



1990 Annual Report of the American Association of Poison Control Centers National Data Collection System

TOBY L. LITOVITZ, MD, KATHLEEN M. BAILEY, MD,
BARBARA F. SCHMITZ, RN, CSPI, KAREN C. HOLM, MA,
WENDY KLEIN-SCHWARTZ, PHARM D

From the Data Collection Committee, American Association of Poison Control Centers.

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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; Los Angeles County Medical Association Regional Poison Control Center, Los Angeles, CA; University of California Davis Medical Center Regional Poison Control Center, Sacramento, CA; University of California Irvine Regional Poison Center, Orange, CA; San Diego Regional Poison Center, San Diego, CA; Santa Clara Valley Medical Center Regional Poison Center, San Jose, CA; Fresno Regional Poison Control Center, Fresno, CA; Rocky Mountain Poison and Drug Center, Denver, CO; National Capital Poison Center, Washington, DC; Florida Poison Information Center, Tampa, FL; Georgia Poison Control Center, Atlanta, GA; Idaho Poison Control 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; 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; Saginaw Region Poison Center, Saginaw, MI; University of Michigan Poison Information Center, Ann Arbor, MI; Minnesota Regional Poison Center, St Paul, MN; Hennepin Regional Poison Center, Minneapolis, MN; Cardinal Glennon Children's Hospital Regional Poison Center, St Louis, MO; The Poison Center, Omaha, NE; New Hampshire Poison Information Center, Hanover, NH; New Jersey Poison Information and Education System, Newark, NJ; New Mexico Poison and Drug Information Center, Albuquerque, NM; New York City Poison Control Center, New York, NY; Long Island Regional Poison Control Center, East Meadow, NY; Hudson Valley Poison Center, Nyack, NY; Finger Lakes Regional Poison Center, Rochester, NY; Western New York Regional Poison Control Center, Buffalo, NY; Triad Poison Center, Greensboro, NC; Central Ohio Poison Center, Columbus, OH; Cincinnati Drug and Poison Information Center, Cincinnati, OH; Akron Regional Poison Center, Akron, OH; Western Ohio Poison and Drug Information Center, Dayton, OH; Greater Cleveland Poison Control Center, Cleveland, OH; Mahoning Valley Poison Center, Youngstown, OH; Stark County Poison Control Center, Canton, OH; Oregon Poison Center, Portland, OR; Pittsburgh Poison

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TABLE 1. Growth of the AAPCC National Data Collection 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
Total:			8,811,333	

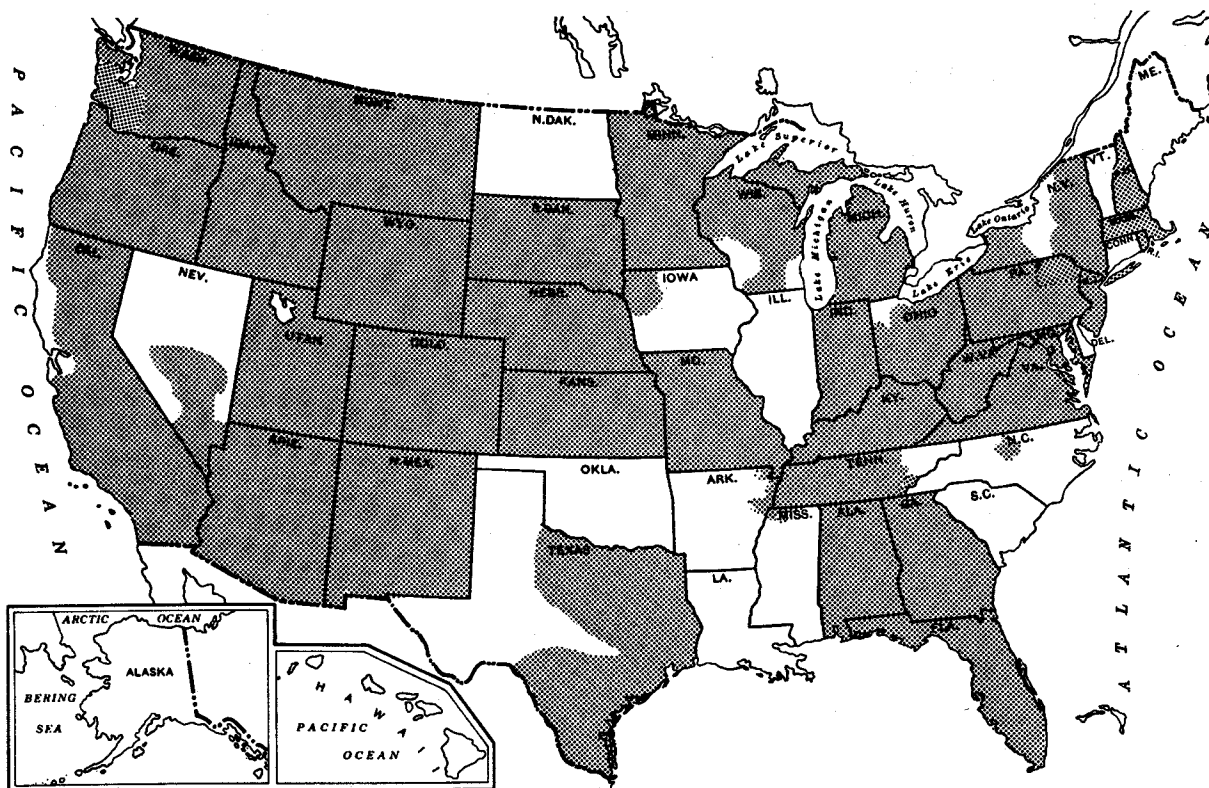


FIGURE 1. Seventy-two poison centers participated in the Data Collection System in 1990. The shaded areas denote regions served by reporting centers. (Map adapted from Hammond's Outline Map of the United States.)

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

	Site of Caller (%)	Site of Exposure (%)
Residence	81.1	91.9
Workplace	1.5	2.6
Health-Care Facility	15.1	0.6
School	0.7	0.9
Other	1.2	2.2
Unknown	0.4	1.7

The American Association of Poison Control Centers (AAPCC) National Data Collection System has demonstrated steady growth since its inception in 1983, with annual increases in the number of participating poison centers, population served by those centers, and reported human exposures (Table 1).¹⁻⁷ This report includes 1,713,462 human exposure cases reported by 72 participating poison centers during 1990, an increase of 8.3% over 1989 poisoning reports. The cumulative AAPCC data base now contains 8.8 million human poison exposure cases.

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

Age (yr)	Male		Female		Unknown		Total		Cumulative Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
<1	72,195	4.2	66,462	3.9	1,507	0.1	140,164	8.2	140,164	8.2
1	170,135	9.9	149,628	8.7	1,991	0.1	321,754	18.8	461,918	27.0
2	177,106	10.3	153,683	9.0	2,076	0.1	332,865	19.4	794,783	46.4
3	80,945	4.7	67,910	4.0	968	0.1	149,823	8.7	944,606	55.1
4	34,842	2.0	28,111	1.6	450	0.0	63,403	3.7	1,008,009	58.8
5	18,354	1.1	14,605	0.9	288	0.0	33,247	1.9	1,041,256	60.8
6-12	51,797	3.0	39,437	2.3	677	0.0	91,911	5.4	1,133,167	66.1
13-19	40,752	2.4	57,074	3.3	417	0.0	98,243	5.7	1,231,410	71.9
20-29	53,258	3.1	61,545	3.6	388	0.0	115,191	6.7	1,346,601	78.6
30-39	41,933	2.4	52,997	3.1	319	0.0	95,249	5.6	1,441,850	84.1
40-49	20,263	1.2	28,285	1.7	141	0.0	48,689	2.8	1,490,539	87.0
50-59	9,525	0.6	14,235	0.8	63	0.0	23,823	1.4	1,514,362	88.4
60-69	6,504	0.4	10,779	0.6	44	0.0	17,327	1.0	1,531,689	89.4
70-79	4,035	0.2	7,321	0.4	31	0.0	11,387	0.7	1,543,076	90.1
80-89	1,891	0.1	4,200	0.2	19	0.0	6,110	0.4	1,549,186	90.4
90-99	324	0.0	922	0.1	8	0.0	1,254	0.1	1,550,440	90.5
Unknown	66,050	3.9	88,727	5.2	8,245	0.5	163,022	9.5	1,713,462	100.0
Total	849,909	49.6	845,921	49.4	17,632	1.0	1,713,462	100.0	1,713,462	100.0

TABLE 4. Distribution of Age and Sex for 612 Fatalities

Age (yr)	Male	Female	Unknown	Total	%	Cumulative Total	Cumulative %
<1	2	5	1	8	1.3	8	1.3
1	6	4	0	10	1.6	18	2.9
2	2	3	0	5	0.8	23	3.8
3	1	0	0	1	0.2	24	3.9
4	0	0	0	0	0.0	24	3.9
5	1	0	0	1	0.2	25	4.1
6-12	1	1	0	2	0.3	27	4.4
13-19	28	19	0	47	7.7	74	12.1
20-29	64	41	0	105	17.2	179	29.3
30-39	83	61	1	145	23.7	324	52.9
40-49	50	39	0	89	14.5	413	67.5
50-59	19	28	0	47	7.7	460	75.2
60-69	21	31	0	52	8.5	512	83.7
70-79	16	20	0	36	5.9	548	89.5
80-89	17	18	0	35	5.7	583	95.3
90-99	3	3	0	6	1.0	589	96.2
100-109	0	1	0	1	0.2	590	96.4
Unknown adult	17	4	1	22	3.6	612	100.0
Total	331	278	3	612	100.0	612	100.0

CHARACTERIZATION OF PARTICIPATING CENTERS

Of the 72 reporting centers, 68 submitted data for the entire year. Thirty-five of the 72 centers were certified as regional poison centers by the AAPCC. Annual center call volumes (human exposure cases only) ranged from 606 to 71,515 (mean 23,798). Center penetrance ranged from 3.0 to 18.9/1,000 with a mean of 8.9 reported exposures per thousand population. Penetrance is defined as the number of human poison exposure cases reported to a center divided by the population served by that center. A total population of 191.7 million was served by the participating centers including portions of 39 states and the District of Columbia (Figure 1). Noting the 249.6 million 1990 United States population, the data presented represent an estimated 76.8% of the human poison exposures that precipitated poison center contacts in the US during 1990. Extrapolating from the 1,713,462 human poison exposures reported in this data base, more than 2.2 million human poison exposures are estimated to have been reported to all US poison centers in 1990. How-

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

No. of Substances	No. of Cases	% of Cases
1	1,601,106	93.4
2	84,308	4.9
3	16,962	1.0
4	4,949	0.3
5	1,917	0.1
6	772	0.0
7	378	0.0
8	171	0.0
9	99	0.0
≥10	256	0.0
Unknown	2,544	0.1
Total	1,713,462	100.0

ever, extrapolations from the number of reported poisonings to the number of actual poisonings occurring annually in the US cannot be made from these data alone, as considerable variations in poison-center penetrance were noted. Indeed, assuming all centers reached the penetrance level of 18.9 poisonings/1,000 population reported for one state, then 4.7

TABLE 6. Reason for Human Exposure Cases

Reason		No.	%
<i>Accidental</i>	General	1,384,576	80.8
	Misuse*	71,680	4.2
	Occupational	35,530	2.1
	Environmental	14,979	0.9
	Unknown	2,232	0.1
	Total	1,508,997	88.1
<i>Intentional</i>	Suicidal	116,400	6.8
	Misuse†	22,197	1.3
	Abuse‡	16,475	1.0
	Unknown	15,945	0.9
	Total	171,017	10.0
<i>Adverse Reaction</i>	Drug	15,434	0.9
	Food	6,827	0.4
	Other	2,818	0.2
	Total	25,079	14.6
<i>Unknown</i>		8,369	0.5
Total		1,713,462	100.0

* Improper use of a substance in which therapeutic or beneficial results were intended, eg, an overdose occurring because both parents gave the same medication to a child and neither was aware (at the time) of the other's action, or a case in which misreading the label of a product results in an unintended exposure.

† Intentional incorrect use of a substance in which psychotropic effect was not sought, eg, intentional excessive dosing to obtain a more rapid or superior pharmacological effect for presumed "therapeutic" purposes.

‡ Improper use of a substance in which the patient was seeking a psychotropic effect.

TABLE 7. Distribution of Reason for Exposure by Age

Reason	<6 Years		6-12 Years		13-17 Years		18-64 Years		>64 Years		Unknown		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Accidental	1,032,959	60.3	85,499	5.0	37,533	2.2	206,796	12.1	22,215	1.3	123,995	7.2	1,508,997	88.1
Intentional	2,010	0.1	5,423	0.3	36,963	2.2	98,439	5.7	2,779	0.2	25,403	1.5	171,017	10.0
Adverse Reaction	2,924	0.2	1,563	0.1	1,427	0.1	11,629	0.7	1,186	0.1	6,350	0.4	25,079	1.5
Unknown	1,274	0.1	535	0.0	829	0.0	3,076	0.2	382	0.0	2,273	0.1	8,369	0.5
Total	1,039,167	60.6	93,020	5.4	76,752	4.5	319,940	18.7	26,562	1.6	158,021	9.2	1,713,462	100.0

million poisonings would have been reported to poison centers in 1990. Because of the annual growth of this data collection system, with increasing center participation from year to year, the data do not directly identify a trend in the overall incidence of poisonings in the US. However, an analysis of data from 66 centers that participated for the entirety of 1989 and 1990 indicates a 3.2% increase in reported poison exposures from 1989 to 1990 within the regions served by these 66 centers. This increase may actually reflect greater public awareness of poison center services rather than an increase in poisonings.

REVIEW OF THE DATA

Of the 1,713,462 human exposures reported in 1990, 91.9% occurred in the home (Table 2). Two unlikely sites of poisonings, health-care facilities and schools, accounted for 10,104 (0.6%) and 15,751 (0.9%) poison exposures, respectively. Poison center peak call volumes were noted from 5 to 10 pm, although call frequency remained consistently high between 9 AM and 11 PM, with 85% of calls logged during this 14-hour period. The age and sex distribution of human poison exposure victims is outlined in Table 3. Children younger than 3 years of age were involved in 46.4% of cases; and 60.8% occurred in children younger than 6 years. A male predominance is found among poison exposure victims younger than 13 years, but the gender distribution is reversed in teenagers and adults. Table 4 gives the age and sex distribution for the 612 reported fatalities. Although responsible for the majority of poisoning reports, children younger

than 6 years comprised only 4% (25) of the fatalities. A slight male predominance is seen in both pediatric and adult fatalities, in contrast to the female preponderance observed in poisoning episodes in patients older than 13 years. A single substance was implicated in 93.4% of reports, and only 1.6% of patients were exposed to more than two possibly poisonous drugs or products (Table 5). Most cases of human exposure were acute (97.7%), as were most poison-related fatalities (88.4%). (Chronic exposures were arbitrarily defined as repeated exposures to the same toxic substance or a single exposure lasting longer than 8 hours.) The vast majority (88.1%) of poison exposures were accidental; suicidal intent was present in 6.8% of cases (Table 6). Of cases with suicidal intent, 56% occurred in patients who were 13 through 29 years old. Accidental poisonings outnumbered intentional poisonings in all age groups except 13 to 19 year olds, for whom they were nearly equal (Table 7). In contrast, of the 612 human poisoning fatalities reported, 78% of adult deaths (older than 17 years) were intentional (Table 8). Ingestions accounted for 76.7% of exposure routes (Table 9), followed in frequency by dermal, ophthalmic, inhalation, bites and stings, and parenteral exposures. For the 612 fatalities, ingestion followed by inhalation and parenteral were the predominant exposure routes. Table 10 displays the symptom assessment at the time of the initial call to the participating poison center. In addition to the 27.1% of patients with initial symptoms clearly related to the exposure, symptoms developed during the subsequent course in 16,781 initially asymptomatic patients. Thus, symptoms definitely related to the exposure eventually developed in at least 28.1% of patients.

TABLE 8. Distribution of Reason for Exposure and Age for 612 Fatalities

Reason		<6 Years	6-12 Years	13-17 Years	>17 Years	Total
<i>Accidental</i>	General	17	0	0	13	30
	Environmental	3	0	0	9	12
	Misuse	4	1	0	28	33
	Occupational	0	0	0	14	14
	Unknown	0	0	0	3	3
	Total	24	1	0	67	92
<i>Intentional</i>	Suicide	0	0	19	331	350
	Misuse	0	0	0	19	19
	Abuse	0	1	13	52	66
	Unknown	0	0	1	26	27
	Total	0	1	33	428	462
<i>Adverse Reaction</i>		1	0	0	9	10
<i>Unknown</i>		0	0	0	48	48
Total		25	2	33	552	612

TABLE 9. Distribution of Route of Exposure for Human Poison Exposure Cases and 612 Fatalities

Route	All Exposure Cases		Fatal Exposure Cases	
	No.	%	No.	%
Ingestion	1,380,293	76.7	513	77.3
Dermal	131,749	7.3	6	0.9
Ophthalmic	110,155	6.1	1	0.2
Inhalation	101,534	5.6	87	13.1
Bites and stings	59,353	3.3	1	0.2
Parenteral	4,497	0.3	42	6.3
Other	4,993	0.3	0	0.0
Unknown	6,375	0.4	14	2.1
Total	1,798,949	100.0	664	100.0

NOTE. Multiple routes of exposure were observed in many poison exposure victims. Percentage is based on the total number of exposure routes (1,798,949 for all patients, 664 for fatal cases) rather than the total number of human exposures (1,713,462) or fatalities (612).

TABLE 10. Symptom Assessment at Time of Initial Call to Poison Center

Symptom Assessment	No.	%
Asymptomatic	1,098,111	64.1
Symptomatic, related to exposure	465,173	27.1
Symptomatic, unrelated to exposure	28,967	1.7
Symptomatic, unknown if related	84,445	4.9
Unknown	36,766	2.1
Total	1,713,462	100.0

TABLE 11. Management Site of Human Poison Exposure Cases

Site	No.	%
Non-Health-Care Facility	1,236,669	72.2
Health-Care Facility		
Already there when poison center called	223,314	13.0
Referred by poison center	208,587	12.2
Other/Unknown	44,892	2.6
Total	1,713,462	100.0

TABLE 12. Medical Outcome of Human Poison Exposure Cases by Patient Age

Outcome	<6 Years		6-12 Years		13-17 Years		>17 Years		Unknown		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
No effect	403,861	23.6	22,437	1.3	15,244	0.9	64,110	3.7	3,253	0.2	508,905	29.7
Minor effect	137,458	8.0	27,113	1.6	28,306	1.7	187,429	10.9	3,950	0.2	384,256	22.4
Moderate effect	5,177	0.3	1,636	0.1	3,943	0.2	28,216	1.6	526	0.0	39,498	2.3
Major effect	521	0.0	106	0.0	414	0.0	4,055	0.2	75	0.0	5,171	0.3
Death	25	0.0	2	0.0	33	0.0	552	0.0	0	0.0	612	0.0
Unknown, nontoxic*	439,401	25.6	32,773	1.9	16,139	0.9	102,445	6.0	10,415	0.6	601,173	35.1
Unknown, potentially toxic†	35,927	2.1	6,056	0.4	10,634	0.6	72,601	4.2	3,703	0.2	128,921	7.5
Unrelated effect	14,856	0.9	2,731	0.2	1,844	0.1	21,533	1.3	345	0.0	41,309	2.4
Unknown	1,941	0.1	166	0.0	195	0.0	1,068	0.1	247	0.0	3,617	0.2
Total	1,039,167	60.6	93,020	5.4	76,752	4.5	482,009	28.1	22,514	1.3	1,713,462	100.0

* No follow-up provided because exposure was assessed as nontoxic.

† Patient lost to follow-up. Exposure was assessed as potentially toxic.

The majority of cases reported to poison centers were treated in a non-health-care facility (72.2%), usually at the site of exposure, the patient's own home (Table 11). Treatment in a health-care facility was rendered or recommended in 25.2% of cases, and of these, 52.0% involved treatment and release, 18.3% involved admission for medical care, and 3.3% involved admission for psychiatric treatment; 7.6% refused referral, and 18.8% were lost to follow-up. Table 12 displays the medical outcome of the poison-exposure victims distributed by age, emphasizing the more severe outcome observed in the older age groups. Table 13 compares medical outcome and reason for exposure, emphasizing the greater frequency of serious outcome in intentional exposures. Table 14 outlines the use of initial decontamination procedures, specific antidotes, and measures to enhance elimination in the treatment of patients reported in this data base. These must be interpreted as minimum frequencies because of the limitations of telephone data gathering. Ipecac syrup was administered in 6.1% of cases. In children, ipecac syrup was most often administered outside a health-care facility (Table 15). A summary of the 612 fatal exposures is presented in Table 16. As part of a standard quality assurance activity, 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. Confirmation of the cause of death by a postmortem report was obtained in 28.9% of cases. The highest blood level of implicated substances is provided where available to the reporting poison center. Cases with prehospital cardiac or respiratory arrests are indicated. Prehospital arrests occurred in 28.1% of all fatalities. Selected abstracts are provided in the appendix. Tables 17 and 18 provide comprehensive demographic data on patient age, reason for exposure, medical outcome, and use of a health-care facility for all 1,713,462 exposures, presented by category. Table 17 focuses on nonpharmaceuticals; Table 18 presents drugs. Of the 1,796,685 substances logged in Tables 17 and 18, 58.7% were nonpharmaceuticals and 41.3% were pharmaceuticals. The reason for the exposure was intentional for 24.7% of pharmaceutical substances implicated compared to only 3.7% of nonpharmaceutical substances. Correspondingly, treatment in a health-care facility

TABLE 13. Distribution of Medical Outcome by Reason for Exposure for Human Poison Exposure Victims

Outcome	Accidental		Intentional		Adverse Reaction		Unknown		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
No effect	475,490	27.8	31,457	1.8	1,070	0.1	888	0.1	508,905	29.7
Minor effect	311,153	18.2	59,511	3.5	11,126	0.6	2,466	0.1	384,256	22.4
Moderate effect	22,842	1.3	14,619	0.9	1,413	0.1	624	0.0	39,498	2.3
Major effect	1,363	0.1	3,564	0.2	86	0.0	158	0.0	5,171	0.3
Death	92	0.0	462	0.0	10	0.0	48	0.0	612	0.0
Unknown, nontoxic	575,757	33.6	18,867	1.1	5,267	0.3	1,282	0.1	601,173	35.1
Unknown, potentially toxic	84,200	4.9	39,481	2.3	3,182	0.2	2,058	0.1	128,921	7.5
Unrelated effect	35,063	2.0	2,640	0.2	2,899	0.2	707	0.0	41,309	2.4
Unknown	3,037	0.2	416	0.0	26	0.0	138	0.0	3,617	0.2
Total	1,508,997	88.1	171,017	10.0	25,079	1.5	8,369	0.5	1,713,462	100.0

was provided in a higher percentage of pharmaceutical substances (38.5%) compared with nonpharmaceutical substances (20.0%). Pharmaceutical exposures also had more severe outcomes. Of substances implicated in fatal cases, 70.4% were pharmaceuticals (compared with only 41.3% of nonfatal cases). Similarly, 75.5% of substances implicated in

major outcomes were pharmaceuticals. Table 19 displays substance category data for accidental exposures, allowing an assessment of the severity of this subset of exposure cases. A breakdown of plant exposures is provided for those most commonly implicated (Table 20). The reader is cautioned to interpret this as frequency of involvement of plants in calls to poison centers with no correlation to severity of toxicity. Indeed, several of the plants on this list pose little if any ingestion hazard. Table 21 presents the most common categories listed by frequency of exposure. Table 22 lists the substance categories with the largest number of reported deaths. Note the increased numbers of adult fatalities with arsenic, strychnine, methanol-containing gas-line antifreeze, paraquat, lithium, and nifedipine. Five children died following the accidental ingestion of iron supplements. Table 23 demonstrates a declining role of ipecac-induced emesis in the treatment of poisoning, and corresponding increase in the use of activated charcoal. A remarkable chronological constancy of selected demographic data elements is demonstrated in Table 24, despite the considerable overall growth of the data collection system. In closing, we gratefully acknowledge the extensive contribution of time, effort, and case reports by each of the participating poison centers. The quality of the data submitted reflects their meticulous data collection. Further, we applaud the emergency physicians, nurses, and others who gathered and transmitted comprehensive data to the poison centers for inclusion in this data base.

TABLE 14. Therapy Provided in Human Exposure Cases

Therapy	No.
Initial Decontamination	
Dilution	654,620
Irrigation/washing	332,964
Activated charcoal	114,324
Ipecac syrup	104,731
Cathartic	94,838
Gastric lavage	49,510
Other emetic	4,101
Measures to Enhance Elimination	
Alkalinization (with or without diuresis)	5,356
Hemodialysis	584
Forced diuresis	357
Hemoperfusion (charcoal)	111
Acidification (with or without diuresis)	58
Exchange transfusion	70
Hemoperfusion (resin)	37
Peritoneal dialysis	27
Specific Antidote Administration	
Naloxone	6,217
N-acetylcysteine (oral)	5,888
Atropine	773
Deferoxamine	611
Ethanol	528
Antivenin	512
Hydroxocobalamin	386
Physostigmine	246
Pralidoxime (2-PAM)	212
N-acetylcysteine (IV)	213
Fab fragments	212
Pyridoxine	176
Dimercaprol (BAL)	142
Methylene blue	141
Cyanide antidote kit	106
Penicillamine	106
EDTA	68

TABLE 15. Ipecac Administration by Site and Age

Age (yr)	Non-Health-Care Facility		Health Care Facility		Unknown		Total	
	No.	%	No.	%	No.	%	No.	%
<1	1,076	1.0	1,287	1.2	23	0.0	2,386	2.3
1	11,574	11.1	7,377	7.0	87	0.1	19,038	18.2
2	21,032	20.1	12,479	11.9	143	0.1	33,654	32.1
3	10,008	9.6	5,389	5.1	56	0.1	15,453	14.8
4	3,148	3.0	1,629	1.6	24	0.0	4,801	4.6
5	1,198	1.1	583	0.6	8	0.0	1,789	1.7
6-12	1,362	1.3	1,126	1.1	7	0.0	2,495	2.4
13-17	305	0.3	6,764	6.5	15	0.0	7,084	6.8
>17	892	0.9	16,427	15.7	49	0.0	17,368	16.6
Unknown	201	0.2	451	0.4	11	0.0	663	0.6
Total	50,796	48.5	53,512	51.1	423	0.4	104,731	100.0

TABLE 16. Summary of Fatal Exposures

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels	
Adhesives/glues/cements/paste						
1‡*	35 yr	Carpet cement (1,1,1 trichloroethane)	Inhalation	Acc misuse		
Alcohols						
2‡	20 yr	Ethanol	Ingestion	Int abuse	369 mg/dL	
3†	39 yr	Ethanol	Ingestion	Int abuse		
4†	44 yr	Ethanol	Ingestion	Int abuse	234 mg/dL	
5†	47 yr	Ethanol	Ingestion	Int abuse	75 mg/dL	
6	51 yr	Ethanol	Ingestion	Int suicide	414 mg/dL	
7‡	21 yr	Ethanol	Ingestion	Unknown		
8	38 yr	acetaminophen/propoxyphene benzodiazepine amphetamine	Ingestion	Int suicide		
9‡	41 yr	Ethanol chloral hydrate	Ingestion	Int suicide trichloroethanol	250 mg/dL 2.8 mg/dL	
10‡	24 yr	Ethanol cocaine	Ingestion	Acc unknown		
11‡	23 yr	Ethanol hydrogen peroxide 3% aspirin	Ingestion	Int suicide	570 mg/dL§	
12‡	27 yr	Ethanol methamphetamine	Ingestion	Int abuse	239 mg/dL 0.056 µg/mL§	
13‡	32 yr	Ethanol opiates	Ing/Paren	Int abuse		
14	47 yr	Ethanol verapamil (long-acting) diazepam	Ingestion	Int suicide		
15	56 yr	Isopropanol	Ingestion	Int suicide		
16†	37 yr	Isopropanol methanol ethanol	Ingestion	Int abuse		
17	17 yr	Methanol	Ingestion	Int abuse	135 mg/dL	2 d
18	26 yr	Methanol	Ingestion	Acc misuse	125 mg/dL	
19	29 yr	Methanol	Ingestion	Unknown	135 mg/dL	
20	29 yr	Methanol	Ingestion	Int suicide	20 mg/dL	
21	36 yr	Methanol	Ingestion	Unknown	11 mg/dL	>10 h
22	37 yr	Methanol	Ingestion	Int suicide		
23	39 yr	Methanol	Ingestion	Unknown	260 mg/dL	
24*	40 yr	Methanol	Ingestion	Unknown	23 mg/dL	>36 h
25	47 yr	Methanol	Ingestion	Unknown	215 mg/dL	
26	>17 yr	Methanol	Ingestion	Int suicide	67.1 mg/dL	
27	40 yr	Methanol chlorophenoxy herbicide	Ingestion	Int suicide	102 mg/dL	
28*	28 yr	Methanol ethanol	Ingestion	Acc misuse	293 mg/dL 130 mg/dL	
<i>See also cases 16, 28, 54, 67, 71, 80, 117, 118, 119, 140, 144, 162, 173, 184, 212, 213, 214, 230, 231, 256, 257, 258, 267, 272, 277, 281, 311, 313, 314, 315, 316, 317, 318, 323, 351, 366, 367, 383, 397, 407, 408, 409, 411, 416, 418, 421, 452, 454, 455, 510, 511, 512, 537, 544, 548, 553, 591, 593, 594, 603, 604, 607 (ethanol); 34, 55 (isopropanol); 16, 58 (methanol).</i>						
Automotive/aircraft/boat products						
29	>17 yr	Engine treatment (mineral oil 85%, glycol ethers 6%, alcohols 6%, ketones 3%)	Ing/Inh	Int suicide	19.4 mg/dL**	
30	33 yr	Ethylene glycol antifreeze	Ingestion	Int suicide	140 mg/dL	12-48 h
31	41 yr	Ethylene glycol antifreeze amitriptyline	Ingestion	Int suicide		
32	31 yr	Gasline antifreeze (methanol)	Ingestion	Int suicide	111 mg/dL	12 h
33	42 yr	Gasline antifreeze (methanol)	Ingestion	Int suicide		
34	49 yr	Gasline antifreeze (methanol) isopropanol	Ingestion	Int abuse	2.9 mg/dL	48 h
35*	48 yr	Methanol antifreeze	Ingestion	Acc misuse	285 mg/dL	36 h
36	26 yr	Windshield washer solvent (methanol)	Ingestion	Int suicide	121 mg/dL	

(Continued on following page)

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TABLE 16. Summary of Fatal Exposures (Cont'd)

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels	
37*	45 yr	Windshield washer solvent (methanol)	Ingestion	Int suicide	270 mg/dL	27 h
38*	80 yr	Windshield washer solvent (methanol)	Ingestion	Acc misuse	114 mg/dL	
39	26 yr	Windshield washer solvent (methanol) cough and cold preparation (acetaminophen/doxylamine/ pseudoephedrine/dextromethorphan)	Ingestion	Int suicide	84.2 mg/dL	47 h
Bites and envenomations						
40†*	59 yr	Triatoma protracta	Bite/sting	Acc gen		
Chemicals						
41*	>17 yr	Alum (aluminum sulfate)	Parenteral	Acc misuse		
42*	46 yr	Battery acid (sulfuric acid)	Ingestion	Int suicide		
43	49 yr	Battery acid (sulfuric acid)	Ingestion	Int suicide		
44*	45 yr	Boric acid	Ingestion	Int suicide	440 µg/mL	72 h
45†*	13 mo	Cyanide	Ingestion	Acc gen	1.4 µg/mL	
46†*	11 yr	Cyanide, potassium	Ingestion	Acc misuse		
47‡	22 yr	Cyanide, sodium	Ingestion	Int suicide	>25 µg/mL§	
48†*	28 yr	Cyanide	Ingestion	Int suicide	12 µg/mL§	
49	34 yr	Cyanide	Ingestion	Int suicide	1.1 µg/mL	
50	38 yr	Cyanide	Ingestion	Int suicide		
51‡	40 yr	Cyanide, sodium	Ing/Inh	Int suicide	0.453 µg/mL	48 h
52	77 yr	Cyanide, potassium	Ingestion	Int suicide		
53‡	>17 yr	Cyanide, potassium	Ingestion	Int suicide		
54	30 yr	Cyanide ethanol	Ingestion	Int suicide	0.365 µg/mL 194 mg/dL	
55†*	35 yr	Cyanide, potassium isopropanol	Ingestion	Int suicide	3.4 µg/mL 110 mg/dL	
56	28 yr	Ethylene glycol	Ingestion	Unknown	690 mg/dL	
57*	31 yr	Ethylene glycol amphetamines	Ingestion	Unknown	540 mg/dL§	
58*	53 yr	Ethylene glycol methanol	Ingestion	Int abuse	850 mg/dL 14.9 mg/dL	>7.5 h
59†*	27 yr	Goldplating solution (gold cyanide)	Ingestion	Int suicide	2.1 µg/mL	
60*	59 yr	Hydrofluoric acid (70%)	Dermal	Acc occup		
61†*	2 yr	Hydrogen peroxide (35%)	Ingestion	Acc gen		
62	>17 yr	Lye	Ingestion	Unknown		
63†*	35 yr	Sodium azide	Ingestion	Int suicide		
64†*	30 yr	Strychnine	Ingestion	Int misuse	0.17 µg/mL§	
65‡	59 yr	Strychnine	Ingestion	Unknown		
66	89 yr	Strychnine	Unknown	Unknown		
67	29 yr	Strychnine sulfate ethanol	Ingestion	Int suicide	3.8 µg/mL§ 67 mg/dL§	
68	19 yr	Sulfuric acid	Ingestion	Int suicide		
<i>See also cases 116, 120 (cyanide); 524 (hydrochloric acid); 11 (hydrogen peroxide 3%).</i>						
Cleaning substances						
69‡	30 yr	Acid cleaning agent	Ingestion	Int suicide		
70*	87 yr	Bathroom cleaner (7% ethylene glycol butyl ether)	Ingestion	Int unknown	110 mg/dL**	
71	32 yr	Bathroom cleaner (20-30% phosphoric acid) ethanol	Ingestion	Int suicide		
72	82 yr	Disinfectant (cationic detergents 16%)	Ing/Inh	Acc gen		
73	35 yr	Drain cleaner (sodium hypochlorite 6%/ NaOH 2%/sodium silicate 1%)	Derm/Ing	Int suicide		
74	36 yr	Drain cleaner (sulfuric acid)	Ingestion	Int suicide		
75	40 yr	Drain cleaner (NaOH 54%, sodium nitrate 30%)	Ingestion	Int suicide		
76	42 yr	Drain cleaner (HCl 18%)	Ingestion	Int suicide		
77	52 yr	Drain cleaner (sodium hypochlorite 6%/ NaOH 2%/sodium silicate 1%) potassium gluconate	Ingestion	Int suicide		
78	29 yr	Drainer cleaner (sodium hypochlorite 6%)	Ing/Inh/Paren	Int unknown	4.8 mEq/L	

