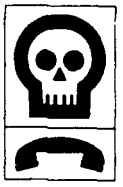
A special contribution from the American Association of Poison Control Centers.



1987 Annual Report of the American Association of Poison Control Centers National Data Collection System

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The American Association of Poison Control Centers (AAPCC) National Data Collection System has grown since its inception in 1983, with a dramatic annual increase in the number of participating poison centers, population served by those centers, and reported human exposures (Table 1).[1-4] This report includes 1,166,940 human exposure cases reported by 63 participating poison centers during 1987.

CHARACTERIZATION OF PARTICIPATING CENTERS

Of the 63 reporting centers, 61 submitted data for the entire year. Twenty-six of the 63 centers were certified as regional poison centers by the AAPCC. Annual center call volumes (human exposure cases only) ranged from 1,072 to 62,901 (mean 18,523). Center penetrance ranged from 3.3 to 18.7/1,000 with a mean

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

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Centers participating in this report include Alabama Poison Center, Tuscaloosa, AL; Arizona Poison Control System, Tucson, AZ; Samaritan Regional Poison Center, Phoenix, AZ; Fresno Regional Poison Control Center, Fresno, CA; University of California Irvine Regional Poison Center, Orange, CA; San Diego Regional Poison Center, San Diego, CA; Rocky Mountain Poison Center, Denver, CO; National Capital Poison Center, Washington, DC; Tampa Bay Regional Poison Center, Tampa, FL; Idaho Poison Control Center, Boise, ID; Indiana Poison Center, Indianapolis, IN; Variety Club Poison and Drug Information Center, Des Moines, IA; St Luke's Poison Center, Sioux City, IA; Mid-America Poison Center, Kansas City, KS; Kentucky Regional Poison Center of Kosair Children's Hospital, Louisville, KY; Louisiana Regional Poison Control Center, Shreveport, LA; Maryland Poison Center, Baltimore, MD; Children's Hospital of Michigan Poison Control Center, Detroit, MI; Blodgett Regional Poison Center, Grand Rapids, MI; Great Lakes Poison Control Center, Kalamazoo, MI; Midwest Poison Center, Kalamazoo, MI; Saginaw Regional Poison Center, Saginaw, MI; Hennepin Poison Center, Minneapolis, MN; Minnesota Poison Control System, St Paul, MN; Cardinal Glennon Children's Hospital Regional Poison Center, St Louis, MO; Mid-Plains Poison Control Center, Omaha, NE; New Jersey Poison Information and Education System, Newark, NJ; Hudson Valley Poison Center, Nyack, NY; Triad Poison Center, Greensboro, NC; North Dakota Poison Center, Fargo, ND; Akron Regional Poison Center, Akron, OH; Stark County Poison Control Center, Canton, OH; Cincinnati Drug and Poison Information Center, Cincinnati, OH; Greater Cleveland Poison Control Center, Cleveland, OH; Central Ohio Poison Control Center, Columbus, OH; Mahoning Valley Poison Center, Youngstown, OH; Oregon Poison Center, Portland, OR; LeHigh Valley Poison Center, Allentown, PA; Keystone Region Poison Center, Altoona, PA; Hamot Poison Center, Erie, PA; Northwest Poison Center, Erie, PA; St Joseph Poison Center, Lancaster, PA; Delaware Valley Regional Poison Control Center, Philadelphia, PA; Pittsburgh Poison Center, Pittsburgh, PA; Rhode Island Poison Center, Providence, RI; Dakota-Midlands Poison Control Center, Aberdeen, SD; McKennan Poison Center, Sioux Falls, SD; Southern Poison Center, Inc, Memphis, TN; North Texas Poison Center, Dallas, TX; Intermountain Regional Poison Control Center, Salt Lake City, UT; Blue Ridge Poison Center, Charlottesville, VA; Tidewater Poison Center, Norfolk, VA; Central Virginia Poison Center, Richmond, VA; Seattle Poison Center, Seattle, WA; Spokane Poison Center, Spokane, WA; Mary Bridge Poison Center, Tacoma, WA; Central Washington Poison Center, Yakima, WA; West Virginia Poison Center, Charleston, WV; Eau Claire Poison Center, Eau Claire, WI; Green Bay Poison Center, Green Bay, WI; LaCrosse Area Poison Center, LaCrosse, WI; University of Wisconsin Hospital Regional Poison Control Center, Madison, WI; Milwaukee Children's Hospital Poison Center, Milwaukee, WI.

