



1996 Annual Report of the American Association of Poison Control Centers Toxic Exposure Surveillance System

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

From its inception in 1983, TESS has grown dramatically, with increases in the number of participating poison centers, population served by those centers, and reported human exposures (Table 1).¹⁻¹³

The cumulative AAPCC database now contains 20.3 million human poison exposure cases. This report includes 2,155,952 human exposure cases reported by 67 participating poison centers during 1996, an increase of 6.6% compared to 1995 poisoning reports.

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Centers participating in this report include Children's Hospital of Alabama Regional Poison Control Center, Birmingham, AL; Alabama Poison Center, Tuscaloosa, AL; Arizona Poison and Drug Information Center, Tucson, AZ; Samaritan Regional Poison Center, Phoenix, AZ; California Poison Control System—Fresno Division, CA; California Poison Control System—Sacramento Division, CA; California Poison Control System—San Diego Division, CA; California Poison Control System—San Francisco Division, CA; Los Angeles Regional Drug and Poison Information Center, Los Angeles, 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 and Toxicology Resource Center, Tampa, FL; Florida Poison Information Center, Jacksonville, FL; Florida Poison Information Center, Miami, FL; Georgia Poison Control Center, Atlanta, GA; Idaho Poison Center, Boise, ID; Indiana Poison Center, Indianapolis, IN; St. Luke's Poison Center, Sioux City, IA; Mid-America Poison Control Center, Kansas City, KS; Kentucky Regional Poison Center of Kosair Children's Hospital, Louisville, KY; Louisiana Drug and Poison Information Center, Monroe, LA; Maryland Poison Center, Baltimore, MD; Massachusetts Poison Control System, Boston, MA; Children's Hospital of Michigan Poison Control Center, Detroit, MI; Blodgett Regional Poison Center, Grand Rapids, MI; Hennepin Regional Poison Center, Minneapolis, MN; Minnesota Regional Poison Center, St. Paul, MN; Cardinal Glennon Children's Hospital Regional Poison Center, St. Louis, MO; The Poison Center, Omaha, NE; New Hampshire Poison Information Center, Lebanon, NH; New Jersey Poison Information and Education System, Newark, NJ; New Mexico Poison and Drug Information Center, Albuquerque,

NM; New York City Poison Control Center, New York, NY; Hudson Valley Regional Poison Center, North Tarrytown, NY; Long Island Regional Poison Control Center, Mineola, NY; Finger Lakes Regional Poison Center, Rochester, NY; Central New York Poison Control Center, Syracuse, NY; Western New York Regional Poison Control Center, Buffalo, NY; Carolinas Poison Center, Charlotte, NC; Western North Carolina Poison Center, Asheville, NC; North Dakota Poison Information Center, Fargo, ND; Akron Regional Poison Center, Akron, OH; Cincinnati Drug and Poison Information Center, Cincinnati, OH; Central Ohio Poison Center, Columbus, OH; Greater Cleveland Poison Control Center, Cleveland, OH; Mahoning Valley Poison Center, Youngstown, OH; Oregon Poison Center, Portland, OR; Pittsburgh Poison Center, Pittsburgh, PA; The Poison Control Center, Philadelphia, PA; Central Pennsylvania Poison Center, Hershey, PA; Rhode Island Poison Center, Providence, RI; McKennan Poison Control Center, Sioux Falls, SD; Middle Tennessee Regional Poison and Clinical Toxicology Center, Nashville, TN; Southern Poison Center, Memphis, TN; Central Texas Poison Center, Temple, TX; North Texas Poison Center, Dallas, TX; Southeast Texas Poison Center, Galveston, TX; Texas Panhandle Poison Center, Amarillo, TX; West Texas Regional Poison Center, El Paso, TX; South Texas Poison Center, San Antonio, TX; Utah Poison Control Center, Salt Lake City, UT; Virginia Poison Center, Richmond, VA; Blue Ridge Poison Center, Charlottesville, VA; Washington Poison Center, Seattle, WA; West Virginia Poison Center, Charleston, WV; University of Wisconsin Hospital Regional Poison Center, Madison, WI; Children's Hospital of Wisconsin Poison Center, Milwaukee, WI.

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TABLE 1. Growth of the AAPCC Toxic Exposure Surveillance System

Year	No. of Participating Centers	Population Served (Millions)	Human Exposures Reported	Exposures/Thousand Population
1983	16	43.1	251,012	5.8
1984	47	99.8	730,224	7.3
1985	56	113.6	900,513	7.9
1986	57	132.1	1,098,894	8.3
1987	63	137.5	1,166,940	8.5
1988	64	155.7	1,368,748	8.8
1989	70	182.4	1,581,540	8.7
1990	72	191.7	1,713,462	8.9
1991	73	200.7	1,837,939	9.2
1992	68	196.7	1,864,188	9.5
1993	64	181.3	1,751,476	9.7
1994	65	215.9	1,926,438	8.9
1995	67	218.5	2,023,089	9.3
1996	67	232.3	2,155,952	9.3
Total			20,370,415	

CHARACTERIZATION OF PARTICIPATING CENTERS

Of the 67 reporting centers, 64 submitted data for the entire year. Forty-seven of the 67 participating centers were certified as regional poison centers by the AAPCC in 1996. Annual center call volumes (human exposure cases only) ranged from 2,944 to 95,542 (mean 32,178) for centers participating for the entire year. Penetration, calculated only for states that were completely served by centers participating in TESS, ranged from 4.2 to 18.6 per 1,000 with a mean of 9.3 reported exposures per 1,000 population. Penetration is defined as the number of human poison exposure cases reported per 1,000 individuals in the population served.

A total population of 232.3 million was served by the participating centers, including 39 entire states, portions of 5 states, and the District of Columbia (Figure 1). Noting the 266.3 million 1996 United States population, the data

presented represent an estimated 87.2% of the human poison exposures that precipitated poison center contacts in the US during 1996. Extrapolating from the 2,155,952 human poison exposures reported in this database, 2.5 million human poison exposures are estimated to have been reported to all US poison centers in 1996. However, extrapolations from the number of reported poisonings to the number of actual poisonings occurring annually in the US cannot be made from these data alone, as considerable variations in poison center penetration were noted. Indeed, assuming all centers reached the penetration level of 18.6 poisonings per 1,000 population reported for one state, 5 million poisonings would have been reported to poison centers in 1996.

The data do not directly identify a trend in the overall incidence of poisonings in the US because of changing center participation from year to year and changes in center use. An analysis of data from 58 centers that participated for the entirety of both 1995 and 1996 shows a 3.6% increase in reported poison exposures from 1995 to 1996 within the regions served by these 58 centers.

REVIEW OF THE DATA

Of the 2,155,952 human exposures reported in 1996, 91.1% occurred at a residence (Table 2). Two unlikely sites of poisonings, health care facilities and schools, accounted for 8,220 (0.4%) and 27,691 (1.3%) poison exposures, respectively. Poison center peak call volumes were noted from 4 to 10 PM, although call frequency remained consistently high between 8 AM and midnight, with 92% of calls logged during this 16-hour period.

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 39.3% of cases, and 52.8% 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. Although the gender distribution was

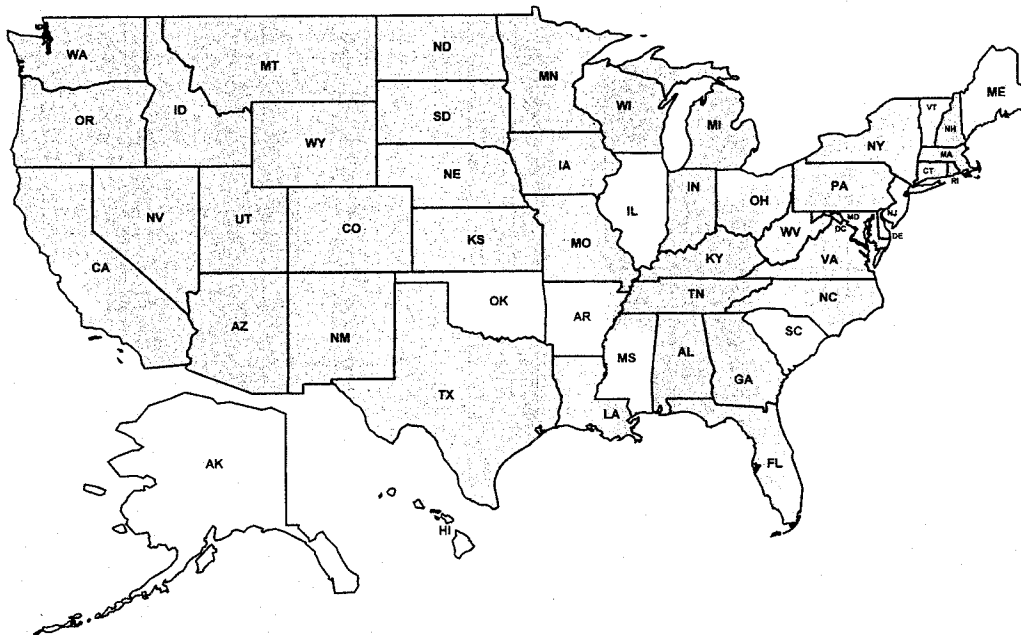


FIGURE 1. Sixty-seven poison centers participated in the Toxic Exposure Surveillance System in 1996. The shaded areas denote regions served by reporting centers.

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

	Site of Caller (%)	Site of Exposure (%)
Residence		
Own	77.7	87.6
Other	2.2	3.5
Workplace	1.8	2.8
Health care facility	12.9	0.4
School	0.6	1.3
Restaurant/food service	0.1	0.6
Public area	0.6	1.3
Other	3.8	1.1
Unknown	0.3	1.3

nearly equal for unintentional exposures, 60.3% of intentional exposures occurred in females, as did 64.9% of adverse reactions. Of all poison exposures captured, 7,103 occurred in pregnant women. Of those with known pregnancy duration, 30% occurred in the first trimester, 39% in the second trimester, and 31% in the third trimester. In 4.6% of cases (99,267 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).

Table 4 presents the age and gender distribution for the 726 reported fatalities. Although responsible for the majority of poisoning reports, children younger than 6 years of age comprised just 4.0% (29) of the fatalities. Sixty-one percent of poisoning fatalities occurred in 20-to 49-year-old individuals.

A single substance was implicated in 92.8% of reports, and 1.7% of patients were exposed to more than two possibly poisonous drugs or products (Table 5). The over-

TABLE 4. Distribution of Age and Gender for 726 Fatalities

Age (yr)	Male	Female	Unknown	Total	%	Cumulative Total	Cumulative %
<1	1	2	0	3	0.4	3	0.4
1	10	4	0	14	1.9	17	2.3
2	5	1	0	6	0.8	23	3.2
3	3	2	0	5	0.7	28	3.9
4	0	0	0	0	0.0	28	3.9
5	1	0	0	1	0.1	29	4.0
6-12	2	5	0	7	1.0	36	5.0
13-19	20	18	0	38	5.2	74	10.2
20-29	62	35	0	97	13.4	171	23.6
30-39	101	87	0	188	25.9	359	49.5
40-49	83	72	0	155	21.4	514	70.8
50-59	34	35	1	70	9.6	584	80.4
60-69	26	28	0	54	7.4	638	87.9
70-79	23	31	0	54	7.4	692	95.3
80-89	9	14	0	23	3.2	715	98.5
90-99	2	2	0	4	0.6	719	99.0
Unknown adult	6	1	0	7	1.0	726	100.0
Total	388	337	1	726	100.0	726	100.0

whelming majority of human exposures were acute (93.7%) compared to only 54.3% of poison-related fatal exposures. Chronic exposures comprised 2.4% of all poison exposure reports, and acute-on-chronic exposures comprised 3.4%. (Chronic exposures were defined as continuous or repeated exposures occurring in a period exceeding 8 hours.)

Reason for exposure was coded according to the following definitions: *Unintentional general*: All unintentional exposures not specifically defined below. Most unintentional

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

Age (yr)	Male		Female		Unknown		Total		Cumulative Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
<1	71,101	51.8	65,503	47.8	552	0.4	137,156	6.4	137,156	6.4
1	184,410	52.6	165,593	47.2	758	0.2	350,761	16.3	487,917	22.6
2	192,092	53.4	166,681	46.3	849	0.2	359,622	16.7	847,539	39.3
3	89,464	54.7	73,549	45.0	434	0.3	163,447	7.6	1,010,986	46.9
4	42,844	55.5	34,065	44.1	264	0.3	77,173	3.6	1,088,159	50.5
5	25,436	55.9	19,885	43.7	177	0.4	45,498	2.1	1,133,657	52.6
Unknown child ≤ 5	1,624	44.6	1,396	38.4	618	17.0	3,638	0.2	1,137,295	52.8
6-12	83,090	56.5	63,132	43.0	719	0.5	146,941	6.8	1,284,236	59.6
13-19	66,356	41.8	91,840	57.9	467	0.3	158,663	7.4	1,442,899	66.9
Unknown child	1,371	37.7	1,256	34.6	1,007	27.7	3,634	0.2	1,446,533	67.1
Total children (<20)	757,788	52.4	682,900	47.2	5,845	0.4	1,446,533	67.1	1,446,533	67.1
20-29	77,674	43.9	99,133	56.0	236	0.1	177,043	8.2	1,623,576	75.3
30-39	73,629	42.2	100,614	57.7	139	0.1	174,382	8.1	1,797,958	83.4
40-49	45,248	40.9	65,429	59.1	73	0.1	110,750	5.1	1,908,708	88.5
50-59	20,558	38.3	33,126	61.7	29	0.1	53,713	2.5	1,962,421	91.0
60-69	12,088	36.8	20,720	63.1	25	0.1	32,833	1.5	1,995,254	92.5
70-79	8,666	34.8	16,215	65.1	23	0.1	24,904	1.2	2,020,158	93.7
80-89	3,987	30.6	9,004	69.2	19	0.1	13,010	0.6	2,033,168	94.3
90-99	618	25.6	1,798	74.4	2	0.1	2,418	0.1	2,035,586	94.4
Unknown adult	43,436	39.2	64,967	58.6	2,407	2.2	110,810	5.1	2,146,396	99.6
Total adults	285,904	40.9	411,006	58.7	2,953	0.4	699,863	32.5	2,146,396	99.6
Unknown age	2,994	31.3	4,069	42.6	2,493	26.1	9,556	0.4	2,155,952	100.0
Total	1,046,686	48.5	1,097,975	50.9	11,291	0.5	2,155,952	100.0	2,155,952	100.0

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

No. of Substances	No. of Cases	% of Cases
1	2,001,512	92.8
2	117,173	5.4
3	21,047	1.0
4	7,982	0.4
5	3,352	0.2
6	1,383	0.1
7	697	0.0
8	334	0.0
≥9	2,472	0.1
Total	2,155,952	100.0

exposures in children are captured here. *Environmental*: Any passive, nonoccupational exposure that results from contamination of air, water, or soil. Environmental exposures are usually caused by man-made contaminants. *Occupational*: An exposure that occurs as a direct result of the person being on the job or in the workplace. *Therapeutic error*: An unintentional deviation from a proper therapeutic regimen that results in the wrong dose, incorrect route of administration, administration to the wrong person, or administration of the wrong substance. Only exposures to medications or products substituted for medications are included. Drug interactions resulting from unintentional administration of drugs or foods 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 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. *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 (85.7%) of poison exposures were unintentional; suicidal intent was present in 7.6% of cases (Table 6). Therapeutic errors comprised 5.7% of exposures (123,095 cases), with unintentional nonpharmaceutical product misuse comprising another 3.2% of exposures (69,214 cases). Unintentional poisonings outnumbered intentional poisonings in all age groups (Table 7). In contrast, of the 726 human poisoning fatalities reported, 79% of adult deaths (older than 19 years of age) were intentional (Table 8).

Ingestions accounted for 74.0% of exposure routes (Table 9), followed in frequency by dermal, inhalation, and ocular exposures, bites and stings, and parenteral and aspiration exposures. For the 726 fatalities, ingestion and inhalation were the predominant exposure routes.

Clinical effects (signs, symptoms, or laboratory abnormalities) were coded in 31.3% of cases (18.1% had one effect, 7.9% had two effects, 3.4% had three effects, 1.3% had four effects, 0.4% had five effects, and 0.3% had more than five effects). Of 1,460,292 clinical effects coded, 78.7% were deemed related, 7.3% were considered not related, and 14.0% were coded as "unknown if related."

The majority of cases reported to poison centers were managed in a non-health care facility (73.6%), usually at the site of exposure, the patient's own home (Table 10). Treatment in a health care facility was rendered in 22.8% of cases and recommended in another 2.2% of patients who refused the referral. Of cases managed in a health care facility, 58.7% were treated and released without admission, 12.2% were admitted for critical care, and 7.0% were

TABLE 6. Reason for Human Poison Exposure Cases

Reason	No.	%
Unintentional		
General	1,406,911	65.3
Therapeutic error	123,095	5.7
Bites and stings	84,441	3.9
Misuse	69,214	3.2
Environmental	62,677	2.9
Food poisoning	51,187	2.4
Occupational	47,033	2.2
Unknown	3,350	0.2
Total	1,847,908	85.7
Intentional		
Suicidal	164,085	7.6
Misuse	35,597	1.7
Abuse	32,453	1.5
Unknown	11,976	0.6
Total	244,111	11.3
Other		
Malicious	6,533	0.3
Contaminant/tampering	4,307	0.2
Total	10,840	0.5
Adverse Reaction		
Drug	32,866	1.5
Other	9,402	0.4
Food	4,981	0.2
Total	47,249	2.2
Unknown	5,844	0.3
Total	2,155,952	100.0

TABLE 7. Distribution of Reason for Exposure by Age

Reason	<6 Years		6-12 Years		13-19 Years		>19 Years		Unknown		Total	
	No.	Row %	No.	Row %	No.	Row %	No.	Row %	No.	Row %	No.	Col %
Unintentional	1,128,027	61.0	133,871	7.2	81,220	4.4	495,620	26.8	9,170	0.5	1,847,908	85.7
Intentional	3,647	1.5	8,341	3.4	70,867	29.0	158,028	64.7	3,228	1.4	244,111	11.3
Other	1,043	9.6	1,601	14.8	2,055	19.0	6,001	55.4	140	1.3	10,840	0.5
Adverse Reaction	4,097	8.7	2,614	5.5	3,604	7.6	36,541	77.3	393	0.8	47,249	2.2
Unknown	481	8.2	514	8.8	917	15.7	3,673	62.9	259	4.4	5,844	0.3
Total	1,137,295	52.8	146,941	6.8	158,663	7.4	699,863	32.5	13,190	0.6	2,155,952	100.0

TABLE 8. Distribution of Reason for Exposure and Age for 726 Fatalities

Reason	<6 Years	6-12 Years	13-19 Years	>19 Years	Total
Unintentional					
General	11	0	0	2	13
Environmental	6	0	0	17	23
Occupational	0	0	1	15	16
Therapeutic error	5	1	1	39	46
Misuse	0	0	0	7	7
Bite/sting	0	0	0	0	0
Food poisoning	0	0	0	0	0
Unknown	0	0	0	5	5
Total	22	1	2	85	110
Intentional					
Suicide	0	4	19	335	358
Misuse	0	0	1	27	28
Abuse	0	0	13	111	124
Unknown	0	0	1	43	44
Total	0	4	34	516	554
Other	3	1	0	2	6
Adverse Reaction	1	0	0	10	11
Unknown	3	1	2	39	45
Total	29	7	38	652	726

TABLE 9. Distribution of Route of Exposure for Human Poison Exposure Cases and 726 Fatalities

Route	All Exposure Cases		Fatal Exposure Cases	
	No.	%	No.	%
Ingestion	1,675,409	74.0	584	74.5
Dermal	184,083	8.1	7	0.9
Inhalation	158,388	7.0	96	12.2
Ocular	134,648	5.9	1	0.1
Bites and stings	85,071	3.8	0	0.0
Parenteral	7,478	0.3	46	5.9
Aspiration	2,565	0.1	9	1.1
Other	6,717	0.3	3	0.4
Unknown	9,070	0.4	38	4.8
Total	2,263,429	100.0	784	100.0

NOTE: Multiple routes of exposure were observed in many poison exposure victims. Percentage is based on the total number of exposure routes (2,263,429 for all patients, 784 for fatal cases) rather than the total number of human exposures (2,155,952) or fatalities (726).

admitted for noncritical care. Where treatment was provided in a health care facility, 42.5% of the patients were referred by the poison center and 57.5% were already in or enroute to the health care facility when the poison center was contacted. Health care facilities used included acute care hospitals (86.8%), freestanding emergency centers (1.9%), and physician offices or clinics (11.0%).

Table 11 displays the medical outcome of the human poison exposure cases distributed by age, showing more severe outcomes in the older age groups. Table 12 compares medical outcome and reason for exposure, and demonstrates the greater frequency of serious outcome in intentional exposures. Table 13 demonstrates the increasing duration of the clinical effects observed with more severe outcomes. Note the medical outcome categories, 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 of a systemic nature than minor symptoms. Usually some form of treatment is indicated. Symptoms were not life-threatening and the patient has no residual disability or disfigurement (eg, corneal abrasion, acid-base disturbance,

TABLE 10. Management Site of Human Poison Exposure Cases

Site	No.	%
Managed on-site, non-health care facility	1,587,681	73.6
Managed in health care facility		
Treated and released	288,011	13.4
Admitted to critical care	60,065	2.8
Admitted to noncritical care	34,272	1.6
Admitted to psychiatry	28,498	1.3
Lost to follow-up; left AMA	78,837	3.7
Unspecified level of care	1,173	0.1
Subtotal	490,856	22.8
Other	18,237	0.8
Refused referral	47,224	2.2
Unknown	11,954	0.6
Total	2,155,952	100.0

ABBREVIATION: AMA, against medical advice.

TABLE 11. Medical Outcome of Human Poison 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.	%
No effect	381,223	33.5	28,050	19.1	27,992	17.6	79,822	11.4	1,356	10.4	518,443	24.0
Minor effect	130,565	11.5	33,741	23.0	46,004	29.0	193,418	27.6	2,010	15.4	405,738	18.8
Moderate effect	9,908	0.9	3,959	2.7	13,293	8.4	59,115	8.4	398	3.0	86,673	4.0
Major effect	569	0.1	222	0.2	1,026	0.6	6,837	1.0	38	0.3	8,692	0.4
Death	29	0.0	7	0.0	38	0.0	652	0.1	0	0.0	726	0.0
No follow-up, nontoxic	293,844	25.8	27,978	19.0	12,837	8.1	58,710	8.4	1,651	12.6	395,020	18.3
No follow-up, minimal toxicity	286,210	25.2	44,669	30.4	38,466	24.2	205,678	29.4	3,599	27.5	578,622	26.8
No follow-up, potentially toxic	15,430	1.4	3,713	2.5	13,936	8.8	54,999	7.9	3,529	27.0	91,607	4.2
Unrelated effect	19,615	1.7	4,602	3.1	5,071	3.2	40,632	5.8	511	3.9	70,431	3.3
Total	1,137,393	52.8	146,941	6.8	158,663	7.4	699,863	32.5	13,092	0.6	2,155,952	100.0

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

Outcome	Unintentional		Intentional		Other		Adverse Reaction		Unknown		Total	
	No.	Col %	No.	Col %	No.	Col %	No.	Col %	No.	Col %	No.	Col %
No effect	470,239	25.4	45,805	18.8	1,302	12.0	680	1.4	417	7.1	518,443	24.0
Minor effect	320,874	17.4	68,743	28.2	3,039	28.0	12,161	25.7	921	15.8	405,738	18.8
Moderate effect	48,079	2.6	32,803	13.4	514	4.7	4,546	9.6	731	12.5	86,673	4.0
Major effect	2,048	0.1	6,075	2.5	38	0.4	307	0.6	224	3.8	8,692	0.4
Death	110	0.0	554	0.2	6	0.1	11	0.0	45	0.8	726	0.0
No follow-up, nontoxic	386,479	20.9	5,914	2.4	1,063	9.8	1,312	2.8	252	4.3	395,020	18.3
No follow-up, minimal toxicity	519,722	28.1	36,943	15.1	3,293	30.4	17,393	36.8	1,271	21.7	578,622	26.8
No follow-up, potentially toxic	44,910	2.4	42,006	17.2	841	7.8	2,692	5.7	1,158	19.8	91,607	4.2
Unrelated effect	55,445	3.0	5,270	2.2	744	6.9	8,147	17.2	825	14.1	70,431	3.3
Total	1,847,906	85.7	244,113	11.3	10,840	0.5	47,249	2.2	5,844	0.3	2,155,952	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	41.3	7.3	3.0
>2 hours, ≤8 hours	23.9	21.3	8.0
>8 hours, ≤24 hours	18.3	30.6	27.5
>24 hours, ≤3 days	6.8	17.7	29.0
>3 days, ≤1 week	2.1	7.4	13.0
>1 week, ≤1 month	0.6	2.7	5.8
>1 month	0.2	0.7	1.7
Anticipated permanent	0.0	0.1	2.9
Unknown	6.8	12.1	9.1

high fever, disorientation, hypotension that is rapidly responsive to treatment, and isolated brief seizures that respond readily to treatment). *Major effect*: The patient exhibited signs or symptoms as a result of the exposure that were life-threatening or resulted in significant residual disability or disfigurement (eg, repeated seizures or status epilepticus, respiratory compromise requiring intubation, ventricular tachycardia with hypotension, cardiac or respiratory arrest, esophageal stricture, and disseminated intravascular coagulation). *Death*: The patient died as a result of the exposure or as a direct complication of the exposure. Only those deaths that were probably or undoubtedly related to the exposure are coded here. *Not followed, judged as nontoxic exposure*: No follow-up calls were made to determine the patient's

TABLE 14. Decontamination and Therapeutic Intervention

Therapy	No. of Patients	%
Decontamination only	1,209,204	56.1
No therapy provided	304,240	14.1
Observation only	262,709	12.2
Decontamination and other therapy	126,253	5.9
Other therapy only (no decontamination)	83,749	3.9
Unknown if therapy provided/patient refused	169,797	7.9

outcome because the substance implicated was nontoxic, the amount implicated was insignificant, or the route of exposure was unlikely to result in a clinical effect. *Not followed, minimal clinical effects possible*: No follow-up calls were made to determine the patient's outcome because the exposure was likely to result in only minimal toxicity of a trivial nature. (The patient was expected to experience no more than a minor effect.) *Unable to follow, judged as a potentially toxic exposure*: The patient was lost to follow-up, refused follow-up, or was not followed but the exposure was significant and may have resulted in a moderate, major, or fatal outcome. *Unrelated effect*: The exposure was probably not responsible for the effect. *Confirmed nonexposure*: This outcome option was used during coding to designate cases where there was reliable and objective evidence that an exposure initially believed to have occurred actually never occurred (eg, all missing pills are later located). All cases coded as confirmed nonexposure are excluded from this

report. In 1996 there were 6,889 such cases reported nationally.

Tables 14 and 15 outline the use of decontamination procedures, specific antidotes, and measures to enhance elimination in the treatment of patients reported in this database. These must be interpreted as minimum frequencies because of the limitations of telephone data gathering. Ipecac syrup was administered in 1.8% of cases. In children younger than 6 years of age, ipecac syrup was most often administered outside a health care facility. This pattern was reversed in teenagers and adults. Ipecac was used more often in children younger than 6 years of age (82.8% of all ipecac use). Table 16 demonstrates a continued decline in the use of ipecac-induced emesis in the treatment of poisoning.