(Continued on following page)

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TABLE 16. Summary of Fatal Exposures (Cont'd)

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels
79	51 yr	NaOH 2%/sodium silicate 1%) cocaine (crack) heroin Drain cleaner (sulfuric acid) fluoxetine	Ingestion	Int suicide	
80	45 yr	Drain cleaner (NaOH) nortriptyline ethanol	Ingestion	Int suicide	
81	55 yr	Germicidal detergent (cationic 15%)	Ingestion	Acc gen	
82	52 yr	Pine oil cleaner	Ing/Inh	Int suicide	
83‡*	78 yr	Pine oil cleaner	Ingestion	Acc gen	
84	90 yr	Pine oil cleaner	Ing/Inh	Acc gen	
85	92 yr	Pine oil cleaner	Ingestion	Int suicide	
86	27 yr	Rust remover (HF 6-8%),	Ingestion	Int suicide	
87*	83 yr	Rust remover (HF 8%)	Ingestion	Int suicide	
88‡*	35 yr	Sodium hypochlorite (13%)	Inhalation	Acc occup	
89	64 yr	Toilet bowl cleaner (HCl 9%)	Ingestion	Int suicide	
90	72 yr	Toilet bowl cleaner (HCl 23%)	Ingestion	Int suicide	
91	83 yr	Toilet bowl cleaner (HCl 20%)	Ingestion	Int suicide	
92	87 yr	Waterless hand cleaner (hydrocarbon)	Ing/Inh	Acc gen	
<i>See also cases 252 (antiseptic-chloroxylenol/isopropanol/essential oil); 229, (bleach, household); 176 (hypochlorite bleach).</i>					
Cosmetics					
93	29 yr	Mouthwash (ethanol)	Ingestion	Int abuse	
<i>See also cases 215 (hairspray); 215 (mouthwash).</i>					
Food products and food poisoning					
94	74 yr	Botulism	Ingestion	Acc gen	
Fumes, gases and vapors					
95‡	18 yr	Acetylene gas	Inhalation	Int abuse	
96‡	>17 yr	Argon	Inhalation	Acc occup	
97‡	34 yr	Carbon dioxide	Inhalation	Acc occup	
98‡	43 yr	Carbon dioxide	Inhalation	Acc occup	
99‡	22 yr	Carbon monoxide	Inhalation	Int suicide	69.4%
100‡	30 yr	Carbon monoxide/smoke inhalation	Inhalation	Acc environ	35%
101‡	30 yr	Carbon monoxide	Inhalation	Int suicide	33.3%
102‡	33 yr	Carbon monoxide	Inhalation	Acc occup	
103‡	36 yr	Carbon monoxide	Inhalation	Acc occup	
104‡	38 yr	Carbon monoxide	Inhalation	Int suicide	72%§
105‡	39 yr	Carbon monoxide	Inhalation	Int suicide	81%
106‡	40 yr	Carbon monoxide	Inhalation	Int suicide	
107‡	40 yr	Carbon monoxide	Inhalation	Int suicide	
108‡	41 yr	Carbon monoxide	Inhalation	Acc environ	
109‡	45 yr	Carbon monoxide/smoke inhalation	Inhalation	Acc environ	29%
110	45 yr	Carbon monoxide	Inhalation	Unknown	10%
111‡	47 yr	Carbon monoxide	Inhalation	Int suicide	
112‡	50 yr	Carbon monoxide/smoke inhalation	Inhalation	Acc environ	60%
113‡	55 yr	Carbon monoxide	Inhalation	Int suicide	48%
114	65 yr	Carbon monoxide/smoke inhalation	Inhalation	Acc environ	35%
115‡	>17 yr	Carbon monoxide	Inhalation	Unknown	
116	5 yr	Carbon monoxide/smoke inhalation cyanide	Inhalation	Acc environ	8.5% 4.9 µg/mL
117‡	39 yr	Carbon monoxide ethanol	Ing/Inh	Int suicide	46.7% 5 h
118‡	60 yr	Carbon monoxide ethanol	Ing/Inh	Acc environ	50%§ 308 mg/dL§
119‡	>17 yr	Carbon monoxide ethanol	Ing/Inh	Int suicide	58% 100 mg/dL
120‡*	3 yr	Carbon monoxide hydrogen cyanide	Inhalation	Acc environ	26% 0.32 µg/mL
121	69 yr	Carbon monoxide propoxyphene	Ing/Inh	Int suicide	28%
122‡	38 yr	Carbon monoxide	Ing/Inh	Int suicide	35.8%

(Continued on following page)

TABLE 16. Summary of Fatal Exposures (Cont'd)

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels
123‡	16 yr	triazolam temazepam Coating spray for cooking utensils (isobutane/propane)	Inhalation	Int abuse	
124‡	28 yr	Ethylene dichloride	Derm/Inh	Acc occup	
125‡	53 yr	Hydrogen sulfide methane	Inhalation	Acc environ	
126‡	35 yr	Methane	Inhalation	Acc occup	
127‡	28 yr	Nitrogen gas	Inhalation	Acc occup	
128‡	79 yr	Smoke inhalation	Inhalation	Acc environ	
129‡	1 yr	Smoke inhalation carbon monoxide	Inhalation	Acc environ	13.5%
See also cases 129 (carbon monoxide); 125 (methane); 458 (oxygen).					
Fungicides					
130*	25 yr	Lawn fungicide (cadmium chloride 20%) water hardness kit (calmagite solution <0.1%)	Ingestion	Int suicide	
Heavy Metals					
131*	20 yr	Arsenic trioxide	Ingestion	Int suicide	
132*	35 yr	Arsenic	Parenteral	Int suicide	
133	63 yr	Arsenic	Unknown	Unknown	
134‡*	75 yr	Arsenic	Ingestion	Int suicide	
135*	84 yr	Arsenic trioxide	Ingestion	Int suicide	
136*	35 yr	Arsenic cigarette tobacco	Ingestion	Int suicide	46.0 µg/dL§
137*	46 yr	Mercuric chloride	Ingestion	Int suicide	
138	50 yr	Mercury	Ingestion	Int unknown	
139*	45 yr	Nickel sulfate/nickel chloride/nickel oxide	Dermal	Acc occup	
140*	37 yr	Potassium arsenite ethanol	Ingestion	Unknown	160 mg/dL
Herbicides					
141*	60 yr	Dichlorophenoxyacetic acid	Ingestion	Int suicide	
142*	29 yr	Paraquat	Ing/Inh	Unknown	6.4 µg/mL§
143	31 yr	Paraquat	Ingestion	Int suicide	
144*	34 yr	Paraquat ethanol	Ingestion	Int suicide	219 mg/dL
See also case 27 (chlorophenoxy herbicide); 555 (glyphosate); 181 (unknown herbicides).					
Hydrocarbons					
145‡	11 yr	Butane	Inhalation	Int abuse	
146‡	14 yr	Butane	Inhalation	Int abuse	
147‡	14 yr	Butane	Inhalation	Int abuse	
148‡	16 yr	Butane	Inhalation	Int abuse	
149‡	16 yr	Butane	Inhalation	Int abuse	
150‡	17 yr	Butane	Inhalation	Int abuse	
151‡	18 yr	Butane	Inhalation	Int abuse	
152‡	19 yr	Butane lighter fluid	Inhalation	Int abuse	
153*	2 yr	Charcoal lighter fluid	Ing/Inh/Ocular	Acc gen	
154‡	14 yr	Fabric protector (trichloroethane)	Inhalation	Int abuse	
155‡*	14 yr	Fabric protector (trichloroethane)	Inhalation	Int abuse	8 µg/mL§
156‡	15 yr	Fabric protector (trichloroethane/freon)	Inhalation	Int abuse	
157‡	>17 yr	Fabric protector (trichloroethane/freon)	Inhalation	Int abuse	
158‡	15 yr	Freon	Inhalation	Int abuse	
159‡	16 yr	Freon	Inhalation	Int abuse	
160‡	18 yr	Freon	Inhalation	Int abuse	
161‡	19 yr	Freon (97%) television tuner cleaner	Inhalation	Int abuse	
162‡	>17 yr	Freon ethanol	Ing/Inh	Int abuse	
163‡*	13 yr	Gasoline	Ing/Inh	Int unknown	
164	24 yr	Halon	Inhalation	Acc occup	
165*	13 mo	Kerosene	Ing/Inh	Acc gen	
166*	12 mo	Lamp oil (mineral oil 58%/vegetable oil 40%)	Ing/Inh	Acc gen	

(Continued on following page)

TABLE 16. Summary of Fatal Exposures (Cont'd)

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels
167*	2 yr	perfume oil 2%) Lamp oil (kerosene)	Ing/Inh	Acc gen	
168	56 yr	Lamp oil	Ingestion	Int suicide	
169‡	15 yr	Propane	Inhalation	Int abuse	
170‡	20 yr	Trichloroethane	Inhalation	Acc occup	12 µg/mL
171†	48 yr	Trichloroethane	Inhalation	Acc occup	
Insecticides and pesticides					
172	67 yr	Acephate	Inhalation	Acc misuse	
173*	72 yr	Aluminum phosphide fumigant ethanol	Ingestion	Int suicide	230 mg/dL
174‡	25 yr	Chlorpyrifos ant killer	Ingestion	Int suicide	
175‡	>17 yr	Chlorpyrifos	Inhalation	Acc misuse	
176	58 yr	Chlorpyrifos hypochlorite bleach.	Ingestion	Int suicide	
177	44 yr	Chlorpyrifos loperamide	Ingestion	Unknown	
178	17 yr	Diazinon	Ingestion	Int suicide	
179*	30 yr	Lindane	Ingestion	Int suicide	
180‡	>17 yr	Malathion	Ingestion	Int suicide	
181‡	28 yr	Malathion	Ingestion	Int suicide	
182*	55 yr	unknown herbicides Methyl bromide	Inhalation	Acc environ	
183‡*	18 mo	Terbufos	Derm/Ing	Acc gen	
184	40 yr	Unknown pesticide acetaminophen/chlorzoxazone ethanol	Ingestion	Int suicide	300 mg/dL
<i>See also case 365 (carbaryl).</i>					
Mushrooms					
185*	65 yr	Amanita, species unknown	Ingestion	Acc gen	
Plants					
186*	32 yr	Cicuta douglassii (water hemlock)	Ingestion	Acc gen	
187†*	71 yr	Ginseng extract	Ingestion	Acc misuse	
<i>See also case 475 (holly berries).</i>					
Tobacco products					
<i>See also case 136 (cigarette tobacco).</i>					
Analgesics					
188	19 yr	Acetaminophen (adult)	Ingestion	Int misuse	
189	23 yr	Acetaminophen (adult)	Ingestion	Int suicide	81 µg/mL
190†	24 yr	Acetaminophen (adult)	Ingestion	Int misuse	90.7 µg/mL
191	27 yr	Acetaminophen	Ingestion	Int suicide	0.3 µg/mL
192	28 yr	Acetaminophen (adult)	Ingestion	Int suicide	30 µg/mL
193‡‡	33 yr	Acetaminophen	Ingestion	Unknown	
194†	41 yr	Acetaminophen	Ingestion	Int misuse	
195	42 yr	Acetaminophen	Ingestion	Int suicide	26 µg/mL
196	50 yr	Acetaminophen (adult)	Ingestion	Int suicide	50 µg/mL
197	51 yr	Acetaminophen	Ingestion	Int suicide	475 µg/mL
198	51 yr	Acetaminophen (adult)	Ingestion	Int unknown	
199	55 yr	Acetaminophen	Ingestion	Int unknown	71 µg/mL
200†	60 yr	Acetaminophen (adult)	Ingestion	Int misuse	
201†	66 yr	Acetaminophen (adult)	Ingestion	Int misuse	373 µg/mL
202	69 yr	Acetaminophen	Ingestion	Int suicide	180 µg/mL
203	77 yr	Acetaminophen	Ingestion	Int misuse	74 µg/mL
204	79 yr	Acetaminophen	Ingestion	Unknown	359 µg/mL
205†	80 yr	Acetaminophen (adult)	Ingestion	Int misuse	100 µg/mL
206†	34 yr	Acetaminophen	Ingestion	Int misuse	36.5 µg/mL
207	86 yr	acetaminophen/diphenhydramine sleep aid alprazolam	Ingestion	Int suicide	
208	27 yr	Acetaminophen	Ingestion	Int suicide	119 µg/mL

(Continued on following page)

TABLE 16. Summary of Fatal Exposures (Cont'd)

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels	
209†	39 yr	amphetamine ephedrine Acetaminophen	Ingestion	Int unknown	73.8 µg/mL	
210	39 yr	aspirin Acetaminophen (adult)	Ingestion	Int suicide	26.1 mg/dL 520 µg/mL	
211*	17 yr	chlorazepate Acetaminophen (adult) cough and cold preparation (acetaminophen/doxylamine/ pseudoephedrine/dextromethorphan)	Ingestion	Int suicide	13.6 µg/mL	>67 h
212	43 yr	Acetaminophen ethanol	Ingestion	Unknown	35 µg/mL	
213†	47 yr	Acetaminophen ethanol	Ingestion	Adv rxn	2 µg/mL	>3 d
214†	62 yr	Acetaminophen ethanol	Ingestion	Int misuse	141.6 µg/mL	
215	46 yr	Acetaminophen (adult) hairspray (ethanol) mouthwash (ethanol 29%)	Ingestion	Int suicide	37 µg/mL	48 h
216	20 /yr	Acetaminophen haloperidol aspirin	Ingestion	Int suicide	405 µg/mL	
217	39 yr	Acetaminophen/codeine	Ingestion	Acc misuse	8 µg/mL	
218	73 yr	Acetaminophen/codeine	Ingestion	Unknown		
219	28 yr	Acetaminophen/codeine	Ingestion	Int suicide codeine	1.8 µg/mL [§]	
220	38 yr	atenolol propranolol Acetaminophen/codeine trimipramine	Ingestion	Int suicide	32 µg/mL	58 h
221	46 yr	aspirin Acetaminophen/diphenhydramine doxylamine sleep aid unknown OTC sleep aid	Ingestion	Int suicide	19.4 mg/dL 76 µg/mL	58 h
222	53 yr	Acetaminophen/hydrocodone	Ingestion	Int suicide		
223‡	20 yr	Acetaminophen/hydrocodone amitriptyline	Ingestion	Int suicide		
224‡	42 yr	Acetaminophen/hydrocodone benzodiazepines	Ingestion	Int suicide	180 µg/mL	3 h
225†	31 yr	Acetaminophen/hydrocodone carisoprodol diazepam	Ingestion	Int abuse		
226	88 yr	Acetaminophen/oxycodone	Ingestion	Int suicide		
227	30 yr	Acetaminophen/propoxyphene	Ingestion	Int suicide		
228	30 yr	Acetaminophen/propoxyphene acetaminophen/butalbital/caffeine	Ingestion	Int unknown		
229	26 yr	Acetaminophen/propoxyphene bleach, household	Ingestion	Int suicide		
230‡	34 yr	Acetaminophen/propoxyphene ethanol	Ingestion	Int misuse	9.7 µg/mL	4.5 h
231‡	43 yr	Acetaminophen/propoxyphene ethanol	Ingestion	Unknown	<10 µg/mL	
232	58 yr	Acetaminophen/propoxyphene	Ingestion	Int suicide	81 µg/mL propoxyphene 0.191 µg/mL norpropoxyphene 1.36 µg/mL	2 h
233†	2 yr	triazolam Aspirin	Ingestion	Adv rxn	7 mg/dL	
234	18 yr	Aspirin	Ingestion	Int suicide	114 mg/dL	>8.5 h
235	19 yr	Aspirin (adult)	Ingestion	Int suicide	124 mg/dL	6 h
236	34 yr	Aspirin	Ingestion	Int suicide	130 mg/dL	8 h
237*	35 yr	Aspirin (adult)	Ingestion	Int suicide	112 mg/dL	15 h
238	37 yr	Aspirin	Ingestion	Int suicide	72 mg dL	10 h
239	60 yr	Aspirin (adult)	Ingestion	Int suicide	68 mg/dL	24 h
240†	61 yr	Aspirin	Ingestion	Int misuse	48 mg/dL	

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TABLE 16. Summary of Fatal Exposures (Cont'd)

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels	
241	62 yr	Aspirin	Ingestion	Int suicide	48 mg/dL	
242†	68 yr	Aspirin (adult)	Ingestion	Int misuse	67 mg/dL	
243	71 yr	Aspirin	Ingestion	Int suicide	152 mg/dL§	
244†	73 yr	Aspirin (adult)	Ingestion	Int unknown	29 mg/dL	
245	78 yr	Aspirin	Ingestion	Int suicide		
246	81 yr	Aspirin	Ingestion	Int suicide	74.5 mg/dL	12-13 h
247†	89 yr	Aspirin (adult), enteric coated	Ingestion	Int misuse	222 mg/dL§	
248	35 yr	Aspirin (adult)	Ingestion	Int suicide	181.3 mg/dL§	
		acetaminophen (adult)			116 µg/mL§	
249‡	72 yr	Aspirin	Ingestion	Unknown	103 mg/dL	
		acetaminophen			39 µg/mL	
250	26 yr	Aspirin, (adult)	Ing/Paren	Int unknown	10.3 mg/dL	
		acetaminophen (adult)				
		heroin				
251	67 yr	Aspirin	Ingestion	Int suicide	55 mg/dL	10-14 h
		acetaminophen/propoxyphene			<2 µg/mL [¶]	10-14 h
252	90 yr	Aspirin	Ingestion	Int suicide	108 mg/dL	36 h
		antiseptic (chloroxylenol/isopropanol/ essential oil)				
253	51 yr	Aspirin (adult)	Ingestion	Int suicide	118 mg/dL	
		carbamazepine				
		chlorpromazine				
254	88 yr	Aspirin (adult)	Ingestion	Int suicide	70.9 mg/dL	9 h
		cough and cold preparation (dextromethorphan)				
255	49 yr	Aspirin (adult)	Ingestion	Int suicide	92.6 mg/dL	5-7 h
		diltiazem				
		nitroglycerin				
256	43 yr	Aspirin	Ingestion	Int suicide	150 mg/dL§	
		ethanol			800 mg/dL§	
257	56 yr	Aspirin	Ingestion	Unknown	62.1 mg/dL	7 h
		ethanol			25 mg/dL	7 h
258	62 yr	Aspirin	Ingestion	Unknown	52 mg/dL	12-20 h
		ethanol				
259	>17 yr	Aspirin	Ingestion	Int suicide	92.8 mg/dL§	
		fluoxetine			0.894 µg/mL§	
				norfluoxetine	0.500 µg/mL§	
260	24 yr	Aspirin (adult)	Ingestion	Int suicide	144 mg/dL	10 h
		pseudoephedrine				
		acetaminophen			115 µg/mL	4 h
261	40 yr	Aspirin	Ingestion	Int suicide	64.9 mg/dL	
		sleep aid (diphenhydramine)				
262‡	28 yr	Aspirin/oxycodone	Ingestion	Unknown		
		pentazocine				
263	70 yr	Aspirin	Ingestion	Int suicide	60.9 mg/dL	
		warfarin				
		alprazolam				
264	31 yr	Aspirin/phenyltoloxamine	Ingestion	Int suicide	75 mg/dL [¶]	
		nortriptyline			376 ng/mL	
		amitriptyline			425 ng/mL	
265*	40 yr	Colchicine	Ingestion	Int suicide		
		diphenhydramine				
266‡	32 yr	Hydromorphone	Ing/Paren	Int abuse		
		heroin				
267‡	32 yr	Hydromorphone	Ingestion	Int abuse		
		morphine				
		ethanol			201 mg/dL	
268	19 yr	Methadone	Ingestion	Int abuse		
269	49 yr	Methadone	Ingestion	Unknown		
		flurazepam				
270‡	35 yr	Morphine	Ingestion	Int suicide		
271‡	38 yr	Morphine	Ingestion	Int abuse		
272‡	31 yr	Morphine	Ingestion	Int suicide		
		ethanol				

(Continued on following page)

TABLE 16. Summary of Fatal Exposures (Cont'd)

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels	
273*	18 mo	Morphine levorphanol diphenoxylate/atropine	Ingestion	Acc gen		
274	55 yr	Morphine theophylline	Ingestion	Int suicide	33.7 µg/mL	>4 h
275†‡	36 yr	Opiates	Unknown	Int abuse		
276‡	>17 yr	Opiates	Unknown	Int abuse		
277	31 yr	Propoxyphene ethanol	Ingestion	Int suicide	18 µg/mL 189 mg/dL	
278	20 yr	Propoxyphene meprobamate	Ingestion	Int suicide		
279	29 yr	Propoxyphene methadone cocaine	Unknown	Int unknown		
280	25 yr	Salsalate aspirin/orphenadrine/caffeine	Ingestion	Int suicide	80.4 mg/dL [§]	
281	28 yr	Salsalate ethanol	Ingestion	Int suicide		
<p>See also cases 248, 249, 250, 260, 309, 328, 350, 520, 554, 570 (acetaminophen); 228, 494 (acetaminophen/butalbital/caffeine); 450, 441, 558 (acetaminophen/codeine); 547 (acetaminophen/hydrocodone); 564 (acetaminophen/oxycodone); 7, 251, 307, 403, 493 (acetaminophen/propoxyphene); 11, 209, 216, 220, 324, 350, 354, 507, 508, 509, 586 (aspirin); 541 (aspirin/butalbital/caffeine/codeine); 587 (codeine); 353 (ibuprofen); 273 (levorphanol); 332, 413 (meperidine); 279 (methadone); 267 (morphine); 293, 415 (naproxen); 13, 516, 596 (opiates); 262 (pentazocine); 121, 320, 568 (propoxyphene).</p>						
Anesthetics						
282‡*	15 yr	First aid liquid (lidocaine 2.5%)	Ingestion	Int suicide	18 µg/mL [§]	
283*	2 mo	Lidocaine 0.4%	Parenteral	Acc misuse		
284‡	78 yr	Lidocaine	Parenteral	Acc misuse		
See also case 538 (propofol).						
Anticholinergic drugs						
285†	88 yr	Amantadine	Ingestion	Adv rxn		
See also cases 457 (trihexyphenidyl); 546 (triprolidine).						
Anticoagulants						
286	80 yr	Warfarin guanfacine digoxin	Ingestion	Int suicide	8 ng/mL	
See also cases 394 (heparin); 263 (warfarin).						
Anticonvulsants						
287	24 yr	Carbamazepine	Ingestion	Int suicide	41.5 µg/mL	5 h
288	41 yr	Carbamazepine divalproex	Ingestion	Int suicide	34.2 µg/mL 28.4 µg/mL	52 h 52 h
289	44 yr	Carbamazepine doxepin loxapine	Ingestion	Int suicide	47.7 µg/mL	10-12 h
290	36 yr	Carbamazepine phenobarbital phenytoin	Ingestion	Int suicide	31 µg/mL 38 µg/mL	
291	1 da	Phenytoin	Parenteral	Acc misuse	55.1 µg/mL	0.75 h
292*	22 mo	Phenytoin	Parenteral	Acc misuse	51.8 µg/mL	
293	32 yr	Phenytoin naproxen piroxicam	Ingestion	Int suicide	58.2 µg/mL	2 h
See also cases 253, 405 (carbamazepine); 288 (divalproex); 290, 565, 566, 567 (phenytoin); 371 (valproic acid).						
Antidepressants						
294	20 yr	Amitriptyline	Ingestion	Int suicide	2,008 ng/mL 762 ng/mL	
295	31 yr	Amitriptyline	Ingestion	Int suicide		
296	31 yr	Amitriptyline	Ingestion	Int suicide	6,484 ng/mL	
297	35 yr	Amitriptyline	Ingestion	Int suicide	2,000 ng/mL [§] 1,600 ng/mL [§]	

(Continued on following page)

TABLE 16. Summary of Fatal Exposures (Cont'd)

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels	
298	38 yr	Amitriptyline	Ingestion	Int suicide	1,400 ng/mL§	
				nortriptyline	1,990 ng/mL§	
299	39 yr	Amitriptyline	Ingestion	Int suicide	7,690 ng/mL	
				nortriptyline	6,310 ng/mL	
300	40 yr	Amitriptyline	Ingestion	Int suicide		
301	45 yr	Amitriptyline	Ingestion	Int suicide		
302‡	52 yr	Amitriptyline	Ingestion	Int suicide		
303	57 yr	Amitriptyline	Ingestion	Int suicide		
304‡	69 yr	Amitriptyline	Ingestion	Int suicide	2,145 ng/mL	
				nortriptyline	735 ng/mL	
305	>17 yr	Amitriptyline	Ingestion	Int suicide		
306	>17 yr	Amitriptyline	Ingestion	Unknown	950 ng/mL§#	
307	56 yr	Amitriptyline	Ingestion	Int unknown		
		acetaminophen/propoxyphene				
308	27 yr	Amitriptyline	Ingestion	Int suicide		
		desipramine				
309‡	27 yr	Amitriptyline	Ingestion	Int suicide		
		diphenoxylate/atropine				
		acetaminophen			175 µg/mL	
310†	46 yr	Amitriptyline	Ingestion	Unknown		
		doxepin				
311	38 yr	Amitriptyline	Ingestion	Int suicide		
		doxepin				
		ethanol				
312‡	28 yr	Amitriptyline	Ingestion	Int suicide		
		doxylamine sleep aid				
		chlorpromazine				
313‡	17 yr	Amitriptyline	Ingestion	Int suicide		
		ethanol			32 mg/dL	
314‡	26 yr	Amitriptyline	Ingestion	Int suicide	2,800 ng/mL	
		ethanol			270 mg/dL	
315	27 yr	Amitriptyline	Ingestion	Int suicide		
				nortriptyline	650 ng/mL	<1 h
		ethanol				
316‡	31 yr	Amitriptyline	Ingestion	Int suicide		
		ethanol				
317‡	37 yr	Amitriptyline	Ingestion	Int suicide	1,200 ng/mL	
				nortriptyline	692 ng/mL	
		ethanol			10 mg/dL	
318‡	45 yr	Amitriptyline	Ingestion	Int suicide	2,700 ng/mL§	
				nortriptyline	3,350 ng/mL§	
		ethanol			710 mg/dL§	
319	77 yr	Amitriptyline	Ingestion	Int suicide		
		fluoxetine				
320	48 yr	Amitriptyline	Ingestion	Int unknown		
		propoxyphene				
		clonazepam				
321	16 yr	Amitriptyline	Ingestion	Int suicide		
		thioridazine				
		alprazolam				
322	35 yr	Amitriptyline/chlordiazepoxide	Ingestion	Int suicide	2,200 ng/mL§	
				nortriptyline	1,440 ng/mL§	
		chlordiazepoxide			0.4 µg/mL§	
		chlorpromazine			5.1 µg/mL§	
323‡	21 yr	Amitriptyline/chlordiazepoxide	Ingestion	Int suicide		
		ethanol				
324	54 yr	Amitriptyline/perphenazine	Ingestion	Int suicide		
		aspirin (adult)			110 mg/dL	6 h
325	60 yr	Amitriptyline/perphenazine	Ingestion	Int suicide		
		triazolam				
326	36 yr	Amoxapine	Ingestion	Int suicide		
327	62 yr	Amoxapine	Ingestion	Int suicide		
328	56 yr	Amoxapine	Ingestion	Int suicide		
		thioridazine				

(Continued on following page)

TABLE 16. Summary of Fatal Exposures (Cont'd)

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels	
329*	25 yr	acetaminophen			330 µg/mL	10 h
330*	32 yr	Bupropion	Ingestion	Int suicide	1,445 ng/mL	
331	16 yr	Bupropion	Ingestion	Int suicide		
		lithium				
332*	72 yr	Deprenyl	Ing/Paren	Adv rxn		
		meperidine				
333*	10 mo	Desipramine	Ingestion	Acc gen		
334‡	16 yr	Desipramine	Ingestion	Int suicide		
335	16 yr	Desipramine	Ingestion	Int suicide		
336	21 yr	Desipramine	Ingestion	Int suicide		
337‡	22 yr	Desipramine	Ingestion	Unknown		
338	25 yr	Desipramine	Ingestion	Int suicide		
339‡	31 yr	Desipramine	Ingestion	Int suicide	3,800 ng/mL§	
340‡	32 yr	Desipramine	Ingestion	Int suicide	9,790 ng/mL§	
341‡	32 yr	Desipramine	Ingestion	Int suicide		
342	35 yr	Desipramine	Ingestion	Int suicide	13,000 ng/mL§	
343‡	38 yr	Desipramine	Ingestion	Int suicide		
344	40 yr	Desipramine	Ingestion	Int suicide	2,856 ng/mL	1 h
345	48 yr	Desipramine	Ingestion	Int suicide	5,900 ng/mL	
346	52 yr	Desipramine	Ingestion	Int suicide		
347	57 yr	Desipramine	Ingestion	Int suicide		
348	66 yr	Desipramine	Ingestion	Int suicide	1,014 ng/mL	
349‡	37 yr	Desipramine	Ingestion	Int suicide		
		alprazolam				
350	26 yr	Desipramine	Ingestion	Int suicide		
		aspirin			36 mg/dL	3 h
		acetaminophen			18 µg/mL	3 h
351	35 yr	Desipramine	Ingestion	Int suicide		
		dicyclomine				
		ethanol				
352	30 yr	Desipramine	Ingestion	Int suicide		
		haloperidol				
353‡	40 yr	Desipramine	Ingestion	Int suicide	2,944 ng/mL	
		ibuprofen				
354	37 yr	Desipramine	Ingestion	Int suicide		
		loxapine				
		aspirin				
355	21 yr	Desipramine	Ingestion	Int suicide	17,700 ng/mL§	
		loxapine			110 ng/mL§	
		diphenhydramine			0.32 µg/mL§	
356‡	26 yr	Desipramine	Ingestion	Int suicide		
		nortriptyline				
		thioridazine				
357	39 yr	Desipramine	Ingestion	Int suicide		
		perphenazine				
358	61 yr	Desipramine	Ingestion	Int suicide		
		selegiline				
359	26 yr	Doxepin	Ingestion	Int suicide		
360	29 yr	Doxepin	Ingestion	Int suicide	2,050 ng/mL	
361‡	30 yr	Doxepin	Ingestion	Int suicide	23,500 ng/mL	
				desmethyldoxepin	4,600 ng/mL	
362	60 yr	Doxepin	Ingestion	Int suicide	3,868 ng/mL§	
363‡	78 yr	Doxepin	Ingestion	Int suicide	6,300 ng/mL§	
364‡	40 yr	Doxepin	Ingestion	Int suicide		
		amitriptyline				
		alprazolam				
365	30 yr	Doxepin	Ingestion	Int suicide	6,030 ng/mL	3 h
		carbaryl insecticide				
		chlordiazepoxide				
366‡	43 yr	Doxepin	Ingestion	Int suicide		

(Continued on following page)

TABLE 16. Summary of Fatal Exposures (Cont'd)

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels	
367‡	38 yr	cyproheptadine ethanol Doxepin	Ingestion	Int suicide	215 mg/dL 2,673 ng/mL§ 161 mg/dL§	
368	28 yr	ethanol Doxepin lorazepam	Ingestion	Int suicide		
369	22 yr	Doxepin metoclopramide	Ingestion	Int suicide		
370‡	60 yr	Doxepin thioridazine alprazolam	Ingestion	Int suicide		
371	38 yr	Doxepin	Ingestion	Int unknown nordoxepin	1,126 ng/mL 365 ng/mL	
372	16 yr	valproic acid Imipramine	Ingestion	Int suicide	3,380 ng/mL	>1-2 h
373	24 yr	Imipramine	Ingestion	Int suicide	850 ng/mL 6,800 ng/mL§ 4,800 ng/mL§	>1-2 h
374	24 yr	Imipramine	Ingestion	Int suicide		
375‡	29 yr	Imipramine	Ingestion	Int suicide	4,800 ng/mL 4,200 ng/mL	>4 h >4 h
376‡	30 yr	Imipramine	Ingestion	Unknown		
377†	30 yr	Imipramine	Ingestion	Int unknown		
378‡	38 yr	Imipramine	Ingestion	Int suicide		
379	40 yr	Imipramine	Ingestion	Int suicide	1,990 ng/mL	
380‡	44 yr	Imipramine	Ingestion	Int suicide	9,770 ng/mL§ 4,440 ng/mL§ 4,976 ng/mL§ 470 ng/mL§	
381	51 yr	Imipramine	Ingestion	Int suicide	>500 ng/mL	
382‡	20 yr	Imipramine cocaine	Ingestion	Int suicide		
383	39 yr	Imipramine	Ingestion	Int suicide	2985 ng/mL 385 ng/mL	
384†	62 yr	ethanol Imipramine haloperidol lorazepam	Ingestion	Int suicide	1,342 ng/mL#	
385	30 yr	Imipramine lithium benztropine	Ingestion	Int suicide		
386‡	32 yr	Imipramine lithium chlorpromazine	Ingestion	Int unknown		
387	26 yr	Imipramine ranitidine	Ingestion	Int suicide		
388†	41 yr	Lithium	Ingestion	Unknown	7.5 mEq/L	
389†	50 yr	Lithium	Ingestion	Acc misuse		
390	62 yr	Lithium	Ingestion	Acc misuse		
391†	69 yr	Lithium	Ingestion	Acc misuse	7.2 mEq/L	
392	30 yr	Lithium	Ingestion	Int suicide	17 mEq/L	
393	24 yr	alprazolam thioridazine Lithium (long-acting) desipramine	Ingestion	Int suicide		
394†	53 yr	Lithium heparin doxepin	Ingestion	Int misuse	8.4 mEq/L	
395	30 yr	Lithium (long-acting) imipramine	Ingestion	Int suicide	4.94 mEq/L	25.75 h
396	38 yr	Lithium nortriptyline triazolam	Ingestion	Int suicide	5.62 mEq/L 933 ng/mL	
397	26 yr	Maprotiline ethanol	Ingestion	Int suicide	113 ng/mL 41 mg/dL	

(Continued on following page)

TABLE 16. Summary of Fatal Exposures (Cont'd)

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels	
398‡	15 yr	Nortriptyline	Ingestion	Int suicide	6,130 ng/mL	
399	28 yr	Nortriptyline	Ingestion	Int suicide		
400‡	40 yr	Nortriptyline	Ingestion	Int suicide		
401	48 yr	Nortriptyline	Ingestion	Int suicide	18,776 ng/mL	3-4 h
402‡	>17 yr	Nortriptyline	Ingestion	Int suicide	5,000 ng/mL§	
403	68 yr	Nortriptyline	Ingestion	Int suicide		
		acetaminophen/propoxyphene			19.6 µg/mL¶	
404	29 yr	Nortriptyline	Ingestion	Int suicide		
		alprazolam				
		trifluoperazine				
405	30 yr	Nortriptyline	Ingestion	Int suicide		
		carbamazepine				
		loxapine				
406	75 yr	Nortriptyline	Ingestion	Int suicide	1,109 ng/mL	
		digoxin			1.2 ng/mL	
407	35 yr	Nortriptyline	Ingestion	Int suicide		
		disulfiram				
		ethanol				
408‡	39 yr	Nortriptyline	Ingestion	Int suicide	404 ng/mL	96 h
		ethanol			15 mg/dL	
409	45 yr	Nortriptyline	Ingestion	Int suicide		
		ethanol				
410	26 yr	Nortriptyline	Ingestion	Int suicide		
		lithium				
411	20 yr	Nortriptyline	Ingestion	Int suicide	5,800 ng/mL§	
		temazepam			0.11 µg/mL§	
		ethanol				
412	62 yr	Nortriptyline	Ingestion	Int suicide		
		thioridazine				
413	76 yr	Selegiline	Ing/Paren	Adv rxn		
		meperidine				
414*	11 mo	Trazodone	Ing/Inh	Acc gen		
415	18 yr	Trazodone	Ingestion	Int suicide		
		naproxen				
416	36 yr	Trimipramine	Ingestion	Int suicide	1,600 ng/mL§	
		ethanol			190 mg/dL§	
417	30 yr	Unknown tricyclic antidepressant	Ingestion	Int suicide		
418‡	>17 yr	Unknown tricyclic antidepressant	Ing/Inh	Unknown		
		cocaine				
		ethanol				
419	35 yr	Unknown cyclic antidepressant	Ing/Paren	Int suicide	>900 ng/mL	
		phenobarbital			54 µg/mL	
		potassium chloride				

See also cases 31, 223, 264, 364, 481, 545, 571 (amitriptyline); 473, 474 (amitriptyline/perphenazine); 585 (amoxapine); 536 (bupropion); 588 (cyclic antidepressants); 308, 393 (desipramine); 289, 310, 311, 394 (doxepin); 79, 259, 319, 513, 536 (fluoxetine); 395, 479, 514, 545, 568, 601 (imipramine); 331, 385, 386, 410, 495 (lithium); 289, 354, 355, 405 (loxapine); 80, 264, 356, 396, 461, 548 (nortriptyline); 358 (selegiline); 220 (trimipramine).

