337	78 yr	acetaminophen (long-acting)	A	Ingestion	Int suicide	180 μg/mL	21 h
338	58 yr	acetaminophen/aspirin/caffeine	U	Ingestion	Int suicide	30 mg/dL¶ 419 μg/mL¥	
339	29 yr	acetaminophen/butalbital/caffeine acetaminophen/hydrocodone sertraline[A]	A	Ingestion	Int suicide	23 μg/mL¥	
340	35 yr	acetaminophen/codeine	A/C	Ingestion	Int abuse	19 μg/mL¥	
341	52 yr	acetaminophen/codeine	A	Ingestion	Int suicide	229 μg/mL¥	
342 aip	18 mo	acetaminophen/diphenhydramine	U	Ingestion	Malicious		
343	27 yr	acetaminophen/diphenhydramine	A	Ingestion	Int suicide	199 μg/mL¥	
344	33 yr	acetaminophen/diphenhydramine	A	Ingestion	Int suicide		
345	34 yr	acetaminophen/diphenhydramine	A	Ingestion	Int suicide	37 μg/mL¥	24 h
346	43 yr	acetaminophen/diphenhydramine	U	Ingestion	Int suicide	8 μg/mL¥ diphenhydramine 1.3 μg/mL§	
347	46 yr	acetaminophen/diphenhydramine	A/C	Ingestion	Int suicide	56 μg/mL¥	
348	63 yr	acetaminophen/diphenhydramine	U	Ingestion	Unknown	98 μg/mL¥	
349	85 yr	acetaminophen/diphenhydramine	A/C	Ingestion	Int suicide	348 μg/mL¥	
350 a	21 yr	acetaminophen/diphenhydramine acetaminophen ethanol	C	Ingestion	Int unk	61 μg/mL¥ 62.5 mg/dL	
351	33 yr	acetaminophen/diphenhydramine acetaminophen (long-acting)	A	Asp/Ing	Int suicide	669 μg/mL¥	15 h
352	37 yr	acetaminophen/diphenhydramine carisoprodol citalopram[A]	A/C	Ingestion	Int suicide	113 μg/mL¥ 6 μg/mL§ meprobamate 19 μg/mL§	

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
353	37 yr	acetaminophen/diphenhydramine diphenhydramine	A	Ingestion	Int suicide	53 μg/mL¥	
354	52 yr	acetaminophen/diphenhydramine diphenhydramine	C	Ingestion	Int suicide		
355	37 yr	acetaminophen/diphenhydramine ethanol	A	Ingestion	Int suicide	507 μg/mL¥ 325 mg/dL	4 h
356	42 yr	acetaminophen/diphenhydramine ethanol	A	Ingestion	Int suicide	437 μg/mL¥	
357	48 yr	acetaminophen/diphenhydramine ethanol	A/C	Ingestion	Int suicide		
358	57 yr	acetaminophen/diphenhydramine ethanol	A	Ingestion	Int suicide	347 μg/mL¥ 248 mg/dL	
359 a	22 mo	acetaminophen/diphenhydramine iron	A	Ingestion	Unint gen	780 μg/mL¥ diphenhydramine 7.78 μg/mL§ 250 μg/dL	
360	26 yr	acetaminophen/diphenhydramine opioid	A/C	Ingestion	Int suicide	127.1 μg/mL¥	60 h
361 p	24 yr	acetaminophen/diphenhydramine paroxetine ethanol[A]	A	Ingestion	Int suicide	36 μg/mL¥ 164 mg/dL	
362	52 yr	acetaminophen/diphenhydramine quinine	A	Ingestion	Int suicide	141 μg/mL	12 h
363	25 yr	acetaminophen/hydrocodone	A	Ingestion	Int suicide	95 μg/mL¥	
364	32 yr	acetaminophen/hydrocodone	C	Ingestion	Int misuse	44 μg/mL¥	
365	33 yr	acetaminophen/hydrocodone	A/C	Ingestion	Int suicide	42.4 μg/mL¥	
366	36 yr	acetaminophen/hydrocodone	A/C	Ingestion	Unknown	59.6 μg/mL¥	
367	37 yr	acetaminophen/hydrocodone	A/C	Ingestion	Int misuse	45 μg/mL¥	
368	39 yr	acetaminophen/hydrocodone	A/C	Ingestion	Int abuse	83 μg/mL¥	10 h
369	43 yr	acetaminophen/hydrocodone	A/C	Ingestion	Int abuse	189 mg/dL¥	2 d
370	44 yr	acetaminophen/hydrocodone	U	Ingestion	Int unk		
371	48 yr	acetaminophen/hydrocodone	A/C	Ingestion	Int suicide		
372	50 yr	acetaminophen/hydrocodone	A/C	Ingestion	Int suicide	198 μg/mL¥	
373	52 yr	acetaminophen/hydrocodone	A/C	Ingestion	Int suicide		
374	57 yr	acetaminophen/hydrocodone	A	Ingestion	Int suicide	166 μg/mL¥	
375	59 yr	acetaminophen/hydrocodone	A	Ingestion	Int suicide	32 μg/mL	72 h
376 p	67 yr	acetaminophen/hydrocodone	A	Parenteral	Ther err		
377	78 yr	acetaminophen/hydrocodone	C	Ingestion	Ther err	11.5 μg/mL¥	22 h
378 p	40's yr	acetaminophen/hydrocodone acetaminophen/butalbital/caffeine hydroxyzine[A]	A/C	Ingestion	Int suicide	5.07 μg/mL¥§ hydrocodone 1,250 ng/mL§ hydromorphone 20 ng/mL§ butalbital 7.2 μg/mL§ 0.9 μg/mL§	
379	46 yr	acetaminophen/hydrocodone acetaminophen/codeine citalopram[A]	A	Ingestion	Int suicide	50 μg/mL¥	15 h
380	53 yr	acetaminophen/hydrocodone acetaminophen/oxycodone acetaminophen	C	Ingestion	Int misuse		
381	50 yr	acetaminophen/hydrocodone acetaminophen/tramadol hydrocodone/ibuprofen[A]	A	Ingestion	Int suicide	126 μg/mL¥	
382	37 yr	acetaminophen/hydrocodone alprazolam	A/C	Ingestion	Int suicide		
383	37 yr	acetaminophen/hydrocodone alprazolam	A/C	Ing/Paren	Int abuse	25.4 μg/mL¥§ hydrocodone 77 ng/mL§ hydromorphone 58 ng/mL§ 140 ng/mL§	
384	39 yr	acetaminophen/hydrocodone alprazolam	U	Ingestion	Unknown		
385	69 yr	acetaminophen/hydrocodone alprazolam chlorzoxazone	A/C	Ingestion	Unknown		
386 p	22 yr	acetaminophen/hydrocodone alprazolam ethanol	A	Ingestion	Int unk		
387 p	34 yr	acetaminophen/hydrocodone alprazolam ethanol	A/C	Ingestion	Int unk		
388	33 yr	acetaminophen/hydrocodone carisoprodol	A	Ingestion	Int suicide	54.8 μg/mL¥	24 h
389 p	39 yr	acetaminophen/hydrocodone carisoprodol	U	Ingestion	Int suicide		
390	55 yr	acetaminophen/hydrocodone carisoprodol	A	Ingestion	Int suicide		
391 p	41 yr	acetaminophen/hydrocodone carisoprodol ethanol	U	Asp/Ing	Unknown	14 μg/mL¥§ hydrocodone 270 ng/mL§ 15 μg/mL§ meprobamate 13 μg/mL§ 50 mg/dL§	

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
392 p	43 yr	acetaminophen/hydrocodone clonazepam carisoprodol	A	Ingestion	Int suicide	75 μg/mL¥	
393	42 yr	acetaminophen/hydrocodone diazepam	A	Ingestion	Int suicide	94 μg/mL¥	
394	89 yr	acetaminophen/hydrocodone dimethoate	A/C	Asp/Ing	Int suicide		
395	45 yr	acetaminophen/hydrocodone ethanol	A/C	Ingestion	Int suicide	66 μg/mL¥	
396	57 yr	acetaminophen/hydrocodone ethanol	A	Ingestion	Int suicide	202 μg/mL¥	
397 p	23 yr	acetaminophen/hydrocodone gabapentin	U	Ingestion	Int unk	4.3 μg/mL¥	
398	45 yr	acetaminophen/hydrocodone gabapentin	A	Ingestion	Int suicide		
399	34 yr	acetaminophen/hydrocodone methanol carisoprodol	A/C	Ingestion	Int suicide	77 μg/mL¥	
400	38 yr	acetaminophen/hydrocodone metoprolol (long-acting) carisoprodol[A]	A	Ingestion	Int suicide	67 μg/mL¥	
401 p	45 yr	acetaminophen/hydrocodone morphine	A/C	Asp/Ing	Int suicide		
402	62 yr	acetaminophen/hydrocodone opioid olanzapine[A]	A/C	Ingestion	Int suicide		
403 p	34 yr	acetaminophen/hydrocodone oxycodone	U	Ingestion	Int misuse	81 μg/mL¥ hydrocodone 206 ng/mL 226 ng/mL	
404 p	30 yr	acetaminophen/hydrocodone sertraline clonazepam	A	Ingestion	Int suicide	270 μg/mL¥	1 d
405	45 yr	acetaminophen/hydrocodone temazepam alprazolam[A]	A	Ingestion	Int suicide	370 μg/mL¥ hydrocodone 440 ng/mL 310 ng/mL 30 ng/mL	
406	29 yr	acetaminophen/hydrocodone trazodone	A	Ingestion	Int unk	41.7 μg/mL¥ hydrocodone 200 ng/mL	
407	49 yr	acetaminophen/hydrocodone trimethobenzamide	A/C	Ingestion	Int suicide	47 μg/mL¥	
408	39 yr	acetaminophen/hydrocodone valproic acid	C	Ingestion	Int misuse	72 μg/mL¥ 11 μg/mL	
409	52 yr	acetaminophen/hydrocodone valproic acid propranolol[A]	A	Ingestion	Int suicide	50 μg/mL¥ 197 μg/mL	
410 p	62 yr	acetaminophen/hydrocodone venlafaxine carisoprodol[A]	A/C	Ingestion	Int suicide	3.2 μg/mL¥	
411 a	56 yr	acetaminophen/hydrocodone verapamil citalopram	A	Ingestion	Int suicide	73.9 μg/mL¥	12 h
412	36 yr	acetaminophen/opioid	U	Ingestion	Int suicide	50 μg/mL¥	
413 p	27 yr	acetaminophen/oxycodone	A	Ingestion	Int suicide		
414 p	33 yr	acetaminophen/oxycodone	A	Ingestion	Int suicide		
415	44 yr	acetaminophen/oxycodone	A	Ingestion	Int abuse	40.5 μg/mL¥	
416 p	47 yr	acetaminophen/oxycodone	A	Ingestion	Int suicide		
417 p	59 yr	acetaminophen/oxycodone	A/C	Ingestion	Int unk	76 μg/mL¥	
418 p	41 yr	acetaminophen/oxycodone acetaminophen/hydrocodone valdecoxib	A/C	Ingestion	Int suicide		
419	65 yr	acetaminophen/oxycodone acetaminophen/propoxyphene	A/C	Ingestion	Int suicide	58 μg/mL¥	
420 p	48 yr	acetaminophen/oxycodone aspirin diazepam	A	Ingestion	Int suicide	176 μg/mL¥ 36 mg/dL	
421	50 yr	acetaminophen/oxycodone clonazepam prednisone	A/C	Ingestion	Int suicide	68.6 μg/mL¥	
422	31 yr	acetaminophen/oxycodone clonidine benzodiazepine[A]	U	Ingestion	Int suicide	24.8 μg/mL¥	
423	30 yr	acetaminophen/oxycodone cocaine ethanol	A/C	Ingestion	Int abuse	65 μg/mL¥	
424 ap	33 yr	acetaminophen/oxycodone *Crotalus viridis lutosus*	A	Bite/sting/Ing	Int unk	oxycodone 200 ng/mL§	

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
425 p	31 yr	acetaminophen/oxycodone	U	Ingestion	Int unk	15 μg/mL¥§	
						oxycodone 100 ng/mL§	
		methadone				0.3 μg/mL§	
		olanzapine					
426	43 yr	acetaminophen/oxycodone	C	Ingestion	Int misuse	42 μg/mL¥	
		oxycodone					
		ethanol[A]					
427 p	44 yr	acetaminophen/oxycodone	A	Ingestion	Int suicide		
		zolpidem					
		methadone[A]					
428 p	30 yr	acetaminophen/phenyltoloxamine	A	Ingestion	Int suicide		
429 p	19 yr	acetaminophen/propoxyphene	A	Ingestion	Unknown		
430	34 yr	acetaminophen/propoxyphene	U	Ingestion	Int suicide		
431 p	59 yr	acetaminophen/propoxyphene	A	Ingestion	Int suicide		
432 p	50 yr	acetaminophen/propoxyphene	U	Asp/Ing	Int suicide		
		acetaminophen/hydrocodone					
		phencyclidine[A]					
433	38 yr	acetaminophen/propoxyphene	A	Ingestion	Int suicide	3.8 μg/mL¥	3 d
		aspirin					
		ethanol[A]					
434	44 yr	acetaminophen/propoxyphene	A	Ingestion	Int unk	107 μg/mL¥	
		ethanol					
		lorazepam[A]					
435	39 yr	acetaminophen/propoxyphene	A	Ingestion	Int suicide	235 μg/mL¥§	
						propoxyphene 11 μg/mL§	
						norpropoxyphene 4.5 μg/mL§	
		olanzapine				180 ng/mL§	
		diphenhydramine				0.35 μg/mL§	
436	51 yr	acetaminophen/propoxyphene	A	Ingestion	Int suicide	2.9 μg/mL¥	
						propoxyphene 0.002 μg/mL	
						norpropoxyphene 0.38 μg/mL	
		zolpidem					
		alprazolam[A]				20 ng/mL	
437	59 yr	acetaminophen/tramadol	A/C	Ingestion	Int suicide		
		lorazepam					
		naproxen[A]					
438	14 yr	aspirin	C	Ingestion	Ther err	23 mg/dL	
439	29 yr	aspirin	A	Ingestion	Int suicide	116 mg/dL	
440	30 yr	aspirin	A	Ingestion	Int suicide	104 mg/dL	
441	35 yr	aspirin	U	Ingestion	Int suicide	70 mg/dL	
442	36 yr	aspirin	A	Ingestion	Int suicide	145 mg/dL	
443 a	37 yr	aspirin	U	Ingestion	Int unk	98 mg/dL	
444	39 yr	aspirin	A	Ingestion	Int suicide	108 mg/dL	
445	44 yr	aspirin	A	Ingestion	Int suicide	97 mg/dL	
446	50 yr	aspirin	C	Ingestion	Int misuse	55 mg/dL	
447	51 yr	aspirin	A	Ing/Unk	Int suicide	125.9 mg/dL	
448	52 yr	aspirin	A	Ingestion	Int suicide	>100 mg/dL	16 h
449	56 yr	aspirin	A	Ingestion	Int suicide		
450	59 yr	aspirin	A/C	Ingestion	Int suicide	35 mg/dL	18 h
451	62 yr	aspirin	A	Ingestion	Int suicide	131 mg/dL	
452	67 yr	aspirin	A	Ingestion	Int suicide	134 mg/dL	2 h
453	70's yr	aspirin	A	Ingestion	Int suicide	81.9 mg/dL	6 h
454	70's yr	aspirin	A/C	Ingestion	Int unk	65 mg/dL	9 h
455	80 yr	aspirin	U	Ingestion	Int suicide	91 mg/dL	
456	83 yr	aspirin	A	Ingestion	Int suicide	149 mg/dL	10 h
457	87 yr	aspirin	C	Ingestion	Unint gen	37 mg/dL	
458	88 yr	aspirin	U	Ingestion	Int suicide	61 mg/dL	
459	89 yr	aspirin	A	Ingestion	Int suicide	80 mg/dL	
460 p	>19 yr	aspirin	U	Ingestion	Int suicide	84.4 mg/dL§	
461	41 yr	aspirin	A	Ingestion	Int suicide	40 mg/dL	
		acetaminophen				123 μg/mL	
462	68 yr	aspirin	A	Ingestion	Int suicide	>200 mg/dL§	
		acetaminophen				17.8 μg/mL§	
		doxylamine					
463	32 yr	aspirin	A	Asp/Ing	Int suicide	74 mg/dL	
		acetaminophen				82 μg/mL	
		olanzapine					
464	57 yr	aspirin	C	Ingestion	Int misuse	42.7 mg/dL	
		acetaminophen/hydrocodone				483 μg/mL¥	
						hydrocodone 202 ng/mL	
465	54 yr	aspirin	A	Ing/Paren	Int suicide	62 mg/dL	
		acetaminophen/hydrocodone					
		propoxyphene[A]					
466	53 yr	aspirin	A	Ingestion	Int suicide	94.2 mg/dL	
		amphetamine					
		acetaminophen				12.7 μg/mL¥	
467	52 yr	aspirin	A	Ingestion	Int suicide	52 mg/dL	
		bupropion				4,600 ng/mL	
		acetaminophen[A]				65 μg/mL	

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
468	34 yr	aspirin	A	Ingestion	Int unk		
		Corynanthe yohimbe					
		ethanol					
469	37 yr	aspirin	U	Ingestion	Int suicide	77 mg/dL	
		diphenhydramine					
		risperidone[A]					
470	55 yr	aspirin	A	Ingestion	Int suicide	80 mg/dL	
		doxepin					
		venlafaxine[A]					
471 i	42 yr	aspirin	A	Ingestion	Int suicide	150 mg/dL	
		ethanol				180 mg/dL	
472	35 yr	aspirin	A	Ingestion	Int suicide	141 mg/dL	
		ethanol				197 mg/dL	
		long-acting anticoagulant					
		rodenticide					
473	34 yr	aspirin	A	Ingestion	Int suicide	114 mg/dL	
		isopropanol					
474	21 yr	aspirin	A	Ingestion	Int suicide	119 mg/dL	
		pseudoephedrine				3 μg/mL§	
		methylphenidate				0.7 μg/mL§	
475	25 yr	aspirin	U	Ingestion	Int suicide	70.4 mg/dL	
		zolpidem					
		barbiturate, short acting					
476	58 yr	aspirin/caffeine	A	Ingestion	Int suicide	80.5 mg/dL¶	
		acetaminophen				498 μg/mL	
		quetiapine[A]					
477	76 yr	codeine	A/C	Ingestion	Int suicide	1.173 μg/mL§	
						morphine 109 ng/mL§	
		aspirin				70 mg/dL	6 h
		pseudoephedrine/guaifenesin					
		(long-acting)[A]					
478 p	42 yr	codeine	A/C	Ingestion	Int abuse		
		flunitrazepam					
		alprazolam[A]					
479	49 yr	colchicine	A	Ingestion	Int suicide		
		cyclobenzaprine					
480	26 yr	colchicine	A	Ingestion	Int suicide		
		indomethacin					
481	23 yr	colchicine	A	Ingestion	Int suicide		
		unknown oral hypoglycemic					
		unknown thyroid drug[A]					
482	18 yr	colchicine	A/C	Ingestion	Int suicide		
		valproic acid				123 μg/mL	
		quetiapine					
483	46 yr	etodolac	A	Ingestion	Int suicide		
		acetaminophen/tramadol					
		buspirone[A]					
484	44 yr	fentanyl	A/C	Ingestion	Int abuse		
		clonazepam					
		risperidone[A]					
485 ap	30 yr	fentanyl patch	A/C	Parenteral	Int abuse		
486 ap	38 yr	fentanyl patch	A	Parenteral	Int abuse	3 ng/mL	
						norfentanyl 6 ng/mL	
487 p	22 yr	fentanyl patch	A/C	Ingestion	Int abuse	7.4 ng/mL	
		alprazolam				80 ng/mL	
		oxycodone (long-acting)[A]					
488 p	42 yr	fentanyl patch	U	Ingestion	Int suicide		
		amitriptyline				118 ng/mL	
489 ap	39 yr	fentanyl patch	A	Ing/Paren	Int unk		
		amitriptyline					
		benzodiazepine					
490 p	50's yr	fentanyl patch	U	Asp/Derm/Ing	Ther err	76.7 ng/mL§	
		amitriptyline				612 ng/mL§	
		hydrocodone					
491 p	38 yr	fentanyl patch	A/C	Derm/Ing/Unk	Int misuse	4.9 ng/mL	
						norfentanyl 2 ng/mL	
		diazepam					
492 p	17 yr	fentanyl patch	A	Ingestion	Int abuse	2.63 ng/mL§	
		morphine				269 ng/mL§	
493 p	47 yr	fentanyl patch	U	Derm/Ing	Int suicide		
		oxycodone					
		diazepam[A]					
494	11 yr	fentanyl, transmucosal	A	Ingestion	Unint gen		
495 p	Unk	fentanyl, transmucosal	U	Ingestion	Unknown		
496 p	39 yr	hydrocodone	U	Ingestion	Int suicide	1,100 ng/mL§	
		alprazolam				150 ng/mL§	
497	36 yr	hydrocodone	C	Ingestion	Int abuse	206 ng/mL§	
		diazinon					

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
498 p	20 yr	hydromorphone	A	Ingestion	Int abuse		
499 i	35 yr	hydromorphone	C	Parenteral	Adv rxn		
500 a	50 yr	ketorolac	A	Parenteral	Adv rxn		
501	17 yr	meperidine promethazine	A	Parenteral	Adv rxn		
502 p	20's yr	methadone	A	Ingestion	Int suicide		
503 p	21 yr	methadone	U	Ing/Unk	Int suicide		
504 p	21 yr	methadone	U	Unknown	Int suicide		
505 p	22 yr	methadone	U	Ingestion	Int unk		
506 ip	23 yr	methadone	A/C	Ing/Inh	Int abuse		
507 p	27 yr	methadone	A	Ingestion	Int abuse		
508	27 yr	methadone	A/C	Unknown	Int unk	0.287 μg/mL§	
509 p	29 yr	methadone	A	Ingestion	Int suicide		
510 p	39 yr	methadone	A/C	Ingestion	Int abuse		
511 p	42 yr	methadone	A/C	Ingestion	Int suicide		
512	44 yr	methadone	A	Ingestion	Int suicide		
513 p	45 yr	methadone	A	Ingestion	Int suicide		
514	47 yr	methadone	C	Ingestion	Int unk		
515 p	54 yr	methadone	A/C	Ingestion	Int abuse		
516 p	>19 yr	methadone	U	Ingestion	Int suicide		
517 p	19 yr	methadone acetaminophen/hydrocodone diazepam[A]	A	Ingestion	Int abuse	0.3 μg/mL§ 12 μg/mL¥§ 300 ng/mL§ nordiazepam 100 ng/mL§	
518 p	21 yr	methadone alprazolam	A	Ingestion	Int suicide		
519	20's yr	methadone alprazolam mirtazapine	A/C	Ingestion	Int abuse	0.769 μg/mL§ EDDP 0.01 μg/mL§	
520 p	26 yr	methadone alprazolam olanzapine[A]	U	Ing/Unk	Int abuse	0.3 μg/mL§ 130 ng/mL§ 100 ng/mL§	
521 p	49 yr	methadone amphetamine benzodiazepine	C	Ingestion	Int suicide		
522 p	22 yr	methadone cocaine	A	Asp/Ing	Int suicide		
523 p	42 yr	methadone cocaine	U	Paren/Unk	Int abuse	0.28 μg/mL§ 0.32 μg/mL§#	
524 ip	54 yr	methadone cocaine	U	Unknown	Int abuse	benzoylecgonine 0.65 μg/mL§ EME 0.27 μg/mL§	
525 p	42 yr	methadone cocaine diazepam	A	Ing/Paren	Int abuse		
526 p	19 yr	methadone cocaine unknown street drug	A	Ingestion	Int abuse		
527	55 yr	methadone codeine carvedilol[A]	A/C	Ingestion	Int unk	430 ng/mL§	
528	52 yr	methadone cyclobenzaprine ethanol[A]	A/C	Ingestion	Int suicide	0.67 μg/mL 0.32 μg/mL 125 mg/dL	4 h 4 h 4 h
529 p	17 yr	methadone ethanol	U	Ingestion	Int abuse		
530 p	22 yr	methadone ethanol	A	Ingestion	Int abuse		
531 p	28 yr	methadone ethanol alprazolam[A]	A	Ingestion	Int suicide		
532 p	38 yr	methadone fluoxetine gabapentin[A]	C	Ingestion	Adv rxn	0.11 μg/mL#	1 d
533	26 yr	methadone fluoxetine lorazepam	U	Unknown	Int suicide	1.2 μg/mL 1,100 ng/mL 190 ng/mL	
534 p	49 yr	methadone gabapentin methocarbamol	A/C	Ingestion	Int unk		
535 p	22 yr	methadone hallucinogenic mushroom methylenedioxymethamphetamine[A]	A	Inh/Unk	Int abuse		
536 p	30 yr	methadone morphine	A	Ingestion	Int abuse		
537 p	37 yr	methadone opioid	A	Ing/Paren	Int abuse		

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
538	20 yr	methadone	U	Inhalation	Int abuse		
		sertraline					
		gabapentin[A]					
539 p	20 yr	methadone	A	Ingestion	Int abuse	0.5 μg/mL§	
		tramadol				0.05 μg/mL§	
		methocarbamol					
540 ip	17 yr	morphine	A	Unknown	Int abuse		
541 a	18 yr	morphine	A/C	Parenteral	Ther err		
542 p	38 yr	morphine	A/C	Ingestion	Int suicide		
543 p	48 yr	morphine	A	Unknown	Int suicide	160 ng/mL§	
544	62 yr	morphine	A/C	Ingestion	Int abuse		
545	61 yr	morphine	A/C	Ingestion	Int suicide		
		acetaminophen/codeine					
		lorazepam[A]					
546 p	39 yr	morphine	A	Ing/Paren	Int suicide		
		acetaminophen/hydrocodone					
547	68 yr	morphine	A	Ingestion	Unknown		
		acetaminophen/hydrocodone					
548 p	66 yr	morphine	A	Ingestion	Int suicide		
		alprazolam					
		temazepam[A]					
549 p	25 yr	morphine	A	Unknown	Int unk		
		benzodiazepine					
		amphetamine					
550 p	49 yr	morphine	A/C	Ingestion	Int suicide	>50,000 ng/mL§	
		benzodiazepine				>11,000 ng/mL§	
		trazodone[A]					
551 p	54 yr	morphine	A	Ingestion	Int suicide	1,000 ng/mL§	
		butalbital				1.9 μg/mL§	
552 ip	40's yr	morphine	U	Ingestion	Int unk		
		ethanol					
553	59 yr	morphine	A	Ingestion	Int suicide		
		unknown drug					
554	60 yr	morphine (long-acting)	A	Ingestion	Int suicide		
555	77 yr	morphine (long-acting)	U	Ingestion	Unknown		
556	54 yr	morphine (long-acting)	A/C	Ingestion	Unknown		
		amobarbital					
557 p	75 yr	morphine (long-acting)	A/C	Ingestion	Int suicide		
		captopril					
558 p	71 yr	morphine (long-acting)	U	Unknown	Unknown	1,251 ng/mL§	
		heroin				6-MAM 10 ng/mL§	
		oxycodone				43 ng/mL§	
559 p	24 yr	opioid	A	Ingestion	Int abuse		
560	49 yr	opioid	A	Ingestion	Int suicide		
		acetaminophen				8 μg/mL	28 h
		tricyclic antidepressant				30 ng/mL	28 h
561 p	20 yr	opioid	A/C	Inh/Unk	Int abuse	morphine 427 ng/mL§	
		alprazolam				6 ng/mL§	
562	62 yr	opioid	U	Ingestion	Int unk		
		alprazolam					
		amitriptyline[A]					
563 p	27 yr	opioid	A	Ingestion	Int misuse		
		benzodiazepine					
564 p	23 yr	opioid	A	Ing/Unk	Int abuse		
		benzodiazepine					
		ethanol				78 mg/dL	
565 p	41 yr	opioid	A	Ingestion	Int suicide		
		benzodiazepine					
		nonsteroidal anti-inflammatory drug					
566	41 yr	opioid	U	Ingestion	Int suicide		
		benzodiazepine					
		unknown drug[A]					
567 p	40 yr	opioid	A/C	Ing/Unk	Int misuse	morphine 250 ng/mL§	
		cocaine				benzoylecgonine 0.44 μg/mL§	
		benzodiazepine[A]					
568 p	56 yr	opioid	U	Asp/Ing/Unk	Int abuse		
		ethanol				236 mg/dL	
569 a	2 yr	oxycodone	A	Ingestion	Unknown		
570 p	13 yr	oxycodone	A	Ingestion	Int abuse	180 ng/mL	
571	40's yr	oxycodone	U	Ingestion	Int abuse	270 ng/mL§	
572 p	48 yr	oxycodone	U	Ingestion	Int suicide	500 ng/mL§	
		amitriptyline				350 ng/mL§	
573 p	30 yr	oxycodone	A	Ingestion	Int unk	800 ng/mL§	
		citalopram				4,000 ng/mL§	
		alprazolam[A]				200 ng/mL§	
574 p	19 yr	oxycodone	A	Ingestion	Int unk		
		clonazepam					
		zolpidem					

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
575 p	28 yr	oxycodone propoxyphene clonazepam[A]	U	Asp/Ing	Int suicide	240 ng/mL§ 0.44 μg/mL§	
576 p	16 yr	oxycodone (long-acting)	A	Ingestion	Int abuse	1,400 ng/mL§	
577 ip	19 yr	oxycodone (long-acting)	A	Ing/Inh	Int abuse		
578 p	28 yr	oxycodone (long-acting)	A/C	Ing/Paren	Int abuse		
579 p	34 yr	oxycodone (long-acting)	A/C	Ingestion	Int suicide		
580 p	37 yr	oxycodone (long-acting)	U	Ingestion	Int unk		
581	51 yr	oxycodone (long-acting) acetaminophen/hydrocodone cyclobenzaprine	A/C	Ingestion	Int unk		
582 ip	30 yr	oxycodone (long-acting) acetaminophen/hydrocodone ethanol[A]	A	Ingestion	Int suicide		
583	31 yr	oxycodone (long-acting) acetaminophen/hydrocodone ethanol[A]	A	Ingestion	Int suicide	 23 μg/mL¥ 230 mg/dL	
584 p	44 yr	oxycodone (long-acting) bisoprolol/hydrochlorothiazide alprazolam[A]	U	Ingestion	Int suicide		
585 p	15 yr	oxycodone (long-acting) cocaine metoprolol[A]	A	Ingestion	Int suicide		
586 p	27 yr	oxycodone (long-acting) cocaine (crack) alprazolam[A]	U	Ingestion	Int abuse	200 ng/mL§	
587 p	27 yr	oxycodone (long-acting) diazepam	A	Ingestion	Int suicide	 312.4 ng/mL§ nordiazepam 160.3 ng/mL§	
588	46 yr	oxycodone (long-acting) diazepam amphetamine[A]	A/C	Unknown	Int abuse		
589 p	43 yr	oxycodone (long-acting) methadone amitriptyline[A]	A/C	Ingestion	Int suicide		
590 p	42 yr	oxycodone (long-acting) quetiapine zolpidem	A/C	Ingestion	Int suicide		
591 p	40 yr	propoxyphene cocaine olanzapine[A]	A/C	Ingestion	Int suicide	1.1 μg/mL§ norpropoxyphene 2.2 μg/mL§ benzoylecgonine 0.23 μg/mL§ 970 ng/mL§	
592	38 yr	propoxyphene diphenhydramine mirtazapine	A	Ingestion	Int suicide	8 μg/mL§ 5 μg/mL§	
593 p	45 yr	propoxyphene ibuprofen/hydrocodone zolpidem	A	Ingestion	Int suicide		
594	51 yr	salsalate	A	Ingestion	Int suicide	>100 mg/dL¶	
595 p	65 yr	tramadol acetaminophen/hydrocodone	A	Ingestion	Int suicide		
596 p	38 yr	tramadol carisoprodol clonazepam[A]	U	Ingestion	Unknown	0.8 μg/mL§	
597 p	35 yr	tramadol citalopram gabapentin[A]	A	Ingestion	Int suicide		
598 p	41 yr	tramadol clonazepam acetaminophen/hydrocodone[A]	A	Ingestion	Int suicide	 170 μg/mL¥	

See also cases 106, 350, 380, 461 thru 463, 466, 467, 476, 560, 651, 667, 678, 691, 719, 737, 756, 898, 918, 920, 949, 1009 (acetaminophen); 351 (acetaminophen (long-acting)); 378 (acetaminophen/butalbital/caffeine); 285 (acetaminophen/caffeine/pyrilamine); 8, 286, 379, 545, 652, 904 (acetaminophen/codeine); 7, 731, 1010 (acetaminophen/diphenhydramine); 287 thru 294, 339, 418, 432, 464, 465, 517, 546, 547, 581 thru 583, 595, 598, 652, 671, 779, 905, 906, 909, 917, 937 (acetaminophen/hydrocodone); 732 (acetaminophen/opioid); 295, 297, 380, 626, 653, 733, 907, 1011, 1039 (acetaminophen/oxycodone); 288, 296, 419, 675, 746, 780, 784, 792, 836, 915, 918 (acetaminophen/propoxyphene); 381, 483, 654, 716, 821 (acetaminophen/tramadol); 319, 420, 433, 477, 678, 757 thru 759, 823, 924 (aspirin); 527, 660, 1057, 1105 (codeine); 106 (codeine/guaifenesin); 317, 490, 921 (hydrocodone); 381 (hydrocodone/ibuprofen); 293, 294, 719, 861, 867, 968 (ibuprofen); 593 (ibuprofen/hydrocodone); 480 (indomethacin); 663 (meloxicam); 425, 427, 589, 600, 656, 717, 736, 737, 829, 907, 913, 921, 926, 938, 973, 1021 thru 1023, 1028, 1060 (methadone); 401, 492, 536, 740, 766 (morphine); 909, 922, 947, 1062 (morphine (long-acting)); 322, 437, 709, 844 (naproxen); 565 (nonsteroidal anti-inflammatory drug); 301, 325 thru 327, 360, 402, 537, 956, 1085 (opioid); 330, 403, 426, 493, 558, 725, 826, 905 (oxycodone); 488, 665, 701, 904, 1023 (oxycodone (long-acting)); 332, 465, 575 (propoxyphene); 298, 790 (rofecoxib); 309, 539, 660, 668, 716, 763 (tramadol); 612, 760, 927, 1029 thru 1031 (unknown opioid); 418, 885 (valdecoxib).