Table 17A presents the most common substance categories listed by frequency of exposure. Tables 17B and 17C present similar data for children and adults, respectively, and show the considerable differences between pediatric and

TABLE 15. Therapy Provided in Human Exposure Cases

Therapy	No.
Decontamination	
Dilution/irrigation	1,019,313
Activated charcoal, single dose	142,805
Cathartic	104,447
Gastric lavage	65,554
Ipecac syrup	39,376
Activated charcoal, multidose	14,526
Other emetic	6,178
Whole bowel irrigation	1,912
Measures to Enhance Elimination	
Hemodialysis	839
Hemoperfusion	61
Other extracorporeal procedure	35
Specific Antidote Administration	
N-acetylcysteine (oral)	9,707
Naloxone	7,172
Flumazenil	2,243
Antivenin	839
Atropine	780
Ethanol	699
Hyperbaric oxygen	670
N-acetylcysteine (IV)	510
Phytonadione	383
Deferoxamine	373
Pyridoxine	277
Physostigmine	273
Pralidoxime (2-PAM)	241
Fab fragments	239
Folate	174
Dimercaprol (BAL)	149
EDTA	115
Succimer	106
Sodium thiosulfate	77
Sodium nitrite	72
Methylene blue	64
Amyl nitrite	63
Penicillamine	62
Hydroxocobalamin	34
Other intervention	
Alkalinization (with or without diuresis)	6,837
Transplantation	16
ECMO	13

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

adult poison exposures. Table 18 lists the substance categories with the largest number of reported deaths; analgesics and antidepressants led this list. A remarkable chronologic constancy of selected demographic data elements is shown in Table 19. A breakdown of plant exposures is provided for those most commonly implicated (Table 20).

A summary of the 726 fatal exposures is presented in Table 21. Each of these cases was abstracted and verified by the reporting center, with only those exposures deemed "probably" or "undoubtedly" responsible for the fatality included in this compendium. The highest blood concentration of implicated substances is provided where available to the reporting poison center. Prehospital cardiac and/or

TABLE 17A. Substances Most Frequently Involved in Human Exposures

Substance	No.	%*
Cleaning substances	221,261	10.3
Analgesics	208,305	9.7
Cosmetics and personal care products	184,799	8.6
Plants	113,619	5.3
Cough and cold preparations	106,823	5.0
Bites/envenomations	95,283	4.4
Pesticides (includes rodenticides)	86,912	4.0
Foreign bodies	84,392	3.9
Topicals	77,269	3.6
Food products, food poisoning	73,947	3.4
Hydrocarbons	67,839	3.1
Antimicrobials	67,049	3.1
Sedatives/hypnotics/antipsychotics	66,776	3.1
Antidepressants	60,648	2.8
Alcohols	55,445	2.6
Chemicals	54,571	2.5
Vitamins	47,883	2.2

NOTE: Despite a high frequency of involvement, these substances are not necessarily the most toxic, but rather may only be the most readily accessible.

*Percentages are based on the total number of human exposures 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	137,225	12.1
Cleaning substances	126,511	11.1
Analgesics	86,936	7.6
Plants	79,362	7.0
Cough and cold preparations	70,632	6.2
Foreign bodies	60,579	5.3
Topicals	57,673	5.1
Pesticides (includes rodenticides)	45,897	4.0
Antimicrobials	40,220	3.5
Vitamins	37,932	3.3
Gastrointestinal preparations	37,027	3.3
Arts/crafts/office supplies	29,010	2.6
Hydrocarbons	27,632	2.4
Hormones and hormone antagonists	21,161	1.9
Food products/food poisoning	20,143	1.8

NOTE: Despite a high frequency of involvement, these substances are not necessarily the most toxic, but rather may only be the most readily accessible.

*Percentages are based on the total number of exposures in children under six years, rather than the total number of substances.

respiratory arrests occurred in 39% of all fatalities, and these are indicated in Table 21.

Several observations were recorded during analysis of the reported fatalities. Many noteworthy cases were reviewed; however, multiple occurrences involving deterioration after initial medical contact were emphasized. Selected on the basis of reviewer impression rather than statistical analysis, these are presented to trigger consideration as targets of focused research and education.

Sustained-release calcium channel antagonists, primarily verapamil, continue to represent a unique and problematic profile including late onset of toxicity, waxing and waning deterioration often with death more than 24 hours after the

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

Substance	No.	%*
Analgesics	65,834	9.4
Cleaning substances	60,883	8.7
Bites/envenomations	47,689	6.8
Sedatives/hypnotics/antipsychotics	45,284	6.5
Antidepressants	36,976	5.3
Food products/food poisoning	35,417	5.1
Alcohols	27,175	3.9
Fumes/gases/vapors	26,510	3.8
Cosmetics and personal care products	25,413	3.6
Chemicals	24,796	3.5
Hydrocarbons	24,267	3.5
Pesticides (includes rodenticides)	23,274	3.3
Cardiovascular drugs	17,710	2.5
Antihistamines	15,918	2.3
Cough and cold preparations	15,817	2.3

NOTE: Despite a high frequency of involvement, these substances are not necessarily the most toxic, but rather may only be the most readily accessible.

*Percentages are based on the total number of exposures in adults (over 19 years), rather than the total number of substances.

TABLE 18. Categories with Largest Numbers of Deaths

Category	No.	% of All Exposures in Category
Analgesics	228	0.109
Antidepressants	146	0.241
Stimulants and street drugs	120	0.323
Cardiovascular drugs	102	0.278
Alcohols	89	0.161
Sedative/hypnotics/antipsychotics	83	0.124
Gases and fumes	49	0.105
Chemicals	36	0.066
Anticonvulsants	25	0.136
Insecticides/pesticides (includes rodenticides)	20	0.023
Cleaning substances	17	0.008
Antihistamines	16	0.035
Asthma therapies	15	0.082
Automotive products	14	0.097
Hydrocarbons	10	0.015
Cold & cough preparations	10	0.009

overdose, and failure of all available antidotal therapy. An associated problem was the occurrence of iatrogenic electrolyte disorders (hypercalcemia and hypokalemia) during management.

Other long-standing challenges were again documented. After cyclic antidepressant overdose, there were many instances of early, rapid, fulminant deterioration among patients who reached medical care while still awake with adequate hemodynamic function. Inability or failure to avert death in such cases remains a consequential problem. Several aspirin overdoses resulted in death despite history of massive ingestion, typical signs and symptoms of salicylism, and early presentation prior to occurrence of altered mental status. Optimization of gastrointestinal decontamination, of urine and serum alkalinization, and of hemodialysis use deserve continued scrutiny and emphasis.

Marked inconsistency was noted in the characteristics and attribution of deaths reported due to repeated dosing of acetaminophen, particularly among patients with a history of

TABLE 19. 14-Year Comparisons of Fatality Data

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

TABLE 20. Frequency of Plant Exposures by Plant Type

Botanical Name	Common Name	Frequency
<i>Capsicum annuum</i>	Pepper	5,006
<i>Philodendron</i> spp.	Philodendron	4,250
<i>Euphorbia pulcherrima</i>	Poinsettia	3,257
<i>Spathiphyllum</i> spp.	Peace lily	2,998
<i>Ilex</i> spp.	Holly	2,585
<i>Dieffenbachia</i> spp.	Dumbcane	2,506
<i>Phytolacca americana</i>	Pokeweed, inkberry	1,860
<i>Crassula</i> spp.	Jade plant	1,737
<i>Toxicodendron radicans</i>	Poison ivy	1,683
<i>Epipremnum aureum</i>	Pothos, devil's ivy	1,368
<i>Eucalyptus</i> spp.	Eucalyptus	1,221
<i>Rhododendron</i> spp.	Rhododendron, azalea	1,035
<i>Hedera helix</i>	English ivy	996
<i>Saintpaulia ionantha</i>	African violet	988
<i>Brassaia actinophylla</i>	Umbrella tree	950
<i>Taraxacum officinale</i>	Dandelion	926
<i>Chrysanthemum</i> spp.	Chrysanthemum	923
<i>Schlumbergera bridgesii</i>	Christmas cactus	911
<i>Pyracantha</i> spp.	Pyracantha	847
<i>Cactus</i> spp.	Cactus	808

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.

ethanol abuse. In light of increased concern and speculation about the interaction between ethanol and acetaminophen, this suggests that it will be increasingly important to develop a consistent case definition in order to distinguish acetaminophen effect from other ethanol-related hepatic dysfunction including alcoholic hepatitis and chronic cirrhosis.

A final tragic observation must be noted. In two reported

instances, activated charcoal was inadvertently instilled into the trachea of children, resulting in death. In both cases, the exposure initially resulting in evaluation and treatment was determined to be trivial. It is evident, particularly given the rarity of pediatric poisoning fatalities, that this extraordinarily rare complication must be considered and emphasized during treatment decision-making. It is a powerful reminder that the decision to administer charcoal by nasogastric tube is not inconsequential and may not be appropriate after low-risk exposures, and that meticulous attention to proper technique is critical.

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 2,155,952 exposures, presented by category. Table 22A focuses on nonpharmaceuticals; Table 22B presents drugs. Of the 2,310,129 substances logged in Tables 22A and 22B, 58.0% were nonpharmaceuticals and 42.0% were pharmaceuticals. The reason for the exposure was intentional for 27.4% of pharmaceutical substances implicated compared with only 4.4% of nonpharmaceutical substances. Correspondingly, treatment in a health care facility was provided in a higher percentage of exposures to pharmaceutical substances (36.2%) compared with nonpharmaceutical substances (17.3%). Pharmaceutical exposures also had more severe outcomes. Of substances implicated in fatal cases, 75.5% were pharmaceuticals, compared with only 42.0% in nonfatal cases. Similarly, 76.1% of substances implicated in major outcomes were pharmaceuticals.

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

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1996

Case	Age	Substances	Chronicity	Route	Reason	Blood concentrations
NONPHARMACEUTICALS						
Alcohols						
1	63 yr	Alcohol, unknown type aftershave ethanol	A/C	Ingestion	Int abuse	297 mg/dL
2 ^p	23 yr	Ethanol	A	Ingestion	Int abuse	330 mg/dL
3 ^p	34 yr	Ethanol	A/C	Ingestion	Int suicide	54 mg/dL§
4	36 yr	Ethanol	A/C	Ingestion	Int abuse	400 mg/dL
5 ^p	40 yr	Ethanol	C	Ingestion	Int abuse	
6 ^p	44 yr	Ethanol	C	Ingestion	Int abuse	330 mg/dL
7	44 yr	Ethanol	C	Ingestion	Int abuse	185 mg/dL
8 ^p	52 yr	Ethanol	A/C	Ingestion	Int abuse	347 mg/dL§
9 ^p	55 yr	Ethanol	A/C	Ingestion	Int abuse	450 mg/dL§
10 ^p	57 yr	Ethanol	A/C	Ingestion	Int abuse	400 mg/dL§
11 ^p	63 yr	Ethanol	A/C	Ingestion	Int abuse	496 mg/dL
12	70 yr	Ethanol	A/C	Ingestion	Unknown	225 mg/dL
13	37 yr	Ethanol	U	Ingestion	Unknown	225 mg/dL
		acetaminophen				6.6 µg/mL
14	49 yr	Ethanol	C	Ingestion	Int misuse	
		acetaminophen				
15	49 yr	Ethanol	C	Ingestion	Int unknown	
		acetaminophen/hydrocodone				48 µg/mL¶
16	38 yr	Ethanol	C	Ing/Paren	Int abuse	
		amphetamine				

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1996 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	
17	59 yr	Ethanol amphetamines opiate	A/C	Ingestion	Int suicide		
18 ^P	28 yr	Ethanol cyclobenzaprine acetaminophen/hydrocodone	A	Ingestion	Int abuse	166 mg/dL§ 0.15 µg/mL§ 11 µg/mL§¶	
19 ^P	30 yr	Ethanol ethylene glycol	U	Ingestion	Unknown	298 mg/dL	
20	33 yr	Ethanol ethylene glycol	A/C	Ingestion	Int abuse	480 mg/dL <5 mg/dL	
21	60 yr	Ethanol isopropanol	A/C	Ingestion	Int abuse	200 mg/dL 8 mg/dL	
22 ^P	46 yr	Ethanol morphine	A/C	Ing/Paren	Int abuse		
23	71 yr	Isopropanol	A	Ingestion	Int suicide	288.6 mg/dL	
24 ^P	37 yr	Isopropanol fluoxetine	U	Ingestion	Unknown	240 mg/dL§ 890 ng/mL§ norfluoxetine 1,070 ng/mL§	
25 ^P	30 yr	Methanol	A/C	Ingestion	Int abuse	400 mg/dL§	
26	39 yr	Methanol	U	Ingestion	Int misuse	332 mg/dL	
27	43 yr	Methanol	A	Ingestion	Int unknown	150 mg/dL	
28 ^P	44 yr	Methanol	U	Unknown	Unknown	250 mg/dL§	
29 ^a	33 yr	Methanol cocaine	A	Ingestion	Int abuse	302 mg/dL	
30	43 yr	Methanol diazepam	A/C	Ingestion	Int abuse	190 mg/dL	
31	56 yr	Methanol ethanol	A/C	Ingestion	Int unknown	50 mg/dL	
32	42 yr	Methanol rubbing alcohol (isopropanol) nail polish remover	A	Ingestion	Int suicide	7.7 mg/dL	
<i>See also cases 1, 31, 40, 48, 69, 86, 127, 128, 150, 177, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 223, 231, 232, 246, 257, 260, 289, 290, 291, 292, 293, 302, 316, 324, 326, 333, 334, 335, 336, 337, 402, 403, 428, 444, 476, 477, 487, 491, 494, 507, 538, 549, 559, 561, 581, 582, 605, 606, 607, 610, 623, 627, 676, 677, 679, 680, 689, 707, 708, 718 (ethanol); 21, 452, 550 (isopropanol); 32 (rubbing alcohol, isopropanol).</i>							
Automotive products							
33	31 yr	Antifreeze (ethylene glycol)	A	Ingestion	Unknown	57 mg/dL	18 h
34	32 yr	Antifreeze (ethylene glycol)	A	Ingestion	Int suicide		
35	34 yr	Antifreeze (ethylene glycol)	A	Ingestion	Int unknown	11 mg/dL	
36	36 yr	Antifreeze (ethylene glycol)	A/C	Ingestion	Int suicide		
37	43 yr	Antifreeze (ethylene glycol)	A	Ingestion	Int suicide	332 mg/dL	5.5 h
38	45 yr	Antifreeze (ethylene glycol)	A	Ingestion	Int suicide	36 mg/dL	
39 ^P	54 yr	Antifreeze (ethylene glycol)	A	Ingestion	Int suicide		
40	61 yr	Antifreeze (ethylene glycol) ethanol oxaprozin	U	Ingestion	Int suicide	625 mg/dL	
41	84 yr	Antifreeze (ethylene glycol) morphine	A	Ingestion	Int suicide	>500 mg/dL 1.99 µg/mL§	
42	35 yr	Antifreeze ethylene glycol) power steering fluid	U	Ingestion	Int suicide	664 mg/dL	
43	65 yr	Brake fluid (glycols and glycol ethers) trazodone	A	Ingestion	Int suicide		
44	21 yr	Wheel cleaner (ammonium fluoride/ bifluoride)	A	Ingestion	Int suicide		
45	28 yr	Windshield washing fluid (methanol)	A	Ingestion	Int abuse	308 mg/dL	24 h
46	36 yr	Windshield washing fluid (methanol)	A	Ingestion	Int suicide	60 mg/dL	
<i>See also cases 205 (antifreeze, ethylene glycol); 42 (power steering fluid).</i>							
Chemicals							
47	30 yr	Battery acid	A	Ingestion	Int unknown		
48 ^a	55 yr	Chloroform ethanol	A/C	Ing/Inh	Int abuse		
49 ^P	20 yr	Cyanide	A	Ingestion	Int suicide	0.4 µg/mL§	
50 ^P	22 yr	Cyanide	A	Ingestion	Int suicide		
51 ^P	62 yr	Cyanide	A	Ingestion	Int suicide	0.004 µg/mL	
52 ^P	37 yr	Cyanide, potassium	A	Ingestion	Int suicide	4.8 µg/mL§	
53 ^P	42 yr	Cyanide, potassium	A	Ingestion	Int suicide		

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1996 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations
54 ^P	48 yr	Cyanide, potassium	A	Ing/Inh	Int suicide	238 µg/mL§
55 ^P	54 yr	Cyanide, potassium	A	Ingestion	Int suicide	
56 ^P	60 yr	Cyanide, potassium	A	Ingestion	Int suicide	36 µg/mL§
57 ^a	18 mo	Diethylene glycol vehicle for acetaminophen	C	Ingestion	Contamin	
58	79 yr	Diethylene glycol vehicle for acetaminophen	U	Ingestion	Contamin	
59 ^P	40 yr	Ethylene glycol	A	Ingestion	Int suicide	275 mg/dL
60	46 yr	Ethylene glycol	A	Ingestion	Int suicide	33 mg/dL
61	54 yr	Ethylene glycol	U	Ingestion	Int unknown	10 mg/dL
62 ^P	16 yr	Ethylene glycol butane LSD	A	Ing/Inh	Unknown	300 mg/dL
63	24 yr	Ethyl propionate herbal products (unidentified)	A	Ing/Paren	Ther error	
64 ^a	49 yr	Hydrofluoric acid	A	Derm/Inh/Oc	Occ	
65 ^{AP}	65 yr	Nitrobenzene	A	Ingestion	Int suicide	methemoglobin 64%
66	62 yr	Paint brush/roller cleaner (toluene, methanol, methylene chloride, methyl ethyl ketone)	A	Ingestion	Int suicide	
67 ^a	70 yr	Potassium nitrate	A	Ingestion	Int suicide	potassium 9 mEq/L
68 ^a	20 yr	Sodium azide	A	Dermal	Occ	
69 ^P	35 yr	Strychnine ethanol	A	Ingestion	Int suicide	
70 ^a	42 yr	Sulfuric acid, phosphoric acid, ammonia mixture	A	Inhalation	Occ	
71	32 yr	Unknown chemicals	A	Derm/Unk	Unknown	

See also cases 575 (calcium chloride); 125, 126, 127 (cyanide); 591 (EDTA); 19, 20 (ethylene glycol); 97 (methylene blue); 136, 137 (sulfuric acid).

Cleaning substances

72 ^P	58 yr	Ammonia (household cleaner) cleanser vinegar	A	Inhalation	Unint mis	
73 ^P	70 yr	Cleaner, industrial	A	Ingestion	Unknown	ethanol 130 mg/dL
74	88 yr	Cleaning agent (20% pine oil, 1% sodium hydroxide)	A	Asp/Ing	Unint mis	
75	63 yr	Deodorizing cleaner (dimethyl benzyl ammonium chloride)	A	Asp/Ing	Int suicide	
76	29 yr	Drain opener	A	Ingestion	Int suicide	
77	50 yr	Drain opener (liquid)	A	Ingestion	Int suicide	
78	54 yr	Drain opener (potassium hydroxide)	A	Ingestion	Int suicide	
79	40 yr	Drain opener (sodium hydroxide/hypochlorite/silicate)	A	Derm/Ing	Int suicide	
80	35 yr	Drain opener (sodium hydroxide/hypochlorite/silicate) tarnish remover ant and roach killer (propoxur)	A	Ingestion	Int suicide	
81	30s yr	Drain opener (sulfuric acid)	A	Ingestion	Int suicide	
82	63 yr	Drain opener (sulfuric acid)	A	Ingestion	Int suicide	
83 ^{AP}	65 yr	Rust and stain remover (sodium hydrosulfite)	A	Inhalation	Adv rxn	
84 ^a	38 yr	Rust remover (ammonium bifluoride)	A	Ingestion	Unint unk	fluoride 2.6 µg/mL
85 ^a	20 yr	Rust remover (hydrofluoric acid)	A	Ingestion	Int suicide	
86	29 yr	Rust remover (hydrofluoric acid) ethanol	A	Ingestion	Int suicide	
87	47 yr	Toilet bowl cleaner (HCl)	A	Ingestion	Int suicide	
88	82 yr	Toilet bowl cleaner (HCl)	A	Ingestion	Int suicide	

See also cases 72 (cleanser); 80 (tarnish remover).

Cosmetics and personal care products

89 ^a	13 mo	Baby oil	A	Asp/Ing	Unint gen	
90 ^P	85 yr	Denture cleaner tablets (sodium chloride/hydroxide/carbonate/perborate/potassium bromide)	A	Ingestion	Ther error	
91 ^a	41 yr	Hydrogen peroxide	A	Parenteral	Ther error	

See also cases 1 (aftershave); 95 (hair spray, aerosol propellant); 32 (nail polish remover).

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1996 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood concentrations
Deodorizers						
92 ^P	15 yr	Air freshener	A	Inhalation	Int abuse	
93 ^P	18 yr	Air freshener	A	Inhalation	Int abuse	
94 ^{AP}	15 yr	Air freshener propellant butane	A	Inhalation	Int abuse	
95 ^P	18 yr	Air freshener hair spray (aerosol propellant)	A	Inhalation	Int abuse	
Food products						
<i>See case 72 (vinegar).</i>						
Foreign body						
96 ^A	16 mo	Activated charcoal imipramine	A	Asp/Ing	Ther error	
97 ^A	2 yr	Activated charcoal methylene blue	A	Asp/Ing	Adv rxn	
<i>See also cases 362, 461 (activated charcoal).</i>						
Fumes, gases and vapors						
98 ^{AP}	45 yr	Argon gas	A	Inhalation	Occ	
99 ^P	50 yr	Argon gas	A	Inhalation	Occ	
100 ^P	1 yr	Carbon monoxide/smoke	A	Inhalation	Env	
101 ^P	2 yr	Carbon monoxide/smoke	A	Inhalation	Env	32%
102 ^P	3 yr	Carbon monoxide/smoke	A	Inhalation	Env	
103 ^P	5 yr	Carbon monoxide/smoke	A	Inhalation	Env	
104 ^P	20 yr	Carbon monoxide	A	Inhalation	Env	61%
105 ^P	23 yr	Carbon monoxide	A	Inhalation	Int suicide	
106 ^P	27 yr	Carbon monoxide	A	Inhalation	Int suicide	
107 ^P	32 yr	Carbon monoxide	A	Inhalation	Env	50%
108 ^P	32 yr	Carbon monoxide	A	Inhalation	Int suicide	78%
109 ^P	39 yr	Carbon monoxide/smoke	A	Inhalation	Env	55%
110 ^P	40 yr	Carbon monoxide	A	Inhalation	Int suicide	60%§
111 ^P	41 yr	Carbon monoxide	A	Inhalation	Env	
112	44 yr	Carbon monoxide	A	Inhalation	Int suicide	26%
113 ^P	45 yr	Carbon monoxide	A	Inhalation	Int suicide	
114 ^P	40s yr	Carbon monoxide	A	Inhalation	Int suicide	
115	50 yr	Carbon monoxide	A	Inhalation	Env	26%
116 ^P	55 yr	Carbon monoxide	A	Inhalation	Int suicide	44%
117 ^P	65 yr	Carbon monoxide	A	Inhalation	Env	32%
118 ^P	70 yr	Carbon monoxide	A	Inhalation	Env	37%
119	76 yr	Carbon monoxide	U	Inhalation	Env	27%
120 ^I	80 yr	Carbon monoxide/smoke	A	Inhalation	Env	
121 ^P	81 yr	Carbon monoxide	A	Inhalation	Int suicide	
122 ^P	85 yr	Carbon monoxide	A	Inhalation	Env	
123 ^P	87 yr	Carbon monoxide	A	Inhalation	Env	
124 ^P	>19 yr	Carbon monoxide	U	Inhalation	Unknown	
125 ^A	16 mo	Carbon monoxide/smoke cyanide	A	Inhalation	Env	27% 0.24 µg/mL
126 ^A	3 yr	Carbon monoxide/smoke cyanide	A	Inhalation	Env	41% 0.56 µg/mL
127 ^P	41 yr	Carbon monoxide cyanide ethanol	A	Ing/Inh	Env	270 mg/dL
128 ^P	32 yr	Carbon monoxide ethanol	A	Ing/Inh	Env	
129 ^P	48 yr	Chlorine	A	Inhalation	Env	
130 ^P	75 yr	Chlorine gas from bleach/HCl toilet bowl cleaner mixture	A	Inhalation	Unint mis	
131 ^P	26 yr	Hydrogen sulfide	A	Inhalation	Occ	
132	26 yr	Hydrogen sulfide	A	Inhalation	Occ	
133 ^P	29 yr	Hydrogen sulfide	A	Inhalation	Occ	
134 ^P	34 yr	Hydrogen sulfide	A	Inhalation	Occ	
135 ^P	60 yr	Hydrogen sulfide	A	Inhalation	Occ	
136 ^{AP}	13 yr	Hydrogen sulfide sulfuric acid	A	Inhalation	Occ	
137 ^P	42 yr	Hydrogen sulfide sulfuric acid	A	Inhalation	Occ	

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1996 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood concentrations
138	39 yr	Methane hydrogen sulfide	A	Inhalation	Occ	
139 ^P	41 yr	Nitrogen oxides	A	Inhalation	Occ	
140 ^P	16 yr	Propane	A/C	Inhalation	Int abuse	
141 ^P	17 yr	Propane	A	Inhalation	Int abuse	
142 ^P	36 yr	Propane	A/C	Inhalation	Int abuse	
143	53 yr	Sulfur dioxide	A	Inhalation	Occ	
<i>See also cases 311 (carbon monoxide); 138 (hydrogen sulfide).</i>						
Fungicides						
144	26 yr	Fenarimol	A	Ingestion	Int suicide	
Heavy metals						
145	76 yr	Barium	A	Asp/Ing	Ther error	
Herbicides						
146	41 yr	Herbicide	A	Ingestion	Unint mis	
147	26 yr	Paraquat	A	Ingestion	Int suicide	
148 ^a	75 yr	Paraquat	A	Ingestion	Int suicide	0.592 µg/mL
149	79 yr	Paraquat	A	Ingestion	Int suicide	
150	66 yr	Paraquat ethanol sleep aid	A	Ingestion	Int suicide	14 µg/mL§ 20 mg/dL§ phenobarbital 1.3 µg/mL§ doxylamine 2.4 µg/mL§
Hydrocarbons						
151 ^{ap}	18 yr	Airbrush propellant (difluoroethane, 2-methylbutane)	A	Inhalation	Int abuse	
152 ^P	14 yr	Butane	A	Inhalation	Int abuse	
153	14 yr	Butane	U	Inhalation	Int abuse	
154	32 yr	Epoxy thinner (isopropanol, glycol ether, toluene, xylene)	A	Inhalation	Occ	
155	66 yr	Gasoline	A	Aspiration	Int misuse	
156 ^{ap}	13 yr	Gasoline fumes	A	Inhalation	Int abuse	
157 ^P	13 mo	Lamp oil	A	Asp/Ing	Unint gen	
158	84 yr	Turpentine	U	Ingestion	Int suicide	
<i>See also cases 62, 94 (butane).</i>						
Insecticides/pesticides (excluding rodenticides)						
159 ^P	>19 yr	Acephate	A	Ingestion	Int suicide	
160 ^a	1 yr	Ant and roach killer (propoxur)	A	Ingestion	Unint gen	
161 ^P	44 yr	Carbamate flea dip	A	Dermal	Env	
162 ^a	22 mo	Chlorpyrifos/petroleum distillate	A	Asp/Ing	Unint gen	
163	39 yr	Diazinon morphine benzodiazepines	A	Ingestion	Int suicide	
164 ^{ap}	6 yr	Disulfoton	A	Ingestion	Malicious	0.056 µg/mL§
165 ^a	37 yr	Endosulfan	A	Ingestion	Int suicide	
166	76 yr	Endosulfan	A	Ingestion	Unint gen	
167 ^P	2 yr	Insecticide spray (diazinon/xylene)	A	Ingestion	Malicious	
168	37 yr	Lindane	A	Ingestion	Unknown	
169	74 yr	Malathion	A	Ingestion	Unint gen	
170 ^P	12 mo	Organophosphate	A	Ingestion	Unint gen	
171	68 yr	Organophosphate	A	Ingestion	Int unknown	
172 ^{ap}	35 yr	Pyrethrins/piperonyl butoxide flea and tick shampoo	A	Inhalation	Env	
173 ^a	41 yr	Sulfuryl fluoride	A	Inhalation	Env	
<i>(See also cases 80 (ant and roach killer, propoxur); 674 (chlorpyrifos).</i>						
Moth repellants						
<i>See case 674 (naphthalene).</i>						
Mushrooms						
174 ^a	61 yr	Mushroom	A	Ingestion	Unint mis	
175 ^{ap}	81 yr	Mushroom	A	Ingestion	Unint mis	