Antihistamines

420*	11 mo	Diphenhydramine	Ingestion	Acc gen		
421	29 yr	Diphenhydramine	Ingestion	Int suicide	5,062 ng/mL	
		ethanol				
		cocaine				
422	24 yr	Hydroxyzine	Ingestion	Int suicide		
		alprazolam				

See also cases 366 (cyproheptadine); 265, 355 (diphenhydramine); 387 (ranitidine).

Antimicrobials

423†	44 yr	Vancomycin	Parenteral	Acc misuse	147 µg/mL	
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Antineoplastics

424	67 yr	Methotrexate	Ingestion	Unknown		
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Asthma therapies

425†	74 yr	Aminophylline	Ingestion	Acc misuse	52 µg/mL	
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TABLE 16. Summary of Fatal Exposures (Cont'd)

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels
426‡	17 yr	Theophylline (long-acting)	Ingestion	Int suicide	146 µg/mL
427	22 yr	Theophylline (long-acting)	Ingestion	Int suicide	170 µg/mL
428‡	30 yr	Theophylline	Ingestion	Int suicide	>4 h
429†	36 yr	Theophylline	Ingestion	Int misuse	400 µg/mL
430‡	40 yr	Theophylline	Ingestion	Int suicide	143 µg/mL
431	41 yr	Theophylline	Ingestion	Int unknown	150 µg/mL
432	41 yr	Theophylline	Ingestion	Int suicide	178 µg/mL
433	42 yr	Theophylline (long-acting)	Ingestion	Int suicide	131 µg/mL
434	56 yr	Theophylline	Ingestion	Unknown	189 µg/mL§
435*	61 yr	Theophylline (long-acting)	Ingestion	Int suicide	163 µg/mL
436†	61 yr	Theophylline	Unknown	Unknown	49.7 µg/mL
437	65 yr	Theophylline	Ingestion	Unknown	33 µg/mL
438	65 yr	Theophylline	Ingestion	Int suicide	88 µg/mL
439†	67 yr	Theophylline	Ingestion	Unknown	60 µg/mL
440	69 yr	Theophylline	Ingestion	Int unknown	38.5 µg/mL
441†	70 yr	Theophylline	Ingestion	Unknown	33 µg/mL
442	70 yr	Theophylline (long-acting)	Ingestion	Int suicide	58 µg/mL
443†	71 yr	Theophylline (long-acting)	Ingestion	Adv rxn	50.6 µg/mL
444†	78 yr	Theophylline (long-acting)	Ingestion	Acc misuse	>40 µg/mL
445	80 yr	Theophylline	Ingestion	Int misuse	92 µg/mL
446†	82 yr	Theophylline	Ingestion	Acc misuse	50.1 µg/mL
447†	82 yr	Theophylline	Ingestion	Acc misuse	40 µg/mL
448†	87 yr	Theophylline	Ingestion	Acc misuse	104 µg/mL
449†	87 yr	Theophylline	Ingestion	Unknown	29 µg/mL
450	43 yr	Theophylline	Ingestion	Int suicide	214 µg/mL
		acetaminophen/codeine			4 µg/mL
451	80 yr	Theophylline (long-acting)	Ingestion	Int suicide	81.5 µg/mL
		acetaminophen/codeine			283 µg/mL
452	23 yr	Theophylline	Ing/Unk	Int suicide	165 µg/mL
		cocaine			
		ethanol			
453	66 yr	Theophylline	Ingestion	Int suicide	92 µg/mL
		digoxin			
		furosemide			
454*	29 yr	Theophylline (long-acting)	Ingestion	Int suicide	202.7 µg/mL
		ethanol			140 mg/dL
455	38 yr	Theophylline (long-acting)	Ingestion	Int suicide	2.5 µg/mL
		ethanol			200 mg/dL
456	68 yr	Theophylline (long-acting)	Ingestion	Int unknown	100 µg/mL
		nifedipine			
457	41 yr	Theophylline	Ingestion	Int suicide	119 µg/mL
		trihexyphenidyl			
458	76 yr	Theophylline/aminophylline	Ing/Paren	Acc misuse	37 µg/mL
		oxygen			
See also cases 274, 515, 520 (theophylline).					
Cardiovascular drugs					
459	38 yr	Acebutolol	Ingestion	Int suicide	
460†*	3 mo	Amrinone	Parenteral	Acc misuse	75.9 µg/mL
461	68 yr	Atenolol	Ingestion	Int suicide	100 µg/mL§
		procainamide			1.9 µg/mL§
				n-acetylprocainamide	3.2 µg/mL§
		nortriptyline			226 ng/mL§
462	15 yr	Atenolol	Ingestion	Int suicide	
		propranolol			
463	56 yr	Clonidine	Ingestion	Int suicide	
464	65 yr	Digoxin	Ingestion	Int suicide	
465†	65 yr	Digoxin	Ingestion	Acc misuse	2.9 ng/mL
466†	71 yr	Digoxin	Parenteral	Acc misuse	8.9 ng/mL
467	74 yr	Digoxin	Parenteral	Acc misuse	3.6 ng/mL
468†	80 yr	Digoxin	Ingestion	Acc gen	5 ng/mL
469	83 yr	Digoxin	Ingestion	Int suicide	>16 ng/mL§
470‡	89 yr	Digoxin	Ingestion	Int unknown	
471	93 yr	Digoxin	Ingestion	Acc unknown	7.5 ng/mL

(Continued on following page)

TABLE 16. Summary of Fatal Exposures (Cont'd)

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels
472†	96 yr	Digoxin	Ingestion	Int unknown	8 ng/mL
473	20 yr	Digoxin	Ingestion	Int suicide	23 ng/mL
474	66 yr	amitriptyline/perphenazine		tricyclic antidepressant	>2000 ng/mL
		Digoxin	Ingestion	Int suicide	
		amitriptyline/perphenazine			
		lorazepam			
475	88 yr	Digoxin	Ingestion	Int unknown	
		holly berries			
476†	102 yr	Digoxin	Ingestion	Acc gen	5.5 ng/mL
		potassium			6.0 mEq/L
477	25 yr	Diltiazem	Ingestion	Int suicide	
478	35 yr	Diltiazem	Ingestion	Int suicide	
479	>17 yr	Diltiazem	Ingestion	Int suicide	
		alprazolam			
		imipramine			
480‡	40 yr	Flecainide	Ingestion	Int suicide	13.7 µg/mL§
		atenolol			
481	17 yr	Methyldopa	Ingestion	Int suicide	
		perphenazine			
		amitriptyline			
482	89 yr	Metoprolol	Ingestion	Acc misuse	
		isosorbide dinitrate			
		digoxin			
483	32 yr	Nifedipine	Ingestion	Int suicide	
484	64 yr	Nifedipine (long-acting)	Ingestion	Unknown	
485	79 yr	Nifedipine (long-acting)	Ingestion	Int suicide	
		captopril			
486	36 yr	Nifedipine	Ingestion	Int suicide	
		metoprolol			
		triamterene			
487	35 yr	Nifedipine	Ingestion	Int unknown	
		propranolol			
488†	83 yr	Procainamide (long-acting)	Ingestion	Adv rxn	16 µg/mL
				n-acetylprocainamide	30 µg/mL
489	14 yr	Propranolol (long-acting)	Ingestion	Int suicide	4,800 ng/mL§
490	35 yr	Propranolol	Ingestion	Int suicide	3,056 ng/mL
491‡	42 yr	Propranolol	Ingestion	Int suicide	
492†	80 yr	Propranolol	Ingestion	Acc gen	
493	49 yr	Propranolol	Ingestion	Int suicide	
		acetaminophen/propoxyphene			88 µg/mL 4 h
		alprazolam			
494	59 yr	Propranolol	Ingestion	Int suicide	
		aspirin/butalbital/caffeine			
495‡	50 yr	Propranolol	Ingestion	Int suicide	
		thioridazine			
		lithium			
496‡	17 yr	Verapamil	Ingestion	Int suicide	
497	20 yr	Verapamil	Ingestion	Int suicide	
498	24 yr	Verapamil (long-acting)	Ingestion	Int suicide	
499	27 yr	Verapamil (long-acting)	Ingestion	Int suicide	
500	35 yr	Verapamil	Ingestion	Int suicide	
501	37 yr	Verapamil (long-acting)	Ingestion	Int suicide	
502	42 yr	Verapamil	Ingestion	Int suicide	
503	50 yr	Verapamil	Ingestion	Int suicide	
504	66 yr	Verapamil	Ingestion	Int suicide	26.2 µg/mL§
505	76 yr	Verapamil	Ingestion	Int suicide	
506	86 yr	Verapamil	Ingestion	Int suicide	
507	21 yr	Verapamil (long-acting)	Ingestion	Int unknown	
		aspirin			
508	32 yr	Verapamil	Ingestion	Int suicide	
		aspirin			146 mg/dL 4.5 h
		barbiturates			
509	18 yr	Verapamil	Ingestion	Int suicide	
		aspirin (adult)			9 mg/dL

(Continued on following page)

TABLE 16. Summary of Fatal Exposures (Cont'd)

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels	
510	34 yr	triamterene/hydrochlorothiazide Verapamil (long-acting)	Ingestion	Int suicide	346 mg/dL	
511	38 yr	ethanol Verapamil	Ingestion	Int suicide	18.7 µg/mL	0.75 h
				norverapamil	6.0 µg/mL	0.75 h
512	33 yr	ethanol Verapamil	Ingestion	Int suicide	230 mg/dL	0.75 h
513	42 yr	ethanol levothyroxine Verapamil	Ingestion	Int suicide		
514	36 yr	fluoxetine Verapamil (long-acting)	Ingestion	Int suicide		
515	30 yr	gemfibrozil imipramine Verapamil (long-acting)	Ingestion	Int suicide		
516‡	51 yr	nifedipine theophylline Verapamil	Ingestion	Unknown		
517	16 yr	opiates Verapamil	Ingestion	Int suicide		
518‡	30 yr	propranolol Verapamil	Ingestion	Int suicide		
519	47 yr	propranolol Verapamil	Ingestion	Int suicide	1.4 µg/mL§	
520	79 /yr	alprazolam Verapamil	Ingestion	Int suicide	1.8 µg/mL§	
				norverapamil	0.55 µg/mL§	
		theophylline (long-acting)			46.1 µg/mL§	
		acetaminophen			81 µg/mL§	

See also cases 219, 480 (atenolol); 485 (captopril); 286, 406, 453, 482, 521 (digoxin); 255 (diltiazem); 286 (guanfacine); 482 (isosorbide dinitrate); 486 (metoprolol); 456, 515, 521 (nifedipine); 255 (nitroglycerin); 461 (procainamide); 219, 462, 487, 517, 518, 519 (propranolol); 604 (quinine); 14 (verapamil).

Cold and cough preparations

521	56 yr	Brompheniramine/pseudoephedrine digoxin	Ingestion	Int suicide	3.8 ng/mL	
522*	17 yr	nifedipine Phenylpropanolamine/chlorpheniramine cold preparation	Ingestion	Int suicide		
523	20 yr	Pseudoephedrine doxylamine sleep aid lactobacillus	Ingestion	Int suicide		
524	28 yr	L-desoxyephedrine hydrochloric acid	Parenteral	Int abuse		
525*	25 yr	Propylhexedrine hydrochloric acid	Parenteral	Int abuse		

See also cases 39, 211 (acetaminophen/doxylamine/pseudoephedrine/dextromethorphan); 606 (chlorpheniramine/phenylpropanolamine); 254 (dextromethorphan); 208 (ephedrine); 260 (pseudoephedrine).

Diagnostic agents

526	70 yr	Radiopaque medium (iothalamate meglumine 60%)	Parenteral	Adv rxn		
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Diuretics

See cases 453 (furosemide); 486 (triamterene); 509 (triamterene/hydrochlorothiazide).

Electrolytes and minerals

527*	10 mo	Ferrous sulfate	Ingestion	Acc gen	18,930 µg/dL	
528*	11 mo	Ferrous sulfate	Ingestion	Acc gen	14,000 µg/dL	
529*	14 mo	Iron tablets	Ingestion	Acc gen	10,000 µg/dL	2 h
530*	15 mo	Iron tablets	Ingestion	Acc gen	383 µg/dL	10 h
531*	16 mo	Ferrous sulfate	Ingestion	Acc gen	8,500 µg/dL	>3 h
532*	64 yr	Potassium chloride	Ingestion	Int suicide	9.8 mEq/L	2.5 h

(Continued on following page)

TABLE 16. Summary of Fatal Exposures (Cont'd)

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels
533	53 yr	Potassium chloride salt substitute	Ingestion	Int suicide	9.6 mEq/L
<i>See also case 476 (potassium); 419 (potassium chloride).</i>					
Gastrointestinal preparations					
534*	62 yr	Sodium bicarbonate	Ingestion	Acc misuse	
<i>See also cases 351 (dicyclomine); 273, 309 (diphenoxylate/atropine); 177 (loperamide); 369 (metoclopramide).</i>					
Hormones and hormone antagonists					
535	15 yr	Glipizide	Ingestion	Int suicide	
536	44 yr	cyclobenzaprine NPH insulin fluoxetine bupropion	Ing/Paren	Int suicide	
<i>See also case 606 (glyburide); 512 (levothyroxine).</i>					
Miscellaneous drugs					
537‡	42 yr	Disulfiram ethanol	Ingestion	Int misuse	
538‡	35 yr	Vecuronium bromide propofol	Parenteral	Int suicide	
<i>See also case 407 (disulfuram).</i>					
Muscle relaxants					
539*	45 yr	Cyclobenzaprine	Ingestion	Int suicide	
<i>See also cases 184 (acetaminophen/chlorzoxazone); 280 (aspirin/orphenadrine/caffeine); 225 (carisoprodol); 535, 589 (cyclobenzaprine).</i>					
Sedative/hypnotic and antipsychotic agents					
540	33 yr	Barbiturates	Ingestion	Int abuse	
541	59 yr	Barbital aspirin/butalbital/codeine/caffeine	Ingestion	Int suicide	
542‡	38 yr	Chloral hydrate	Ingestion	Int suicide	33 mg/dL
543	66 yr	Chloral hydrate	Ingestion	Int suicide	
544	81 yr	Chlorazepate triazolam ethanol	Ingestion	Int suicide	
545‡	28 yr	Chlorpromazine imipramine amitriptyline	Ingestion	Int suicide	
546	25 yr	Clozapine triprolidine	Ingestion	Int suicide	5.81 µg/mL§ 0.11 µg/mL§
547‡	27 yr	Diazepam acetaminophen/hydrocodone unknown drugs	Ingestion	Int suicide	
548‡	46 yr	Diazepam ethanol nortriptyline	Ingestion	Unknown	
549	>17 yr	Ethchlorvynol	Ingestion	Int suicide	6.4 mg/dL§
550†	40 yr	Fluphenazine	Unknown	Unknown	
551†	35 yr	Fluphenazine benztropine	Ingestion	Adv rxn	
552	72 yr	Flurazepam	Ingestion	Int suicide	
553	88 yr	Flurazepam ethanol	Ingestion	Int suicide	
554	33 yr	Glutethimide acetaminophen diazepam	Ingestion	Int abuse	22.8 µg/mL >30 h
555	36 yr	Glutethimide/codeine ("loads") glyphosate	Derm/Unk	Int unknown	
556‡	17 yr	Haloperidol	Ingestion	Int suicide	200 ng/mL
557	48 yr	Meprobamate	Ingestion	Int suicide	107 µg/mL§
558	40 yr	Meprobamate acetaminophen/codeine	Ingestion	Int suicide	
559‡	42 yr	Mesoridazine	Ingestion	Int suicide	

(Continued on following page)

TABLE 16. Summary of Fatal Exposures (Cont'd)

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels
560	35 yr	Phenobarbital	Ingestion	Int suicide	111.9 µg/mL
561‡	45 yr	Phenobarbital	Ingestion	Int suicide	149 µg/mL
562	77 yr	Phenobarbital	Ingestion	Unknown	88 µg/mL
5673	80 yr	Phenobarbital	Parenteral	Acc misuse	31.4 µg/mL
564	64 yr	Phenobarbital	Ing/Paren	Int suicide	
		acetaminophen/oxycodone			
565†	66 yr	Phenobarbital	Ingestion	Unknown	115 µg/mL
		phenytoin			89 µg/mL
566†	91 yr	Phenobarbital	Ingestion	Unknown	103 µg/mL
		phenytoin			36 µg/mL
567	44 yr	Phenobarbital	Ingestion	Int suicide	77 µg/mL
		phenytoin			58.4 µg/mL
		trifluoperazine			
568	26 yr	Phenobarbital/ergotamine	Ingestion	Int suicide	
		imipramine			
		propoxyphene			
569‡	63 yr	Thiopental	Parenteral	Int suicide	
		phenobarbital			
		lorazepam			
570	38 yr	Thioridazine	Ingestion	Int suicide	
		acetaminophen			747 µg/mL
		lorazepam			
571	57 yr	Thioridazine	Ingestion	Int suicide	
		amitriptyline			
		lorazepam			
572‡	50 yr	Thioridazine	Ingestion	Int suicide	
		benzodiazepine			

See also cases 206 (acetaminophen/diphenhydramine); 207, 263, 321, 349, 364, 370, 392, 404, 422, 479, 493, 519 (alprazolam); 598 (amobarbital); 508 (barbiturates); 8, 224, 572 (benzodiazepine); 385, 551, 601 (benztropine); 595 (butalbital); 9 (chloral hydrate); 210 (chlorazepate); 322, 365 (chlordiazepoxide); 253, 312, 322, 386 (chlorpromazine); 320 (clonazepam); 14, 225, 554, 590 (diazepam); 269 (flurazepam); 216, 352, 384 (haloperidol); 368, 384, 474, 569, 570, 571 (lorazepam); 278 (meprobamate); 357, 481 (perphenazine); 290, 419, 569 (phenobarbital); 293 (piroxicam); 598 (secobarbital); 261 (sleep aid—diphenhydramine); 221, 312, 523 (sleep aid—doxylamine); 122, 411 (temazepam); 321, 328, 356, 370, 392, 412, 495 (thioridazine); 122, 232, 325, 396, 544 (triazolam); 404, 567 (trifluoperazine); 221 (unknown sleep aid).

Stimulants and street drugs

573	21 yr	Caffeine	Ingestion	Int suicide	
574	18 yr	Cocaine	Ingestion	Int abuse	
575‡	21 yr	Cocaine	Inhalation	Int abuse	
576‡	25 yr	Cocaine	Inhalation	Int abuse	
577‡	25 yr	Cocaine	Ing/Paren	Int misuse	3.7 µg/mL§
				benzoylecgonine	2.198 µg/mL§
578*	26 yr	Cocaine	Ingestion	Acc unknown	
579‡	30 yr	Cocaine	Inhalation	Int abuse	0.04 µg/mL§
				benzoylecgonine	3.96 µg/mL§
580†	31 yr	Cocaine	Parenteral	Int abuse	
581	31 yr	Cocaine	Unknown	Int suicide	
582	33 yr	Cocaine	Unknown	Int abuse	
583	38 yr	Cocaine	Parenteral	Int abuse	
584‡	>17 yr	Cocaine	Parenteral	Int abuse	
585	30 yr	Cocaine	Ing/Inh	Int suicide	
		amoxapine			
586‡	>17 yr	Cocaine	Ingestion	Int unknown	
		aspirin			36 mg/dL
587	37 yr	Cocaine (crack)	Ing/Inh/Paren	Int abuse	
		codeine			
588‡	28 yr	Cocaine	Unknown	Int abuse	
		cyclic antidepressants			
589	30 yr	Cocaine	Ing/Inh/Paren	Int abuse	
		cyclobenzaprine			
590	45 yr	Cocaine	Ingestion	Int suicide	
		diazepam			
591†	23 yr	Cocaine (crack)	Ing/Inh	Int abuse	
		ethanol			

(Continued on following page)

TABLE 16. Summary of Fatal Exposures (Cont'd)

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels	
592	31 yr	Cocaine heroin	Inh/Paren	Unknown		
593‡	32 yr	Cocaine heroin ethanol	Ing/Paren	Int abuse	170 mg/dL	
594‡	22 yr	Cocaine marijuana ethanol	Unknown	Int abuse		
595‡	39 yr	Cocaine methamphetamine butalbital	Parenteral	Int abuse		
596‡	38 yr	Cocaine opiates	Parenteral	Int abuse		
597	31 yr	Cocaine (crack) phencyclidine	Ing/Inh/Paren	Int abuse		
598‡	29 yr	Cocaine secobarbital amobarbital	Ing/Inh	Int abuse		
599‡	30 yr	Heroin	Parenteral	Int abuse		
600†‡	36 yr	Heroin	Parenteral	Int abuse		
601	19 yr	Heroin benztropine imipramine	Ing/Paren	Int abuse		
602‡	41 yr	Heroin	Parenteral	Int unknown morphine	0.06 µg/mL§	
603‡	48 yr	cocaine Heroin ethanol	Ing/Inh	Int suicide		
604‡	25 yr	Heroin ethanol quinine	Ing/Paren	Int abuse	200 mg/dL	
605*	40 yr	Methamphetamine	Unknown	Int abuse amphetamine	7.6 µg/mL 0.37 µg/mL	12 h 12 h
606‡	25 yr	Methamphetamine cough and cold preparation (chlorpheniramine/phenylpropanolamine) glyburide	Ingestion	Int suicide	1.9 µg/mL§	
607‡	30 yr	Phencyclidine ethanol	Ingestion	Int abuse		
See also cases 8, 57, 208 (amphetamine); 10, 78, 279, 382, 418, 421, 452, 602 (cocaine); 78, 250, 266, 592, 593 (heroin); 594 (marijuana); 12, 595 (methamphetamine); 597 (phencyclidine).						
Topical						
608*	86 yr	Camphor spirits	Ingestion	Int suicide		
609*	2 yr	Oil of wintergreen	Ingestion	Acc gen	146 mg/dL¶	4.5 h
610	66 yr	Oil of wintergreen	Ingestion	Acc misuse		
611*	88 yr	Oil of wintergreen	Ingestion	Acc gen	71.4 mg/dL¶	2 h
Unknown drugs						
See case 547 (unknown drugs).						
Vitamins						
612†	28 yr	Nicotinic acid lovastatin	Ingestion	Adv rxn		

‡ Prehospital (cardiac and/or respiratory) arrest

* Abstract of case provided in appendix.

† Chronic exposure.

§ Level obtained postmortem.

¶ Acetaminophen level.

‡ Salicylate level.

Level includes metabolite and parent compound.

** Ethylene glycol level.

TABLE 17. 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	6-17	>17	Acc	Int	Adv Rxn		None	Minor	Moderate	Major	Death	
Adhesive/Glues														
Cyanoacrylates	9,242	3,741	1,366	4,048	9,183	61	10	2,034	1,695	2,852	234	5	0	
Epoxy	768	346	37	372	763	6	1	282	204	255	29	1	0	
Toluene/xylene	2,577	2,021	286	267	2,519	57	5	347	826	628	26	1	0	
Nontoxic	1,463	1,128	218	110	1,443	19	1	61	386	108	2	0	0	
Unknown	5,902	3,270	707	1,890	5,732	100	70	813	1,690	1,116	75	0	1	
*Category Total	19,952	10,506	2,614	6,687	19,640	243	87	3,537	4,801	4,959	366	7	1	
Alcohols														
Ethanol (beverage)	13,467	891	1,411	10,982	2,249	10,797	215	10,963	1,468	5,253	1,215	231	45	
Ethanol (other)	14,812	4,370	1,384	8,930	6,645	7,846	149	8,590	3,214	4,409	1,068	201	15	
Higher alcohols	182	95	8	78	180	2	0	62	57	62	2	0	0	
Isopropanol	5,390	3,625	324	1,413	4,811	544	6	1,511	2,146	1,220	139	36	2	
Methanol	1,047	358	108	572	908	116	3	615	368	306	62	18	14	
Rubbing ethanol: with methylsalicylate	60	48	5	7	55	4	0	16	29	11	1	0	0	
Rubbing ethanol: without methylsalicylate	444	354	29	62	427	20	0	61	210	89	0	0	0	
Rubbing isopropanol: with methylsalicylate	228	181	7	39	212	16	0	63	114	38	5	1	0	
Rubbing isopropanol: without methylsalicylate	11,376	8,776	652	1,901	10,431	910	9	2,320	4,515	1,961	159	33	2	
Rubbing alcohol: unknown type	577	421	39	123	520	59	0	121	243	105	13	0	0	
Other alcohol	143	42	11	87	83	54	3	81	33	48	8	2	1	
Unknown alcohol	1,261	236	133	876	467	768	11	861	167	426	85	18	0	
*Category Total	48,987	19,397	4,111	25,070	26,988	21,136	396	25,264	12,564	13,928	2,757	540	79	
Arts/Crafts/Office Supplies														
Artist paints, non-water color	765	594	69	97	758	5	1	52	266	57	1	0	0	
Chalk	1,763	1,647	65	44	1,756	10	0	39	431	40	1	0	0	
Clay	1,221	1,090	58	72	1,213	6	1	49	275	69	2	0	0	
Crayon	1,824	1,671	89	55	1,817	8	1	66	402	65	1	1	0	
Glazes	318	136	39	143	310	9	1	68	112	31	5	0	0	
Office supplies: miscellaneous	253	135	21	97	247	5	1	42	73	58	2	0	0	
Pencil	2,938	1,735	902	279	2,914	24	3	173	524	375	8	0	0	
Pens/ink	12,199	9,703	1,879	558	12,034	144	12	396	3,434	532	15	0	0	
Typewriter correction fluid	1,909	1,238	379	285	1,755	151	2	282	631	423	21	2	0	
Water color	2,084	1,770	155	149	2,065	20	0	62	614	102	2	0	0	
Other	4,809	4,023	316	450	4,771	33	5	278	1,158	302	13	1	0	
Unknown	386	286	70	29	379	7	1	26	119	20	4	0	0	
*Category Total	30,469	24,028	4,042	2,258	30,019	422	28	1,533	8,039	2,074	75	4	0	
Auto/Aircraft/Boat Products														
Ethylene glycol	2,657	630	225	1,772	2,486	151	5	1,144	783	785	109	36	1	
Glycols: other	1,397	473	89	816	1,366	33	1	497	344	595	48	5	0	
Glycol and methanol	64	20	7	37	60	4	0	20	13	30	1	1	0	
Hydrocarbons	2,407	1,145	209	1,036	2,354	50	2	596	692	934	64	2	1	
Methanol	1,131	472	113	534	1,039	92	0	575	456	326	52	2	8	
Non-toxic	37	26	5	6	36	0	0	4	14	8	0	0	0	
Other	1,598	649	168	770	1,573	24	2	513	329	727	65	3	0	
Unknown	234	81	21	131	225	8	0	111	55	94	8	0	0	
*Category Total	9,525	3,496	837	5,102	9,139	362	10	3,460	2,686	3,499	347	49	10	
Batteries														
Dry cell batteries	3,254	2,090	690	458	3,180	72	1	555	936	1,087	53	2	0	
Automotive batteries	1,659	220	148	1,260	1,649	9	1	635	180	895	118	3	0	
Disc batteries: alkaline (MnO ₂)	148	102	34	12	148	2	0	65	62	41	3	0	0	
Disc batteries: lithium	52	26	7	20	53	0	0	25	24	8	0	0	0	
Disc batteries: mercuric oxide	104	67	9	27	102	1	0	89	81	3	1	1	0	
Disc batteries: nickel cadmium	7	2	3	2	7	0	0	2	3	2	0	0	0	
Disc batteries: silver oxide	57	45	5	6	56	0	0	48	45	3	0	0	0	
Disc batteries: zinc-air	5	1	2	2	5	0	0	2	2	1	0	0	0	
Disc batteries: other	28	19	3	6	28	0	0	18	20	3	0	0	0	
Disc batteries: unknown	1,591	1,223	266	100	1,575	15	0	1,173	940	84	8	1	0	
Other	120	75	20	25	118	2	0	23	32	35	1	0	0	
Unknown	87	45	12	29	84	2	0	25	24	23	1	2	0	
*Category Total	7,112	3,915	1,199	1,947	7,005	103	2	2,660	2,349	2,185	185	9	0	
Bites and Envenomations														
Coelenterate	603	71	213	312	601	0	1	111	15	233	40	1	0	
Fish	1,182	33	137	986	1,173	2	6	449	27	667	120	2	0	
Other/unknown marine animal	121	48	14	57	117	1	3	42	20	43	8	0	0	
Insects														
Ant/fire ant	2,208	998	232	965	2,189	1	20	320	94	1,303	96	4	0	
Bee/wasp/hornet	15,803	3,990	3,611	8,091	15,684	8	128	2,831	579	9,721	587	12	0	
Caterpillar	740	152	187	398	736	0	4	51	47	306	9	0	0	
Centipede/millipede	84	34	20	30	85	0	0	13	13	43	1	0	0	
Mosquito	332	155	70	102	321	0	10	74	7	193	13	1	0	
Scorpion	5,848	489	1,056	4,283	5,845	2	2	629	244	4,243	217	13	0	