Anesthetics							
599	40 yr	benzocaine	A	Ing/Inh/Oth	Adv rxn		
600 p	24 yr	ketamine methadone cocaine[A]	U	Ing/Inh/Paren	Int abuse		
601 ap	2 yr	lidocaine	A/C	Ingestion	Ther err		

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
602 a	87 yr	lidocaine	A	Ingestion	Ther err		
603	10 yr	unknown anesthetic	A	Inhalation	Adv rxn		
604	60 yr	unknown anesthetic	A	Inhalation	Adv rxn		
See also case 975 (ketamine).							
Anticholinergic drugs							
605	39 yr	benztropine haloperidol	U	Unknown	Unknown		
See also cases 945 (benztropine); 902 (oxybutynin).							
Anticoagulants							
606	68 yr	enoxaparin heparin	C	Parenteral	Ther err		
607	41 yr	warfarin	A/C	Ingestion	Int suicide		
608	67 yr	warfarin	C	Ingestion	Ther err		
See also cases 606 (heparin); 66 (warfarin).							
Anticonvulsants							
609 a	5 yr	carbamazepine	A/C	Ingestion	Unint gen	52 μg/mL	
610	22 yr	carbamazepine	A/C	Ingestion	Int suicide	25 μg/mL	6 h
611	42 yr	carbamazepine	A	Ingestion	Int suicide	53 μg/mL	
612	32 yr	carbamazepine cocaine unknown opioid	A	Ing/Unk	Int suicide	71.9 μg/mL	
613	25 yr	carbamazepine phenytoin	A	Ingestion	Int suicide	38.5 μg/mL 46.4 μg/mL	12 h 5 d
614 p	40 yr	carbamazepine quetiapine clonazepam[A]	A/C	Ingestion	Int suicide	55 μg/mL	24 h
615	51 yr	lamotrigine buspirone quetiapine[A]	A/C	Ingestion	Adv rxn		
616	38 yr	levetiracetam ethanol	U	Ingestion	Int suicide		
617 p	52 yr	oxcarbazepine clonazepam ethanol[A]	A/C	Ingestion	Int suicide		
618	28 yr	oxcarbazepine sertraline mirtazapine	A/C	Ingestion	Int suicide		
619	>19 yr	oxcarbazepine trazodone amiodarone	A/C	Ingestion	Int suicide		
620	83 yr	phenytoin	C	Ingestion	Ther err	53 μg/mL	
621	47 yr	phenytoin mirtazapine quetiapine[A]	A/C	Ingestion	Int suicide	40 μg/mL	
622	2 yr	phenytoin phenobarbital	A/C	Ingestion	Ther err	101 μg/mL 49 μg/mL	24 h 24 h
623	43 yr	phenytoin zolpidem	A/C	Ingestion	Int suicide	80 μg/mL	
624 ip	32 yr	topiramate bupropion venlafaxine[A]	U	Ingestion	Int suicide	108 μg/mL§ 1,380 ng/mL§ 13,200 ng/mL§ norvenlafaxine 480 ng/mL§	
625	28 yr	valproic acid	A/C	Ingestion	Int suicide	1,200 μg/mL	
626	70 yr	valproic acid acetaminophen/oxycodone simvastatin[A]	A/C	Ingestion	Int suicide	45 μg/mL 74 μg/mL¥	
627 p	53 yr	valproic acid atenolol	A	Ingestion	Int suicide	631 μg/mL	
628	20 yr	valproic acid bupropion topiramate[A]	A/C	Ingestion	Int suicide	124.1 μg/mL	8 h
629 p	56 yr	valproic acid escitalopram	A/C	Ingestion	Int suicide	262 μg/mL	
630	44 yr	valproic acid gabapentin levothyroxine[A]	A/C	Ingestion	Int suicide	580 μg/mL	
631 p	27 yr	valproic acid sertraline	U	Ingestion	Int suicide		
632	30's yr	valproic acid tizanidine	A/C	Ingestion	Int suicide	>3,000 μg/mL	
633 p	31 yr	valproic acid zonisamide clonazepam[A]	A/C	Ingestion	Int suicide	600 μg/mL	

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
634	33 yr	valproic acid (long-acting) carbamazepine	A/C	Ingestion	Int suicide	158 μg/mL 29.7 μg/mL	
635	19 yr	valproic acid (long-acting) risperidone venlafaxine (long-acting)	A	Ingestion	Int suicide	320 μg/mL	
636	35 yr	valproic acid (long-acting) venlafaxine (long-acting) quetiapine[A]	U	Ingestion	Int suicide	133 μg/mL	

See also cases 634, 655 (carbamazepine); 65, 397, 398, 532, 534, 538, 597, 630, 902, 930, 935, 1017 (gabapentin); 957 (lamotrigine); 328, 329 (oxcarbazepine); 613, 792, 957, 967 (phenytoin); 628, 672, 710, 717, 744, 748 (topiramate); 408, 409, 482, 748, 836 (valproic acid); 633 (zonisamide).

Antidepressants							
637	32 yr	amitriptyline	A	Ingestion	Int suicide		
638	33 yr	amitriptyline	A	Ingestion	Int suicide		
639 p	33 yr	amitriptyline	A/C	Ingestion	Int suicide		
640	34 yr	amitriptyline	A	Ingestion	Int suicide	>4,000 ng/mL§ nortriptyline 3,000 ng/mL§	
641 p	40 yr	amitriptyline	A/C	Ingestion	Int suicide		
642	45 yr	amitriptyline	A/C	Ingestion	Int suicide	2,210 ng/mL§ nortriptyline 1,590 ng/mL§	
643 p	46 yr	amitriptyline	A	Ingestion	Int suicide		
644	48 yr	amitriptyline	A/C	Ingestion	Int suicide	2,550 ng/mL nortriptyline 780 ng/mL	
645 p	53 yr	amitriptyline	A	Ingestion	Int suicide		
646	54 yr	amitriptyline	A/C	Ingestion	Int suicide	1,392 ng/mL	6 h
647	58 yr	amitriptyline	A	Ingestion	Int suicide	400 ng/mL nortriptyline 454 ng/mL	2 d 2 d
648	62 yr	amitriptyline	A/C	Ingestion	Int suicide		
649	65 yr	amitriptyline	A/C	Ingestion	Int suicide		
650	72 yr	amitriptyline	A/C	Ingestion	Int suicide		
651 p	40's yr	amitriptyline acetaminophen	A	Ingestion	Int suicide	12 μg/mL	12 h
652 p	51 yr	amitriptyline acetaminophen/hydrocodone acetaminophen/codeine[A]	A	Ingestion	Int suicide	139 μg/mL¥	
653 p	43 yr	amitriptyline acetaminophen/oxycodone	A/C	Ingestion	Int suicide		
654	21 yr	amitriptyline acetaminophen/tramadol cyclobenzaprine[A]	A	Ingestion	Int suicide	31 μg/mL¥ tramadol 0.49 μg/mL§	4 h
655 p	38 yr	amitriptyline carbamazepine alprazolam	A	Ingestion	Int suicide	90 ng/mL nortriptyline 300 ng/mL 2 μg/mL 13 ng/mL	
656 p	42 yr	amitriptyline citalopram methadone	A/C	Ingestion	Int suicide		
657	47 yr	amitriptyline clonazepam alprazolam[A]	A	Ing/Inh	Int suicide		
658	46 yr	amitriptyline cocaine amphetamine[A]	U	Ing/Unk	Int suicide		
659	30 yr	amitriptyline cocaine methamphetamine	C	Ing/Unk	Int suicide	1,202 ng/mL§ nortriptyline 1,400 ng/mL§ benzoylecgonine 0.155 μg/mL§	
660 p	53 yr	amitriptyline codeine tramadol[A]	A	Ingestion	Int suicide	370 ng/mL nortriptyline 280 ng/mL 0.43 μg/mL morphine 0.04 μg/mL 1.05 μg/mL	
661 p	48 yr	amitriptyline diazepam	U	Ingestion	Int suicide		
662 p	45 yr	amitriptyline ethanol	A	Ingestion	Int suicide		
663	31 yr	amitriptyline meloxicam	A	Ingestion	Int suicide		
664 p	48 yr	amitriptyline mirtazapine	A/C	Ingestion	Int suicide		
665 p	22 yr	amitriptyline oxycodone (long-acting)	A	Ingestion	Int suicide		
666	40 yr	amitriptyline perfume	A	Ingestion	Int suicide		
667	87 yr	amitriptyline thioridazine acetaminophen	A	Ingestion	Int suicide	160 μg/mL	

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
668	55 yr	amitriptyline	A/C	Ingestion	Ther err	510 ng/mL§	
						nortriptyline 440 ng/mL§	
		tramadol				0.096 μg/mL§	
						nortramadol 0.079 μg/mL§	
		metoprolol					
669 p	41 yr	amitriptyline	A/C	Ingestion	Int suicide		
		trazodone					
		lorazepam					
670 p	31 yr	amitriptyline	A/C	Ingestion	Int suicide		
		ziprasidone					
		clonazepam					
671	41 yr	amitriptyline/chlordiazepoxide	A	Ingestion	Int suicide		
		acetaminophen/hydrocodone					
		doxazosin[A]					
672	54 yr	amitriptyline/chlordiazepoxide	A/C	Ingestion	Int suicide		
		nateglinide					
		topiramate[A]					
673 p	45 yr	amitriptyline/perphenazine	A	Ingestion	Int suicide		
674	78 yr	amitriptyline/perphenazine	A	Ingestion	Int suicide		
675	50 yr	bupropion	A	Ingestion	Int suicide	1,030 ng/mL	
		alprazolam				20 ng/mL	
		acetaminophen/propoxyphene[A]				propoxyphene 0.002 μg/mL	
						norpropoxyphene 0.38 μg/mL	
676	43 yr	bupropion	A/C	Ingestion	Int suicide	1,400 ng/mL	
		ethanol				339 mg/dL	
		sertraline				100 ng/mL	
						norsertraline 240 ng/mL	
677	21 yr	bupropion (long-acting)	A/C	Ingestion	Int suicide		
678	15 yr	bupropion (long-acting)	A	Ingestion	Int suicide		
		aspirin				62 mg/dL	
		acetaminophen[A]					
679	44 yr	bupropion (long-acting)	A/C	Ingestion	Int unk		
		clonazepam					
		alprazolam					
680	30 yr	bupropion (long-acting)	A/C	Ingestion	Int suicide		
		escitalopram					
		paroxetine[A]					
681 p	52 yr	bupropion (long-acting)	A/C	Ingestion	Int suicide	2,100 ng/mL§	
		quetiapine					
		diazepam				nordiazepam 70 ng/mL§	
682	43 yr	bupropion (long-acting)	A	Ingestion	Int suicide		
		temazepam					
683 p	31 yr	citalopram	A/C	Ingestion	Int suicide		
		alprazolam					
		risperidone					
684	22 yr	citalopram	A/C	Ingestion	Int suicide		
		clonazepam					
685 p	51 yr	citalopram	A/C	Ingestion	Int suicide		
		ethanol				433 mg/dL	
686 p	58 yr	citalopram	A/C	Ingestion	Int suicide		
		risperidone					
		methylphenidate[A]					
687 ip	23 yr	citalopram	A/C	Ingestion	Int suicide		
		venlafaxine					
688	>19 yr	desipramine	A	Ingestion	Int suicide		
689	39 yr	desipramine	A	Ingestion	Int suicide		
		cyclobenzaprine					
690	48 yr	desipramine	A/C	Ingestion	Int suicide		
		cyclobenzaprine					
		theophylline[A]					
691 p	68 yr	desipramine	A/C	Ingestion	Int suicide		
		lorazepam					
		acetaminophen[A]				112.5 μg/mL	
692	40 yr	doxepin	A/C	Ingestion	Int suicide		
693	40 yr	doxepin	A/C	Ingestion	Int suicide		
694	44 yr	doxepin	A/C	Ingestion	Int suicide	nordoxepin 30 ng/mL	
695	45 yr	doxepin	A	Ingestion	Int suicide	1,310 ng/mL§	
696	76 yr	doxepin	A	Ingestion	Int suicide		
697	>19 yr	doxepin	A	Ingestion	Int suicide		
698	46 yr	doxepin	C	Ingestion	Int unk		
		clonazepam					
699	37 yr	doxepin	A	Ingestion	Int suicide	4,200 ng/mL§	
						nordoxepin 240 ng/mL§	
		cocaine				0.1 μg/mL§	
		ethanol					
700 p	29 yr	doxepin	A/C	Ingestion	Int suicide		
		escitalopram					
		mirtazapine[A]					

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
701 p	43 yr	doxepin oxycodone (long-acting) tizanidine[A]	U	Ingestion	Int suicide		
702 p	36 yr	doxepin venlafaxine (long-acting) ethanol	A/C	Ingestion	Int suicide		
703	30 yr	fluoxetine escitalopram liothyronine[A]	A/C	Ingestion	Int suicide		
704 p	18 yr	imipramine	A/C	Ingestion	Int suicide	1,890 ng/mL§ desipramine 1,350 ng/mL§	
705	32 yr	imipramine	A/C	Ingestion	Int suicide		
706	28 yr	imipramine diphenhydramine	A	Ingestion	Int suicide	3,100 ng/mL§ desipramine 4,000 ng/mL§ 3.2 μg/mL§	
707 p	56 yr	imipramine hydroxychloroquine trazodone[A]	A/C	Ingestion	Int unk		
708 ip	46 yr	imipramine sertraline	A/C	Ingestion	Unknown		
709	38 yr	imipramine trazodone naproxen	A/C	Ingestion	Int suicide		
710	44 yr	imipramine verapamil topiramate	A/C	Ingestion	Int suicide	6,300 ng/mL§ desipramine 1,100 ng/mL§	
711	50's yr	lithium	U	Ingestion	Unknown	5.4 mEq/L	
712	51 yr	lithium	C	Ingestion	Unknown	3.5 mEq/L	
713	51 yr	lithium	A/C	Ingestion	Int suicide	3.4 mEq/L	
714	58 yr	lithium nortriptyline citalopram	A/C	Ingestion	Int suicide	12.5 mEq/L 103 ng/mL 3,700 ng/mL§ norcitalopram 630 ng/mL§ dinorcitalopram 320 ng/mL§	15 h 23.5 h
715 p	21 yr	lithium olanzapine venlafaxine (long-acting)[A]	A/C	Ingestion	Int suicide		
716	25 yr	lithium tramadol acetaminophen/tramadol[A]	A	Ingestion	Int suicide	>4 mEq/L	
717 p	36 yr	mirtazapine methadone topiramate[A]	A/C	Ingestion	Int suicide		
718 p	65 yr	mirtazapine oxazepam ethanol[A]	A/C	Ingestion	Int suicide	240 mg/dL	
719	15 yr	nortriptyline acetaminophen ibuprofen[A]	A	Ingestion	Int suicide		
720 p	41 yr	paroxetine lithium	A/C	Ingestion	Int suicide		
721	49 yr	paroxetine olanzapine aripiprazole[A]	A/C	Ingestion	Int suicide		
722	39 yr	paroxetine (long-acting) tizanidine	A/C	Ingestion	Int suicide	76 ng/mL	
723	35 yr	protriptyline venlafaxine	A	Asp/Ing	Int suicide		
724 p	>19 yr	trazodone	U	Ingestion	Int unk		
725	46 yr	trazodone alprazolam oxycodone[A]	A/C	Ingestion	Int suicide		
726 p	36 yr	trazodone ethanol	U	Ingestion	Int suicide		
727	44 yr	tricyclic antidepressant	A	Ingestion	Int suicide	1,000 ng/mL#	
728	51 yr	tricyclic antidepressant	A	Ingestion	Int suicide	667 ng/mL	
729 p	52 yr	tricyclic antidepressant	A	Ingestion	Int suicide		
730 p	55 yr	tricyclic antidepressant	U	Ingestion	Int suicide	>8,000 ng/mL	
731 p	47 yr	tricyclic antidepressant acetaminophen/diphenhydramine	U	Ingestion	Int suicide		
732	41 yr	tricyclic antidepressant acetaminophen/opioid	A	Ingestion	Unknown		
733 i	77 yr	tricyclic antidepressant clonazepam acetaminophen/oxycodone[A]	A/C	Ingestion	Int suicide	338 μg/mL¥	6 h
734 p	29 yr	tricyclic antidepressant cocaine	U	Ingestion	Int suicide		

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
735	42 yr	tricyclic antidepressant	A/C	Ing/Unk	Int suicide		
		cocaine					
		barbiturate					
736 p	46 yr	tricyclic antidepressant	A/C	Ingestion	Int suicide		
		methadone					
737 p	48 yr	tricyclic antidepressant	U	Ingestion	Int suicide		
		methadone					
		acetaminophen				112 μg/mL	
738	47 yr	venlafaxine	U	Ingestion	Int suicide		
739	26 yr	venlafaxine	A/C	Asp/Ing/Unk	Int suicide	36,100 ng/mL§	
		clonidine					
		mirtazapine[A]					
740 p	51 yr	venlafaxine	U	Asp/Ing/Unk	Int abuse	2,436 ng/mL§	
						norvenlafaxine 833 ng/mL§	
		cocaine				benzoylecgonine 0.211 μg/mL§	
		morphine[A]				33 ng/mL§	
741	39 yr	venlafaxine	A/C	Ingestion	Int suicide	6,000 ng/mL§	
						norvenlafaxine 590 ng/mL§	
		diphenhydramine				1.37 μg/mL§	
		paroxetine[A]				4,800 ng/mL§	
742	26 yr	venlafaxine	A	Ingestion	Int suicide		
		ethanol					
		nitroglycerin					
743 ip	52 yr	venlafaxine	A	Ingestion	Int suicide	25,000 ng/mL§	
						o-norvenlafaxine 2,400 ng/mL§	
		mirtazapine				4,900 ng/mL§	
		fluoxetine				200 ng/mL§	
744	43 yr	venlafaxine	A/C	Ingestion	Int suicide		
		topiramate					
		sumatriptan					
745 p	22 yr	venlafaxine (long-acting)	A	Ingestion	Int suicide		
746 p	54 yr	venlafaxine (long-acting)	A/C	Ingestion	Int suicide	229 ng/mL	
						norvenlafaxine 539 ng/mL	
		acetaminophen/propoxyphene				339 μg/mL¥	
						propoxyphene 0.15 μg/mL	
						norpropoxyphene 0.626 μg/mL	
747	62 yr	venlafaxine (long-acting)	A/C	Ingestion	Int suicide		
		hydroxyzine					
748 p	36 yr	venlafaxine (long-acting)	U	Ingestion	Int suicide		
		valproic acid					
		topiramate[A]					

See also cases 297, 484, 489, 490, 562, 572, 589, 946, 950, 1012 (amitriptyline); 467, 624, 628 (bupropion); 137, 307, 352, 379, 411, 573, 597, 656, 714, 825 (citalopram); 841 (clomipramine); 470 (doxepin); 629, 680, 700, 703 (escitalopram); 532, 533, 743, 785, 915, 965 (fluoxetine); 963 (fluvoxamine); 720, 864, 934 (lithium); 329, 519, 592, 618, 621, 664, 700, 739, 743, 779, 882, 964 (mirtazapine); 714 (nortriptyline); 38, 361, 680, 741, 762, 929 (paroxetine); 966 (phenelzine); 40, 339, 404, 538, 618, 631, 676, 708, 843, 890, 906, 983, 1083 (sertraline); 923 (tranylcypromine); 406, 550, 619, 669, 707, 709, 861 (trazodone); 303, 560, 817, 1028 (tricyclic antidepressant); 410, 470, 624, 687, 723, 857, 968, 969, 973 (venlafaxine); 635, 636, 702, 715 (venlafaxine (long-acting)).

Antihistamines							
749	30 yr	cyproheptadine	U	Ingestion	Int suicide		
		amphetamine					
750 a	3 mo	diphenhydramine	U	Ingestion	Unknown	6 μg/mL§	
751 p	19 yr	diphenhydramine	A	Ingestion	Int suicide		
752	21 yr	diphenhydramine	A	Ingestion	Int suicide		
753	25 yr	diphenhydramine	A	Ingestion	Int suicide		
754 p	26 yr	diphenhydramine	U	Ingestion	Int unk		
755	55 yr	diphenhydramine	A	Ingestion	Int suicide		
756 p	66 yr	diphenhydramine	A	Ingestion	Int suicide	3.4 μg/mL§	
		acetaminophen				177.6 μg/mL§	
		temazepam[A]				2,000 ng/mL§	
757	17 yr	diphenhydramine	A	Ingestion	Int suicide		
		aspirin				14 mg/dL	
758	60 yr	diphenhydramine	A	Ingestion	Int suicide		
		aspirin				113 mg/dL	
759	41 yr	diphenhydramine	A	Ingestion	Int suicide		
		aspirin				40 mg/dL	3 h
		ethanol				186 mg/dL	3 h
760	29 yr	diphenhydramine	A	Ingestion	Int suicide		
		cocaine					
		unknown opioid[A]					
761 p	46 yr	diphenhydramine	A	Ingestion	Int suicide		
		haloperidol					
		cyclobenzaprine[A]					
762 i	27 yr	diphenhydramine	A/C	Ingestion	Int suicide		
		paroxetine					
		ethanol[A]				60 mg/dL	
763	40 yr	diphenhydramine	A	Ingestion	Int suicide	0.85 μg/mL§	
		tramadol				0.23 μg/mL§	
764	46 yr	hydroxyzine	A/C	Ingestion	Int abuse		

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
765	79 yr	hydroxyzine ethanol	A	Ingestion	Int suicide		
766	66 yr	promethazine morphine diazepam	A/C	Ingestion	Int suicide		
See also cases 157, 310, 311, 321, 353, 354, 435, 469, 592, 706, 741, 873, 914, 963 (diphenhydramine); 462 (doxylamine); 318, 378, 747, 952 (hydroxyzine); 332, 501 (promethazine).							
Antimicrobials							
767 ap	60 yr	hydroxychloroquine methotrexate	A	Ingestion	Int suicide		
768 a	38 yr	tilmicosin	A	Parenteral	Occ		
769 ap	50's yr	tilmicosin	A	Parenteral	Int suicide		
See also cases 872 (amoxicillin); 781 (ciprofloxacin); 707, 843 (hydroxychloroquine); 319 (isoniazid); 362 (quinine); 793 (tetracycline).							
Antineoplastics							
770	48 yr	mitomycin C	A	Unknown	Ther err		
See also case 767 (methotrexate).							
Asthma therapies							
771	66 yr	epinephrine	A/C	Inhalation	Int misuse		
772 ap	75 yr	epinephrine	A	Parenteral	Ther err		
773	60 yr	theophylline	C	Ingestion	Ther err	54.4 μg/mL	
774 i	68 yr	theophylline	A/C	Ingestion	Ther err	38.7 μg/mL	
775	72 yr	theophylline	C	Ingestion	Ther err	39.8 μg/mL	
776	74 yr	theophylline	C	Ingestion	Ther err	32 μg/mL	
777	74 yr	theophylline	A/C	Ingestion	Int suicide	142 μg/mL	
778	84 yr	theophylline	A/C	Ingestion	Unknown	77 μg/mL	
779	>19 yr	theophylline acetaminophen/hydrocodone mirtazapine[A]	A/C	Asp/Ing	Int suicide	29 μg/mL 69 μg/mL¥	
780	50 yr	theophylline acetaminophen/propoxyphene zolpidem[A]	A	Ingestion	Int suicide	35 μg/mL 40 μg/mL¥	
781	73 yr	theophylline ciprofloxacin	A/C	Ingestion	Adv rxn	47 μg/mL	
See also case 690 (theophylline).							
Cardiovascular drugs							
782 i	26 yr	amiodarone	U	Parenteral	Int abuse		
783	60 yr	amlodipine	A	Ingestion	Int suicide		
784	75 yr	amlodipine acetaminophen/propoxyphene zolpidem	A/C	Ingestion	Int suicide		
785 p	53 yr	amlodipine clonazepam fluoxetine[A]	A/C	Ingestion	Int suicide		
786 p	67 yr	amlodipine clonidine digoxin[A]	A/C	Ingestion	Int suicide	 3.8 ng/mL	
787	56 yr	amlodipine olanzapine zolpidem	A/C	Ingestion	Int suicide	0.42 μg/mL§	
788	59 yr	amlodipine/benazepril carbon monoxide/smoke	A/C	Ing/Inh	Int suicide		
789	84 yr	amlodipine/benazepril clonidine glimepiride[A]	A/C	Ingestion	Int suicide		
790	50 yr	amlodipine/benazepril metformin rofecoxib[A]	A	Ingestion	Int suicide		
791	85 yr	atenolol	A	Ingestion	Int unk		
792 p	61 yr	atenolol acetaminophen/propoxyphene phenytoin	A/C	Ingestion	Int suicide	 260 μg/mL¥	 3.5 h
793 p	74 yr	atenolol cleaner tetracycline	A	Ingestion	Int suicide		
794	55 yr	atenolol felodipine diazepam[A]	A/C	Ingestion	Int suicide		
795 p	56 yr	atenolol isosorbide dinitrate (long-acting) lisinopril	A/C	Ingestion	Int suicide		
796 p	>19 yr	calcium channel blocker	U	Ingestion	Int suicide		

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
797	46 yr	clonidine amlodipine metformin[A]	A/C	Ingestion	Unknown		
798	45 yr	digoxin	A/C	Ingestion	Int suicide	55 ng/mL§	
799	63 yr	digoxin	U	Ingestion	Unknown	3.5 ng/mL	
800	67 yr	digoxin	C	Ingestion	Ther err	3.7 ng/mL	
801	70 yr	digoxin	U	Ingestion	Ther err	2.9 ng/mL	
802	70 yr	digoxin	A/C	Parenteral	Ther err	2.8 ng/mL	
803	70's yr	digoxin	A/C	Ingestion	Ther err	4.4 ng/mL	
804	72 yr	digoxin	C	Ingestion	Ther err	6.3 ng/mL	
805 p	72 yr	digoxin	A/C	Ingestion	Ther err	7.69 ng/mL	
806	74 yr	digoxin	C	Ingestion	Ther err	4.8 ng/mL	
807	80 yr	digoxin	C	Ingestion	Ther err	6.2 ng/mL	
808	82 yr	digoxin	C	Ingestion	Ther err	2.4 ng/mL	
809	86 yr	digoxin	C	Ingestion	Unknown		
810	89 yr	digoxin	C	Ingestion	Ther err	3.4 ng/mL	
811	96 yr	digoxin	A/C	Ingestion	Unknown	3.2 ng/mL	
812 p	35 yr	diltiazem	A	Ingestion	Int suicide		
813	38 yr	diltiazem	A	Ingestion	Int suicide		
814	53 yr	diltiazem	A	Ingestion	Int suicide		
815 a	45 yr	diltiazem amitriptyline activated charcoal	A/C	Asp/Ing	Int suicide		
816 p	58 yr	diltiazem carisoprodol	A	Ingestion	Int suicide	0.15 μg/mL 6.8 μg/mL meprobamate 35 μg/mL	
817	32 yr	diltiazem clonazepam	U	Ingestion	Int suicide		
818 p	30 yr	diltiazem (long-acting)	A	Ingestion	Int suicide		
819	35 yr	diltiazem (long-acting)	A	Parenteral	Adv rxn		
820	84 yr	diltiazem (long-acting)	A	Ingestion	Int suicide		
821	51 yr	diltiazem (long-acting) acetaminophen/tramadol ethanol	A/C	Ingestion	Int suicide	71 μg/mL¥	4 h
822	42 yr	diltiazem (long-acting) alprazolam ethanol	A/C	Ingestion	Int suicide	184 mg/dL	
823	54 yr	diltiazem (long-acting) aspirin	A/C	Ingestion	Int suicide	27 mg/dL	
824	17 yr	diltiazem (long-acting) atorvastatin	A	Ingestion	Int suicide		
825	22 yr	diltiazem (long-acting) citalopram benzodiazepine[A]	A/C	Ingestion	Int suicide		
826 p	60 yr	diltiazem (long-acting) doxazosin oxycodone	A/C	Ingestion	Int suicide		
827	77 yr	flecainide	C	Ingestion	Int unk		
828	58 yr	metoprolol amlodipine	A/C	Ingestion	Int suicide		
829	50 yr	metoprolol methadone	A/C	Ingestion	Int suicide		
830	51 yr	metoprolol (long-acting)	A/C	Ingestion	Int suicide	13 μg/mL	
831 p	48 yr	metoprolol (long-acting) valsartan diazepam	U	Ingestion	Int suicide		
832	31 yr	mexiletine	A	Ingestion	Int suicide		
833 p	51 yr	nadolol alprazolam hydrochlorothiazide/lisinopril[A]	A/C	Ingestion	Int suicide		
834	26 yr	nifedipine metoprolol	A	Ingestion	Int suicide		
835	68 yr	nifedipine (long-acting)	A	Ingestion	Int suicide		
836	35 yr	nifedipine (long-acting) acetaminophen/propoxyphene valproic acid[A]	A/C	Ingestion	Int suicide	75.8 μg/mL¥	
837	52 yr	nifedipine (long-acting) lisinopril atorvastatin	U	Ingestion	Int suicide	0.31 μg/mL	12 h
838	84 yr	pentoxifylline	A/C	Ingestion	Int suicide		
839	65 yr	procainamide	A	Ingestion	Ther err		
840 p	21 yr	propranolol	A	Ingestion	Int suicide		
841 p	50 yr	propranolol clomipramine	A/C	Ingestion	Int suicide	2.8 μg/mL	
842 p	25 yr	propranolol diltiazem ethanol	A	Ing/Paren	Adv rxn		

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
843	41 yr	propranolol hydroxychloroquine sertraline[A]	A/C	Ingestion	Int suicide		
844	45 yr	ramipril naproxen atorvastatin[A]	A	Asp/Ing	Int suicide		
845 i	36 yr	verapamil	A/C	Ingestion	Int suicide		
846	37 yr	verapamil	A	Ingestion	Int suicide		
847	45 yr	verapamil	U	Ingestion	Int suicide		
848	54 yr	verapamil	A/C	Ingestion	Int suicide		
849	62 yr	verapamil	A/C	Ingestion	Int suicide		
850	75 yr	verapamil	A/C	Ingestion	Int suicide		
851	84 yr	verapamil	A/C	Ingestion	Int suicide		
852	>19 yr	verapamil	U	Ingestion	Int suicide		
853	61 yr	verapamil benzodiazepine	A/C	Ingestion	Int suicide	0.91 μg/mL	
854	48 yr	verapamil candesartan	U	Ingestion	Int suicide		
855	41 yr	verapamil clonazepam atorvastatin[A]	A	Ingestion	Int suicide		
856	56 yr	verapamil clonazepam losartan[A]	A/C	Ing/Paren	Int suicide		
857	40 yr	verapamil cocaine (crack) venlafaxine[A]	A	Ing/Inh	Int suicide		
858	48 yr	verapamil ethanol	A/C	Ingestion	Int suicide	120 mg/dL	
859 i	23 yr	verapamil metoprolol digoxin[A]	A	Ingestion	Int suicide		
860	44 yr	verapamil metoprolol (long-acting) metformin[A]	A	Ingestion	Int suicide		
861	31 yr	verapamil trazodone ibuprofen[A]	A	Ing/Inh	Int suicide		
862	38 yr	verapamil valsartan	A/C	Ingestion	Int suicide		
863 ip	72 yr	verapamil (long-acting)	A	Ingestion	Int suicide		
864	30 yr	verapamil (long-acting) lithium perphenazine[A]	A	Ingestion	Int suicide		

See also cases 619 (amiodarone); 797, 828, 944 (amlodipine) (amlodipine/benazepril); 298, 299, 627, 927 (atenolol); 824, 837, 844, 855 (atorvastatin); 584 (bisoprolol/hydrochlorothiazide); 854 (candesartan); 557 (captopril); 527 (carvedilol); 422, 739, 786, 789, 944 (clonidine); 786, 859 (digoxin); 842, 945 (diltiazem); 671, 826, 1014 (doxazosin); 794 (felodipine); 833, 889 (hydrochlorothiazide/lisinopril); 795 (isosorbide dinitrate (long-acting)); 795, 837 (lisinopril); 856 (losartan); 38, 585, 668, 834, 859, 928 (metoprolol); 400, 860, 967 (metoprolol (long-acting)); 742 (nitroglycerin); 974 (propafenone); 333, 409 (propranolol); 626 (simvastatin); 831, 862 (valsartan); 411, 710 (verapamil).