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1996 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood concentrations	
Rodenticides							
176 ^a	22 yr	Brodifacoum	C	Ingestion	Int suicide		
177 ^p	54 yr	Strychnine ethanol	A	Ingestion	Int suicide	5 µg/mL§ 190 mg/dL§	
178 ^a	38 yr	Zinc phosphide	A	Ingestion	Int suicide		
<i>See also case 223 (rodenticide).</i>							
Sporting equipment							
179 ^{ap}	22 mo	Gun bluing (selenious acid/nitric acid)	A	Ingestion	Unint gen		
PHARMACEUTICALS							
Analgesics							
180 ^a	11 yr	Acetaminophen	C	Ingestion	Ther error		
181	14 yr	Acetaminophen	C	Ingestion	Int suicide		
182	17 yr	Acetaminophen	U	Ingestion	Unknown	79 µg/mL	
183	19 yr	Acetaminophen	A	Ingestion	Int suicide	124 µg/mL	
184 ^a	20 yr	Acetaminophen	U	Ingestion	Int suicide		
185	24 yr	Acetaminophen	C	Ingestion	Unknown	52 µg/mL	
186 ^a	30 yr	Acetaminophen	C	Ingestion	Int misuse	97 µg/mL	
187	30 yr	Acetaminophen	A	Ingestion	Unknown	53 µg/mL	
188	33 yr	Acetaminophen	A	Ingestion	Int suicide	710 µg/mL	
189	35 yr	Acetaminophen	A	Ingestion	Int suicide		
190	38 yr	Acetaminophen	U	Ingestion	Int suicide	53 µg/mL§	
191	40 yr	Acetaminophen	C	Ingestion	Int unknown	28 µg/mL	
192	41 yr	Acetaminophen	U	Ingestion	Int unknown	160 µg/mL	
193	41 yr	Acetaminophen	C	Ingestion	Int misuse	23 µg/mL	
194	41 yr	Acetaminophen	C	Ingestion	Int misuse	44 µg/mL	
195	43 yr	Acetaminophen	C	Ingestion	Unknown		
196	48 yr	Acetaminophen	C	Ingestion	Int misuse		
197 ^p	53 yr	Acetaminophen	C	Ingestion	Int suicide		
198	55 yr	Acetaminophen	U	Ingestion	Int suicide	131 µg/mL	
199	60 yr	Acetaminophen	U	Ingestion	Unknown	89 µg/mL	
200	75 yr	Acetaminophen	C	Ingestion	Ther error		
201	80 yr	Acetaminophen	A	Ingestion	Int suicide	152 µg/mL	
202	22 yr	Acetaminophen	A	Ingestion	Int suicide		
		acetaminophen/codeine					
203	35 yr	Acetaminophen	C	Ingestion	Ther error	83 µg/mL	
		acetaminophen/codeine					
204	47 yr	Acetaminophen	C	Ingestion	Unint mis		
		acetaminophen/diphenhydramine					
205	51 yr	Acetaminophen	U	Ingestion	Unknown	56 µg/mL	
		antifreeze (ethylene glycol)				11 mg/dL	
206	46 yr	Acetaminophen	U	Ingestion	Int unknown	>300 µg/mL	
		antihistamine					
207	34 yr	Acetaminophen	U	Ingestion	Int suicide	29 µg/mL	
		benzodiazepines					
		opioids					
208	19 yr	Acetaminophen	A	Ingestion	Int suicide	189 µg/mL	3 d
		cocaine					
209	31 yr	Acetaminophen	C	Ingestion	Ther error	11 µg/mL	
		ethanol					
210	37 yr	Acetaminophen	C	Ingestion	Int misuse	83 µg/mL	
		ethanol					
211	37 yr	Acetaminophen	C	Ingestion	Int abuse	<2 µg/mL	
		ethanol				75 mg/dL	
212	43 yr	Acetaminophen	U	Ingestion	Ther error	53 µg/mL	
		ethanol					
213 ^a	44 yr	Acetaminophen	A	Ingestion	Int suicide	180 µg/mL	8 h
		ethanol				100 mg/dL	8 h
214	55 yr	Acetaminophen	C	Ingestion	Ther error		
		ethanol					
215	74 yr	Acetaminophen	C	Ingestion	Int abuse	70 µg/mL	
		ethanol					
216 ^a	52 yr	Acetaminophen	A/C	Ingestion	Int suicide	166 µg/mL	
		ethanol				95 mg/dL	
		chlordiazepoxide					
217	44 yr	Acetaminophen	C	Ingestion	Ther error	42 µg/mL	
		ethanol					
		ibuprofen					

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1996 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood concentrations	
218	23 yr	Acetaminophen ethanol	C	Ingestion	Ther error	41 µg/mL	
219	52 yr	Acetaminophen tricyclic antidepressant ibuprofen	C	Ingestion	Int misuse	7 µg/mL	
220	24 yr	Acetaminophen lorazepam methadone	C	Ingestion	Ther error	44 µg/mL	
221	25 yr	Acetaminophen opiates	U	Ingestion	Unknown	34 µg/mL	
222	36 yr	Acetaminophen opiate	U	Ingestion	Int unknown	131 µg/mL	
223	43 yr	Acetaminophen tricyclic antidepressant rodenticide ethanol	A	Ingestion	Int suicide	56 µg/mL	24 h
224 ^P	40 yr	Acetaminophen/butalbital/caffeine	A	Ingestion	Int suicide	200 µg/mL [‡]	
225	47 yr	Acetaminophen/butalbital/caffeine	A/C	Ingestion	Int suicide	63 µg/mL [‡]	
226	70 yr	Acetaminophen/butalbital/caffeine	U	Ingestion	Unknown	40 µg/mL [‡]	
227	75 yr	Acetaminophen/butalbital/caffeine	A	Ingestion	Int suicide	butalbital 25 µg/mL	
228	40 yr	Acetaminophen/butalbital/caffeine acetaminophen/hydrocodone carisoprodol	A/C	Ingestion	Int unknown	4.9 µg/mL [‡] butalbital 72 µg/mL	
229	28 yr	Acetaminophen/codeine	A	Ingestion	Int suicide	44 µg/mL [‡]	
230 ^P	25 yr	Acetaminophen/codeine acetaminophen/oxycodone etodolac	A	Ingestion	Int suicide	12 µg/mL [‡]	
231 ^P	45 yr	Acetaminophen/codeine ethanol	A/C	Ingestion	Unint unk	21 µg/mL [‡] codeine 2.8 µg/mL [‡]	
232 ^P	36 yr	Acetaminophen/codeine ethanol cyclobenzaprine	A	Ingestion	Int suicide	83 µg/mL [‡] 360 mg/dL	
233	64 yr	Acetaminophen/codeine meprobamate secobarbital	A/C	Ingestion	Int suicide	32 µg/mL [‡]	
234	38 yr	Acetaminophen/diphenhydramine	A	Ingestion	Int suicide	98 µg/mL [‡]	24 h
235	41 yr	Acetaminophen/diphenhydramine	A	Ingestion	Int suicide	11 µg/mL [‡]	72 h
236	44 yr	Acetaminophen/diphenhydramine	U	Ingestion	Unknown	48 µg/mL	
237	58 yr	Acetaminophen/diphenhydramine	C	Ingestion	Int misuse	28 µg/mL [‡]	
238	76 yr	Acetaminophen/diphenhydramine	A	Ingestion	Int suicide	537 µg/mL [‡]	>24 h
239	38 yr	Acetaminophen/diphenhydramine diazepam	U	Ingestion	Int suicide	90 µg/mL [‡]	
240	34 yr	Acetaminophen/hydrocodone	A	Ingestion	Int suicide	55 µg/mL [‡]	
241	38 yr	Acetaminophen/hydrocodone	U	Ingestion	Unknown	138 µg/mL [‡]	
242	42 yr	Acetaminophen/hydrocodone	C	Ingestion	Int misuse	17 µg/mL [‡]	
243 ⁱ	35 yr	Acetaminophen/hydrocodone	A/C	Ingestion	Int suicide	55 µg/mL [‡]	
244	52 yr	Acetaminophen/hydrocodone carisoprodol	C	Ingestion	Int misuse	30 µg/mL [‡]	
245 ^P	40 yr	Acetaminophen/hydrocodone clonazepam acetaminophen/codeine	A/C	Ingestion	Int suicide		
246	35 yr	Acetaminophen/hydrocodone ethanol	C	Ingestion	Int abuse		
247	43 yr	Acetaminophen/hydrocodone temazepam carisoprodol	A	Ingestion	Int suicide		
248 ^P	72 yr	Acetaminophen/hydrocodone temazepam sertraline	A	Ingestion	Int suicide	150 µg/mL [‡]	6.5 h
249	28 yr	Acetaminophen/opiate	U	Ingestion	Int unknown	26 µg/mL [‡]	
250	45 yr	Acetaminophen/oxycodone	C	Ingestion	Int suicide	133 µg/mL [‡]	
251	49 yr	Acetaminophen/oxycodone cocaine alprazolam	A	Ingestion	Int suicide		
252 ^P	32 yr	Acetaminophen/propoxyphene	A	Ingestion	Int suicide		
253 ^P	35 yr	Acetaminophen/propoxyphene	A	Ingestion	Int suicide		

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1996 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood concentrations	
254	38 yr	Acetaminophen/propoxyphene	U	Ingestion	Unknown	148 µg/mL‡	6 h
255	43 yr	Acetaminophen/propoxyphene	C	Ingestion	Int abuse	119 µg/mL‡	
256 ^P	78 yr	Acetaminophen/propoxyphene acetaminophen	A/C	Ingestion	Int suicide	481 µg/mL‡	
257 ^P	38 yr	Acetaminophen/propoxyphene alprazolam ethanol	A	Ingestion	Int abuse		
258	32 yr	Acetaminophen/propoxyphene cocaine	C	Ing/Unk	Unknown	146 µg/mL‡	
259 ^P	72 yr	Acetaminophen/propoxyphene diphenhydramine benzodiazepines	A/C	Ingestion	Int suicide	298 µg/mL‡	7 h
260	57 yr	Acetaminophen/propoxyphene ethanol methocarbamol	C	Ingestion	Int misuse		
261	27 yr	Aspirin	A	Ingestion	Int suicide	74 mg/dL	
262	34 yr	Aspirin	C	Ingestion	Int misuse	116 mg/dL	
263	35 yr	Aspirin	A	Ingestion	Int suicide	100 mg/dL	
264 ^{AP}	36 yr	Aspirin	A/C	Ingestion	Int unknown	152 mg/dL	
265	37 yr	Aspirin	U	Ingestion	Int suicide	62 mg/dL	
266	40 yr	Aspirin	A	Ingestion	Int suicide	80 mg/dL	
267	40 yr	Aspirin	A	Ingestion	Int suicide	80 mg/dL	
268	42 yr	Aspirin	A	Ingestion	Int suicide	114 mg/dL	
269	44 yr	Aspirin	A	Ingestion	Int suicide	134 mg/dL	12 h
270	46 yr	Aspirin	A	Ingestion	Int suicide	116 mg/dL	
271	46 yr	Aspirin	U	Ingestion	Unknown	83 mg/dL	
272 ^a	48 yr	Aspirin	A	Ingestion	Int suicide	122 mg/dL	15 h
273 ^a	49 yr	Aspirin	A	Ingestion	Int suicide	132 mg/dL	12 h
274	52 yr	Aspirin	A/C	Ingestion	Int suicide	98 mg/dL	
275	56 yr	Aspirin	A	Ingestion	Int suicide	86 mg/dL	7 h
276	61 yr	Aspirin	A/C	Ingestion	Int misuse	109 mg/dL	
277	63 yr	Aspirin	A	Ingestion	Int suicide	60 mg/dL	
278	66 yr	Aspirin	C	Ingestion	Int misuse	52 mg/dL	
279	70 yr	Aspirin	U	Ingestion	Unknown	25 mg/dL	
280	71 yr	Aspirin	A	Ingestion	Int suicide		
281	73 yr	Aspirin	A	Ingestion	Int unknown	69 mg/dL	
282	78 yr	Aspirin	U	Ingestion	Int unknown	35 mg/dL	24 h
283	>19 yr	Aspirin	A	Ingestion	Int suicide	116 mg/dL	
284	61 yr	Aspirin acetaminophen	A	Ingestion	Int unknown	87 mg/dL 531 µg/mL	5 h
285	61 yr	Aspirin amitriptyline perphenazine	A	Ingestion	Unknown	67 mg/dL	
286	49 yr	Aspirin diazepam	A	Ingestion	Int suicide	100 mg/dL 0.05 µg/mL§	
287 ^P	19 yr	Aspirin diphenhydramine	A	Ingestion	Int suicide	90 mg/dL	
288	23 yr	Aspirin diphenhydramine	A	Ingestion	Int suicide	110 mg/dL	
289	15 yr	Aspirin ethanol	A	Ingestion	Int suicide	155 mg/dL	17.5 h
290	23 yr	Aspirin ethanol	A	Ingestion	Int suicide	165 mg/dL	
291	36 yr	Aspirin ethanol	U	Ingestion	Int suicide	42 mg/dL	
292	50 yr	Aspirin ethanol	A	Ingestion	Int suicide	89 mg/dL 31 mg/dL	9.5 h 5.5 h
293	52 yr	Aspirin ethanol	A/C	Ingestion	Int suicide	117 mg/dL	7 h
294	70 yr	Aspirin hydrocodone	A	Ingestion	Int suicide	130 mg/dL§	
295 ^a	50 yr	Aspirin lithium risperidone	U	Ingestion	Int suicide	134 mg/dL 1.6 mEq/L	17 h 17 h
296	80 yr	Aspirin lorazepam	A	Ingestion	Int suicide	51 mg/dL	12 h

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1996 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood concentrations
297	39 yr	Aspirin methylphenidate fluoxetine	A	Ingestion	Int suicide	111 mg/dL 1,024 ng/mL 4,157 ng/mL
298	39 yr	Aspirin OTC sleep aid	A	Ingestion	Int suicide	140 mg/dL
299	72 yr	Aspirin/oxycodone diazepam	U	Ingestion	Unknown	13 mg/dL¶
300	31 yr	Colchicine	A	Parenteral	Ther error	
301*	50 yr	Colchicine	A	Ingestion	Ther error	
302*	30 yr	Fentanyl ethanol	A	Ingestion	Int abuse	
303*	43 yr	Fentanyl transdermal patch	A	Ingestion	Int suicide	
304*	35 yr	Fentanyl transdermal patch diazepam morphine	U	Derm/Ing	Int unknown	
305*	41 yr	Hydrocodone/homatropine	A	Ingestion	Int unknown	
306	75 yr	Ibuprofen unknown drug	A	Ingestion	Int suicide	
307	70 yr	Meperidine	A/C	Parenteral	Ther error	0.65 µg/mL normeperidine 0.93 µg/m
308*	26 yr	Methadone	A/C	Ingestion	Int abuse	1.48 µg/mL§
309	37 yr	Methadone	A	Ingestion	Int suicide	0.4 µg/mL§
310*	41 yr	Methadone	A/C	Ingestion	Int suicide	0.51 µg/mL§
311	46 yr	Methadone carbon monoxide cocaine	U	Ing/Inh	Unknown	0.9%
312	40s yr	Methadone cocaine	A/C	Unknown	Int unknown	
313*	31 yr	Methadone diazepam	A/C	Ingestion	Int abuse	
314*	31 yr	Methadone diazepam	U	Ingestion	Unknown	0.26 µg/mL§ 0.35 µg/mL§ demethylidiazepam 0.28 µg/mL§
315	56 yr	Methadone diazepam	A/C	Ingestion	Int suicide	
316*	29 yr	Methadone ethanol	A/C	Ing/Inh	Int abuse	143 mg/dL
317*	49 yr	Methadone flecainide lorazepam	A/C	Ingestion	Int abuse	
318	25 yr	Methadone sympathomimetic amines	A	Ingestion	Int unknown	
319*	2 yr	Morphine	A	Ingestion	Unknown	0.15 µg/mL§
320*	19 yr	Morphine	U	Parenteral	Int abuse	0.05 µg/mL
321*	44 yr	Morphine	A/C	Ingestion	Int unknown	>100 µg/mL
322*	>19 yr	Morphine	A	Ingestion	Int suicide	
323*	71 yr	Morphine acetaminophen/hydrocodone fentanyl transdermal patch	A/C	Ingestion	Int unknown	
324*	41 yr	Morphine chlordiazepoxide ethanol	A	Ing/Unk	Int abuse	
325*	42 yr	Morphine codeine diazepam	A/C	Ing/Paren	Int abuse	0.91 µg/mL§ 0.11 µg/mL§ 0.2 µg/mL§ nordiazepam 0.3 µg/mL§
326*	30 yr	Morphine codeine ethanol	A/C	Ing/Paren	Int abuse	
327*	39 yr	Morphine propoxyphene diazepam	A	Ingestion	Int abuse	
328*	36 yr	Opiate	U	Ingestion	Int abuse	morphine 0.418 µg/mL§
329*	41 yr	Opiate	A	Unknown	Unknown	
330	62 yr	Opiate barbiturate amitriptyline	U	Ingestion	Int suicide	730 ng/mL

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1996 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood concentrations
331 ^P	53 yr	Opiates benzodiazepines nortriptyline	A/C	Ing/Paren	Int abuse	
332 ^P	34 yr	Opiates cocaine	A	Parenteral	Int unknown	
333 ^P	40 yr	Opiate cocaine ethanol	A	Parenteral	Int abuse	210 mg/dL
334 ^P	24 yr	Opiates ethanol	A	Unknown	Int suicide	
335 ^P	35 yr	Opiates ethanol	A	Unknown	Int abuse	
336 ^P	22 yr	Opiates ethanol cannabinoids	A/C	Ingestion	Int suicide	57 mg/dL
337 ^P	37 yr	Opiates ethanol fluoxetine	A	Ingestion	Int abuse	0.024 µg/mL§ 110 mg/dL§
338 ^P	40 yr	Oxycodone acetaminophen/hydrocodone diazepam	A/C	Ingestion	Int unknown	0.046 µg/mL 5 µg/mL‡
339 ^P	44 yr	Oxycodone diazepam fluoxetine	A/C	Ingestion	Ther error	
340 ^P	37 yr	Oxycodone sertraline	C	Ingestion	Int abuse	1.0 µg/mL§ 320 ng/mL§
341 ^a	16 mo	Potassium salicylate/caffeine/salicylamide	A	Ingestion	Unint gen	
342	90 yr	Propoxyphene	A	Ingestion	Int suicide	0.23 µg/mL§
343	37 yr	Propoxyphene aspirin cocaine	A	Ing/Unk	Int suicide	1.85 µg/mL§ 2.23 µg/mL§ 34 mg/dL§ 0.14 µg/mL§
344	34 yr	Propoxyphene cyclobenzaprine lorazepam	U	Ingestion	Int suicide	
345 ^P	38 yr	Propoxyphene hydrocodone	A/C	Ingestion	Int abuse	
346 ^P	30 yr	Propoxyphene lorazepam	A	Ingestion	Int suicide	
347	37 yr	Propoxyphene trazodone nifedipine	A	Ingestion	Int suicide	
348	47 yr	Salicylate cocaine codeine	A	Ingestion	Int unknown	71 mg/dL 0.77 µg/mL
349 ^P	35 yr	Sumatriptan cyclobenzaprine hydroxyzine	A	Ingestion	Int suicide	
350 ^P	38 yr	Tramadol alprazolam	A	Ingestion	Unknown	2,462 ng/mL§ 0.555 µg/mL§

See also cases 13, 14, 256, 284, 389, 390, 409, 460, 559, 589, 592, 629 (acetaminophen); 202, 203, 245, 571, 572 (acetaminophen/codeine); 522 (acetaminophen/codeine or oxycodone); 204 (acetaminophen/diphenhydramine); 15, 18, 228, 323, 338, 401, 615, 672 (acetaminophen/hydrocodone); 627 (acetaminophen/isometheptene mucate/dichloralphenazone); 230 (acetaminophen/oxycodone); 343, 457, 458, 484, 486, 522, 535, 588, 672 (aspirin); 325, 326, 348, 687 (codeine); 460 (dextropropoxyphene); 586 (diclofenac); 230 (etodolac); 323 (fentanyl transdermal patch); 294, 345 (hydrocodone); 432 (hydromorphone); 217, 219, 721 (ibuprofen); 220, 483, 686, 687 (methadone); 22, 41, 163, 304, 584 (morphine); 17, 221, 222, 368, 396, 445, 611, 673, 688, 689, 690, 722 (opiate); 207 (opioids); 40, 408 (oxaprozin); 359 (oxycodone); 327, 409, 410, 691, 702 (propoxyphene); 478, 690 (salicylates); 411, 479 (tramadol).

Anesthetics

351 ^a	2 mo	Ketamine	A	Parenteral	Ther error		
352 ^{2P}	19 yr	Lidocaine	A	Inh/Oth	Ther error	15.6 µmL	3 h
353 ^P	67 yr	Lidocaine	A	Parenteral	Ther error		
354 ^a	27 yr	Lidocaine diphenhydramine	A	Ing/Oth	Int suicide		
355 ^P	33 yr	Local anesthetic	A	Parenteral	Adv rxn		

See also cases 554, 683, 684 (lidocaine); 613 (nitrous oxide).

Anticholinergic drugs

356 ^P	50 yr	Oxybutynin	A	Ingestion	Int suicide		
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See also cases 622 (benztropine); 710 (scopolamine).

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1996 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood concentrations
Anticoagulants						
<i>See case 692 (warfarin).</i>						
Anticonvulsants						
357	31 yr	Carbamazepine	U	Ingestion	Int suicide	161 µg/mL
358	54 yr	Carbamazepine diltiazem clonidine	A/C	Ingestion	Int suicide	31.7 µg/mL
359 ^P	56 yr	Carbamazepine oxycodone diazepam	U	Ingestion	Unknown	36 µg/mL
360 ^P	28 yr	Carbamazepine trazodone zopiclone	A	Ingestion	Int suicide	79.7 µg/mL 3.1 µg/mL
361	49 yr	Phenytoin	U	Ingestion	Ther error	80 µg/mL
362	43 yr	Phenytoin activated charcoal	A/C	Ingestion	Int suicide	26 µg/mL
363 ^P	12 mo	Valproic acid	A	Ingestion	Unint gen	1,296 µg/mL
364	25 yr	Valproic acid	A	Ingestion	Int suicide	>1,000 µg/mL
365 ^P	34 yr	Valproic acid	U	Ingestion	Int unknown	1,000 µg/mL
366 ^P	43 yr	Valproic acid	A	Ingestion	Int suicide	
367 ^P	60 yr	Valproic acid	A/C	Ingestion	Int suicide	1,150 µg/mL
368 ^P	36 yr	Valproic acid carbamazepine opiate	A	Ingestion	Int suicide	225 µg/mL 25.1 µg/mL
369	38 yr	Valproic acid carbamazepine risperidone	A	Ingestion	Int suicide	
370 ^P	24 yr	Valproic acid sertraline	A	Ingestion	Int suicide	>1,000 µg/mL
<i>See also cases 368, 369, 395, 396, 414, 416, 459 (carbamazepine); 441 (gabapentin); 410, 626 (phenytoin); 447, 453, 576, 630 (valproic acid).</i>						
Antidepressants						
371 ^P	3 yr	Amitriptyline	A	Ingestion	Unint gen	
372 ^P	6 yr	Amitriptyline	A/C	Ingestion	Unknown	5,650 ng/mL§ nortriptyline 460 ng/mL§
373	20 yr	Amitriptyline	A/C	Ingestion	Int suicide	
374 ^P	22 yr	Amitriptyline	A	Ingestion	Int suicide	2,750 ng/mL§ nortriptyline 20,410 ng/mL§
375 ^P	26 yr	Amitriptyline	A/C	Ingestion	Int suicide	5,600 ng/mL nortriptyline 5,410 ng/mL
376 ^P	28 yr	Amitriptyline	A	Ingestion	Int suicide	12,600 ng/mL§
377	29 yr	Amitriptyline	A/C	Ingestion	Int suicide	
378	30 yr	Amitriptyline	A	Ingestion	Int suicide	
379	34 yr	Amitriptyline	A/C	Ingestion	Int suicide	735 ng/mL nortriptyline 823 ng/mL
380 ^I	35 yr	Amitriptyline	A/C	Ingestion	Int suicide	
381 ^P	41 yr	Amitriptyline	A	Ingestion	Int suicide	
382	45 yr	Amitriptyline	A	Ingestion	Int suicide	7,000 ng/mL
383 ^P	45 yr	Amitriptyline	A	Ingestion	Int suicide	
384 ^P	45 yr	Amitriptyline	A/C	Ingestion	Int suicide	
385 ^P	47 yr	Amitriptyline	A	Ingestion	Int suicide	
386	48 yr	Amitriptyline	A	Ingestion	Int suicide	
387 ^P	71 yr	Amitriptyline	U	Ingestion	Unknown	
388	84 yr	Amitriptyline	A/C	Ingestion	Int suicide	
389 ^P	21 yr	Amitriptyline	A/C	Ingestion	Int suicide	
390	65 yr	acetaminophen Amitriptyline acetaminophen fenfluramine	A/C	Ingestion	Int suicide	188 µg/mL
391	47 yr	Amitriptyline alprazolam	A/C	Ingestion	Int suicide	1,646 ng/mL#
392	42 yr	Amitriptyline amlodipine	A	Ingestion	Int suicide	
393	54 yr	Amitriptyline barbiturates	A	Ingestion	Int suicide	1,876 ng/mL
394	50 yr	Amitriptyline benzodiazepine	A	Ingestion	Int suicide	

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1996 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood concentrations
722	34 yr	Unknown street drugs opiate	U	Unknown	Unknown	
See also cases 16, 17, 439, 673 (amphetamine); 336 (cannabinoids); 29, 208, 251, 258, 311, 312, 332, 333, 343, 348, 407, 432, 442, 578, 609, 634, 703, 704, 710, 715, 716 (cocaine); 375 (dextromethorphan/quinine/scopolamine); 390 (flenfluramine); 635, 681, 682 (heroin); 62 (LSD); 632, 685, 720 (marijuana); 297 (methylphenidate); 513 (pemoline); 464 (phencyclidine); 694 (phentermine); 471 (phentermine/fenfluramine); 446 (phenylpropanolamine).						
Topical preparations						
723	34 yr	Methyl salicylate	A	Ingestion	Int suicide	109 mg/dL§
724 ^a	70 yr	Methyl salicylate	A	Ingestion	Int misuse	109 mg/dL
725	60 yr	Salicylate containing topical preparation	A	Ingestion	Ther Error	98 mg/dL
Unknown substances						
726	3 yr	Unknown poison	U	Ingestion	Malicious	
See also case 306 (unknown drug).						

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

ABBREVIATIONS: C, chronic exposure; A, acute exposure; A/C, acute on chronic; U, unknown; Adv rxn, adverse reaction; Env, environmental; Int, intentional; Occ, occupational; Ther error, therapeutic error; Unint gen, unintentional general. All times are from the time of exposure.

^pPrehospital (cardiac and/or respiratory) arrest.

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

^aAbstract provided in Appendix.

§ Concentration obtained postmortem.

¥ Acetaminophen concentration.

¶ Salicylate level.

Concentration includes metabolite and parent compound.