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TABLE 17. 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	6-17	>17	Acc	Int	Adv Rxn		None	Minor	Moderate	Major	Death
Tick	3,489	1,048	845	1,565	3,474	3	10	898	873	761	42	0	0
Other insect	5,861	1,510	1,057	3,248	5,812	4	47	1,742	383	3,331	210	3	1
Mammals:													
Bat	74	14	18	42	73	0	1	51	19	23	1	0	0
Cat	489	116	90	280	488	1	2	243	96	183	12	0	0
Dog	1,095	292	393	405	1,096	1	2	708	392	401	26	1	0
Fox	4	2	0	1	4	0	0	4	2	0	0	0	0
Human	156	42	33	80	137	15	0	84	36	58	1	0	0
Raccoon	50	1	15	34	50	0	0	32	13	16	1	0	0
Rodents/lagomorphs	1,329	410	497	405	1,321	3	5	276	154	495	3	0	0
Skunk	134	11	35	84	132	0	1	20	16	50	1	0	0
Other mammal	538	116	175	238	530	1	6	190	88	172	5	0	0
Reptile: other/unknown	735	366	210	153	727	3	4	97	126	225	6	1	0
Snakes													
Rattlesnake	515	32	57	422	510	4	1	463	35	148	197	47	0
Copperhead	322	22	65	232	320	1	0	299	25	140	93	9	0
Coral	18	0	3	14	18	0	0	16	4	5	4	0	0
Cottonmouth	63	1	14	48	62	0	0	57	8	19	17	5	0
Crotalid: unknown	4	1	2	1	4	0	0	2	0	3	0	0	0
Exotic snakes: poisonous	57	7	9	40	56	1	0	46	6	19	12	1	0
Exotic snakes: non-poisonous	241	22	50	161	240	0	0	104	19	118	4	0	0
Exotic snake: unknown if poisonous	3	1	0	2	3	0	0	1	1	2	0	0	0
Non-poisonous snake	794	126	417	248	785	6	5	117	112	366	6	0	0
Unknown snake	1,709	206	614	877	1,701	9	4	940	277	810	90	8	0
Spiders													
Black widow	2,420	313	318	1,774	2,406	3	10	851	354	1,200	292	13	0
Brown recluse	1,396	156	208	1,012	1,385	0	9	762	70	551	222	6	0
Other spider	398	71	65	256	391	0	8	71	28	225	10	0	0
Unknown insect or spider	13,581	2,849	2,216	8,408	13,493	7	67	3,255	658	8,000	695	7	0
Tarantula	37	6	10	21	36	0	1	3	3	24	1	0	0
*Category Total	62,433	13,711	12,956	35,275	62,005	76	357	15,852	4,844	34,097	3,042	134	1
Building/Construction Products													
Gaulking compounds and putties													
Caulking compounds and putties	2,109	1,757	90	250	2,096	13	3	152	719	219	10	1	0
Cement, concrete (excluding glues)													
Cement, concrete (excluding glues)	1,249	388	65	792	1,248	3	0	601	196	460	197	7	0
Insulation: asbestos													
Insulation: asbestos	464	66	38	354	462	0	1	141	63	76	7	0	0
Insulation: fiberglass													
Insulation: fiberglass	1,263	616	140	496	1,251	2	3	203	245	444	37	1	0
Insulation: urea/formaldehyde													
Insulation: urea/formaldehyde	137	63	8	66	136	0	3	23	24	37	3	0	0
Insulation: other													
Insulation: other	186	78	27	78	181	3	1	22	40	54	3	0	0
Insulation: unknown													
Insulation: unknown	104	59	13	33	100	3	2	13	17	23	2	0	0
Soldering flux													
Soldering flux	384	188	29	164	380	3	0	149	89	119	28	0	0
Other													
Other	1,340	853	57	425	1,330	8	2	263	333	278	40	1	0
Unknown	82	28	5	48	82	1	0	29	16	29	7	0	0
*Category Total	7,318	4,096	472	2,706	7,266	36	15	1,596	1,742	1,739	334	10	0
Chemicals													
Acetone	1,293	539	99	643	1,225	57	5	464	257	418	53	3	0
Acids: hydrofluoric	633	66	26	537	622	7	0	491	47	322	138	12	1
Acids: hydrochloric	2,556	209	329	1,987	2,506	48	3	1,119	243	1,367	183	8	2
Acids: other	4,448	889	396	3,100	4,336	92	6	2,173	724	2,169	342	16	3
Acids: unknown	540	56	51	427	521	12	1	302	48	270	64	1	0
Alkali	6,431	2,772	575	3,025	6,327	76	20	2,629	1,313	2,574	512	33	1
Ammonia	5,547	1,982	620	2,899	5,369	156	8	1,950	838	2,582	319	12	0
Borates/boric acid	2,804	1,777	179	826	2,691	111	3	522	845	335	29	3	1
Chlorates	52	16	15	21	51	1	0	18	14	19	0	1	0
Cyanide	442	32	13	389	379	46	2	316	81	151	34	5	14
Dioxin	12	3	0	9	10	0	1	8	2	3	0	0	0
Formaldehyde/formalin	1,455	315	185	931	1,402	42	9	610	262	641	62	1	0
Glycol: ethylene	585	152	64	359	510	59	1	307	168	161	30	26	4
Glycol: other	1,542	842	117	572	1,492	39	9	446	357	424	62	3	0
Ketones	1,249	401	76	759	1,234	11	2	677	241	527	89	3	0
Methylene chloride	1,261	252	139	856	1,242	15	4	626	171	667	75	5	0
Nitrates and nitrites	873	242	214	405	809	51	10	323	224	280	31	5	0
Phenol/creosote	1,437	273	132	1,013	1,408	16	11	616	180	662	140	6	0
Strychnine	26	4	0	22	9	14	0	20	3	5	2	1	4
Toluene diisocyanate	526	67	22	430	525	1	0	251	55	242	34	1	0
Other	18,761	7,923	1,854	8,720	17,421	810	292	6,899	3,944	4,735	645	76	4
Unknown	2,515	1,323	364	816	2,334	108	71	562	643	490	29	3	0
*Category Total	54,988	20,135	5,470	28,746	52,423	1,772	458	21,329	10,660	19,044	2,873	224	34
Cleaning Substances (Household)													
Ammonia cleaners	4,780	2,538	314	1,901	4,619	154	6	982	1,181	1,607	103	5	0
Automatic dishwasher granules	5,357	4,849	110	385	5,360	6	1	176	2,431	887	11	0	0
Automatic dishwasher liquids	2,045	1,779	45	218	2,044	3	0	127	904	362	20	0	0

(Continued on following page)

TABLE 17. 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	6-17	>17	Acc	Int	Adv Rxn		None	Minor	Moderate	Major	Death
Automatic dishwasher rinse agents	369	337	8	22	367	1	0	17	139	37	1	0	0
Automatic dishwasher: other/unknown	1,051	883	38	127	1,046	5	0	100	460	204	14	0	0
Bleaches: borate	642	434	32	174	620	10	13	91	196	208	11	0	0
Bleaches: hypochlorite	35,910	17,006	2,772	15,891	34,861	969	65	7,937	7,430	13,948	843	15	2
Bleaches: non- hypochlorite	1,042	590	66	384	1,017	17	13	169	251	345	15	1	0
Bleaches: other/unknown	539	346	32	157	523	16	1	101	139	147	12	0	0
Carpet/upholstery/leather/ vinyl cleaners	1,938	1,524	94	310	1,914	17	7	192	671	417	14	1	0
Cleansers: anionic/nonionic	8,309	6,745	323	1,213	8,160	134	10	730	2,870	1,584	62	2	0
Cleanser: other/unknown	1,979	1,349	136	488	1,945	37	3	293	679	510	31	1	0
Disinfectants: hypochlorite	3,327	1,239	428	1,645	3,286	36	8	936	662	1,512	152	5	1
Disinfectants: phenol	3,873	2,744	245	873	3,669	198	4	704	1,136	989	61	4	0
Disinfectants: pine oil	10,938	8,719	460	1,717	10,573	337	19	2,265	4,109	2,458	128	24	4
Disinfectants: other/unknown	1,711	1,021	128	548	1,652	58	2	506	516	526	39	3	0
Drain cleaners: acid	714	87	61	563	684	26	2	306	68	397	82	7	3
Drain cleaners: alkali	2,511	619	218	1,650	2,315	188	2	1,109	374	1,160	217	32	3
Drain cleaners: other/unknown	224	51	20	151	219	7	0	99	31	102	18	0	0
Fabric softeners: aerosol/spray	51	30	6	14	49	2	0	8	9	16	0	0	0
Fabric softeners: dry/powder	1	0	0	1	1	0	0	1	0	1	0	0	0
Fabric softeners: liquid	681	567	24	88	666	12	5	60	250	101	3	0	0
Fabric softeners: solid/sheet	335	303	11	19	324	3	8	12	136	33	1	0	0
Fabric softeners: other/ unknown	13	6	1	6	12	1	0	1	5	3	0	0	0
Glass cleaners: ammonia	1,873	1,474	145	247	1,830	43	1	153	604	453	10	0	0
Glass cleaners: anionic/ nonionic	15	10	1	4	13	2	0	2	3	2	0	0	0
Glass cleaners: isopropanol	1,735	1,462	99	169	1,706	28	2	126	595	296	5	1	0
Glass cleaners: other/unknown	6,444	5,427	374	634	6,352	96	3	444	2,145	1,397	18	0	0
Hand dishwashing: anionic/ nonionic	9,858	7,049	653	2,129	9,751	93	22	467	2,377	3,151	60	1	0
Hand dishwashing: other/ unknown	1,494	1,030	119	344	1,473	18	2	103	338	368	3	0	0
Laundry additives													
Bluing/brightening agents (no detergent)	63	54	5	4	63	0	0	3	26	4	0	0	0
Detergent booster	23	18	1	4	23	0	0	5	6	8	1	0	0
Enzyme/microbiological additive	45	22	6	17	45	0	0	3	17	4	2	0	0
Water softener	26	16	2	7	26	0	0	2	12	5	0	0	0
Other/unknown	212	174	8	30	209	2	1	32	46	73	2	0	0
Laundry detergents: granules	7,570	6,739	218	596	7,496	40	37	1,036	2,577	2,361	109	7	0
Laundry detergents: liquids	3,137	2,481	136	513	3,106	27	8	369	838	916	33	3	0
Laundry detergents: soaps	149	111	9	29	144	3	1	10	41	32	0	0	0
Laundry detergents: other/ unknown	158	115	9	36	156	5	0	42	51	45	2	1	0
Laundry pre-wash/soil stain removers													
Liquid solvent-based	172	140	7	22	171	1	0	16	64	41	4	0	0
Spray solvent-based	697	545	36	109	696	1	0	77	210	221	7	0	0
Other/unknown solvent- based	360	234	24	104	359	2	1	46	116	54	4	0	0
Surfactant-based	290	263	11	13	289	0	1	9	107	31	1	0	0
Liquid surfactant-based	1,746	1,504	65	176	1,734	10	1	141	582	382	13	1	0
Spray surfactant-based	206	178	10	17	207	0	0	20	52	75	1	0	0
Other/unknown surfactant- based	622	586	10	25	622	1	0	36	219	99	5	0	0
Other/unknown	22	13	1	7	21	1	0	2	11	6	0	0	0
Miscellaneous cleaner: acid	548	252	32	261	539	10	0	201	157	221	33	1	1
Miscellaneous cleaner: alkali	6,672	3,306	482	2,825	6,474	173	12	2,312	1,680	2,538	349	17	2
Miscellaneous cleaner: anionic/ nonionic	8,289	6,057	460	1,737	8,090	116	85	1,166	2,332	2,126	88	4	0
Miscellaneous cleaner: cationic	3,819	2,388	277	1,127	3,694	112	6	912	1,146	1,085	113	2	1
Miscellaneous cleaner: ethanol	281	208	20	51	276	4	1	50	94	89	2	0	0
Miscellaneous cleaner: glycols	1,867	1,468	115	285	1,842	25	5	238	592	442	14	0	0
Miscellaneous cleaner: isopropanol	694	549	31	108	687	7	0	78	274	142	1	0	0
Miscellaneous cleaner: methanol	47	33	0	12	46	1	0	8	15	10	0	0	0
Miscellaneous cleaner: phenol	12	4	0	8	11	1	0	6	1	7	3	0	0
Miscellaneous cleaner: other/ unknown	2,739	1,823	165	734	2,691	43	5	539	792	701	52	3	1
Oven cleaner: acid	6	2	1	3	6	0	0	3	1	4	1	0	0
Oven cleaner: alkali	3,486	1,086	304	2,056	3,432	44	10	1,581	407	1,716	326	6	0
Oven cleaner: detergent type	3	1	0	2	3	0	0	1	1	2	0	0	0
Oven cleaner: other/unknown	350	100	53	194	335	12	1	132	68	140	24	1	0

(Continued on following page)

TABLE 17. 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	6-17	>17	Acc	Int	Adv Rxn		None	Minor	Moderate	Major	Death
Rust remover: alkali	60	17	1	42	58	2	0	14	20	22	4	0	0
Rust remover: anionic/nonionic	1	1	0	0	1	0	0	0	0	1	0	0	0
Rust remover: hydrofluoric acid	1,447	166	101	1,174	1,436	16	0	1,046	125	879	280	7	2
Rust remover: other acid	402	190	13	193	397	5	1	123	126	135	22	0	0
Rust remover: other/unknown	211	35	25	149	206	3	3	42	32	100	9	0	0
Spot/dry cleaning: anionic/ nonionic	442	350	29	61	442	1	0	39	145	134	3	0	0
Spot/dry cleaning: glycol	81	52	4	25	78	0	0	12	25	19	1	0	0
Spot/dry cleaning: carbon- tetrachloride	1	0	0	1	0	1	0	1	0	0	0	0	0
Spot/dry cleaning: isopropanol	17	10	3	4	17	0	0	0	8	3	0	0	0
Spot/dry cleaning: perchloroethylene	131	82	7	41	125	5	0	41	34	31	6	0	0
Spot/dry cleaning: other halogenated hydrocarbon	153	72	11	70	150	3	0	42	31	56	5	0	0
Spot/dry cleaning: other non- halogenated hydrocarbon	199	114	17	65	193	6	0	34	74	68	4	0	0
Spot/dry cleaning: other/ unknown	188	92	22	72	185	1	1	50	57	57	5	0	0
Starch/fabric finishes/sizing	975	840	51	81	955	15	5	48	284	110	0	0	0
Toilet bowl cleaner: acid	3,293	1,409	242	1,617	3,142	145	7	984	862	1,366	155	5	3
Toilet bowl cleaner: alkali	312	218	10	86	309	5	0	48	131	54	8	0	0
Toilet bowl cleaner: other/ unknown	2,153	1,768	69	305	2,120	27	4	212	761	267	21	2	0
Wall/floor/tile cleaner: acid	3,399	1,611	158	1,598	3,353	39	4	819	957	1,354	112	1	1
Wall/floor/tile cleaner: alkali	5,391	3,149	363	1,860	5,281	95	20	1,274	1,412	2,201	207	1	0
Wall/floor/tile cleaner: anionic/nonionic	142	103	9	31	138	4	0	27	35	35	1	0	0
Wall/floor/tile cleaner: cationic	514	392	29	92	504	9	1	60	166	108	3	0	1
Wall/floor/tile cleaner: ethanol	1	1	0	0	1	0	0	0	1	0	0	0	0
Wall/floor/tile cleaner: glycols	558	418	30	111	553	5	2	73	192	112	7	1	0
Wall/floor/tile cleaner: isopropanol	17	11	1	5	16	0	1	6	3	6	2	0	0
Wall/floor/tile cleaner: methanol	2	1	0	1	2	0	0	1	1	1	0	0	0
Wall/floor/tile cleaner: other/ unknown	657	356	51	248	648	13	0	195	183	207	21	0	0
*Category Total	174,817	112,146	10,707	51,116	170,854	3,558	423	32,484	48,909	54,127	4,000	165	25
Industrial Cleaners													
Acids	1,060	167	78	801	1,044	16	1	568	146	575	112	5	0
Alkali	1,789	366	160	1,251	1,758	28	4	1,110	264	867	233	10	0
Anionic/nonionic	330	112	43	174	321	8	2	118	60	145	14	0	0
Cationic	414	65	55	293	394	18	2	238	51	221	46	1	1
Other/unknown	1,323	277	96	942	1,295	24	2	702	188	686	102	2	0
*Category Total	4,916	987	432	3,461	4,812	94	11	2,736	709	2,494	507	18	1
Cosmetics/Personal Care Products													
Bath oil, bubble bath	5,642	5,276	178	168	5,604	21	19	193	1,850	759	12	2	0
Creams, lotions, make-up	13,452	11,553	514	1,337	13,184	163	92	688	4,025	1,084	30	5	0
Dental: false teeth cleaning	1,062	260	79	714	1,038	20	0	105	390	145	1	0	0
Dental: toothpaste with fluoride	1,379	1,119	93	157	1,307	29	38	107	468	329	7	0	0
Dental: toothpaste without fluoride	134	94	9	30	128	1	4	12	30	20	0	0	0
Dental: other	930	680	58	195	910	12	9	123	260	275	7	0	0
Deodorants	9,461	8,383	367	674	9,339	108	20	430	2,561	1,228	32	3	0
Depilatories	496	208	51	235	426	29	37	121	99	199	30	1	0
Douches	313	214	14	84	287	7	18	41	92	38	6	0	0
Eye products	1,108	933	34	130	1,090	8	9	75	309	118	10	0	0
Hair coloring agents	1,156	578	73	497	1,096	15	45	302	280	392	43	2	0
Hair sprays	5,422	3,835	823	742	5,079	327	11	609	1,603	1,534	56	2	1
Hair rinses, conditioners, relaxers	2,845	2,283	175	371	2,773	49	28	573	949	629	54	5	0
Hair shampoos	8,944	7,391	491	1,038	8,712	189	42	712	2,684	1,888	59	2	0
Hair care: other	3,003	1,903	195	890	2,864	58	81	774	845	829	113	5	0
Lipsticks, lip balms, with camphor	469	417	32	20	462	3	3	24	133	60	1	0	0
Lipsticks, lip balms, without camphor	2,211	2,136	38	29	2,199	7	8	46	531	86	3	0	0
Mouthwash: ethanol	4,015	2,317	612	1,063	3,520	467	10	752	1,404	750	65	9	1
Mouthwash: non ethanol	553	362	91	99	495	51	2	163	183	147	4	2	0
Mouthwash: fluoride	1,299	1,009	227	59	1,275	23	2	64	511	109	2	0	0
Mouthwash: unknown	87	34	46	7	80	6	0	13	16	36	0	0	0
Nail polish	9,341	8,645	342	333	9,277	66	7	602	3,086	1,842	29	2	0
Nail polish remover: acetone	4,024	3,421	230	359	3,942	77	1	546	1,880	727	15	1	0
Nail polish remover: other	1,320	1,110	85	125	1,296	30	0	131	526	239	4	0	0
Nail polish remover: unknown	4,809	3,869	371	556	4,676	136	1	709	1,818	839	25	1	0
Nail products, miscellaneous	2,235	1,734	106	389	2,214	8	12	420	701	613	42	0	0
Perfume, cologne, aftershave	33,150	30,868	989	1,234	32,793	362	28	2,094	13,252	4,377	64	5	0
Peroxide	10,140	6,078	844	3,152	9,868	255	24	862	2,705	1,947	51	4	1

(Continued on following page)

TABLE 17. 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	6-17	>17	Acc	Int	Adv Rxn	None	Minor	Moderate	Major	Death	
Powders: talc	2,911	2,672	101	128	2,870	34	6	337	839	825	7	0	0
Powders: without talc	781	745	11	18	780	0	3	20	162	173	1	0	0
Soaps	9,465	7,901	410	1,117	9,293	108	74	614	2,759	1,788	37	1	1
Suntan/sunscreen products	3,882	3,213	321	338	3,825	15	48	271	944	1,168	29	1	0
*Category Total	146,039	121,241	8,010	16,288	142,702	2,684	682	12,533	47,895	25,193	839	53	4
Deodorizers													
Air fresheners	10,270	9,317	425	503	10,207	62	9	662	3,786	1,263	28	3	0
Diaper pail	1,533	1,514	7	8	1,535	0	0	50	678	67	0	0	0
Toilet bowl deodorizers	1,192	1,144	15	28	1,188	5	0	73	489	93	0	0	0
Other	2,395	1,909	142	336	2,356	29	9	404	841	510	28	0	0
Unknown	187	148	7	32	183	3	1	33	55	38	2	0	0
*Category Total	15,577	14,032	596	907	15,469	99	19	1,222	5,849	1,971	58	3	0
Dyes													
Fabric	704	596	36	68	689	7	7	59	252	53	1	0	0
Food dye (eg, Easter egg)	1,178	1,045	74	56	1,151	19	9	34	358	62	0	0	0
Leather	165	133	7	24	163	1	0	15	58	18	0	0	0
Other	508	304	65	133	506	0	4	114	186	61	11	1	0
Unknown	87	59	11	18	85	1	2	10	18	8	0	0	0
*Category Total	2,642	2,137	193	299	2,594	28	22	232	872	202	12	1	0
Essential Oils													
Essential Oils	2,661	1,833	417	402	2,485	144	31	469	687	1,078	24	2	0
Fertilizers													
Household plant food	4,159	3,039	350	736	4,142	15	3	154	1,435	204	5	0	0
Outdoor fertilizers	1,827	1,296	176	346	1,820	9	4	128	616	206	10	1	0
Plant hormones	69	30	4	34	66	0	3	17	14	22	1	0	0
Other	593	391	52	146	583	4	6	54	186	51	5	0	0
Unknown	1,600	1,143	167	287	1,589	4	6	145	509	208	15	0	0
*Category Total	8,248	5,899	749	1,549	8,200	32	22	498	2,760	691	36	1	0
Fire Extinguishers													
Fire Extinguishers	2,220	284	487	1,433	2,141	72	0	731	417	995	48	1	0
Food Products/Food Poisoning													
Food Products/Food Poisoning	48,296	13,372	6,326	28,001	41,923	409	5,763	5,802	6,436	13,211	896	18	1
Foreign Bodies/Toys/Miscellaneous													
Ashes	712	664	17	26	708	4	1	38	204	88	3	0	0
Bubble blowing solutions	3,169	3,003	118	41	3,169	4	1	81	770	770	12	0	0
Charcoal	762	652	22	86	744	7	7	42	248	71	3	0	0
Christmas ornaments	1,556	1,446	53	49	1,547	9	1	98	413	124	3	0	0
Coins	4,878	4,170	585	119	4,852	32	2	1,546	1,687	484	16	3	0
Desiccants	11,611	10,386	724	446	11,553	55	8	465	2,902	137	5	0	0
Feces/urine	2,065	1,836	47	178	2,050	15	2	89	557	123	3	1	0
Glass	1,271	663	135	464	1,255	11	2	189	323	139	6	0	0
Incense	339	310	10	18	336	3	0	25	109	35	2	0	0
Soil	1,894	1,708	52	129	1,888	4	1	103	488	162	3	1	0
Thermometer	11,246	6,560	2,844	1,748	11,200	46	3	660	2,984	314	6	2	0
Toys	4,003	3,353	522	119	3,978	18	6	216	1,102	296	5	0	0
Other	15,184	10,161	2,904	2,049	14,945	207	46	2,244	4,055	2,381	73	4	0
Unknown	420	303	49	69	417	3	2	81	101	38	3	0	0
*Category Total	59,110	45,215	8,082	5,541	58,642	418	82	5,877	15,943	5,162	143	11	0
Fumes/Gases/Vapors													
Carbon dioxide	311	28	89	189	292	17	2	100	46	107	7	1	2
Carbon monoxide	7,557	1,025	1,025	5,388	7,271	244	3	4,492	804	3,541	582	65	26
Chloramine	1,733	103	86	1,532	1,699	28	3	527	92	970	87	1	0
Chlorine: acid mixed with hypochlorite	409	11	40	356	395	14	0	128	18	292	30	0	0
Chlorine: other	5,061	572	807	3,608	5,009	39	13	1,988	403	3,037	401	4	0
Hydrogen sulfide	688	46	44	590	682	3	1	313	87	258	52	11	1
Methane and natural gas	2,023	356	267	1,369	1,965	49	1	826	355	826	70	8	2
Polymer fume fever	2	0	0	2	2	0	0	0	0	2	0	0	0
Propane and other simple asphyxiants	1,583	151	335	1,077	1,406	167	2	702	209	724	90	10	4
Other	2,629	245	174	2,171	2,590	24	9	1,557	324	1,231	315	16	4
Unknown	785	75	77	616	766	9	4	279	70	315	24	1	0
*Category Total	22,781	2,612	2,944	16,898	22,077	594	38	10,912	2,408	11,303	1,658	117	39
Fungicides (Nonmedicinal)													
Fungicides (Nonmedicinal)	1,244	527	97	603	1,214	18	9	373	309	319	35	1	0
Heavy Metals													
Aluminum	830	478	41	312	819	8	4	139	207	127	11	2	0
Arsenic (excluding pesticides)	504	100	30	367	433	35	2	306	113	100	19	3	7
Barium	16	4	3	9	13	1	1	8	2	3	2	0	0
Cadmium	71	23	5	41	66	4	0	35	16	17	2	0	1
Copper	771	188	224	341	743	20	3	272	158	255	28	0	0
Fireplace flame colors	14	12	1	1	14	0	0	1	6	2	0	0	0
Gold	3	0	1	2	2	0	1	3	0	1	0	0	0
Lead	2,073	1,006	264	791	2,025	28	6	738	509	196	34	3	0
Manganese	48	14	12	19	47	1	0	21	4	17	3	0	0
Mercury	2,261	998	349	884	2,155	81	11	562	692	183	32	2	2
Metal fume fever	984	21	27	934	982	2	0	363	32	543	85	0	0
Selenium	69	21	4	45	59	8	2	25	14	9	5	0	0
Thallium	36	21	2	13	32	1	2	17	10	1	3	1	0
Other	826	328	93	394	791	17	17	322	162	242	37	1	1
Unknown	24	5	2	16	23	0	0	6	4	3	0	0	0

(Continued on following page)

TABLE 17. 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	6-17	>17	Acc	Int	Adv Rxn		None	Minor	Moderate	Major	Death
*Category Total	8,530	3,219	1,058	4,169	8,204	206	49	2,818	1,929	1,699	261	12	11
Herbicides													
Carbamate herbicide	80	5	6	67	79	0	0	41	7	35	5	0	0
2,4-D or 2,4,5-T	1,659	578	171	900	1,633	21	8	485	381	486	32	1	2
Diquat	82	19	7	56	80	1	0	46	19	22	9	1	0
Paraquat	129	8	18	103	119	10	0	104	19	47	11	2	3
Paraquat/diquat	1	0	1	0	0	1	0	1	0	1	0	0	0
Triazine herbicide	494	117	37	338	486	4	1	197	103	171	11	1	0
Urea herbicide	38	6	4	28	38	0	0	18	6	15	1	0	0
Other	3,050	817	345	1,854	3,012	32	16	852	688	887	78	2	1
Unknown	275	97	45	132	270	5	0	72	50	65	6	0	1
*Category Total	5,808	1,647	634	3,478	5,717	74	25	1,816	1,273	1,729	153	7	7
Hydrocarbons													
Benzene	244	30	24	184	230	8	2	116	40	53	10	2	0
Diesel fuel	1,454	464	114	863	1,417	34	2	472	321	588	46	3	0
Gasoline	19,325	6,716	3,360	9,133	18,487	840	2	3,699	4,597	9,031	328	14	1
Carbon tetrachloride	71	11	6	53	64	7	0	26	13	24	8	1	0
Freon and other propellants	5,056	799	444	3,721	4,915	126	9	1,353	1,022	1,739	114	12	5
Halogenated hydrocarbon (other)	1,552	213	238	1,090	1,398	150	0	816	207	801	81	12	5
Kerosene	3,178	2,354	206	609	3,120	53	2	1,190	1,039	1,109	143	10	2
Lighter fluid/naphtha	4,058	2,734	256	1,055	3,911	145	4	1,304	1,349	1,406	133	11	1
Lubricating oils/motor oils	3,752	2,963	199	576	3,727	28	0	480	1,679	593	33	1	0
Mineral seal oil	2,206	2,060	49	86	2,190	17	2	322	1,294	277	12	1	0
Mineral spirits/varsol	5,799	3,440	542	1,765	5,583	205	9	1,463	1,870	1,895	148	10	0
Toluene/xylene	2,514	671	242	1,573	2,346	153	3	1,124	449	1,086	141	12	0
Turpentine	1,585	779	192	596	1,412	160	3	525	469	532	31	5	0
Other	4,536	2,435	403	1,648	4,356	166	7	1,362	1,371	1,358	181	13	10
Unknown	7,672	5,106	497	2,005	7,541	121	11	2,108	2,920	2,140	210	17	1
*Category Total	63,002	30,775	6,772	24,957	60,697	2,213	56	16,360	18,640	22,632	1,619	124	25
Insecticides/Pesticides (Excluding rodenticides)													
Arsenic pesticides	1,241	1,011	64	146	1,200	41	0	336	700	90	19	6	0
Borates/boric acid	2,219	1,860	89	249	2,172	47	0	262	893	141	5	0	0
Carbamate only	5,263	3,294	291	1,642	5,137	105	21	1,084	1,734	881	89	12	1
Carbamate with other pesticide	578	252	55	268	562	14	3	146	166	173	16	0	0
Chlorinated hydrocarbon only	3,564	1,979	391	1,176	3,373	136	48	1,251	1,265	708	70	16	1
Chlorinated hydrocarbon with other pesticide	204	86	24	93	200	5	0	42	62	60	5	2	0
Metaldehyde	292	225	12	54	287	6	0	87	136	31	1	1	0
Nicotine	30	13	2	15	28	2	0	7	7	14	1	0	0
Organophosphate only	12,121	4,412	934	6,638	11,785	256	54	3,904	3,400	3,312	354	54	9
Organophosphate with carbamate	2,867	1,332	260	1,256	2,762	100	4	596	859	718	33	6	0
Organophosphate with chlorinated hydrocarbon	258	80	23	153	253	4	0	70	67	78	8	0	0
Organophosphate with other pesticide	1,207	537	84	572	1,160	34	11	315	319	357	25	4	0
Organophosphate/carbamate/ chlorinated hydrocarbon	59	15	9	34	58	1	0	12	16	16	1	0	0
Piperonyl butoxide alone	143	48	9	82	132	10	0	58	27	50	6	2	0
Piperonyl butoxide with pyrethrins	4,770	2,126	572	2,023	4,600	95	76	1,135	1,043	1,478	141	8	0
Pyrethrins alone	4,354	1,714	426	2,173	4,201	82	70	1,314	864	1,327	118	3	0
Repellants (insect)	4,667	3,295	800	545	4,603	36	33	608	1,439	1,287	38	0	0
Rotenone	148	61	13	73	142	3	0	30	43	49	0	0	0
Veterinary insecticide	3,510	2,213	281	993	3,433	59	22	567	1,198	756	39	3	0
Other	2,603	1,838	138	573	2,572	19	9	331	618	304	26	2	0
Unknown	2,613	898	298	1,396	2,488	88	26	778	537	660	47	4	1
*Category Total	52,711	27,289	4,775	20,154	51,148	1,143	377	12,933	15,393	12,490	1,042	123	12
Lacrimators	5,351	1,699	1,815	1,766	5,023	259	9	1,070	356	3,452	82	0	0
Matches/Fireworks/Explosives	3,297	2,979	164	143	3,254	34	2	215	1,099	212	22	1	0
Moth Repellants													
Paradichlorobenzene	378	322	12	44	374	3	1	33	163	30	0	0	0
Naphthalene	2,660	2,241	125	281	2,646	18	1	525	1,324	261	8	0	0
Other	10	8	0	1	10	0	0	2	7	0	0	0	0
Unknown	3,062	2,640	138	269	3,036	20	4	564	1,402	200	5	2	0
*Category Total	6,110	5,211	275	595	6,066	41	6	1,124	2,896	491	13	2	0
Mushrooms	9,570	7,758	708	1,088	9,127	366	84	2,373	6,175	1,105	193	10	1
Paints and stripping agents	23,451	13,255	1,788	8,220	23,011	342	83	4,115	5,361	5,316	456	20	0
Photographic products	800	352	101	335	789	9	1	214	190	226	21	1	0
Plants													
Amygdalin/cyanogenic glycosides	3,249	2,547	422	259	3,183	33	33	207	1,283	185	11	1	0
Anticholinergic	634	280	182	166	402	219	5	329	179	147	89	6	0
Cardiac glycosides	2,767	2,093	352	316	2,697	68	6	502	1,413	235	14	0	0
Colchicine	12	9	1	1	12	0	0	1	5	0	0	0	0
Depressants	42	36	1	5	41	0	1	5	18	5	1	0	0

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TABLE 17. 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	6-17	>17	Acc	Int	Adv Rxn		None	Minor	Moderate	Major	Death
Dermatitis	15,922	9,607	1,783	4,447	15,615	109	204	1,697	3,593	4,851	408	4	0
Gastrointestinal irritants	17,512	14,991	1,110	1,340	17,228	235	59	1,132	6,953	1,692	95	2	1
Hallucinogenic	280	179	39	58	226	47	5	69	117	33	5	1	0
Nicotine	341	145	64	131	323	9	9	134	95	133	21	1	0
Nontoxic plant	22,977	20,809	1,037	1,050	22,806	81	103	633	6,296	1,023	44	2	0
Oxalate	18,496	17,167	687	607	18,408	98	12	661	8,168	2,696	54	1	0
Solanine	2,173	1,854	160	157	2,146	13	24	407	1,290	212	13	1	0
Stimulants	400	319	29	52	390	7	3	116	239	41	7	1	1
Toxalbumins	240	156	40	40	234	4	1	97	110	47	14	0	0
Other	2,312	1,903	171	228	2,236	36	39	255	829	236	25	1	0
Unknown	14,717	12,426	1,331	900	14,487	133	113	1,302	6,150	1,607	66	6	1
<i>*Category Total</i>	102,074	84,521	7,409	9,757	100,434	1,092	617	7,547	36,738	13,143	867	27	3
<i>Polishes and Waxes</i>	6,269	5,203	283	755	6,186	83	4	719	2,546	1,211	43	3	0
<i>Radioisotopes</i>	152	12	17	121	147	0	3	59	19	22	3	1	0
<i>Rodenticides</i>													
Monofluoroacetate	3	2	0	1	2	1	0	2	2	1	0	0	0
ANTU	15	15	0	0	14	1	0	10	0	0	0	0	0
Anticoagulant: standard	3,660	3,283	90	269	3,519	139	2	1,081	1,383	141	9	4	0
Anticoagulant: long-acting	8,215	7,582	164	439	7,997	227	2	3,087	3,936	294	22	9	0
Strychnine	185	48	24	107	116	59	2	114	53	27	13	3	0
Vacor	4	2	0	2	4	0	0	1	1	1	0	0	0
Other	697	535	30	126	663	32	0	270	274	87	6	1	0
Unknown	1,038	834	34	151	941	86	1	506	441	56	6	0	0
<i>*Category Total</i>	13,817	12,301	342	1,095	13,256	545	7	5,071	6,090	607	56	17	0
<i>Sporting Equipment</i>	902	549	211	136	871	27	0	238	375	124	9	0	0
<i>Swimming Pool/Aquarium</i>	5,008	2,738	600	1,644	4,968	33	12	794	1,432	1,368	96	1	1
<i>Tobacco Products</i>	10,233	9,545	238	427	10,112	117	18	2,127	4,270	2,296	79	3	1
<i>Unknown Nondrug Substance</i>	8,235	4,004	1,225	2,935	7,837	204	94	1,929	2,075	2,029	148	11	0
<i>Total No. Nonpharmaceutical Substances</i>	1,054,655	632,626	99,156	316,064	1,004,445	39,088	9,902	210,622	287,736	268,423	23,398	1,731	256
<i>% of Nonpharmaceutical Substances</i>		60.0	9.4	30.0	95.2	3.7	0.9	20.0	27.3	25.5	2.2	0.2	0.0
<i>% of All Substances</i>	58.7	35.2	5.5	17.6	55.9	2.2	0.6	11.7	16.0	14.9	1.3	0.1	0.0

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

ABBREVIATIONS: Acc, accidental; Adv Rxn, adverse reaction; Int, intentional; ANTU, alpha-naphthylthiourea.