Cold and cough preparations

865 p	17 yr	benzonatate dextromethorphan/guaifenesin cyclobenzaprine	A	Ingestion	Int suicide		
866 aip	3 yr	chlorpheniramine/hydrocodone	C	Ingestion	Ther err	chlorpheniramine 0.4 μg/mL§ hydrocodone 150 ng/mL§	
867 a	3 yr	chlorpheniramine/hydrocodone ibuprofen	A	Ingestion	Unint gen		
868	4 mo	dextromethorphan	C	Ingestion	Adv rxn		
869 ip	22 yr	dextromethorphan	U	Ingestion	Int suicide		
870	30 yr	ephedrine/guaifenesin	A/C	Ingestion	Int suicide		
871 p	3 mo	pseudoephedrine acetaminophen/pseudoephedrine	C	Ingestion	Ther err	3.73 μg/mL§ 64.3 μg/mL¥§	
872 p	4 mo	pseudoephedrine amoxicillin	A	Asp/Ing	Malicious	16.2 μg/mL§	
873 ap	2 yr	pseudoephedrine diphenhydramine phenylpropanolamine	A	Ingestion	Unint gen	29.9 μg/mL§ 5.25 μg/mL§ 0.267 μg/mL§	

See also cases 871 (acetaminophen/pseudoephedrine); 322 (cough/cold medication); 178, 865 (dextromethorphan/guaifenesin); 873 (phenylpropanolamine); 157, 474 (pseudoephedrine); 477 (pseudoephedrine/guaifenesin (long-acting)).

Diagnostic agents

874 i	75 yr	contrast agent	A	Parenteral	Adv rxn		

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
Dietary supplements/herbals/homeopathic							
875	23 yr	botanical (citrus aurantium/guarana/ yerba mate/others) green tea extract thyroid extract	C	Ingestion	Int abuse		
876	60 yr	botanical (ginseng/other)	A	Ingestion	Adv rxn		
877 ap	30 yr	ephedra alkaloids	A	Ingestion	Int misuse		
878 ap	19 yr	ma huang/guarana/l-carnitine	U	Ingestion	Int unk		
879	60 yr	ma huang/guarana/l-carnitine	U	Ingestion	Unknown		
880	28 yr	unknown botanicals scutellaria lateriflora	C	Ingestion	Int misuse		
881 p	53 yr	yohimbe saw palmetto	C	Ingestion	Adv rxn		
See also cases 468 (Corynanthe yohimbe); 875 (green tea extract); 1097 (ma huang/kola nut/white willow bark/chromium picolinate); 881 (saw palmetto); 880 (scutellaria lateriflora).							
Diuretics							
See also cases 882 (furosemide); 952 (triamterene).							
Electrolytes and minerals							
882	92 yr	potassium chloride furosemide mirtazapine	A/C	Ingestion	Int suicide	7.2 mEq/L	
883	61 yr	potassium chloride (long-acting)	A	Ingestion	Int suicide	8.3 mEq/L	2.5 h
884 a	52 yr	sodium bicarbonate	U	Ingestion	Int unk		
885 a	4 yr	sodium chloride valdecoxib	A	Ingestion	Unint gen	sodium 197 mEq/L	
See also cases 359 (iron); 925 (potassium chloride (long-acting)); 169 (zinc).							
Gastrointestinal preparations							
886 p	47 yr	loperamide laxative	C	Ingestion	Int abuse		
887 a	20 mo	monobasic sodium phosphate monohydrate	A	Ingestion	Ther err	phosphate 101 mg/dL	
888	74 yr	monobasic sodium phosphate monohydrate	A	Ingestion	Ther err		
See also case 886 (laxative).							
Hormones and hormone antagonists							
889	62 yr	glyburide hydrochlorothiazide/lisinopril	C	Ingestion	Ther err		
890	40 yr	glyburide/metformin sertraline risperidone[A]	A	Ingestion	Int suicide	metformin 150 μg/mL	
891	47 yr	insulin	U	Parenteral	Int suicide		
892	82 yr	insulin	A	Parenteral	Int suicide		
893 a	58 yr	metformin	A	Ingestion	Int suicide		
894	70 yr	metformin	C	Ingestion	Adv rxn		
895	77 yr	metformin glyburide	A/C	Ingestion	Int suicide		
896	47 yr	metformin nonprescription sleep aid	A/C	Ingestion	Int suicide		
See also cases 789 (glimepiride); 895, 974 (glyburide); 65, 630 (levothyroxine); 703 (liothyronine); 790, 797, 860 (metformin); 672 (nateglinide); 421 (prednisone); 875 (thyroid extract); 481 (unknown oral hypoglycemic); 481 (unknown thyroid drug).							
Miscellaneous drugs							
897 ap	66 yr	deferoxamine	A/C	Parenteral	Int suicide		
898 a	39 yr	disulfiram acetaminophen	C	Ingestion	Adv rxn	13 μg/mL	
899 p	37 yr	ergot alkaloids unknown drug	U	Ingestion	Int suicide		
900	58 yr	nicotine tobacco	C	Ing/Inh	Unknown		
901 p	21 yr	phenylephrine	A	Parenteral	Ther err		
See also case 744 (sumatriptan).							
Muscle relaxants							
902	>19 yr	baclofen gabapentin oxybutynin	U	Ingestion	Int suicide		
903	14 yr	carisoprodol	A/C	Asp/Ing	Int suicide		
904	32 yr	carisoprodol	A	Ingestion	Int suicide	10.9 μg/mL meprobamate 20 μg/mL	
		acetaminophen/codeine				35 μg/mL¥ codeine 4.72 μg/mL	
		oxycodone (long-acting)[A]				morphine 2,700 ng/mL	

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
905 p	40 yr	carisoprodol acetaminophen/hydrocodone oxycodone[A]	A/C	Ing/Unk	Int suicide		
906 p	37 yr	carisoprodol	U	Ing/Inh	Int suicide	25 μg/mL§	
						meprobamate 54 μg/mL§	
		acetaminophen/hydrocodone				hydrocodone 31 ng/mL§	
		sertraline[A]					
907 ip	45 yr	carisoprodol acetaminophen/oxycodone methadone	U	Ing/Unk	Int abuse		
908 p	47 yr	carisoprodol alprazolam	A	Ingestion	Int suicide		
909	42 yr	carisoprodol morphine (long-acting) acetaminophen/hydrocodone	A	Ingestion	Int suicide		
910 p	47 yr	carisoprodol unknown drug	U	Ingestion	Unknown		
911	>19 yr	carisoprodol zolpidem	A	Ingestion	Int suicide		
912	45 yr	cyclobenzaprine	A	Ingestion	Int suicide		
913	45 yr	cyclobenzaprine	A/C	Ing/Unk	Int unk		
		alprazolam				17 ng/mL§	
		methadone[A]				0.56 μg/mL§	
914 p	52 yr	cyclobenzaprine diphenhydramine methocarbamol[A]	A	Ingestion	Int suicide		

See also cases 289, 305, 306, 352, 388 thru 392, 399, 400, 410, 596, 815, 1092 (carisoprodol); 385 (chlorzoxazone); 290, 479, 528, 581, 654, 689, 690, 761, 865 (cyclobenzaprine); 534, 539, 914 (methocarbamol); 632, 701, 722 (tizanidine).

Sedative/hypnotics/antipsychotics							
915	20 yr	acepromazine	A	Ingestion	Int suicide		
		acetaminophen/propoxyphene fluoxetine				110 μg/mL¥	6 h
916	30's yr	alprazolam	U	Ingestion	Int suicide		
917	39 yr	alprazolam	C	Ingestion	Int suicide		
		acetaminophen/hydrocodone				20 μg/mL¥	
918	47 yr	alprazolam	A	Ingestion	Int unk		
		acetaminophen/propoxyphene acetaminophen				200 μg/mL¥	2.5 h
919 p	30's yr	alprazolam cocaine	U	Ing/Unk	Unknown		
920 p	44 yr	alprazolam	U	Ingestion	Int suicide		
		ethanol				120 mg/dL	
		acetaminophen[A]				92 μg/mL	
921	20 yr	alprazolam methadone hydrocodone	A/C	Ingestion	Unknown		
922	15 yr	alprazolam morphine (long-acting) amphetamine	A	Ingestion	Int suicide		
923	33 yr	alprazolam	A/C	Ingestion	Int suicide	48.9 ng/mL§	
		risperidone				6.7 ng/mL§	
		tranylcypromine[A]					
924 p	16 yr	barbiturate, long acting benzodiazepine aspirin[A]	A	Ing/Unk	Int abuse	18 mg/dL¶	
925 ip	62 yr	buspirone potassium chloride (long-acting) unknown drug	U	Ingestion	Unknown		
926 p	35 yr	chloral hydrate	A	Ingestion	Int unk		
		methadone				0.2 μg/mL§	
		lorazepam				20.1 ng/mL§	
927 p	46 yr	chlorpromazine atenolol unknown opioid[A]	U	Ingestion	Unknown		
928	53 yr	chlorpromazine metoprolol amphetamine[A]	U	Ingestion	Unknown		
929 p	52 yr	chlorpromazine paroxetine ethanol[A]	A	Ingestion	Int suicide		
930	50 yr	chlorpromazine	A/C	Ingestion	Int suicide	920 ng/mL§	
		quetiapine				1,200 ng/mL§	
		gabapentin[A]					
931 p	22 yr	clonazepam	A/C	Ingestion	Int abuse		
932 p	21 yr	clonazepam barbiturate, long acting quetiapine[A]	A/C	Ing/Inh	Int suicide		

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
933 p	37 yr	clonazepam diazepam ethanol	A	Asp/Ing	Int unk		
934	25 yr	clonazepam lithium	A/C	Ingestion	Int suicide	2.6 mEq/L	
935	92 yr	clozapine gabapentin	A	Ingestion	Ther err		
936	52 yr	diazepam	A/C	Ingestion	Int unk	4,400 ng/mL#	
937 p	37 yr	diazepam acetaminophen/hydrocodone ethanol[A]	A/C	Ing/Inh	Int suicide	34 μg/mL¥ 61 mg/dL	
938 p	65 yr	diazepam alprazolam methadone[A]	U	Ingestion	Unknown		
939	>19 yr	doxylamine	U	Ingestion	Int suicide		
940 p	47 yr	droperidol lorazepam	A	Parenteral	Adv rxn		
941	43 yr	haloperidol	A	Parenteral	Adv rxn		
942	49 yr	haloperidol	C	Parenteral	Adv rxn		
943	8 yr	haloperidol risperidone chlorpromazine[A]	C	Ing/Paren	Adv rxn		
944 p	29 yr	lorazepam amlodipine clonidine[A]	A/C	Ingestion	Int suicide		
945 p	25 yr	lorazepam benztropine diltiazem[A]	A	Ingestion	Int suicide	325.3 ng/mL§	
946	52 yr	lorazepam isopropanol amitriptyline[A]	A	Ing/Paren	Unknown	5.1 mg/dL	
947	59 yr	lorazepam morphine (long-acting)	A/C	Ingestion	Int suicide		
948 p	Unk	methohexital	A	Parenteral	Adv rxn		
949	20 yr	olanzapine acetaminophen	A/C	Ingestion	Int suicide	9.6 μg/mL	34 min
950 p	43 yr	olanzapine amitriptyline	A/C	Ingestion	Int suicide		
951	67 yr	olanzapine chlorpromazine	A	Ingestion	Adv rxn		
952	20 yr	olanzapine triamterene hydroxyzine[A]	A/C	Ingestion	Int suicide		
953 p	34 yr	olanzapine ziprasidone clonazepam	A	Ingestion	Int suicide		
954	47 yr	phenobarbital	A	Ingestion	Int suicide	313 μg/mL	9 h
955	48 yr	phenobarbital	A/C	Ingestion	Int suicide	124.7 μg/mL	
956	55 yr	phenobarbital opioid benzodiazepine	A	Ingestion	Int suicide	65 μg/mL	
957	56 yr	phenobarbital phenytoin lamotrigine[A]	A/C	Asp/Ing	Int suicide	36.2 μg/mL# 20.5 μg/mL 34.7 μg/mL#	
958 a	12 yr	propofol	C	Parenteral	Adv rxn		
959 p	30's yr	quetiapine	A/C	Ingestion	Int suicide	2,360 ng/mL§	
960	42 yr	quetiapine	A/C	Ingestion	Int suicide		
961	50 yr	quetiapine	A	Ingestion	Int suicide		
962 p	62 yr	quetiapine	A/C	Ingestion	Int suicide		
963	15 yr	quetiapine fluvoxamine diphenhydramine[A]	A/C	Ingestion	Int suicide	16,000 ng/mL§	
964 p	39 yr	quetiapine mirtazapine ethanol	U	Ingestion	Int suicide	>1,000 ng/mL§ 400 ng/mL§ 120 mg/dL§	
965	21 yr	quetiapine olanzapine fluoxetine[A]	A/C	Ing/Inh	Int suicide		
966 p	45 yr	quetiapine phenelzine haloperidol[A]	A/C	Ingestion	Int suicide	5,200 ng/mL	
967	45 yr	quetiapine phenytoin metoprolol (long-acting)[A]	A	Ingestion	Int suicide		
968	32 yr	quetiapine venlafaxine ibuprofen	A	Ingestion	Int suicide		

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
969	52 yr	quetiapine venlafaxine zaleplon	A	Ingestion	Int suicide		
970	49 yr	thioridazine	A/C	Ingestion	Int suicide		
971	80 yr	triazolam	A/C	Ingestion	Int suicide		
972	72 yr	zolpidem	A/C	Ingestion	Int suicide		
973	44 yr	zolpidem methadone venlafaxine[A]	A/C	Ingestion	Int suicide		
974	55 yr	zolpidem propafenone glyburide	U	Ingestion	Int suicide		

See also cases 8, 336, 382 thru 387, 405, 436, 478, 488, 496, 518, 518 thru 520, 531, 548, 561, 562, 573, 584, 586, 655, 657, 675, 679, 683, 725, 822, 833, 908, 913, 938, 1092 (alprazolam); 556 (amobarbital); 721, 1083 (aripiprazole); 735 (barbiturate); 932 (barbiturate, long acting); 475 (barbiturate, short acting); 300 thru 303, 327, 422, 484, 521, 549, 550, 563 thru 567, 825, 853, 924, 956, 1013, 1058 (benzodiazepine); 324, 483, 615 (buspirone); 551 (butalbital); 299 (chlordiazepoxide); 943, 951 (chlorpromazine); 307, 392, 404, 421, 485, 574, 575, 596, 598, 614, 617, 633, 657, 670, 679, 684, 698, 733, 785, 816, 855, 856, 953, 1053, 1054 (clonazepam); 137, 309, 393, 420, 491, 493, 517, 525, 587, 588, 661, 681, 766, 794, 831, 933, 1011 (diazepam); 478 (flunitrazepam); 605, 761, 966 (haloperidol); 434, 437, 533, 545, 669, 691, 926, 940 (lorazepam); 896 (nonprescription sleep aid); 323, 324, 402, 425, 435, 463, 520, 591, 715, 721, 787, 965, 982 (olanzapine); 99 (other sedative/hypnotic); 718 (oxazepam); 864 (perphenazine); 622 (phenobarbital); 476, 482, 590, 614, 615, 621, 636, 681, 930, 932 (quetiapine); 469, 485, 635, 683, 686, 890, 923, 943 (risperidone); 335, 405, 548, 682, 756 (temazepam); 667 (thioridazine); 407 (trimethobenzamide); 969 (zaleplon); 670, 953 (ziprasidone); 336, 427, 436, 475, 574, 590, 593, 623, 780, 784, 787, 911, 984 (zolpidem).

Serums, toxoids, vaccines

975 ap	20 yr	feline leukemia vaccine ketamine	A	Parenteral	Int suicide		

Stimulants and street drugs

976	5 d	amphetamine	A/C	Other	Int abuse		
977	19 yr	amphetamine	A	Ingestion	Int abuse		
978	40 yr	amphetamine	A	Ing/Unk	Int abuse		
979	41 yr	amphetamine	A	Unknown	Int suicide		
980	44 yr	amphetamine	A	Ingestion	Int abuse		
981 p	24 yr	amphetamine olanzapine marijuana	A	Asp/Ing/Inh	Unknown		
982	38 yr	amphetamine sertraline	A/C	Ing/Unk	Int suicide		
983	27 yr	amphetamine zolpidem	A	Ingestion	Int abuse		
984 p	19 yr	amphetamine/dextroamphetamine	U	Inhalation	Int abuse		
985 p	17 yr	caffeine	A	Ingestion	Int suicide		
986 i	18 yr	cocaine	A	Ingestion	Int misuse		
987	21 yr	cocaine	A	Ingestion	Int misuse		
988 p	21 yr	cocaine	A	Ingestion	Int misuse		
989 p	23 yr	cocaine	A	Ingestion	Int abuse		
990 p	24 yr	cocaine	A	Unknown	Int abuse		
991 p	24 yr	cocaine	A	Ing/Inh	Int abuse		
992	24 yr	cocaine	A	Ingestion	Int abuse		
993 p	26 yr	cocaine	A	Ingestion	Int abuse		
994	30's yr	cocaine	U	Unknown	Int abuse		
995	34 yr	cocaine	A	Ingestion	Int abuse		
996	34 yr	cocaine	A	Inhalation	Int abuse		
997 p	35 yr	cocaine	A/C	Ing/Inh/Paren	Int abuse		
998 p	39 yr	cocaine	A/C	Unknown	Int abuse		
999	40 yr	cocaine	A	Unknown	Int abuse		
1000 p	42 yr	cocaine	A/C	Inh/Paren	Int abuse		
1001 p	42 yr	cocaine	C	Parenteral	Int abuse	benzoylecgonine 5.7 μg/mL	
1002 p	42 yr	cocaine	A	Parenteral	Int abuse		
1003	46 yr	cocaine	U	Unknown	Int abuse		
1004	48 yr	cocaine	A	Unknown	Int unk		
1005	55 yr	cocaine	U	Unknown	Int unk		
1006	60 yr	cocaine	A	Unknown	Int abuse		
1007	>19 yr	cocaine	U	Unknown	Int unk		
1008 p	>19 yr	cocaine	A	Unknown	Int unk	>5 μg/mL	
1009 p	32 yr	cocaine acetaminophen	A	Unknown	Int abuse	benzoylecgonine 5.1 μg/mL§	
1010	>19 yr	cocaine acetaminophen/diphenhydramine	A/C	Ing/Inh	Int suicide		
1011 p	46 yr	cocaine acetaminophen/oxycodone diazepam[A]	A	Ingestion	Int suicide	8 μg/mL¥	
1012	49 yr	cocaine amitriptyline ethanol	A	Ing/Unk	Int abuse	147 mg/dL	
1013	43 yr	cocaine benzodiazepine heroin[A]	A	Ing/Paren	Int abuse		

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
1014	60 yr	cocaine	U	Ingestion	Int suicide	0.2 μg/mL§	
		doxazosin					
1015	22 yr	cocaine	A	Unknown	Int abuse		
		ethanol				79 mg/dL	
1016	38 yr	cocaine	U	Ing/Unk	Int abuse		
		ethanol				58 mg/dL	
1017 p	31 yr	cocaine	A	Ing/Inh/Unk	Int abuse		
		gabapentin					
		ethanol[A]					
1018 p	21 yr	cocaine	A	Inh/Paren	Int abuse		
		heroin					
1019	33 yr	cocaine	A	Unknown	Int abuse		
		heroin					
1020 p	20 yr	cocaine	A	Ing/Unk	Int abuse		
		marijuana					
1021	20 yr	cocaine	A	Inhalation	Int abuse		
		methadone					
1022 p	49 yr	cocaine	A/C	Ing/Unk	Int unk		
		methadone					
		methamphetamine					
1023 p	47 yr	cocaine	A/C	Ing/Unk	Int unk	benzoylecgonine 7.545 μg/mL§	
		methadone				1.65 μg/mL§	
		oxycodone (long-acting)					
1024 p	27 yr	cocaine	U	Unknown	Int abuse		
		methamphetamine					
1025 p	21 yr	cocaine	A	Ing/Inh	Unknown	1 μg/mL§	
		methamphetamine					
		amphetamine/dextroamphetamine[A]					
1026	20's yr	cocaine	A	Ing/Unk	Int abuse		
		organophosphate					
1027 ip	41 yr	cocaine	A	Ing/Inh/Unk	Int abuse	2.99 μg/mL§	
		phencyclidine				0.141 μg/mL§	
		methanol				30.4 mg/dL§	
1028	46 yr	cocaine	A	Ing/Unk	Int abuse		
		tricyclic antidepressant					
		methadone					
1029 p	25 yr	cocaine	A	Ingestion	Int misuse		
		unknown opioid					
1030	37 yr	cocaine	U	Asp/Ing/Inh/Unk	Int abuse		
		unknown opioid					
1031	26 yr	cocaine	U	Unknown	Int abuse	benzoylecgonine 4.3 μg/mL§	
		unknown opioid					
		ethanol				133 mg/dL	
1032 p	20 yr	cocaine (crack)	A	Ingestion	Int misuse		
1033	23 yr	cocaine (crack)	A	Ingestion	Int misuse		
1034	32 yr	cocaine (crack)	U	Inhalation	Int abuse		
1035	33 yr	cocaine (crack)	A	Ingestion	Int misuse	4.28 μg/mL§	
						benzoylecgonine 12.54 μg/mL§	
1036	40 yr	cocaine (crack)	A	Inhalation	Int abuse		
1037 p	>19 yr	cocaine (crack)	U	Inhalation	Int abuse		
1038 p	Unk	cocaine (crack)	U	Ingestion	Int misuse		
1039	25 yr	cocaine (crack)	A/C	Ing/Inh	Int abuse	0.081 μg/mL	
						benzoylecgonine 0.504 μg/mL	
		acetaminophen/oxycodone					
1040 p	16 yr	heroin	A	Parenteral	Int abuse		
1041 p	17 yr	heroin	A	Unknown	Int abuse	morphine 110 ng/mL§	
1042 p	18 yr	heroin	U	Parenteral	Int abuse		
1043 ip	20 yr	heroin	A	Ingestion	Int unk		
1044	20's yr	heroin	A/C	Inhalation	Int abuse		
1045 p	21 yr	heroin	A	Parenteral	Int abuse	morphine 250 ng/mL	
						codeine 0.02 μg/mL	
1046 p	23 yr	heroin	U	Unknown	Int abuse		
1047 p	24 yr	heroin	A	Parenteral	Int abuse		
1048 p	24 yr	heroin	A	Unknown	Int abuse		
1049	36 yr	heroin	A	Unknown	Int unk		
1050 p	58 yr	heroin	A	Ingestion	Int abuse		
1051 p	>19 yr	heroin	A	Parenteral	Int abuse		
1052 p	>19 yr	heroin	U	Parenteral	Int abuse		
1053 p	18 yr	heroin	A	Ing/Inh	Int unk		
		clonazepam					
1054 p	20 yr	heroin	A	Ing/Paren	Int abuse		
		clonazepam					
1055 p	30 yr	heroin	U	Unknown	Int unk		
		cocaine					
1056 p	19 yr	heroin	U	Inh/Paren	Int abuse	morphine 270 ng/mL§	
						codeine 26 ng/mL§	
		cocaine (crack)				0.079 μg/mL§	
						benzoylecgonine 0.73 μg/mL§	

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
1057 p	36 yr	heroin	A/C	Ing/Unk	Int suicide	morphine 1,780 ng/mL	
		codeine				0.6 μg/mL	
		methamphetamine[A]				0.08 μg/mL	
						amphetamine 0.02 μg/mL	
1058 p	46 yr	heroin	U	Ing/Paren	Int abuse		
		ethanol				358 mg/dL	
		benzodiazepine					
1059 p	45 yr	heroin	A	Ing/Inh/Unk	Int abuse		
		ethanol					
		drain opener (sulfuric acid)					
1060 p	23 yr	heroin	A/C	Ing/Inh/Paren/Unk	Int abuse	morphine 0.14 μg/mL§	
						codeine 0.02 μg/mL§	
		methadone				0.09 μg/mL§	
						EDDP 0.005 μg/mL§	
		cocaine[A]				benzoylecgonine 0.07 μg/mL§	
1061 p	21 yr	heroin	A	Parenteral	Int unk		
		methamphetamine					
1062 p	36 yr	heroin	A/C	Ing/Inh/Paren	Int abuse		
		morphine (long-acting)					
		ethanol[A]				2 mg/dL	5 h
1063	20 yr	methamphetamine	A	Ingestion	Int misuse	2.365 μg/mL§	
						amphetamine 0.105 μg/mL§	
1064 p	20 yr	methamphetamine	A	Unknown	Int abuse		
1065 p	21 yr	methamphetamine	A	Unknown	Int abuse		
1066	23 yr	methamphetamine	A	Ingestion	Int misuse		
1067 p	24 yr	methamphetamine	A	Ingestion	Int abuse	20 μg/mL§	
1068 p	24 yr	methamphetamine	U	Ing/Inh	Int abuse		
1069	24 yr	methamphetamine	A	Ingestion	Int misuse		
1070	27 yr	methamphetamine	A	Inhalation	Int abuse		
1071	28 yr	methamphetamine	A/C	Ingestion	Int abuse	9.8 μg/mL§	
1072	28 yr	methamphetamine	A	Ingestion	Int misuse		
1073 p	32 yr	methamphetamine	A	Ingestion	Int abuse	7.26 μg/mL§	
1074	38 yr	methamphetamine	A	Unknown	Int abuse		
1075	39 yr	methamphetamine	U	Unknown	Int abuse	0.381 μg/mL§	
1076	43 yr	methamphetamine	A/C	Unknown	Int abuse		
1077	45 yr	methamphetamine	A	Ingestion	Int abuse		
1078 p	48 yr	methamphetamine	A	Inh/Unk	Int abuse	0.25 μg/mL§	
1079 ip	50 yr	methamphetamine	U	Unknown	Int abuse		
1080 i	52 yr	methamphetamine	A	Ingestion	Int misuse	26.8 μg/mL	
						amphetamine 0.11 μg/mL	
1081 p	>19 yr	methamphetamine	A	Ingestion	Int unk		
1082	30's yr	methamphetamine	A	Ingestion	Int abuse		
		amphetamine					
1083 p	25 yr	methamphetamine	U	Ing/Unk	Unknown		
		aripiprazole					
		sertraline[A]					
1084	44 yr	methamphetamine	U	Ing/Inh/Unk	Int abuse		
		cocaine					
		marijuana					
1085	44 yr	methamphetamine	A	Ing/Unk	Unknown	10 μg/mL§	
		opioid				free morphine 40 ng/mL	
1086	17 yr	methylenedioxymethamphetamine	A/C	Ingestion	Int abuse		
1087 a	18 yr	methylenedioxymethamphetamine	A	Ingestion	Int abuse		
1088	19 yr	methylenedioxymethamphetamine	A	Ingestion	Int unk	0.592 μg/mL	
1089	29 yr	methylenedioxymethamphetamine	A	Ingestion	Int abuse		
1090 p	31 yr	methylenedioxymethamphetamine	U	Ingestion	Int suicide		
1091	33 yr	methylenedioxymethamphetamine	A	Ingestion	Int abuse		
1092 p	22 yr	methylenedioxymethamphetamine	A	Ingestion	Int unk		
		carisoprodol					
		alprazolam[A]					
1093 a	23 yr	methylenedioxymethamphetamine	A	Ingestion	Int abuse		
		cocaine					
1094	23 yr	methylenedioxymethamphetamine	A	Ing/Unk	Int abuse		
		cocaine					
		amphetamine					
1095 p	25 yr	methylenedioxymethamphetamine	A	Ing/Unk	Int abuse	5.73 μg/mL§	
						3,4-MDA 0.065 μg/mL§	
		cocaine				0.014 μg/mL§	
						benzoylecgonine 0.78 μg/mL§	
						EME 0.14 μg/mL§	
		ethanol				20 mg/dL§	
1096	21 yr	methylenedioxymethamphetamine	U	Ing/Inh	Int abuse		
		cocaine					
		marijuana[A]					
1097 p	26 yr	methylenedioxymethamphetamine	A	Ingestion	Int unk		
		ma huang/kola nut/white willow bark/chromium picolinate					