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Adhesives/glues														
Cyanoacrylates	13,319	4,121	2,791	4,883	13,058	184	42	25	2,843	1,849	2,991	668	9	0
Epoxy	875	326	54	397	848	12	3	9	277	195	238	43	2	0
Toluene/xylene	2,093	1,356	384	265	2,001	72	10	6	289	603	427	64	0	0
Nontoxic	1,696	1,147	371	141	1,613	63	14	4	80	296	127	7	0	0
Unknown	4,828	2,666	680	1,184	4,624	138	30	29	861	1,157	1,043	156	3	0
*Category totals	22,811	9,616	4,280	6,870	22,144	469	99	73	4,350	4,100	4,826	938	14	0
Alcohols														
Ethanol (beverage)	31,085	1,750	4,765	21,800	4,607	25,467	198	582	21,195	3,503	9,917	4,441	729	73
Ethanol (other)	2,340	1,266	264	666	2,090	213	8	24	380	712	377	42	7	0
Higher alcohols	227	132	26	55	222	3	1	0	61	82	59	10	1	0
Isopropanol	9,782	6,486	852	2,061	8,701	985	52	17	1,987	3,426	1,836	275	45	5
Methanol	874	200	115	464	758	99	9	1	472	232	215	67	29	8
Rubbing alcohol														
Ethanol, with methyl salicylate	36	28	2	5	36	0	0	0	8	12	4	2	0	0
Ethanol, without methyl salicylate	309	226	22	53	284	22	1	1	42	118	49	3	0	0
Isopropanol, with methyl salicylate	323	239	20	57	295	25	1	1	69	132	71	5	1	0
Isopropanol, without methyl salicylate	9,683	7,015	770	1,645	8,791	810	56	9	1,536	3,449	1,735	172	26	1
Unknown rubbing alcohol	226	162	14	34	195	25	3	1	35	28	29	4	0	0
Other alcohol	51	19	6	20	37	8	1	2	20	11	15	3	1	0
Unknown alcohol	509	65	88	315	182	309	6	9	288	71	114	57	16	2
*Category totals	55,445	17,588	6,944	27,175	26,198	27,966	336	647	26,093	11,776	14,421	5,081	855	89
Arts/crafts/office supplies														
Artist paints, non-water-color														
	1,181	801	186	149	1,146	22	6	6	105	295	126	20	0	0
Chalk	1,958	1,771	128	47	1,932	24	1	0	46	361	57	4	0	0
Clay	1,969	1,665	153	125	1,944	20	1	3	74	316	96	11	0	0
Crayon	2,720	2,426	190	97	2,693	23	1	2	82	436	54	5	0	0
Glazes	226	98	39	78	215	7	3	1	35	72	29	1	0	0

(Continued on following page)

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Office supplies:														
miscellaneous	395	127	28	192	388	6	1	0	68	76	93	5	1	0
Pencil	3,528	1,765	1,366	295	3,396	62	61	4	162	358	387	19	1	0
Pens/ink	14,226	10,286	3,211	528	13,789	359	31	31	358	3,074	535	28	2	0
Typewriter correction fluid	2,711	1,732	689	231	2,505	181	20	1	209	840	323	17	1	0
Water color	3,646	2,936	412	259	3,590	35	5	14	77	776	143	7	1	0
Other	6,559	5,119	720	577	6,388	126	24	16	308	1,268	400	34	2	0
Unknown	389	284	61	38	376	11	0	1	7	75	13	1	1	0
*Category totals	39,508	29,010	7,183	2,616	38,362	876	154	79	1,531	7,947	2,256	152	9	0
Auto/aircraft/boat products														
Ethylene glycol	4,829	809	716	2,731	4,429	363	23	2	1,592	1,109	1,102	299	79	9
Glycols: other	1,613	495	157	776	1,543	57	8	3	576	406	581	84	2	1
Glycol and methanol	136	32	23	67	130	5	1	0	29	23	48	10	0	0
Hydrocarbons	3,387	1,564	402	1,167	3,248	115	15	5	906	959	1,126	115	6	1
Methanol	1,540	449	240	703	1,415	104	11	4	628	490	460	59	16	2
Nontoxic	63	47	5	9	63	0	0	0	9	17	12	0	0	0
Other	2,627	1,187	399	844	2,512	88	8	17	871	518	970	174	5	1
Unknown	173	57	23	85	155	13	1	4	70	43	53	8	0	0
*Category totals	14,368	4,640	1,965	6,382	13,495	745	67	35	4,681	3,565	4,352	749	108	14
Batteries														
Automotive batteries	1,715	158	252	1,070	1,685	23	4	2	532	165	730	158	5	1
Disc batteries														
Alkaline (MnO ₂)	83	65	13	2	82	1	0	0	53	52	5	2	0	0
Lithium	98	31	13	28	94	3	0	0	52	30	29	3	1	0
Mercuric oxide	24	14	4	4	22	2	0	0	17	14	3	0	0	0
Nickel cadmium	11	2	2	4	11	0	0	0	1	4	1	2	0	0
Silver oxide	46	34	4	7	43	3	0	0	32	31	5	3	0	0
Zinc-air	108	42	10	52	108	0	0	0	75	67	10	1	0	0
Other	7	2	3	2	7	0	0	0	2	3	3	0	0	0
Unknown	1,605	1,065	381	127	1,573	29	1	0	1,055	837	85	18	3	0
Dry cell batteries	4,299	2,263	1,041	690	4,081	183	21	4	649	1,089	1,106	167	2	0
Other batteries	107	41	22	30	100	7	0	0	26	18	26	8	1	0
Unknown batteries	26	10	2	11	25	0	1	0	9	5	9	1	0	0
*Category totals	8,129	3,727	1,747	2,027	7,831	251	27	6	2,503	2,315	2,012	363	12	1
Bites and Envenomations														
Coelenterate	1,107	140	558	364	1,101	5	0	1	126	8	412	42	1	0
Fish	1,444	44	260	1,002	1,436	4	1	3	470	22	563	119	0	0
Other/unknown marine animal	560	290	80	160	542	8	3	4	98	78	90	32	1	0
Insects														
Ant/fire ant	3,013	1,249	427	1,104	2,987	8	8	9	285	81	1,194	121	4	0
Bee/wasp/hornet	16,336	3,276	3,683	8,084	16,287	18	1	29	1,663	166	6,587	746	19	0
Caterpillar	3,774	1,088	1,069	1,384	3,731	14	5	22	319	101	1,517	60	1	0
Centipede/millipede	120	43	22	39	119	0	0	1	13	9	42	3	0	0
Mosquito	370	143	72	114	369	1	0	0	54	0	91	17	0	0
Scorpion	12,826	1,023	2,562	8,010	12,811	3	0	11	813	142	7,327	747	16	0
Tick	3,577	951	840	1,505	3,569	2	1	5	622	155	653	67	2	0
Other insect	15,317	3,389	2,816	7,878	15,091	37	137	34	2,221	489	4,878	866	17	0
Mammals														
Bat	222	18	61	117	217	4	0	0	131	30	40	3	0	0
Cat	838	148	204	405	835	1	0	1	336	18	182	23	0	0
Dog	1,642	318	641	571	1,627	10	1	4	866	25	292	45	2	0
Fox	20	3	3	13	19	0	0	1	9	0	2	2	0	0
Human	75	26	17	27	72	0	3	0	19	3	12	5	0	0
Raccoon	121	7	28	73	118	1	0	1	71	12	18	3	0	0
Rodents/lagomorphs	1,829	461	687	546	1,811	4	8	3	360	65	485	14	1	0
Skunk	273	27	67	122	272	0	0	1	24	40	74	6	0	0
Other mammal	1,342	251	435	537	1,332	3	2	1	486	98	345	25	0	0
Reptile: other/unknown	1,461	432	561	367	1,426	17	4	14	262	83	407	29	0	0
Snakes														
Copperhead	506	24	98	351	504	2	0	0	442	7	204	200	8	0
Coral	80	6	20	49	79	1	0	0	67	2	46	5	1	0
Cottonmouth	94	5	17	71	94	0	0	0	69	6	41	19	1	0

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Crotalid: unknown	2	0	1	1	2	0	0	0	2	0	0	2	0	0
Rattlesnake	789	51	137	543	782	4	0	1	680	30	223	297	75	0
Exotic snakes														
Poisonous	84	6	14	51	81	2	1	0	65	4	27	22	2	0
Nonpoisonous	270	24	110	112	270	0	0	0	83	3	89	19	0	0
Unknown if poisonous	1	0	1	0	1	0	0	0	0	0	1	0	0	0
Nonpoisonous snake	2,316	283	1,008	855	2,311	4	0	1	522	89	895	54	0	0
Unknown snake	1,891	165	655	970	1,884	2	1	3	1,106	81	911	206	15	0
Spiders														
Black widow	2,405	222	394	1,602	2,396	5	0	2	729	197	963	331	9	0
Brown recluse	1,949	181	287	1,223	1,944	0	0	4	995	27	443	458	29	0
Other spider	8,600	1,242	1,679	4,765	8,572	8	4	16	1,310	166	2,537	495	8	0
Tarantula	213	25	77	78	203	0	0	10	44	3	93	10	0	0
Unknown insect or spider	9,763	1,557	1,756	4,577	9,748	6	2	6	2,022	140	3,687	672	10	0
Other/unknown animal bite	53	9	22	19	53	0	0	0	24	0	13	0	0	0
*Category totals	95,283	17,127	21,369	47,689	94,696	174	182	188	17,408	2,380	35,384	5,765	222	0
Building and construction products														
Caulking compounds and putties	3,795	2,789	239	584	3,734	33	7	20	263	992	352	33	3	0
Cement, concrete	1,663	419	119	889	1,636	18	4	4	678	213	421	331	14	0
Insulation														
Asbestos	273	35	30	155	265	3	0	4	56	21	15	4	1	0
Fiberglass	1,707	650	314	589	1,669	11	7	19	217	224	444	57	0	0
Urea/formaldehyde	91	37	6	40	87	1	1	2	18	10	17	3	0	0
Other	314	141	41	107	307	4	0	2	42	56	66	7	1	0
Unknown	69	36	9	19	64	1	1	3	14	16	12	4	0	0
Soldering flux	468	201	72	165	452	7	8	0	151	82	127	41	4	0
Other construction product	1,972	1,185	151	498	1,932	26	3	9	287	417	322	65	0	0
Unknown construction product	103	24	12	58	100	2	0	1	37	18	25	6	0	0
*Category totals	10,455	5,517	993	3,104	10,246	106	31	64	1,763	2,049	1,801	551	23	0
Chemicals														
Acetone	1,271	463	175	512	1,200	51	6	13	393	256	398	74	4	0
Acids														
Hydrochloric	2,995	167	501	1,922	2,887	70	16	17	1,083	241	1,159	422	15	0
Hydrofluoric	1,480	121	78	1,041	1,460	10	2	6	1,185	101	606	391	21	2
Other	5,580	729	890	2,993	5,406	116	23	22	2,415	523	2,212	803	35	2
Unknown	467	27	72	267	440	15	5	2	211	26	200	71	1	1
Alkali	5,355	1,210	989	2,053	5,201	85	34	21	2,442	731	1,778	808	32	0
Ammonia	5,897	1,585	820	2,860	5,610	205	55	20	1,974	646	2,150	676	22	2
Borates/boric acid	3,720	2,184	349	962	3,442	198	42	26	624	1,074	342	68	2	0
Chlorates	53	19	13	20	47	4	1	1	23	5	21	5	0	0
Cyanide	344	10	19	259	289	32	15	2	237	61	88	45	12	11
Dioxin	14	2	1	11	13	1	0	0	6	2	3	1	0	0
Formaldehyde/formalin	1,517	204	313	788	1,433	55	16	10	553	175	507	81	6	0
Glycol: ethylene	719	165	84	365	578	114	7	3	307	169	144	53	47	8
Glycol: other	1,149	445	177	420	1,085	37	9	16	387	252	315	50	8	2
Ketones	1,058	255	106	553	1,032	12	5	8	500	178	369	112	5	0
Methylene chloride	692	92	68	420	670	18	2	2	336	71	269	76	2	1
Nitrates and nitrites	1,032	270	379	290	935	70	16	6	249	268	221	33	4	1
Phenol/creosote	1,351	194	170	780	1,312	17	5	13	507	146	474	148	7	0
Strychnine	35	6	9	15	19	7	5	1	18	6	4	1	0	0
Toluene diisocyanate	476	64	39	278	468	4	1	1	195	45	119	49	1	0
Other chemicals	16,501	5,359	2,271	6,688	15,506	484	157	255	4,919	3,213	3,762	922	49	5
Unknown chemicals	2,865	1,326	427	849	2,714	46	64	29	433	491	364	88	1	1
*Category totals	54,571	14,897	7,950	24,796	51,747	1,651	486	474	18,997	8,680	15,505	4,977	274	36
Cleaning substances (household)														
Ammonia cleaners (all purpose)	3,832	1,656	340	1,562	3,648	154	16	9	732	795	1,116	204	4	0
Automatic dishwasher detergents														
Granules	5,235	4,515	234	399	5,188	37	9	1	228	2,287	896	40	4	0

(Continued on following page)

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Liquids	2,329	1,924	96	244	2,302	12	10	5	140	891	431	30	1	0
Rinse agents	1,373	1,300	26	35	1,368	4	0	0	21	399	195	8	0	0
Other/unknown	774	619	43	83	758	8	7	0	53	291	131	7	0	0
Bleaches														
Borate	515	271	47	172	484	17	1	12	73	135	145	16	0	0
Hypochlorite	52,227	21,599	5,835	20,670	49,749	1,874	374	163	9,458	8,977	16,941	2,443	43	0
Nonhypochlorite	1,065	509	90	384	1,034	22	5	4	167	273	317	29	1	0
Other/unknown	268	119	22	111	241	13	7	7	53	55	92	8	0	0
Carpet/upholstery cleaners	4,186	3,179	260	611	4,085	55	12	30	378	1,213	781	56	3	0
Cleansers														
Anionic/nonionic	6,812	5,105	557	968	6,626	146	16	21	767	2,009	1,285	149	3	1
Other/unknown	1,591	983	156	366	1,517	48	15	8	255	410	342	42	2	0
Disinfectants														
Hypochlorite	6,882	3,879	735	1,973	6,709	108	31	33	1,143	1,731	2,083	381	7	0
Phenol	4,153	2,723	441	779	3,931	178	24	17	615	1,019	1,086	82	4	1
Pine oil	11,226	7,652	965	2,259	10,632	493	56	41	2,030	3,763	2,529	250	13	0
Other/unknown	1,913	946	216	566	1,797	68	24	19	470	437	588	85	1	0
Drain cleaners														
Acid	939	86	100	609	909	20	8	2	372	93	359	174	7	2
Alkali	3,769	717	362	2,213	3,476	254	20	10	1,305	486	1,294	522	49	4
Other/unknown	406	93	44	221	381	19	2	1	108	83	103	39	3	1
Fabric softeners/ antistatic agents														
Aerosol/spray	77	28	15	28	71	5	1	0	4	18	17	1	0	0
Dry/powder	1	1	0	0	1	0	0	0	0	0	0	0	0	0
Liquid	1,244	1,042	63	113	1,215	22	3	4	91	445	187	7	1	0
Solid/sheet	346	304	18	20	334	5	2	5	15	99	30	2	0	0
Other/unknown	23	12	3	7	22	0	0	1	2	6	6	0	0	0
Glass cleaners														
Ammonia	2,055	1,620	170	194	1,993	45	12	3	154	621	384	19	1	0
Anionic/nonionic	37	23	7	6	32	5	0	0	8	8	9	2	0	0
Isopropanol	6,673	5,261	573	681	6,435	190	29	14	516	2,069	1,388	69	2	0
Other/unknown	4,203	3,205	400	425	4,046	116	27	12	331	1,218	870	38	0	0
Hand dishwashing														
Anionic/nonionic	8,773	5,775	741	1,793	8,403	127	108	128	462	1,609	2,058	101	2	0
Other/unknown	1,009	617	100	218	951	21	25	10	81	158	224	11	0	0
Laundry additives														
Bluing/brightening	57	33	11	9	56	1	0	0	7	22	5	0	0	0
Detergent booster	39	17	4	15	39	0	0	0	6	13	11	2	0	0
Enzyme/microbiological additive	47	26	4	14	46	0	0	1	9	13	7	0	0	0
Water softener	193	19	16	142	173	2	1	16	30	49	24	1	0	0
Other/unknown	109	65	12	24	95	3	0	11	28	22	37	5	0	0
Laundry detergents														
Granules	8,667	7,451	372	675	8,467	94	14	83	834	2,435	2,311	141	4	0
Liquids	3,270	2,415	235	519	3,132	79	7	49	381	736	857	66	2	0
Soaps	137	92	12	28	129	4	1	3	11	31	31	1	0	0
Other/unknown	136	91	11	31	127	6	0	2	28	38	39	4	0	0
Laundry prewash/stain removers														
Dry solvent-based	120	112	3	4	119	1	0	0	4	35	8	2	0	0
Liquid solvent-based	456	382	21	47	451	4	0	1	54	151	90	14	0	0
Spray solvent-based	519	400	40	53	508	6	1	4	113	132	156	38	1	0
Other/unknown solvent- based	64	43	2	16	62	2	0	0	10	23	7	1	0	0
Dry surfactant-based	568	489	24	29	554	6	1	7	22	148	73	5	0	0
Liquid surfactant-based	2,270	1,923	92	190	2,237	13	5	15	272	615	581	73	1	0
Spray surfactant-based	371	310	18	34	370	0	1	0	39	74	133	11	0	0
Other/unknown surfactant-based	25	19	3	2	24	1	0	0	1	6	3	0	0	0
Other/unknown	25	14	3	7	25	0	0	0	5	2	11	1	0	0
Miscellaneous cleaner														
Acid	781	293	77	336	764	15	0	2	200	193	212	66	1	0
Alkali	7,268	3,763	744	2,195	6,981	204	39	34	2,232	1,675	2,276	578	21	1
Anionic/nonionic	9,047	6,128	709	1,768	8,699	210	50	79	1,166	2,174	2,042	212	12	0
Cationic	3,950	2,134	431	1,114	3,756	149	34	10	922	934	1,080	176	8	0

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Ethanol	915	661	91	124	879	21	9	6	79	241	264	10	0	0
Glycols	2,583	1,796	220	455	2,501	53	11	16	330	882	535	61	1	0
Isopropanol	1,495	962	239	222	1,454	24	13	2	223	421	404	24	0	0
Methanol	39	23	3	10	37	1	0	1	8	14	12	1	0	0
Phenol	25	14	0	9	22	3	0	0	6	7	6	2	0	0
Other/unknown	3,244	1,838	363	825	3,113	81	19	24	630	834	833	116	4	0
Oven cleaner														
Acid	13	6	1	6	13	0	0	0	1	6	2	1	0	0
Alkali	3,579	899	405	1,807	3,466	59	29	20	1,469	329	1,332	548	14	0
Detergent type	34	11	2	20	33	0	0	0	9	7	7	2	0	0
Other/unknown	260	56	35	127	238	15	2	4	108	23	92	34	1	0
Rust remover														
Alkali	30	9	4	13	27	1	0	2	10	11	7	2	1	0
Anionic/nonionic	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hydrofluoric acid	1,464	133	108	1,105	1,430	26	0	6	860	160	663	351	6	2
Acid other	590	175	52	293	562	22	4	2	178	131	188	53	1	0
Other/unknown	323	54	33	198	316	3	0	4	69	46	118	39	0	1
Spot removers/dry cleaning agent														
Anionic/nonionic	512	373	32	82	503	7	1	1	51	115	131	14	0	0
Glycol	126	80	11	26	119	4	1	2	15	43	27	2	1	0
Carbon tetrachloride	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Perchloroethylene	48	25	5	15	46	2	0	0	15	14	13	2	0	0
Other halogenated hydrocarbon	154	45	12	81	147	4	0	3	39	30	45	9	1	0
Isopropanol	18	12	3	3	16	2	0	0	3	4	0	1	0	0
Other nonhalogenated hydrocarbon	151	79	19	38	146	4	1	0	33	38	50	11	0	0
Other/unknown	232	194	10	22	226	4	0	2	22	58	53	4	0	0
Starch/fabric finishes/sizing	1,193	972	109	84	1,149	33	5	4	60	292	128	8	0	0
Toilet bowl cleaner														
Acid	3,757	1,431	372	1,552	3,580	160	5	8	1,095	786	1,381	362	22	2
Alkali	674	446	52	156	656	14	0	4	62	280	117	15	0	0
Other/unknown	2,536	1,964	111	331	2,480	37	8	7	203	749	295	35	7	0
Wall/floor/tile cleaner														
Acid	3,072	1,385	243	1,168	2,976	76	10	8	775	715	1,119	271	5	0
Alkali	8,616	5,097	752	2,395	8,345	175	39	53	1,837	2,176	2,958	490	4	0
Anionic/nonionic	749	491	68	140	714	22	4	8	131	185	160	14	0	0
Cationic	1,820	1,212	109	406	1,766	38	5	11	260	505	515	73	0	0
Ethanol	3	0	0	1	3	0	0	0	2	0	1	1	0	0
Glycols	1,901	1,309	150	337	1,838	43	8	10	257	547	414	38	0	0
Isopropanol	98	64	10	22	98	0	0	0	13	33	13	2	0	0
Methanol	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other/unknown	464	219	48	148	443	10	4	6	108	107	137	23	0	0
*Category totals	212,773	124,017	19,175	57,183	204,494	5,810	1,176	1,091	35,367	50,908	57,901	8,831	269	15
Industrial cleaners														
Acids	1,583	435	199	760	1,529	42	7	5	628	264	607	205	6	0
Alkali	3,101	691	461	1,470	2,962	87	36	14	1,662	392	1,213	510	23	0
Anionic/nonionic	1,330	740	171	338	1,263	43	13	8	292	301	406	54	2	1
Cationic	845	139	161	410	770	52	14	8	405	112	353	84	3	0
Other/unknown	1,629	489	211	722	1,522	59	34	9	667	287	593	154	4	1
*Category totals	8,488	2,494	1,203	3,700	8,046	283	104	44	3,654	1,356	3,172	1,007	38	2
Cosmetics/personal care products														
Bath oil, bubble bath	9,653	8,915	409	261	9,498	57	4	93	231	2,485	1,181	37	0	0
Creams, lotions, make-up	17,017	13,506	1,026	1,953	16,180	264	44	512	761	3,782	1,376	95	7	1
Dental care products														
False teeth cleaning	1,324	237	73	933	1,266	37	11	8	114	374	154	14	0	1
Toothpaste with fluoride	5,442	4,454	316	470	5,032	72	24	308	282	1,513	892	37	1	0
Toothpaste without fluoride	301	202	30	56	276	3	4	18	18	77	47	1	1	0
Other	1,490	863	161	389	1,412	22	3	52	144	385	263	18	0	0
Deodorants	11,164	9,183	820	904	10,376	169	26	579	413	2,466	1,279	77	1	0
Depilatories	790	254	155	305	604	28	9	148	173	109	225	64	4	0

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn	None	Minor	Moderate	Major	Death	
Douches	256	155	18	74	219	7	6	21	54	72	41	6	0	0
Eye products	1,656	1,211	97	271	1,603	17	0	35	118	368	220	35	1	0
Hair care products														
Coloring agents	1,860	824	172	653	1,645	30	5	177	430	380	606	100	5	0
Rinses, conditioners, relaxers	4,226	3,127	365	513	3,979	80	10	153	1,030	1,122	991	230	4	0
Shampoos	8,970	7,014	723	1,026	8,595	246	15	106	620	2,102	1,758	85	4	0
Sprays	3,463	2,336	483	515	3,037	380	22	21	481	927	812	64	4	1
Other	3,330	2,155	297	687	3,083	102	15	128	638	893	613	139	3	0
Lipsticks/balms, with camphor	686	613	39	27	671	7	1	5	24	150	56	3	0	0
Lipsticks/balms, without camphor	2,519	2,356	92	59	2,488	13	1	14	46	459	81	7	0	0
Mouthwash														
Ethanol	12,509	4,157	2,418	5,018	11,347	1,025	56	64	1,132	3,224	1,341	180	21	0
Nonethanol	328	174	64	75	287	28	0	11	44	124	43	8	1	0
Fluoride	1,483	1,061	344	72	1,451	25	2	5	47	519	82	5	0	0
Unknown	351	70	181	78	310	28	9	2	35	29	175	10	0	0
Nail products														
Polish	8,970	7,905	621	354	8,798	128	25	16	527	2,583	1,539	53	2	0
Polish removers: acetone	3,689	2,933	340	379	3,600	72	9	8	377	1,407	667	24	1	0
Polish removers: other	2,389	1,903	253	187	2,329	42	14	4	222	896	462	23	0	0
Polish removers: unknown	8,434	6,337	959	942	8,143	240	40	8	884	2,709	1,553	63	4	0
Other miscellaneous	5,083	3,019	940	882	4,989	39	13	39	1,441	1,130	1,400	331	5	0
Perfume, cologne, aftershave	29,612	26,433	1,635	1,303	29,001	474	75	43	1,669	10,551	4,697	109	7	1
Peroxide	15,341	7,845	1,567	4,759	14,774	431	43	86	1,048	3,329	2,560	184	6	1
Powders: talc	4,004	3,495	257	204	3,925	53	7	16	407	1,046	1,077	54	1	0
Powders: without talc	1,340	1,261	48	23	1,325	9	3	3	48	261	289	11	0	0
Soaps	12,359	9,425	941	1,635	11,749	208	72	322	671	2,970	2,076	94	2	0
Suntan/sunscreen products	4,760	3,802	480	406	4,552	33	4	169	302	886	1,536	53	1	0
*Category totals	184,799	137,225	16,324	25,413	176,544	4,369	572	3,174	14,431	49,328	30,092	2,214	86	5
Deodorizers														
Air fresheners	15,149	12,563	1,255	898	14,714	275	46	106	969	4,018	3,097	115	7	4
Diaper pail deodorizers	589	559	17	9	586	3	0	0	28	237	28	0	0	0
Toilet bowl deodorizers	1,056	975	37	36	1,048	8	0	0	86	420	88	7	0	0
Other	4,192	2,967	346	575	3,967	74	21	122	590	1,116	825	61	3	0
Unknown	82	61	9	11	80	2	0	0	18	21	21	0	0	0
*Category totals	21,068	17,125	1,664	1,529	20,395	362	67	228	1,691	5,812	4,059	183	10	4
Dyes														
Fabric	840	654	78	88	823	4	3	9	70	256	48	2	0	0
Food dye (eg, Easter egg)	1,049	853	129	48	999	31	4	15	29	260	56	4	0	0
Leather	128	111	9	8	125	2	0	1	5	39	5	0	0	0
Other	667	384	180	79	641	12	0	12	80	194	64	9	1	0
Unknown	71	45	11	14	65	0	0	6	10	22	6	5	1	0
*Category totals	2,755	2,057	407	237	2,653	49	7	43	194	771	179	20	2	0
Essential oils	3,817	2,599	522	551	3,573	137	12	84	492	842	1,248	68	7	0
Fertilizers														
Household plant food	5,133	3,331	640	937	5,037	57	30	8	151	1,327	216	9	0	0
Outdoor fertilizers	2,929	1,906	363	480	2,893	24	2	9	193	731	222	34	0	0
Plant hormones	127	49	13	52	117	3	1	5	33	26	19	8	0	0
Other	382	235	38	82	374	4	2	2	32	107	27	4	0	0
Unknown	1,849	1,229	210	336	1,815	16	7	8	170	523	197	36	2	0
*Category totals	10,420	6,750	1,264	1,887	10,236	104	42	32	579	2,714	681	91	2	0
Fire extinguishers	3,182	309	918	1,535	2,912	74	182	8	746	457	1,204	168	2	0
Food products/food poisoning	73,947	20,143	11,642	35,417	68,767	614	856	3,578	6,637	7,253	12,159	2,449	61	0
Foreign bodies/toys/ miscellaneous														
Ashes	658	584	31	36	653	3	1	0	30	120	74	9	0	0
Bubble blowing solutions	4,140	3,817	240	60	4,112	20	2	5	97	734	1,048	16	0	0
Charcoal	929	681	79	136	872	42	3	12	64	225	83	17	7	3