* Medical outcome data were also collected in categories labelled "unknown, nontoxic," "unknown, potentially toxic," and "unrelated effect." Thus, the numbers listed here do not represent the total poison exposure experience.

TABLE 18. Demographic Profile of Exposure Cases by Generic Category of Substance: Pharmaceuticals

Substance Implicated in the Exposure	No. of Exposures	Age (yr)			Reason			Treated in Health-Care Facility	Outcome*				
		<6	6-17	>17	Acc	Int	Adv Rxn		None	Minor	Moderate	Major	Death
<i>Analgesics</i>													
<i>Acetaminophen only</i>													
Adult formulation	21,388	6,862	6,051	8,332	10,210	10,931	157	13,584	7,839	3,741	798	88	18
Pediatric formulation	50,535	48,328	1,811	327	50,087	423	77	6,613	20,284	1,753	43	4	0
Unknown formulation	10,166	5,374	1,870	2,835	6,226	3,804	64	5,179	3,829	1,383	359	56	16
<i>Acetaminophen in combination with</i>													
Aspirin (with other ingredients)	278	123	62	92	163	108	6	131	92	67	7	0	0
Aspirin (no other ingredients)	1,318	345	382	582	568	706	37	760	384	334	38	3	0
Codeine	7,042	1,403	1,073	4,480	2,646	3,910	423	4,792	1,690	2,174	316	58	7
Oxycodone	2,051	320	188	1,520	741	1,139	155	1,333	418	667	120	21	2
Propoxyphene	3,976	655	412	2,877	1,319	2,484	142	3,021	958	1,245	291	58	11
Other narcotic	3,195	408	371	2,364	1,054	1,821	285	2,070	595	1,051	128	24	5
Other drug (adult formulation)	4,336	813	750	2,727	1,468	2,696	137	3,079	1,029	1,391	246	41	3
Other drug (pediatric formulation)	190	70	24	94	94	89	4	108	44	69	3	0	0
<i>Aspirin only</i>													
Adult formulation	6,460	2,127	1,659	2,612	2,986	3,315	127	3,963	1,975	1,535	291	22	16
Pediatric formulation	588	511	56	19	553	32	2	140	280	45	6	0	0
Unknown formulation	9,592	2,230	2,904	4,350	3,343	6,049	107	7,023	2,468	2,643	713	70	21
<i>Aspirin in combination with</i>													
Codeine	1,123	196	132	782	390	683	39	796	222	367	75	11	0
Oxycodone	648	108	62	470	219	386	32	436	127	187	29	13	1
Propoxyphene	113	19	7	84	42	67	3	83	24	38	12	1	0
Other narcotic/analogue	277	48	38	190	105	142	27	174	55	92	11	0	1
Other drug (adult formulation)	3,282	739	675	1,830	1,233	1,918	97	2,278	840	1,031	176	31	3

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TABLE 18. Demographic Profile of Exposure Cases by Generic Category of Substance: Pharmaceuticals (Cont'd)

Substance Implicated in the Exposure	No. of Exposures	Age (yr)			Reason			Treated in Health- Care Facility	Outcome*						
		<6	6-17	>17	Acc	Int	Adv Rxn		None	Minor	Moderate	Major	Death		
Narcotics															
Codeine	1,501	718	217	552	940	457	99	691	446	344	40	8	1		
Meperidine	574	108	57	395	231	288	46	385	113	170	36	14	2		
Methadone	341	35	18	285	103	210	20	290	28	100	47	26	3		
Morphine	364	66	35	252	170	170	19	248	58	97	29	10	6		
Oxycodone	117	12	17	87	33	64	17	87	21	43	6	1	0		
Pentazocine	322	33	33	246	106	173	39	204	52	121	29	3	0		
Propoxyphene	1,054	122	102	811	305	684	51	825	179	356	86	26	5		
Other/unknown	1,134	305	140	676	565	460	95	688	234	327	77	27	8		
Nonaspirin salicylates	817	374	103	339	543	232	32	371	286	175	34	7	1		
Other nonsteroidal antiinflammatory															
Colchicine	95	44	12	36	64	23	7	54	38	21	7	2	1		
Ibuprofen, OTC	16,372	10,120	2,566	3,599	11,573	4,566	190	5,619	6,579	2,038	153	15	0		
Ibuprofen, R _x	5,886	1,795	983	3,067	2,712	3,041	96	3,445	1,793	1,215	158	16	1		
Ibuprofen-unknown if OTC or R _x	5,420	1,757	1,134	2,471	2,454	2,790	136	3,048	1,768	1,061	141	13	0		
Indomethacin	877	274	120	477	419	373	78	511	246	232	28	2	0		
Other	9,341	3,746	1,185	4,330	5,248	3,525	492	4,547	3,265	1,843	272	36	2		
Unknown	6	2	3	1	3	3	0	3	2	0	0	0	0		
Phenacetin	9	2	2	5	5	3	0	8	0	3	2	0	0		
Phenazopyridine	847	612	63	168	675	124	46	328	346	171	25	5	0		
Salicylamide	67	48	6	13	55	12	0	23	31	13	1	0	0		
Other analgesic	81	29	6	44	42	32	3	48	24	18	7	2	0		
Unknown analgesic	112	16	24	69	32	78	2	88	17	28	1	0	0		
*Category Total	171,895	90,897	25,353	54,490	109,725	58,011	3,389	77,074	58,679	28,189	4,841	714	134		
Anesthetics	5,277	3,979	356	915	4,992	178	105	1,194	2,266	825	72	17	3		
Anticholinergic drugs	3,354	953	315	2,050	1,595	1,517	195	2,233	889	1,048	326	77	4		
Anticoagulants	657	337	33	281	481	156	16	369	243	85	30	7	3		
Anticonvulsants															
Carbamazepine	4,390	1,518	716	2,119	2,601	1,587	136	2,961	1,128	1,414	546	136	6		
Phenytoin	3,715	869	326	2,483	1,912	1,502	209	2,703	867	1,138	422	62	6		
Succinimides	100	43	33	24	77	19	4	44	46	19	3	1	0		
Valproic acid	1,179	445	233	489	856	280	28	551	442	246	53	10	2		
Other	67	19	2	45	54	12	1	27	19	14	8	1	0		
Unknown	8	6	1	1	6	2	0	6	2	1	0	0	0		
*Category Total	9,459	2,900	1,311	5,161	5,506	3,402	378	6,292	2,504	2,832	1,032	210	14		
Antidepressants															
Amitriptyline	5,599	812	578	4,129	1,541	3,861	115	4,853	901	1,777	980	510	32		
Amoxapine	328	35	25	264	82	227	15	295	59	118	42	28	4		
Desipramine	1,712	274	347	1,085	537	1,094	53	1,452	400	529	223	101	28		
Doxepin	2,935	224	243	2,434	632	2,228	47	2,585	400	922	505	249	16		
Imipramine	2,967	607	668	1,652	1,105	1,725	91	2,360	683	975	337	170	19		
Maprotiline	170	27	13	126	56	111	3	145	30	50	25	11	1		
Nortriptyline	2,361	193	303	1,832	546	1,721	57	2,024	399	824	304	136	19		
Protriptyline	70	8	4	57	22	46	1	60	13	20	5	1	0		
Other cyclic antidepressant	473	47	46	376	116	318	29	393	85	176	61	20	2		
Unknown cyclic antidepressant	529	38	51	432	90	403	16	497	51	158	114	66	6		
Cyclic antidepressant with benzodiazepine	318	39	24	251	79	233	4	268	49	94	62	25	2		
Cyclic antidepressant with phenothiazine	822	138	66	605	249	548	16	705	158	284	121	61	4		
Lithium	3,517	337	419	2,716	1,160	2,067	189	2,869	807	1,113	395	108	13		
MAO inhibitors	618	71	21	517	214	300	93	500	115	235	81	30	3		
Trazodone	2,337	166	213	1,925	595	1,645	75	1,894	457	930	179	32	2		
Other antidepressant	5,526	592	727	4,143	1,382	3,835	252	4,390	1,408	1,737	372	128	8		
Unknown antidepressant	37	4	4	29	7	28	1	31	3	12	4	0	0		
*Category Total	30,319	3,612	3,752	22,573	8,413	20,390	1,057	25,321	6,018	9,954	3,810	1,676	159		
Antihistamines															
H ₂ receptor antagonists	2,776	1,090	397	1,269	1,656	989	122	1,316	981	492	80	7	1		
Diphenhydramine (unknown if OTC or R _x)	9,365	5,240	1,138	2,905	6,380	2,759	169	4,124	3,082	2,540	365	55	2		
Diphenhydramine- alone (R _x)	187	79	22	85	108	67	6	112	46	50	11	1	0		
Diphenhydramine- alone (OTC)	3,479	880	585	1,992	1,457	1,921	74	2,071	821	1,212	194	22	1		
Other	11,881	5,899	1,964	3,951	8,002	3,480	343	5,299	4,309	2,640	347	39	4		
*Category Total	27,688	13,188	4,106	10,202	17,603	9,216	714	12,922	9,239	6,934	997	124	8		
Antimicrobials															
Antibiotic: topical	4,418	3,626	214	555	4,312	34	71	204	1,294	220	11	0	0		
Antibiotic: systemic	37,494	23,910	4,825	8,569	28,603	5,735	3,075	8,960	11,262	5,134	412	31	1		
Antibiotic: unknown	2,217	766	510	926	1,143	759	309	870	482	543	47	1	0		
Antifungal: topical	5,301	4,315	236	732	5,210	49	48	264	1,542	596	5	2	0		
Antifungal: systemic	523	304	51	162	409	71	42	138	170	83	10	0	0		
Antifungal: unknown	30	16	4	9	28	1	1	6	9	6	0	0	0		
Anthelmintic: diethylcarbamazine	1,727	1,227	56	438	1,710	19	0	77	636	54	0	0	0		

(Continued on following page)

TABLE 18. Demographic Profile of Exposure Cases by Generic Category of Substance: Pharmaceuticals (Cont'd)

Substance Implicated in the Exposure	No. of Exposures	Age (yr)			Reason			Treated in Health-Care Facility	Outcome*				
		<6	6-17	>17	Acc	Int	Adv Rxn		None	Minor	Moderate	Major	Death
Anthelmintic: piperazine	589	438	53	97	575	11	1	56	255	36	6	0	0
Anthelmintic: other	590	279	50	248	556	12	18	203	173	157	16	1	0
Anthelmintic: unknown	44	31	2	10	41	2	0	6	15	5	0	0	0
Antiparasitic: antimalarials	144	48	21	75	94	36	13	94	55	38	7	5	0
Antiparasitic: metronidazole	1,051	260	132	644	542	326	173	424	285	255	25	3	0
Antiparasitic: other	497	311	44	138	419	42	33	91	128	58	6	0	0
Antitubercular: isoniazid	810	304	127	375	448	219	138	440	78	92	71	37	0
Antitubercular: rifampin	57	20	9	28	36	15	5	32	17	14	3	1	0
Antitubercular: other	14	4	3	7	11	1	2	9	2	4	0	0	0
Antitubercular: unknown	1	0	0	1	1	0	0	0	0	1	0	0	0
Antiviral: topical	55	28	3	24	55	0	0	8	18	8	0	0	0
Antiviral: systemic	526	151	55	316	276	224	21	293	154	93	14	2	0
Antiviral: unknown	41	14	5	21	22	15	4	27	18	5	1	1	0
Other antimicrobial	93	58	3	31	75	11	7	23	33	11	3	0	0
Unknown antimicrobial	8	3	2	3	6	2	0	2	2	2	0	0	0
*Category Total	56,230	36,113	6,405	13,409	44,572	7,584	3,961	12,227	16,628	7,415	637	84	1
Antineoplastics	620	208	31	372	545	45	27	270	209	151	24	1	1
Asthma Therapies													
Aminophylline/theophylline	6,527	1,997	1,664	2,820	4,005	2,136	299	4,183	1,777	2,039	622	93	36
Terbutaline	7,018	5,330	954	716	6,257	561	204	2,648	2,721	1,858	144	7	0
Other beta agonists	531	244	112	175	321	187	17	284	159	167	24	1	0
Other	324	205	54	62	277	36	11	68	113	47	2	1	1
Unknown	18	2	10	6	8	8	2	9	3	6	0	0	0
*Category Total	14,418	7,778	2,794	3,779	10,868	2,928	533	7,192	4,773	4,117	792	102	37
Cardiovascular Drugs													
Alpha blockers	28	8	2	18	19	5	4	15	8	6	1	0	0
Antiarrhythmics	973	276	57	635	809	127	31	421	392	158	26	17	4
Antihypertensives	5,396	2,852	457	2,076	4,133	1,124	116	3,163	2,229	1,166	355	104	4
Beta blockers	4,985	1,918	487	2,550	3,331	1,521	111	3,131	2,072	936	257	72	18
Calcium antagonists	4,638	1,700	313	2,606	3,388	1,125	104	2,693	1,928	818	278	99	36
Cardiac glycosides	1,999	1,025	94	867	1,614	297	68	1,191	845	330	151	36	16
Hydralazine	360	192	38	129	270	82	8	200	161	78	13	3	0
Long-acting nitrates	691	400	28	262	610	74	4	269	371	93	12	3	1
Nitroglycerin	2,121	1,516	117	477	1,830	272	12	743	1,113	230	20	3	0
Nitroprusside	41	3	2	34	19	1	19	37	4	6	12	1	0
Vasodilator: other	945	607	45	281	826	97	18	307	453	113	11	2	0
Vasodilator: unknown	1	1	0	0	1	0	0	1	0	1	0	0	0
Vasopressors	4	3	0	1	3	1	0	2	0	1	0	0	0
Other	166	68	43	56	153	11	2	50	58	50	6	0	0
Unknown	30	14	2	14	25	5	0	15	14	3	0	0	0
*Category Total	22,378	10,583	1,685	10,006	17,031	4,742	497	12,238	9,648	3,989	1,142	340	79
Cough and Cold Preparations	97,077	73,680	10,104	13,039	84,680	10,508	1,792	26,216	37,381	22,631	1,173	86	8
Diagnostic agents	378	192	27	155	331	15	32	140	90	71	17	1	1
Diuretics	4,375	2,432	425	1,498	3,366	894	103	1,876	1,739	839	98	22	0
Electrolytes and Minerals													
Calcium	1,748	1,452	100	187	1,672	64	10	154	517	124	11	2	0
Fluoride	4,437	3,915	284	238	4,380	47	14	338	1,950	653	10	0	0
Iron	4,448	3,120	470	842	3,569	816	51	2,382	1,710	999	184	23	5
Magnesium	249	98	34	111	213	22	11	99	68	59	4	0	0
Potassium	864	511	81	263	723	117	19	303	341	98	17	3	4
Sodium	1,799	1,299	257	233	1,722	70	4	354	623	339	16	0	0
Zinc	1,032	602	77	337	968	37	23	242	220	243	23	1	0
Other	121	69	9	41	107	4	10	18	23	20	1	0	0
Unknown	8	3	3	2	7	1	0	3	3	2	0	0	0
*Category Total	14,706	11,069	1,315	2,254	13,361	1,178	142	3,893	5,455	2,537	266	29	9
Eye/Ear/Nose/Throat Preparations	13,301	9,038	915	3,273	12,904	258	133	2,315	4,795	2,442	150	5	1
Gastrointestinal Preparations													
Antacids: salicylate-containing	2,692	2,387	145	149	2,589	52	45	248	1,106	163	10	2	0
Antacids: other	13,520	12,447	456	595	13,312	137	77	430	3,728	501	12	4	1
Antidiarrheals: nonnarcotic	543	413	35	93	514	13	13	45	153	33	1	0	0
Antidiarrheals: diphenoxylate/atropine	1,654	1,004	137	508	1,331	253	67	984	724	390	63	8	2
Antidiarrheals: paregoric	255	206	13	36	219	18	17	94	102	57	6	0	0
Antidiarrheals: other narcotic	227	208	13	6	226	1	0	6	47	51	0	0	0
Antispasmodics: anticholinergic	1,758	688	316	735	972	699	72	1,072	570	530	85	10	1
Antispasmodics: other	12	6	3	4	9	2	1	7	2	4	0	0	0
Laxatives	13,346	10,472	1,034	1,805	12,489	701	158	2,176	3,525	3,337	157	4	0
Other	2,434	1,767	164	491	2,038	289	106	596	783	282	38	5	1
Unknown	122	70	6	46	92	18	12	40	54	13	2	0	0
*Category Total	36,563	29,668	2,322	4,468	33,791	2,183	568	5,698	10,794	5,361	374	33	5
Hormones and Hormone Antagonists													
Androgens	185	62	20	99	93	77	10	78	43	27	4	0	0
Corticosteroids	4,265	2,931	341	972	3,754	284	210	555	1,136	338	32	0	0
Estrogens	1,803	1,216	98	284	1,425	146	32	225	532	106	10	5	0
Insulin	586	69	32	482	390	171	20	331	165	133	39	8	1

(Continued on following page)

TABLE 18. Demographic Profile of Exposure Cases by Generic Category of Substance: Pharmaceuticals (Cont'd)

Substance Implicated in the Exposure	No. of Exposures	Age (yr)			Reason			Treated in Health- Care Facility	Outcome*				
		<6	6-17	>17	Acc	Int	Adv Rxn		None	Minor	Moderate	Major	Death
Oral contraceptives	9,998	8,975	532	449	9,546	396	50	792	2,854	378	8	0	0
Oral hypoglycemics	1,601	910	120	569	1,265	310	18	1,235	744	374	118	14	1
Progestins	774	486	113	175	664	83	27	153	270	47	5	1	0
Thyroid preparations	3,751	2,811	240	692	3,356	342	41	1,023	1,566	307	36	7	0
Other hormones	503	310	58	137	395	90	22	251	177	173	18	1	0
Other hormone antagonists	151	67	11	71	112	29	7	51	48	21	2	0	0
Unknown hormone or antagonist	5	2	0	3	2	0	3	1	1	0	1	0	0
*Category Total	23,422	17,839	1,565	3,933	21,002	1,928	440	4,695	7,536	1,904	273	36	2
Miscellaneous Drugs													
Allopurinol	263	179	19	63	222	32	7	76	129	24	1	1	0
L-dopa and related drugs	253	111	5	133	210	33	6	102	113	51	6	2	0
Disulfiram	712	43	35	618	234	398	69	524	88	255	47	6	2
Ergot alkaloids	782	395	67	313	522	200	59	438	292	214	32	5	0
Homeopathic	1,239	969	62	194	1,074	111	41	280	510	131	9	1	0
Methysergide	2	2	0	0	2	0	0	0	1	0	0	0	0
Neuromuscular blocking	9	2	0	7	5	4	0	3	0	2	0	0	1
Other	6,052	3,678	549	1,773	5,144	659	225	1,478	1,928	1,241	132	24	2
*Category Total	9,312	5,379	737	3,101	7,413	1,437	407	2,901	3,061	1,918	227	39	5
Muscle Relaxants													
Cyclobenzaprine	2,754	576	369	1,786	906	1,766	48	2,223	645	924	290	59	3
Methocarbamol	932	122	119	675	280	600	41	699	201	350	57	12	0
Other	2,720	386	288	2,010	833	1,771	80	2,064	496	1,006	243	78	2
Unknown	56	3	6	45	6	46	3	48	3	22	5	0	0
*Category Total	6,462	1,087	782	4,516	2,025	4,183	172	5,034	1,345	2,302	595	149	5
Narcotic Antagonists	41	2	3	36	15	19	6	31	4	15	2	3	0
Radiopharmaceuticals	11	4	2	5	9	0	2	4	4	2	0	0	0
Sedative/Hypnotics/Antipsychotics													
Barbiturates: long acting	3,867	957	379	2,474	1,843	1,871	70	2,669	806	1,151	413	151	13
Barbiturates: short acting	1,865	185	197	1,437	469	1,306	52	1,506	301	674	164	66	3
Barbiturates: unknown	27	4	2	21	6	20	0	24	6	9	4	1	1
Benzodiazepines	29,258	4,499	2,051	22,296	8,132	20,320	395	23,339	5,053	10,910	2,233	566	23
Chloral hydrate	499	138	47	310	204	256	38	383	68	197	48	19	3
Ethchlorvynol	257	14	15	224	41	204	3	237	16	82	42	27	1
Glutethimide	157	3	11	143	16	136	2	149	9	59	36	13	2
Meprobamate	515	55	53	400	136	354	10	421	85	171	66	32	3
Methaqualone	85	4	5	75	17	65	2	79	6	24	14	2	0
Sleep aids (OTC)	5,830	368	754	4,624	1,018	4,729	31	5,020	1,147	2,135	413	49	3
Phenothiazines	10,243	1,505	1,131	7,477	3,445	6,111	507	8,194	2,309	3,661	1,013	274	19
Other	1,605	242	134	1,214	536	975	73	1,187	366	557	90	36	1
Unknown	220	15	32	165	20	194	0	199	30	58	9	0	0
*Category Total	54,428	7,989	4,811	40,860	15,883	36,541	1,183	43,407	10,202	19,688	4,545	1,236	72
Serums, Toxids, Vaccines	751	201	90	452	525	12	209	291	106	260	26	1	0
Stimulants and Street Drugs													
Amphetamines	4,340	1,468	1,124	1,700	2,447	1,729	112	2,840	1,166	1,298	337	46	6
Amyl/butyl nitrites	164	15	17	128	51	110	0	115	20	58	17	2	0
Caffeine	5,461	1,224	2,104	2,091	2,205	3,071	114	3,089	952	2,338	262	5	1
Cocaine	2,431	103	187	2,090	282	2,098	19	2,261	248	927	319	82	32
Diet aid:													
phenylpropanolamine	1,915	956	373	578	1,209	650	43	969	718	503	103	4	0
Diet aid:													
phenylpropanolamine and caffeine	266	132	62	70	164	99	3	156	98	69	8	0	0
Diet aid: other, OTC	106	54	12	40	74	25	7	43	28	25	4	0	0
Diet aid: other, Rx	38	20	4	14	23	11	3	25	13	10	1	1	0
Diet aid: unknown	154	68	29	56	86	61	4	114	45	43	8	1	0
Heroin	527	17	20	484	67	443	8	486	53	132	107	36	9
LSD	1,025	25	420	556	158	848	2	828	61	441	138	9	0
Marijuana	716	89	195	417	194	500	12	503	62	236	51	8	1
Mescaline/peyote	263	81	71	106	154	103	1	144	34	93	15	0	0
Phencyclidine	267	14	58	191	56	200	2	242	13	98	54	13	2
Phenylpropanolamine look-alike drugs	269	53	80	129	69	198	0	233	60	117	20	1	0
Other stimulants	33	5	5	21	8	24	1	27	4	17	2	2	0
Other hallucinogens	3	0	1	2	0	3	0	3	1	0	0	0	0
Unknown hallucinogens	12	0	4	8	2	9	1	11	0	3	3	0	0
Other street drugs	79	25	29	23	43	31	1	47	11	23	1	0	0
Unknown stimulant/street drugs	89	7	30	52	14	72	1	79	13	30	15	0	0
*Category Total	18,158	4,356	4,825	8,756	7,306	10,285	334	12,215	3,600	6,461	1,465	210	51
Topicals													
Acne preparations	1,162	718	176	259	1,088	22	53	132	336	262	17	1	0
Boric acid/borates	358	241	26	87	344	12	2	42	121	61	2	0	0
Calamine	5,498	4,507	272	700	5,439	44	15	443	1,688	421	12	1	0
Camphor	7,202	5,811	335	1,020	7,057	124	18	1,849	3,413	1,187	44	9	1
Camphor and methyl salicylate	1,288	1,007	76	200	1,238	21	30	271	506	298	7	0	0

(Continued on following page)

TABLE 18. Demographic Profile of Exposure Cases by Generic Category of Substance: Pharmaceuticals (Cont'd)

Substance Implicated in the Exposure	No. of Exposures	Age (yr)			Reason			Treated in Health-Care Facility	Outcome*				
		<6	6-17	>17	Acc	Int	Adv Rxn		None	Minor	Moderate	Major	Death
Diaper products	16,253	15,743	166	309	16,235	17	17	248	4,285	772	5	1	0
Hexachlorophene antiseptics	160	90	23	46	155	4	1	48	42	46	1	0	0
Hydrogen peroxide	8,177	5,140	624	2,372	7,990	166	17	509	2,100	1,598	35	4	1
Iodine or iodide antiseptics	1,913	862	221	814	1,655	208	28	557	637	406	34	1	0
Mercury antiseptics	949	797	39	113	910	32	6	116	368	71	2	1	0
Methyl salicylate	7,251	5,794	450	971	7,161	58	32	916	2,704	1,496	35	4	3
Silver nitrate	120	15	36	66	112	4	4	26	17	48	2	1	0
Topical steroids	5,461	4,572	171	693	5,391	24	47	145	1,385	318	9	0	0
Topical steroid with antibiotic	1,571	1,349	57	158	1,538	9	23	70	469	143	2	0	0
Wart preparations	2,097	1,564	181	341	2,045	34	19	287	718	496	14	0	1
Podophyllin	78	25	19	34	70	6	2	25	27	16	7	0	0
Other liniment	1,311	946	100	260	1,277	23	12	157	455	255	5	0	0
Other topical antiseptic	2,082	1,560	104	403	2,003	52	24	339	733	340	12	1	0
*Category Total	62,931	50,741	3,076	8,846	61,708	860	350	6,180	20,004	8,234	245	24	6
Miscellaneous Veterinary	2,937	1,486	182	1,255	2,906	25	5	335	937	425	23	1	0
Vitamins													
Multiple Vitamin Tablets: Adult Formulations													
No iron, no fluoride	2,004	1,530	184	280	1,784	144	71	253	748	195	2	1	0
With iron, no fluoride	5,055	3,970	564	515	4,512	509	32	1,396	2,244	553	45	5	0
With iron, with fluoride	47	42	4	1	46	1	0	13	27	4	0	0	0
No iron, with fluoride	193	188	5	0	192	0	1	7	94	6	0	0	0
Multiple Vitamin Tablets: Pediatric Formulations													
No iron, no fluoride	9,030	8,123	852	48	8,898	129	11	402	3,479	471	2	2	0
With iron, no fluoride	10,323	9,309	914	70	10,180	142	8	1,889	4,678	1,221	55	4	0
With iron, with fluoride	587	574	12	1	587	0	0	52	224	45	0	0	0
No iron, with fluoride	2,054	1,979	60	16	2,047	8	2	98	598	77	0	0	0
Multiple Vitamin Liquids: Adult Formulations													
No iron, no fluoride	47	34	5	8	42	5	0	13	11	2	0	0	0
With iron, no fluoride	45	25	2	18	35	6	4	15	11	11	2	0	0
With iron, with fluoride	2	1	0	1	2	0	0	0	1	0	0	0	0
No iron, with fluoride	1	1	0	0	1	0	0	0	0	0	0	0	0
Multiple Vitamin Liquids: Pediatric Formulations													
No iron, no fluoride	226	211	12	3	226	1	0	18	79	8	1	0	0
With iron, no fluoride	307	290	11	5	300	6	1	52	135	36	1	0	0
With iron, with fluoride	83	82	0	1	81	0	2	9	32	6	0	0	0
No iron, with fluoride	633	629	4	1	626	4	2	27	229	46	0	0	0
Multiple Vitamin, Unspecified Adult Formulations													
No iron, no fluoride	41	25	4	12	36	3	3	5	14	4	0	0	0
With iron, no fluoride	1,005	782	122	101	879	117	7	302	438	123	11	1	0
With iron, with fluoride	8	7	0	1	7	1	0	2	3	1	0	0	0
No iron, with fluoride	3	2	0	1	3	0	0	0	1	1	0	0	0
Multiple Vitamin, Unspecified Pediatric Formulations													
No iron, no fluoride	235	209	26	0	233	3	0	14	96	12	0	0	0
With iron, no fluoride	248	226	18	1	245	3	0	48	106	41	2	0	0
With iron, with fluoride	10	8	2	0	10	0	0	0	4	0	0	0	0
No iron, with fluoride	54	54	1	0	55	0	0	3	27	3	0	0	0
Other vitamins													
Vitamin A	857	628	68	161	771	62	24	140	248	89	8	0	0
Niacin (B ₃)	1,449	362	115	953	858	87	499	220	118	814	22	0	1
Pyridoxine (B ₆)	245	152	18	74	185	50	9	61	88	27	6	4	0
Other B complex vitamins	861	601	69	187	727	87	46	141	270	89	1	0	0
Vitamin C	1,848	1,476	212	156	1,709	111	26	148	622	139	7	0	0
Vitamin D	202	170	7	24	186	11	4	53	91	10	0	0	0
Vitamin E	792	660	45	86	727	42	19	75	243	45	1	0	0
Other	754	628	51	74	687	54	12	142	288	81	5	0	0
Unknown	1,090	875	98	111	992	73	22	176	310	108	5	1	0
*Category Total	40,338	33,853	3,485	2,910	37,869	1,659	805	5,774	15,557	4,268	176	18	1
Miscellaneous Unknown Drugs	14,544	5,582	2,133	6,508	10,879	2,798	414	7,340	3,439	3,735	570	94	0
Total No. Pharmaceutical Substances	742,030	425,146	82,940	229,103	537,304	182,952	17,969	285,677	237,145	148,632	23,928	5,339	609
% of Pharmaceutical Substances													
% of All Substances		57.3	11.2	30.9	72.4	24.7	2.4	38.5	32.0	20.0	3.2	0.7	0.1
% of All Substances	41.3		23.7	4.6	12.8	29.9	10.2	1.0	15.9	13.2	8.3	1.3	0.3

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

ABBREVIATIONS: Acc, accidental, Adv Rxn, Adverse Reaction; Int, intentional; OTC, over-the-counter; R_x, prescription; MAO, monoamine oxidase.

* Medical outcome data were also collected in categories labelled "unknown, nontoxic," "unknown, potentially toxic," and "unrelated effect." Thus, the numbers listed here do not represent the total poison exposure experience.