TABLE 21. Summary of Fatal Exposures Reported to TESS in 2003 (Continued)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval after Exposure
1098	17 yr	methylphenidate	A	Ingestion	Int abuse		
1099	25 yr	phencyclidine amphetamine	A	Ingestion	Int abuse		
See also cases 10, 326, 466, 521, 549, 588, 658, 749, 922, 928, 1082, 1094, 1099 (amphetamine); 1025 (amphetamine/dextroamphetamine); 328 (amphetamine/dextroamphetamine (long-acting)); 110, 300, 308, 423, 522 thru 526, 567, 585, 591, 600, 612, 658, 659, 699, 734, 735, 740, 760, 919, 1055, 1084, 1093 thru 1096 (cocaine); 586, 857, 1056 (cocaine (crack)); 110, 558, 1013, 1018, 1019 (heroin); 320, 982, 1020, 1084, 1096, 1106 (marijuana); 659, 1022, 1024, 1025, 1057, 1061 (methamphetamine); 9, 535 (methylenedioxymethamphetamine); 474, 686 (methylphenidate); 10, 302, 331, 432, 1027 (phencyclidine); 526 (unknown street drug).							
Topical preparations							
1100 a	73 yr	iodine	A	Ingestion	Int suicide		
Vitamins							
See also case 315 (iron).							
Unknown drug							
1101 p	17 yr	unknown drug	A/C	Unknown	Int unk		
1102	39 yr	unknown drug	A	Ingestion	Int unk		
1103	47 yr	unknown drug	A	Ingestion	Int suicide		
1104	54 yr	unknown drug	A	Ingestion	Int suicide		
1105	56 yr	unknown drug codeine	U	Parenteral	Int unk		
1106	16 yr	unknown drug marijuana	U	Ing/Unk	Int suicide		
See also cases 553, 566, 899, 910, 925 (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
f Reported from a foreign country
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	10,742	3,845	2,082	4,677	10,428	179	55	65	2,296	1,180	2,188	391	3	0
Epoxy	910	264	62	576	886	12	2	10	212	226	176	93	1	0
Toluene/xylene	841	481	102	252	788	48	1	3	145	205	154	23	3	1
Non-toxic	2,024	1,377	508	123	1,931	62	23	8	61	238	90	12	0	0
Unknown	4,752	2,183	596	1,768	4,548	105	32	60	902	807	748	145	5	1
Category total	19,269	8,150	3,350	7,396	18,581	406	113	146	3,616	2,656	3,356	664	12	2
Alcohols														
Ethanol: beverage	42,955	1,322	6,043	35,078	5,452	35,752	377	699	32,242	4,387	13,870	8,698	1,588	98
Ethanol: other	5,713	4,309	501	885	5,462	198	30	18	363	1,551	681	64	7	2
Higher alcohol	250	116	34	93	240	6	1	3	54	76	54	17	2	0
Isopropanol	7,945	4,766	677	2,464	6,797	1,042	43	17	1,636	2,192	1,509	372	64	3
Methanol	1,044	258	182	594	877	137	8	2	552	254	213	81	30	17
Rubbing alcohols														
Ethanol with methyl salicylate	24	15	2	6	24	0	0	0	2	6	2	0	0	0
Ethanol without methyl salicylate	254	182	16	55	234	20	0	0	33	75	38	11	0	0
Isopropanol with methyl salicylate	377	270	17	88	334	43	0	0	92	148	55	13	3	0
Isopropanol without methyl salicylate	9,904	6,476	725	2,671	8,854	943	62	14	1,544	2,451	1,572	271	32	0
Unknown rubbing alcohol	104	63	12	28	84	20	0	0	25	25	10	6	2	0
Other	512	387	38	86	482	22	0	7	52	168	41	2	3	0
Unknown	442	100	58	276	251	174	5	7	195	65	108	58	24	1
Category total	69,524	18,264	8,305	42,324	29,091	38,357	526	767	36,790	11,398	18,153	9,593	1,755	121
Arts/crafts/office supplies														
Artist paint, non-water color	3,104	2,208	404	467	3,030	47	5	15	158	517	212	28	0	0
Chalk	1,910	1,718	155	31	1,868	37	4	1	35	288	56	4	0	0
Clay	2,386	2,038	228	105	2,341	29	5	9	72	245	95	10	1	0
Crayon	2,687	2,420	187	60	2,670	15	0	1	38	274	57	1	0	0
Glaze	212	95	60	57	205	2	4	1	30	47	31	5	1	0
Office supplies: miscellaneous	284	121	32	129	276	6	0	2	26	49	25	6	0	0
Pencil	3,125	1,556	1,274	258	2,998	79	36	3	129	277	257	13	1	0
Pen/ink	21,537	13,194	7,459	769	20,986	469	36	36	440	2,752	642	46	1	0
Typewriter correction fluid	2,428	1,714	492	211	2,286	111	22	3	154	608	186	12	0	0
Water color	1,330	1,164	105	52	1,310	9	8	3	17	176	28	1	0	0
Other	6,069	4,773	645	610	5,927	103	14	17	263	805	309	43	1	0
Unknown	310	210	75	22	298	10	1	1	19	43	18	1	0	0
Category total	45,382	31,211	11,116	2,771	44,195	917	135	92	1,381	6,081	1,916	170	5	0
Automotive/aircraft/boat products														
Brake fluid	1,403	337	121	933	1,325	64	4	3	522	268	495	85	8	1
Ethylene glycol	5,081	592	803	3,625	4,310	572	146	22	1,781	911	917	330	138	16
Glycol: other	205	91	27	85	198	5	0	2	58	46	48	3	0	0
Glycol and methanol	163	44	18	100	151	9	1	0	50	36	44	5	0	0
Hydrocarbon	3,035	1,246	400	1,377	2,800	179	28	18	830	732	864	165	8	0
Methanol	1,587	333	272	972	1,349	209	10	6	693	426	413	102	23	2
Non-toxic	22	11	2	9	21	1	0	0	2	3	5	0	0	0
Other	2,475	991	362	1,093	2,373	48	12	35	697	418	781	157	7	0
Unknown	210	55	33	120	193	14	0	0	91	33	58	17	2	0
Category total	14,181	3,700	2,038	8,314	12,720	1,101	201	86	4,724	2,873	3,625	864	186	19
Batteries														
Automotive battery	1,355	70	184	1,084	1,325	9	6	10	407	102	448	148	2	0
Disc batteries														
Alkaline (MnO_2)	109	68	25	13	107	2	0	0	76	63	4	5	0	0
Lithium	127	56	31	38	118	4	2	1	66	47	14	5	1	0
Mercuric oxide	11	2	2	7	11	0	0	0	7	6	1	0	0	0
Nickel cadmium	5	2	0	3	5	0	0	0	1	0	2	0	0	0
Silver oxide	50	29	5	16	49	1	0	0	40	35	2	0	0	0
Zinc-air	85	37	13	35	81	2	1	0	59	54	1	0	0	0
Other	14	9	4	1	13	1	0	0	6	5	0	1	0	0
Unknown	2,568	1,573	741	242	2,503	54	3	2	1,654	1,231	111	21	3	0
Dry cell battery	5,610	2,871	1,328	1,370	5,305	234	28	25	809	1,285	1,011	198	3	0
Other	69	21	15	33	65	2	2	0	11	13	15	5	0	0
Unknown	174	49	38	84	167	4	2	0	23	45	59	14	0	0
Category total	10,177	4,787	2,386	2,926	9,749	313	44	38	3,159	2,886	1,668	397	9	0
Bites and envenomations														
Aquatic														
Coelenterate	1,034	128	509	381	1,032	0	0	1	111	5	346	93	2	0
Fish	1,327	29	232	1,052	1,314	4	0	8	420	11	391	150	6	0
Other/unknown	520	266	66	169	506	8	2	3	56	78	92	27	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
Insects														
Ant/fire ant	2,480	974	344	1,148	2,459	9	9	3	203	35	649	138	4	1
Bee/wasp/hornet	12,516	2,368	2,454	7,602	12,504	8	1	3	1,231	103	4,098	686	22	1
Caterpillar	2,261	511	558	1,172	2,231	17	3	9	201	23	641	110	1	0
Centipede/ millipede	1,960	332	345	1,260	1,950	3	3	4	131	52	653	70	0	0
Mosquito	786	187	149	437	784	1	0	1	114	13	151	34	0	0
Scorpion	14,417	1,203	2,817	10,338	14,412	4	0	0	908	79	2,776	380	10	0
Tick	2,511	597	474	1,421	2,503	1	1	4	400	79	431	57	0	1
Other	16,602	3,267	2,712	10,441	16,449	38	70	24	2,438	373	3,656	951	15	0
Mammals														
Bat	405	55	86	246	401	2	0	1	207	95	59	4	0	0
Cat	826	105	152	550	825	0	0	1	447	18	221	43	0	0
Dog	1,701	334	670	666	1,701	0	0	0	1,217	26	493	147	1	0
Fox	14	1	4	9	14	0	0	0	11	1	3	0	0	0
Human	91	18	23	49	79	3	8	0	46	0	34	8	0	0
Raccoon	92	8	14	68	92	0	0	0	52	6	22	7	0	0
Rodent/lagomorph	1,763	415	615	683	1,747	5	7	3	407	61	400	17	1	0
Skunk	295	43	55	182	280	1	13	0	27	14	71	6	1	0
Other	1,069	164	338	537	1,058	1	3	3	449	53	222	19	1	0
Reptile: other/unknown	1,063	326	367	349	1,038	10	3	10	181	59	310	38	0	0
Snakes														
Copperhead	997	47	201	743	994	1	1	0	891	15	338	479	23	0
Coral	97	3	22	72	97	0	0	0	85	5	52	22	4	0
Cottonmouth	175	9	27	137	175	0	0	0	140	5	60	62	6	0
Crotaline: unknown	397	30	99	265	395	0	2	0	339	11	135	153	21	0
Rattlesnake	1,245	56	202	973	1,238	5	1	0	1,084	31	284	568	90	1
Exotic snakes														
Poisonous	126	6	19	99	125	0	0	1	101	6	32	45	9	1
Nonpoisonous	138	11	51	76	135	0	0	2	46	4	44	6	0	0
Unknown if poisonous	9	1	0	8	8	0	0	0	6	1	5	1	0	0
Nonpoisonous snake	1,818	179	744	880	1,814	3	0	1	463	56	681	62	1	0
Unknown snake	1,887	128	581	1,160	1,887	0	0	0	1,204	68	877	296	24	0
Spiders														
Black widow	2,739	192	427	2,107	2,736	1	0	0	811	109	791	333	16	0
Brown recluse	2,843	217	433	2,157	2,841	0	1	0	1,138	44	638	640	22	1
Necrotizing spider: other	283	34	52	194	283	0	0	0	70	5	86	36	0	0
Tarantula	243	19	85	136	232	6	0	5	56	7	73	11	0	0
Other spider	11,963	1,485	2,101	8,263	11,935	15	5	4	1,795	145	2,823	746	17	0
Unknown insect or spider	5,130	664	894	3,542	5,125	1	0	2	612	19	739	161	2	0
Other/unknown bite/ envenomation	424	79	72	268	421	0	0	0	131	8	134	34	2	0
Category total	94,247	14,491	18,994	59,840	93,820	147	133	93	18,229	1,723	23,511	6,640	301	6
Building and construction products														
Caulking compound and putty	2,596	1,867	142	573	2,550	23	5	17	207	494	220	27	2	0
Cement, concrete	1,759	480	109	1,158	1,720	9	1	26	612	210	383	322	9	0
Insulation														
Asbestos	767	64	96	571	750	2	6	5	141	81	60	28	0	0
Fiberglass	1,472	537	261	660	1,400	19	37	14	209	146	307	43	1	0
Urea/formaldehyde	138	60	17	61	134	1	1	0	14	13	23	4	1	0
Other	111	51	8	50	102	1	0	8	13	11	18	6	1	0
Unknown	91	47	3	40	89	1	0	1	12	13	16	2	0	0
Soldering flux	364	149	34	179	351	4	3	5	121	72	98	39	1	0
Other	3,078	1,611	275	1,146	2,980	36	5	53	595	493	489	183	6	0
Unknown	120	28	9	82	115	1	2	2	31	21	30	8	0	0
Category total	10,496	4,894	954	4,520	10,191	97	60	131	1,955	1,554	1,644	662	21	0
Chemicals														
Acetone	1,259	374	158	713	1,167	52	15	10	401	240	303	104	2	1
Acids														
Hydrochloric	3,082	168	491	2,379	2,977	55	16	20	1,143	269	1,042	388	13	5
Hydrofluoric	1,101	46	58	949	1,078	9	1	12	855	65	407	298	20	2
Other	5,163	503	843	3,684	4,961	112	27	46	2,058	419	1,713	757	35	4
Unknown	439	46	70	305	412	8	13	3	191	27	145	57	9	0
Alkali	4,827	909	757	3,053	4,576	102	77	56	2,185	516	1,488	827	47	3
Ammonia	4,821	1,077	607	3,053	4,443	223	41	78	1,632	542	1,575	519	30	5
Borate/boric acid	2,620	1,267	263	1,068	2,414	147	27	26	425	606	284	51	2	1
Chlorate	32	8	8	15	28	1	0	1	11	5	9	3	0	0
Cyanide	273	7	15	246	205	26	27	2	160	66	50	28	6	9
Dioxin	11	1	1	9	10	1	0	0	5	0	1	2	0	0
Ethylene glycol	735	84	66	568	457	228	13	5	460	130	107	105	119	7
Formaldehyde/formalin	1,194	131	274	763	1,034	111	20	22	500	150	395	99	12	0
Glycol: other	993	320	159	487	921	51	7	10	393	201	243	62	10	0
Ketone	716	234	50	427	689	13	3	6	288	114	213	66	2	1
Methylene chloride	504	124	63	311	487	10	2	1	147	88	143	40	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
Nitrate and nitrite	1,227	281	418	465	1,132	66	8	14	343	198	278	98	0	0
Phenol/creosote	595	43	47	482	573	8	5	7	260	57	210	81	4	0
Strychnine	58	21	8	29	38	9	4	2	20	16	3	5	2	1
Toluene diisocyanate	700	132	81	475	683	5	1	10	187	69	147	36	0	0
Other/unknown	19,532	6,443	3,062	9,696	17,842	533	483	488	4,981	3,173	3,907	1,171	105	4
Category total	49,882	12,219	7,499	29,177	46,127	1,770	790	819	16,645	6,951	12,663	4,797	419	43
Cleaning substances (household)														
Ammonia cleaner	2,243	829	231	1,159	2,081	116	29	11	438	378	559	124	11	0
Automatic dishwasher detergents														
Granular	4,310	3,638	117	537	4,270	22	11	5	177	1,389	626	46	1	1
Liquid or gel	4,690	4,001	120	561	4,662	16	9	3	248	1,450	877	53	1	1
Tablet	787	714	17	54	786	0	0	1	23	271	101	4	0	0
Rinse agent	1,394	1,306	13	74	1,384	4	3	2	69	319	146	14	0	0
Other/unknown	1,044	827	53	158	1,033	7	3	1	58	250	134	18	1	0
Bleaches														
Borate	690	347	50	273	633	17	3	35	74	125	181	20	1	0
Hypochlorite	54,284	20,839	5,277	27,497	50,902	2,246	432	561	10,479	7,419	15,559	2,530	60	1
Nonhypochlorite	703	307	62	322	655	26	10	9	131	111	194	32	1	0
Other/unknown	468	170	46	239	409	34	10	12	139	51	146	40	2	0
Carpet/upholstery cleaner	4,907	3,612	272	995	4,728	81	16	81	555	1,074	815	102	4	0
Cleansers														
Anionic/nonionic	2,846	2,149	166	523	2,743	77	10	10	270	727	392	52	1	0
Other/unknown	2,350	1,347	202	789	2,210	91	17	25	440	590	472	88	3	0
Disinfectants														
Hypochlorite	3,506	1,674	362	1,423	3,337	98	33	33	811	566	921	220	5	0
Phenol	1,727	1,064	180	464	1,636	69	7	9	278	346	375	63	5	0
Pine oil	5,262	2,877	476	1,826	4,791	359	40	54	1,174	1,243	1,230	167	13	2
Other/unknown	5,009	3,216	449	1,256	4,701	175	53	68	650	1,060	1,112	139	6	1
Drain openers														
Acid: hydrochloric	311	27	33	239	291	12	4	3	100	48	107	43	5	1
Acid: sulfuric	377	28	25	317	359	13	4	0	140	32	132	81	3	2
Acid: other/unknown	51	4	4	42	49	0	0	1	16	6	14	8	0	0
Alkali	4,019	616	356	2,981	3,665	257	21	56	1,244	498	1,243	522	58	4
Other/unknown	758	115	71	567	700	37	10	10	189	112	205	86	8	0
Fabric softeners/antistatic agents														
Aerosol/spray	242	208	14	20	233	6	1	2	10	59	28	2	0	0
Dry/powder	1	0	1	0	1	0	0	0	0	0	0	0	0	0
Liquid	1,145	928	65	149	1,093	35	10	7	94	275	131	13	1	0
Solid/sheet	470	417	11	38	453	7	1	8	16	89	23	3	0	0
Other/unknown	9	4	1	4	7	1	0	1	3	4	0	1	0	0
Glass cleaners														
Ammonia	7,356	5,927	623	789	7,019	271	44	12	602	1,701	1,064	62	6	0
Anionic/nonionic	184	131	18	35	177	5	2	0	33	43	36	7	0	0
Isopropanol	2,440	1,846	198	385	2,311	89	21	15	258	645	425	36	2	0
Other/unknown	1,266	868	147	248	1,171	82	8	2	174	310	259	29	2	0
Hand dishwashing														
Anionic/nonionic	5,614	3,609	423	1,545	5,320	107	85	93	383	772	1,189	73	1	1
Other/unknown	1,885	1,123	175	580	1,797	32	29	25	131	234	363	23	0	0
Laundry additives														
Bluing/brightening agent	52	17	9	26	50	0	0	2	14	14	12	6	1	0
Detergent booster	39	25	0	14	37	1	1	0	8	8	8	1	0	0
Enzyme/microbiological additive	98	60	4	31	91	5	0	2	23	21	24	4	0	0
Water softener	51	18	1	29	46	0	1	4	5	13	6	0	0	0
Other/unknown	505	374	34	91	466	6	3	28	61	123	105	9	0	0
Laundry detergents														
Granular	5,448	4,427	269	731	5,305	88	7	42	563	1,262	1,237	78	1	1
Liquid	4,683	3,282	287	1,097	4,472	137	17	55	560	807	1,162	97	5	0
Soap	86	55	4	27	76	4	1	5	18	21	16	4	0	0
Other/unknown	283	211	16	54	265	13	1	3	35	77	51	8	0	0
Laundry prewash/stain removers														
Liquid solvent-based	997	808	53	132	981	12	2	1	158	362	180	11	0	0
Spray solvent-based	296	263	11	20	293	1	1	1	41	57	68	8	1	0
Other/unknown solvent based	76	57	6	13	75	1	0	0	9	18	16	1	0	0
Dry surfactant-based	133	114	6	13	132	0	0	1	5	20	11	3	0	0
Liquid surfactant-based	2,498	2,204	75	208	2,478	10	4	4	252	509	431	58	2	0
Spray surfactant-based	599	546	24	29	588	5	2	4	122	106	128	28	1	0
Other/unknown surfactant-based	130	114	1	14	129	1	0	0	6	30	10	2	0	0
Other/unknown	963	733	51	171	951	3	3	5	87	234	196	13	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
Miscellaneous cleaners														
Acid	1,199	444	82	631	1,113	27	5	51	349	231	390	87	2	0
Alkali	7,259	4,607	521	2,091	6,945	191	48	60	1,583	1,615	1,641	374	14	0
Anionic/nonionic	5,648	3,715	412	1,479	5,237	145	206	50	753	1,148	1,132	129	6	0
Cationic	2,041	929	221	879	1,915	94	14	16	577	364	502	115	6	0
Ethanol	252	119	85	48	241	8	2	0	24	42	66	2	0	0
Glycols	969	521	170	272	937	20	9	2	158	179	219	28	1	0
Isopropanol	1,912	1,087	549	263	1,813	57	36	5	184	425	419	21	0	0
Methanol	40	16	4	20	38	0	2	0	12	15	8	0	0	0
Phenol	15	4	4	7	13	2	0	0	5	3	4	2	1	0
Other/unknown	10,269	6,801	762	2,626	9,885	206	70	95	1,289	2,466	2,053	183	11	1
Oven cleaners														
Acid	17	11	3	3	17	0	0	0	3	7	3	2	0	0
Alkali	2,558	558	343	1,638	2,460	37	32	23	949	263	818	363	16	0
Detergent	16	4	1	11	16	0	0	0	4	6	3	1	0	0
Other/unknown	285	71	33	177	270	8	4	2	101	36	80	36	0	0
Rust removers														
Alkali	13	4	1	7	11	0	2	0	9	1	5	2	0	0
Anionic/nonionic	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hydrofluoric acid	380	57	20	299	347	12	2	19	150	76	166	42	1	1
Other acid	524	184	25	310	503	12	2	7	123	115	147	42	2	0
Other/unknown	338	45	26	266	302	9	2	25	77	26	116	48	0	0
Spot removers/dry cleaning agents														
Anionic/nonionic	396	331	16	47	390	6	0	0	34	97	50	6	0	0
Glycol	415	253	34	126	401	4	2	8	56	72	116	12	0	0
Perchloroethylene	34	19	5	9	34	0	0	0	8	9	5	1	0	0
Isopropanol	50	32	4	14	49	1	0	0	9	8	13	2	0	0
Other halogenated hydrocarbon	53	18	3	31	50	1	2	0	12	12	12	5	0	0
Other nonhalogenated hydrocarbon	792	346	87	349	755	17	4	12	179	145	233	28	1	0
Other/unknown	199	127	9	61	193	2	1	3	32	32	36	6	0	0
Starch/fabric finish/sizing	705	605	35	61	686	13	3	3	29	132	51	2	0	0
Toilet bowl cleaners														
Acid	2,464	974	220	1,248	2,320	117	3	23	719	446	838	197	14	5
Alkali	1,853	1,182	114	540	1,774	60	1	18	320	496	407	87	6	0
Other/unknown	3,057	2,381	112	549	2,960	62	1	32	326	796	348	74	5	0
Wall/floor/tile cleaners														
Acid	4,335	2,394	281	1,634	4,180	106	18	27	919	924	1,225	239	8	0
Alkali	10,114	6,377	749	2,893	9,609	313	61	116	1,916	2,275	2,617	455	19	0
Anionic/nonionic	3,202	2,048	219	900	3,056	101	20	23	528	656	672	89	7	1
Cationic	2,695	1,769	242	664	2,532	128	19	13	414	580	539	82	2	1
Ethanol	78	64	7	7	76	2	0	0	4	23	7	3	0	0
Glycol	2,361	1,749	132	471	2,279	56	10	14	279	589	408	44	1	0
Isopropanol	3,129	1,889	246	933	2,920	149	17	34	568	666	661	89	7	0
Methanol	2	1	1	0	2	0	0	0	0	1	1	0	0	0
Other/unknown	2,039	1,213	135	656	1,944	52	15	24	344	515	472	72	6	0
Wheel cleaner: HF/bifluoride	84	23	7	54	82	0	0	2	57	10	37	18	1	0
Category total	211,077	121,048	17,029	71,063	200,397	6,697	1,582	2,019	34,477	41,381	49,240	8,020	350	24
Industrial cleaners														
Acid	2,513	902	178	1,411	2,399	70	16	25	632	517	613	176	8	0
Alkali	3,861	1,253	511	2,050	3,672	116	38	27	1,665	517	1,311	518	23	0
Anionic/nonionic	1,218	616	132	464	1,152	45	12	8	263	189	325	64	1	0
Cationic	533	110	121	296	478	41	8	3	220	71	187	39	0	0
Disinfectant	3,658	353	408	2,813	3,431	187	19	13	1,215	397	1,225	381	7	0
Other/unknown	2,576	1,104	257	1,196	2,453	56	30	32	842	410	791	214	8	1
Category total	14,359	4,338	1,607	8,230	13,585	515	123	108	4,837	2,101	4,452	1,392	47	1
Cosmetics/personal care products														
Baby oil	3,637	3,424	68	138	3,599	22	4	9	275	1,121	263	11	2	0
Bath oil/bubble bath	6,452	5,979	258	207	6,366	45	13	27	219	1,381	658	20	1	0
Cream/lotion/make-up	24,842	21,134	1,224	2,413	24,162	309	27	338	844	4,228	1,504	114	3	1
Dental care products														
Denture cleaner	1,482	265	69	1,142	1,444	29	4	3	83	324	121	10	0	0
Toothpaste with fluoride	24,812	22,596	1,064	1,112	24,117	306	68	309	405	5,413	1,337	44	1	0
Toothpaste without fluoride	1,502	1,284	64	152	1,433	23	4	41	20	314	81	3	1	0
Other	2,535	900	424	1,197	1,836	47	7	643	237	301	363	55	1	0
Deodorant	12,892	11,018	859	985	12,148	189	67	479	364	1,939	1,175	69	4	0
Depilatory	2,010	637	316	1,039	1,451	109	9	438	390	209	580	176	4	0
Douche	125	105	6	14	119	5	1	0	16	40	9	0	0	0
Eye product	1,316	1,148	52	116	1,285	9	0	21	64	226	87	15	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
Hair care products														
Coloring agent	2,403	983	229	1,178	2,039	32	4	327	451	385	613	141	6	0
Curl activator	64	44	4	16	61	1	0	2	14	13	11	2	0	0
Oil	245	218	8	18	239	3	0	3	32	60	32	4	2	0
Permanent wave solution	384	188	19	172	350	2	0	32	137	63	108	36	0	0
Relaxer: sodium hydroxide	711	495	41	173	687	5	4	15	324	128	241	84	3	0
Relaxer: other alkaline	876	659	42	175	849	4	2	21	361	224	308	77	0	0
Relaxer: other non-alkaline	55	42	4	9	52	1	0	1	15	17	17	1	0	0
Rinse/conditioner/relaxer	2,307	1,906	157	240	2,225	48	2	30	191	547	263	26	3	0
Shampoo	6,924	5,471	549	884	6,597	243	20	48	454	1,173	1,128	73	4	0
Spray	2,281	1,411	340	514	1,895	349	16	11	429	502	456	66	7	0
Other	2,936	2,106	247	574	2,799	54	7	75	375	631	474	81	3	1
Lipstick/balm: with camphor	1,102	1,021	45	33	1,091	8	0	1	23	223	54	6	0	0
Lipstick/balm: without camphor	4,459	4,210	149	86	4,396	31	3	27	73	594	132	8	0	0
Mouthwash														
Ethanol	16,075	4,228	2,715	9,049	14,617	1,362	38	32	1,369	2,702	1,156	246	34	1
Non-ethanol	844	389	151	300	773	62	2	6	80	234	68	3	2	0
Fluoride	3,401	2,442	772	179	3,367	24	2	6	43	751	72	2	0	0
Unknown	134	33	20	79	122	11	0	0	18	25	16	6	1	0
Nail products														
Acrylic nail adhesive	1,582	577	495	490	1,551	12	9	6	554	174	486	107	1	0
Acrylic nail primer	329	261	12	52	322	1	0	6	108	66	104	20	2	0
Acrylic nail remover	46	21	6	17	41	4	0	1	6	10	9	3	0	0
Polish	10,834	9,811	535	462	10,697	95	18	15	566	2,128	1,483	52	1	0
Polish remover: acetone	2,840	2,148	261	427	2,744	76	9	7	268	853	510	28	0	1
Polish remover: other	2,224	1,718	223	278	2,156	50	12	6	183	680	412	20	0	0
Polish remover: unknown	8,432	6,066	924	1,416	8,094	257	54	15	877	2,003	1,407	72	3	1
Other	1,774	1,052	76	630	1,747	10	2	14	467	371	391	91	3	0
Perfume/cologne/aftershave	19,234	16,489	1,543	1,154	18,618	466	96	37	1,225	4,958	3,763	116	5	2
Peroxide	16,276	6,994	1,462	7,733	15,625	359	59	214	1,094	2,709	2,615	217	8	0
Powder: talc	3,134	2,743	181	200	3,073	36	12	9	269	651	652	44	4	0
Powder: without talc	2,741	2,593	65	71	2,717	17	2	4	122	525	529	23	2	0
Soap	17,265	13,475	1,275	2,465	16,512	342	93	307	851	2,732	2,262	127	5	1
Suntan/sunscreen	9,670	8,590	589	464	9,410	31	13	212	334	1,465	1,692	57	4	0
Category total	223,187	166,874	17,543	38,053	213,426	5,089	683	3,798	14,230	43,093	27,642	2,356	120	8
Deodorizers														
Air fresheners														
Aerosol	2,958	2,128	466	354	2,767	149	21	13	292	576	736	56	2	2
Liquid	3,373	2,878	231	257	3,299	48	18	7	310	768	771	40	0	0
Solid	4,874	4,421	159	283	4,841	21	6	4	220	1,060	639	21	0	0
Other/unknown	1,957	1,510	235	209	1,882	51	17	5	211	422	444	39	1	0
Diaper pail deodorizer	40	37	1	2	40	0	0	0	2	19	1	1	0	0
Toilet bowl deodorizer	915	827	29	57	903	6	3	3	93	282	61	1	1	0
Other	5,310	4,004	343	941	5,101	130	38	38	635	1,248	884	110	5	0
Unknown	89	50	8	21	85	3	0	1	20	14	17	15	0	0
Category total	19,516	15,855	1,472	2,124	18,918	408	103	71	1,783	4,389	3,553	283	9	2
Dyes														
Chlorate	2	2	0	0	2	0	0	0	0	1	0	0	0	0
Fabric	442	332	42	64	435	4	0	3	26	101	24	1	0	0
Food	1,223	1,031	130	52	1,189	17	2	15	13	206	52	2	0	0
Leather	166	142	10	13	164	2	0	0	10	47	6	0	0	0
Other	596	297	201	92	557	12	4	22	66	109	47	15	2	0
Unknown	93	57	10	25	86	1	0	6	15	12	11	1	0	0
Category total	2,522	1,861	393	246	2,433	36	6	46	130	476	140	19	2	0
Essential oils														
Clove oil	870	645	52	172	826	13	3	28	115	208	171	12	1	0
Cinnamon oil	572	373	141	52	482	61	4	24	44	77	228	10	0	0
Eucalyptus oil	410	267	33	108	394	9	0	6	74	121	82	8	0	0
Pennyroyal oil	24	3	4	17	11	8	0	4	12	3	5	2	0	0
Tea tree oil	787	518	57	212	737	20	2	28	89	238	134	12	1	0
Other/unknown	4,647	3,755	281	601	4,530	51	9	55	432	1,163	878	73	1	0
Category total	7,310	5,561	568	1,162	6,980	162	18	145	766	1,810	1,498	117	3	0
Fertilizers														
Household plant food	2,775	1,678	366	700	2,729	25	10	8	89	515	98	3	1	0
Outdoor fertilizer	4,228	2,746	441	1,009	4,137	40	16	30	217	844	270	27	0	0
Plant hormone	55	21	1	32	55	0	0	0	12	12	6	2	0	0
Other	2,149	1,365	234	516	2,103	20	7	13	162	445	173	27	0	0
Unknown	181	100	36	42	174	1	2	3	45	26	16	23	0	0
Category total	9,388	5,910	1,078	2,299	9,198	86	35	54	525	1,842	563	82	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
Fire extinguishers	3,865	356	1,132	2,228	3,366	221	216	24	899	538	1,099	191	4	0
Food products/food poisoning	69,122	18,476	11,234	38,491	63,111	771	1,069	4,004	5,349	6,102	11,933	2,585	83	0
Foreign bodies/toys/ miscellaneous														
Ash	549	442	31	72	539	5	5	0	27	76	46	3	0	0
Bubble blowing solution	5,203	4,870	226	95	5,165	27	5	3	141	703	1,124	30	0	0
Charcoal	626	417	49	142	575	27	2	21	43	112	46	17	4	3
Christmas ornament	1,035	806	70	155	1,023	5	3	4	56	252	62	4	1	0
Coin	3,808	3,109	578	103	3,744	44	12	2	1,115	1,016	382	57	2	0
Desiccant	44,953	40,465	2,741	1,478	44,580	274	74	8	1,204	5,673	261	9	0	0
Feces/urine	5,998	5,016	319	631	5,828	34	114	17	157	878	173	24	0	0
Glass	2,261	816	279	1,143	2,142	21	85	7	267	335	170	24	0	0
Glow product	9,680	5,137	4,173	300	9,554	108	3	8	578	1,231	2,229	53	2	0
Incense, punk	276	249	11	16	268	4	1	3	16	55	25	3	0	0
Soil	2,762	2,435	127	190	2,745	7	3	6	92	388	117	11	1	0
Thermometers														
Mercury	11,941	5,041	3,214	3,502	11,835	66	14	9	722	1,987	137	13	0	0
Other	1,950	789	539	566	1,926	16	6	2	91	432	69	2	0	0
Unknown	26	15	4	6	26	0	0	0	2	8	3	0	0	0
Toy	14,363	9,850	4,049	400	14,182	117	37	24	682	1,955	1,815	45	0	0
Other	18,072	12,193	2,831	2,846	17,346	313	178	206	1,608	3,015	1,177	147	10	1
Unknown	674	516	88	65	639	10	20	1	44	139	49	4	0	0
Category total	124,177	92,166	19,329	11,710	122,117	1,078	562	321	6,845	18,255	7,885	446	20	4
Fumes/gases/vapors														
Carbon dioxide	732	51	304	364	659	60	8	4	129	79	138	25	3	0
Carbon monoxide	16,151	2,038	2,555	11,020	15,613	415	20	54	5,963	2,291	4,733	1,388	224	46
Chloramine	642	22	57	556	620	18	4	0	138	42	243	106	0	0
Chlorine: acid mixed with hypochlorite	727	32	68	620	705	21	0	1	226	54	340	137	2	1
Chlorine: other	6,090	484	1,090	4,437	5,853	125	13	93	1,865	233	2,542	942	19	1
Hydrogen sulfide	1,336	118	220	964	1,326	1	2	4	325	206	352	116	16	4
Methane and natural gas	6,150	884	785	3,572	6,086	34	11	10	1,015	2,293	1,142	147	7	3
Polymer fume fever	4	0	0	4	4	0	0	0	0	0	0	0	0	0
Propane/simple asphyxiant	2,705	318	592	1,742	2,439	216	8	30	829	312	754	208	11	4
Other	1,953	200	301	1,377	1,888	37	8	18	596	299	470	221	10	1
Unknown	1,972	139	263	1,444	1,861	16	72	9	444	241	457	143	7	1
Category total	38,462	4,286	6,235	26,100	37,054	943	146	223	11,530	6,050	11,171	3,433	299	61
Heavy metals														
Aluminum	947	454	93	384	904	14	13	7	87	109	67	21	0	0
Arsenic (excluding pesticide)	1,126	194	74	837	778	22	171	9	603	144	92	81	21	2
Barium	24	0	14	9	19	5	0	0	11	3	8	5	0	0
Cadmium	71	9	4	57	59	3	3	0	42	11	10	8	3	1
Copper	984	175	355	442	891	37	29	12	303	123	293	68	7	1
Fireplace flame colors	20	18	1	1	19	0	0	1	2	5	3	0	1	0
Gold	1	0	0	0	1	0	0	0	0	1	0	0	0	0
Lead	8,104	5,737	1,230	1,086	7,949	38	33	21	1,087	630	181	84	13	0
Manganese	49	6	7	35	43	0	2	1	26	6	7	6	1	0
Mercury: elemental	3,131	505	963	1,566	2,904	102	38	33	653	902	85	38	4	0
Mercury: other/unknown	231	64	25	139	204	9	3	8	68	61	18	6	2	0
Metal fume fever	787	15	51	713	769	2	3	11	219	20	230	96	1	0
Selenium	134	61	11	62	111	9	2	8	30	25	11	9	0	1
Thallium	20	4	0	15	11	0	5	1	13	2	1	0	0	0
Other	2,209	745	308	1,134	1,909	128	30	119	568	389	254	140	20	2
Unknown	56	14	3	39	38	0	5	3	33	5	3	2	0	0
Category total	17,894	8,001	3,139	6,519	16,609	369	337	234	3,745	2,436	1,263	564	73	7
Hydrocarbons														
Benzene	103	9	7	85	97	3	2	0	49	21	22	5	0	0
Carbon tetrachloride	55	5	7	33	52	2	0	1	14	23	6	2	0	0
Diesel fuel	1,657	310	140	1,159	1,601	45	5	5	371	192	511	111	2	0
Fluorochlorocarbon/ propellant	6,956	601	1,154	5,093	6,420	423	61	31	1,423	1,114	1,544	434	16	3
Gasoline	20,236	5,331	3,526	11,217	18,953	1,115	90	48	3,088	3,056	7,526	582	23	4
Halogenated hydrocarbon: other	607	172	62	362	569	17	9	11	230	63	206	47	5	0
Kerosene	2,324	1,175	222	854	2,248	45	18	7	688	466	644	202	9	0
Lamp oil	2,939	2,476	101	357	2,881	42	10	4	1,040	896	761	265	23	2
Lighter fluid/naphtha	3,301	1,705	316	1,248	3,087	145	42	19	982	802	935	199	18	2
Lubricating oil/motor oil	6,034	3,916	445	1,623	5,839	115	63	12	929	1,987	1,022	134	9	0
Mineral seal oil	101	81	6	14	95	5	0	1	15	44	9	1	0	0
Mineral spirits/varsol	2,947	1,109	316	1,499	2,725	156	40	21	856	519	855	170	19	1
Toluene/xylene	1,623	251	162	1,169	1,501	87	11	14	730	192	492	189	21	1