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn	Facility	None	Minor	Moderate	Major	Death
Christmas ornaments	1,289	1,141	74	60	1,284	2	1	2	90	292	76	2	0	0
Coins	3,590	2,939	572	62	3,544	42	3	0	1,136	1,130	384	48	1	0
Desiccants	23,308	20,512	1,754	785	23,039	202	47	5	572	4,167	145	8	0	0
Feces/urine	4,165	3,397	267	404	4,050	26	82	3	137	758	161	18	0	0
Glass	2,243	838	314	852	2,114	29	90	6	311	394	281	39	1	0
Incense, punk	289	258	14	12	286	3	0	0	10	77	21	1	0	0
Soil	2,327	2,005	132	144	2,312	10	1	4	83	451	112	13	0	0
Thermometer	14,653	7,350	4,010	2,294	14,462	147	32	6	881	2,662	243	9	0	0
Toys	6,661	4,624	1,803	156	6,546	101	7	6	328	1,310	940	20	0	0
Other	19,932	12,315	4,988	2,064	19,145	366	277	122	1,794	4,033	2,463	172	8	0
Unknown	208	118	38	39	188	3	14	1	26	34	26	2	0	0
*Category totals	84,392	60,579	14,316	7,104	82,607	996	560	172	5,559	16,387	6,057	374	17	3
Fumes/gases/vapors														
Carbon dioxide	433	47	147	184	397	22	10	4	100	66	111	30	0	0
Carbon monoxide	22,154	3,029	3,814	12,220	21,694	396	13	10	8,621	2,319	7,391	1,960	166	30
Chloramine	3,380	94	226	2,636	3,241	132	2	3	874	125	1,443	469	4	0
Chlorine: acid mixed with hypochlorite	1,127	39	136	774	1,100	24	1	1	340	53	536	201	3	1
Chlorine: other	5,803	462	1,132	3,320	5,632	123	29	17	1,974	293	2,572	940	15	1
Hydrogen sulfide	1,610	190	216	890	1,603	4	1	2	472	217	518	117	4	8
Methane and natural gas	4,475	768	658	2,256	4,415	44	5	5	1,235	704	1,335	248	11	1
Polymer fume fever	6	0	0	5	6	0	0	0	2	2	3	0	0	0
Propane/simple asphyxiants	2,972	307	641	1,605	2,709	237	9	7	1,004	324	1,015	267	15	5
Other	2,539	233	410	1,550	2,456	50	11	18	869	258	788	231	13	3
Unknown	2,062	166	364	1,070	2,016	14	19	7	586	142	725	90	4	0
*Category totals	46,561	5,335	7,744	26,510	45,269	1,046	100	74	16,077	4,503	16,437	4,553	235	49
Fungicides														
Carbamate fungicide	348	86	74	160	341	3	0	4	106	104	64	16	0	0
Mercurial fungicide	12	6	1	4	12	0	0	0	4	7	0	0	0	0
Nonmercurial fungicide	431	75	55	181	396	12	0	23	127	49	119	21	1	1
Phthalimide fungicide	241	132	28	55	225	4	2	10	38	57	21	5	0	0
Other/unknown	481	117	41	175	454	8	1	16	117	74	118	19	1	0
*Category totals	1,513	416	199	575	1,428	27	3	53	392	291	322	61	2	1
Heavy metals														
Aluminum	838	398	89	266	792	17	13	10	91	136	62	7	0	0
Arsenic (excluding pesticides)	667	54	52	468	460	30	89	9	373	92	64	49	6	0
Barium	20	1	2	12	19	0	0	1	10	5	2	1	1	1
Cadmium	91	19	2	59	81	2	0	1	45	22	9	12	1	0
Copper	976	174	366	347	908	35	20	12	304	158	281	65	2	0
Fireplace flame colors	22	20	1	0	22	0	0	0	0	7	2	0	0	0
Gold	2	0	0	1	1	1	0	0	1	0	1	0	0	0
Lead	4,095	2,026	628	1,079	3,946	62	20	10	1,498	679	220	93	11	0
Manganese	63	11	19	24	55	5	0	1	26	9	18	5	1	0
Mercury	2,958	861	789	947	2,720	146	31	44	687	853	164	40	9	0
Metal fume fever	1,129	14	55	927	1,120	4	1	4	333	13	362	156	0	0
Selenium	126	66	7	46	110	4	1	10	27	22	18	5	0	0
Thallium	110	36	11	19	105	0	0	5	13	9	18	1	0	0
Other	875	262	131	362	786	26	4	49	295	138	176	53	6	0
Unknown	40	15	6	18	33	2	2	2	13	4	2	1	0	0
*Category totals	12,012	3,957	2,158	4,575	11,158	334	181	158	3,716	2,147	1,399	488	37	1
Herbicides														
Carbamate herbicide	48	4	3	29	46	1	0	1	21	5	17	3	0	0
2,4-D or 2,4,5-T	2,503	689	216	966	2,376	30	5	90	518	414	481	91	3	0
Diquat	384	95	44	209	377	5	0	1	116	86	96	35	2	0
Paraquat	241	11	15	132	226	8	2	3	130	34	45	9	1	4
Paraquat/diquat	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Triazine herbicide	574	78	72	263	553	3	0	14	193	65	147	22	1	0
Urea herbicide	69	18	10	34	67	1	0	1	29	7	11	8	0	0
Other	4,742	1,255	493	2,204	4,493	45	21	175	1,168	969	999	140	5	1
Unknown	292	81	52	130	280	3	6	3	69	48	61	15	0	0
*Category totals	8,853	2,231	905	3,967	8,418	96	34	288	2,244	1,628	1,857	323	12	5

(Continued on following page)

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Hydrocarbons														
Benzene	181	28	17	116	176	2	2	0	130	46	35	15	0	0
Carbon tetrachloride	48	4	8	29	46	0	1	0	18	10	17	2	0	0
Diesel fuel	1,527	309	204	802	1,428	90	5	2	335	165	499	39	2	0
Fluorochlorocarbons/pro- pellants	7,541	665	959	4,523	7,241	239	35	16	1,415	1,232	1,890	335	12	1
Gasoline	12,414	3,999	2,585	4,972	11,725	641	36	3	1,918	2,459	5,593	372	15	2
Halogenated hydrocarbon:														
other	951	184	116	487	882	52	10	5	402	114	359	90	4	0
Kerosene	1,059	613	126	258	1,020	22	14	0	306	295	370	42	1	0
Lighter fluid/naphtha	4,029	2,271	437	1,044	3,796	153	58	13	1,185	1,173	1,229	231	9	0
Lubricating oils/motor oil	4,159	2,849	341	774	4,044	75	33	2	594	1,564	735	74	5	0
Mineral seal oil	315	261	23	26	309	5	1	0	40	167	32	2	0	0
Mineral spirits/varsol	5,838	2,757	888	1,759	5,495	243	67	22	1,233	1,466	1,778	219	13	0
Toluene/xylene	1,920	378	219	968	1,750	152	9	4	914	269	703	199	12	1
Turpentine	1,190	449	189	455	1,040	127	18	1	328	287	337	49	3	1
Other	6,522	3,216	856	1,909	6,181	253	44	30	1,744	1,732	1,544	438	25	4
Unknown	20,145	9,649	2,829	6,145	19,175	781	111	44	4,533	4,793	6,750	1,004	33	1
*Category totals	67,839	27,632	9,797	24,267	64,308	2,835	444	142	15,095	15,772	21,871	3,111	134	10
Insecticides/pesticides (excluding rodenticides)														
Arsenic pesticides	384	281	38	50	368	11	2	0	86	160	25	6	0	0
Borates/boric acid	3,135	2,487	210	356	3,039	74	11	8	332	1,066	143	17	1	0
Carbamate only	5,000	2,244	470	1,619	4,708	157	27	94	984	1,135	766	139	13	2
Carbamate with other pesticide	1,155	400	116	448	1,067	35	13	32	234	181	264	53	3	0
Chlorinated hydrocarbon only	3,047	1,248	538	1,042	2,750	142	8	135	1,091	932	655	96	19	3
Chlorinated hydrocarbon with other pesticide	150	50	20	55	142	5	0	3	26	41	27	6	0	0
Metaldehyde	301	222	17	41	296	3	0	2	46	121	18	1	0	0
Nicotine	9	4	0	4	7	2	0	0	3	4	3	1	0	0
Organophosphate only	15,973	5,564	1,192	6,170	15,197	386	70	288	3,532	3,134	2,908	568	65	9
With carbamate	1,167	362	119	504	1,067	60	15	21	201	212	212	31	1	0
With chlorinated hydrocarbon	227	41	11	106	217	3	0	6	56	26	58	11	2	0
With other pesticide	2,081	652	179	821	1,977	63	6	35	341	341	459	75	2	0
With carbamate & chlorinated hydrocarbon	42	12	4	20	42	0	0	0	9	12	8	1	0	0
Piperonyl butoxide only	112	44	13	50	110	2	0	0	27	21	26	5	0	0
Piperonyl butoxide/pyrethrin	8,023	2,709	1,190	2,710	7,259	237	47	457	1,428	1,379	1,732	332	9	0
Pyrethrins only	7,428	2,403	951	3,057	6,852	217	19	327	1,634	1,292	1,753	293	9	0
Repellants (insect)	8,332	5,484	1,420	997	7,683	96	48	496	921	1,946	1,990	162	12	0
Rotenone	94	28	13	43	92	1	0	1	10	13	27	3	0	0
Veterinary insecticide	4,234	2,540	505	1,011	4,037	111	12	69	566	1,193	878	107	4	1
Other	4,544	2,771	346	1,011	4,399	61	18	63	525	1,147	477	76	1	0
Unknown	3,873	1,036	495	1,812	3,518	124	104	97	1,011	530	751	150	10	0
*Category totals	69,311	30,582	7,847	21,927	64,827	1,790	400	2,134	13,063	14,886	13,180	2,133	151	15
Lacrimators														
Capsicum/peppers	573	193	205	126	483	20	54	7	90	26	342	6	0	0
Lacrimators: CN	5,269	1,615	1,712	1,421	4,557	120	505	19	801	189	2,914	178	5	0
Lacrimators: CR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lacrimators: CS	348	136	139	55	337	3	6	0	57	25	229	9	0	0
Lacrimators: DM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	85	11	18	45	80	3	1	1	27	3	36	8	0	0
Unknown	1,176	287	446	370	893	31	228	4	229	44	671	65	0	0
*Category totals	7,451	2,242	2,520	2,017	6,350	177	794	31	1,204	287	4,192	266	5	0
Matches/fireworks/explosives														
Explosives	291	153	88	39	261	16	13	0	59	88	36	19	1	0
Fireworks	606	437	131	29	585	12	6	3	53	181	74	48	0	0
Matches	1,643	1,527	59	50	1,624	16	3	0	46	481	33	4	0	0

(Continued on following page)

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Other	57	29	10	15	56	1	0	0	23	11	14	2	1	0
Unknown	4	1	2	1	4	0	0	0	2	0	1	2	0	0
*Category totals	2,601	2,147	290	134	2,530	45	22	3	183	761	158	75	2	0
Moth repellants														
Naphthalene	2,031	1,616	122	224	1,995	29	1	3	465	989	143	12	0	0
Paradichlorobenzene	67	44	2	12	65	0	2	0	3	15	7	1	0	0
Other	82	53	6	17	80	2	0	0	11	28	5	0	0	0
Unknown	2,871	2,128	186	425	2,766	72	22	7	549	1,138	207	37	1	0
*Category totals	5,051	3,841	316	678	4,906	103	25	10	1,028	2,170	362	50	1	0
Mushrooms														
Coprine	15	10	3	2	14	0	0	1	4	10	3	0	0	0
Cyclopeptide	54	11	13	28	45	8	0	1	42	7	12	10	10	0
Gastrointestinal irritants	215	90	42	70	193	18	0	4	64	70	70	11	3	0
Hallucinogenic	697	57	361	230	105	578	10	2	435	66	148	235	10	0
Ibotenic acid	30	4	9	16	15	15	0	0	19	4	5	10	1	0
Miscellaneous, nontoxic	181	80	19	69	157	1	0	23	33	50	45	10	0	0
Monomethylhydrazine	62	5	9	40	45	3	0	13	26	0	24	12	0	0
Muscarine	7	0	2	5	5	0	1	1	6	0	5	0	0	0
Orellanine	8	1	2	4	7	1	0	0	1	0	0	0	1	0
Other potentially toxic	42	25	4	13	34	7	0	1	21	20	9	1	0	0
Unknown	9,273	6,835	1,289	961	8,362	792	22	77	2,685	5,517	1,063	231	10	2
*Category totals	10,584	7,118	1,753	1,438	8,982	1,423	33	123	3,336	5,744	1,384	520	35	2
Paints and stripping agents														
Paint: antialgae	13	2	1	7	13	0	0	0	3	2	4	1	0	0
Paint: anticorrosion	85	25	13	40	81	2	0	2	31	13	23	4	0	0
Paint: oil-base	4,877	1,350	1,076	1,966	4,527	306	17	23	1,083	784	1,599	266	13	0
Paint: water-base	4,270	3,089	244	677	4,206	27	6	30	333	975	428	64	1	0
Stains	1,077	429	135	413	1,053	17	0	7	199	202	269	45	2	0
Stripping agents														
Methylene chloride	1,414	282	148	792	1,359	43	2	9	507	143	627	122	3	0
Other	845	143	66	464	824	13	2	5	305	77	335	104	2	0
Unknown	469	156	49	206	446	13	1	9	123	88	148	34	0	0
Varnishes, lacquers	1,016	320	120	479	979	25	2	9	224	141	286	54	3	0
Wood preservatives	622	151	93	310	611	2	3	5	125	84	166	30	2	0
Other paint/varnish/lacquer	1,281	548	156	455	1,249	21	4	6	261	216	311	56	4	0
Unknown paint/varnish/ lacquer	10,765	6,593	1,077	2,364	10,399	263	36	59	1,483	2,034	1,244	275	13	0
*Category totals	26,734	13,088	3,178	8,173	25,747	732	73	164	4,677	4,759	5,440	1,055	43	0
Photographic products														
Developers/fixing/stop baths	482	58	151	229	473	2	0	7	169	77	181	32	2	0
Photographic coating fluids	2	0	1	1	2	0	0	0	0	0	0	0	0	0
Other	397	219	55	107	385	10	0	2	65	89	71	9	0	0
Unknown	12	3	1	5	12	0	0	0	4	0	1	1	0	0
*Category totals	893	280	208	342	872	12	0	9	238	166	253	42	2	0
Plants														
Amygdalin/cyanogenic glycosides	2,923	2,183	454	229	2,823	53	2	45	164	887	113	12	0	0
Anticholinergic	1,059	271	539	209	491	540	14	11	585	174	183	319	21	0
Cardiac glycosides	2,667	1,852	445	282	2,547	100	0	18	442	1,087	194	28	1	0
Colchicine	11	9	1	1	10	1	0	0	4	5	1	1	0	0
Depressants	70	34	10	19	49	14	1	6	27	26	10	4	0	0
Dermatitis	26,261	11,495	5,263	7,190	24,248	461	716	762	2,346	3,102	8,247	756	13	0
Gastrointestinal irritants	18,357	14,658	1,715	1,570	17,723	385	23	205	1,128	5,663	1,559	166	5	0
Hallucinogenic	302	140	71	77	202	78	3	18	91	86	30	27	0	0
Nicotine	302	120	72	93	275	13	1	13	111	67	84	17	0	0
Nontoxic plant	20,954	17,570	1,833	1,210	20,474	195	13	263	586	3,660	806	88	5	0
Oxalate	14,279	12,364	1,170	576	14,051	186	7	33	487	5,264	1,976	65	3	0
Solanine	1,791	1,421	160	157	1,717	34	8	31	230	824	138	14	0	0
Stimulants	719	361	131	202	504	130	5	75	280	261	127	54	10	0
Toxalbumins	228	131	21	61	214	9	2	1	116	90	44	6	1	0
Other	3,283	2,419	393	382	3,072	78	7	121	291	1,013	317	55	5	0

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Unknown	20,413	14,334	2,751	2,589	19,590	361	60	379	1,569	6,164	1,842	218	6	0
*Category totals	113,619	79,362	15,029	14,847	107,990	2,638	862	1,981	8,457	28,373	15,671	1,830	70	0
Polishes and waxes	8,077	6,178	560	980	7,844	160	25	43	977	2,990	1,541	123	6	0
Radioisotopes	201	38	20	104	190	3	0	8	71	29	8	9	0	0
Rodenticides														
ANTU	2	0	1	1	2	0	0	0	0	0	0	0	0	0
Anticoagulant: standard	1,491	1,283	57	125	1,403	71	9	6	539	558	30	6	1	0
Anticoagulant: long-acting	13,345	12,079	407	698	12,848	438	41	5	4,737	5,504	208	54	15	1
Barium carbonate	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cyanide	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monofluoroacetate	3	0	2	1	3	0	0	0	2	2	1	0	0	0
Strychnine	144	22	19	86	73	48	19	0	84	32	17	7	6	2
Vacor	7	3	2	1	3	0	4	0	6	5	1	0	0	0
Other	1,134	834	80	185	1,066	55	7	3	325	411	57	20	4	1
Unknown	1,475	1,094	74	250	1,274	145	42	1	701	512	60	12	5	1
*Category totals	17,601	15,315	642	1,347	16,672	757	122	15	6,394	7,024	374	99	31	5
Sporting equipment														
Fishing bait	96	72	19	5	92	3	0	1	8	17	12	3	0	0
Fishing products, other	30	24	4	2	29	0	1	0	5	5	4	2	0	0
Golf balls	69	7	46	11	63	5	0	0	15	5	29	4	0	0
Golf products, other	1	0	0	1	1	0	0	0	0	0	0	0	0	0
Gun bluing	53	18	3	26	50	2	0	1	19	11	17	5	1	1
Hunting products, other	439	242	110	67	382	17	30	4	129	160	33	6	1	0
Other	187	106	41	13	174	6	2	4	37	58	18	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0	0	0
*Category totals	875	469	223	125	791	33	33	10	213	256	113	20	2	1
Swimming pool/aquarium	7,574	3,532	1,335	2,120	7,354	90	14	114	1,288	1,609	2,244	461	9	0
Tobacco products	9,960	8,242	497	1,078	9,189	277	47	424	1,996	3,596	2,524	216	11	0
Other/unknown nondrug substances	17,365	6,182	2,786	6,448	14,455	725	1,168	444	4,682	3,085	3,065	762	95	1
Total number of nonpharmaceutical substances	1,340,886	693,607	177,873	376,867	1,254,226	58,339	9,340	16,248	232,007	278,716	289,704	50,178	2,894	259
% of nonpharmaceutical substances		51.7%	13.3%	28.1%	93.5%	4.4%	0.7%	1.2%	17.3%	20.8%	21.6%	3.7%	0.2%	0.0%
% of all substances	58.0%	30.0%	7.7%	16.3%	54.3%	2.5%	0.4%	0.7%	10.0%	12.1%	12.5%	2.2%	0.1%	0.0%

NOTE: Patients with unknown age, reason, or medical outcome were omitted from the respective tabulations.

ABBREVIATIONS: Adv rxn, adverse reaction; Int, intentional; Unint, unintentional.

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Analgesics														
Acetaminophen only														
Adult formulations	28,896	7,161	10,843	9,789	12,916	15,486	14	359	17,117	9,180	4,495	1,404	336	24
Pediatric formulations	34,729	31,511	2,756	388	34,091	473	26	126	4,162	10,544	631	62	6	0
Unknown formulations	9,322	2,674	3,169	3,059	4,030	5,104	6	118	5,739	2,714	1,464	660	191	29
Acetaminophen in combination with:														
Aspirin (with other ingredients)	3,085	1,158	897	901	1,652	1,285	2	131	1,413	935	569	157	14	0
Aspirin (no other ingredients)	33	15	6	10	17	14	0	2	16	10	10	2	0	0
Codeine	6,940	1,332	1,395	3,710	2,710	3,651	4	537	3,927	1,577	1,710	483	73	9
Oxycodone	3,189	394	420	2,073	1,172	1,670	1	309	1,733	614	813	221	44	4

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Propoxyphene	5,311	702	698	3,539	1,744	3,251	2	276	3,419	1,166	1,474	461	123	9
Other narcotics	8,551	998	1,357	5,480	2,923	4,767	6	817	4,637	1,621	2,295	607	111	15
Other drugs, adult formulations	13,752	2,304	3,651	6,999	4,605	8,685	5	398	8,719	3,320	3,711	1,134	173	12
Other drugs, pediatric formulations	75	27	9	34	47	23	0	4	29	20	15	5	1	0
Aspirin alone														
Adult formulations	5,214	1,828	1,653	1,530	2,501	2,535	7	153	2,763	1,585	957	425	34	9
Pediatric formulations	605	501	74	28	565	27	0	12	112	257	30	12	0	0
Unknown formulations	9,697	1,994	3,649	3,541	3,307	6,113	6	205	6,397	2,495	2,098	1,159	112	37
Aspirin in combination with:														
Codeine	473	81	68	292	153	293	0	24	290	105	130	55	6	0
Oxycodone	267	47	36	152	102	138	2	21	157	65	55	21	6	1
Propoxyphene	35	6	3	24	16	16	0	2	14	11	2	1	0	0
Other narcotics	64	9	9	39	19	33	0	10	37	13	21	6	0	0
Other drugs (adult formulations)	2,119	515	534	957	960	1,035	6	108	1,132	530	486	191	17	0
Other drugs (pediatric formulations)	9	7	2	0	7	1	0	1	5	6	1	1	0	0
Narcotics														
Codeine	1,395	618	280	404	921	344	0	122	469	366	247	59	9	2
Meperidine	656	85	96	409	261	302	1	85	397	92	170	82	18	1
Methadone	610	65	36	439	188	336	3	60	417	53	95	124	44	14
Morphine	928	125	77	634	416	400	4	96	544	143	204	111	33	12
Oxycodone	247	31	28	163	108	101	1	35	132	46	47	22	3	4
Pentazocine	273	25	16	203	86	135	0	51	140	42	88	28	3	0
Propoxyphene	651	66	70	450	186	418	1	39	443	113	147	98	24	11
Other/unknown	2,438	415	293	1,493	1,033	1,010	6	360	1,260	363	591	304	74	26
Nonaspirin salicylates	1,164	570	163	370	819	294	1	49	431	377	190	71	8	1
Other nonsteroidal antiinflammatory drugs														
Colchicine	162	72	15	70	117	30	0	15	94	60	30	8	2	2
Ibuprofen, OTC	17,577	8,757	4,576	3,741	11,113	6,072	5	361	6,225	6,048	1,923	345	28	0
Ibuprofen, R _x	16,357	11,636	1,989	2,414	13,378	2,684	2	266	3,220	5,712	1,148	218	14	2
Ibuprofen, unknown if OTC or R _x	9,843	3,343	3,016	2,940	4,962	4,622	3	234	4,539	3,279	1,464	315	46	1
Indomethacin	757	218	116	359	399	268	0	83	340	203	149	29	2	0
Other	18,724	6,513	4,206	6,999	10,326	7,084	8	1,246	7,615	6,111	2,959	640	45	1
Unknown	10	4	2	2	5	5	0	0	5	4	1	0	0	0
Phenacetin	6	0	1	4	1	3	0	1	3	2	1	0	0	0
Phenazopyridine	803	603	71	105	680	76	0	43	222	363	101	21	2	0
Salicylamide	77	54	10	11	63	10	0	4	21	28	10	2	0	0
Other analgesic	3,097	439	371	2,022	1,255	1,316	3	503	1,537	487	950	307	48	2
Unknown analgesic	164	33	59	57	48	104	0	8	103	31	44	8	0	0
*Category totals	208,305	86,936	46,720	65,834	119,902	80,214	125	7,274	89,975	60,691	31,526	9,859	1,650	228
Anesthetics														
Inhalation anesthetics														
Nitrous oxide	230	21	90	98	90	111	1	27	101	24	44	19	6	1
Other/unknown	205	19	30	130	182	12	2	8	86	24	69	21	1	0
Ketamine and analogs	166	11	60	79	34	118	6	6	126	8	51	33	8	1
Local and topical anesthetic	6,622	4,756	612	1,005	6,071	218	23	302	1,175	2,668	853	119	20	6
Other anesthetic	14	1	3	6	8	4	0	2	7	2	4	3	1	0
Unknown anesthetic	5	0	0	4	1	2	0	1	4	1	1	1	0	0
*Category totals	7,242	4,808	795	1,322	6,386	465	32	346	1,499	2,727	1,022	196	36	8
Anticholinergic drugs	4,638	1,320	606	2,407	2,234	2,053	11	286	2,778	1,249	956	684	120	3
Anticoagulants														
Heparin	67	12	4	39	56	6	0	5	43	14	6	10	1	0
Warfarin (excluding rodenticides)	1,405	649	69	615	1,125	227	4	46	602	493	80	88	14	1
Other	165	70	7	73	133	18	0	12	64	59	10	8	2	0
Unknown	6	2	0	4	3	2	1	0	2	2	1	0	0	0

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
*Category totals	1,643	733	80	731	1,317	253	5	63	711	568	97	106	17	1
Anticonvulsants														
Carbamazepine	6,839	2,068	1,419	3,068	3,927	2,531	6	308	4,395	1,694	1,776	974	283	11
Phenytoin	4,468	1,036	418	2,752	2,429	1,604	4	360	2,902	1,120	988	653	78	3
Succinimides	124	50	46	22	102	19	0	3	41	43	20	4	1	0
Valproic acid	5,910	877	1,337	3,347	2,454	3,124	6	280	3,804	1,655	1,463	576	142	11
Other	995	222	150	539	654	240	0	93	458	260	218	89	22	0
Unknown	14	4	5	5	7	6	0	0	6	2	2	0	0	0
*Category totals	18,350	4,257	3,375	9,733	9,573	7,524	16	1,044	11,606	4,774	4,467	2,296	526	25
Antidepressants														
Cyclic antidepressants														
Amitriptyline	8,255	1,035	1,084	5,618	2,220	5,733	4	198	6,625	1,266	1,973	1,980	874	54
Amoxapine	109	13	15	72	28	72	0	5	91	15	33	21	14	0
Desipramine	822	122	173	472	280	493	0	44	620	192	201	147	48	13
Doxepin	2,544	202	230	1,927	525	1,919	6	65	2,077	386	695	572	264	7
Imipramine	3,115	725	999	1,254	1,508	1,465	3	120	2,152	888	724	469	156	15
Maprotiline	34	10	2	19	15	19	0	0	24	15	4	2	3	0
Nortriptyline	2,004	229	366	1,273	634	1,260	1	90	1,472	365	497	360	125	11
Protriptyline	38	14	3	21	20	14	0	2	29	14	9	4	1	0
Other cyclic antidepressant	843	70	112	591	234	547	2	49	645	173	254	130	44	6
Unknown cyclic antidepressant	48	3	6	38	6	40	0	1	44	4	11	18	6	0
Cyclic antidepressant formulated with a benzodiazepine	132	20	11	94	43	87	0	2	93	28	42	23	7	0
Cyclic antidepressant formulated with a phenothiazine	425	66	42	286	124	283	1	13	326	85	97	94	25	1
Lithium	5,102	371	960	3,424	1,555	2,979	6	473	3,917	1,095	1,330	935	141	10
MAO inhibitors	451	40	23	340	172	179	1	92	318	85	84	105	29	3
Trazodone	8,520	591	1,150	6,061	1,849	6,168	4	445	6,374	1,780	2,962	974	134	10
Other antidepressant	28,156	3,831	6,706	15,457	8,426	18,045	14	1,527	19,069	8,035	7,100	2,534	374	15
Unknown antidepressant	50	2	16	29	6	38	0	5	31	6	11	5	0	1
*Category totals	60,648	7,344	11,898	36,976	17,645	39,341	42	3,131	43,907	14,432	16,027	8,373	2,245	146
Antihistamines														
H ₂ receptor antagonists														
Diphenhydramine, unknown if OTC or Rx	6,315	2,128	1,275	2,616	3,137	2,954	5	188	3,295	1,442	1,405	719	76	5
Diphenhydramine, Rx	300	81	66	135	151	135	0	12	156	50	74	35	5	0
Diphenhydramine, OTC	17,841	9,046	2,753	5,429	11,509	5,920	14	352	7,182	5,056	3,928	1,367	127	6
Other	15,482	5,836	3,456	5,515	9,821	4,958	7	632	6,598	4,836	2,863	993	69	4
*Category totals	45,845	19,803	8,245	15,918	29,062	14,986	30	1,601	18,804	13,293	8,799	3,274	287	16
Antimicrobials														
Antibiotics: systemic														
Antibiotics: topical	7,088	5,442	487	930	6,882	73	9	121	245	1,694	333	32	1	0
Antibiotics: unknown	1,616	511	413	566	864	441	3	301	534	313	320	50	4	0
Antifungals: systemic	996	505	124	322	742	117	0	132	266	265	103	26	3	0
Antifungals: topical	9,171	7,343	474	1,086	8,924	77	8	149	316	2,320	619	32	1	0
Antifungals: unknown	24	15	3	4	22	2	0	0	2	5	3	1	0	0
Anthelmintics:														
diethylcarbamazine	471	327	20	106	466	5	0	0	20	186	9	2	0	0
Anthelmintics: piperazine	669	495	57	97	639	24	3	2	77	234	38	9	0	0
Anthelmintics: other	701	348	76	221	655	8	2	34	175	180	128	26	0	0
Anthelmintics: unknown	36	26	3	5	33	2	0	1	5	10	1	1	0	0
Antiparasitics: antimalarial														
Antiparasitics:	323	88	49	163	215	62	3	38	154	101	51	25	7	2
metronidazole	1,142	299	177	562	640	278	2	217	326	235	179	35	3	0
Antiparasitics: other	223	123	25	60	187	21	0	15	33	60	13	4	1	0
Antituberculars: isoniazid	507	100	173	199	185	278	0	37	398	112	67	60	102	3
Antituberculars: rifampin	71	21	14	29	44	12	0	15	32	15	8	7	2	0