TABLE 19. Demographic Profile of Accidental Exposure Cases by Substance Category

	No. of Exposures	Age (yr)			Treated in Health-Care Facility	Outcome*				
		<6	6-11	>17		None	Minor	Moderate	Major	Death
Adhesives/Glues	19,640	10,476	2,487	6,498	3,390	4,747	4,869	349	5	1
Alcohols	26,988	19,220	1,637	5,948	5,615	10,405	5,025	377	38	5
Arts/Crafts/Office Supplies	30,019	23,985	3,761	2,097	1,336	7,920	1,984	58	3	0
Auto/Aircraft/Boat Products	9,139	3,488	755	4,796	3,119	2,603	3,402	288	13	2
Batteries	7,005	3,907	1,146	1,888	2,588	2,312	2,151	178	8	0
Bites/Envenomations	62,004	13,625	12,851	34,971	15,630	4,820	33,908	2,976	134	1
Building Products	7,266	4,087	455	2,668	1,565	1,730	1,720	329	10	0
Chemicals	52,423	19,856	4,871	27,004	19,428	10,256	18,354	2,674	128	8
Cleaning Substances	175,666	112,903	10,103	51,499	32,146	48,823	54,877	4,222	112	5
Cosmetics/Personal Care	142,701	120,982	6,893	14,139	10,578	47,127	24,022	639	31	1
Deodorizers (non-personal)	15,469	14,013	546	850	1,167	5,827	1,931	53	3	0
Dyes	2,594	2,131	172	273	218	861	190	11	1	0
Essential Oils	2,485	1,820	304	347	413	669	980	16	2	0
Fertilizers	8,200	5,890	738	1,510	472	2,747	670	34	0	0
Fire Extinguishers	2,141	280	455	1,386	695	401	953	47	1	0
Food Products/Poisoning	41,923	12,498	5,515	23,348	4,430	5,848	10,911	685	12	1
Foreign Bodies/Toys	58,642	45,137	7,802	5,344	5,699	15,800	5,048	135	9	0
Fumes/Gases/Vapors	22,077	2,594	2,754	16,385	10,415	2,347	10,998	1,558	91	21
Fungicides (non-medicinal)	1,214	526	89	579	350	307	305	29	1	0
Heavy Metals	8,203	3,200	977	3,923	2,594	1,882	1,633	235	8	1
Herbicides	5,717	1,642	609	3,394	1,744	1,254	1,687	143	4	0
Hydrocarbons	60,697	30,684	5,749	23,688	14,784	18,249	21,720	1,418	81	6
Insecticides/Pesticides	51,148	27,130	4,501	18,938	11,819	15,112	11,948	893	76	3
Lacrimators	5,023	1,680	1,667	1,609	947	341	3,240	74	0	0
Matches/Fireworks/Explosive	3,254	2,971	144	125	198	1,091	202	22	1	0
Moth Repellants	6,066	5,206	260	563	1,100	2,891	471	13	2	0
Mushrooms	9,127	7,745	607	737	1,995	6,115	921	134	5	1
Paints/Stripping Agents	23,011	13,219	1,656	7,925	3,827	5,280	5,147	417	15	0
Photographic Products	789	352	100	324	207	189	222	21	1	0
Plants	100,434	84,294	6,809	8,793	6,773	36,461	12,506	707	16	2
Polishes/Waxes	6,186	5,196	246	707	659	2,518	1,182	41	1	0
Radioisotopes	147	12	17	116	57	19	21	3	1	0
Rodenticides	13,256	12,265	280	615	4,548	5,934	521	30	7	0
Sporting Equipment	871	549	191	122	223	365	119	8	0	0
Swimming Pool/Aquarium	4,968	2,734	575	1,620	771	1,427	1,349	92	1	0
Tobacco Products	10,112	9,533	187	346	2,059	4,246	2,241	75	3	0
Unknown Nondrug Substance	7,837	3,973	1,119	2,675	1,668	2,028	1,899	122	8	0
Analgesics	109,725	90,071	7,312	11,786	22,423	44,965	7,736	633	73	3
Anesthetics	4,992	3,955	299	707	1,007	2,233	740	53	11	2
Anticholinergic	1,595	920	110	539	691	597	362	65	12	0
Anticoagulants	481	334	15	125	202	203	34	11	2	0
Anticonvulsants	5,506	2,826	710	1,925	2,572	1,987	1,271	344	61	2
Antidepressants	8,413	3,453	939	3,932	4,842	2,990	1,811	407	119	5
Antihistamines	17,603	12,928	1,830	2,746	4,118	7,602	2,899	176	14	1
Antimicrobials	44,572	35,279	3,041	5,988	4,071	14,504	3,425	162	11	1
Antineoplastics	545	201	20	314	209	198	123	14	1	0
Asthma Therapies	10,867	7,608	1,500	1,703	4,094	4,353	2,513	298	30	6
Cardiovascular Drugs	17,030	10,510	841	5,592	7,309	8,686	2,110	380	93	10
Cough/Cold Preparations	84,680	72,809	6,113	5,440	16,658	35,213	17,568	442	19	0
Diagnostic Agents	331	191	21	117	103	88	55	10	1	0
Diuretics	3,366	2,421	190	740	1,002	1,537	455	27	7	0
Electrolytes/Minerals	13,361	11,017	826	1,453	2,795	5,171	2,057	168	16	6
Eye/Ear/Nose/Throat Prep	12,904	9,002	820	2,990	2,123	4,749	2,294	121	4	0
Gastrointestinal Prep	33,791	29,511	1,629	2,511	3,749	10,361	4,353	210	13	1
Hormones & Antagonists	21,002	17,783	952	2,182	2,846	7,072	1,210	100	4	0
Miscellaneous Drugs	7,413	5,336	423	1,580	1,478	2,808	1,241	90	9	0
Muscle Relaxants	2,025	1,067	175	767	966	793	466	62	8	0
Narcotic Antagonists	15	2	1	12	9	2	3	1	0	0
Radiopharmaceuticals	9	4	2	3	4	4	1	0	0	0

(Continued on following page)

TABLE 19. Demographic Profile of Accidental Exposure Cases by Substance Category (Cont'd)

	No. of Exposures	Age (yr)			Treated in Health-Care Facility	Outcome*				
		<6	6-11	>17		None	Minor	Moderate	Major	Death
Sedatives/Hypnotics/ Antipsychotics	15,883	7,590	1,323	6,788	7,911	4,881	4,135	646	102	1
Serums, Toxoids, Vaccines	525	125	49	345	168	104	154	12	0	0
Stimulants/Street Drugs	7,306	4,233	1,340	1,654	3,131	2,610	1,789	248	20	2
Topicals	61,708	50,608	2,740	8,018	5,476	19,744	7,790	200	16	4
Miscellaneous Veterinary	2,906	1,485	176	1,228	313	934	415	19	1	0
Vitamins	37,869	33,704	2,672	1,362	4,509	15,037	3,389	119	8	0
Unknown Drugs	10,879	5,438	1,233	3,961	4,243	3,065	2,737	303	22	0
TOTAL	1,541,744	1,050,214	126,330	354,258	284,249	483,443	322,463	24,427	1,509	102

Patients with totally unknown age or medical outcome were omitted from the respective tabulations.

* Medical outcome data were also collected in categories labelled "unknown, nontoxic," "unknown, potentially toxic," and "unrelated effect". Thus the numbers listed here do not represent the total poison exposure experience.

TABLE 20. Frequency of Plant Exposures by Plant Type

Botanical Name	Common Name	Frequency
<i>Philodendron</i> spp	Philodendron	6,565
<i>Dieffenbachia</i> spp	Dumbcane	4,124
<i>Euphorbia pulcherrima</i>	Poinsettia	3,214
<i>Capsicum annuum</i>	Pepper	2,737
<i>Crassula</i> spp	Jade plant	2,424
<i>Ilex</i> spp	Holly	2,330
<i>Brassaia & Schefflera</i> spp	Schefflera	2,085
<i>Spathiphyllum</i> spp	Peace lily	1,712
<i>Toxicodendron radicans</i>	Poison ivy	1,662
<i>Epipremnum aureum</i>	Pothos, Devil's ivy	1,625
<i>Phytolacca americana</i>	Pokeweed, Inkberry	1,597
<i>Saintpaulia</i> spp	African violet	1,360
<i>Pyracantha</i> spp	Firethorn	1,233
<i>Rhododendron</i> spp	Rhododendron, Azalea	1,048
<i>Ficus benjamina</i>	Weeping fig tree	1,023
<i>Solanum dulcamara</i>	Climbing Nightshade	959
<i>Chrysanthemum</i> spp	Chrysanthemum	952
<i>Chlorophytum comosum</i>	Spider plant	920
<i>Aloe</i> spp	Aloe	862
<i>Ficus elastica</i>	Rubber plant	825

TABLE 21. Substances Most Frequently Involved in Human Exposure

Substance	No.	%*
Cleaning substances	180,096	10.5
Analgesics	172,278	10.1
Cosmetics	146,274	8.5
Plants	102,254	6.0
Cough and cold preparations	97,277	5.7
Pesticides (includes rodenticides)	66,677	3.9
Hydrocarbons	63,131	3.7
Topicals	63,030	3.7
Bites/envenomations	62,509	3.6
Foreign bodies	59,205	3.5
Antimicrobials	56,347	3.3
Chemicals	55,084	3.2
Sedatives/hypnotics/antipsychotics	54,578	3.2
Alcohols	49,097	2.9
Food poisoning	48,383	2.8
Vitamins	40,407	2.4

NOTE. Despite a high frequency of involvement, these substances are not necessarily the most toxic, but rather often represent only ready availability.

* Percentages are based on the total number of human exposures rather than the total number of substances.

TABLE 22. Categories With Largest Numbers of Deaths

Category	No.	% of All Exposures in Category
Antidepressants	159	0.524
Analgesics	134	0.078
Alcohols	79	0.161
Cardiovascular drugs	79	0.353
Sedative/hypnotics	72	0.013
Stimulants and street drugs	51	0.625
Gases and fumes	39	0.171
Asthma therapies	37	0.257
Chemicals	34	0.062
Cleaning substances	26	0.014
Hydrocarbons	25	0.397
Pesticides (including rodenticides)	12	0.018

TABLE 23. 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

TABLE 24. 8-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

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APPENDIX

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

Case 1. A 35-year-old man was applying a carpet cement containing 84% 1,1,1 trichloroethane in the hull of a boat in an enclosed body shop. He was last seen conscious approximately an hour prior to being discovered unconscious and pulseless by shop personnel. Cardiopulmonary resuscitation was initiated immediately and paramedics arrived within minutes. On arrival at the emergency department (ED), the patient was dusky-colored with no spontaneous movements, no spontaneous respirations, and no palpable pulse. Cardiopulmonary resuscitation was continued and the patient was intubated. His initial rhythm was sinus bradycardia with a rate of 40 to 50 beats/min. Fluid challenge and atropine produced a transient response, but then his rhythm degenerated to ventricular fibrillation. After being defibrillated numerous times and after receiving lidocaine and bretylium, the patient developed an agonal rhythm. He died 70 minutes after presenting to the ED. Postmortem examination showed hemorrhagic congestion of the lungs.

Case 24. A 40-year-old man presented with a chief complaint of headache and blurred vision after alleged closed head trauma. Head computed tomography (CT) scan was normal. Twelve hours after presentation, the patient became unresponsive with an arterial pH of 6.9 and bicarbonate of 10 mEq/L. A blood methanol level, sent more than 36 hours after presentation because of persistent acidosis, was 23 mg/dL. Intravenous (IV) ethanol was initiated and the patient underwent hemodialysis. After 2 hours of hemodialysis, the methanol level decreased to 11 mg/dL. The ethanol infusion was continued for an additional 24 hours, during which the methanol level rebounded to 14 mg/dL. Because of increased intracranial pressure, the patient was hyperventilated and given mannitol. Three days after presentation, the patient postured to painful stimuli and had nonreactive pupils. Magnetic resonance imaging scan showed basal ganglia infarcts. Four days after presentation, the patient received antibiotics for aspiration pneumonia. After 28 days of supportive care with no signs of neurological recovery, the patient died.

Case 28. A 28-year-old man and his intoxicated friends mistook a 19 L drum of methanol for ethanol. The methanol was an ingredient used in their methamphetamine laboratory. The patient was found unresponsive after drinking an unknown amount of the methanol. On arrival at the ED, he was comatose. Laboratory studies showed

sodium, 141 mEq/L; potassium, 5.1 mEq/L; chloride, 98 mEq/L; bicarbonate, 5 mEq/L; blood urea nitrogen (BUN), 13 mg/dL; glucose, 253 mg/dL, pH, 6.9. Toxicologic analysis showed a blood methanol level of 293 mg/dL and an ethanol level of 130 mg/dL. Amphetamines were also present. Treatment included intubation, gastric lavage, ethanol infusion, and folate. On the second hospital day, the patient had fixed and dilated pupils. He underwent hemodialysis and was receiving ethanol via the nasogastric (NG) tube. He became anuric. His methanol level decreased to 29 mg/dL, his ethanol level to 45 mg/dL. Other laboratory studies showed sodium, 141 mEq/L; potassium, 3.6 mEq/L; chloride, 107 mEq/L; bicarbonate, 19 mEq/L; BUN, 17 mg/dL; creatinine, 2.8 mg/dL; lactate dehydrogenase (LDH), 1,665 IU/L; aspartate aminotransferase (AST), 841 IU/L; alanine aminotransferase (ALT), 355 IU/L. On the third hospital day, an electroencephalogram (EEG) was consistent with no brain wave activity. His serum creatinine had increased to 7.0 mg/dL. On the fourth hospital day, serial EEGs showed no activity and there was no response to ice water caloric testing. Laboratory studies included sodium, 131 mEq/L; potassium, 7.0 mEq/L; chloride, 96 mEq/L; bicarbonate, 21 mEq/L; creatinine, 7.6 mg/dL; methanol, 0 mg/dL. He died on the fifth hospital day. A 26-year-old friend who had also consumed the methanol died as well.

Case 35. A 48-year-old man ingested diesel antifreeze that he mistook for moonshine. He was asymptomatic for 10 hours. Because of visual disturbances, abdominal pain, and vomiting, he went to the ED 34 hours after the ingestion. When severe metabolic acidosis was noted, the patient was transferred to a tertiary care facility. On arrival, he was comatose with a systolic blood pressure of 50 mm Hg, pulse of 90 beats/min, and temperature of 34.5°C. Laboratory results included measured serum osmolality, 458 mOsm/kg H₂O; arterial pH, 6.73; no calcium oxalate crystals in his urine. Toxicologic analysis showed a blood methanol level of 285 mg/dL approximately 36 hours after the ingestion. Initial therapy included fluid resuscitation, dopamine, large quantities of sodium bicarbonate, and IV ethanol. While the patient underwent hemodialysis for 16 hours, his neurological status deteriorated. His pupils became unreactive and he had no corneal or caloric responses. Postdialysis methanol level was 26 mg/dL. The next day his head CT scan showed massive cerebral edema. The patient died 5 days after the ingestion when life support measures were withdrawn.

Case 37. A 45-year-old man ingested approximately 2 L of windshield washer fluid containing 40% methanol, 60% water, and a trace of an unspecified antifoaming agent. In the ED 21 hours after the ingestion, the patient was comatose with decorticate posturing and fixed, dilated pupils. He had a palpable systolic blood pressure of 70 mm Hg. Laboratory results included a pH of 6.73 and potassium of 7.3 mEq/L. After intubation, the patient received activated charcoal, magnesium citrate, IV ethanol, and sodium bicarbonate. The patient was then transferred for hemodialysis. On arrival, there was no change in his neurological status and he was hypothermic. His initial blood methanol level was 143 mg/dL. He received IV ethanol, leucovorin, folic acid, and sodium bicarbonate. In addition, his blood pressure was maintained with norepinephrine and dopamine. Laboratory results showed potassium, 7.3 mEq/L; pH, 7.03; ethanol, 89 mg/dL. Repeat methanol level 6 hours after presentation was 270 mg/dL. The patient underwent hemodialysis for 6 hours with a drop in the methanol level to 158 mg/dL. There was no change in his neurological status and the patient died 46 hours after the ingestion.

Case 38. An 80-year-old woman developed weakness, dizziness, and vomiting and then became unresponsive over the course of a few hours. When paramedics arrived she had a palpable blood pressure of 60 mm Hg, pulse of 72 beats/min, and respirations of 6 breaths/min. She was intubated and transported. Arterial blood gases in the ED showed pH, 6.78; Pco₂, 13 mm Hg; Po₂, 385 mm Hg; bicarbonate, 2 mEq/L. Fluids and sodium bicarbonate were administered. Head CT scan and lumbar puncture were unremarkable. A possible diagnosis of methanol or ethylene glycol poisoning

was considered and blood levels were ordered. In the intensive care unit (ICU), she developed intractable metabolic acidosis, a tension pneumothorax probably secondary to Swan-Ganz catheter (Baxter Healthcare, Irvine, CA) insertion, and hypotension. After the blood methanol level returned at 114 mg/dL, the patient received an ethanol loading dose and underwent hemodialysis. Postdialysis methanol level was 9 mg/dL. Blood drawn in the ED was retrieved and a serum osmolality by freezing point depression was 369 mOsm/kg H₂O, calculated osmolality was 308 mOsm/kg H₂O, and the osmolal gap was elevated at 61 mOsm/kg H₂O, correlating with a predicted methanol level of approximately 160 mg/dL. The patient developed multiorgan failure and died. In retrospect, the family recalled that a container of windshield washer solvent had been left on the kitchen counter and a cup containing a blue liquid was found next to the patient's bed. It was thought that the patient had mistaken the solution for a blue soft drink that was kept in a similar container.

Case 40. A 59-year-old man was bitten by a kissing bug (*Triatoma protracta*) while asleep in bed. He told his wife he felt ill and he suffered an anaphylactic reaction. The wife found the bug attached to the patient, killed it, and noted that it contained blood. The patient had been bitten by a kissing bug three times in the past, twice within the previous 3 weeks. When the paramedics arrived 10 minutes later, the patient was given a total of 4 mg of epinephrine. He then went into ventricular fibrillation. He was defibrillated and transported to the ED. On arrival, the patient had a sinus rhythm, but needed dopamine and fluids for hypotension. He was also intubated. Two hours after the exposure, the patient had a seizure and was comatose. His pupils were fixed and dilated. He was given hydrocortisone. By 7.5 hours after the exposure, he had developed disseminated intravascular coagulation, hemorrhagic gastritis, and had received blood transfusions. Ten hours after the exposure, dopamine and norepinephrine were administered to maintain his systolic blood pressure at 98 mm Hg. Laboratory studies showed sodium, 137 mEq/L; potassium, 3.9 mEq/L; chloride, 116 mEq/L; bicarbonate, 8.4 mEq/L; prothrombin time (PT), 70 seconds; partial thromboplastin time (PTT), >240 seconds; fibrinogen, 40 mg/dL; fibrin split products, 1280 µg/mL. Arterial blood gases showed pH, 7.02; PCO₂, 33 mm Hg; PO₂, 85 mm Hg; bicarbonate, 8 mEq/L. Over the next 2 to 3 hours, the patient's seizures became more frequent and he developed status epilepticus. In addition, he developed acute renal failure. He died 17 hours after the exposure.

Case 41. An adult woman with a pseudocyst was hospitalized for hyperalimentation. In addition, because of hemorrhagic cystitis, her bladder was being irrigated with a 1% alum solution. A health-care worker put the alum solution into a glass container. It was then confused with the hyperalimentation solution and was infused IV over 12 hours. The error was then discovered and the alum solution discontinued. The patient remained stable until 24 to 48 hours later, when she developed acute renal failure and died.

Case 42. A 46-year-old man drank an unknown quantity of battery acid containing sulfuric acid. In the ED 2 to 3 hours after the ingestion, he was in respiratory distress and was complaining of abdominal pain. Physical examination showed a white plaque on his tongue. Arterial blood gases on admission showed pH, 6.56; PCO₂, 34 mm Hg; PO₂, 206 mm Hg. During emergency endoscopy 4 hours postingestion, the patient had a cardiac arrest and died. Postmortem examination showed disintegration of the stomach and absence of the anterior gastric wall. A large 10 cm diameter erosion of the middle third of the esophagus was also found. A black material was found throughout the peritoneal cavity and mediastinum. The airway and oral cavity were unremarkable.

Case 44. A 45-year-old man ingested nearly 500 mL of boric acid dissolved in water. Several hours later he developed nausea and vomiting. In the ED about 56 hours after the ingestion, he complained of weakness and lightheadedness. Vital signs included a blood pressure of 60/40 mm Hg, pulse of 120 to 150 beats/min, respirations of 20 breaths/min, and temperature of 36.6°C. An erythem-

atous rash was present on the face, abdomen, arms, and legs. Initial laboratory results included sodium, 132 mEq/L; potassium, 4 mEq/L; chloride, 93 mEq/L; bicarbonate, 13 mEq/L; BUN, 55 mg/dL; creatinine, 6.0 mg/dL; glucose, 134 mg/dL; calcium, 7.8 mg/dL; AST, 14 IU/L; bilirubin, 0.4 mg/dL; creatine phosphokinase (CPK), 197 IU/L; hemoglobin, 14.1 g/dL; PT, 15 seconds; PTT, 37 seconds; arterial pH, 7.2. An electrocardiogram (ECG) showed sinus tachycardia with occasional premature ventricular contractions. His blood pressure did not improve after 1 L of normal saline, and dopamine was started. During the first 12 hours after admission, he remained lethargic but responded appropriately to commands and questions. He developed oliguria with increasing BUN and creatinine values, hypocalcemia (calcium of 6.4 mg/dL), and an elevated CPK of 1,193 IU/L. About 18 hours after admission the patient suddenly developed an arrhythmia, had several episodes of projectile vomiting, and then became pulseless. Resuscitation attempts were unsuccessful. Toxicologic analysis of specimens collected approximately 72 hours after the ingestion showed blood boric acid level, 440 µg/mL; blood boron level, 70 µg/mL; spot urine boric acid level, 1600 µg/mL; spot urine boron level, 280 µg/mL. Postmortem blood boron level was 294 µg/mL.

Case 45. A 13-month-old boy ingested an unknown white substance that had been purchased in Thailand and was used to clean jewelry. He presented to the ED in respiratory arrest. In the ED he was bradycardic and had no oral burns. Laboratory studies included sodium, 137 mEq/L; potassium, 4 mEq/L; bicarbonate, 21 mEq/L; chloride, 102 mEq/L; glucose, 86 mg/dL; BUN, 12 mg/dL; creatinine, 0.4 mg/dL; pH, 6.9. The patient was intubated and the cyanide antidote kit was administered. Cardiac pacing was unsuccessful and the patient died. Toxicologic analysis of blood drawn on arrival at the ED showed a serum cyanide level of 1.4 µg/mL.

Case 46. An 11-year-old girl visiting her uncle in an isolated cabin without electricity or running water drank two glasses of a liquid from a water jug containing an unknown concentration of potassium cyanide. Within moments she collapsed and had a generalized tonic-clonic seizure. She was driven by car 7 miles to a police station, then transported by ambulance to the ED. On arrival, 40 minutes after the ingestion, she was in full cardiopulmonary arrest. Her rhythm was electromechanical dissociation. Her pupils were fixed and dilated, and she was areflexic. Her first arterial blood gas showed pH, 6.8; PCO₂, 90 mm Hg; PO₂, 30 mm Hg. She was intubated and placed on mechanical ventilation. She received epinephrine, sodium bicarbonate, dopamine, and phenytoin. It took 30 minutes for the hospital to locate a cyanide antidote kit. After the sodium thiosulfate was administered, the patient's bradycardia resolved. The dose was repeated in 30 minutes. Her rhythm degenerated from a sinus tachycardia of 110 beats/min to ventricular fibrillation. She was defibrillated and received lidocaine, mannitol, calcium chloride, and atropine. Two hours after arrival, repeat arterial blood gases showed pH, 7.39; PCO₂, 15 mm Hg; PO₂, 400 mm Hg. Serial methemoglobin levels were 8.8%, 11%, and 20%. The patient was transferred to a tertiary health-care facility. On arrival 2 hours later, her vital signs were blood pressure, 65/43 mm Hg, pulse 120 beats/min, and temperature 35.5°C. Chest roentgenogram showed pulmonary edema. Her methemoglobin level was 30.8%. Because of hypotension, she received dopamine, dobutamine, and epinephrine. Urine toxicologic analysis was negative. On neurological examination, there was no evidence of cortical or brainstem function. She developed diabetes insipidus. The EEG was flat except for ECG artifact. She died about 24 hours after the ingestion.

Case 48. A 28-year-old man who worked in a jewelry store was seen drinking an unknown liquid. Within 5 to 10 minutes, he was apneic and frothing. When the paramedics arrived the patient was bradycardic. He was intubated, given atropine, and transported to the hospital. En route, his rhythm deteriorated to ventricular tachycardia, which was cardioverted, but then degenerated into asystole. Epinephrine and additional atropine were administered. In the hos-

pital, the cyanide antidote kit was given without response. Thirty minutes later, the methemoglobin level was 4%. Despite the administration of numerous ampules of sodium bicarbonate, sodium nitrite and sodium thiosulfate, his arterial pH remained below 7 and he died. Postmortem cyanide level was 12 µg/mL.

Case 55. A 35-year-old man ingested 640 mL of isopropanol in a suicide attempt. When the paramedics arrived, he was asystolic. He was intubated and resuscitated in the field. An hour postingestion he was unresponsive with a systolic blood pressure of 70 mm Hg, pulse of 70 beats/min, and temperature of 35.5 °C. After receiving 4 ampules of sodium bicarbonate, his arterial blood gases showed pH, 7.17; PCO₂, 23 mm Hg; bicarbonate, 9 mEq/L. His blood isopropanol level was 110 mg/dL. Initial treatment included gastric lavage and administration of activated charcoal. The patient remained hypotensive and unresponsive after 6 L of IV fluids, dopamine, norepinephrine, epinephrine, and calcium chloride. Despite 10 ampules of sodium bicarbonate, central venous pH was 6.8 and bicarbonate was 6 mEq/L 4 hours postingestion. The patient developed bradycardia unresponsive to atropine and died 4.5 hours after the ingestion. Further investigation at the home showed a pill bottle filled with powdered potassium cyanide. Premortem blood from admission showed a cyanide level of 3.4 µg/mL.

Case 57. A 31-year-old man with a history of schizophrenia, mental retardation, and alcohol abuse was brought to the ED because he was "acting odd." He was evaluated by psychiatry and was described as being agitated. He was not sedated but was placed in leather restraints. He was then described as being stable and it was believed that he was sleeping. However, in the morning he could not be awakened and he had fixed and dilated pupils. An initial pH was 6.6. He was also bradycardic to 20 beats/min. Other laboratory studies showed potassium of 8.0 mEq/L, creatinine of 2.9 mg/dL, and an anion gap of 41 mEq/L. After receiving 10 ampules of sodium bicarbonate, his pH was 7.2. Within 24 hours of being brought to the ED, the patient developed refractory hypotension and arrhythmias and died. Urine toxicologic analysis was positive for amphetamine. Methanol and ethylene glycol levels were pending at the time of his death. Postmortem examination showed minimal cerebral edema and fan-shaped crystals consistent with oxalate crystals in the proximal tubules of the kidneys. Postmortem blood toxicologic analysis showed a lidocaine level of 6.7 µg/mL and ethylene glycol level of 540 mg/dL.

Case 58. A 53-year-old man ingested a blue liquid assuming it was wine. He was found unconscious the following morning. In the ED, he was comatose with a pH of 6.75, bicarbonate of 1.5 mEq/L, anion gap of 25 mEq/L, and osmolal gap of 200 mOsm/kg H₂O. His urine output was poor and no oxalate crystals were present. Toxicological analysis showed a blood ethylene glycol level of 850 mg/dL and a methanol level of 5.7 mg/dL. In the ED, the patient was lavaged and given activated charcoal. In the ICU 3.5 hours after admission, treatment included hemodialysis, ethanol infusion, and sodium bicarbonate. He remained comatose, intubated, and on mechanical ventilation. His vital signs were blood pressure, 192/76 mm Hg; pulse, 108 beats/min; respirations, 20 breaths/min; temperature, 36°C. Pertinent physical findings were unreactive pupils, bilateral rales, irregular cardiac rhythm, and bilateral lower extremity edema with a purplish discoloration. Laboratory data included sodium, 140 mEq/L; potassium, 5.2 mEq/L; chloride, 102 mEq/L; bicarbonate, 10 mEq/L; BUN, 12 mg/dL; creatinine, 1.5 mg/dL; glucose, 306 mg/dL; serum osmolality, 468 mOsm/kg H₂O; PT, 16.1 seconds; PTT, 49.7 seconds. Arterial blood gases showed pH, 6.75; PO₂, 186 mm Hg; bicarbonate, 10.5 mEq/L. Urinalysis showed proteinuria and glycosuria. The chest roentgenogram showed diffuse bilateral patchy lung infiltrates, mild pulmonary vascular congestion, and slight cardiomegaly. Approximately 7.5 hours after admission, the methanol level was 14.9 mg/dL and the acetone level was 43 mg/dL. Twelve hours after admission, the patient's systolic blood pressure was 50 mm Hg. Fourteen hours after admission, the patient had two seizures that were controlled with anticonvulsant therapy. On the

second hospital day, the ethylene glycol level was 168.7 mg/dL and the methanol level was 2.1 mg/dL. The chest roentgenogram showed an increase in the interstitial infiltrates and pulmonary vascular redistribution. Later that day the ethylene glycol level had decreased to 75.6 mg/dL and methanol was no longer detected. The patient remained comatose with decorticate posturing. Urine output decreased to 5 mL/hour. Creatinine was 3.4 mg/dL, ethanol level, 53 mg/dL; CPK, 9,592 IU/L. On the third hospital day, the patient underwent hemodialysis and his ethylene glycol level was 90.8 mg/dL. The patient had myoclonic seizures and an EEG showed status epilepticus. Pentobarbital was administered to control the seizures. By the fourth hospital day, the seizures had stopped and the pentobarbital infusion was discontinued. The patient was also hemodialyzed. On the fifth hospital day, the patient needed an insulin infusion to control hyperglycemia and he was hemodialyzed. On the seventh hospital day, the ethylene glycol level was 2 mg/dL and an EEG was consistent with diffuse cerebral dysfunction. Life support measures were discontinued and he died on the tenth hospital day.

Case 59. A 27-year-old man ingested a goldplating solution containing 15 g of gold cyanide in a suicide attempt at an unknown time aboard a ship. On arrival at the hospital, the patient was apneic, without a palpable blood pressure, and tachycardic at 140 beats/min. The patient was intubated and given dopamine. The cyanide antidote kit was given with a resultant methemoglobin level of 11%. Arterial blood gases showed pH, 7.24; PCO₂, 27 mm Hg; PO₂, 287 mm Hg. Systolic blood pressure during administration of norepinephrine was 40 mm Hg. A neurological examination showed a comatose patient with fixed and dilated pupils. Six hours after arrival, an EEG showed no brain activity. Life support was terminated 24 hours after arrival. A whole blood cyanide level drawn about 2 hours after admission was 2.1 µg/mL.

Case 60. A 59-year-old man who had sustained a myocardial infarction 3 months earlier accidentally spilled on himself some of the contents of a 209 L drum containing a 70% solution of hydrofluoric acid. He was in the process of diluting the material for future use at his site of employment. In the ED, he was awake and alert with a systolic blood pressure of 110 mm Hg. However, he quickly became dyspneic and then comatose. Life support measures were initiated and he was stabilized. The patient received calcium gluconate gel topically and IV calcium gluconate. The patient was subsequently transferred to the burn unit because of burns that covered 11% of his total body surface area, including second- and third-degree burns on his head and neck. His course was further complicated by the presence of severe hypocalcemia (calcium of 2.7 mg/dL), profound hypotension and refractory ventilatory failure. Approximately 6 hours after admission, he developed ventricular fibrillation and cardiopulmonary resuscitation was unsuccessful.

Case 61. A 2-year-old boy ingested an unknown amount of a 35% solution of hydrogen peroxide that was stored in the refrigerator. The family lived on a farm and kept peroxide on hand to treat raw milk for drinking. Several minutes after the ingestion, he had a seizure and then became apneic. He was transported by private vehicle to the ED; he arrived in cardiorespiratory arrest. He was resuscitated, intubated, and transferred to a pediatric hospital. Endoscopy showed mucosal burns, without perforation, especially in the esophagus and sphincter areas. Severe gastric distention required decompression via NG suction. He died on the sixth hospital day from subsequent complications including respiratory and metabolic acidosis, air emboli, and anoxic encephalopathy with marked cerebral edema. Postmortem examination showed multiple pinpoint hemorrhagic areas on the gastric mucosal surfaces.

Case 63. A 35-year-old woman with a history of chronic depression and numerous suicide attempts was found by the sheriff unconscious in her car on the roadside. In the car were an empty trazodone bottle, a jar with a white crystalline powder labeled sodium azide reagent grade, and a container with white powder around its edge, containing a dark liquid with a strong hydrocarbon smell. When paramedics arrived, she had a systolic blood pressure of 140

mm Hg, pulse of 60 beats/min, and a respiratory rate of 6 breaths/min. Her pupils were midrange and unreactive. She was given naloxone and 50% dextrose with no response. The hazardous materials team was summoned. They donned gloves and goggles and self-contained breathing equipment. The patient was transferred by helicopter to a nearby university hospital. En route she needed atropine for a pulse of 40 beats/min. Her rhythm then deteriorated to ventricular fibrillation. The odor of the patient permeated the entire ED and many staff complained of burning, watery eyes and headache, necessitating decontamination and medical evaluation. The patient died an hour after being found in her car. Her body and the involved chemical containers were wrapped in double bags. Rinse water from the patient could not be disposed of in regular sinks, because of the risk of formation of shock sensitive metal azides. The suspected source of the sodium azide was the laboratory where the patient had been working. Postmortem examination showed generalized visceral congestion and 150 mL of a thick grey-brown fluid in the stomach. Drug screen was negative. Azide analysis was not performed.

Case 64. A 30-year-old woman developed nausea and severe headaches after consuming two drinks of tequila. She collapsed on her bed. Paramedics were summoned and found the patient seizing with fixed and dilated pupils. She then developed apnea and asystole. Cardiopulmonary resuscitation was initiated and she was intubated. Physical examination in the ED showed a comatose woman with a blood pressure of 180/80 mm Hg and a pulse of 100 beats/min. Her systolic blood pressure dropped to 80 mm Hg, then to 50 mm Hg. Arterial blood gases showed pH 6.28; PCO₂, 40 mm Hg; PO₂, 297 mm Hg. The patient remained acidotic, comatose and ventilator dependent. Approximately 5 days after admission, she developed profound hypotension. Her rhythm deteriorated from bradycardia to asystole and she died. Postmortem toxicologic analysis showed the presence of strychnine in the blood (0.17 µg/mL), brain (0.42 µg/g), liver (0.97 µg/g), kidney (0.53 µg/g), and gastric contents (10.9 mg). The patient's husband has been charged with murder.

Case 70. An 87-year-old woman ingested an unknown amount of a disinfectant cleaner containing 6.5% ethylene glycol butyl ether. In the ED she was comatose and had the odor of the disinfectant on her breath. She was intubated and placed on mechanical ventilation. She received IV naloxone, 50% dextrose, thiamine, and pyridoxine without any change in her mental status. She underwent gastric lavage, and then received activated charcoal and a cathartic. Initial arterial blood gases showed a metabolic acidosis. Her ethylene glycol level was 110 mg/dL. Three hours after admission, the patient received a loading dose of ethanol and a continuous infusion was started. Hemodialysis was discontinued after only 12 minutes because she developed ventricular tachycardia. Her hospital course was complicated by prolonged metabolic acidosis, hypotension, ventricular arrhythmias, hepatic and renal failure, and disseminated intravascular coagulation. Despite reduction of the ethylene glycol level to 10 mg/dL, the patient had a cardiac arrest and died 3 days after admission.

Case 83. A 78-year-old mentally retarded man ingested approximately 180 mL of a pine oil cleaner. Over the next 7 hours he vomited several times then became increasingly unresponsive. When paramedics arrived, he had a heart rate of 30 beats/min. Cardiopulmonary resuscitation was initiated. On arrival at the ED, he was in ventricular fibrillation. He was defibrillated twice and received epinephrine. He then developed an irregular rhythm with bradycardia, occasional P waves, and varying wide QRS complexes. The patient had a history of an old left bundle branch block. His pulse varied from 25 to 60 beats/min, and he was hypotensive. Atropine had no effect. Dopamine was administered to maintain his systolic blood pressure at 90 to 100 mm Hg. He was admitted to the ICU and placed on mechanical ventilation. On the second hospital day, he suddenly became asystolic and resuscitation was unsuccessful.