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
Turpentine	754	229	102	417	636	86	14	6	221	144	200	42	0	0
Other	4,573	2,468	424	1,630	4,348	123	34	63	1,205	1,136	1,038	250	17	3
Unknown	1,100	426	153	503	1,005	61	14	18	370	231	301	86	4	1
Category total	55,310	20,264	7,143	27,263	52,057	2,470	413	261	12,211	10,886	16,072	2,719	166	17
Lacrimators														
Capsicum defense spray	4,925	904	1,807	2,147	3,962	143	607	53	710	111	2,426	173	3	0
Lacrimator: CN	1,353	274	423	625	1,013	56	226	13	226	36	622	72	1	0
Lacrimator: CS	85	21	19	35	79	3	1	1	21	1	37	6	0	0
Other	123	8	16	99	121	0	0	2	19	0	18	2	0	0
Unknown	193	38	57	94	160	6	22	0	21	7	87	9	0	0
Category total	6,679	1,245	2,322	3,000	5,335	208	856	69	997	155	3,190	262	4	0
Matches/fireworks/ explosives														
Explosive	323	152	82	85	284	20	14	2	83	81	47	14	5	1
Firework	587	460	83	39	571	8	3	3	69	195	59	13	1	0
Match	1,166	1,081	27	56	1,153	11	1	1	28	232	23	6	0	0
Other	28	13	7	8	26	2	0	0	7	2	7	5	0	0
Unknown	2	1	0	1	2	0	0	0	1	0	1	0	0	0
Category total	2,106	1,707	199	189	2,036	41	18	6	188	510	137	38	6	1
Mushrooms														
Coprine	11	6	1	4	10	1	0	0	5	4	1	1	0	0
Cyclopeptide	43	6	6	31	29	9	2	1	32	11	10	6	3	0
Gastrointestinal irritant	162	51	35	75	129	26	1	4	86	30	63	28	0	0
Hallucinogenic	791	28	453	294	127	645	13	3	585	45	141	329	10	1
Ibotenic acid	37	6	13	17	14	23	0	0	28	9	6	15	1	0
Miscellaneous, nontoxic	233	81	38	112	194	7	0	32	62	54	59	24	1	0
Monomethylhydrazine	71	2	10	59	64	4	0	3	27	21	13	11	1	1
Muscarine	16	0	4	12	9	7	0	0	11	3	4	4	1	0
Orellanine	3	1	0	2	2	1	0	0	2	1	0	2	0	0
Other potentially toxic	18	7	1	10	11	2	0	4	9	3	1	3	0	0
Unknown	6,867	4,734	1,043	1,064	5,974	753	9	97	2,366	3,356	792	294	20	2
Category total	8,252	4,922	1,604	1,680	6,563	1,478	25	144	3,213	3,537	1,090	717	37	4
Paints and stripping agents														
Paints														
Anti-algae	54	7	2	44	51	0	1	1	14	4	14	2	0	0
Anti-corrosion	54	6	8	40	50	2	0	1	22	4	19	3	3	0
Oil-base	3,724	1,095	701	1,878	3,472	178	20	44	785	482	961	204	10	1
Water-base	6,836	5,144	494	1,162	6,720	41	18	52	442	1,084	478	63	3	0
Stains	1,053	414	96	532	1,014	14	2	21	139	195	215	38	1	0
Stripping agents														
Methylene chloride	1,178	160	101	911	1,135	21	3	16	358	86	438	105	14	0
Other	911	175	49	682	852	28	5	24	324	106	325	104	3	0
Unknown	170	37	12	120	166	4	0	0	57	19	61	13	1	0
Varnish, lacquer	1,545	463	132	925	1,483	32	3	27	307	213	353	79	2	0
Other paint/varnish/lacquer	797	314	73	396	766	15	2	13	166	117	144	35	3	0
Unknown paint/varnish/ lacquer	7,639	4,770	629	2,183	7,421	117	14	77	900	1,219	778	182	11	2
Category total	23,961	12,585	2,297	8,873	23,130	452	68	276	3,514	3,529	3,786	828	51	3
Pesticides														
Fungicides (non-medicinal)														
Carbamate	159	48	18	93	149	6	2	2	59	21	33	13	1	0
Copper compound	30	2	1	27	28	0	2	0	6	4	8	1	0	0
Mercurial	1	0	0	1	1	0	0	0	0	0	1	0	0	0
Non-mercurial	10	1	0	8	10	0	0	0	4	1	3	1	0	0
Phthalimide	117	57	16	43	109	5	0	3	24	25	17	5	0	0
Wood preservative	422	87	33	299	404	7	0	9	89	52	95	12	0	0
Other/unknown	604	157	53	377	573	10	3	18	130	96	110	40	0	0
Fumigants														
Aluminum phosphide	85	3	6	74	79	4	1	1	55	3	38	10	0	2
Metam sodium	2	0	0	1	1	0	0	0	2	0	1	0	0	0
Methyl bromide	8	0	1	7	7	1	0	0	7	1	1	1	0	0
Sulfuryl fluoride	304	53	43	203	296	0	3	3	42	38	35	4	0	0
Other	42	3	12	27	42	0	0	0	16	1	9	5	0	0
Unknown	70	11	8	50	66	1	0	2	15	6	19	2	0	0
Herbicides (includes algicides, defoliants, dessicants, plant growth regulators)														
Carbamate	31	2	3	26	23	8	0	0	17	3	10	5	0	0
2,4-D or 2,4,5-T	97	33	12	51	93	0	0	4	20	16	11	3	0	0
Chlorophenoxy	2,206	647	209	1,339	2,095	42	3	62	443	385	428	74	10	2
Diquat	339	69	33	228	318	5	3	12	89	63	77	24	3	2
Glyphosate	4,420	1,157	340	2,875	4,109	57	33	209	779	1,059	1,167	104	5	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
Paraquat	76	2	8	66	70	4	0	0	54	10	15	10	2	2
Paraquat/diquat	1	0	0	1	1	0	0	0	1	0	0	0	0	0
Triazine	379	84	33	247	372	3	0	4	98	50	94	32	1	0
Urea	78	29	14	34	69	3	0	6	21	15	9	3	0	0
Other	1,399	374	125	886	1,342	18	9	28	382	225	293	73	6	1
Unknown	321	87	40	188	301	6	5	8	66	50	56	17	0	1
Insecticides (includes insect growth regulators, molluscicides, nematicides)														
Arsenic pesticide	419	287	20	110	413	4	1	1	32	153	16	1	0	0
Borate/boric acid	3,578	2,959	115	485	3,510	48	8	10	258	944	126	16	3	0
Carbamate only	3,063	1,233	278	1,509	2,864	130	22	37	697	571	478	147	10	2
Carbamate with other insecticide	632	175	86	366	600	18	7	7	100	101	114	22	1	0
Chlorinated hydrocarbon only	1,153	419	174	548	1,014	63	5	67	400	339	210	47	12	0
Chlorinated hydrocarbon with other insecticide	282	106	30	136	262	12	1	7	39	44	60	19	1	0
Insect growth regulator	143	78	10	55	140	1	0	2	34	24	19	2	1	0
Metaldehyde	224	124	13	86	215	2	0	7	37	70	23	2	1	0
Nicotine	16	8	1	7	14	0	1	1	3	5	2	3	0	0
Organophosphate	6,442	1,881	576	3,904	6,010	232	43	138	1,695	1,283	1,388	359	60	16
Organophosphate/ carbamate	168	59	19	88	164	2	1	1	37	39	19	7	0	0
Organophosphate/ chlorinated hydrocarbon	5	1	0	4	5	0	0	0	2	2	1	2	0	0
Organophosphate/other insecticide	1,031	225	124	667	973	32	11	14	243	153	244	57	2	1
Organophosphate/ carbamate/ chlorinated hydrocarbon	10	1	1	8	8	2	0	0	1	2	3	0	0	0
Piperonyl butoxide only	3	1	0	2	3	0	0	0	1	1	1	0	0	0
Piperonyl butoxide/ pyrethrin	339	155	52	129	324	6	2	6	57	56	75	18	0	0
Pyrethrins only	99	19	8	70	93	1	3	2	18	6	17	2	0	0
Pyrethrin	5,526	1,997	655	2,798	5,120	139	23	229	924	948	1,245	230	2	0
Pyrethroid	15,171	4,616	1,638	8,664	14,070	361	97	611	2,777	2,367	3,569	676	23	3
Rotenone	66	20	6	40	64	2	0	0	9	15	16	3	0	0
Veterinary insecticide	231	77	27	124	221	5	1	4	34	51	46	10	1	0
Other	8,772	5,098	724	2,823	8,483	97	28	150	906	1,666	846	157	4	0
Unknown	3,704	1,026	410	2,204	3,334	123	81	120	901	506	698	174	9	1
Repellents														
Bird, dog, deer or other mammal repellent	297	99	39	157	280	8	4	5	31	41	61	4	0	0
Insect repellent with DEET	9,145	6,075	1,552	1,472	8,607	102	60	367	799	1,516	2,428	145	8	0
Insect repellent without DEET	2,209	1,765	205	225	2,149	6	5	47	129	440	370	18	2	0
Insect repellent: unknown	138	84	20	34	133	2	1	2	20	16	24	7	0	0
Naphthalene	1,577	1,161	83	320	1,541	19	5	7	326	612	118	11	2	0
Paradichlorobenzene	125	85	2	35	119	6	0	0	11	36	7	2	0	0
Other moth repellent	8	6	1	1	8	0	0	0	3	2	1	0	0	0
Unknown moth repellent	2,226	1,378	161	648	2,142	50	13	17	428	673	182	27	3	0
Rodenticides														
ANTU	4	0	2	1	2	2	0	0	0	0	0	1	0	0
Anticoagulant: warfarin-type	341	278	11	46	319	16	3	2	84	149	6	2	1	0
Anticoagulant: long-acting, superwarfarin	16,481	14,638	439	1,294	15,772	594	66	28	4,817	5,377	237	112	30	2
Bromethalin	581	461	24	91	529	41	8	0	189	218	17	10	0	0
Cholecalciferol	20	16	0	3	20	0	0	0	6	10	0	1	0	0
Cyanide	2	1	0	1	1	1	0	0	1	1	0	0	0	0
Monofluoroacetate	5	3	1	1	5	0	0	0	1	1	1	0	1	0
Strychnine	117	12	9	93	44	32	30	0	70	27	17	9	2	1
Vacor	6	1	0	5	6	0	0	0	4	1	2	1	0	0
Zinc phosphide	112	45	5	61	101	7	1	1	34	27	11	6	2	0
Other	701	500	61	133	671	21	6	2	82	154	37	4	1	0
Unknown	1,304	859	60	365	1,075	153	61	4	576	383	72	30	2	1
Category total	97,677	50,938	8,650	36,964	91,986	2,520	662	2,267	19,235	21,154	15,337	2,783	212	41

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

		Age			Reason				Treated in Health Care Facility	Outcome				
	No. of Exposures	<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Photographic products														
Developer/fixing/stop bath	430	33	162	229	412	7	4	3	133	58	160	22	2	0
Photographic coating fluid	12	7	2	3	12	0	0	0	0	3	0	0	0	0
Other	810	456	97	253	773	29	2	6	95	127	114	48	0	0
Unknown	10	1	2	7	10	0	0	0	3	0	2	3	0	0
Category total	1,262	497	263	492	1,207	36	6	9	231	188	276	73	2	0
Plants														
Amygdalin/cyanogenic glycoside	2,730	1,833	472	385	2,603	55	2	69	117	574	97	20	0	0
Anticholinergic	973	380	374	214	558	403	4	4	482	202	94	300	30	0
Cardiac glycoside	1,471	845	281	340	1,372	80	2	14	210	440	100	22	4	0
Colchicine	11	6	2	3	11	0	0	0	3	4	0	0	0	0
Depressant	332	210	50	67	268	52	2	10	51	64	24	14	0	0
Dermatitis	10,232	6,056	1,226	2,869	9,699	161	34	328	791	1,394	1,175	292	5	0
Gastrointestinal irritant	13,503	10,504	1,273	1,652	12,972	281	19	209	846	3,077	1,029	176	10	1
Hallucinogenic	414	131	168	112	209	194	3	6	169	75	68	75	4	0
Nicotine	138	65	25	46	132	6	0	0	54	34	39	18	0	0
Non-toxic	13,993	11,421	1,361	1,118	13,478	164	10	328	445	1,822	658	94	4	0
Oxalate	10,808	9,406	800	572	10,590	163	9	34	376	2,884	1,348	74	2	0
Solanine	1,170	858	130	175	1,116	32	2	17	114	336	77	11	2	0
Stimulant	132	57	19	56	118	8	1	3	26	30	20	6	1	0
Toxalbumin	178	63	30	85	147	19	7	5	57	45	35	8	1	1
Other toxic	5,363	3,972	718	639	5,086	154	9	102	496	1,363	365	88	6	1
Unknown toxic or unknown if toxic	15,721	11,971	1,928	1,715	15,183	294	19	192	1,041	3,573	1,269	178	6	0
Category total	77,169	57,778	8,857	10,048	73,542	2,066	123	1,321	5,278	15,917	6,398	1,376	75	3
Polishes and waxes	8,569	6,954	469	1,104	8,303	185	24	49	1,040	2,832	1,322	155	8	0
Radioisotopes	320	26	44	235	287	2	8	18	84	39	29	16	2	0
Sporting equipment														
Fishing bait	52	32	12	8	47	2	1	2	5	10	4	0	0	0
Fishing product: other	16	12	2	2	14	0	0	2	5	7	2	1	0	0
Golf ball	31	4	18	8	28	3	0	0	2	6	9	2	0	0
Gun bluing	51	24	3	24	44	5	1	1	21	18	8	2	0	1
Hunting product: other	408	213	90	101	356	17	25	6	119	109	42	6	0	0
Other	80	52	16	11	76	1	3	0	11	29	12	0	1	0
Unknown	2	2	0	0	2	0	0	0	0	1	0	0	0	0
Category total	640	339	141	154	567	28	30	11	163	180	77	11	1	1
Swimming pool/aquarium	10,454	4,309	1,881	4,136	9,920	95	32	390	1,885	1,539	3,110	617	19	0
Tobacco products	7,806	6,840	200	735	7,418	250	49	71	1,487	2,668	1,664	188	13	1
Weapons of mass destruction														
Anthrax	14	2	0	11	9	0	4	1	4	1	1	0	0	0
Other biological weapon	11	2	0	9	8	0	3	0	4	0	4	0	0	0
Other chemical weapon	10	0	0	10	8	0	1	0	5	2	2	0	0	0
Suspicious powder in envelope/package	85	2	2	80	25	0	54	0	16	22	9	1	0	0
Other suspicious powder	82	1	2	78	24	1	55	0	21	40	5	0	0	0
Other suspicious substance	17	0	1	16	4	0	13	0	5	4	3	1	0	0
Category total	219	7	5	204	78	1	130	1	55	69	24	2	0	0
Other/unknown nondrug substances	24,529	10,697	3,612	9,614	20,660	646	1,654	901	4,619	3,716	3,875	1,007	108	2
Total number of nonpharmaceuticals	**1,378,990**	**721,556**	**173,088**	**470,184**	**1,274,757**	**69,961**	**10,980**	**19,013**	**225,815**	**231,514**	**243,362**	**54,067**	**4,423**	**371**
% of nonpharmaceuticals		**52.3%**	**12.6%**	**34.1%**	**92.4%**	**5.1%**	**0.8%**	**1.4%**	**16.4%**	**16.8%**	**17.6%**	**3.9%**	**0.3%**	**0.0%**
% of all substances	**50.8%**	**26.6%**	**6.4%**	**17.3%**	**46.9%**	**2.6%**	**0.4%**	**0.7%**	**8.3%**	**8.5%**	**9.0%**	**2.0%**	**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	31,151	7,536	10,303	13,085	15,268	15,338	19	369	17,782	8,626	4,533	2,373	565	74
Pediatric formulation	22,535	20,201	2,048	244	22,083	308	12	112	2,790	5,276	377	72	12	2
Unknown formulation	8,216	1,930	2,486	3,685	3,482	4,467	3	102	5,392	2,083	1,444	927	339	71
Acetaminophen in combination with:														
Aspirin with other ingredient	3,702	1,258	974	1,449	1,973	1,541	1	166	1,705	901	734	286	23	1
Aspirin without other ingredient	2,788	784	811	1,166	1,287	1,380	1	106	1,482	700	570	218	20	2
Codeine	5,602	1,048	1,115	3,393	2,362	2,763	3	414	3,164	1,295	1,298	520	130	9
Hydrocodone	19,538	1,777	2,861	14,522	6,625	11,296	15	1,214	11,683	3,488	4,747	2,301	606	82
Oxycodone	6,078	661	733	4,553	2,281	3,155	5	493	3,271	1,137	1,371	690	178	24
Propoxyphene	5,870	608	803	4,351	2,014	3,472	1	283	3,735	1,232	1,446	759	233	20
Other opioid	517	54	79	376	170	302	1	32	307	79	135	60	17	3
Other drug: adult formulation	21,110	3,075	5,016	12,814	7,006	13,267	8	628	13,707	4,415	5,226	2,892	533	39
Other drug: pediatric formulation	64	57	6	1	63	0	0	1	12	17	2	1	0	0
Aspirin alone														
Adult formulation	6,383	2,056	1,789	2,502	3,268	2,934	5	150	3,540	1,775	1,052	815	83	11
Pediatric formulation	894	614	154	123	770	103	1	17	254	334	54	29	3	0
Unknown formulation	10,060	1,976	3,087	4,883	3,613	6,106	8	209	7,064	2,294	2,142	1,763	281	48
Aspirin in combination with:														
Carisoprodol	400	13	36	341	84	297	2	9	329	36	160	84	25	0
Codeine	213	28	18	162	72	126	0	10	145	30	53	44	8	0
Oxycodone	146	10	16	113	49	87	0	7	76	28	24	17	1	0
Propoxyphene	29	3	1	24	13	15	0	1	17	8	8	3	0	0
Other opioid	50	2	9	38	8	34	0	6	30	8	12	11	2	1
Other drug: adult formulation	1,669	359	283	1,017	755	774	1	121	898	343	393	213	26	2
Other drug: pediatric formulation	3	1	0	2	2	0	0	1	1	0	1	1	0	0
Nonaspirin salicylate	916	456	138	317	671	202	0	39	316	243	138	59	10	2
Opioids														
Codeine	1,358	500	319	527	876	356	1	105	465	262	244	76	20	8
Meperidine	453	40	58	345	151	198	3	86	283	67	98	81	18	1
Methadone	3,175	210	294	2,604	885	1,881	8	227	2,257	303	617	792	359	60
Morphine	2,520	195	278	1,993	968	1,213	1	257	1,494	345	484	401	152	33
Oxycodone	5,030	420	520	3,961	1,895	2,632	14	327	2,969	740	1,181	746	279	36
Pentazocine	178	9	19	148	61	89	0	26	93	19	49	22	3	0
Propoxyphene	448	50	48	344	144	270	1	20	301	78	88	78	32	7
Tramadol	3,039	353	380	2,269	1,022	1,720	1	231	1,969	590	719	516	137	13
Other/unknown	6,440	814	691	4,848	2,224	2,877	16	1,104	3,688	808	1,585	1,152	459	55
Other nonsteroidal anti-inflammatory drugs														
Colchicine	231	58	22	151	160	47	0	24	126	67	36	26	4	4
Cox-2 inhibitor	6,326	2,291	718	3,273	4,181	1,673	1	434	2,335	1,770	756	443	110	15
Ibuprofen	71,043	41,947	14,546	14,139	52,346	17,280	30	1,205	18,904	17,681	6,190	2,014	275	13
Ibuprofen with hydrocodone	40	9	7	24	24	14	0	2	19	11	8	3	0	0
Indomethacin	669	169	74	422	339	242	0	82	315	158	115	50	11	1
Ketoprofen	430	229	65	131	309	103	1	11	126	135	43	15	2	0
Naproxen	13,455	2,855	3,644	6,836	6,567	5,986	7	823	6,087	3,347	2,338	840	116	9
Other	5,147	1,579	644	2,875	3,386	1,418	2	299	1,800	1,213	727	330	64	10
Unknown	13	6	2	4	8	1	0	2	5	3	2	1	0	0
Phenacetin	4	0	0	4	2	2	0	0	3	1	1	0	0	0
Phenazopyridine	1,445	1,028	129	284	1,210	137	0	92	377	520	190	48	7	0
Salicylamide	6	3	2	1	3	2	0	1	2	3	0	0	0	0
Other	352	167	42	140	264	43	0	42	88	85	74	13	2	0
Unknown	226	24	81	115	58	158	1	7	156	46	60	18	2	0
Category total	269,962	97,463	55,349	114,599	151,002	106,309	173	9,897	121,562	62,600	41,525	21,803	5,147	656
Anesthetics														
Inhalation anesthetics														
Nitrous oxide	167	24	52	85	86	51	1	28	69	8	44	23	3	0
Other	153	16	21	114	117	19	4	10	55	12	40	15	6	0
Unknown	1	1	0	0	1	0	0	0	0	1	0	0	0	0
Ketamine and analogs	170	6	43	116	35	115	6	9	139	7	49	64	12	2
Local/topical anesthetics														
Dibucaine	45	37	2	6	44	1	0	0	6	19	2	1	0	0
Lidocaine	1,867	905	248	701	1,622	100	4	136	442	490	301	98	18	2
Other/unknown	6,664	4,774	508	1,352	6,213	151	15	272	878	2,165	671	130	22	1
Other	16	9	5	2	14	0	0	2	3	3	2	1	0	0
Unknown	9	2	1	6	4	0	0	4	4	2	0	1	0	2
Category total	9,092	5,774	880	2,382	8,136	437	30	461	1,596	2,707	1,109	333	61	7