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Antituberculars: other	30	7	3	19	17	8	0	5	18	4	2	1	0	0
Antituberculars: unknown	1	1	0	0	1	0	0	0	0	0	0	0	0	0
Antivirals: systemic	1,157	383	148	525	662	368	1	121	479	358	139	42	7	0
Antivirals: topical	59	33	9	16	56	0	0	3	3	15	3	0	0	0
Antivirals: unknown	55	23	4	24	33	15	0	7	25	19	7	2	0	0
Other antimicrobial	96	66	9	17	84	6	0	6	14	25	11	2	0	0
Unknown antimicrobial	9	5	2	2	6	2	0	1	2	0	1	2	0	0
*Category totals	67,049	40,220	9,299	14,685	53,409	7,483	50	5,944	11,162	16,639	6,320	1,251	177	7
Antineoplastics	925	332	58	422	760	74	2	82	323	303	102	33	6	1
Asthma therapies														
Aminophylline/theophylline	3,100	651	603	1,718	1,848	974	1	244	1,902	764	595	558	76	11
Terbutaline and other beta-2 agonists	11,393	8,647	1,543	1,038	10,257	725	15	375	3,703	4,177	1,973	765	16	2
Other beta agonists	1,990	477	709	705	797	1,122	4	55	1,156	435	505	322	10	1
Other	1,779	1,290	257	209	1,455	303	1	18	371	592	145	88	0	1
Unknown	19	9	8	1	12	5	2	0	6	6	8	2	0	0
*Category totals	18,281	11,074	3,120	3,671	14,369	3,129	23	692	7,138	5,974	3,226	1,735	102	15
Cardiovascular drugs														
Alpha blockers	484	189	37	233	354	93	0	36	275	215	63	45	5	0
Antiarrhythmics	1,104	239	48	745	947	103	0	47	440	450	97	58	21	7
Antihypertensives	10,964	4,506	2,068	3,993	8,636	1,959	7	321	5,283	4,290	1,617	1,014	136	3
Beta blockers	7,263	2,145	807	3,954	5,102	1,915	2	217	3,954	2,972	759	721	134	16
Calcium antagonists	8,555	2,299	591	5,225	6,382	1,876	5	254	4,757	3,438	949	796	225	58
Cardiac glycosides	2,862	1,007	148	1,617	2,306	330	3	199	1,477	1,118	209	366	97	16
Hydralazine	211	92	19	84	175	30	0	5	86	89	21	12	2	0
Long-acting nitrates	720	321	21	355	637	66	0	15	252	331	69	19	4	0
Nitroglycerin	2,341	1,500	154	613	2,023	253	2	53	708	1,175	178	63	8	1
Nitroprusside	35	3	2	21	18	0	0	17	30	8	6	4	2	0
Other vasodilator	454	193	33	202	387	31	0	33	132	183	52	10	3	1
Unknown types of vasodilators	4	1	1	2	2	2	0	0	2	2	1	0	0	0
Vasopressor	14	4	1	6	10	3	0	1	9	4	4	1	0	0
Other cardiovascular drug	1,663	616	305	646	1,450	148	1	62	555	519	287	114	6	0
Unknown cardiovascular drug	40	19	4	14	26	14	0	0	16	17	1	1	0	0
*Category totals	36,714	13,134	4,239	17,710	28,455	6,823	20	1,260	17,976	14,811	4,313	3,224	643	102
Cold and cough preparations	106,823	70,632	18,381	15,817	91,570	11,699	62	3,288	22,717	33,580	17,631	3,030	131	10
Diagnostic agents	478	106	45	222	359	26	0	90	227	78	107	32	4	0
Diuretics														
Furosemide	1,543	776	130	578	1,331	162	1	42	498	517	205	71	1	0
Thiazide	1,410	704	145	485	1,142	223	0	43	477	571	120	47	4	0
Other	1,359	689	163	451	1,090	201	0	66	423	525	128	55	4	0
Unknown	292	142	27	109	235	42	0	14	97	106	33	11	3	0
*Category totals	4,604	2,311	465	1,623	3,798	628	1	165	1,495	1,719	486	184	12	0
Electrolytes and minerals														
Calcium	2,863	2,380	202	241	2,742	86	3	29	196	765	119	18	1	2
Fluoride	3,741	3,283	313	117	3,666	33	4	34	225	1,364	435	14	1	0
Iron	4,538	2,941	685	790	3,555	876	1	96	2,126	1,840	706	163	15	2
Magnesium	349	131	55	133	296	27	4	19	96	77	54	18	5	0
Potassium	1,003	550	81	329	857	106	2	36	295	364	77	34	7	0
Sodium	2,547	1,731	448	292	2,413	94	15	19	347	751	417	46	0	0
Zinc	1,312	760	105	365	1,191	53	0	61	190	299	170	40	2	0
Other	153	103	10	33	131	7	2	13	18	33	10	4	0	0
Unknown	21	14	4	3	19	1	0	1	2	2	1	0	0	0
*Category totals	16,527	11,893	1,903	2,303	14,870	1,283	31	308	3,495	5,495	1,989	337	31	4
Eye/ear/nose/throat preparations														
Nasal preparations														
Tetrahydrozoline	64	44	6	11	58	3	0	2	30	36	9	1	0	0
Other decongestant	2,584	1,372	289	764	2,340	107	4	131	586	1,018	398	54	3	0

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Other	461	328	30	79	448	1	0	11	19	101	71	5	0	0
Unknown	11	4	0	6	9	1	0	1	1	3	1	1	0	0
Ophthalmic preparations														
Contact lens products	3,937	2,274	336	1,017	3,848	47	11	16	491	706	718	134	4	0
Glaucoma therapies	167	71	7	75	144	3	0	20	47	60	24	6	0	0
Tetrahydrozoline	2,209	1,434	212	306	1,855	72	83	17	843	1,086	186	27	2	0
Other ophthalmic														
sympathomimetics	366	218	41	87	326	9	3	27	130	158	62	11	0	0
Other	722	370	90	209	659	17	2	41	100	127	100	19	2	0
Unknown	23	10	3	8	17	0	1	5	11	5	7	3	0	0
Otic preparations														
Combination products	985	721	103	127	977	5	0	3	100	330	225	5	0	0
Other	2,085	1,158	206	579	2,038	20	1	26	183	432	577	36	2	0
Unknown	13	5	1	7	13	0	0	0	2	3	3	1	0	0
Steroids-topical for eye/nose/throat	990	520	205	221	892	35	5	57	67	192	172	13	0	0
Throat preparations														
Lozenges without local anesthetics	702	573	65	54	673	15	1	13	18	173	40	3	0	0
Lozenges with local anesthetics	262	159	56	37	235	12	1	11	17	91	21	3	1	0
Other	422	236	121	57	361	48	1	10	110	152	70	7	2	0
Unknown	12	5	1	4	10	1	0	1	3	2	1	0	0	0
*Category totals	15,835	9,502	1,772	3,648	14,903	396	113	392	2,758	4,675	2,685	329	16	0
Gastrointestinal preparations														
Antacids:														
salicylate-containing	2,516	2,138	186	168	2,361	75	0	77	191	869	97	14	1	0
Antacids: other	18,959	17,258	751	784	18,546	222	11	165	504	4,363	441	46	5	1
Antidiarrheals:														
diphenoxylate	1,632	829	211	525	1,208	293	1	122	753	643	253	86	13	1
Antidiarrheals: nonnarcotic	728	576	60	83	676	27	1	23	63	189	33	4	0	0
Antidiarrheals: paregoric	94	64	7	22	76	11	1	6	23	45	17	3	0	0
Antidiarrheals: other														
narcotic	1	1	0	0	1	0	0	0	0	0	0	0	0	0
Antispasmodics:														
anticholinergic	1,504	593	278	562	908	490	2	97	749	461	332	140	17	0
Antispasmodics: other	5	0	1	3	1	3	0	1	4	0	2	1	0	0
Laxatives	14,810	10,298	1,629	2,464	13,078	1,059	197	438	2,083	2,997	2,828	244	7	0
Other	5,766	4,570	334	755	5,214	319	4	216	857	1,566	346	120	15	0
Unknown	1,275	700	87	425	1,017	171	0	82	279	464	87	29	4	0
*Category totals	47,290	37,027	3,544	5,791	43,086	2,670	217	1,227	5,506	11,597	4,436	687	62	2
Hormones and hormone antagonists														
Androgens	321	77	45	157	164	106	0	50	122	49	35	20	3	0
Corticosteroids	7,030	4,171	798	1,766	6,073	419	4	512	803	1,589	438	86	5	0
Estrogens	2,922	2,166	182	471	2,665	158	1	92	361	926	86	19	3	0
Insulin	1,229	98	82	912	853	321	6	45	502	394	119	200	28	2
Oral contraceptives	8,587	7,269	769	439	7,990	481	9	96	646	2,021	307	10	3	0
Oral hypoglycemics	3,333	1,468	276	1,450	2,594	605	1	118	2,273	1,493	345	525	49	4
Progestins	1,225	708	157	287	1,036	93	3	90	189	328	64	15	2	0
Thyroid preparations	5,938	3,773	496	1,456	5,427	424	4	74	1,080	1,814	230	81	3	0
Other hormones	2,677	1,321	359	834	1,863	593	6	202	768	820	378	75	3	0
Other hormone antagonists	253	104	28	107	209	36	1	7	68	89	12	9	0	0
Unknown hormones or antagonists	15	6	2	4	8	1	1	4	5	3	1	1	0	0
*Category totals	33,530	21,161	3,194	7,883	28,882	3,237	36	1,290	6,817	9,526	2,015	1,041	99	6
Miscellaneous drugs														
Allopurinol	291	182	15	83	243	31	0	14	75	134	14	7	0	1
L-dopa and related drugs	528	193	16	296	431	55	1	36	199	176	70	38	1	1
Disulfiram	525	20	25	389	133	307	6	78	304	55	153	75	5	1
Ergot alkaloids	610	256	85	236	374	163	2	70	375	220	118	42	4	0
Homeopathic preparations	3,881	2,591	390	762	3,080	364	6	414	816	1,178	389	80	5	3
Methylsergide	4	1	0	3	1	1	0	2	2	1	1	0	0	0

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Neuromuscular blocking agent	18	0	2	8	12	2	3	1	11	1	5	2	1	0
Other	10,676	4,253	1,245	4,539	7,753	1,760	23	1,100	3,106	2,753	2,109	614	85	2
*Category totals	16,533	7,496	1,778	6,316	12,027	2,683	41	1,715	4,888	4,518	2,859	858	101	8
Muscle relaxants														
Cyclobenzaprime	3,826	672	632	2,247	1,341	2,352	1	105	2,700	840	1,112	551	103	5
Methocarbamol	1,180	145	205	744	394	738	1	39	758	241	327	96	12	0
Other	6,350	615	759	4,515	1,668	4,388	3	229	4,597	1,031	2,064	952	184	2
Unknown	57	7	17	26	14	41	0	2	33	8	9	6	0	0
*Category totals	11,413	1,439	1,613	7,532	3,417	7,519	5	375	8,088	2,120	3,512	1,605	299	7
Narcotic antagonist	172	10	9	124	46	85	0	41	117	20	49	24	10	0
Radiopharmaceuticals	15	1	0	9	8	0	0	7	9	2	5	2	1	0
Sedative/hypnotics/ antipsychotics														
Barbiturates: long-acting	3,707	809	396	2,267	1,946	1,618	2	97	2,149	842	881	473	170	9
Barbiturates: short-acting	1,389	139	192	928	363	946	2	59	982	224	434	156	70	3
Barbiturates: unknown type	15	1	2	10	2	13	0	0	14	0	5	6	2	0
Benzodiazepines	39,029	4,864	3,652	27,189	9,691	27,976	177	869	28,584	6,768	13,222	4,517	821	52
Chloral hydrate	510	143	52	268	184	266	5	47	371	53	183	84	29	1
Ethchlorvynol	124	16	8	89	23	98	0	2	106	14	24	35	12	1
Glutethimide	15	0	4	9	1	14	0	0	14	0	4	5	2	0
Meprobamate	254	26	22	181	76	159	0	13	187	30	72	41	19	1
Methaqualone	45	6	12	23	15	30	0	0	30	7	16	5	2	0
Phenothiazines	11,473	1,541	1,792	7,334	4,018	6,627	14	701	8,401	2,441	2,994	1,986	329	12
Sleep aids (OTC)	1,990	148	348	1,338	337	1,628	0	20	1,525	389	546	293	27	1
Other	7,952	715	1,111	5,495	2,159	5,308	4	417	5,638	1,568	2,598	917	117	3
Unknown	273	15	55	153	34	224	4	5	203	35	74	32	1	0
*Category totals	66,776	8,423	7,646	45,284	18,849	44,907	208	2,230	48,204	12,371	21,053	8,550	1,601	83
Serum, toxoids, vaccines	1,645	363	242	819	1,118	17	2	496	518	122	387	94	4	0
Stimulants and street drugs														
Amphetamines	14,917	4,454	5,817	4,047	8,933	5,343	86	475	7,757	4,222	2,955	1,895	158	18
Amyl/butyl nitrites	94	13	11	56	36	56	0	0	48	13	16	14	1	1
Caffeine	7,316	1,105	3,990	1,875	2,429	4,484	24	328	3,397	913	2,446	942	16	2
Cocaine	4,346	125	528	3,244	355	3,865	33	29	3,765	475	916	1,114	272	71
Diet aids:														
phenylpropanol- amine	1,534	460	584	430	707	764	4	45	897	450	282	216	9	1
Diet aids:														
phenylpropanol- amine and caffeine	315	85	122	98	127	170	0	17	196	78	68	43	2	0
Diet aids: other, OTC	289	129	70	80	165	75	0	48	104	95	53	27	0	0
Diet aids: other, Rx	1,945	895	245	694	1,308	441	0	184	1,064	777	323	152	11	1
Diet aids: unknown	185	56	63	49	72	94	0	17	119	53	49	20	2	0
Heroin	1,457	14	99	1,180	102	1,313	7	16	1,281	77	263	425	181	21
LSD	1,109	18	731	264	108	919	65	8	759	57	264	310	19	0
Marijuana	1,935	123	892	729	317	1,512	35	47	1,235	148	459	336	44	2
Mescaline/peyote	149	35	30	58	113	33	2	1	45	13	43	17	0	0
Phencyclidine	318	15	105	174	41	256	10	0	274	9	68	105	42	2
Phenylpropanolamine look-alike drugs	61	12	28	19	20	37	0	2	46	14	13	12	0	0
Other stimulants	1,092	250	423	374	334	734	3	18	718	235	299	216	5	0
Other hallucinogens	1	0	0	0	0	1	0	0	1	0	0	0	0	0
Unknown hallucinogens	13	0	6	7	2	10	0	1	9	0	2	5	0	0
Other street drugs	17	0	6	9	0	16	1	0	14	0	1	6	1	0
Unknown stimulant/street drugs	72	6	33	25	13	53	2	2	43	3	18	14	2	1
*Category totals	37,165	7,795	13,783	13,412	15,182	20,176	272	1,238	21,772	7,632	8,538	5,869	765	120
Topical preparations														
Acne preparations	2,032	1,011	523	419	1,702	59	3	265	245	466	415	93	5	0
Boric acid/borates	322	217	29	70	315	4	0	3	28	100	40	4	1	0
Calamine	4,618	3,615	239	675	4,538	54	3	20	276	1,090	324	12	0	0

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Camphor	9,387	7,404	615	1,124	9,107	212	10	55	1,303	3,729	1,475	79	6	0
Camphor/methyl salicylate	1,317	1,059	81	147	1,253	17	1	45	167	514	252	5	1	0
Diaper products	20,925	19,569	603	637	20,800	95	4	25	315	4,787	672	23	1	0
Hexachlorophene antiseptic	143	76	25	29	133	8	0	2	33	42	28	3	0	0
Hydrogen peroxide	7,636	3,925	788	2,530	7,414	151	20	39	460	1,759	1,666	68	1	0
Iodine or iodide antiseptics	1,773	663	300	655	1,490	197	14	62	422	472	388	54	2	0
Mercury antiseptics	464	374	33	52	445	16	0	3	72	186	24	3	0	0
Methyl salicylate	10,733	7,712	1,057	1,646	10,512	106	13	97	941	3,293	2,322	60	3	2
Podophyllin	69	27	13	21	57	6	1	5	19	16	11	4	0	0
Silver nitrate	165	18	60	66	149	6	2	8	33	19	51	6	0	0
Topical steroids	6,876	5,175	393	1,053	6,702	67	6	96	182	1,389	415	26	1	0
Topical steroid with antibiotics	1,671	1,287	136	206	1,626	18	1	26	85	407	150	6	0	0
Wart preparations	1,745	1,158	229	295	1,671	27	8	35	204	498	370	35	0	0
Other liniment	2,576	1,244	228	913	2,291	32	2	248	175	421	838	32	1	1
Other topical antiseptic	4,817	3,139	608	910	4,590	120	22	79	488	1,579	659	65	1	0
*Category totals	77,269	57,673	5,960	11,448	74,795	1,195	110	1,113	5,448	20,767	10,100	578	23	3
Veterinary drugs	4,288	2,340	302	1,395	4,203	59	8	15	327	1,331	499	50	3	0
Vitamins														
Multiple vitamins tablets: adult formulations														
No iron, no fluoride	2,341	1,608	291	384	1,984	210	3	138	309	642	189	24	3	0
With iron, no fluoride	5,283	3,644	632	864	4,447	685	4	143	1,265	2,064	419	63	4	0
With iron, with fluoride	74	62	4	7	69	4	0	1	12	23	10	0	0	0
No iron, with fluoride	55	51	2	1	54	1	0	0	0	17	3	0	0	0
Multiple vitamin tablets: pediatric formulations														
No iron, no fluoride	8,042	7,022	958	41	7,893	126	0	20	306	2,401	268	15	0	0
With iron, no fluoride	15,987	14,221	1,646	96	15,717	229	5	23	2,190	6,409	1,139	67	2	0
With iron, with fluoride	871	823	38	10	861	7	0	2	61	278	27	0	0	0
No iron, with fluoride	1,384	1,318	57	8	1,376	5	0	2	62	432	23	1	0	0
Multiple vitamins liquids: adult formulations														
No iron, no fluoride	58	34	6	15	49	5	0	4	8	5	9	1	0	0
With iron, no fluoride	77	41	6	27	64	10	0	3	22	16	9	0	0	0
With iron, with fluoride	4	4	0	0	4	0	0	0	0	2	0	0	0	0
No iron, with fluoride	2	1	0	1	2	0	0	0	0	0	0	0	0	0
Multiple vitamins liquids: pediatric formulations														
No iron, no fluoride	214	198	7	8	209	0	0	5	7	59	16	1	0	0
With iron, no fluoride	451	428	14	8	439	5	1	5	51	152	38	2	0	0
With iron, with fluoride	96	90	3	2	96	0	0	0	11	32	2	0	0	0
No iron, with fluoride	450	439	9	1	448	1	0	1	12	160	17	2	0	0
Multiple vitamins, unspecified adult formulations														
No iron, no fluoride	66	46	7	13	55	6	0	5	9	15	7	2	0	0
With iron, no fluoride	1,654	1,228	220	169	1,434	179	3	33	396	609	149	16	0	0
With iron, with fluoride	10	7	2	1	8	2	0	0	1	5	1	0	0	0
No iron, with fluoride	15	12	1	2	14	0	0	1	1	7	0	0	0	0
Multiple vitamins, unspecified pediatric formulations														
No iron, no fluoride	31	24	7	0	30	1	0	0	3	3	3	0	0	0
With iron, no fluoride	44	40	3	1	41	3	0	0	18	17	7	0	0	0
With iron, with fluoride	4	4	0	0	4	0	0	0	0	1	1	0	0	0
No iron, with fluoride	15	14	1	0	15	0	0	0	1	12	0	0	0	0
Other vitamins														
Vitamin A	1,148	935	72	122	1,057	47	0	41	88	263	83	4	2	0
Niacin (B ₃)	2,480	532	334	1,371	1,210	204	3	1,059	285	129	1,066	57	3	0
Pyridoxine (B ₆)	362	224	38	87	276	59	1	26	80	80	28	7	8	0

(Continued on following page)

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Other B complex vitamins	1,487	1,006	119	306	1,223	152	1	109	243	395	114	15	2	0
Vitamin C	2,438	1,902	282	214	2,231	138	3	60	160	648	110	12	0	0
Vitamin D	160	113	4	36	149	7	0	4	25	38	7	3	1	0
Vitamin E	1,323	1,072	85	144	1,233	50	2	37	87	332	50	1	0	0
Other	573	359	74	119	460	52	2	59	119	171	72	9	1	0
Unknown	684	430	109	112	543	77	1	60	128	224	61	7	1	0
*Category totals	47,883	37,932	5,031	4,170	43,695	2,265	29	1,841	5,960	15,641	3,888	309	27	0
Unknown drugs	11,357	3,959	2,319	4,138	5,907	4,145	395	576	6,451	2,853	1,746	1,082	241	3
Total number of pharmaceutical substances	969,243	470,024	156,422	301,343	659,827	265,335	1,886	38,130	350,676	269,508	158,840	55,692	9,239	798
% of pharmaceutical substances		48.5%	16.1%	31.1%	68.1%	27.4%	0.2%	3.9%	36.2%	27.8%	16.4%	5.7%	1.0%	0.1%
% of all substances	42.0%	20.3%	6.8%	13.0%	28.6%	11.5%	0.1%	1.7%	15.2%	11.7%	6.9%	2.4%	0.4%	0.0%

NOTE: Patients with unknown age, reason, or medical outcome were omitted from the respective tabulations.

ABBREVIATIONS: Adv Rxn, adverse reaction; Int, intentional; Unint, unintentional.

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APPENDIX

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

Case 29. A 33-year-old man, complaining of dizziness, nausea, and vomiting, presented to the ED 8 hours after drinking an unknown clear liquid, assumed by him to be ethanol, which he found in a trash dumpster. Progressive obtundation was noted and laboratory results included: bicarbonate, 7 mEq/L; anion gap, 28 mEq/L; serum **methanol**, 302 mg/dL; and blood ethanol, 0 mg/dL. Treatment included: intravenous ethanol loading and infusion, endotracheal intubation, hemodialysis (starting 3 hours after admission) until methanol was less than 20 mg/dL, sodium bicarbonate to increase pH above 7.20 (total, 750 mEq), and intravenous folinic acid and folate for 4 days. Rapid elimination of methanol and correction of acidosis did not result in neurologic recovery beyond decerebrate posturing. Aspiration pneumonia and sepsis followed, respiratory support was withdrawn on day 8 and the patient expired 10 days after admission. In addition to methanol, urine drug screen detected **cocaine**.

Case 48. A 55-year-old male chemistry teacher, with a history of chronic ethanol abuse, presented with complaints of nausea, vomiting and abdominal pain. **Ethanol** was the only exposure identified. Fever, scleral icterus, and right upper quadrant abdominal tenderness were noted. Laboratory results included: aspartate transaminase (AST), 36 U/L; alanine transaminase (ALT), 8,926 U/L; total bilirubin, 6.7 mg/dL; and lactic dehydrogenase (LDH), 70,899 U/L. Hepatic and renal failure developed over the next few days: AST, 21,518 U/L; bilirubin, 13.8 mg/dL; international normalized ratio (INR), 8; creatinine, 10 mg/dL; and potassium, 6.8 mEq/L. On the second hospital day, his wife described chronic abuse and possible acute ingestion of **chloroform** by the patient; his encephalopathy prevented verification. Despite hemodialysis, oral *N*-acetylcysteine, and splenic liver cell transplant, the patient died on the fourth hospital day.

Case 57. An 18-month-old Haitian girl was transported to the United States for medical care, 4 days after ingesting approximately 20 mL of a Haitian acetaminophen product contaminated

with **diethylene glycol**. On arrival, her level of consciousness was depressed and vital signs were: blood pressure, 90/72 mm Hg; heart rate, 110 beats/min; respirations, 48 breaths/min; and temperature, normal. Laboratory results included: arterial pH, 7.11; PCO₂, 34 mm Hg; PO₂, 148 mm Hg (FIO₂, 0.4); blood urea nitrogen (BUN), 93 mg/dL; creatinine, 9.3 mg/dL; AST, 997 U/L; ALT, 1,169 U/L; alkaline phosphatase, 311 U/L; amylase, 903 U/L; lipase, 2751 U/L; coagulation studies, normal; and osmolal gap, 19 mOsm/L. After emergent hemodialysis, her mental status dramatically improved. On hospital day 2, mental status again deteriorated, and by day 4 she was comatose and apneic, with dilated, unreactive pupils. Daily hemodialysis continued for 14 days and renal function slowly improved. Slight improvement of neurologic function was noted, with return of ocular reflexes and response to deep pain on day 22, and spontaneous respirations on day 26. On day 34, massive intracranial hemorrhage occurred (coagulation studies were normal), and life support was later withdrawn.

Case 64. A 49-year-old sanitation worker presented to the ED complaining of dyspnea and chest pain after being splashed with liquid ejected from a garbage truck during compaction. He and his partner had just dumped a household garbage container of the unknown liquid into the truck. The patient experienced immediate pain, and his jacket was "liquefied." After assisting the patient, his partner experienced immediate, severe hand pain and emergency medical personnel experienced mild hand discomfort. The liquid was identified as concentrated **hydrofluoric acid**. After irrigation with water at the scene, the patient was transported, arriving in the ED awake and alert, with the most severe burns to his left face and left hand, as well as bilaterally opacified corneas. Cardiopulmonary arrest, in the form of pulseless electrical activity, occurred in the ED. Despite cardiopulmonary resuscitation (CPR), endotracheal intubation, 14 g calcium chloride and 3 g of magnesium sulfate, and other supportive care, the patient died 2 hours after CPR began. Serial ionized calcium concentrations were 0.63, 1.84, and 0.57 mEq/L; and potassium, 5.8, 5.7, 5.3, 5.1, and 6 mEq/L.

Case 65. A 65-year-old woman was found unconscious, unresponsive, and cyanotic by paramedics. An almond odor was noted and a 240-mL bottle of **nitrobenzene**, with 180 mL missing, was found near the patient. Initial ED treatment included endotracheal intubation and ventilation with 100% oxygen, gastric lavage, and activated charcoal. Methemoglobin was 64%, 100 mg of methylene blue was given, and a second methemoglobin value was 37%. Repeated doses of methylene blue were administered every 4 hours for cyanosis, and several hours after admission increased movement and responsiveness were noted, as was good output of blue urine. A third methemoglobin result was 27%. On the third hospital day, decreased responsiveness and nonreactive pupils were noted, and the patient subsequently died.

Case 67. A 70-year-old woman presented to the ED with vomiting, abdominal pain, and hypotension 2 hours after intentional ingestion of granular **potassium nitrate**. Serum potassium was 9 mEq/L. Initial treatment included: dopamine, gastric lavage, and sodium polystyrene sulfonate. Cardiac arrest occurred, resuscitation was unsuccessful, and the patient died 6 hours after ingestion.