Case 84. A 90-year-old man with Alzheimer's disease ingested approximately 60 mL of a cleaner containing pine oil. The 60 mL

container was found empty, and the odor of the substance was detected on his breath. Fifteen minutes after the ingestion, the patient was asymptomatic and in no distress. In the ED he was given activated charcoal and a cathartic. Within 1.5 hours he became comatose and developed respiratory failure requiring mechanical ventilation. A chest roentgenogram showed right lower lobe infiltrates consistent with aspiration pneumonitis. Dopamine, dobutamine and a plasma protein expander were infused to maintain his blood pressure at 90-100/60-70 mm Hg. By the fourth hospital day, the patient was hemodynamically stable off all vasopressors and fluid expanders. By the sixth hospital day, the patient remained comatose and his chest roentgenograms were unchanged. He was receiving ticarcillin for a hospital-acquired *Staphylococcus aureus* infection. By the tenth hospital day, the patient's mental status returned to his preexposure baseline levels, and there was slight improvement of his chest roentgenogram. Unsuccessful attempts were made to wean the patient from the ventilator over the next 2 days. During his 15 day hospitalization, his arterial blood gases ranged as follows: pH, 7.31 to 7.46; PCO₂, 34 to 41 mm Hg; PO₂, 76 to 88 mm Hg; bicarbonate, 17 to 18 mEq/L. Postmortem examination showed consolidated lungs with only a small portion still aerated. The parietal and visceral pleura contained focal areas of grayish-white plaques. The lumen of the tracheobronchial tree contained mucopurulent exudate with roughening and congestion of the mucous membrane.

Case 87. An 83-year-old woman drank an unknown amount of 8% hydrofluoric acid in a suicide attempt. Because of hematemesis and dysphagia, she went to the ED 30 minutes after the ingestion. On physical examination, she was lethargic with a palpable blood pressure of 60 mm Hg, pulse of 128 beats/min, and respirations of 28 breaths/min. She had bright red blood per NG tube. Serum calcium was 6.1 mg/dL. Initial treatment included IV fluid resuscitation, dopamine, calcium chloride, and blood transfusions. Six hours after the ingestion, she developed a prolonged QT interval and intermittent ventricular tachycardia. Her serum calcium at that time was 9.7 mg/dL. Seventeen hours after the ingestion, she sustained a cardiac arrest and died.

Case 88. A 35-year-old man was inside a closed storage vessel, which had previously contained chicken livers, disinfecting it with a 12.5% sodium hypochlorite solution. It is unknown whether any other substances were being used. Approximately 5.5 hours after he was expected to have finished the cleaning job, an ambulance was called. Cardiopulmonary resuscitation was initiated at the scene, and he was transported to the ED. The patient died 13 minutes after arriving at the ED. Postmortem examination showed massive bilateral pulmonary edema and congestion and ecchymosis of a shoulder.

Case 120. A 3-year-old boy was pulled out of the flames of a four alarm fire by a neighbor. Cardiopulmonary resuscitation was initiated by joggers. When paramedics arrived, the child was not breathing and was asystolic. Cardiopulmonary resuscitation was continued, and he was intubated and given IV epinephrine. In the ED, he was comatose and flaccid with a blood pressure of 99/29 mm Hg, pulse of 95 beats/min, and temperature of 33°C. After receiving 100% O₂ for 30 to 60 minutes, his carboxyhemoglobin level was 26%. Arterial blood gases showed pH, 7.04; PCO₂, 18 mm Hg; PO₂, 462 mm Hg; bicarbonate, 4.8 mEq/L. Thirty minutes later, second studies showed carboxyhemoglobin, 7%; pH, 7.32; PCO₂, 7 mm Hg; PO₂, 539 mm Hg; bicarbonate, 3.3 mEq/L. The patient then received hyperbaric O₂ for 2 hours. Initially there was improvement in his muscle tone, but then he developed posturing. The patient was anuric. Thiosulfate was administered, and the patient was transferred to a pediatric hospital. On arrival, he was comatose with decorticate posturing. After 2 days in the ICU, the patient was not triggering the ventilator. His vital signs were blood pressure, 90/60 mm Hg; pulse, 140 beats/min; temperature, 36°C. Electrolytes were sodium, 128 mEq/L; potassium, 2.9 mEq/L; chloride, 104 mEq/L; bicarbonate, 13 mEq/L. Arterial blood gases were pH, 7.35; PCO₂, 21 mm Hg; bicarbonate, 11 mEq/L. The chest roentgenogram showed minimal

bronchial thickening. After two EEGs showed no brain wave activity, life support was discontinued on the fifth hospital day. Postmortem examination showed a markedly narrowed airway with extreme swelling of the epiglottis, and markedly erythematous larynx and trachea. Pulmonary findings included erythematous bronchi, edematous upper lobes, and consolidated pulmonary parenchyma. The brain was very soft and extremely swollen. The cause of death was confirmed to be hypoxic encephalopathy due to inhalation of products of combustion. Toxicologic analysis on blood drawn on the first hospital day showed a cyanide level of 0.32 $\mu\text{g}/\text{mL}$ and a methemoglobin level of 0.7%.

Case 130. A 25-year-old professional landscaper ingested unknown amounts of a lawn fungicide containing 20.1% cadmium chloride and a water hardener kit containing less than 0.1% calmagite solution. On presentation to the ED 30 minutes after the ingestion, the patient was agitated and diaphoretic with a systolic blood pressure of 50 mm Hg and a pulse of 140 beats/min. His lungs were clear and he had no jugular venous distention. Initial laboratory results included hemoglobin, 22 g/dL; hematocrit, 68%; white blood cell (WBC) count, 7,600/ μL ; platelets, 302,000/ μL ; sodium, 143 mEq/L; potassium, 3.6 mEq/L; chloride, 104 mEq/L; bicarbonate, 30 mEq/L; glucose, 127 mg/dL; AST, 22 IU/L; ALT, 14 IU/L; alkaline phosphatase, 72 IU/L; LDH, 224 IU/L. Arterial blood gases showed pH, 7.15; PCO_2 , 24 mm Hg; PO_2 , 194 mm Hg; bicarbonate, 8.3 mEq/L. Because of his agitation, he was given diazepam and pancuronium before he was intubated. IV fluids, dopamine, and norepinephrine were required to sustain a systolic blood pressure of 90 mm Hg. In the ED he received ethylenediaminetetraacetic acid (EDTA), 75 mg/kg IV. Because of persistent anuria and progressive elevations of his BUN and creatinine levels, EDTA was discontinued. After 13 ampules of sodium bicarbonate, his arterial pH remained less than 7.2. The patient also received broad spectrum antibiotics, cimetidine, and dexamethasone. He remained hypotensive, became unresponsive, then died 26 hours after the ingestion.

Case 131. A 20-year-old man arrived at the ED by ambulance 8 hours after intentionally ingesting arsenic trioxide. He stated that after the ingestion, he had vomited 25 times and the emesis had contained blood. He was initially awake and oriented, but had ventricular tachycardia requiring cardioversion. Initial laboratory results included hemoglobin, 19.2 g/dL; hematocrit, 55.6%; WBC count, 39,300/ μL ; platelets, 402,000/ μL ; sodium, 142 mEq/L; potassium, 3.7 mEq/L; chloride, 92 mEq/L; bicarbonate, 15.5 mEq/L; BUN, 19 mg/dL; creatinine, 2.6 mg/dL; glucose, 298 mg/dL. Arterial blood gases on 13 L O_2 were pH, 7.2; PCO_2 , 29 mm Hg; PO_2 , 339 mm Hg; bicarbonate, 11.4 mEq/L. An abdominal roentgenogram showed radiopaque material. Treatment included dopamine, lidocaine, sodium bicarbonate, dimercaprol, bretylium, and lorazepam. In the ICU, a Swan-Ganz catheter (Baxter Healthcare) was inserted and his pulmonary capillary wedge pressure was 14 cm H_2O . He was also intubated and an NG tube was inserted. He was lavaged and then activated charcoal and a cathartic were given. He became more hypotensive and norepinephrine was started. A Foley catheter was placed, but he remained anuric despite receiving 8 liters of fluid and furosemide. His last arterial blood gases were pH, 7.25; PCO_2 , 39 mm Hg; PO_2 , 64; bicarbonate, 17 mEq/L. Despite receiving dopamine, norepinephrine, and dobutamine, he remained hypotensive and died approximately 16 hours after the ingestion.

Case 132. A 35-year-old woman with multiple prior suicide attempts mixed arsenic powder with water and then injected the solution IV at an unknown time. Later that day, she was found vomiting and incontinent by a family member. In the ED, she was vomiting coffee ground emesis and complained of throat, epigastric, and abdominal pain. On physical examination, she was lethargic with a blood pressure of 97/51 mm Hg, pulse of 111 beats/min, and respirations of 20 breaths/min. Rectal examination showed guaiac-negative stool. Treatment included dimercaprol and urine alkalization. A few hours later, she became progressively hypotensive and was given fluids, dopamine, and blood transfusions. Two days

after the ingestion, she became oliguric and was hemodialyzed. Her hospital course was complicated by the development of refractory hypotension, fluid overload, liver failure, renal failure, and disseminated intravascular coagulation. She died on the third hospital day.

Case 134. A 75-year-old man stumbled out of a garage and informed his girlfriend that he had ingested an unknown amount of an unknown poison which had been stored in a mason jar. By the time paramedics arrived 9 minutes later, the patient had coughed up sputum and then vomited white mucous. He denied any pain or shortness of breath. On physical examination he had a palpable systolic blood pressure of 110 mm Hg, pulse of 76 beats/min, and respiratory rate of 28 breaths/min. The cardiac monitor showed normal sinus rhythm. The patient received oxygen and normal saline was infused. Minutes later, during transport, the patient's mental status rapidly deteriorated. Repeat vital signs 13 minutes after the previous set showed a palpable systolic blood pressure of 80 mm Hg, pulse of 50 beats/min, and respiratory rate of 12 breaths/min. A few minutes later the patient developed electromechanical dissociation at a rate of 40 beats/min, without an obtainable blood pressure. Cardiopulmonary resuscitation was initiated and the patient was intubated. After receiving atropine, epinephrine, and dopamine in the ED, he had a palpable systolic blood pressure of 90 mm Hg with a pulse rate in the 80s. On physical examination, the patient had dilated pupils that were minimally reactive. Other physical findings were warm and dry skin, clear lungs, and absent bowel sounds. On 100% O_2 his arterial blood gases showed pH, 7.16; PCO_2 , 36 mm Hg; PO_2 , 62 mm Hg. Gastric lavage produced a green liquid with a strong hydrocarbon odor. During continued lavage, the return became hemorrhagic. Despite receiving sodium bicarbonate, isoproterenol, and an external pacemaker, his rhythm and blood pressure could not be maintained. The patient died approximately 1 hour after his arrival. The coroner analyzed the gastric contents from the beginning of the lavage and determined the cause of death to be secondary to the ingestion of arsenic.

Case 135. An 84-year-old man with a history of dementia and alcohol abuse went to the ED claiming to have ingested arsenic trioxide the day before. He had vomited and had diarrhea but was now asymptomatic. Creatinine was 1.8 mg/dL and BUN was 18 mg/dL. An abdominal roentgenogram showed radiopaque material. He remained asymptomatic until the following morning when he became hypotensive and delirious. His urine output dropped and he developed hematuria. A subsequent abdominal roentgenogram showed radiopaque material still present. An NG tube was inserted and whole bowel irrigation initiated, but the patient vomited the solution. He later developed rales and was intubated. His blood pressure was 90/60 mm Hg, BUN 58 mg/dL, and creatinine 2.5 mg/dL. Treatment included colonic irrigation, urinary alkalization, and chelation with intramuscular dimercaprol. The patient developed aspiration pneumonia. Arterial blood gases were pH, 7.37; PCO_2 , 28 mm Hg; PO_2 , 86 mm Hg; bicarbonate, 16 mEq/L. On the fourth hospital day, the patient was agitated and anuric with a blood pressure of 106/60 mm Hg. He underwent hemodialysis for acute tubular necrosis. On the fifth hospital day, he became comatose and his systolic blood pressure fell to almost 60 mm Hg. Treatment included hemodialysis and dimercaprol. Whole bowel irrigation was discontinued. Activated charcoal was suctioned from the endotracheal tube. Laboratory results included sodium, 141 mEq/L; potassium, 2.4 mEq/L; chloride, 99 mEq/L; bicarbonate, 18 mEq/L; BUN, 35 mg/dL; creatinine, 4.3 mg/dL. He died on the sixth hospital day. It was later learned that he had acquired the arsenic 20 years earlier from a chemical plant employer and had been saving it to kill chickens.

Case 136. A 35-year-old man ingested an unknown powder with suicidal intent. The patient's wife brought a bag of powder to the ED, saying it contained dichlorodiphenyltrichloroethane (DDT). Her husband had reportedly mixed the powder and cigarettes together and then ingested the mixture. He was asymptomatic on arrival but began vomiting following insertion of an NG tube. He was lavaged

and given activated charcoal and a cathartic. Within 3 hours the patient had some seizure activity and became combative. He was treated with IV diazepam and phenytoin. Approximately 9 hours after the ingestion the patient became hypotensive with blood pressures ranging from 80/38 mm Hg to 86/50 mm Hg. His pulse was 120 beats/min and his respiratory rate was 28 to 32 breaths/min. He had vomited approximately seven times. Laboratory results included sodium, 148 mEq/L; potassium, 3.4 mEq/L; chloride, 112 mEq/L; serum creatinine, 1.0 mg/dL; glucose, 106 mg/dL; BUN, 11 mg/dL. Urinalysis was 3+ for glucose with WBC and red blood cells present. Approximately 18 hours after ingestion the patient was transferred to a tertiary care facility because of hypotension and reduced urine output. His blood pressure remained low despite dopamine, dobutamine, metaraminol, and atropine. Shortly after arrival at the referral hospital, the patient had a cardiac arrest and resuscitation attempts were unsuccessful. Two hours after his death the substance was identified as arsenic. Postmortem findings were consistent with arsenic intoxication, including myocarditis and gastritis. The blood arsenic concentration was 46.0 µg/dL.

Case 137. A 46-year-old man with a history of chronic ethanol abuse and multiple suicide attempts ingested approximately 50 g of mercuric chloride during a drinking episode. In the ED, he was in acute respiratory distress and had significant oral swelling. After an emergency cricothyrotomy, the patient was sedated, paralyzed, and transferred by helicopter to the ICU of a large medical center. Dimercaprol was administered, but he developed anuric renal failure, upper and lower gastrointestinal (GI) bleeding, increasing respiratory failure, and disseminated intravascular bleeding. On the first hospital day, the patient underwent a tracheotomy, right thoracotomy, and exploratory laparotomy. Esophagostomy and jejunostomy were required due to extensive necrosis of the stomach. Postoperatively, the patient experienced increasing hypotension and respiratory failure, leading to severe metabolic acidosis. Cardiac arrest occurred 16 hours after the ingestion. Postmortem examination showed erosive gastroesophagitis, stomatitis and pharyngitis, tracheobronchitis, facial edema, and edematous colonic mucosa.

Case 139. A 45-year-old man was at work when the platform he was standing on collapsed. He then fell into a vat containing nickel sulfate, nickel chloride, and nickel oxide at a temperature of 54.4 °C. He was pulled from the vat within 30 to 60 seconds. Physical examination showed second degree burns of his lower extremities, for a total surface area of 3%. Laboratory results included bilirubin, 5.4 mg/dL; AST, 57 IU/L; ALT, 85 IU/L; alkaline phosphatase, 78 IU/L. Within 24 hours of admission, he developed renal and hepatic failure and sustained a myocardial infarction. The patient's respiratory status deteriorated and he required mechanical ventilation. He died 72 hours after the exposure.

Case 140. A 37-year-old previously healthy man became ill while attending a party. He consumed five beers and then drank from a newly opened bottle of vodka. Minutes later, he developed crampy lower abdominal pain and vomiting and then became unconscious. He awakened in the ED and continued to have abdominal pain, nausea with brownish emesis, and diarrhea. Two other people at the party had tasted the vodka and reported that it "tasted bad." Physical examination showed an alert and agitated man in moderate distress. His vital signs were blood pressure, 94/40 mm Hg; pulse, 124 beats/min; respirations, 36 breaths/min; temperature, 37.8°C. Abdominal examination was remarkable for a midline surgical scar, active bowel sounds and moderate tenderness to palpation with mild guarding in the right lower quadrant. Rectal examination showed guaiac-positive stool. Laboratory results included potassium, 2.8 mEq/L; anion gap, 17 mEq/L; BUN, 14 mg/dL; creatinine, 1.2 mg/dL; hemoglobin, 14.3 g/dL; WBC count, 24,100/µL with neutrophilia and a left shift; platelets, 269,000/µL; alkaline phosphatase, 25 IU/L; AST, 105 IU/L; ALT, 45 IU/L; amylase, 42 IU/L; lactate, 2.9 mEq/L; negative serum ketones. Urinalysis showed protein, 43 WBC/high-power field and 98 erythrocytes/high-power field. Arterial blood gases were pH, 7.48; Pco₂, 24 mm Hg; Po₂, 86 mm Hg;

bicarbonate, 18 mEq/L. Toxicologic analysis results of serum and urine were negative except for an ethanol level of 160 mg/dL. Roentgenograms of the chest and abdomen were unremarkable. Despite receiving vasopressors and fluids, the patient remained hypotensive in the ICU. Over the next few hours, he developed stupor, hypoxemia, and metabolic acidosis. A chest roentgenogram showed interstitial lung infiltrates. The patient underwent exploratory laparotomy for possible ischemic bowel, viscus perforation, or occult abscess, but only mild adhesions and edema of the retroperitoneum were found. The remainder of his hospital course was remarkable for persistent metabolic acidosis, adult respiratory distress syndrome, hypotension, fever, disseminated intravascular coagulation, and multisystem organ failure necessitating hemodialysis. The patient died on the eighth hospital day. Postmortem toxicological analysis of multiple tissues showed high levels of arsenic. The remaining liquid in the vodka bottle contained 18% potassium arsenite by weight.

Case 141. A 60-year-old woman presented to the ED complaining of "burning all inside" after ingesting approximately 60 mL of dichlorophenoxyacetic acid (2,4-D) herbicide in a petroleum distillate vehicle. In the ED she was alert and oriented with stable vital signs. Initial therapy included gastric lavage and administration of activated charcoal. Within the first 22 hours she became comatose responding only to deep pain. Vital signs remained stable. Forty-eight hours after presentation, she developed occasional twitching and remained comatose with minimal response to pain. Continuous electroencephalographic monitoring showed extremely slow activity indicative of frontal lobe damage. Her BUN and creatinine levels were reported as mildly elevated. Eleven days after presentation, it was learned that the patient had developed renal failure and then diabetes insipidus. Her EEG showed a flat line and she was pronounced dead.

Case 142. A 29-year-old man presented to the ED complaining of nausea, vomiting, diarrhea, epigastric pain, and generalized weakness of approximately 36 hours duration. The emesis was coffee ground and the diarrhea was black and tarry. The patient denied prior GI bleeding and also denied recent abuse of ethanol or salicylates. The patient was in no acute distress with a blood pressure of 70/50 mm Hg, pulse of 80 beats/min, respiratory rate of 18 breaths/min, and temperature of 36.7°C. Physical examination was remarkable for an excessively dry tongue, slightly icteric sclera, crepitation on both sides of the neck consistent with subcutaneous emphysema, distant heart sounds, mild epigastric tenderness, and brown guaiac-positive stool in the rectum. Gastric aspirate was also guaiac positive. Laboratory results included hemoglobin, 16.6 g/dL; hematocrit, 50.9%; WBC count, 26,500/µL with a differential of 82% segmented neutrophils, 7% band neutrophils, 7% lymphocytes, 4% monocytes, and 1% nucleated red blood cells; platelets, 283,000/µL; sodium, 143 mEq/L; potassium, 3.3 mEq/L; chloride, 97 mEq/L; bicarbonate, 12.4 mEq/L; glucose, 109 mg/dL; BUN, 65 mg/dL; creatinine, 9.6 mg/dL; anion gap, 34 mEq/L. Coagulation studies showed PT, 22.7 seconds; PTT, 41.1 seconds; fibrinogen, 43 mg/dL. Arterial blood gases on room air showed pH, 7.40; Pco₂, 25 mm Hg; Po₂, 47 mm Hg. Chest roentgenogram showed a pneumomediastinum, bilateral infiltrates, and an enlarged cardiac silhouette. Upper GI contrast study showed mucosal swelling in the duodenum consistent with diffuse injury. The patient had been spraying a dilute solution of paraquat in his back yard, but repeatedly denied any ingestion. His hospital course was marked by the extremely rapid development of respiratory failure. He had a cardiac arrest 7.5 hours after presentation and died 35 minutes later. Postmortem examination confirmed acute paraquat ingestion as the cause of death. The postmortem serum paraquat level was 6.4 µg/mL.

Case 144. A 34-year-old man with a history of chronic alcohol abuse presented to the ED after ingesting up to 240 mL of paraquat. He complained of vomiting and muscle cramps. After activated charcoal was given, the patient was transferred. At the second facility, the patient was hypotensive and still complaining of cramps.

The patient received fluids, sodium polystyrene sulfonate, and potassium. Throughout the night his blood pressure remained stable. Early the next morning, he was slightly tachypneic, but his lungs were clear. His urine output was excellent. He then became hypotensive and was unresponsive to fluids and vasopressors. By mid-afternoon, he had a respiratory arrest. After 2 hours of continuous cardiopulmonary resuscitation, he died. Toxicologic analysis showed the presence of paraquat and a blood ethanol level of 219 mg/dL.

Case 153. A 2-year-old boy was allegedly found with a can of insecticide after he had sprayed it into his eyes. After washing his face with water, his mother called the poison center. By that time, he had vomited once and was crying. There was no history of coughing or choking. Because the mother was so upset, paramedics were asked to respond and the boy was transported to the ED. On presentation, he was comatose with labored breathing. Chest roentgenogram showed greater than 50% consolidation of the lungs. Arterial blood gases showed a pH of 7.18 and PCO_2 of 59 mm Hg. He developed seizures and was treated with diazepam and succinylcholine. On transfer to a tertiary care facility the child was comatose, tachycardic to 190 beats/min, and ventilator dependent. His lungs were described as wet. Treatment included dopamine to maintain his blood pressure and activated charcoal. Atropine was given for a possible insecticide exposure without improvement. Sixteen hours after the exposure, the parents stated their son had actually ingested charcoal lighter fluid. He developed bloody pulmonary secretions and was treated for aspiration pneumonitis. Twelve hours after the exposure, he developed ventricular fibrillation and arrested. Cardiopulmonary resuscitation was initiated and 12 minutes later his rhythm converted to sinus. After the resuscitation, he was unresponsive to pain with no spontaneous movement and occasional spontaneous respirations. His pupils were nonreactive. Within 36 hours, he developed multisystem failure. His transaminases ranged from 1,700 to 2,000 IU/L. The bloody pulmonary secretions persisted and prophylactic antibiotics were administered. He was hyperkalemic, requiring multiple doses of calcium and sodium bicarbonate. Bradycardia and asystole ensued. Postmortem examination confirmed the cause of death as ingestion and aspiration of a volatile hydrocarbon.

Case 155. A 14-year-old boy sprayed a fabric protector containing 1,1,1-trichloroethane on a shirt and was inhaling it with friends in the parking lot at a dance. He abruptly stood up, ran into the building, and collapsed. When paramedics arrived, the patient was in cardiac arrest, which progressed to cardiopulmonary arrest prior to arrival at the ED. Lidocaine, epinephrine, and dopamine were administered. About 4 hours after he collapsed, the resuscitation attempts were discontinued and he died. Postmortem examination showed generalized visceral congestion, pulmonary edema, and swelling of the brain. The cause of death was confirmed to be ventricular arrhythmias secondary to inhalation of 1,1,1-trichloroethane. Postmortem toxicological analysis showed a blood level of 8 $\mu\text{g}/\text{mL}$ of 1,1,1-trichloroethane.

Case 163. A 13-year-old boy was found unresponsive in complete cardiopulmonary arrest. Cardiopulmonary resuscitation was initiated. He vomited several times and a gasoline odor was present. He died approximately 1 hour later. Postmortem examination showed massive pulmonary edema. Toxicological analysis results of the urine was positive for caffeine, nicotine, and nicotine metabolites and negative for drugs of abuse. Headspace analysis showed unidentified volatile peaks with similar retention times to some found in gasoline.

Case 165. A 13-month-old boy ingested an unknown quantity of kerosene. Approximately an hour later in the ED, he was spitting, drooling, and coughing. After a vomiting episode, he suddenly developed severe respiratory distress. He was intubated and transferred to a tertiary medical facility. Approximately 9 hours after the exposure, he was "fighting" the ventilator and was paralyzed with pancuronium. Chest roentgenogram showed multiple infiltrates. Af-

ter the endotracheal tube suctioning produced a tan secretion; ceftazidime and clindamycin were started. The inspired oxygen concentration was increased to 100%. The patient became febrile. Forty-eight hours after the exposure, he developed a pneumothorax. Seventy-two hours after the exposure, severe pulmonary edema developed, which was treated with diuretics. He died 100 hours after the exposure.

Case 166. A 12-month-old girl ingested an unknown amount of lamp oil containing 58% mineral oil, 40% vegetable oil, and 2% perfume oil. In the ED, she was lethargic with bilateral wheezing. Chest roentgenogram showed a right-sided infiltrate. Initial arterial blood gases on 10 L O_2 were pH, 7.35; PCO_2 , 45 mm Hg; PO_2 , 446 mm Hg. She developed increasing respiratory distress and a repeat chest roentgenogram showed bilateral infiltrates. She was then transferred to a pediatric hospital. Vital signs on arrival were systolic blood pressure, 92 mm Hg; pulse, 156 beats/min; respirations, 80 breaths/min; temperature, 36.4°C. On physical examination, she was lethargic and had substernal and subcostal retractions. In addition, she had bilateral otitis media and decreased basilar breath sounds. She was admitted to the ICU and antibiotics were administered. After continuous positive airway pressure was applied, she initially seemed to improve. However, over the ensuing 24 hours, she developed respiratory failure and was intubated and mechanically ventilated. Chest roentgenogram showed a right pneumothorax and a chest tube was inserted. During her hospitalization, she required increasing positive end-expiratory pressures, 100% inspired oxygen, dopamine, and dobutamine. On the fourth hospital day, she suddenly deteriorated. Chest roentgenogram showed a recurrence of the right pneumothorax and a pneumomediastinum. After the placement of both a chest tube and mediastinum tube, the patient's blood pressure increased and her respiratory status temporarily improved. On the fifth hospital day, she could no longer be oxygenated. She became bradycardic, hypotensive, and died.

Case 167. A 2-year-old girl mistook kerosene for a red beverage and drank it. At home she had several episodes of coughing and choking. In the ED, she was intubated and placed on mechanical ventilation. She developed bilateral pulmonary infiltrates and needed high concentrations of forced inspiratory oxygen and a high positive end-expiratory pressure for oxygenation. After a week she improved slightly, but then began to worsen. At this time, her best arterial blood gases showed PO_2 of 50 mm Hg and PCO_2 of 50 mm Hg. She developed a pneumothorax, which was treated with chest tube insertion. She also developed shock, which was treated with dopamine and fluid boluses. She was then transferred to a facility offering extracorporeal membrane oxygenation. Despite the treatment of a tension pneumothorax, the patient continued to have poor ventilation-perfusion. Twenty days after admission, she had a sudden arterial decannulation and had 10 minutes of complete hypoxia. She then sustained a cardiopulmonary arrest and died.

Case 173. A 72-year-old man, despondent over the recent death of his father, ingested an unknown number of aluminum phosphide tablets in front of his wife. In addition, he had been drinking heavily that evening. He had a history of alcohol abuse, chronic obstructive pulmonary disease, and abdominal aortic aneurysm. When paramedics arrived, he was obtunded. On arrival at the ED 1.5 hours after the ingestion, he was diaphoretic with a systolic blood pressure of 65 mm Hg. Physical examination showed equal and small pupils, clear lungs, and regular heart rhythm. Laboratory studies included sodium, 130 mEq/L; creatinine, 2.6 mg/dL; glucose, 131 mg/dL; calcium, 7.5 mg/dL; phosphorus, 42.2 mg/dL; AST, 1,206 IU/L; LDH, 2,267 IU/L; CPK, 26,216 IU/L; WBC count, 11,000/ μL ; PT, 16.6 seconds. Toxicologic analysis showed an ethanol level of 230 mg/dL and an acetaminophen level of < 10 $\mu\text{g}/\text{mL}$. Arterial blood gases showed pH, 7.32; PCO_2 , 40 mm Hg; PO_2 , 64 mm Hg. An ECG showed nonspecific diffuse repolarization abnormalities with premature ventricular contractions. In the ED the patient received fluids and dopamine and his blood pressure was stable. He underwent gastric lavage, and was given activated charcoal and a cathartic.

While being moved from the gurney, he developed ventricular fibrillation and was defibrillated. He was also intubated and placed on mechanical ventilation. In the ICU he had refractory hypotension with a systolic blood pressure of 66 mm Hg. In addition, he became anuric. Repeat arterial blood gases drawn approximately an hour after the first showed pH, 7.15; PCO_2 , 19 mm Hg; PO_2 , 156 mm Hg. Other laboratory studies obtained in the ICU included hemoglobin, 9.4 g/dL; potassium ranging from 2.9 to 3.6 mEq/L; bicarbonate, 3 mEq/L; glucose, 769 mg/dL; lactate, 25.5 mEq/L. The patient died approximately 30 hours after the ingestion.

Case 179. A 30-year-old man with a history of alcoholism and depression was found unresponsive with an empty bottle of lindane next to him. In the ED, the patient was unresponsive. In the ICU, he was intubated and placed on mechanical ventilation. He was having generalized seizures and constant muscle tremors. Diazepam was given to control the seizures. An hour after admission, he became anuric. Three hours after admission, his vital signs were systolic blood pressure of 60 mm Hg, pulse of 120 beats/min, and rectal temperature of 42°C. Five hours after admission, he remained comatose, anuric, and tachycardic to 122 beats/min. He continued to deteriorate and died 10 hours after admission.

Case 182. A 55-year-old man was exposed to methyl bromide when he went inside a house that was tented for exterminating termites. After leaving the house, he collapsed on the sidewalk and started to seize. Thirty-six hours after the exposure, the patient was comatose with a blood pressure of 60/40 mm Hg and temperature of 39.4°C. Laboratory studies included sodium, 148 mEq/L; bicarbonate, 9 mEq/L; BUN, 44 mg/dL; creatinine, 8 mg/dL; glucose, 355 mg/dL. He developed complete heart block and was placed on an intraaortic balloon pump. Treatment also included epinephrine, dopamine, and hemodialysis. The patient died on the sixth hospital day.

Case 183. An 18-month-old girl was found by her mother playing with buckets containing an insecticide (terbufos). Four hours later while en route to the physician's office, she experienced a cardiopulmonary arrest. Cardiopulmonary resuscitation was initiated and the patient was transported to the hospital. In the ED, the child was found to be without a discernable cardiac rhythm. Atropine and pralidoxime were administered with no effect. She was also decontaminated with soap and water and underwent gastric lavage with return of large amounts of orange fluid. She died approximately 7.3 hours after the exposure.

Case 185. A 65-year-old woman, experienced in collecting mushrooms, picked and ate a mushroom growing in her yard. Twenty-four hours later, the patient began experiencing nausea and vomiting. Presuming it was the flu, she did not seek medical attention for several days. Five days after the ingestion, the patient became obtunded and hypotensive. Laboratory results included AST, 3,000 IU/L; bilirubin, 9.1 mg/dL; PT, 80 seconds; PTT, 100 seconds; an anion gap, 30 mEq/L. The patient was intubated and received dopamine and fresh frozen plasma. Repeat laboratory results 8 hours later were sodium, 141 mEq/L; potassium, 3.6 mEq/L; chloride, 93 mEq/L; bicarbonate, 18 mEq/L; glucose, 275 mg/dL; BUN, 50 mg/dL; creatinine, 2.4 mEq/L; AST, 4,314 IU/L; total bilirubin, 6.2 mg/dL; direct bilirubin, 3.1 mg/dL; alkaline phosphatase, 221 IU/L; LDH, 4,350 IU/L; PT, 20 seconds; PTT, 30 seconds. Arterial blood gases showed pH, 7.61; PCO_2 , 21 mm Hg; PO_2 , 129 mm Hg. The patient remained unresponsive. A liver biopsy 6 days after ingestion showed no viable cells. Urine output was minimal. The patient continued to receive dopamine and dobutamine, as well as lidocaine for ventricular ectopy. Seven days after the ingestion, she died. Although the mushroom was identified as an *amanita*, further classification to species was not possible.

Case 186. While hiking in the mountains, a 32-year-old woman ingested a root from a stream bank that she mistook for watercress. Thirty minutes after the ingestion, she developed status epilepticus. An hour later, at an initial health-care facility, she continued to seize, with no response to diazepam and phenytoin. She was then paralyzed with succinylcholine and pancuronium. GI decontamina-

tion consisted of gastric lavage and the administration of activated charcoal and a cathartic. Two hours after the initial presentation, the patient was transferred to another health-care facility. On arrival, she was comatose with a temperature of 36.1°C. She was intubated and placed on mechanical ventilation. She received diazepam, phenytoin, and phenobarbital to control seizure activity. Eight hours after the ingestion, the patient was exhibiting flexor and tonic contraction and extensor posturing. Complications included a spiking temperature and possible aspiration pneumonia. An EEG performed 2 days after the ingestion demonstrated no electrical activity. The patient died 4 days after the exposure. Postmortem examination showed marked congestion of the kidneys and spleen. The lungs had focal intraalveolar acute inflammation. The heart had focal fiber disarray and a focal mild acute inflammatory cell infiltrate composed of eosinophils and polymorphonuclear leukocytes. The brain had focal areas of rarefaction of the occipital lobes. Thrombosis was noted in the right coronary artery and basilar artery with multifocal bilateral infarcts of the occipital lobes. Plants submitted to the toxicology laboratory were identified as *Cicuta douglasii*, *Conium maculatum*, and *Rorippa* spp.