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
Anticholinergic drugs	3,094	560	403	2,102	1,623	1,190	3	216	1,743	659	603	622	115	5
Anticoagulants														
Glycoprotein IIA/IIB inhibitor	11	0	0	11	10	0	0	1	10	4	0	2	0	0
Heparin	176	26	5	141	112	19	0	43	102	23	20	36	6	2
Warfarin (excluding rodenticide)	2,718	805	103	1,797	2,071	421	4	205	1,136	665	164	372	74	3
Other antiplatelet	1,490	363	36	1,086	1,257	151	0	78	461	482	106	90	18	0
Other	42	20	1	19	33	2	0	7	32	20	7	3	2	0
Unknown	36	19	1	15	20	5	5	5	21	7	0	5	1	0
Category total	4,473	1,233	146	3,069	3,503	598	9	339	1,762	1,201	297	508	101	5
Anticonvulsants														
Carbamazepine	5,144	1,346	976	2,792	3,076	1,691	4	271	3,112	1,020	1,263	877	246	9
Phenytoin	4,145	600	283	3,228	2,173	1,398	0	460	2,756	850	1,035	743	98	10
Primidone	357	57	22	277	241	96	1	14	176	90	92	40	7	0
Succinimide	92	37	37	17	80	7	0	4	19	33	9	1	0	0
Valproic acid	9,619	984	2,242	6,319	3,874	5,117	4	451	6,451	2,163	2,326	1,511	417	21
Other	19,098	2,403	3,783	12,798	8,088	9,777	16	971	12,251	4,112	4,723	3,065	888	48
Unknown	18	1	5	11	6	7	2	3	10	3	3	4	0	0
Category total	38,473	5,428	7,348	25,442	17,538	18,093	27	2,174	24,775	8,271	9,451	6,241	1,656	88
Antidepressants														
Cyclic antidepressants														
Amitriptyline	7,319	879	853	5,508	2,202	4,769	7	182	5,722	1,049	1,643	1,940	821	44
Amoxapine	29	6	3	20	16	12	0	1	13	4	3	4	4	0
Desipramine	232	30	34	167	87	125	0	14	161	47	39	52	22	4
Doxepin	1,425	89	119	1,205	379	988	0	36	1,163	191	383	376	172	12
Imipramine	1,030	318	254	452	603	352	0	62	568	326	189	131	54	7
Maprotiline	13	1	1	11	7	5	0	0	5	3	0	3	0	0
Nortriptyline	1,113	103	152	849	378	644	0	66	794	182	234	266	95	2
Protriptyline	27	9	3	15	12	12	0	3	20	9	7	2	0	1
Other cyclic antidepressant	1,296	79	175	1,031	423	791	1	25	998	146	296	372	186	11
Unknown cyclic antidepressant	38	0	5	31	1	32	0	1	37	2	10	9	4	8
Cyclic antidepressant formulated with a benzodiazepine	57	10	1	45	22	32	0	3	40	12	11	12	6	2
Cyclic antidepressant formulated with a phenothiazine	131	18	12	99	50	73	0	4	101	37	27	28	9	2
Lithium	5,296	300	928	4,016	1,749	2,699	3	648	4,162	910	1,215	1,389	295	13
MAO inhibitor	285	32	3	244	157	74	1	49	171	68	36	63	20	2
SSRI	55,977	9,088	13,558	32,863	21,091	32,020	31	2,307	36,415	14,380	12,783	7,763	1,730	106
Trazodone	11,518	653	1,815	8,932	2,632	8,455	12	294	9,054	2,085	3,753	2,122	403	23
Other	15,471	2,516	3,043	9,805	6,172	8,543	5	608	10,778	3,583	3,568	2,846	886	37
Unknown	74	2	19	51	11	58	0	4	51	11	17	9	4	0
Category total	101,331	14,133	20,978	65,344	35,992	59,684	60	4,307	70,253	23,045	24,214	17,387	4,711	274
Antihistamines														
Diphenhydramine: unknown if OTC or Rx	26,646	11,655	4,896	9,944	16,728	9,049	20	686	10,632	5,524	4,805	2,938	433	37
Diphenhydramine: Rx	38	12	8	18	24	14	0	0	23	18	9	6	0	0
Diphenhydramine: OTC	1,408	422	241	733	666	713	0	20	700	275	316	187	22	1
H2 receptor antagonist	8,439	5,401	771	2,232	7,076	1,083	3	244	1,823	2,433	650	296	56	3
Other	33,720	15,132	8,116	10,300	24,637	7,725	11	1,178	10,667	8,693	4,615	2,305	379	23
Category total	70,251	32,622	14,032	23,227	49,131	18,584	34	2,128	23,845	16,943	10,395	5,732	890	64
Antimicrobials														
Antibiotics														
Systemic	39,523	18,945	6,702	13,639	29,455	5,059	18	4,828	7,898	7,407	4,155	1,480	214	13
Topical	7,724	5,790	547	1,333	7,528	55	1	137	265	1,311	447	39	2	0
Unknown	599	162	144	284	318	162	0	116	211	104	133	34	7	0
Antifungals														
Systemic	1,398	737	156	498	1,111	97	0	184	292	305	138	61	8	1
Topical	8,694	6,662	340	1,654	8,390	66	6	226	470	1,590	615	60	1	0
Unknown	15	8	1	6	15	0	0	0	4	2	4	2	0	0
Anthelmintics														
Diethylcarbamazine	80	46	7	26	74	4	2	0	8	15	4	0	0	0
Piperazine	433	329	29	75	418	14	0	0	57	158	17	2	2	0
Other	1,183	758	94	320	1,118	22	2	38	118	336	100	8	0	0
Unknown	11	8	0	3	11	0	0	0	2	2	0	0	0	0
Antiparasitics														
Antimalarial	872	214	93	559	561	202	1	101	431	233	109	104	31	5
Metronidazole	1,478	355	182	924	887	256	4	318	383	254	213	66	13	0
Other	44	23	2	19	36	4	0	4	11	11	7	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
Antituberculars														
Isoniazid	378	62	172	140	149	176	0	46	293	79	48	68	81	1
Rifampin	77	20	19	37	47	9	0	20	38	17	18	8	1	0
Other	29	5	1	23	21	2	0	6	18	2	6	5	1	0
Unknown	1	0	1	0	0	1	0	0	1	1	0	0	0	0
Antivirals														
Amantadine	401	158	69	173	266	77	0	53	138	104	61	58	13	0
Anti-influenza agent: other	301	97	73	130	217	36	0	47	66	70	40	14	1	0
Antiretroviral	793	162	44	581	401	320	2	67	465	171	154	97	14	1
Systemic	1,148	428	153	557	876	154	2	110	273	259	122	54	6	0
Topical	185	69	19	95	171	3	0	11	9	27	19	1	0	0
Unknown	143	47	21	74	93	31	0	17	55	32	20	14	3	0
Other	97	63	7	26	91	3	0	3	18	31	8	2	0	0
Unknown	16	4	0	11	8	4	0	3	11	0	7	2	1	0
Category total	65,623	35,152	8,876	21,187	52,262	6,757	38	6,335	11,535	12,521	6,445	2,181	399	21
Antineoplastics	1,281	276	99	886	982	97	3	186	506	297	140	130	27	2
Asthma therapies														
Albuterol	7,671	5,861	1,020	775	6,957	370	13	312	1,371	2,087	1,018	408	11	1
Aminophylline/theophylline	861	117	76	666	555	192	1	89	482	186	141	175	41	10
Terbutaline and other beta-2 agonist	2,830	1,180	529	1,107	2,522	165	0	135	359	714	216	118	6	0
Other beta agonist	652	155	209	282	602	27	0	22	215	79	259	73	2	2
Leukotriene antagonist/ inhibitor	11,528	9,251	1,453	800	10,986	440	1	93	1,445	3,459	351	114	23	0
Other	443	213	43	180	357	51	1	31	109	147	44	25	4	1
Unknown	12	1	4	6	4	5	0	3	3	2	1	2	0	0
Category total	23,997	16,778	3,334	3,816	21,983	1,250	16	685	3,984	6,674	2,030	915	87	14
Cardiovascular drugs														
ACE inhibitor	11,167	3,685	720	6,726	8,963	1,845	5	318	4,091	4,029	880	935	185	12
Alpha blocker	1,568	383	71	1,111	1,273	219	1	68	603	507	172	170	23	4
Angiotensin receptor blocker	4,580	1,390	237	2,940	3,847	599	0	115	1,561	1,744	386	296	39	9
Antiarrhythmic: other	1,149	220	40	882	988	100	3	53	420	405	95	65	25	7
Antihyperlipidemic	7,709	2,791	469	4,420	6,408	891	4	374	2,069	2,133	538	425	94	12
Antihypertensive	1,556	525	422	602	1,263	234	1	44	683	548	218	133	16	0
Beta blocker	15,350	3,766	1,164	10,344	11,585	3,227	6	446	7,415	5,669	1,308	1,761	402	33
Calcium antagonist	9,650	2,198	517	6,891	7,503	1,780	6	287	4,834	3,554	900	1,142	339	57
Cardiac glycoside	2,820	637	100	2,074	2,203	238	1	327	1,454	810	179	534	131	16
Clonidine	5,402	1,736	1,660	1,980	3,744	1,422	14	172	3,386	1,179	1,210	1,232	199	7
Hydralazine	210	46	14	150	161	36	0	11	105	67	33	22	3	1
Long-acting nitrate	1,205	308	37	859	1,027	146	1	25	481	447	126	120	18	2
Nitroglycerin	1,627	1,017	76	529	1,354	236	1	33	541	777	111	84	11	1
Nitroprusside	41	2	2	37	14	0	0	25	39	9	5	9	2	0
Vasodilator: other/unknown	1,069	326	87	648	723	221	14	103	404	283	118	114	17	1
Vasopressor	1,077	127	368	571	1,023	30	1	18	538	76	480	139	3	0
Other	143	53	10	79	120	13	0	9	45	53	12	9	1	0
Unknown	73	15	9	49	37	35	0	1	34	14	7	7	0	0
Category total	66,401	19,226	6,003	40,896	52,237	11,274	58	2,430	28,708	22,304	6,779	7,200	1,508	162
Cold and cough preparations	112,173	68,493	24,703	18,657	92,203	16,252	62	3,326	24,536	26,149	15,934	5,209	358	20
Diagnostic agents	626	140	48	429	504	9	0	112	271	115	114	50	10	1
Dietary supplements/ herbals/ homeopathic														
Amino acids														
Creatine	222	66	60	93	118	38	1	62	88	35	25	22	4	0
Other amino acid dietary supplement	471	235	70	162	343	51	4	70	129	88	37	30	2	0
Cultural medicines														
Ayurvedic	5	1	1	3	3	0	0	1	4	0	1	1	0	0
Asian	113	43	7	63	78	8	1	23	50	24	24	7	2	0
Hispanic	9	6	1	2	6	1	1	1	4	3	1	0	0	0
Other	33	17	5	11	24	4	0	5	19	7	4	3	0	0
Botanical products														
Blue cohosh	1	0	0	1	0	0	0	1	0	0	0	0	0	0
Ginko biloba	225	110	24	91	158	42	0	25	71	63	27	13	4	0
Echinacea	566	394	80	90	491	26	0	48	67	132	39	5	3	0
Ginseng	356	163	69	122	235	74	0	45	109	84	47	25	2	0
Kava kava	135	37	14	83	60	49	0	23	66	25	26	20	2	0
Ma huang/ephedra (single ingredient)	1,789	495	411	866	767	729	1	273	1,077	398	369	328	23	3
Citrus aurantium (single ingredient)	8	2	2	3	4	1	0	3	4	2	0	3	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
St. John's wort	255	109	43	99	156	69	0	29	87	67	31	15	0	0
Valerian	265	56	37	169	120	105	3	36	128	61	53	25	1	0
Yohimbe	172	36	10	124	75	44	1	51	99	27	31	43	5	2
Multi-botanical with ma huang	6,245	1,738	1,701	2,763	2,716	2,600	7	860	3,550	1,250	1,499	1,150	71	2
Multi-botanical without ma huang or citrus aurantium	2,164	869	424	856	1,230	507	4	407	945	430	477	240	13	2
Multi-botanical with citrus aurantium	223	55	58	108	92	87	0	40	131	40	57	32	2	1
Other single ingredient botanical	1,936	931	198	787	1,407	171	8	335	484	333	250	108	12	3
Homeopathic	5,359	4,812	170	366	5,027	162	2	159	508	1,470	204	60	4	0
Hormonal products														
Androgen/precursor (dietary supplement)	135	76	11	47	94	16	0	24	44	35	12	10	0	0
Phytoestrogen	175	78	8	88	114	12	1	44	49	37	16	4	1	0
Glandular	40	27	1	12	34	1	0	5	8	14	3	1	0	0
Melatonin	702	431	119	149	582	104	0	14	106	174	75	15	0	0
Other dietary supplements														
Blue-green algae	45	19	8	18	37	1	0	7	7	9	8	0	1	0
Glucosamine (with or without chondroitin)	723	475	26	218	618	41	4	60	98	172	49	13	2	0
Other single ingredient non-botanical	460	269	41	148	363	36	0	60	109	122	42	21	3	0
Unknown supplement/ homeopathic	1,580	658	276	633	946	295	10	299	612	326	204	155	16	0
Category total	24,412	12,208	3,875	8,175	15,898	5,274	48	3,010	8,653	5,428	3,611	2,349	173	13
Diuretics														
Furosemide	2,901	1,033	149	1,703	2,403	397	2	78	1,058	860	347	259	46	4
Thiazide	3,562	1,196	280	2,063	2,761	675	1	108	1,317	1,088	361	287	57	5
Other	1,771	651	131	980	1,430	259	0	71	611	543	185	126	15	1
Unknown	157	52	8	96	110	30	2	15	79	44	20	17	3	0
Category total	8,391	2,932	568	4,842	6,704	1,361	5	272	3,065	2,535	913	689	121	10
Electrolytes and minerals														
Calcium	15,316	13,625	738	923	14,902	258	11	135	643	2,454	312	80	12	1
Chromium, trivalent	743	340	83	311	668	42	2	30	147	118	71	26	4	0
Colloidal silver	75	26	9	40	45	8	0	20	31	16	10	2	0	0
Fluoride	3,541	3,157	282	90	3,481	24	1	33	139	809	233	11	0	0
Iron	3,371	1,946	419	994	2,722	485	5	145	1,017	956	419	123	17	2
Magnesium	1,089	421	104	556	885	103	14	87	177	184	160	31	2	0
Potassium	1,498	487	87	917	1,240	197	2	49	486	459	141	94	23	3
Selenium	6	0	0	6	6	0	0	0	1	0	3	0	0	0
Sodium	3,018	1,680	593	720	2,704	229	23	51	428	597	539	77	2	2
Vanadium	4	3	0	1	4	0	0	0	0	2	0	0	0	0
Zinc	581	278	69	228	483	33	2	59	54	104	93	8	0	0
Multi-mineral dietary supplement	217	152	15	50	182	11	1	23	33	50	15	5	0	0
Multi-mineral, multi-herbal dietary supplement	389	189	68	130	257	81	2	48	130	96	66	22	2	0
Other	61	31	7	23	54	5	0	1	12	24	9	2	0	0
Unknown	4	2	0	2	2	0	2	0	0	0	0	0	0	0
Category total	29,913	22,337	2,474	4,991	27,635	1,476	65	681	3,298	5,869	2,071	481	62	8
Eye/ear/nose/throat preparations														
Nasal preparations														
Tetrahydrozoline	54	43	7	4	47	3	0	4	24	27	6	1	0	0
Other decongestant	2,345	1,113	270	953	2,126	75	8	135	272	632	369	48	2	0
Other	662	440	33	185	639	7	0	14	32	114	79	9	1	0
Unknown	15	3	1	11	13	2	0	0	3	1	5	1	0	0
Ophthalmic preparations														
Contact lens product	3,347	1,730	302	1,293	3,289	25	3	29	541	367	739	143	0	0
Glaucoma therapy	235	77	11	147	199	4	0	32	52	57	31	23	0	0
Tetrahydrozoline	1,482	954	187	330	1,264	74	116	20	393	657	109	33	3	0
Other sympathomimetic	702	338	108	249	568	38	38	55	178	249	83	23	1	0
Other	1,231	669	122	430	1,146	16	3	65	110	165	134	26	1	0
Unknown	42	12	7	23	31	2	3	5	10	3	10	0	0	0
Otic preparations														
Combination product	1,864	850	247	750	1,838	7	1	17	202	277	659	39	0	0
Other	2,310	985	234	1,079	2,278	11	0	21	238	292	676	59	1	0
Unknown	51	25	9	17	49	0	0	2	8	12	21	1	0	0
Steroid, topical for eye/nose/throat	2,447	1,355	458	625	2,180	76	9	170	138	417	285	34	2	1

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
Throat preparations														
Lozenge without local anesthetic	938	739	98	97	883	27	0	27	41	191	40	5	0	0
Lozenge with local anesthetic	177	79	51	46	143	25	0	8	28	42	16	3	0	0
Other	402	198	89	114	353	37	2	10	71	132	70	4	1	0
Unknown	3	1	0	2	3	0	0	0	0	0	0	1	0	0
Category total	18,307	9,611	2,234	6,355	17,049	429	183	614	2,341	3,635	3,332	453	12	1
Gastrointestinal preparations														
Antacids														
Salicylate-containing	2,459	1,862	253	328	2,195	109	2	146	224	626	129	18	1	0
Proton pump inhibitor	8,045	3,536	644	3,835	6,188	1,419	5	386	2,325	2,214	748	480	116	11
Other	5,998	5,321	231	425	5,792	96	19	88	180	1,012	140	21	1	1
Antidiarrheals														
Diphenoxylate/atropine	458	176	55	227	274	161	0	18	336	152	95	75	10	0
Loperamide	1,061	617	123	318	849	151	1	59	313	384	100	50	2	1
Non-opioid	388	306	23	59	365	6	3	14	15	80	13	6	0	0
Paregoric	21	10	1	10	12	7	0	2	10	8	0	1	0	0
Antispasmodics														
Anticholinergic	3,161	1,157	496	1,486	2,114	813	2	200	1,426	870	550	346	68	4
Other	98	18	15	65	42	46	0	9	54	20	19	14	7	2
Laxative	13,428	9,164	1,332	2,868	11,889	810	252	441	1,563	2,313	1,680	250	26	3
Other	9,605	7,595	460	1,513	8,726	526	8	319	1,424	1,978	572	311	48	2
Unknown	18	8	3	7	10	4	1	3	9	5	4	1	0	0
Category total	44,740	29,770	3,636	11,141	38,456	4,148	293	1,685	7,879	9,662	4,050	1,573	279	24
Hormones and hormone antagonists														
Androgen	523	183	58	271	307	142	3	66	180	88	55	46	9	0
Corticosteroid	8,856	4,521	1,063	3,215	7,379	604	5	832	1,378	1,519	540	370	35	2
Estrogen	2,810	1,715	126	959	2,431	281	5	82	552	697	168	107	29	2
Insulin	2,914	114	178	2,599	2,319	493	9	75	1,153	943	213	539	74	4
Oral contraceptive	9,181	7,523	789	821	8,462	488	15	211	825	1,682	306	47	3	0
Oral hypoglycemics														
Biguanide	3,811	862	361	2,570	2,898	780	2	110	1,582	1,384	374	327	87	8
Sulfonylurea	4,019	1,443	236	2,331	3,106	728	3	142	2,655	1,729	289	790	123	5
Thiazolidinedione	1,586	613	75	887	1,286	245	1	45	763	714	127	166	28	2
Other/unknown	406	160	31	215	321	61	0	21	233	183	29	76	8	2
Progestin	1,175	607	115	446	965	105	0	100	195	205	76	30	5	3
Selective estrogen receptor modulator	689	264	41	379	617	50	1	18	162	217	45	26	5	1
Thyroid preparation	10,088	4,946	807	4,292	8,939	973	6	133	2,144	2,283	545	343	89	11
Other hormone	1,537	662	319	543	1,133	299	2	85	466	426	202	72	4	1
Other hormone antagonist	516	167	52	293	443	50	1	21	111	120	35	18	1	0
Unknown hormone or antagonist	16	7	1	6	9	3	0	3	9	2	2	2	0	0
Category total	48,127	23,787	4,252	19,827	40,615	5,302	53	1,944	12,408	12,192	3,006	2,959	500	41
Miscellaneous drugs														
Allopurinol	504	224	30	245	431	52	0	19	144	193	37	33	6	0
Disulfiram	315	10	13	287	70	174	3	60	180	27	65	59	7	1
L-dopa and related drug	862	228	19	610	724	86	0	41	292	240	133	70	11	1
Ergot alkaloid	318	167	34	114	207	84	0	23	209	127	56	21	6	1
Neuromuscular blocking agent	22	2	0	19	9	9	1	3	21	1	2	9	5	0
Nicotine pharmaceutical	725	260	75	382	482	81	2	155	147	163	118	41	0	1
Other	17,620	7,491	2,653	7,368	14,431	1,666	53	1,368	4,333	4,153	2,740	953	146	4
Category total	20,366	8,382	2,824	9,025	16,354	2,152	59	1,669	5,326	4,904	3,151	1,186	181	8
Muscle relaxants														
Carisoprodol (formulated alone)	7,848	343	779	6,625	1,520	5,996	4	149	6,288	918	2,731	1,626	381	28
Cyclobenzaprine	6,187	1,030	924	4,173	2,172	3,728	8	187	4,276	1,197	1,715	1,125	254	16
Methocarbamol	1,450	174	242	1,023	568	816	3	50	873	300	372	153	29	3
Other	5,747	926	715	4,037	2,300	3,014	4	336	3,761	1,132	1,385	1,067	334	12
Unknown	161	14	33	106	27	124	1	3	115	16	39	29	1	0
Category total	21,393	2,487	2,693	15,964	6,587	13,678	20	725	15,313	3,563	6,242	4,000	999	59
Narcotic antagonists	274	9	24	235	80	132	0	50	187	24	71	57	18	0
Radiopharmaceuticals	34	6	2	25	20	0	2	12	7	5	6	1	0	0
Sedative/hypnotics/ antipsychotics														
Atypical antipsychotic	32,422	2,457	6,980	22,750	9,770	20,813	37	1,337	24,662	5,348	9,432	7,276	1,830	72

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
Barbiturates														
Long-acting	2,824	538	223	2,047	1,534	1,142	7	80	1,579	517	598	440	157	12
Short/intermediate acting	383	18	55	301	127	214	3	27	257	42	105	65	40	4
Unknown type	67	2	8	55	12	48	1	2	56	2	16	21	6	0
Benzodiazepine	60,014	5,848	6,315	47,037	14,498	42,987	274	1,196	45,003	9,401	19,832	9,929	2,639	180
Buspirone	2,086	237	280	1,552	801	1,188	2	73	1,376	449	560	289	74	7
Chloral hydrate	215	53	21	140	77	118	2	16	154	19	80	36	19	1
Ethchlorvynol	7	1	0	6	3	2	1	0	4	2	3	0	0	0
Glutethimide	5	1	0	4	1	4	0	0	4	1	3	0	0	0
Meprobamate	93	10	11	72	26	58	1	4	69	10	30	21	14	0
Methaqualone	13	0	3	9	1	12	0	0	10	2	3	3	0	0
Phenothiazine	4,704	762	624	3,274	2,112	2,153	7	349	3,079	931	1,045	1,011	176	22
Sleep aid (OTC)	956	80	140	721	214	712	2	20	694	164	249	194	24	3
Other	13,566	888	2,060	10,468	3,415	9,424	12	516	9,885	1,826	4,730	2,295	510	28
Unknown	300	10	58	220	30	256	6	3	232	29	76	54	11	0
Category total	117,655	10,905	16,778	88,656	32,621	79,131	355	3,623	87,064	18,743	36,762	21,634	5,500	329
Serums, toxoids, vaccines	2,353	573	273	1,465	1,618	10	3	712	748	176	534	122	9	1
Stimulants and street drugs														
Amphetamine	9,532	2,527	3,844	3,082	5,601	3,313	48	403	5,105	2,122	1,809	1,575	230	28
Amyl/butyl nitrite	77	13	6	57	35	38	0	2	31	9	19	10	2	0
Caffeine	4,296	818	1,722	1,719	1,731	2,158	17	352	1,906	532	1,094	707	24	2
Cocaine	6,786	123	764	5,797	573	5,979	50	33	6,094	778	1,609	2,080	627	92
Diet aids														
Phenylpropanolamine	53	14	10	29	28	21	0	3	27	14	8	9	1	0
Phenylpropanolamine and caffeine	11	2	2	6	3	8	0	0	8	3	2	2	1	0
Other: OTC	239	80	45	112	123	80	0	36	119	48	48	41	0	0
Other: Rx	119	45	22	52	75	30	0	13	60	43	16	10	4	0
Unknown	110	22	36	52	39	51	0	20	80	14	27	28	1	0
Ephedrine	1,638	394	298	936	670	849	5	94	957	300	351	349	25	0
GHB and analog/precursor	800	7	131	645	105	430	212	11	644	21	149	256	132	0
Hallucinogenic amphetamine	1,568	22	597	905	156	1,283	81	11	1,268	60	287	548	111	14
Heroin	1,863	13	168	1,651	141	1,613	13	18	1,683	167	370	566	253	28
LSD	264	5	131	120	40	198	17	2	198	12	42	98	20	0
Marijuana	3,829	132	1,600	2,049	451	3,178	54	59	3,151	330	1,097	1,114	211	18
Mescaline/peyote	118	21	25	70	63	49	4	0	60	2	39	28	1	0
Methamphetamine	2,721	99	471	2,073	408	2,144	52	36	2,191	160	520	822	147	28
Methylphenidate	7,942	1,518	4,637	1,736	5,650	1,965	10	246	3,148	2,031	1,305	889	66	6
Phencyclidine	785	22	207	543	112	605	19	10	694	52	144	308	83	8
Phenylpropanolamine look-alike drug	1	0	1	0	0	1	0	0	0	0	0	0	0	0
Other stimulant	92	13	36	42	37	40	0	13	56	15	17	17	3	0
Other hallucinogen	25	0	12	13	1	24	0	0	23	2	0	15	2	0
Unknown hallucinogen	7	1	3	3	1	6	0	0	7	0	0	5	0	0
Other stimulant/street drug	40	3	14	23	11	24	2	2	28	4	6	10	2	0
Unknown stimulant/street drug	247	5	93	144	32	175	25	9	189	15	46	70	14	1
Category total	43,163	5,899	14,875	21,859	16,086	24,262	609	1,373	27,727	6,734	9,005	9,557	1,960	225
Topical preparations														
Acne preparation	3,052	1,827	574	636	2,871	60	3	116	207	587	394	36	1	0
Boric acid/borate	116	55	9	52	115	1	0	0	15	31	11	2	0	0
Calamine	3,876	2,899	169	791	3,826	23	4	22	176	676	216	17	0	0
Camphor	10,008	7,823	646	1,512	9,725	184	17	76	922	3,103	1,334	78	10	0
Camphor/methyl salicylate	2,061	1,794	81	183	2,022	13	2	24	172	707	301	15	1	0
Diaper care/rash product	54,028	52,123	728	1,058	53,968	28	6	23	490	7,440	798	25	0	0
Hexachlorophene antiseptic	39	20	3	16	34	0	1	4	11	6	7	1	0	0
Hydrogen peroxide	7,497	2,890	645	3,934	7,328	130	19	15	315	826	857	31	0	0
Iodine or iodide antiseptic	1,499	500	261	719	1,288	151	10	38	385	334	310	52	8	1
Mercury antiseptic	263	194	14	53	250	7	2	3	29	74	15	3	0	0
Methyl salicylate	9,758	7,559	727	1,445	9,575	78	16	86	828	2,324	1,715	69	4	0
Minoxidil	129	74	7	47	115	4	0	8	33	42	13	5	0	0
Podophyllin	38	9	7	21	33	1	0	3	11	12	6	5	0	0
Silver nitrate	325	70	119	130	292	14	3	16	57	29	71	17	0	0
Topical steroid	9,022	6,610	541	1,839	8,906	26	5	83	194	1,241	396	27	1	0
Wart preparation	1,549	1,004	194	343	1,477	22	13	37	184	337	282	22	3	0
Topical steroid with antibiotic	1,779	1,303	130	334	1,735	10	1	32	94	279	189	12	1	0
Other liniment	2,643	1,317	222	1,090	2,326	14	4	298	158	388	690	46	1	0
Other topical antiseptic	5,449	4,020	525	892	5,274	120	18	32	385	1,320	567	51	2	0
Category total	113,131	92,091	5,602	15,095	111,160	886	124	916	4,666	19,756	8,172	514	32	1
Veterinary drugs	3,217	1,251	263	1,668	3,076	57	8	70	346	764	573	52	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
Vitamins														
Multiple vitamin tablets: adult formulations														
No iron, no fluoride	2,760	1,768	275	708	2,337	257	2	155	450	649	202	65	9	0
With iron, no fluoride	7,080	4,836	591	1,635	6,336	582	1	157	1,034	1,815	353	91	9	1
With iron carbonyl (no fluoride)	293	248	11	34	274	15	0	4	31	96	8	2	0	0
With iron, with fluoride	97	69	10	18	81	8	0	8	18	29	5	5	0	0
No iron, with fluoride	50	41	2	6	43	5	0	2	10	20	5	0	0	0
Multiple vitamin tablets: pediatric formulations														
No iron, no fluoride	9,996	8,575	1,344	65	9,809	162	3	17	307	1,987	189	9	2	0
With iron, no fluoride	18,172	16,562	1,479	111	17,920	219	5	20	1,340	4,619	598	48	1	0
With iron carbonyl (no fluoride)	55	47	4	4	48	6	0	1	9	21	1	1	0	0
With iron, with fluoride	213	208	5	0	213	0	0	0	15	65	6	0	0	0
No iron, with fluoride	1,592	1,522	63	6	1,588	4	0	0	49	313	19	3	0	0
Multiple vitamin liquids: adult formulations														
No iron, no fluoride	121	73	12	36	103	12	0	6	32	18	13	6	1	0
With iron, no fluoride	160	81	18	59	137	11	0	11	17	31	11	1	1	0
With iron, with fluoride	8	5	0	3	8	0	0	0	0	4	0	0	0	0
No iron, with fluoride	64	63	1	0	64	0	0	0	3	8	2	0	0	0
Multiple vitamin liquids: pediatric formulations														
No iron, no fluoride	344	323	13	8	334	3	1	6	15	71	12	5	0	0
With iron, no fluoride	554	535	17	2	545	1	0	8	30	112	22	4	0	0
With iron, with fluoride	38	38	0	0	37	0	0	1	1	5	1	0	0	0
No iron, with fluoride	516	504	9	2	512	2	0	2	13	88	16	2	0	0
Multiple vitamins, unspecified adult formulations														
No iron, no fluoride	42	25	2	15	35	1	0	6	6	10	6	1	0	0
With iron, no fluoride	2,075	1,406	222	440	1,834	194	2	41	370	555	127	40	1	1
With iron, with fluoride	15	9	1	5	12	3	0	0	4	6	0	2	0	0
No iron, with fluoride	16	13	1	2	13	2	0	1	2	3	2	0	0	0
Multiple vitamins, unspecified pediatric formulations														
No iron, no fluoride	174	139	33	2	172	1	0	1	4	27	1	1	0	0
With iron, no fluoride	847	786	58	2	838	5	0	4	61	224	23	2	1	0
With iron, with fluoride	17	17	0	0	17	0	0	0	1	3	0	0	0	0
No iron, with fluoride	61	58	3	0	61	0	0	0	2	9	0	0	0	0
Other vitamins														
Vitamin A	707	473	61	171	619	39	1	43	93	136	50	8	2	0
Niacin (B3)	2,646	614	354	1,662	1,341	326	4	959	487	177	877	135	5	0
Pyridoxine (B6)	383	226	45	110	294	53	0	30	89	89	35	16	5	1
Other B complex vitamins	2,625	1,825	157	635	2,280	232	1	96	440	628	142	54	16	0
Vitamin C	2,390	1,820	248	306	2,181	131	1	74	188	454	141	24	3	1
Vitamin D	326	164	31	131	273	29	0	20	77	59	35	18	2	0
Vitamin E	1,816	1,330	113	364	1,675	80	2	58	186	388	89	31	1	0
Other	711	413	74	218	553	61	1	90	132	160	85	11	0	0
Unknown	837	536	121	171	695	90	4	43	153	233	56	23	4	0
Category total	57,801	45,352	5,378	6,931	53,282	2,534	28	1,864	5,669	13,112	3,132	608	63	4
Unknown drug	16,155	4,061	3,435	8,099	7,144	5,824	958	1,094	9,976	2,952	2,487	2,269	600	11
Total number of pharmaceuticals	**1,336,209**	**568,939**	**211,385**	**546,389**	**881,481**	**387,190**	**3,326**	**52,910**	**509,749**	**293,540**	**206,154**	**116,815**	**25,584**	**2,054**
% of pharmaceuticals		**42.6%**	**15.8%**	**40.9%**	**66.0%**	**29.0%**	**0.2%**	**4.0%**	**38.1%**	**22.0%**	**15.4%**	**8.7%**	**1.9%**	**0.1%**
% of all substances	**49.2%**	**21.0%**	**7.8%**	**20.1%**	**32.5%**	**14.3%**	**0.1%**	**1.9%**	**18.8%**	**10.8%**	**7.6%**	**4.3%**	**0.9%**	**0.1%**

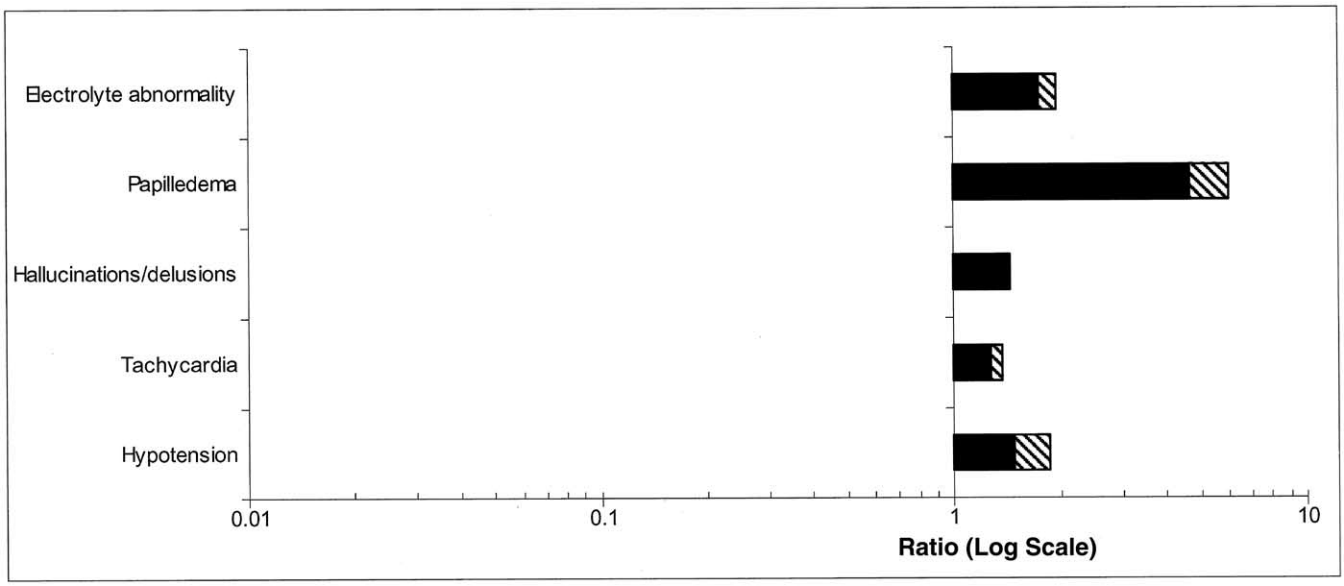

FIGURE 2. TESS clinical effects outliers identified for April 27, 2003. Extent of bar represents ratio of clinical effect frequency for selected day to mean of 42 comparable baseline days in 3 prior years. The hatched area shows the portion which exceeds 2 standard deviations above the historical mean. Methodology modeled after MMWR Figure 1.