Case 68. A 20-year-old man was brought to the ED after an explosion at an automobile air bag factory in which he sustained blunt head trauma and burns involving **sodium azide** exposure over 80% of his body surface area. Initial vital signs included: blood pressure, 98/50 mm Hg; and pulse, 157 beats/min. Anion gap was noted to be 22 mEq/L. He was admitted to the burn intensive care unit (ICU) after endotracheal intubation, sedation, and decontamination with dry towels and sterile saline. At that time, hyperkalemia (7.0 mEq/L) was noted and treated with dextrose, insulin, and calcium. Anemia (hematocrit, 33.5%) was treated with blood transfusion. Hypotension and bradycardia occurred 12 hours

after admission, followed by ventricular tachycardia. Resuscitation was unsuccessful.

Case 70. While at work, a 42-year-old man fell into a vat and inhaled a mixture of **sulfuric acid, phosphoric acid, and ammonia**. Upon ED arrival, respiratory distress and hematemesis were noted. Despite endotracheal intubation, respiratory failure developed and the patient died.

Case 83. A 65-year-old woman with well-controlled asthma collapsed after using a **sodium hydrosulfite** rust remover in an enclosed area. Initial events are unclear, but she was running to a neighbor, holding the product and her nebulizer, when she collapsed. Emergency medical personnel noted cardiopulmonary arrest, and resuscitation was unsuccessful. Death was attributed to an acute exacerbation of asthma.

Case 84. A 38-year-old man presented to the ED after unintentional ingestion of one-half cup of **ammonium bifluoride** rust remover. By 1½ hours after exposure, after one early episode of emesis, the patient was asymptomatic and oropharyngeal examination was normal. Approximately 3½ hours after exposure, after ambulating to the restroom and back, sudden cardiac arrest occurred. Resuscitation efforts were transiently successful after several subsequent cardiac arrests, but ultimately failed. Calcium chloride was administered during resuscitation, approximately 30 minutes after the initial arrest. Urine and blood fluoride concentrations were 210 and 2.6 µg/mL, respectively.

Case 85. A 20-year-old woman intentionally ingested up to 180 mL of 6% to 8% **hydrofluoric acid** rust remover. Vomiting occurred initially and she appeared confused. After transport to the ED, vital signs included: blood pressure, 80/50 mm Hg; heart rate, 88 beats/min; and respirations, 40 breaths/min. Obtundation and wet lung sounds were noted. Arterial pH was 6.91 and PO₂ was 80 mm Hg. Initial treatment included endotracheal intubation, naloxone, and dextrose (no response noted), as well as gastric lavage with magnesium-containing liquid antacid (blood was noted in the return). Blood pressure increased to 124/53 mm Hg; however, pupils were dilated and nonreactive. Cardiac arrest occurred, resuscitation was unsuccessful, and the patient died 5 hours after ingestion.

Case 89. A 13-month-old boy presented to the ED after ingestion of an unknown amount of **baby oil**. Initially he was gagging and somnolent, with an oxygen saturation of 68%. Somnolence and hypoxia resolved after oxygen and nebulized albuterol. Chest X-ray suggested right middle and lower lobe infiltrate and showed part of the baby oil container lid in the stomach. After transfer to a tertiary pediatric care facility, there was progressive worsening of respiratory distress necessitating endotracheal intubation during the night of admission. Fever to 40.6°C was also noted. Worsening of pulmonary status prompted use of partial liquid ventilation for 5 days, followed by extracorporeal membrane oxygenation (ECMO) for 16 days. Initially, neurologic status improved and the patient was able to awaken and follow commands. Numerous attempts to wean him from ECMO were unsuccessful, suggesting little hope of recovery. When ECMO was discontinued, oxygen saturation decreased to 20%, bradysystolic cardiac arrest occurred, and the patient died.

Case 91. During an attempt to clear a clot from the dialysis catheter of a 41-year-old diabetic renal dialysis patient, 2 mL of **hydrogen peroxide** were inadvertently injected. Bubbling was immediately noted, and an attempt was made to aspirate the injected solution. Within an hour, abdominal pain and blood pressure of 200/120 mm Hg were noted, followed by collapse, loss of consciousness, and posturing. Endotracheal intubation was done, and the patient was immediately transferred for hyperbaric oxygen therapy. After 6 hours of hyperbaric oxygen, she was less rigid and minimally responsive, with some posturing; however, further hyperbaric treatments every 12 hours were not associated with further improvement. Eight days after exposure, she was able

to respond to simple commands, but had a brief cardiac arrest, after which seizures occurred over the next 2 days. During the following week she seemed to have recovered substantially; however, 19 days after exposure, she had an unexpected fatal cardiac arrest.

Case 94. A 15-year-old girl experienced a witnessed, sudden collapse after intentionally inhaling an **aerosol air freshener**. Emergency medical personnel noted full cardiopulmonary arrest, and resuscitation was unsuccessful. Autopsy revealed pulmonary aspiration of gastric contents and presence of **butane** and related compounds in the blood.

Case 96. A 16-month-old girl was suspected to have ingested one half of an **imipramine** tablet. She appeared sleepy, and although it was near her normal bedtime, gastrointestinal decontamination and observation were deemed prudent. In the ED, within 30 minutes of ingestion, electrocardiogram (ECG) was normal. Activated charcoal was administered by nasogastric tube and during this procedure the patient developed profound bradycardia followed by asystole; resuscitation was unsuccessful. Toxicologic screening reportedly did not detect imipramine.

Case 97. A 2½-year-old asymptomatic boy presented to the ED after being found playing with vials of an unknown blue liquid from a chemistry set. During **activated charcoal** administration, massive aspiration occurred leading to respiratory and then cardiac arrest. Two hours of resuscitation was unsuccessful. The blue substance was identified as **methylene blue**.

Case 98. Two workers were cleaning the outside of a large **argon** gas holding tank (20 feet deep, 10 feet wide), which they believed had been flushed clean of argon. Worker 1 entered the tank to retrieve a tool that he had dropped, and lost consciousness. Worker 2, a 45-year-old man, entered the tank, also without supplemental air, to assist the first victim, and soon lost consciousness. Both were extricated by coworkers, but worker 2 had a cardiopulmonary arrest and could not be resuscitated. It was confirmed that the tank contained argon only, thus death was attributed to asphyxiation.

Cases 125 and 126. A 16-month-old boy and a 3-year-old boy were brought to the ED from the scene of a fire, raising concerns regarding both **carbon monoxide** and **cyanide** toxicity. Both were comatose. Treatment for both included endotracheal intubation, oxygen, and intravenous sodium thiosulfate. Laboratory results from the 16-month-old included: arterial pH, 7.04; anion gap, 31 mEq/L; carboxyhemoglobin, 27%; and whole blood cyanide, 0.24 µg/mL. He was stabilized and transferred for hyperbaric oxygen therapy, regained no neurologic function, and died the day after admission. Laboratory results from the 3-year-old included: arterial pH, 6.77; anion gap, 36 mEq/L; carboxyhemoglobin, 41%; and whole blood cyanide, 0.56 µg/mL. He was too unstable for transfer, remained comatose, and died 3 days after admission.

Case 136 and 137. A 13-year-old boy entered a manure pit in an attempt to clear a pipe using **sulfuric acid**. He lost consciousness within 1 minute. When his father, a 42-year-old, attempted to rescue him, he also rapidly lost consciousness. Resuscitation was unsuccessful, and both patients died within 1 hour. No air testing was done, but because of the setting and clinical course, death was attributed to **hydrogen sulfide**.

Case 148. A 75-year-old man presented to the hospital 3 hours after intentional ingestion of 30 to 60 mL of concentrated **paraquat** solution. He was in no significant distress and had no obvious oral lesions. He was transferred to another hospital after gastric lavage and administration of activated charcoal. Hemoperfusion was initiated 10 hours after ingestion; serum paraquat concentration, approximately 12 hours after ingestion was 0.592 µg/mL. Oropharyngeal mucosal lesions were evident the day after ingestion, and despite intravenous *N*-acetylcysteine and deferoxamine, progressive deterioration occurred including acute renal failure, pulmonary edema and respiratory failure, and gastrointestinal bleeding. The patient died on the eighth hospital day.

Case 151. An 18-year-old boy was found in cardiopulmonary arrest with a container of 90% to 95% **diffuoroethane**, 5% to 10% **2-methylbutane** airbrush propellant nearby and a rubber tube in his trachea. Initial resuscitation was successful; however, there was no evidence of neurologic function and he died the following day.

Case 156. After intentionally inhaling fumes from a motor-cycle **gasoline** tank, a 13-year-old boy stood and then lost consciousness. Emergency medical providers found him unconscious with ventricular tachycardia. CPR and transport were initiated, but he was pronounced dead-on-arrival at the hospital.

Case 160. A 1-year-old boy apparently sprayed **propoxur** ant and roach killer into a cup and drank it. Endotracheal intubation was done en route to the ED because of respiratory distress, and on arrival the patient's vital signs included: blood pressure, 109/33 mm Hg; and pulse, 163 beats/min. ED treatment included: 3.8 mg atropine (3 mg, then 0.4 mg twice); pralidoxime (50 µg/kg followed by infusion); and dopamine. At the time of transfer to a pediatric hospital ICU, perfusion was adequate, intact gag reflex was noted, and there were purposeful movements. Approximately 6 hours after ingestion, the boy was unresponsive and without purposeful movement, despite continued treatment. Gastric lavage and charcoal were then administered. There was evidence of progressive neurologic deterioration with absence of movement or pupillary reaction by hospital day 2 and loss of brain activity by electroencephalogram (EEG) on day 3. He also had fever and persistent tachycardia. Ventilator support was withdrawn and the patient died on day 3.

Case 162. A 22-month-old boy ingested an unknown amount of an insecticide (**chlorpyrifos** 0.5%, **petroleum distillates** 0.3%, and water) which had been placed in a cup. There was immediate choking, and after ED arrival, drooling, gastric distention, and respiratory distress developed. ED care included endotracheal intubation, treatment with atropine and pralidoxime, and neuromuscular paralysis with vecuronium (after apparent initial drug resistance). Despite continued atropine and 100% oxygen, respiratory status deteriorated, necessitating 72 hours of liquid ventilation. The patient remained ventilator dependent, and died due to sepsis 10 weeks after admission. Initial plasma cholinesterase value was 0.4 U/mL (normal, 8-18 U/mL).

Case 164. A 6-year-old girl presented with acute onset of nausea, vomiting, diarrhea, and weakness. Two siblings (3 and 5 years old) had similar but milder symptoms, and all were discharged with a diagnosis of viral gastroenteritis. Four hours after discharge, the patient was found in cardiac arrest; the 3-year-old was comatose and vomiting, and the 5-year-old complained of severe muscle pain. The patient died after unsuccessful resuscitation attempts; however, both siblings ultimately recovered following empiric treatment with pralidoxime and supportive care. Cholinesterase activity was depressed in both surviving children, and autopsy of the 6 year-old found **disulfoton** in gastric contents: blood, 0.056 µg/mL; liver, 0.065 mg/kg; and kidney, 0.28 mg/kg. Death was ruled to be the result of homicidal poisoning.

Case 165. A 37-year-old woman presented to the ED with repeated seizures after ingestion of **endosulfan**. Seizures continued for at least 7 hours despite treatment including: gastric emptying, activated charcoal, benzodiazepines, phenobarbital, and phenytoin. Laboratory results included: AST, 2,000 U/L; LDH, 500 U/L; BUN, 71 mg/dL; creatinine, 7.7 mg/dL. EEG showed diffuse encephalopathy and there was no subsequent recovery of neurologic function. The patient died 24 days after presentation.

Case 172. A 35-year-old woman with a history of asthma developed severe respiratory distress 5 to 10 minutes after washing her dog with a **pyrethrin, piperonyl butoxide, and detergent flea and tick shampoo**. Respiratory arrest occurred, followed by ventricular fibrillation. Cardiorespiratory resuscitation was successful, but there was evidence of brain death and the patient ultimately died.

Case 173. A 41-year-old man, who had been inside a house fumigated with **sulfuryl fluoride**, was nauseated, disoriented, and in respiratory distress. Blood pressure was 80/30 mm Hg and heart rate was 110 beats/min. Endotracheal intubation, supplemental oxygen, and dopamine were initiated by paramedics; 100% oxygen and positive end expiratory pressure were added after arrival to the ED. In the ED, wide-complex tachycardia developed, rapidly followed by ventricular fibrillation which resolved after defibrillation and lidocaine. Laboratory results (unknown timing relative to resuscitation) included: arterial pH, 7.12; PCO₂ 48 mm Hg; PO₂, 80 mm Hg; glucose, 600 mg/dL; and potassium, 6.4 mEq/L. After the arrest, blood pressure was 80/40 mm Hg. Treatment included: norepinephrine, 2 µg/min; dextrose and insulin; sodium bicarbonate, 88 mEq; and calcium chloride, 1 g. The patient's condition appeared to improve and stabilize, evidenced by clearer lung sounds, blood pressure of 130/80 mm Hg; and heart rate of 108 beats/min. Laboratory reassessment included: arterial pH, 7.34; PCO₂, 42 mm Hg; PO₂, 220 mm Hg; and potassium, 5.4 mEq/L. Five hours after admission, cardiac arrest recurred; resuscitation, including epinephrine, atropine, magnesium, and calcium, was unsuccessful.

Case 174. A 61-year-old Laotian woman developed nausea, vomiting, and diarrhea 6 to 12 hours after eating cooked unknown **mushrooms**, purchased from a Laotian street vendor. She presented to the ED approximately 1 day after symptom onset with coffee-ground emesis, weakness, dehydration, and heme-positive stools. Initial laboratory results included: AST, 408 U/L; ALT, 256 U/L; and prothrombin time (PT), 14.1 seconds. Treatment included intravenous hydration, vitamin K, antibiotics, and fresh frozen plasma. Four to five days after ingestion, mental status deteriorated markedly, and the patient was transferred for possible liver transplantation. At that time, laboratory results included: AST, 5,627 U/L; ALT, 5,558 U/L; and PT, 35.3 seconds. Intracranial pressure monitoring showed increasing pressure. Despite ongoing treatment of coagulopathy, computed tomography (CT) of the head showed a large subdural hematoma. Pupils became dilated and nonreactive, ventilator support was withdrawn, and the patient died 5 to 6 days after ingestion.

Case 175. After picking and eating mushrooms, an 81-year-old woman complained of vomiting and diarrhea, first noted by a friend 24 hours after ingestion. She refused medical care and self-treated with antidiarrheal medication and fluid and electrolyte solution. Because of shortness of breath 38 hours after ingestion, an ambulance was requested. Emergency medical personnel noted cardiopulmonary arrest, followed by unsuccessful resuscitation and pronouncement of death in the ED. Autopsy revealed massive hepatic necrosis and a mycologist identified pickled mushrooms in the patient's refrigerator as *Amanita* species.

Case 176. A 22-year-old woman presented with massive intracranial hemorrhage and evidence of brain herniation; INR was 133. After ventriculostomy, pressor support, and blood product transfusion, she was pronounced dead. During the previous 6 months, she had been treated many times for intentional overdoses of **brodifacoum**. On several earlier presentations, marked coagulopathy was evident, with INR values ranging from 2 to more than 30, and there was frequent clinical evidence of bleeding, including oral, gastrointestinal, and small intracranial hemorrhages. Vitamin K treatment was repeatedly and successfully used; however, treatment and follow-up noncompliance and re-ingestions were ultimately fatal.

Case 178. A 38-year-old unresponsive man was brought to the ED, and cardiopulmonary arrest occurred immediately after arrival. During the prolonged, unsuccessful resuscitation, several health care providers noted an offensive odor and developed cough and nausea. Members of the patient's family later stated that the patient had intentionally ingested a **zinc phosphide** rodenticide.

Case 179. A 22-month-old boy ingested 15 mL of **selenious acid** and **nitric acid gun bluing solution**. Repeated vomiting occurred, and at initiation of ambulance transport he was described as pink, alert, and combative. Over a 15-minute period, there was rapid oxygen desaturation to 84%, mental status deteriorated, and bag-mask ventilation was initiated. At the time of ED arrival, 3 hours after ingestion, he was unresponsive and cyanotic, his heart rate was 170 beats/min, and pulses were not palpable. Initial resuscitation included endotracheal intubation, ventilation, and intravenous dopamine and epinephrine. CPR was then initiated, followed by epinephrine, sodium bicarbonate, and colloid infusion. Initial laboratory results included: arterial pH, 7.01; PCO₂, 17 mm Hg; PO₂, 400 mm Hg; bicarbonate, 4 mEq/L; BUN, 26 mg/dL; creatinine, 1.3 mg/dL; and glucose, 352 mg/dL. Ventricular fibrillation occurred and pulmonary edema was evident during lengthy unsuccessful resuscitation efforts. Autopsy showed marked pulmonary congestion, laryngotracheitis, gray discoloration and inflammation of the esophagus and stomach, toxic acute tubular necrosis, and focal hippocampal neuronal death.

Case 180. An 11-year-old girl reportedly ingested 18.5 to 20 g of **acetaminophen** over a 24-hour period for relief of pain caused by an ankle sprain. Two days later, vomiting was noted, and the following morning she was found comatose and was transported to the ED. Bleeding was noted from both nares and from needle stick sites. Hypoglycemia (glucose, 5 mg/dL) was corrected with intravenous dextrose, and although CT of the head was normal, endotracheal intubation and hyperventilation were initiated before transport to a pediatric tertiary care facility. During transport, blood pressure increased to 250/200 mm Hg, pupillary reactivity ceased, and mannitol and midazolam were given. On arrival after transport, labile blood pressure and decreased urine output necessitated intravenous fluids, epinephrine, and furosemide. Laboratory results after transfer included: AST, 10,164 U/L; ALT, 8,736 U/L; creatinine, 3.5 mg/dL; BUN, 25 mg/dL; PT, 19.6 seconds; and partial thromboplastin time (PTT), 28.9 seconds. Fulminant hepatic failure with severe encephalopathy worsened, with no evidence of brain function on the fifth hospital day and death on the sixth hospital day after discontinuation of supportive care.

Case 184. A 20-year-old man presented to the ED complaining of nausea, vomiting, and abdominal pain for 1 day after reportedly ingesting 1 g of **acetaminophen** every 4 hours for 9 days because of "flu" symptoms. Initial laboratory results included: AST, 4,000 U/L; ALT, 4,000 U/L; LDH, 3,100 U/L; total bilirubin, 6.5 mg/dL; PT, 34 seconds; and acetaminophen concentration, <10 µg/mL. *N*-acetylcysteine was initiated, and the patient transferred to the ICU of a tertiary care center. Less than 24 hours after admission, laboratory results included: AST, >75,000 U/L; ALT, >10,000 U/L; PT, 60.6 seconds (INR, 29.5); and PTT, 71 seconds. The patient then admitted that he had actually ingested 25 g of acetaminophen acutely in a suicide attempt, 2 days before admission. Liver transplant was refused by the patient, encephalopathy and sepsis developed on the third hospital day, and the patient died on the sixth hospital day.

Case 186. A 30-year-old woman presented, alert and oriented, after taking unknown amounts of **acetaminophen**, every 4 hours for more than 1 week for pain following an automobile accident. Initial laboratory results included: acetaminophen, 97 µg/mL; AST, 923 U/L; ALT, 827 U/L; and total bilirubin, 1.6 mg/dL. Oral *N*-acetylcysteine was initiated and continued, and further laboratory results (reportedly 4 hours after initial testing) included: acetaminophen, 15 µg/mL; AST, 1,250 U/L; ALT, 1,657 U/L; PT, 22 seconds; and PTT, 21 seconds. Twenty-four hours later, at the time of transfer for possible liver transplant, the patient was still alert and oriented. Laboratory results at that time included: AST, 10,890 U/L; ALT, 8,162 U/L; PT, 40 seconds; and PTT, 54 seconds. Following psychiatric evaluation, she was removed from the

transplant list, developed jaundice and coma by the fourth hospital day, and died on the sixth hospital day.

Case 213. A 44-year-old woman presented to the ED with vomiting 8 hours after ingesting unknown amounts of **acetaminophen** and **ethanol**. Acetaminophen and ethanol concentrations were 180 µg/mL and 100 mg/dL, respectively. Administration of activated charcoal and oral *N*-acetylcysteine were complicated by vomiting. Ondansetron was administered, and the loading dose of *N*-acetylcysteine was retained within 12 hours of ingestion. Laboratory results, 36 hours after ingestion, included: AST, 962 U/L; ALT, 1,258 U/L; and PT, 34.8 seconds. Three days after ingestion, AST was 8,527 U/L, ALT was 9,029 U/L, and ammonia was 73 µg/dL. The following day, encephalopathy was severe, requiring endotracheal intubation; ammonia had increased to 160 µg/dL, and PT to 50 seconds. She was considered for liver transplant but, despite intensive supportive care for liver failure, continued to deteriorate. She developed adult respiratory distress syndrome (ARDS) and died 25 days after ingestion.

Case 216. A 52-year-old woman with uterine cancer who was a chronic alcoholic was referred to the ED from a detoxification center because of increasing lethargy over 3 days. She had been receiving **chlordiazepoxide** and had apparently been taking unknown amounts of **acetaminophen** for an unknown duration. She was initially confused and obtunded but soon was unresponsive. Laboratory results included: arterial pH, 6.96; PCO₂, 18 mm Hg; bicarbonate, 4 mEq/L; AST, 18,000 U/L; LDH, 17,000 U/L; total bilirubin, 2.8 mg/dL; albumin, 3.1 mg/dL; creatine phosphokinase, 500 U/L; osmolal gap, 23 mOsm/L; PT, 50 seconds; and PTT, 47 seconds. Toxicologic analysis included: acetaminophen, 162 µg/mL; **ethanol**, 95 mg/dL; and salicylate, 6.6 mg/dL; benzodiazepines were not detected. ECG and CT of the head were reportedly normal. Treatment included: activated charcoal, enteral *N*-acetylcysteine, endotracheal intubation and mechanical ventilation, fresh frozen plasma (FFP), and dopamine. Results of serial acetaminophen assays at 1, 11, and 48 hours after presentation were 166, 133, and 76 µg/mL, respectively. Anemia and anuric renal failure developed by hospital day 2. She received 17 doses of *N*-acetylcysteine, but never regained consciousness and died.

Case 264. A 36-year-old woman presented with a history of ingestion of unknown amounts of the following over a 3-day period: cimetidine, nizatidine, sertraline, alprazolam, diphenhydramine, and dimenhydrinate. In the ED, she had slurred speech but was alert. Vital signs included: blood pressure, 129/81 mm Hg; pulse, 138 beats/min; and temperature, 40°C. Initial laboratory results included: arterial pH, 7.4; PCO₂, 19 mm Hg; PO₂, 74 mm Hg; potassium, 3.3 mEq/L; anion gap, 22 mEq/L; AST, 66 U/L; and LDH, 702 U/L. Toxicologic screening detected salicylates, acetone, benzodiazepines, and phenylpropranolamine. Blood **salicylate** concentration was 152 mg/dL. Chest X-ray revealed an infiltrate. Treatment consisted of gastric lavage, activated charcoal administration, endotracheal intubation and mechanical ventilation, intravenous fluids with potassium, and acetaminophen. Fatal cardiac arrest occurred 4.5 hours after presentation, after notification of a nephrologist but before initiation of hemodialysis.

Case 272. A 48-year-old woman presented to the ED complaining of abdominal pain and tinnitus, 4 hours after ingestion of 150 **aspirin** tablets. She had vomited several times, but was awake, alert, and oriented. Respirations were 16 to 20 breaths/min, and other vital signs were reportedly normal. Initial laboratory results included: arterial pH, 7.51; PCO₂, 29 mm Hg; PO₂, 132 mm Hg; bicarbonate, 27 mEq/L; potassium, 2.8 mEq/L; and salicylate concentration, 85 mg/dL. She was transferred to another hospital after gastric lavage, administration of activated charcoal, intravenous fluids with potassium, and sodium bicarbonate. Eleven hours after ingestion, laboratory results included: arterial pH, 7.5; PCO₂, 23 mm Hg; PO₂, 87 mm Hg; and salicylate concentration, 95

mg/dL. A third salicylate concentration, 15 hours after ingestion, was 122 mg/dL. Cardiopulmonary arrest occurred while hemodialysis was being arranged, and the patient died 17 hours after ingestion.

Case 273. A 49-year-old woman with a history of chronic obstructive pulmonary disease (COPD) and depression presented to the ED 1 to 2 hours after ingesting 200 325-mg aspirin tablets. She was initially alert and oriented. Laboratory results included: arterial pH, 7.40; PCO₂, 34 mm Hg; bicarbonate 21 mEq/L; white blood cell count (WBC), 68,300/µL; and glucose, 98 mg/dL. Two hours after ingestion, salicylate concentration was 63.5 mg/dL. After gastric lavage was unsuccessful, she was given ipecac syrup with resultant emesis (no definite pill fragments) which was persistent, preventing retention of activated charcoal. A continuous infusion of sodium bicarbonate was started and multiple dose activated charcoal was initiated after metoclopramide, 25 mg intravenously, which controlled vomiting. Six hours after ingestion, salicylate concentration was 101.3 mg/dL. Twelve hours after ingestion, a generalized seizure was noted. Despite endotracheal intubation and supportive care, ventricular fibrillation quickly followed and resuscitation was unsuccessful. Salicylate concentration at the time of death was 132.2 mg/dL.

Case 295. A 50-year-old man presented to the ED complaining of nausea, vomiting, shortness of breath, and anxiety, 10 hours after a reported ingestion of 56 **lithium** and 28 **risperidone**. Vital signs were: blood pressure, 110/56 mm Hg; heart rate, 86 beats/min; respirations, 24 to 28 breaths/min; and normal temperature. There was no tremor or hyperreflexia noted. Treatment included activated charcoal and cathartic, and intravenous hydration. Thirteen hours after ingestion, vital signs were reportedly normal, diaphoresis was noted, and initial lithium concentration was 1.6 mEq/L. Although not reported to the poison center involved, other laboratory results included: arterial pH, 7.47; PCO₂, 18 mm Hg; and **salicylate**, 110 mg/dL. After exhibiting increasing confusion and disorientation, the patient required endotracheal intubation 13.5 hours after ingestion due to gasping respirations. Asystole occurred 17 hours after ingestion and resuscitation was unsuccessful. Salicylate concentration at the time of death was 133.5 mg/dL.

Case 301. A 50-year-old man presented to the ED complaining of nausea, vomiting, diarrhea, and lethargy, reportedly 5 hours after ingesting 12 0.6-mg **colchicine** tablets. Vital signs were: blood pressure, 150/57 mm Hg; heart rate, 86 beats/min; respirations, 18 breaths/min; and temperature, 36.2°C. Laboratory results included: arterial pH, 7.23; PCO₂, 36 mm Hg; PO₂, 98 mm Hg; potassium, 3.2 mEq/L; bicarbonate, 10 mEq/L; anion gap, 24 mEq/L; glucose, 73 mg/dL; BUN, 56 mg/dL; and creatinine, 4.3 mg/dL. Initial treatment included activated charcoal and intravenous rehydration. Approximately 14 hours after admission, respiratory arrest prompted endotracheal intubation. During the subsequent 12 hours, renal failure and persistent lactic acidosis were evident, and several asystolic cardiac arrests occurred. Asystole, unresponsive to resuscitation, occurred 28 hours after admission.

Case 304. A 35-year-old man, not seen for 3 days, was found unresponsive. He had apparently applied 16 **fantanyl** transdermal patches to his skin and there were empty containers of **diazepam**, lorazepam, and controlled-release **morphine** nearby. In the ED he remained unresponsive, with a blood pressure of 140/80 mm Hg and a pulse of 140 beats/min, without change following gastric lavage, activated charcoal, cathartic, naloxone, and flumazenil. Rhabdomyolysis and renal failure necessitated hemodialysis. There was no improvement in mental status and the patient died on the third hospital day.