Case 187. A 71-year-old previously healthy woman was hospitalized with hepatitis. She had been drinking an undiluted ginseng extract from China for 2 weeks prior to admission. The patient developed progressive hepatic failure and died. A sample of the tea was sent for analysis. No solvent was found.

Case 211. A 17-year-old girl ingested 15 tablets of acetaminophen 500 mg and less than one bottle of an over-the-counter cold preparation containing acetaminophen, doxylamine, dextromethorphan, and pseudoephedrine. Sixty-seven hours after the ingestion, she presented to the ED with a complaint of 2 days of vomiting. Laboratory results included sodium, 127 mEq/L; potassium, 4.0 mEq/L; chloride, 98 mEq/L; bicarbonate, 16 mEq/L; BUN, 23 mg/dL; creatinine, 5.1 mg/dL; AST, 9,900 IU/L; LDH, 15,000 IU/L; arterial pH, 7.29; PCO_2 , 32 mm Hg; PO_2 , 104 mm Hg. Toxicologic analysis showed an acetaminophen level of 13.6 $\mu\text{g}/\text{mL}$ and a salicylate level of 2 mg/dL. On admission to the ICU, she was described as lethargic, but arousable (after meperidine was administered). N-acetylcysteine was recommended but never administered because of problems with her NG tube. The evening of her presentation, she was evaluated by the liver transplant service. At that time her PT was elevated to 44.3 seconds. She was intubated and hyperventilated, and received vitamin K, neomycin, and fresh frozen plasma. After her creatinine increased to 6.7 mg/dL and she became anuric, she was hemodialyzed. Her mental status deteriorated and her intracranial pressure was 11 cm H_2O . On her third hospital day, she seized. A CT scan of her head was negative for an intracranial bleed. Early on the fourth hospital day, the intracranial pressure rapidly rose from 35 to 115 cm H_2O over a few minutes and she died. Postmortem examination showed severe hepatic necrosis (primarily centrilobular with severe bile stasis), moderate to gross cerebral edema, and adult respiratory distress syndrome with marked acute pulmonary vascular congestion. Postmortem toxicologic analysis was positive for acetaminophen only.

Case 237. A thirty-five-year-old man presented to the ED approximately 2 hours after an intentional overdose of aspirin. He had been bingeing on alcohol for the previous 9 days and on the day of his overdose he had purchased a bottle of aspirin, containing 300 tablets, 325 mg each. On arrival, the patient was diaphoretic, pale, and tachycardic. Laboratory results included "normal electrolytes"; glucose, 200 mg/dL; WBC count, 21,000/ μL ; arterial pH, 7.37. Toxicologic analysis showed a 2-hour salicylate level of 78 mg/dL and an ethanol level of 5 mg/dL. The patient underwent gastric lavage. Thirteen hours after admission to the ICU, the patient's mental status deteriorated and he had Kussmaul breathing at 40 breaths/min. In addition, his urine output decreased. Laboratory results showed sodium, 129 mEq/L; potassium, 3.3 mEq/L; bicarbonate, 10.5 mEq/L. Salicylate level 15 hours after the ingestion was 112 mg/dL. Eighteen hours after the ingestion, arterial blood gases on 2

L O₂ by nasal cannula showed pH, 7.49; Pco₂, 17 mm Hg; Po₂, 84 mm Hg; bicarbonate, 13 mEq/L. Transfer for hemodialysis was recommended but declined. Twenty hours after the ingestion, the patient was intubated and mechanically ventilated. He had no urine output. Twenty-two hours after the ingestion, the patient developed malignant hyperthermia, had a respiratory arrest followed by a cardiac arrest, and died.

Case 265. A 40-year-old man with cirrhosis ingested approximately 15 tablets of colchicine, 0.6 mg, and 10 capsules of diphenhydramine, unknown strength, at an unknown time. In the ED, he was alert and oriented and had normal sinus rhythm. He received ipecac syrup, but the emesis volume was small with no pill fragments. He refused any further GI decontamination and laboratory evaluation. On arrival at the ICU, he was in normal sinus rhythm and had a blood pressure of 105/64 mm Hg. He had a large emesis and became progressively more lethargic. A complete blood count and electrolytes were unremarkable. Arterial blood gases on 2 L O₂ showed pH, 7.40; Pco₂, 30 mm Hg; Po₂, 61 mm Hg; bicarbonate, 19 mEq/L. Urinalysis showed bilirubin and protein. On the second hospital day, he had a respiratory rate of 48 breaths/min and became comatose. Arterial blood gases on 2 L O₂ showed a pH of 7.0 and Po₂ of 59 mm Hg. He was intubated, mechanically ventilated, and given sodium bicarbonate. His pulse increased to 100 beats/min with a blood pressure of 110/70 mm Hg. His pupils were fixed and dilated. He became anuric and developed watery, foul-smelling diarrhea. His rhythm deteriorated into ventricular tachycardia and then progressed to asystole. Cardiopulmonary resuscitation was initiated. The patient was defibrillated and received epinephrine and atropine. He died 31 hours after arriving at the ED.

Case 273. An 18-month-old girl ingested an unknown amount of her grandmother's medications, which included morphine sulfate, diphenoxylate/atropine, and levorphanol. The grandmother was not immediately aware of the ingestion, and when the child became drowsy, she put her to bed. Two hours later the grandmother found her pills scattered on the floor. The child was then found to be unresponsive. On physical examination in the ED, she was comatose and unresponsive to painful stimuli. Despite receiving 30 to 40 mg of naloxone, she remained unresponsive. She was placed on a naloxone infusion but remained comatose with only minimal reflexes. She was also intubated. After the patient did not respond to naloxone over 24 hours, a head CT scan was performed. It showed cerebellar infarction, presumably from hypoxic insult. Toxicologic analysis on an admission urine sample was positive only for an unidentifiable opiate. The patient died 7 days after the ingestion. Postmortem examination showed cerebellar herniation and infarction.

Case 282. A 15-year-old girl drank up to 480 mL of a first-aid liquid containing 2.5% lidocaine and then barricaded herself in the bathroom. She was found seizing and in respiratory arrest. She was dead on arrival at the ED. Postmortem examination showed large amounts of gastric contents in the trachea and bronchi. Postmortem examination confirmed the cause of death to be aspiration of gastric contents secondary to lidocaine intoxication. Postmortem serum lidocaine level was 18 µg/mL.

Case 283. A 2-month-old 5.5 kg boy was taken to the operating room for repair of bilateral inguinal hernias. The patient was induced with intramuscular ketamine and then intubated. Fifty-five minutes after the surgery began, the patient's heart rate fell from 136 to 90 beats/min. The surgeon stopped retracting the peritoneum, believing this was the cause of the drop in the heart rate. However, there was no improvement. Over the next 5 minutes a total of 0.2 mg of IV atropine was administered, but his heart rate dropped to 45 beats/min. The infant then developed ventricular fibrillation. Cardiopulmonary resuscitation was initiated and he was defibrillated. In addition, he received both IV and intracardiac epinephrine. Approximately an hour after the patient's heart rate started to decrease, it was learned that approximately 100 mL of a 0.4% solution of

lidocaine had been infused instead of a solution of 5% dextrose and .45% normal saline. The lidocaine was discontinued and the patient received calcium chloride, atropine, epinephrine, isoproterenol, and albumin. In addition, an adult external cardiac pacemaker was used without success.

Case 292. A 22-month-old 11 kg boy with a known seizure disorder was taken to the ED after having four seizures that day. He was alert with a blood pressure of 92/60 mm Hg, respirations of 40 breaths/min, and temperature of 37°C. He had another seizure in the ED, which was controlled with lorazepam. He was then admitted, awake and alert, but 6 hours later he had myoclonic seizures controlled briefly by lorazepam. Fifteen minutes later his vital signs were systolic blood pressure, 80 mm Hg; pulse, 140 beats/min; respirations, 36 breaths/min; temperature, 37.7°C. A physician then started to administer 1,150 mg of IV phenytoin. Over the ensuing 15 minutes, the pulse increased to 160 beats/min and the respirations to 56 breaths/min. Two minutes later, his respirations became irregular and decreased to 8 breaths/min. Approximately 5 to 10 minutes later, he had a cardiopulmonary arrest. Cardiopulmonary resuscitation was initiated and he was intubated. He was given epinephrine, atropine, fluids, and albumin. In addition, phenobarbital and paraldehyde were administered for persistent seizures. Approximately 52 minutes into the code, a transthoracic external pacemaker was placed and an epinephrine infusion was started. The systolic blood pressure was 50 mm Hg and pulse was 78 beats/min. Arterial blood gases showed pH, 6.98; Pco₂, 23 mm Hg; Po₂, 230 mm Hg. Despite sodium bicarbonate and hyperventilation, he remained acidotic (pH 6.97 to 7.0). Treatment also included dobutamine and transvenous pacing, but resuscitative efforts were unsuccessful. Toxicologic analysis showed phenytoin, 51.8 µg/mL; carbamazepine, 10.9 µg/mL; valproic acid, 153.4 µg/mL.

Case 329. A 25-year-old woman presented in her physician's office with lethargy after ingesting 5 g of bupropion. She was transported to the ED and underwent gastric lavage followed by activated charcoal and a cathartic. A pink substance was found in the gastric contents, but no pill fragments were evident. An hour after admission she had a respiratory arrest and developed a widened QRS complex and ventricular tachycardia. Cardiopulmonary resuscitation was initiated and she was intubated. Postresuscitation, she had a palpable systolic blood pressure of 98 mm Hg, pulse of 95 beats/min, and rectal temperature of 36°C. During the next 4 hours, the patient again developed a wide QRS complex and sustained a cardiac arrest. She was resuscitated and an EEG indicated there was brain activity. A urine drug screen was positive for diphenhydramine, acetaminophen, cimetidine, nicotine, and caffeine. She developed continuous generalized tonic-clonic seizures that were resistant to phenobarbital and phenytoin. The patient died 16 hours after hospitalization. It was believed that her death was due to pump failure. Toxicologic analysis of blood drawn on admission showed a bupropion level of 1,445 ng/mL, trace amounts of diphenhydramine, and high concentrations of bupropion metabolites.

Case 330. A 32-year-old man presented to the ED after ingesting an estimated 15 g of bupropion. The patient had multiple seizures that were refractory to IV diazepam. The patient developed bradycardia that was unresponsive to atropine and pacing. Within 8 hours of admission he sustained a cardiopulmonary arrest. Toxicologic analysis of urine was negative for other drugs.

Case 332. A 72-year-old man with Parkinson's disease was found unconscious at home. His medications included verapamil, allopurinol, and l-deprenyl (a selective monoamine oxidase [MAO] inhibitor). In the ED, meperidine was administered for a suspected myocardial infarction. Over the next 60 minutes, his temperature increased to 41.7°C and his blood pressure was 220/110 mm Hg. A CT scan of his head showed a subarachnoid hemorrhage. CPK initially increased to 13,500 IU/L and then to 42,000 IU/L. Dantrolene was administered but the patient remained in critical condition with hypocalcemia, vasomotor instability, acidosis, and respiratory failure.

Although his blood pressure and temperature returned to normal on the following day, the patient remained comatose and required ventilatory support. He died on the fourth hospital day.

Case 333. A 10-month-old girl ingested 5 or 6 tablets of desipramine, 100 mg. An hour after the ingestion, her mother reported the infant was drowsy and "in a daze." In the ED 90 minutes after the ingestion, she was alert with a blood pressure of 100/60 mm Hg, pulse of 164 beats/min, and respirations of 24 breaths/min. During gastric lavage with a 12F Salem sump, her heart rate increased to greater than 200 beats/min for 2 to 3 minutes, and then her rhythm deteriorated to ventricular fibrillation. Arterial blood gases showed a pH of 6.9 and PCO_2 of 68 mm Hg. Cardiopulmonary resuscitation was initiated and she died an hour after presentation to the ED.

Case 414. An 11-month-old child aspirated a 50 mg trazodone tablet. Details are sketchy, but airway obstruction by the foreign body ensued.

Case 420. An 11-month-old girl with Beckwith-Wiedeman syndrome ingested an unknown amount of diphenhydramine 25 mg capsules. An hour after the mother became aware of the ingestion, she saw her daughter shaking. On arrival at the ED, the patient was seizing. Despite receiving a total of 4 mg of diazepam, she continued to seize. She was then intubated and physostigmine was administered. Five hours after the ingestion she was transferred to a tertiary health-care facility. She developed bradycardia which responded to atropine. Her seizures were controlled with diazepam and phenobarbital. She remained unresponsive. After brain death was confirmed, life support was discontinued. The patient died 3 days after the exposure.

Case 435. A 61-year-old man with a history of chronic obstructive pulmonary disease and ethanol abuse ingested 70 long-acting theophylline tablets at an unknown time. On arrival at the ED, the patient arrested and seized. He was intubated and mechanically ventilated. Initial arterial blood gases showed a pH of 7.20, PCO_2 of 74 mm Hg, and PO_2 of 60 mm Hg. Admission theophylline level was 116 $\mu\text{g/mL}$. Six hours after admission, posthemodialysis, his theophylline level had increased to 163 $\mu\text{g/mL}$. Hemoperfusion could not be performed at this health-care facility. The patient also received multiple doses of charcoal every 2 hours. The patient became hypotensive to 70/30 mm Hg despite receiving fluids and dopamine. Because of persistent hypotension, the patient could not be dialyzed. Sixteen hours after admission, his theophylline level had decreased to 105 $\mu\text{g/mL}$. He was hypotensive with a systolic blood pressure in the 40s and tachycardic to 170 beats/min. His capillary wedge pressure was 17 cm H₂O. On 100% O₂, his arterial blood gases showed a pH of 7.34, PCO_2 of 50 mm Hg, and PO_2 of 40 mm Hg. The patient developed seizures that were treated with diazepam. The patient also developed an ileus. He became unresponsive and remained hypotensive despite fluids, dopamine, and norepinephrine. A repeat theophylline level 24 hours after admission was 109 $\mu\text{g/mL}$. He died about 40 hours after admission.

Case 454. A 29-year-old man with a history of alcohol abuse ingested approximately 7 g of his mother's long-acting theophylline. In the ED, 8 hours after the ingestion, he was nauseated and vomiting. His vital signs were blood pressure, 80/50 mm Hg; pulse, 196 beats/min; respirations, 40 breaths/min. The initial laboratory studies showed a potassium of 1.8 mEq/L and a CPK of 4,955 IU/L. Toxicologic analysis showed a theophylline level of 202.7 $\mu\text{g/mL}$ and blood ethanol level of 140 mg/dL. He underwent gastric lavage and received activated charcoal and a cathartic. He experienced a generalized tonic-clonic seizure that continued for 3 minutes, followed by runs of ventricular tachycardia. He was intubated, placed on mechanical ventilation, and given pancuronium, dopamine, phenobarbital, and potassium. On arrival at a second health-care facility, he was unresponsive but withdrew from deep pain. Vital signs were blood pressure, 87/34 mm Hg; pulse, 168 beats/min; respirations, 16 breaths/min. He had coarse crackles in his lungs, decreased bowel sounds, and intermittent tremors. Treatment for recurrent ventric-

ular tachycardia included cardioversion, lidocaine, esmolol, and magnesium sulfate. Vasopressors and multiple doses of activated charcoal were also administered. The theophylline level was 199 $\mu\text{g/mL}$ 15 hours after the ingestion and potassium was 1.9 mEq/L. Hemodialysis was initiated and continued intermittently. The theophylline level was 75 $\mu\text{g/mL}$ 24 hours after the ingestion and 23 $\mu\text{g/mL}$ 29 hours after the ingestion. By the second hospital day the patient was awake, cooperative, and acknowledged that he had tried to commit suicide. He spiked a fever to 38.2°C and a chest roentgenogram showed a right upper lobe density that was treated with antibiotics. Over the next 10 days, attempts at weaning the patient from the ventilator failed and his condition deteriorated. He became obtunded and developed septic shock with blood cultures positive for Gram-positive diplococci, adult respiratory distress syndrome, disseminated intravascular coagulation, liver failure, and renal failure. An EEG on the tenth hospital day showed a severe, widespread disturbance with absence of normal background. A head CT scan showed bilateral posterior fossa infarcts. Life support was discontinued and the patient died 12 days after the ingestion. Postmortem examination showed centrilobular hepatic necrosis, bilateral bronchopneumonia, diffuse alveolar damage, cerebral infarcts, and bilateral renal infarcts.

Case 460. A 3-month-old girl with ventricular and atrial septal defects, an overriding aorta and mild coarctation of the aorta underwent surgical closure of both septal defects after failing medical care. Subsequent weaning from cardiopulmonary bypass was delayed due to poor left ventricular function. Amrinone therapy was initiated with a loading bolus of 0.75 mg/kg followed by a continuous infusion of 200 $\mu\text{g/kg/min}$ (usual dosing range is 5 to 10 $\mu\text{g/kg/min}$). Continuous infusions of epinephrine and dobutamine were also initiated. She was weaned successfully from bypass and transferred to the postoperative unit. The amrinone infusion was continued at this rate for 11 hours, then decreased to 120 $\mu\text{g/kg/min}$ for the next 22 hours, after which the dosing error was recognized and the infusion discontinued. Anuria developed approximately 17 hours following the initiation of amrinone therapy. A metabolic acidosis also developed. The initial arterial blood gases were pH, 7.37; PCO_2 , 42 mm Hg; PO_2 , 69 mm Hg; bicarbonate, 24 mEq/L and later arterial blood gases were pH, 7.12 to 7.36; PCO_2 , 27 to 41 mm Hg; PO_2 , 70 to 127 mm Hg; bicarbonate 13 to 15 mEq/L. Hypotension became more prominent at 30 hours, with the blood pressure falling from 61/37 to 33/24 mm Hg. The hypotension, anuria, and acidosis persisted despite discontinuation of amrinone and continuing therapy with epinephrine, dobutamine and dopamine infusions. Ten hours following the discontinuation of amrinone therapy, the patient experienced repeated episodes of profound hypotension and electromechanical dissociation eventually resulting in death. Amrinone concentrations while on therapy were 75.9 $\mu\text{g/mL}$ (therapeutic concentrations 0.5 to 6.0 $\mu\text{g/mL}$).

Case 522. A 17-year-old woman ingested 6 to 8 tablets of an over-the-counter cold preparation containing phenylpropanolamine, 75 mg, and chlorpheniramine, 12 mg. Her family found her on the floor 18 hours later. She had a decreased level of consciousness and was complaining of a headache and right-sided weakness. On arrival at the ED 23 hours after the ingestion, she was lethargic with a blood pressure of 110/70 mm Hg, pulse of 94 beats/min, respirations of 16 breaths/min, and a temperature of 36°C. On neurological examination, her speech was fluent, pupils were 5 mm and reactive to light, and she was flaccid on the right side. Head CT scan showed a moderate size intraparenchymal cerebral hemorrhage in the centrum semiovale in the left frontoparietal region with extension into the lateral and fourth ventricles. In addition, a small amount of blood was present in the left sylvian fissure. There was only mild mass effect with shift of the septum pellucida. The patient received dexamethasone and was admitted to the ICU. Although her vital signs remained stable over the next 2 days, she was intermittently agitated, complained of a severe headache, and her speech became less

fluent with only single words possible at times. Approximately 48 hours after admission, she suddenly arrested, had frothy sputum, and died.

Case 525. A 25-year-old man extracted propylhexedrine from a nasal inhaler using hydrochloric acid. He then attempted to inject the extracted material into his right external jugular vein. Instead of experiencing his usual "rush", he developed the rapid onset of pain with increasing edema, chills and fever to 39.4°C. On physical examination 32 hours later, he was febrile to 39.4°C and had massive edema of the right side of his neck, requiring urgent nonsurgical airway management. Extensive necrotic tissue was noted on surgical exploration of the wound. His WBC count was elevated at 41,000/ μ L with 73% segmented neutrophils and 18% band neutrophils. ECG showed sinus tachycardia. All results of cultures before and after antibiotic treatment remained negative. Urine drug screen was negative for amphetamines and other drugs of abuse. The patient was treated with ceftriaxone, metronidazole, and ampicillin/sulbactam. The patient developed renal failure without apparent rhabdomyolysis (peak CPK of 2,815 IU/L, MB). On the second hospital day, the patient was poorly perfused clinically, had a cardiopulmonary arrest, and died. Postmortem examination showed marked swelling and induration of his neck, which was microscopically variegated, hemorrhagic and edematous. Kidneys showed mild vascular congestion and autolysis. The myocardium was microscopically normal.

Case 527. A 10-month-old girl was brought to the ED because of shortness of breath and vomiting of a dark, foul-smelling substance. In the ED, the patient was limp, hypotensive, and in respiratory distress with bilateral wheezing. It was learned the patient ingested ferrous sulfate tablets. She was stabilized and transferred. On arrival at the second hospital, the patient had no detectable blood pressure and aggressive blood pressure support followed. Laboratory studies included hemoglobin, 4.6 g/dL; hematocrit, 12.9%; WBC count, 17,100/ μ L; blood glucose, 266 mg/dL; PT, > 50 seconds; PTT, > 150 seconds; serum iron, 18,930 μ g/dL. Treatment included deferoxamine (total dose, 96 mg/kg), vitamin K, and fresh frozen plasma. The patient was subsequently transferred to a pediatric medical center. On arrival at the third hospital, her vital signs were systolic blood pressure, 64 mm Hg; pulse, 194 beats/min; respirations, 15 breaths/min. Admitting laboratory studies showed hemoglobin, 4.2 g/dL; hematocrit, 13%; WBC count, 8,200/ μ L; platelets, 83,000/ μ L; sodium, 151 mEq/L; potassium, 3.4 mEq/L; glucose, 112 mg/dL; AST, 2,024 IU/L; ALT 706 IU/L; alkaline phosphatase, 390 IU/L; LDH, >43,000 IU/L; CPK, >32,000 IU/L; PT, >46 seconds; PTT, >99 seconds. The patient remained hypotensive despite vasopressors, albumin, blood transfusions, and fresh frozen plasma. The patient then became unable to oxygenate with P_{O_2} levels of 40 to 50 mm Hg while receiving 100% forced inspiratory oxygen. Fourteen hours after admission, the patient became bradycardic with no detectable blood pressure. Cardiopulmonary resuscitation was unsuccessful.

Case 528. An 11-month-old girl was taken to the ED after being found with one ferrous sulfate tablet in her mouth. Two hours after the exposure, an abdominal roentgenogram showed many iron tablets present. The infant was receiving dopamine and had an initial serum iron concentration of 10,000 μ g/dL. A repeat iron level demonstrated continued iron absorption with a level of 14,000 μ g/dL. The child received deferoxamine, dopamine, and dobutamine. Exchange transfusion was also performed twice. Despite aggressive therapy, the infant died.

Case 529. A 14-month-old boy ingested an unknown amount of ferrous sulfate. The boy was taken to the ED 2 hours after the ingestion and his serum iron level was 10,000 μ g/dL. Deferoxamine therapy was begun and a second serum iron level 4 hours after the ingestion was 8,000 μ g/dL. Six hours after the ingestion, the boy was more responsive. Laboratory studies showed that the boy was acidotic and that his serum iron level had decreased to 1,900 μ g/dL. An exchange transfusion was performed. One week after the expo-

sure the boy remained intubated and respiratory distress syndrome had developed. Liver function tests were elevated. Two weeks after the ingestion, he remained intubated and also had a chest tube inserted. Laboratory studies showed BUN, 11 mg/dL; AST, 38 IU/L; ALT, 67 IU/L. Three weeks after admission the child arrested and was resuscitated. He required dopamine and dobutamine and had three chest tubes in place. He was improving slowly and needed positive end-expiratory pressure. His condition deteriorated over the next week and he required two additional chest tubes. He died 53 days after the ingestion.

Case 530. A 15-month-old boy was brought to the ED with hematemesis and guaiac-positive diarrhea that were described as smelling like metal and rotten fish. Laboratory studies included a WBC count of 20,000/ μ L, blood glucose level of 168 mg/dL, and prolonged PT and PTT. An abdominal roentgenogram showed questionable white spots. Iron ingestion was suspected and deferoxamine administered. The serum iron was 383 μ g/dL and the total iron binding capacity was 411 μ g/dL. The boy's father thought that his son might have ingested the iron approximately 10 hours prior to presentation. The patient had gastric bleeding and oliguria. He became icteric and on the fourth hospital day was transferred to a tertiary care facility. By the sixth hospital day, he had developed acute respiratory distress, hepatomegaly, and encephalopathy. Laboratory studies, including hemoglobin, hematocrit, coagulation studies, and liver enzymes were normal. The patient was also evaluated for an underlying metabolic disorder. However, cardiac failure and shock lung developed and he died 1 week after the ingestion.

Case 531. A 16-month-old girl ingested as many as 30 tablets of ferrous sulfate, 325 mg, at an unknown time. On arrival at the ED, she was lethargic and hypotensive. Arterial blood gases showed pH, 7.27; P_{CO_2} , 30 mm Hg; bicarbonate, 16 mEq/L. Gastric lavage yielded a large number of tablets and blood. The patient also developed bloody diarrhea. Fluids were initially given by the intraosseous route as IV lines could not be placed. After a surgical cutdown was performed, the patient received dopamine and IV deferoxamine. Because an abdominal roentgenogram showed numerous residual tablets in the GI tract, gastric lavage was repeated. A second roentgenogram showed no tablets remaining in the stomach. Serum iron level 3 hours after presentation was 8,500 μ g/dL. Forty-eight hours later, the patient developed abnormal liver function tests and clotting studies. Norepinephrine was required for blood pressure maintenance. Over the next 24 hours, she developed respiratory distress syndrome, severe metabolic acidosis, profound hypotension, active hemorrhaging, and decreased cardiac output. She died on the fourth hospital day. Postmortem examination showed hemorrhagic gastroenteritis, stiff lungs with diffuse alveolar damage, hepatomegaly with centrilobular necrosis, ascites, and jaundice.

Case 532. A 64-year-old woman ingested potassium chloride tablets, each containing 8 mEq, in a suicide attempt. She was hypertensive and had diarrhea 2.5 hours after the ingestion. Ipecac was administered. The serum potassium was 9.8 mEq/L. Treatment included insulin, glucose, sodium bicarbonate, and sodium polystyrene sulfonate. In addition, she was lavaged, but no tablets were recovered. Three hours after the ingestion, she had a cardiac arrest. She died an hour later. Postmortem examination recovered 84 potassium chloride tablets still present in the gastric contents. Postmortem potassium levels were 44.6 mEq/L in the serum and 13.2 mEq/L in the vitreous humor.

Case 534. A 62-year-old woman ingested a mixture consisting of approximately 500 mL of sodium bicarbonate and 250 mL of sugar, which was meant to be administered rectally. In the ED an hour after the ingestion, she was confused and had mottled skin. Laboratory results included sodium, 177 mEq/L; pH, 7.67 and bicarbonate, 54 mEq/L. Hemodialysis was initiated 3 hours after the ingestion. A head CT scan 12 hours after the ingestion showed massive cerebral edema. Repeat electrolytes at this time were sodium of 151 mEq/L and potassium of 3.2 mEq/L. Her blood pressure was being maintained with dopamine and norepinephrine. She was also receiv-

ing gentamicin, ceftizoxime, and cimetidine. Arterial blood gases 13 hours after the ingestion were pH, 7.53; PCO_2 , 34 mm Hg; PO_2 , 118 mm Hg; bicarbonate, 28 mEq/L. By 19 hours after the ingestion, the patient's pupils were fixed and dilated. She was mechanically ventilated and remained hypotensive despite pressor support. She developed diabetes insipidus and was treated with pitressin. She sustained a brain stem hemorrhage and died 3 days after the ingestion.

Case 537. A 42-year-old man who had been taking disulfiram for 10 days had one drink of wine, and then called the emergency medical service. When paramedics arrived, he was in cardiopulmonary arrest. He was resuscitated and transported to the hospital. In the ED, he had occasional runs of ventricular tachycardia and ventricular fibrillation. An ECG showed a widened QRS complex. Arterial blood gases showed pH, 7.2; PCO_2 , 15 mm Hg; PO_2 , 400 mm Hg. Lidocaine, bretylium, and sodium bicarbonate were administered. He also underwent gastric lavage and received activated charcoal and sorbitol. At one point, he was alert enough to write notes to the physician explaining what had happened during the day. However, he became hypotensive, despite receiving wide-open dopamine, and died approximately 2.5 hours after his arrival.

Case 539. A 45-year-old man ingested 90 tablets of cyclobenzaprine, 10 mg, and was found several hours later in the parking lot of a doctor's office. On arrival at the ED, he was comatose. He was intubated and underwent GI decontamination consisting of gastric lavage, activated charcoal, and sorbitol. IV glucose, thiamine and naloxone were administered without effect. Later that evening the patient began to respond to verbal stimuli, but his urine output decreased. Two days after the ingestion, the patient became restless, agitated, and developed a paralytic ileus. Serial cardiac isoenzymes excluded an acute myocardial infarction. Three days after the ingestion he was febrile to 40°C and the chest roentgenogram was consistent with aspiration pneumonia. Dopamine was administered for shock. Four days after the ingestion the patient developed atrioventricular dissociation and later sustained a cardiac arrest and died. Initial toxicologic analysis was positive for cyclobenzaprine in the urine and blood.

Case 578. A 26-year-old man ingested up to 180 mL of a concentrated cocaine solution that had been placed in a soft drink bottle. Authorities believe the bottle was part of a drug smuggling scheme that went awry. The patient immediately stated that the substance tasted bad and within several minutes he suffered a generalized tonic-clonic seizure. On arrival at the hospital, the patient was comatose and was placed on a ventilator. He remained comatose and after repeat EEGs that indicated no brain activity, life support was discontinued on the twentieth hospital day.

Case 605. A 40-year-old man with a history of active Hodgkin's lymphoma and drug abuse presented with delirium 12 hours after using an unknown amount of methamphetamine. Initial vital signs were pulse rate of 240 beats/min without a palpable blood pressure and temperature of 42.8 °C. After receiving IV propranolol, he developed ventricular tachycardia followed by asystole. The patient was intubated and resuscitated. Subsequent treatment included passive cooling measures, sodium bicarbonate for acidosis, norepinephrine for hypotension, and diazepam and pancuronium for seizures that developed within 2 hours of presentation. Admission toxicology screen showed a serum methamphetamine level of 7.6 µg/mL and a serum amphetamine level of 0.37 µg/mL. Blood culture results were positive for Gram-positive cocci. Fresh frozen plasma was given for disseminated intravascular coagulation. The patient remained unre-

sponsive, tachycardia persisted, and he died 3 days after presentation. Postmortem toxicologic serum levels were methamphetamine, 1.88 µg/mL, and amphetamine, 0.28 µg/mL.

Case 608. An 86-year-old woman drank up to 60 mL of a solution containing 84% ethanol and 10% camphor following a family dispute. On arrival at the ED, within an hour of the ingestion, her only complaint was "not feeling well". Physical examination was unremarkable. She underwent gastric lavage with a 40F orogastric tube after the tube placement was confirmed by the return of copious gastric contents. The patient was lavaged until clear and given activated charcoal. Within an hour of lavage, significant subcutaneous emphysema of the neck and face was noted. Because of increasing dyspnea, the patient was intubated. The vocal cords were well visualized and no charcoal was seen in the trachea. Postintubation chest roentgenogram showed pneumomediastinum, right-sided pneumonia and a possible right-sided pleural effusion. A second chest roentgenogram on the following day showed a large right-sided pleural effusion. A thoracentesis showed a large amount of black fluid that appeared quite similar to activated charcoal. Although an esophagram was not performed, it was believed the patient had a perforation of the esophagus into the right chest cavity. History obtained later showed that the patient had bullous dermatitis for which she had been taking prednisone 10 mg/d for more than 10 years. Her hospital course was complicated by the development of mediastinitis, pneumonia, and sepsis. She died on the twenty-fourth hospital day. Postmortem examination confirmed bronchopneumonia secondary to perforation of an esophageal diverticulum with associated mediastinitis and pleuritis.

Case 609. A 2-year-old girl drank up to 10 mL of oil of wintergreen. She was given milk and magnesium citrate at home and vomited. In the ED 2 hours after the ingestion, she was slightly agitated. Her pulse rate was 120 beats/min and her respirations were 20 breaths/min. Initial laboratory results included sodium, 129 mEq/L; potassium, 3.9 mEq/L; chloride, 98 mEq/L; bicarbonate, 12 mEq/L; BUN, 9 mg/dL; creatinine, 0.4 mg/dL; an anion gap of 19 mEq/L. Arterial blood gases were pH, 7.51; PCO_2 , 15 mm Hg; PO_2 , 195 mm Hg. Within an hour of presentation, she had increased lethargy. Her salicylate level was 146 mg/dL 4.5 hours after the ingestion. A second arterial blood gas showed pH, 7.45; PCO_2 , 19 mm Hg; PO_2 , 136 mm Hg. Treatment included several doses of activated charcoal, which were vomited, and sodium bicarbonate. She was then transferred for hemodialysis. On arrival at the second hospital, she was comatose, unresponsive to deep pain, and had Kussmaul breathing at 44 breaths/min. While she was being prepared for hemodialysis, 8.75 hours postingestion, she had a tonic-clonic seizure, became asystolic, and died. Postmortem examination was remarkable for mild cerebral edema and a strong odor of oil of wintergreen in the abdominal cavity.

Case 611. An 88-year-old woman with a known history of hypertension, treated with beta blockers, accidentally ingested 5-15 mL of oil of wintergreen. On physical examination within 2 hours of the ingestion, she was alert, hyperventilating, and had a blood pressure of 210/100 mm Hg. Arterial blood gases showed pH, 7.38; PCO_2 , 28 mm Hg; PO_2 , 96 mm Hg. An ECG showed sinus bradycardia at a rate of 37 beats/min. She underwent gastric lavage and then was given activated charcoal, a cathartic, and IV sodium bicarbonate. The patient had a cardiac arrest 1 hour 43 minutes after presentation and could not be resuscitated. The serum salicylate level drawn 2 hours after the ingestion was 71.4 mg/dL.