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AAPCC's 2003 fatality verification process involved the preparation and review of abstracts on 1,390 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.

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Albertson, Timothy E.
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Waszolek, Kathleen
Weisman, Richard S.
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Winbery, Stephen L.
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APPENDIX

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

Case 5. An 87-year-old woman was in the radiology department to have a liver cyst treated by percutaneous injection of ethanol as a sclerosing agent. Approximately 100 to 150 mL of absolute **ethanol** was infused into the cyst through a catheter. She developed bradycardia and was given epinephrine and atropine. During the resuscitation, the absolute alcohol spilled into the peritoneal cavity. The woman died approximately two hours later.

Cases 12-19. Consultation was made to a US poison center regarding the treatment of 50 patients in Africa with methanol poisoning following consumption of a **methanol**-contaminated home-brew. Eight teenagers died and several were still in intensive care at the time of the consultation.

Case 44. A 3-month-old girl was found in full cardiopulmonary arrest. The child was covered with **fire ants** with multiple stings and was profoundly acidotic. She was brought to the hospital but resuscitation efforts were not successful.

Case 45. A 2-year-old girl was stung an estimated 200 times by **yellow jackets**. She apparently had a severe allergic reaction and was taken to the ED where she received diphenhydramine and methylprednisolone. She developed disseminated intravascular coagulopathy. Approximately 3 hours later, she was reportedly resting quietly and breathing without support. She had heart rate, 149 beats/min; and blood pressure, 120/53 mm Hg. The following day, she had a cardiac arrest and was successfully resuscitated and intubated. She developed renal failure, was dialyzed, and died that day.

Case 46. A 40-year-old diabetic man was presumably bitten by a **brown recluse spider** (unconfirmed). He was treated with antibiotics as an outpatient; then the infected wound crater was incised and drained about 10 days after the bite. Two days later he was found at home with mottling and a diffuse rash covering his entire body. He was lethargic, tachycardic, and hypotensive. Pus was draining from the wound. He was hospitalized and required intubation before receiving antibiotics. An initial arterial blood gas pH was 7.0. Volume replacement therapy, dopamine, and aggressive supportive care were instituted. He died within the first 24 hours of hospitalization.

Case 48. A 31-year-old man was transferred to a regional burn center with a severe inhalation injury and second degree burns to the groin area. His injuries resulted from a spill of **anhydrous ammonia** that was reportedly being diverted for illicit use. He had a complicated hospital course and required ventilator support on day 3. He developed a methicillin-resistant *S. aureus* infection and died on the 17th hospital day.

Cases 50-51. Three men were exposed to **anhydrous ammonia** when the valve of a tank in the back of a truck malfunctioned, releasing the gas into the cab. It was believed that the ammonia was intended for an illicit drug laboratory. Two of the men were declared dead at the scene.

Case 53. A 17-year-old boy collapsed. When EMS arrived they found him comatose and apneic. The patient was intubated and became hypotensive en route to the hospital. In the ED he was treated with vasopressors, glucagon and sodium bicarbonate but showed little improvement. An initial arterial blood gas showed: pH, 7.43; pCO_2, 19 mm Hg; pO_2, 622 mm Hg. He suffered a cardiac arrest, was resuscitated, and had persistent fixed and dilated pupils. He was transferred to a tertiary care center where lactic acidemia (20 mEq/L) and arterialization of a central venous blood gas were noted. At this time the diagnosis of acute cyanide poisoning was made, and it was determined that he had ingested approximately 1.0 to 1.5 grams of potassium **cyanide** which had maliciously been put in a beverage he was drinking. Sodium nitrite and sodium thiosulfate were given with minimal response. He remained profoundly hypotensive and comatose after re-administration of the cyanide antidote kit. He died 5 days later. Blood cyanide concentrations were measured at 9.2 μg/mL, 5 hours post presentation; 0.47 μg/mL, 15 hours post presentation; and zero at 27 hours post presentation.

Case 76. A 27-year-old man ingested 50 to 100 mL of **methylethylketone peroxide** and an unknown amount of **ethanol**, presumably in a suicide attempt. He was intubated en route to the hospital and had a methemoglobinemia in the ED of 8.6%. He was treated with methylene blue. He developed a metabolic acidosis (pH 7.09), an increasing anion gap, and hypotension requiring vasopressor support. Hemodialysis was initiated to correct the acidosis and he underwent endoscopy that revealed first and second degree burns. The patient was hemodynamically unstable and could not undergo an exploratory laparotomy. He developed progressive rhabdomyolysis, hyperkalemia, hypocalcemia and worsening acidosis. Hypotension persisted despite treatment with three vasopressors, and the decision was made to withdraw support. He became asystolic and died of multi-organ system failure.

Case 77. A 43-year-old man and a coworker wearing personal protective equipment were working in an area with **phosphorus pentasulfide**. The coworker became ill and left the area. The deceased was later found down in the work area with his face mask off. He suffered a cardiorespiratory arrest at the scene and was unable to be resuscitated in the field or at a medical facility. The cause of death was described by the coroner as exposure to phosphorus pentasulfide and/or its decompositional elements; underlying heart disease was also present.

Case 79. A 31-year-old man presented to the ED complaining of shortness of breath. The only recent medical history was the injection of **silicone** into his bilateral pectoralis regions one month prior to presentation. He had no known significant past medical history. A chest x-ray on admission appeared consistent with lipoid pneumonia. A CT scan of his chest reportedly showed an eosinophilic-like pneumonia. During hospitalization, the patient became febrile and developed increasing shortness of breath that required intubation. A bronchoalveolar lavage showed lipid-laden macrophages. An HIV test was negative. The patient's pulmonary status deteriorated, and he died three days after hospital admission.

Case 92. A 37-year old man reportedly consumed 480 mL of **drain opener (sulfuric acid 10 - 15%)** in a suicide attempt. He was intubated in the field. The ED physician described a "melting away" of the back of the throat, tongue, uvula and oropharynx. The patient was transferred to a regional trauma center where he was restless and agitated and had diaphoresis, tachycardia, and acidosis with a pH of 7.02. Intravenous fluids with sodium bicarbonate were administered, and he was treated with morphine and sedation. The next day it was determined during surgery that the patient had a gastrointestinal perforation with abdominal free air. A total gastrectomy, splenectomy, total colectomy and esophagectomy were performed. Significant blood loss occurred, and he remained acidotic throughout the procedures. On the third hospital day, the acidosis was corrected, his vital signs became stable, the bleeding stopped, and urine output increased. He remained sedated and ventilated. On the fourth day, the patient was taken back to surgery for an ileostomy and jejunostomy in anticipation of enteral nutrition. The surgical team examined the mouth and discovered the entire palate was sloughing. The sixth day a jejunostomy tube was placed. The patient died on the seventh hospital day after support was withdrawn.

Case 97. A suicidal 40-year-old man ingested up to 180 mL of a **rust remover (8% hydrofluoric acid)**. The patient called EMS 30 minutes later because of severe oral and throat pain. On arrival at the ED he was alert and experiencing stridor, chest and abdominal pain. Oropharyngeal edema and erythema were noted along with difficulty swallowing. An initial blood pressure was normal. The patient underwent rapid sequence intubation and intravenous crystalloid infusions, calcium gluconate and magnesium sulfate were begun. Within the next hour he had a progressive decrease in blood pressure, despite the administration of fluids and blood products. He suffered a cardiac arrest prior to being transferred to the operating room and could not be resuscitated. Autopsy revealed burns and edema of the pharynx, glottis, and esophagus. The proximal esophagus had perforated. The stomach was distended with a large quantity of coagulated blood and evidence of perforations. The duodenum and small bowel were normal.

Case 105. A 12-month-old boy was brought to the ED with the history that he had ingested an unknown amount of a **hair moisturizing lotion**. The child had a blood pressure of 70/50 mm Hg; heart rate, 160 to 180 beats/min; arterial blood gas pH, 7.25; and negative toxicology screen. Abnormal laboratory values included PT, 22.4 s; bicarbonate, 16.8 mEq/L; AST, 103 U/L; calcium, 7.6 mg/dL; anion gap, 15 mmol/L. The initial chest x-ray was normal. Five hours after admission the child was in significant respiratory and cardiac distress. He was intubated and begun on vasopressors. A repeat chest x-ray showed acute respiratory distress syndrome. The child developed a fever and antibiotics were initiated. Despite aggressive care he died 2 days after admission.

Case 108. An 11-year-old girl was found in cardiac arrest with an empty can of an **aerosol air freshener**. The patient was pronounced dead after a prolonged attempt at resuscitation. The coroner ruled the death secondary to complications from huffing.

Case 110. A 29-year-old man was brought to the ED after inserting a baggie of drugs into his rectum while being apprehended by the police. In the ED the patient was noted to be alert, with stable vital signs. Thirty minutes after presentation, the patient became asystolic minutes after police witnessed the ingestion of a packet of drugs the patient retrieved from his rectum. Physicians found a **baggie of suspected cocaine** in his trachea during intubation. In spite of successful resuscitation, the patient remained unresponsive with fixed and dilated pupils. Polyethylene glycol was administered via his NG tube for whole bowel irrigation of suspected remaining packets. Sigmoidoscopy found no residual packets in the rectum. The patient remained hemodynamically unstable. An EEG was diagnostic of brain death and he was pronounced dead 24 hours later. Pre-mortem blood concentrations of free morphine were 480 ng/mL and cocaine 0.3 μg/mL. Significant tracheal trauma was noted at autopsy.

Case 116, 118, and 122. Four adult men spent the weekend working on an unfinished house. The house was heated with a kerosene space heater and a gasoline-powered generator, both of which were indoors. When one worker awakened briefly on Saturday morning, he received no reply from his co-workers and fell asleep again. Other workers returned to the house on Monday morning and found him comatose; the three co-workers were dead. High **carbon monoxide** concentrations were found in the building and autopsies were consistent with carbon monoxide poisoning.

Case 137. A 39-year-old man apparently overdosed on a number of his own medications (including **citalopram**, **diazepam**, and diphenhydramine) with vodka. He was exposed to **carbon monoxide** when he closed himself in a closet and lit lighter fluid soaked charcoal briquettes. He was found sometime within the next 24 hours, unresponsive, with burns on his feet. In the ED he was intubated and ventilated with 100% oxygen. Activated charcoal was not administered because there were no audible bowel sounds. On admission his vital signs were: heart rate, 130 beats/min; blood pressure, 103/71 mm Hg; respiratory rate, 30-50 breaths/min while on the ventilator; temperature, 38.5 °C. His urine output was poor, and he continued to be acidotic. His carboxyhemoglobin at this time was 3%. Acetaminophen, salicylate, methanol and ethylene glycol concentrations were all negative. By 6 hours after admission, his heart rate and blood pressure were labile. A chest x-ray showed ARDS and he went into renal failure. He remained unresponsive and developed EKG changes consistent with an acute myocardial infarction. An EEG and MRI of the brain showed a large area of anoxic injury consistent with carbon monoxide. Support was withdrawn and he died on the 10th hospital day.

Case 156. A 39-year old man complained of respiratory distress to a coworker and died before EMS arrived. At the time he was working in an enclosed space that was next to a chlorine storage area where there was a **chlorine gas** leak. Postmortem autopsy showed pulmonary congestion and edema.

Cases 159 and 160. Two men, ages 35- and 36-years-old, were exposed to **hydrogen sulfide** in a workplace accident. One patient was pronounced dead at the scene. The other had a respiratory arrest and was intubated by paramedics and taken to the ED. An initial arterial blood gas revealed a pH of 6.1. He received sodium bicarbonate, sodium nitrite and intensive care. He developed bilateral pulmonary infiltrates, became unstable and died on the second hospital day.

Cases 161 and 162. Three men were found unconscious at the workplace in a hole thought to contain **methane**. One man, age 35, received CPR and could not be resuscitated. A second man, age 33, was declared dead at the scene. The third man survived.

Case 163. A 42-year-old man was found dead in his hog lot. Death was thought to be due to either **methane** or **hydrogen sulfide**. Autopsy did not find any other cause for his death.

Case 165. A 25-year-old man was found unresponsive, with emesis on his shirt, in a vat of powdered **sodium bisulfide** at a pork processing plant. He was transported to a nearby ED in cardiac arrest and declared dead shortly after arrival. Autopsy was consistent with hyperemia of the airway mucosa and severe pulmonary congestion. Sulfide concentrations obtained on postmortem aortic blood were less than 0.5 mg/L.

Case 170. A 38-year-old homeless man returned to the ED with worsening shortness of breath several days after an evaluation at the same ED for the same complaint. While working in a tent, he scavenged metals (**silver**) then added **borax** and heat to make jewelry. The patient had hypoxia

and tachypnea, and non-cardiogenic pulmonary edema was visible on chest x-ray. His condition worsened, and he died within 48 hours of admission.

Case 171. A 13-year-old boy intentionally inhaled **butane**. He became short of breath, then sustained a cardiac arrest. EMTs performed CPR, but the patient could not be resuscitated.

Case 172. A 16-year-old boy was found unconscious at work after filling a cooler with a **chlorofluorocarbon**. The patient was brought to the ED via ambulance in asystole with CPR in progress. He had apparently vomited during transport. The patient was intubated and given epinephrine. A pulse returned after cardioversion. He remained unresponsive. The patient was admitted to the ICU where he died less than 11 hours post exposure.

Case 173. A 24-year-old man was found in cardiopulmonary arrest in the bathroom. EMS reported a strong chemical odor in the room. The patient had been huffing the contents of a **computer keyboard duster (chlorofluorocarbon)**. Resuscitation efforts by EMS and ED staff were unsuccessful. Postmortem toxicology results showed 1,1,1,2-tetrafluoroethane in a sample of tracheal aspirate and blood concentrations of chlorpheniramine 0.08 mg/L and dextromethorphan 0.06 mg/L. Death was declared secondary to huffing.

Case 175. An 18-year-old woman with a history of volatile substance abuse was found unresponsive and apneic with an open **gasoline** container inside a car. She had last been seen 5 hours previously. The patient had 2nd and 3rd degree burns on her face and upper torso, which were believed to be due to smoking a cigarette while huffing the gasoline. She was resuscitated in the ED and was reported to have 'minimal' carboxyhemoglobin concentrations. She did not regain consciousness and developed signs of cerebral herniation. Life support measures were discontinued.

Case 177. A 43-year-old man was unintentionally splashed in the face with approximately 10 gallons of **gasoline** while at work. He went into a restroom to wash up and was found there two hours later obtunded and slumped over. On arrival at the ED the patient was speaking incoherently with a marked right sided hemiparesis. He was hypertensive with blood pressure of 200/130 mm Hg and an oxygen saturation of 100%. A CT scan of the head showed no acute pathology. Over the next two days the patient continued to experience worsening of the right-sided symptoms. He died two days after the event.

Case 179. An 11-month-old boy was found unresponsive in a barn after ingesting **lamp oil**. He was intubated upon arrival at the ED. A chest x-ray showed changes felt to be consistent with hydrocarbon aspiration pneumonitis. He was transferred to a pediatric tertiary care hospital and admitted to the PICU, where his systolic blood pressure was 60-80 mm Hg; heart rate, 130-140 beats/min; and temperature, 38.3°C. An arterial blood gas showed pH, 7.13; pCO_2, 40 mm Hg; pO_2, 67 mm Hg; bicarbonate 13 mEq/L. Oxygen saturation on 100% oxygen was 88%. Additional abnormal laboratory values were: PT, 20.0 s; INR, 1.75; AST, 167 U/L; alkaline phosphatase, 2,161 U/L; creatine kinase, 520 U/L. Chest x-ray at that time showed bilateral pleural effusions and a possible pneumomediastinum. His status gradually deteriorated in spite of multiple chest tubes, high positive end-expiratory pressure, vasopressors, and trials on an oscillating ventilator. He died 8 days after presentation.

Case 180. A 47-year-old man with a history of alcoholism was reportedly drinking **lamp oil** over a 2-day period. He had vomiting and diarrhea, but no pulmonary symptoms, and declined advice to be seen in an ED. Thirty-three hours later the man was brought to the ED after having suffered a cardiac arrest. Family members stated that the patient had been filling his ice cube trays with lamp oil. The patient had bilateral aspiration pneumonia. He never awakened and died on hospital day 3 with progressive respiratory failure.

Case 182. A 22-year-old autistic man drank an unknown amount of **paint thinner** from an open container. He vomited shortly after the ingestion and became lethargic, with dusky skin. EMS transported the patient to the ED. In the ED the patient had tachypnea and tachycardia and vomited material with a hydrocarbon odor. The patient was sedated, paralyzed, intubated and mechanically ventilated. Activated charcoal and 250 mL of whole bowel irrigation fluids were given by nasogastric tube. Chest x-ray revealed bilateral infiltrates in all lobes. He was admitted to an ICU where he extubated himself. Tachycardia and tachypnea persisted. He was not re-intubated and his nasogastric tube was removed. Shortly thereafter the patient vomited again with activated charcoal and food noted in the emesis. It was believed that he aspirated again at this time. The patient was re-intubated and sedated. He was febrile at 39.5 °C and antibiotics were given. The patient's condition remained unchanged for about 9 days and he died.

Case 189. A 28-year-old man was brought to the ED after intentionally ingesting **aluminum phosphide** pellets. He had been given milk to drink prior to his arrival. He was pale and obtunded with shallow breathing. His initial vital signs were: blood pressure, 154/74 mm Hg; heart rate, 77 beats/min; and respiratory rate, 30 breaths/min. The patient developed hypotension and pulmonary edema and died within an hour of arrival at the ED.

Case 190. A 42-year-old man suffering from depression ingested 3 tablets of a pesticide containing **aluminum phosphide**. He presented to the ED 90 minutes later, profusely diaphoretic, vomiting and hypotensive (78/25 mm Hg) with a heart rate of 82 beats/min. The patient was intubated, ventilated and given dopamine, dobutamine, and aggressive fluid resuscitation. Gastric lavage was performed with care to capture gastric fluid into a closed system. An EKG was consistent with an acute myocardial infarction. Pulmonary edema developed, and death occurred approximately 6 hours after ingestion.

Case 191. A 4-month-old boy was fed 60 to 120 mL of formula reconstituted with spring water stored in a clear plastic jug provided by the cookout host. Within 10 minutes he experienced vomiting and diarrhea and was taken to a healthcare facility 45 minutes away. The bottle in which the water had been stored was retrieved. A paper label around the jug handle identified an **arsenical herbicide** (23.1% arsenic). The patient was transferred to a tertiary care center where he was intubated, a central venous line placed, and fluid resuscitated. British Anti-Lewisite chelation was administered 7 hours after ingestion and every 4 hours thereafter. By 10 hours after ingestion the patient had a prolonged QTc interval which degenerated into torsades de

pointes and other non-perfusing ventricular tachydysrhythmias. The patient underwent cardiopulmonary resuscitation and was placed on extracorporeal membrane oxygenation (ECMO). He had been anuric since the ingestion and had fixed and dilated pupils until one hour after ECMO when he produced 107 mL of urine and displayed sluggishly reactive pupils and some spontaneous nonpurposeful movement. Three hours after being placed on ECMO he was again anuric, with fixed and dilated pupils. Dimercaptopropane sulfonate (DMPS) was administered intravenously and he was given an exchange transfusion, hemodialyzed and started on continuous venovenous hemodiafiltration. He continued to maintain non-perfusing ventricular tachydysrhythmias refractive to medical therapy and cardioversion. At 36 hours following the ingestion supportive measures were withdrawn and the patient died. Laboratory testing confirmed the spring water contained arsenic at 7.6% by weight.

Case 193. A 3-year-old girl mixed unknown amounts of **chlorophenoxy** and **glyphosate herbicides** and **carbaryl** and pyrethroid insecticides found outdoors to make a "potion" and drank it. She became diaphoretic, agitated and short of breath at home and was transported to the hospital by private vehicle. En route she had a respiratory arrest. She was resuscitated from a cardiac arrest in the ED with epinephrine and was intubated. In the ICU she had miosis, diaphoresis, muscle fasciculations, myoclonic jerks, bloody diarrhea and metabolic acidosis (pH 7.18). She was treated with pralidoxime, atropine, lorazepam, phenytoin, and phenobarbital. Pulmonary edema was noted on chest radiograph. Plasma and red blood cell cholinesterases were normal. She developed progressive cerebral edema and brain death. Organs were harvested for donation.

Case 194. A 29-year-old man deliberately ingested 240 mL of a 37.3% solution of **diquat**. The patient worked for a landscape business from which he had purloined the diquat. On presentation at the ED 3 hours later, he was alert and moaning in pain, largely from his abdomen. Within 12 hours, he was comatose and having constant seizures. He died 25 hours after ingestion in multi-system organ failure. A premorbid myoglobin concentration was 7,997 ng/mL. Diquat concentrations were: urine, 1,600 μg/mL; and plasma, 19 μg/mL.

Case 196. A 45-year-old woman was brought to the ED after drinking approximately 240 mL of **glyphosate** concentrate (18% glyphosate isopropylamine). On arrival she was confused, lethargic and vomiting. Her vital signs were: blood pressure, 90/palp mm Hg; heart rate, 80 beats/min; temperature, 36.7 °C. Dopamine and norepinephrine maintained the patient's systolic blood pressure between 70 and 90 mm Hg. Over the next 24 hours she developed pulmonary edema, could not be adequately ventilated, and died.

Case 199. A 49-year-old man in his barn reached for his coffee cup and took a sip. He had forgotten that he had just poured a **paraquat** herbicide into his cup because the herbicide bottle was deteriorating. He arrived at an ED 30 minutes later vomiting, cold and diaphoretic. Initial vital signs, laboratory work and oxygen saturations in the ED were normal. The patient was given 100 grams of activated charcoal; gastric lavage was performed and was followed by a second 100 gram dose of activated charcoal. The following morning the patient was awake and alert. He had some nausea that was responsive to antiemetic therapy. His mouth showed some erythema but no obvious burns. He had no pulmonary symptoms and a urine output of 1,800 mL over 22 hours. BUN and creatinine were 19 mg/dL and 3.0 mg/dL, respectively. AST was 100 U/L. Later that day he received a dose of morphine for esophageal pain but was tolerating oral fluids. Between 24 and 48 hours after ingestion, a plasma paraquat concentration was 0.915 μg/mL and urine paraquat was 13.16 μg/mL. On the morning of the third day the patient was awake and alert. He complained of a headache, but no abdominal or chest pain. BUN and creatinine were 40 mg/dL and 6.5 mg/dL, respectively. AST and ALT were 378 U/L and 308 U/L, respectively. By nightfall hemodialysis was initiated. Oxygen saturations were in the mid 90's on room air. On the morning of the fourth day he was placed on oxygen, 2 liters by nasal cannula, secondary to oxygen saturations in the 80's. That evening he was intubated. Diffuse interstitial infiltrates were now seen on chest x-ray. Aggressive supportive care was continued. The patient died on the 10th hospital day.

Case 214. A 7-year-old girl had been well, except for some cold symptoms for which she was taking non-prescription medications. She was found unresponsive and face down in her bed at home with vomitus and blood on her face. EMS was called and on arrival the child was in full arrest. Intubation was attempted twice without success; the child's airway and oropharnyx were edematous and full of blood. A water bottle found under her pillow contained a milky white liquid which contained 42.5% **permethrin** and 45% **xylene**. Postmortem examination was consistent with pulmonary aspiration and hemorrhage. The ratio of permethrin to xylene was similar between her stomach contents and the liquid in the water bottle. Traces of permethrin, xylene and ethylbenzene were detected in heart blood and liver tissue. The urine had detectable amounts of xylene and ethylbenzene metabolites.

Case 216. A 46-year-old man with a history of kidney stones presented to the ED with hematuria and complaints of nausea, vomiting, abdominal pain and headache. Initially the symptoms were attributed to a kidney stone. A PT was reported as greater than 100 s. Fresh frozen plasma was administered and the PT returned to normal. The patient was admitted for observation and the next day the PT rose again and the patient suffered a global intracranial bleed. The patient died the following day. There was no known history of ingestion at the time. Blood drawn on the second hospital day was assayed for **brodifacoum**. A concentration of 180 ng/mL was reported 2 weeks after the patient's death.

Case 218. A 34-year-old man was at his own birthday party and drank a bottle of **absinth** and some **ethanol**. He arrived in the ED tachypneic and rapidly developed coma and respiratory failure. He was intubated and started on IV fluids and a vasopressor. He vomited and aspirated **activated charcoal** before being intubated. Serum glucose was 300 mg/dL; AST and ALT, each about 350 U/L; renal functions, normal; CBC, normal; and creatine kinase, 3,000 U/L. By 18 hours after the exposure, he had a severe aspiration pneumonia and was febrile and restless with a weak cough reflex. He was hypertensive and was getting sodium bicarbonate for acidosis. Liver function tests were: AST, 510 U/L; ALT, 352 U/L; total bilirubin, 0.4 mg/dL. On the second day after admission, the man was more stable

with a systolic blood pressure of 140 mm Hg and no further acidosis. Liver functions improved and he remained febrile with positive blood cultures. He was extubated on the third day after admission and improved slowly over the following 4 days. On the eighth day after admission, he became short of breath and his oxygen saturation dropped to 80%. A V-Q scan indicated a high probability of a pulmonary embolism. He had increasing shortness of breath and decreasing oxygen saturation and died that evening.

Case 219. A 61-year-old chemist reportedly injected a solution of crushed **castor beans (*Ricinus communis*)** and **acetone** into an antecubital vein. This unwitnessed event occurred one day before he presented to the ED. Upon presentation he was asymptomatic except for an apparent infection at the injection site. Several hours later he developed vomiting, bloody diarrhea, acidosis, hypoglycemia, renal failure, hypotension and a decreasing level of consciousness. The patient was treated symptomatically, gradually worsened and died about 12 hours after presentation.

Case 221. A 24-year-old man with a previous history of psychiatric disease was found hallucinating by his parents. He was counseled by their pastor and remained at home. The following morning the mother entered the patient's bedroom and smelled a garlic-like odor. A 60 mL bottle of **gun bluing (selenium)** was found in the room with approximately 5 mL remaining. The patient vomited several times. EMS was called. Upon arrival in the ED the patient was agitated and hallucinating. His vitals signs were: blood pressure, 113/64 mm Hg; and heart rate, 114 beats/min. Over the next 3 hours the patient continued to vomit. His mental status alternated between "talking out of his head" and quiet behavior. Approximately 4 hours post ingestion the patient suddenly became combative. During an attempt to restrain the patient, he became dusky and then went into cardiac arrest. Resuscitation, including a pacemaker, was unsuccessful. Blood drawn at the time of ED arrival showed a selenium concentration of 30 μg/mL. A postmortem blood sample measured 13 μg/mL. Postmortem analysis of tissue samples for selenium showed: liver, 10 mg/kg; kidney, 7.8 mg/kg; bile, 15 μg/mL; brain, 1.7 mg/kg. Autopsy revealed erosion of the esophagus and gastric hemorrhage with tinted gastric contents.

Case 225. A 22-month-old, 12 kg boy was reportedly given 1.5 teaspoonfuls of an infant liquid **acetaminophen** product every 4 hours for 26 hours for a viral illness. The child then became lethargic and began vomiting. The child was reevaluated on day 3 with the following laboratory values: AST, 30,000 U/L; ALT, 14,000 U/L; INR, 14.4; ammonia elevated. An abdominal ultrasound showed an enlarged liver. The child was admitted to the PICU and begun on intravenous N-acetylcysteine. The following day the child was transferred to a liver transplantation center where plasmapheresis was performed. The child died on day 6 before transplantation could be done.

Case 226. A 4-year-old boy presented to the ED with emesis. He had elevated liver function tests and an **acetaminophen** concentration of 29 μg/mL. The exposure was believed to have occurred more than 24 hours prior to presentation when the child was found playing in the medicine cabinet. N-acetylcysteine was started soon after presentation, however the child's condition steadily worsened. He was taken for liver transplantation on the third hospital day, but died before transplantation was completed.