Case 341. A 16-month-old boy presented to the ED after ingestion of an unknown amount of a combination **potassium salicylate, caffeine, and salicylamide** formulation. Vomiting started 1 hour after ingestion, and on arrival to the ED, lethargy and

diarrhea with a bluish hue were noted. Vital signs included: blood pressure, 105/65 mm Hg; pulse, 100 beats/min; and tympanic temperature, 35.7°C. Laboratory results included: WBC, 16,000/ μ L; platelets, 841,000/ μ L; glucose, 191 mg/dL; and BUN, 15 mg/dL. Over several hours, vomiting recurred, apparent hallucinations were noted, and pulse and blood pressure increased to 220 beats/min and 130/80 mm Hg, respectively. Treatment included promethazine, diphenhydramine, and benztropine, and the patient was transferred to a pediatric ICU. As continued deterioration was noted, endotracheal intubation, hemodialysis, and heart rate control with digoxin were added. EEG initially showed significant slowing; on day 4 bradycardia with hypertension was noted, and brain herniation was suggested by CT of the head on day 7. He died 7 days after exposure.

Case 351. A 2-month-old girl, in the ICU after heart surgery, required sedation for reintubation. Because of a medication error, ten times the intended dose of **ketamine** was administered. A seizure occurred, followed by cardiopulmonary arrest, unsuccessful resuscitation efforts, and pronouncement of death 1 hour after exposure.

Case 352. A 19-year-old woman received as much as 1.6 g of topical **lidocaine** during a volunteer study involving bronchoscopy. After the procedure, she was apparently somewhat dizzy but was otherwise well and went home; 2 hours later she was noted to have seizure activity followed by apnea. On arrival to the ED, cardiopulmonary arrest was evident. Hemodynamic resuscitation was successful, but there was no evidence of neurologic function and life support was withdrawn 36 hours after admission. At the time of ED presentation, 3 hours after the exposure, pH was 6.75, and lidocaine concentration was 15.6 μ g/mL. Five hours after exposure, lidocaine concentration was 9.3 μ g/mL.

Case 354. A 27-year-old man presented to the ED actively seizing after instilling 480 mL of 10% **lidocaine** rectally and possibly ingesting **diphenhydramine**. Despite treatment with activated charcoal, diazepam, phenobarbital, and phenytoin, seizures were never fully controlled and the patient died 9 hours after presentation.

Case 420. A 25-year-old man presented to the ED 1 hour after ingesting 27 50-mg **desipramine**. He was alert and QRS duration was 0.06 seconds. Gastric lavage was performed and activated charcoal was administered. Within 1 hour of presentation QRS widening was noted, followed by a generalized seizure and subsequent asystole. Resuscitation was unsuccessful.

Case 421. A 26-year-old woman presented 4 hours after ingestion of an unknown amount of **desipramine**, complaining of dry mouth. Pulse was 110 beats/min and no conduction defects were appreciated by cardiac monitoring. One hour later, ventricular tachycardia developed, which was treated with lidocaine. Ventricular fibrillation followed, treated with defibrillation and sodium bicarbonate by bolus and continued infusion. Endotracheal intubation and gastric lavage were also done. Six hours after ingestion, seizures and hypotension were noted, treated with phenytoin and norepinephrine, respectively. The patient remained unstable with persistent seizures and hypotension, followed by fatal cardiac arrest 16 hours after ingestion.

Case 448. A 39-year-old woman presented to the ED 2 hours after an intentional overdose of lithium. Intravenous saline hydration and observation were initiated, and lithium concentration reportedly 10 hours after ingestion was 4.0 mEq/L. Mental status slowly worsened, lithium concentration 24 hours after ingestion was 3.4 mEq/L, and hemodialysis was initiated 36 hours after ingestion. Twelve hours after dialysis, lithium concentration was 4 mEq/L; whole bowel irrigation was initiated. Increasing agitation, confusion, and incoordination were then noted, as well as abdominal distention and appearance of dark urine. Lithium concentration 48 hours after ingestion was 5.0 mEq/L and hemodi-

alysis was repeated, but at its conclusion bradycardia and asystole occurred and resuscitation was unsuccessful.

Case 449. A 43-year-old man presented to the ED with lethargy and vomiting, approximately 1 hour after intentional ingestion of 90 300-mg **lithium**. Vital signs included: blood pressure, 120/70 mm Hg; and pulse, 102 beats/min. After gastric lavage and administration of activated charcoal, the patient was admitted to the ICU, at which time lethargy, slurred speech, and excessive thirst were noted. Laboratory results included: normal electrolyte and creatinine levels; WBC, 16,700/ μ L; and lithium concentration, 5.6 mEq/L. Hemodialysis was initiated; predialysis and postdialysis lithium concentrations were 7 and 2 mEq/L, respectively. Near the end of dialysis, endotracheal intubation was needed, and dopamine was initiated for hypotension. Several hours later, cardiac rhythm changed from sinus tachycardia (120 beats/min) to a junctional rhythm (60 beats/min). Heart rate decreased progressively, leading to cardiac arrest. Resuscitation was unsuccessful; the patient died approximately 24 hours after ingestion.

Case 467. A 34-year-old man with a past history of psychiatric illness, suicide attempts, and neuroleptic malignant syndrome ingested unknown amounts of **paroxetine**, **diphenhydramine**, **loxapine**, and benztropine. In the ED, an unknown period of time after ingestion, he was agitated but following commands. Vital signs were: blood pressure, 220/98 mm Hg; pulse, 110 beats/min; respirations, 24 breaths/min; and temperature, 36.7°C. Treatment included gastric lavage, activated charcoal, cathartic, and, following increased agitation, sedation with intravenous haloperidol, benztropine, and lorazepam. Tachypnea and tachycardia persisted, and opisthotonos and rigidity (legs more than arms) developed, followed by respiratory embarrassment due to chest wall rigidity. He remained afebrile throughout. During endotracheal intubation, pulseless electrical activity developed followed by asystole and ventricular fibrillation. The patient died 5.5 hours after admission. Autopsy noted cardiac enlargement, severe coronary artery disease, prior myocardial infarction, and fatty liver. Postmortem blood toxicologic analysis included: diphenhydramine, 0.89 μ g/mL; loxapine, 41 ng/mL; and benztropine, 0.059 μ g/mL.

Case 470. A 51-year-old woman presented to the ED 2 hours after ingestion of unknown amounts of **phenelzine**, **clomipramine**, **loxapine**, and glipizide. Blood pressure was 149/94 mm Hg; pulse, 130 beats/min; hyperventilation was noted; and she was afebrile. She was agitated, diaphoretic, and hallucinating. Blood glucose was 181 mg/dL; bicarbonate, 22 mEq/L; QRS duration, 0.08 sec; and QT_c, 0.447 sec. Serum tricyclic antidepressant concentration was 432 ng/mL; salicylates and acetaminophen were below the levels of detection. Treatment included activated charcoal, intravenous fluids, and sodium bicarbonate for acidosis and rhabdomyolysis, and lorazepam and phenobarbital for agitation. There was no hypoglycemia. Creatine phosphokinase was only 672 U/L 18 hours after admission, but increasing "movement disorder" was then noted and treated with benztropine. On hospital day 3 endotracheal intubation was needed because of respiratory arrest; agitation, rigidity, and fever developed over the following 4 days. Treatment included cooling blanket, acetaminophen, phenobarbital, hydrocortisone, and ceftriaxone. Dantrolene, bromocriptine, neuromuscular blockade, and amantadine were considered, but it is not known if they were administered. The patient died on hospital day 8.

Case 472. A 66-year-old woman, with a history of hypertension, diabetes, ischemic heart disease, and depression, collapsed and vomited one half hour after admitting to ingestion of an entire bottle of **trazodone**. Emergency medical personnel (basic life support only) noted cardiopulmonary arrest, initiated CPR, and transported the patient to the ED, arriving 45 minutes after collapse. Cardiac rhythm was a wide-complex tachycardia with progressively increasing QRS (0.164 to 0.188 sec) and QT (0.595 to 0.608 sec) intervals. Initial treatment included endotracheal

intubation, activated charcoal, calcium chloride, and one ampule of sodium bicarbonate. Recurrent episodes of torsades de pointes and ventricular tachycardia began 6 hours later. Magnesium and lidocaine seemed effective initially, but recurrent torsades prompted use of bretylium, after which further QRS widening and bradycardia occurred. Bretylium and lidocaine were then discontinued and subsequent episodes of wide complex tachycardia and ventricular fibrillation appeared to resolve transiently after additional sodium bicarbonate therapy. Hypotension (blood pressure, 32 mm Hg by palpation) unrelated to rhythm disturbances then developed. After volume challenge and 10 µg/kg/min dopamine, clinical data included: blood pressure, 112/60 mm Hg; heart rate, 106 beats/min; QRS, 0.142 sec; QT_c, 0.427 sec; arterial pH, 7.37; and PCO₂, 37 mm Hg. Several episodes of torsades occurred 16 hours after admission; arterial pH at that time was 7.62 and PCO₂, 17 mm Hg. The remainder of her course was complicated by recurrent ventricular tachydysrhythmias and hypotension, and she died 30 hours after admission.

Case 492. Paramedics were called to the scene of a 16-year-old girl with seizures following ingestion of an unknown number of 300-mg **isoniazid**. She was actively seizing; vital signs were: blood pressure, 130/68 mm Hg; heart rate, 130 beats/min; respirations, 8 breaths/min; and axillary temperature, 38.3°C. Seizures continued after treatment which included endotracheal intubation, 20 mg intravenous diazepam, and 44 mEq sodium bicarbonate. In the ED, arterial blood gas results included pH, 7.22; and PCO₂, 61 mm Hg. After an additional 10 mg of intravenous diazepam on arrival, 5 g of pyridoxine was given by nasogastric tube (no pyridoxine for parenteral use could be obtained). Seizures then resolved, but coma and subsequent recurrent seizures failed to respond to intravenous pyridoxine, diazepam, and supportive care. Bradycardia and asystole developed 4 days after admission and resuscitation was unsuccessful.

Case 495. A 59-year-old woman with acute lymphocytic leukemia with meningeal involvement inadvertently received 2 mg of **vincristine** instead of ARA-C into her Ommaya reservoir. The error was recognized within 10 minutes and 50 mL of cerebrospinal fluid was aspirated, followed by an additional 75 mL one half hour later. The patient was asymptomatic. A solution of 25 mL of FFP in a liter of lactated Ringer's solution was then continuously infused (150 mL/h) into the reservoir and removed via lumbar drain for 24 hours. Glutamic acid (10 g intravenously over 24 hours, then 500 mg three times daily) was also administered. Transient nausea and vomiting occurred within 1 day. Coarse tremor, shivering, and chills were noted on day 2, disorientation on day 3, horizontal nystagmus on day 5, stupor and weakness on day 6, decreased responsiveness on day 9, and deep coma was noted on day 11. There was no return of neurologic function, and the patient died on day 40.

Case 507. A 41-year-old woman presented to the ED less than an hour after ingesting an unknown number of 200-mg **theophylline** tablets. She was alert and oriented; vital signs included: blood pressure, 106/46 mm Hg; pulse, 120 beats/min; and respirations, 20 breaths/min. Laboratory results included: potassium, 3.2 mEq/L; bicarbonate, 14 mEq/L; anion gap, 23 mEq/L; blood **ethanol**, 113 mg/dL; and theophylline, 72 µg/mL. Ipecac syrup was administered, with return of five tablets in the emesis, and subsequent activated charcoal doses were vomited despite intravenous antiemetic therapy. A second theophylline concentration, 3 hours after the first, was 155 µg/mL. En route to another hospital for hemoperfusion, protracted seizures began. Tachycardia, acidosis, renal dysfunction, hypotension, and respiratory failure developed despite hemoperfusion, which decreased the theophylline concentration to 43 µg/mL. Hemodialysis was initiated after the theophylline concentration increased to 69 µg/mL and seizures and renal failure worsened. Subsequently, the theophylline concentration

declined; however, multiorgan failure progressed and the patient died 74 hours after ingestion.

Case 511. A 52-year-old man presented to the ED complaining of vomiting, abdominal cramps, and diaphoresis after ingestion of a topical aphrodisiac referred to as "Chinese Stone." Vomiting was relieved by antiemetics, and after approximately 2 hours of monitoring, he removed his intravenous access and cardiac monitor leads. As he got up to leave, he collapsed and was found to be in ventricular fibrillation. Resuscitation, including 10 vials of digoxin-specific Fab fragments, was unsuccessful. Digoxin concentration by Ciba-Corning ACS assay was negative, and by Cedia assay was 1.7 ng/mL. Postmortem blood and vitreous humor postultrafiltration digoxin concentrations by Cedia assay were 0.1 and 0.4 ng/mL, respectively. On the basis of history and digoxin assays, toxicity was attributed to an aphrodisiac containing **cardiac glycoside** derived from *Bufo* extract.

Case 521. An 87-year-old woman presented with weakness and syncope associated with episodes of tachycardia and bradycardia. Pulse rate varied from 50 to 160 beats/min and serum **digoxin** concentration was found to be 14 ng/mL. Three vials of digoxin-specific Fab fragments were available and were administered 11 hours after admission; however, the patient died 1 hour later. Postmortem free digoxin concentration was 7.54 ng/mL.

Case 543. A 22-year-old man presented to the ED 6 hours after ingestion of 90 90-mg **sustained-release diltiazem** and unknown amounts of **trazodone**, carbamazepine, and ethanol. Spontaneous emesis occurred prior to presentation. In the ED, treatment included gastric lavage, activated charcoal, and cathartic followed by whole bowel irrigation. Between 6 and 12 hours after ingestion, hypotension, heart block, and bradycardia necessitated transvenous pacemaker, dopamine, calcium, and glucagon with initial improvement in blood pressure. During the subsequent 24 hours, decreasing urine output, pulmonary edema, and refractory acidosis developed, followed by fatal cardiac arrest. Results of toxicologic blood analysis included: tricyclic antidepressant, 31 ng/mL; carbamazepine, 3.9 µg/mL; salicylate and acetaminophen were below levels of detection. Ionized calcium was noted to be 2.97 mmol/L at an uncertain time.

Case 546. A 61-year-old woman presented to the ED in cardiac arrest after ventricular tachycardia and fibrillation following intentional ingestion of up to 60 mL of 2% **minoxidil**. Resuscitation was unsuccessful.

Case 547. A 2-year-old boy may have ingested as many as 20 60-mg extended-release **nifedipine**. A family member administered one half of a laxative tablet, but emergency medical personnel were first contacted 3 hours later, after vomiting and obvious worsening were noted. He was severely ill on arrival to the ED, rapidly deteriorated, and died before planned transfer to a pediatric hospital.

Case 549. A 44-year-old woman presented to the ED 2 hours after ingestion of 21 60-mg **nifedipine** and an unknown quantity of **ethanol**. She was alert, blood pressure was 200/90 mm Hg, and treatment included gastric lavage and administration of activated charcoal. Eight hours after ingestion, bradycardia and hypotension developed. Atropine increased heart rate, but did not improve blood pressure. Calcium chloride and dopamine were initiated; blood pressure and heart rate increased to 130/70 mm Hg and 90 beats/min, respectively. Eighteen hours after ingestion, bradycardia and cardiac arrest developed; resuscitation was unsuccessful. It was discovered that she had inadvertently received 11 g of calcium chloride.

Case 555. A 12-year-old girl presented to the ED complaining of malaise after ingesting unknown amount of her father's **propafenone**. Within 40 minutes of presentation, cardiopulmonary arrest occurred. After initial resuscitation, hypotension (systolic blood pressure, 60 mm Hg), bradycardia (heart rate, 60 beats/min), and

wide ECG complex were treated with dopamine, dobutamine, epinephrine, norepinephrine, and external pacemaker. Further resuscitation was unsuccessful and the patient died two and one half hours after presentation.

Case 565. A 44-year-old man with hypertension and non-insulin dependent diabetes mellitus, discharged against medical advice after treatment for an overdose of clonidine and diphenhydramine, was then taken into custody following an outburst in the hospital pharmacy. He was then noted to ingest the contents of one of his prescription containers; 56 240-mg sustained-release verapamil were missing. At a second hospital, 3.5 hours after ingestion, he denied overdose but complained of headache and dizziness. Vital signs included: blood pressure, 158/77 mm Hg; and pulse, 50 to 60 beats/min. Cardiac rhythm was interpreted as junctional. Charcoal and cathartic were given, but whole bowel irrigation was refused. Within 15 hours of ingestion, a decreased level of consciousness, bradycardia, and hypotension were noted. Treatment with calcium, glucagon, epinephrine, atropine, theophylline, and transvenous pacemaker were unsuccessful. Asystole developed and the patient died 24 hours after ingestion. Results of postmortem toxicologic blood analysis included: verapamil, 4.9 µg/mL; norverapamil, 2.9 µg/mL; and inconsequential concentrations of desipramine, imipramine, diphenhydramine, fluoxetine, norfluoxetine, and morphine.

Case 575. A 51-year-old woman presented to the ED 10.5 hours after ingesting 36 120-mg sustained-release verapamil in a suicide attempt. Third-degree atrioventricular block was noted, pulse was 36 beats/min, and blood pressure, initially 90/52 mm Hg, soon decreased to 69/36 mm Hg. ED treatment included intravenous fluids, atropine, calcium chloride, and dopamine followed by epinephrine infusion, transvenous pacemaker, and endotracheal intubation because of decreasing mental status and persistent metabolic acidosis. Whole bowel irrigation and activated charcoal were started 14.5 hours after ingestion, and additional calcium was administered. Twenty-one hours after ingestion, blood pressure was 90/60 mm Hg and pulse was 60 beats/min (paced rhythm). Ten grams of calcium chloride were then administered over less than 2 hours; other treatment during the next 12 hours included: glucagon, 20 mg; potassium chloride, 180 mEq; furosemide, 120 mg; and insulin, 4 units/hour. Hemodynamic improvement was noted by 24 hours postingestion, and 36 hours after ingestion, vital signs included: blood pressure, 130/75 mm Hg; and pulse, 60 beats/min while receiving dopamine (7 µg/kg/min) and epinephrine (10 µg/min). Decreasing blood pressure, followed by fatal cardiac arrest, occurred 41 hours after ingestion. Results of verapamil and norverapamil assays, 21.5 hours after ingestion, were 1,420 ng/mL and 683 ng/mL, respectively. Serial electrolyte values are summarized as follows: 12 hours after ingestion, K⁺ 3.7 mEq/L, Ca⁺² 9.4 mg/dL; 15.5 hours after ingestion, K⁺ 2.9 mEq/L, Ca⁺² 10.8 mg/dL; 21.5 hours after ingestion, K⁺ 1.75 mEq/L, Ca⁺² 14.2 mg/dL; 26 hours after ingestion, K⁺ 2.06 mEq/L, Ca⁺² 32.9 mg/dL; 32 hours after ingestion, K⁺ 5.94 mEq/dL, Ca⁺² 28.7 mg/dL.

Case 589. A 38-year-old woman was found unresponsive after ingesting 17 benzonatate perles. She then vomited and seizures began. She was transported by car with CPR in progress, and arrived at the ED asystolic, 30 minutes after first being found. In addition to endotracheal intubation and standard resuscitation, treatment also included: benzodiazepines for fasciculations; 176 mEq sodium bicarbonate for initial arterial pH, 6.77 and bicarbonate, 4.8 mEq/L; 50 g mannitol; and activated charcoal. Subsequently, she was hemodynamically stable with no cardiac conduction abnormalities and had no further seizures, but remained comatose with dilated, nonreactive pupils. Metabolic acidosis persisted but improved; arterial pH increased from 7.21 to 7.25, and bicarbonate from 11 to 14 mEq/L over 12 hours. N-acetylcysteine was administered after acetaminophen concentration was found to be

94 µg/mL, decreasing to 36 µg/mL 4 hours later. Documented enzyme elevations included LDH, 1,246 U/L; and amylase, 1,218 U/L. Bleeding from nares and needle stick sites was noted; INR was 1.3 and PTT was 43 seconds. Multisystem deterioration continued and the patient died 33 hours after ingestion.

Case 604. An 80-year-old woman presented to the ED with paranoid ideation, dyskinesia, and atrial fibrillation and flutter. For several weeks prior to presentation, she had been taking combined 25 mg carbidopa and 250 mg levodopa, one tablet every 3 to 4 hours and extra doses as needed. Her last dose was 12 hours prior to presentation, and she had attempted to mechanically induce emesis. Management of apparent dehydration, orthostatic hypotension, and oliguria was complicated by congestive heart failure after fluid resuscitation. Bradycardia to 40 beats/min was treated with endotracheal intubation and pacemaker insertion; however, discussion with family resulted in withdrawal of support and the patient died.

Case 605. After drinking ethanol, a 22-year-old man who was PPD-positive and an alcoholic ingested a handful of pills from among his prescribed medications, which included disulfiram, isoniazid, and pyridoxine. He experienced nausea and vomiting, and then collapsed. Emergency medical personnel noted cardiopulmonary arrest. Endotracheal intubation, atropine, and epinephrine were ineffective. In the ED, perfusion was restored after a lengthy resuscitation, including 30 mg of epinephrine. On arrival, arterial pH was 6.44. Large doses of sodium bicarbonate were administered. Blood pressure while receiving dopamine was 100/40 mm Hg and heart rate was 104 beats/min. He remained unresponsive to painful stimuli, without corneal or gag reflexes. Blood ethanol concentration was 38 mg/dL, urine toxicology screen for drugs of abuse was negative, and it was noted that all isoniazid tablets were accounted for. In the ICU, there were several episodes of pulseless ventricular tachycardia and ventricular fibrillation requiring cardioversion and defibrillation. Right-heart catheterization showed very low systemic vascular resistance, normal to high wedge pressures, and high cardiac output. After subsequent cardiac arrest, maximal norepinephrine and dopamine were required and the patient died on the day of admission.

Case 607. A 39-year-old man lost consciousness at a bar after consuming ethanol and gamma hydroxybutyrate. Friends took him home and shortly thereafter noted apnea. He was declared dead prior to ED transport. Autopsy noted pulmonary aspiration of gastric contents. Postmortem blood toxicologic analysis included ethanol, 190 mg/dL; and gamma hydroxybutyrate, 97 µg/mL.

Case 608. An herbal product, "Native Legend Tea," intended for oral use, was administered intravenously to a 54-year-old woman with leukemia. Reportedly, ingredients include: silybum, *Mariatum trifolium*, *Nasturtium officinale*, kelp, "Turkish Rhubarb" root, *Ulmus fulva*, "Sheep's Sorrel," and *Aretium lappa*. Although intended as an herbal tea, she had reportedly received intramuscular injections without adverse effects. After intravenous injection, there was immediate cyanosis, cold sensation, agitation, weakness, and diarrhea. She initially went home, but presented to the hospital after further vomiting and fever. She required endotracheal intubation and mechanical ventilation, developed respiratory, renal, and hepatic failure, and died 12 days after exposure.

Case 613. A 3-year-old girl, en route to the dentist, was given hydroxyzine and chloral hydrate premedication without careful measurement. After the dentist administered nitrous oxide, cardiopulmonary arrest occurred. The patient died after transport to the ED and unsuccessful resuscitative efforts.

Case 638. An approximately 30-year-old man arrived comatose to the ED after ingestion of three large packages of a nonprescription stimulant formulated with either 20 mg caffeine or 25 mg ephedrine. Hypertension and tachycardia were noted. An initial CT of the head was reportedly normal; however, a second CT, 24 hours later, after development of anisocoria and persistent

hypotension, showed a massive intracranial hemorrhage. Brain death was determined on hospital day 4 and the patient died after discontinuation of pressors and mechanical ventilation.

Case 641. A 20-year-old man ingested an unknown amount of cocaine while being chased by police, then was brought to the ED after having a seizure. He was initially postictal and unresponsive but regained consciousness briefly. Vital signs included: heart rate, 140 to 160 beats/min; and temperature (time uncertain), 38.4°C. Initial laboratory results included: arterial pH, 6.88; PCO₂, 55 mm Hg; PO₂, 231 mm Hg; bicarbonate, 8 mEq/L; and anion gap, 37 mEq/L. Initial treatment included labetalol, lorazepam, and sodium bicarbonate. A second seizure occurred, followed by ventricular fibrillation. Resuscitation with lidocaine, sodium bicarbonate, and defibrillation was unsuccessful, and the patient died 90 minutes after presentation.

Case 649. A 30-year-old woman presented to the ED screaming, confused, and very agitated after being subdued by police. She had been acting bizarre and wild, jumping in and on cars at an intersection and had jumped into a police car and attempted to grab a gunbelt. In the ED, physical restraints and several doses of benzodiazepines were required to control her. Vital signs included: pulse, 180 beats/min; respirations, 50 breaths/min; and temperature, 42°C. Other initial treatment included: elective intubation, cooling with ice, naloxone, dextrose, thiamine, and folate. Laboratory results included: potassium, 6.3 mEq/L; bicarbonate, 17 mEq/L; anion gap, 22 mEq/L; creatinine, 2.3 mg/dL; creatine phosphokinase, 3,036 U/L; AST, 112 U/L; ALT, 50 U/L; PT, 28.6 seconds; PTT, >100 seconds; and fibrinogen, <50 mg/dL. CT of the head was negative. In the ICU, treatment included norepinephrine and dopamine for hypotension, blood products for disseminated intravascular coagulation, and hydration for rhabdomyolysis. Pulseless ventricular tachycardia occurred 36 hours after admission, and resuscitation was unsuccessful. Results of antemortem blood toxicology analysis included: cocaine, 0.024 µg/mL; benzoyllecgonine, 5.2 µg/mL; and ecgonine methyl ester, 0.29 µg/mL.

Case 652. A 33-year-old man presented to the ED after smoking crack cocaine. Vital signs were: blood pressure, 80/40 mm Hg; heart rate, 170 beats/min; respirations, 30 breaths/min; and rectal temperature, 106°F. After endotracheal intubation and attach-

ment of cardiac monitoring leads, he was placed into an ice bath until his temperature reached 102°F. Initial laboratory results included: arterial pH, 6.91; PCO₂, 48 mm Hg; PO₂, 78 mm Hg; sodium, 150 mEq/L; potassium, 6.3 mEq/L; bicarbonate, 10.1 mEq/L; anion gap, 36 mEq/L; glucose, 73 mg/dL; and creatine phosphokinase, 952 U/L. Persistent, refractory hypotension followed and fatal cardiac arrest occurred 16 hours after presentation. Ten hours after admission, creatine phosphokinase had increased to 62,700 U/L and creatinine to 6.0 mg/dL. Autopsy noted massive anterior and lateral myocardial infarction, and cocaine and metabolites were detected in blood, urine, liver, and kidney.

Case 694. A 23-year-old woman presented to the ED after ingestion of 60 fenfluramine and 30 phentermine. On arrival, she was awake, tremulous, and diaphoretic, and mydriasis was evident. Vital signs included: systolic blood pressure, 130 mm Hg; and pulse, 175 beats/min. She soon became unresponsive. Lorazepam (4 mg) was administered, but she was noted to become rigid, and wide-complex tachycardia developed. Treatment included endotracheal intubation, lidocaine, and additional lorazepam. Blood pressure decreased precipitously and resuscitation was unsuccessful.

Case 724. A 70-year-old woman presented to the ED complaining of mild abdominal pain 1 hour after intentional ingestion (for knee pain) of Koon Yick Hung Far oil (67% methyl salicylate). The amount ingested was estimated as equivalent to 1.2 g/kg of salicylate. Vital signs were: blood pressure, 180 to 215/90 mm Hg; pulse, 140 beats/min; respirations, 40 to 50 breaths/min; and normal temperature. Laboratory results included: arterial pH, 7.30; PCO₂, 30 mm Hg; PO₂, 73 mm Hg; potassium, 5 mEq/L; bicarbonate, 15 mEq/L; anion gap, 27 mEq/L; glucose, 320 mg/dL; and salicylate, 108.6 mg/dL. Treatment included: activated charcoal, intravenous fluid and sodium bicarbonate, endotracheal intubation and mechanical ventilation, pressor support, and hemodialysis, which was initiated within several hours. Dialysis was repeated daily for 3 days. Liver dysfunction developed (AST, 4,190 U/L; ALT, 2,802 U/L; PT, 17.1 seconds; and PTT, 89 seconds), but salicylism and acid-base disturbances resolved. Tracheotomy was required on hospital day 8 because of stridor, but otherwise the patient had recovered by day 9. On day 12, a tracheal mucous plug resulted in hypoxic brain injury and subsequent death.

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