Case 227. A 5-year-old, 18 kg girl was brought to the ED with depressed mental status. During the prior week the child had experienced a "flu-like" illness that included fever. The patient was given 1/2 to 1 extra strength **acetaminophen** tablet every four hours during this febrile illness. Her mother reported 4 to 7 days total duration of acetaminophen therapy, with the last dose approximately 6 to 8 hours prior to presentation. In the ED her evaluation revealed severe metabolic acidosis, hepatic failure, and renal failure. Her initial blood glucose was 8 mg/dL. A venous blood gas showed: pH, 6.97; and pCO_2, 34 mm Hg. An electrolyte panel showed: bicarbonate, 8 mEq/L; BUN, 19 mg/dL; creatinine, 3.1 mg/dL; anion gap, 36 mEq/L. Liver function abnormalities included: AST, 12,366 U/L; ALT, 5,478 U/L; total bilirubin, 2.9 mg/dL; PT, $>$ 90 s; INR, $>$ 10; ammonia, 475 μmol/L. An acetaminophen concentration (drawn approximately 12 hours after the last dose) was 187 μg/mL. CTs of head and abdomen were unrevealing. Her management included endotracheal intubation, glucose, crystalloid fluids, intravenous N-acetylcysteine, bicarbonate, vasopressors and fresh frozen plasma. The transplant service was consulted, but over the next few hours the patient developed non-reactive pupils, clinical evidence of bleeding, and refractory hypotension. She died approximately 12 hours after initial presentation.

Case 244. A 32-year-old woman was thought to have been taking **acetaminophen** at unknown dosages for several days for a viral syndrome. She was found unresponsive at home and intubated in the field. In the ED an upper gastrointestinal bleed was suspected. She was hypotensive and responded to blood, crystalloid and dopamine. Initial laboratory values included: arterial pH, 6.89; bicarbonate, 6 mEq/L; AST, 7,500 U/L; ALT, 17,000 U/L; INR, $>$ 6.5; creatinine, elevated; acetaminophen, 47 μg/mL. She was begun on intravenous N-acetylcysteine. Near the end of the infusion of the loading dose (150 mg/kg over 1 hour) she developed hypotension and bradycardia, then asystole. CPR restored both a heart rate and blood pressure. N-acetylcysteine was restarted at a slower rate after administration of diphenhydramine. The patient's acidosis worsened and she died 11 hours after presentation.

Case 246. A 33-year-old woman presented to an ED with complaints of nausea, vomiting and epigastric pain for three days, following the administration of a single therapeutic dose of **acetaminophen** for a headache. The patient's laboratory values were: AST, 40,000 U/L; ALT, 7,723 U/L; lactate dehydrogenase, 20,000 U/L; lipase, 1,762 U/L; INR, 6.38; creatinine, 5.4 mg/dL. An extensive review of history and systems was non-contributory except for the history that the patient's brother had had a similar reaction to acetaminophen and survived. The patient was initially alert and oriented and was started on intravenous N-acetylcysteine. On the following day her mental status and urine output had both deteriorated and she was intubated for airway protection. There was no improvement in her hepatic function, and the patient was started on fresh frozen plasma. N-acetylcysteine was discontinued due to hypotension and lack of improvement in hepatic function. The patient subsequently developed pulmonary edema, severe hypoxemia, and died on the third hospital day.

Case 249. A 36-year-old man was found unresponsive by his family and taken to the ED. Initial treatment included activated charcoal and intubation. There was evidence of aspiration prior to therapy. Diagnostic evaluation identified hepatic failure and an **acetaminophen** concentration of 504 μg/mL. Initial care included N-acetylcysteine by nasogastric tube. The patient was transferred to a transplant center. Ongoing care included ventilator support and vasopressors. He required platelet and fresh frozen plasma infusions due to a coagulopathy. N-acetylcysteine therapy was changed from oral to the intravenous route due to the development of an ileus and hemodynamic instability. Continuous veno-venous hemofiltration was done. On the third hospital day the acetaminophen concentration was 596 μg/mL and the hepatic transaminases were greater than 6,000 U/L. Hypotension and bradycardia persisted, and he died.

Case 293. A 16-year-old comatose girl was brought to the ED. Empty bottles of **acetaminophen**, **acetaminophen/hydrocodone** and **ibuprofen** were found near the patient. She had last been seen awake about 12 hours previously. Vital signs were: blood pressure, 99/44 mm Hg; heart rate, 109 beats/min; rectal temperature, 35 °C. She was intubated and ventilated. Activated charcoal was administered. N-acetylcysteine was begun by nasogastric tube within 16 hours of the estimated time of ingestion. Her initial acetaminophen concentration was 770 μg/mL, aspirin was negative, and a urine toxicology screen was positive for opiates. Initial liver function tests were normal. An arterial blood gas included: pH, 7.04; and bicarbonate, 5.3 mEq/L. A methemoglobin concentration was 6%. Because of the high, late acetaminophen concentration, further doses of N-acetylcysteine were given intravenously. A repeat acetaminophen concentration 4 hours after the first was 1,285 μg/mL. Repetitive vomiting precluded further activated charcoal administration. A repeat methemoglobin was 12.5% and metabolic acidosis continued. Twenty-four hours after admission the patient was awake and indicating that she wanted to be extubated. AST and ALT were 101 U/L and 76 U/L, respectively, and her acetaminophen concentration was 598 μg/mL. When shown medication bottles, the patient pointed to ibuprofen, acetaminophen and acetaminophen/hydrocodone as the ones she had taken. She also admitted to drinking an acetone-based nail polish remover and perfume. Forty-eight hours after admission AST was 3,337 U/L; ALT, 3,483 U/L; and acetaminophen, 140 μg/mL. The patient was transferred to a tertiary liver center. She died the next day immediately before liver transplantation.

Case 342. An 18-month-old boy reportedly stopped breathing after being bathed by his father. EMS transported the child to the ED and resuscitation was unsuccessful. Toxicology laboratory results showed toxic concentrations of both **acetaminophen** and **diphenhydramine**. A nonprescription product containing both drugs was reportedly available at home. The coroner ruled the case a homicide.

Case 350. A 21-year-old woman presented to a hospital complaining of vomiting brown liquid, chest discomfort and shortness of breath. The patient had not been seen by her family for a week and was a poor historian. It could only be determined that she had been ingesting **beer**, **acetaminophen/diphenhydramine**, and **acetaminophen** due to back and chest discomfort. Laboratory results included: white cell count, 35,100/μL; anion gap, > 32 mEq/L; AST, 8,486 U/L; ALT, 7,529 U/L; total bilirubin, 5.0 mg/dL; blood ethanol, 62.5 mg/dL; and acetaminophen, 61 μg/mL. She was given a loading dose of N-acetylcysteine and transferred to a tertiary care facility. There she was noted to be oriented only to self and time. Physical examination revealed a heart rate of 130 to 140 beats/min, abdominal tenderness in both upper quadrants with guarding, mild jaundice, and asterixis. Repeat laboratory studies included: AST, 14,278 U/L; ALT, 12,949 U/L; bicarbonate, 8 mEq/L; anion gap, 33 mEq/L; serum creatinine, 1.4 mg/dL; PT, 62.4 s; INR, 5.1; and PTT, 60 s. The patient was continued on N-acetylcysteine and admitted to the ICU. Over the next 24 hours she suffered episodes of hematemesis, hypoglycemia, hypotension, hypocalcemia, oliguria, and thrombocytopenia. She was treated with dextrose, IV fluids, vasopressors, fresh frozen plasma, packed red blood cells and platelets. By the third hospital day she required intubation due to decreased mental status, and she received continuous veno-venous hemofiltration for renal failure and mannitol for increased intracranial pressure. She was not a candidate for liver transplantation, but did receive a hepatocyte transplant on day 3. The patient failed to respond to all treatments and life support was withdrawn on the fourth hospital day. Autopsy revealed uncal grooves with mild herniation, multiple petechiae on the surface of the heart, and massive hepatic necrosis with evidence of fatty infiltration.

Case 359. A 22-month-old boy with trisomy 21 was found unresponsive and seizing beside an empty bottle of **acetaminophen/diphenhydramine**. The child was intubated in the ED. No charcoal was administered. An initial acetaminophen concentration was 780 μg/mL. The urine drug screen was negative, and no salicylates were detected. The child was transferred to a PICU where he was extubated and appeared to improve over the first night. A 24-hour acetaminophen concentration was 250 μg/mL. He started to vomit about 24 hours after exposure and then progressively worsened, requiring re-intubation. A venous blood gas showed pH, 7.18; pCO_2, 33 mm Hg; pO_2, 57 mm Hg; bicarbonate, 13 mEq/L. At this time, it was noted that the abdomen was distended and a KUB was obtained revealing multiple tablets. An **iron** concentration was 250 μg/dL. An abdominal perforation was suspected, but an ultrasound was negative. Later that evening the patient coded and was resuscitated. Laboratory values from the second institution showed: ALT increased to 222 U/L from 103 U/L; AST increased to 157 U/L from 76 U/L; INR, 2.0; PT, 35 s; hematocrit decreased to 21% from 37%; amylase, 1800 U/L. The patient was receiving oral N-acetylcysteine and was on vasopressors. Fresh frozen plasma was administered for a PTT of 103 s. Deferoxamine was started and N-acetylcysteine changed to intravenous. The patient remained in critical condition and hypotensive despite maximum vasopressor support. Supportive care was continued, but no gastrointestinal decontamination was performed due to his unstable condition. The patient died on the fourth hospital day due to multi-organ system failure, despite ECMO. Autopsy reported no perforation. Postmortem results included: acetaminophen, 138.3 μg/mL; and diphenhydramine, 7.78 μg/mL.

Case 411. A 56-year-old man took approximately 50 **acetaminophen/hydrocodone** tablets, **verapamil**, and **cita-**

lopram in a suicide attempt. He was found unresponsive by EMS approximately 10.5 hours later. He received naloxone, dextrose and thiamine and arrived in the ED awake. His initial vital signs were blood pressure, 115/90 mm Hg; heart rate, 78 beats/min; respiratory rate, 20 breaths/min; and temperature, 36.1 °C. He had a depressed mental status. He received additional naloxone and his mental status improved. In addition, he received one dose of activated charcoal, and oral N-acetylcysteine therapy was started for an acetaminophen concentration of 73.9 μg/mL, 12 hours post ingestion. The patient required repeated doses of naloxone to maintain ventilation. The patient had signed a do not resuscitate order and was seen by psychiatry and found to be competent. He then requested that no further treatment be instituted, including naloxone. The psychiatry consultant also felt he was competent to do this. Approximately 24 hrs after the ingestion the patient was hypoventilating and hypoxic. Naloxone was not given, and he progressed to bradycardia, hypotension and death.

Case 424. A 33-year-old man was hospitalized for a rattlesnake (***Crotalus viridis lutosus***) bite to his hand. He was treated with Crotalidae polyvalent immune fab antivenom and discharged within 24 hours after minimal symptoms. He was given a prescription for **acetaminophen/oxycodone** upon discharge. That night he was noted to be snoring in bed and difficult to arouse. The following morning he was found dead in bed. Autopsy revealed pulmonary edema, thick secretions occluding the trachea and bronchi, and cerebral edema. Postmortem heart blood had an oxycodone concentration of 200 ng/mL. The medical examiner attributed death to respiratory arrest from opiate intoxication.

Case 443. A 37-year-old morbidly obese woman, with a known psychiatric and drug abuse history, called the rescue squad because of shortness of breath. She had been seen in an ED 5 days prior with the same complaint and had a urine drug screen positive for cocaine. On the day of admission she was found to be hypotensive at her home and was given a fluid bolus en route to the ED. She denied chest pain, fever and chills, but admitted to cocaine use. Her medications were glyburide, metformin and risperidone. In the ED she was hyperventilating. Her initial laboratory studies showed a creatinine of 1.4 mg/dL. While she was in the ED her **salicylate** concentration was reported as 98 mg/dL, and activated charcoal was started and IV hydration ordered. A repeat serum salicylate concentration was 85 mg/dL and a urine salicylate concentration was 6248 mg/L, so intravenous hydration was continued. Urine output decreased and she was placed on renal-dose dopamine. Her respiratory rate was 30 breaths/min, and she had a normal mental status that deteriorated during the evening. She was then electively intubated, sedated and paralyzed because of her altered mental status. Just prior to intubation an arterial blood gas on 100% O_2 showed: pH, 7.5; pCO_2, 19 mm Hg; pO_2, 145 mm Hg; bicarbonate, 14.8 mEq/L. She was placed on standard ventilator settings. After intubation her arterial blood gas showed: pH, 7.12; pCO_2, 59.2 mm Hg; pO_2, 402 mm Hg; bicarbonate, 19.4 mEq/L. Her electrolytes were: sodium, 145 mEq/L; potassium, 4 mEq/L; chloride, 113 mEq/L; bicarbonate, 14 mEq/L; BUN, 10 mg/dL; creatinine, 1.4 mg/dL; calcium, 10.8 mg/dL. While trying to get out of bed she suffered a cardiac arrest and could not be resuscitated. A postmortem salicylate concentration was 57.2 mg/dL.

Case 485. A 30-year-old man was found dead after extracting the liquid from a **fentanyl patch** (75 μg/hour) and injecting it.

Case 486. A 38-year-old woman injected the contents of one **fentanyl patch**. Cardiopulmonary arrest occurred while en route to the ED. She initially revived with CPR and naloxone. Aggressive supportive care with naloxone continuous infusion and adrenergic agents was instituted. Her pupils became fixed and dilated on hospital day two and the patient was pronounced dead on hospital day three. Blood from the day of admission showed fentanyl, 3 ng/mL; and norfentanyl, 6 ng/mL.

Case 489. A 39-year-old woman was found by family members at home apneic and unresponsive. EMS personnel intubated the patient and transported her to the nearest ED. She was noted to have 2 mm pupils; blood pressure, 150/90 mm Hg; and heart rate, 90 to 100 beats/min. She was posturing upon presentation in the ED. Six milligrams of naloxone were given with no response. A toxicology screen was positive for tricyclic antidepressants (**amitriptyline**) and benzodiazepines. Blood alcohol, salicylate, and acetaminophen were negative. The next day family members told the ED staff that the patient had probably injected the gel from a **fentanyl patch**. Despite aggressive supportive care, the patient's condition continued to deteriorate, and she expired 6 days after the exposure.

Case 500. A 50-year-old man, with a history of intravenous drug usage, was seen for a headache and received an injection of intramuscular **ketorolac** in the left buttock. The following day the patient noticed some swelling and pain at the injection site. Two days after the injection a physician noted possible cellulitis. The patient declined hospital admission and was treated at home with antibiotics and prednisone. The symptoms continued to worsen, and by day four, the patient sought treatment at an ED. A diagnosis of necrotizing fasciitis was entertained and a CT scan was obtained. The CT revealed extensive edema involving the subcutaneous fat of the left buttock, extending anteriorly and down the proximal left thigh. There was no air present within the soft tissue and no evidence of gangrene. The patient was afebrile and complained of increasing nausea and vomiting over the prior 48 hours. The area was aspirated with no pus. A Gram stain of the fluid revealed no organisms, and some white cells. Diphenhydramine and steroids were initiated for a possible allergic reaction. The swelling did not improve and pain increased. The patient was transported to a trauma center for debridement; en route he became hypotensive, requiring vasopressors and intubation. He developed bradycardia, hypoxia and had a cardiac arrest. He was resuscitated, arrested again, and could not be revived. At autopsy, a section of soft tissue from the left buttock showed hemorrhage, necrosis and acute inflammation within the subcutaneous adipose tissue. The cause of death was necrotizing fasciitis due to an intramuscular drug injection followed by cellulitis.

Case 541. An 18-year-old girl had an unknown chronic metabolic disorder and severe muscle weakness, respiratory insufficiency requiring tracheostomy and mechanical ventilation, and recurrent lactic acidosis. She was receiving **mor-**

phine via an intrathecal pump for reflex sympathetic dystrophy. She unintentionally received a 450 mg bolus injection of morphine intrathecally. The dose intended for the pump reservoir was instead injected into the access port. She developed tachycardia and complained of leg pain, but remained awake and appeared to be breathing normally. Acidosis (pH 7.1) and hypotension followed. Myoclonic jerking was treated initially with benzodiazepines followed by neuromuscular blockade. Her hypotension initially responded to fluids and vasopressor support, but subsequently recurred, and about 12 hours post injection she developed ventricular fibrillation and could not be resuscitated.

Case 569. A 2-year-old boy was brought to the ED unresponsive. The child had reportedly been sleepy when he returned from his grandmother's house the night before. The patient had cutaneous burn injuries to the head and extremities. A drug ingestion was suspected, and a urine drug screen was positive for opiates. An acetaminophen concentration was 9 μg/mL. Quantitative analysis of the urine revealed an **oxycodone** concentration of 3.66 μg/mL. The patient was intubated, transferred to a children's hospital, and declared brain dead two days later.

Case 601. A 2-year-old girl was prescribed viscous **lidocaine** for oral ulcers 2 days prior to presentation. The child ingested a total of 100 mL over a two day period, with at least 50 mL on the evening of presentation. The patient arrested at home and was taken to a local ED where CPR restored a perfusing rhythm. The child was transferred to a children's hospital where she had fixed and dilated pupils, intermittent seizure-like activity and absent brainstem reflexes. The patient became hypotensive, bradycardia developed, and she died one day later.

Case 602. An 87-year-old man with a history of MI, CVA, and subarachnoid hemorrhage inadvertently received 50 mL of **lidocaine** 4% topical solution orally, instead of a smaller dose by nebulizer prior to a scheduled bronchoscopy. The error was unrecognized until the patient became obtunded and had a respiratory arrest during the procedure. The patient was intubated and placed on a ventilator, but died shortly thereafter.

Case 609. A 5-year-old, developmentally-delayed girl ingested an unknown amount of her **carbamazepine**, prescribed for a seizure disorder related to congenital hydrocephalus. She presented unresponsive at the ED, where she was intubated and admitted to the ICU. The initial carbamazepine concentration was 52 μg/mL. She appeared to be improving 24 hours later, and her carbamazepine concentration had decreased to 14.5 μg/mL. However, the next day she suffered an undisclosed severe neurological event and coded. Cardiac output was severely compromised and she developed refractory hypotension. Pupils were non-reactive and gag reflex was absent. A perfusion scan indicated brain death on the fourth day and ventilator support was stopped.

Case 750. A 3-month-old boy was found unresponsive after his afternoon nap at a daycare facility and could not be resuscitated. Postmortem **diphenhydramine** concentrations were: heart blood, 6 μg/mL; and vitreous, 3 μg/mL.

Case 767. A 60-year-old woman presented to the hospital with a wide complex dysrhythmia and profound hypotension following a cardiac arrest. She reportedly had ingested **hydroxychloroquine** and **methotrexate**. She was intubated and epinephrine was administered for blood pressure support. Treatment for the methotrexate overdose included urine alkalinization and leucovorin. Despite management of the hypotension with multiple vasopressors the patient died the following morning.

Case 768. A 38-year-old man presented to the ED after a reportedly unintentional injection of 10 to 15 mL of **tilmicosin**, a veterinary macrolide antibiotic. The patient presented with cyanosis and was screaming about chest and back pain. He was sedated, then suffered a cardiopulmonary arrest.

Case 769. A man in his 50's was found dead in the driver's seat of a pick-up truck. A suicide note, a syringe and needle, and an empty 300 mL bottle of **tilmicosin**, a veterinary antibiotic, were found next to him. He had last been seen alive about an hour prior to being found.

Case 772. A 75-year-old man was mistakenly administered 2 mL of subcutaneous **epinephrine** instead of 0.2 mL at his doctor's office after being stung by approximately 25 bees. Within 30 minutes he began complaining of difficulty breathing and chest tightness, and soon afterward suffered a cardiac arrest. No hypotension or shortness of breath occurred prior to the administration of epinephrine. According to the treating doctor, epinephrine was given prophylactically, along with diphenhydramine and dexamethasone, because of the number of stings. The patient was resuscitated, but remained unresponsive. He was intubated and ventilated, started on amiodarone, lidocaine, norepinephrine and normal saline and admitted to the ICU. An EEG on the fourth hospital day showed minimal brain activity and he was removed from the ventilator. He died the next day.

Case 815. A 45-year-old man was found unresponsive at home. EMS was summoned and empty bottles of **diltiazem** and **amitriptyline** were found near the patient. His initial pulse was 50 beats/min and his blood pressure was 50/palpable mm Hg with a wide QRS interval on ECG. He was treated with intubation, sodium bicarbonate, calcium gluconate, glucagon, IV fluids, dopamine and norepinephrine. By the next day he was extubated and off all vasoactive medications. The morning after extubation (two days post-overdose) the patient was sitting in a chair in the ICU, said he had to belch, then had a catastrophic event leading to pulseless electrical activity and death, despite resuscitative efforts. Although the sequence of these events was unclear, the patient had a seizure and vomited a large quantity of gastric contents. He was difficult to move, given his large size. Once in bed, a large amount of vomitus, including **activated charcoal**, poured from his mouth. Autopsy, limited to the stomach, found dried blood and activated charcoal. Aspiration was believed to be a major contributor to his death.

Case 866. A 3-year-old, 11.4 kg boy was found dead in bed after receiving 4 doses of a cough and cold product containing **chlorpheniramine/hydrocodone**. He had received 5 mL of the product every 12 hours. Autopsy demonstrated cerebral edema and no evidence of pulmonary aspiration. Postmortem blood analysis showed a hydrocodone concentration of 150 ng/mL and a chlorpheniramine concentration of 0.4 μg/mL.

Case 867. A 3-year-old girl was found at home playing with bottles of a children's cough and cold medicine containing **chlorpheniramine/hydrocodone** and children's **ibuprofen**. One hour later she fell asleep. Approximately 11

hours later she was found cyanotic and unarousable by her family and brought to the ED. She was given intravenous naloxone without response and intubated. Her initial blood pressure was 120/70 mm Hg, and heart rate, 140 beats/min. An arterial blood gas revealed the pH was 7.2. Her pCO_2 was reported as normal, and serum bicarbonate was 10 mEq/L. Head CT showed cerebral and brainstem infarctions and uncal herniation. She remained unresponsive and was declared brain dead.

Case 873. A 2-year-old girl was found in the evening lying dead in her vomitus. Earlier in the day, she had been at her grandmother's house and was well. The child was sleepy after dinner at her parents' house and went to sleep. She awoke a few hours later screaming, agitated and hallucinating. She went back to sleep but later awoke again with the same behaviors. A few hours after that, she was found unresponsive. EMS was summoned, and resuscitation attempts were unsuccessful. Postmortem drug concentrations were: **diphenhydramine**, 5.25 μg/mL; **pseudoephedrine**, 29.9 μg/mL; phenylpropanolamine, 0.27 μg/mL. Gastric contents also had very high concentrations of both diphenhydramine and phenylpropanolamine. The presumed source of the medication was different products that had been removed from their original packaging and placed in a non-child-resistant bottle.

Case 877. A 30-year-old man died in a health club. At autopsy he was found to have an 85% lesion of his left anterior descending coronary artery and a length of ischemic bowel. Toxicology screening was positive for **ephedra alkaloids**. The gym where he died reportedly sold shakes containing ephedra.

Case 878. A 19-year-old man was brought to the ED in asystolic cardiac arrest. The patient's friends admitted that he had been taking a body-building drug containing **ma huang**, **guarana**, **L-carnitine**, and other ingredients. The patient was treated with epinephrine, sodium bicarbonate, atropine and cardioversion, but could not be resuscitated.

Case 884. A 52-year-old man experienced multiple seizures after a suspected ingestion of baking soda (**sodium bicarbonate**) for unknown reasons. He was reported to have a metabolic acidosis and hypernatremia. Before he could be transported by helicopter to a tertiary care hospital, he died. EMTs found 2 empty boxes of baking soda at the scene. Blood toxicology was positive only for acetone, 1,300 mg/L (normal, 0-1,000 mg/L); and diazepam, 130 ng/mL. Vitreous toxicology showed: sodium, 170 mEq/L (normal, 130-155 mEq/L); and acetone, 1,340 mg/L.

Case 885. A 4-year-old boy was found with an open bottle of **valdecoxib** 10 mg tablets that belonged to his grandmother. When his father asked him how many he had eaten, the child replied that he had eaten three. The father then administered a mixture of **salt** and milk to the child in order to induce emesis. The child did vomit with "white clumps" noted in the emesis. It is unknown how much time elapsed between the administration of the salt and the onset of vomiting. About 3.5 hours post ingestion, the child was found to be less responsive than normal with perioral cyanosis. He was transported to an ED by EMS. By 5 hours after ingestion the child was acidotic (pH 6.9) and in status epilepticus. Diazepam 10 mg and phenobarbital 250 mg successfully treated the seizure activity and the child was intubated. A urine drug screen was negative, as were acetaminophen and salicylate assays. The serum sodium was 197 mEq/L. The child continued to exhibit seizure activity controlled with additional diazepam, phenobarbital and midazolam. A CT scan done approximately 12 hours after the initial ingestion showed evidence of brainstem herniation. The child remained comatose. Support was withdrawn on the third hospital day, and he died.

Case 887. A 20-month-old, 7.3 kg boy with a history of renal disease (one dystrophic kidney and one kidney with obstructive nephropathy) associated with prune belly syndrome was scheduled for corrective surgery for an undescended testis. He was inadvertently administered 60 mL of a **monobasic sodium phosphate monohydrate** solution as a bowel evacuant. The child rapidly developed severe hyperphosphatemia and hypocalcemia resulting in cardiac dysrhythmias requiring resuscitation twice within the first hour. Laboratory results were: ionized calcium, 0.39 mg/dL; phosphate, 101 mg/dL; pH, 6.93; anion gap, 17 mEq/L. Attempts to decrease the hyperphosphatemia included the aggressive administration of intravenous calcium salts, oral aluminum hydroxide, and hemodialysis. Despite aggressive management and supportive care, the child died within 4 hours of the exposure.

Case 893. A 58-year-old man arrived at the ED 2 to 3 hours after ingesting 100 tablets of **metformin**. The patient appeared ill and had a blood pressure of 82/46 mm Hg. Blood chemistries revealed: bicarbonate, 10 mEq/L; glucose, 64 mg/dL; serum creatinine, 1.9 mg/dL; potassium, 5.1 mEq/L. No lactate concentration was drawn. The patient was intubated for airway protection, given a single dose of activated charcoal, started on intravenous fluids with sodium bicarbonate added and admitted to the ICU. The patient's clinical condition continued to decline, and the decision was made to begin hemodialysis. Multiple vasopressors failed to maintain a blood pressure adequate for hemodialysis or continuous veno-venous hemofiltration. The patient had multiple cardiac arrests over the next few hours and ultimately could not be resuscitated.

Case 897. A 66-year-old woman receiving chronic red blood cell transfusions injected herself intravenously with 2,000 mg of **deferoxamine** in a suspected suicide attempt. Within minutes she became unresponsive. EMS reported severe hypotension and apnea. ED resuscitation included intubation, intravenous fluids, and triple vasopressors. The patient had a temporary improvement in her blood pressure, which enabled helicopter transfer to a tertiary care facility. However, recurrent and overwhelming hypotension, despite numerous interventions, did not permit the initiation of dialysis or hemofiltration. The patient died 12 hours after the injection.

Case 898. A 39-year-old man presented in fulminant liver failure with encephalopathy, jaundice and renal failure. He had begun taking court-ordered **disulfiram** 3 weeks prior to presentation. Laboratory values included: blood alcohol, negative; **acetaminophen**, 13 μg/mL; AST, 1,657 U/L; ALT, 654 U/L; INR, 6.43. Treatment with intravenous N-acetylcysteine was begun based on the presence of acetaminophen. The patient developed worsening coagulopathy and was treated with cryoprecipitate, vitamin K1, and factor VII. Continuous veno-venous hemofiltration was started and liver transplant was considered. Intracranial bolt monitoring revealed elevated intracranial pressures. A liver bi-

opsy was consistent with fulminant hepatitis. The patient did not respond to aggressive supportive care and died.

Case 958. A 12-year-old, 30 kg girl was admitted to the PICU with a subarachnoid hemorrhage. She had a past medical history of developmental delay and a dilated cardiomyopathy treated with atenolol. On the first hospital day she had an altered mental status and an emergency intracranial pressure monitor was placed in a bedside procedure. The patient received propofol at 15 mL/hour (150 mg/hour) and fentanyl for sedation and analgesia; both were continued through angiographic evaluation and surgical clipping of an aneurysm. After an uncomplicated intracranial procedure the patient was maintained on a **propofol** infusion for sedation and developed an acute metabolic acidosis. Her arterial blood gas showed: pH of 7.39; pCO_2, 18 mm Hg; pO_2, 111 mm Hg; bicarbonate, 8 mEq/L. Her lactic acid concentration was 15 mmol/L. Six hours after the metabolic acidosis was noted the propofol sedation was discontinued. The patient was then placed on broad-spectrum antibiotics to cover possible sepsis in the presence of a lactic acidosis and transient elevation in temperature noted in the recovery room. Upon arrival in the PICU the patient had a persistent lactic acidosis. For the next 24 hours, the patient's acid-base status and cardiovascular status worsened and required treatment with amrinone, THAM, dopamine and norepinephrine. A transthoracic echocardiogram demonstrated a dilated cardiomyopathy with an ejection fraction of less than 23%. The patient died 24 hours after the last propofol dose. Her cultures were negative, and an autopsy was refused.

Case 975. A 20-year-old man with a history of previous suicide attempts was found in cardiac arrest. Syringes and **feline leukemia vaccine** vials were found with the patient. He worked at a veterinary clinic. Other medications missing from the clinic were **ketamine** and barbiturates. CPR in the field returned a pulse. Upon arrival at the ED he was intubated, lavaged (no pill fragments visible) and given activated charcoal and sodium bicarbonate. Initial clinical laboratory values included a glucose of 232 mg/dl and a negative urine drug screen. Vital signs were: blood pressure, 141/69 mm Hg; heart rate 122 beats/min. A CT scan showed no cerebral edema. The patient remained comatose. His clinical status deteriorated, and he died.

Case 1087 and 1093. Two 18- and 23-year-old comatose men were brought to the ED from a New Year's Eve rave party. They had core temperatures of 44.4 and 42.4 °C, respectively, and were hyperkalemic. Three other patients were brought to the ED from the same rave, one of them with severe hyperthermia. **Methylenedioxymethamphetamine (MDMA)** use was suspected. Both patients were paralyzed, intubated and treated with lorazepam. Both patients had a urine drug screen positive for amphetamines and THC; the second patient was also positive for cocaine. Both patients died within 24 hours.

Case 1100. A 73-year-old man ingested 30 to 60 mL of tincture of **iodine** in a suicide attempt. In the ICU he was comatose but did not require respiratory support. His blood pressure was 139/90 mm Hg. An arterial blood gas showed a pH of 7.08, and a sodium bicarbonate infusion was started. Salicylates, acetaminophen and ethanol were not detected. Six hours later he remained unresponsive to pain. He maintained his respirations on 2 L oxygen by nasal cannula with O_2 saturations in the high 90's. Endoscopy was recommended but not performed. Vital signs were: blood pressure, 139/71 mm Hg; heart rate, 119 beats/min; temperature, 36.8 °C; respiratory rate, 13 breaths/min. Seven hours later there was no change in his clinical picture. He died within 9 hours of presentation.