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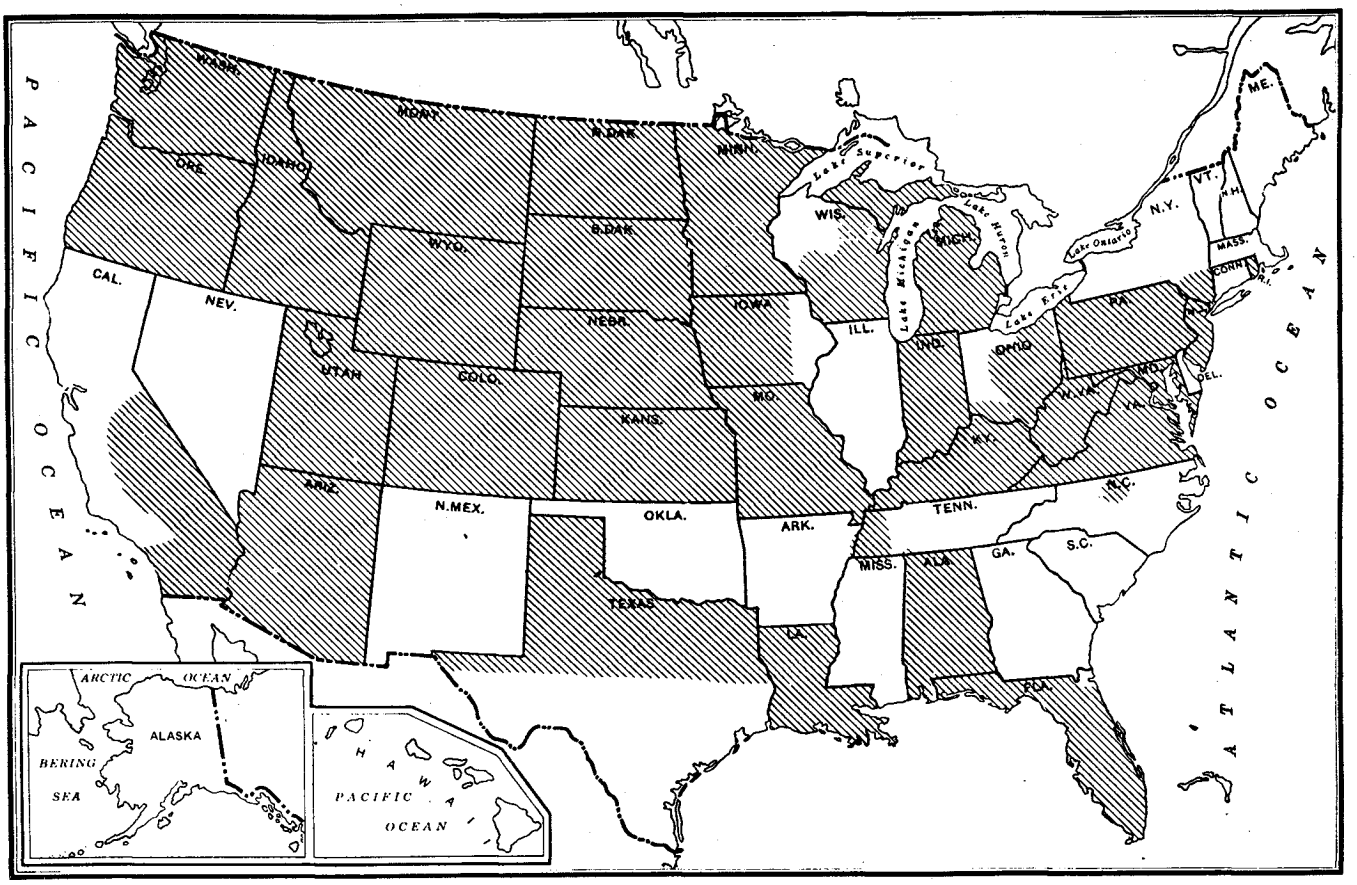

FIGURE 1. Sixty-three poison control centers participated in the Data Collection System in 1987. The cross-hatched areas denote regions served by reporting centers. (Map adapted from Hammond's Outline Map of the United States.)

TABLE 1. Growth of the AAPCC National Data Collection System

Year	No. of Participating Poison Centers	Population Served (Millions)	Human Exposures Reported
1983	16	43.1	251,012
1984	47	99.8	730,224
1985	56	113.6	900,513
1986	57	132.1	1,098,894
1987	63	137.5	1,166,940

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

	Site of Caller (%)	Site of Exposure (%)
Residence	82.6	91.9
Health care facility	13.6	0.5
Workplace	1.5	2.6
School	0.6	0.8
Other	1.3	2.2
Unknown	0.4	2.0
Total	100.0	100.0

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

Age; Yr	Male; No. (%)	Female; No. (%)	Unknown; No. (%)	Total; No. (%)
<1	48,460 (4.2)	43,477 (3.7)	1,011 (0.1)	92,948 (8.0)
1	117,386 (10.1)	103,272 (8.8)	1,641 (0.1)	222,299 (19.0)
2	125,931 (10.8)	106,503 (9.1)	1,891 (0.2)	234,325 (20.1)
3	58,340 (5.0)	47,458 (4.1)	915 (0.1)	106,713 (9.1)
4	25,766 (2.2)	19,723 (1.7)	404 (0.0)	45,893 (3.9)
5	13,901 (1.2)	10,644 (0.9)	257 (0.0)	24,802 (2.1)
6-12	35,696 (3.1)	25,960 (2.2)	791 (0.1)	62,447 (5.4)
13-17	20,722 (1.8)	29,853 (2.6)	403 (0.0)	50,978 (4.4)
>17	134,207 (11.5)	174,728 (15.0)	3,413 (0.3)	312,348 (26.8)
Unknown*	4,524 (0.3)	4,666 (0.3)	4,997 (0.4)	14,187 (1.3)
Total	584,933 (50.1)	566,284 (48.5)	15,723 (1.3)	1,166,940 (100.0)

* In the unknown category, although the exact age was not reported, 848 were infants and 4,126 were children aged 2 to 5 years.

TABLE 4. Distribution of Age and Sex of 397 Fatalities

Age; Yr.	Male	Female	Total	%	Cum %
<1	5	2	7	1.8	1.8
1	4	1	5	1.3	3.0
2	2	1	3	0.8	3.8
3	1	0	1	0.3	4.0
4	1	4	5	1.3	5.3
5	1	0	1	0.3	5.5
6-12	1	2	3	0.8	6.3
13-19	20	20	40	10.1	16.4
20-29	47	22	69	17.4	33.8
30-39	32	45	77	19.4	53.1
40-49	18	41	59	14.9	68.0
50-59	16	15	31	7.8	75.8
60-69	19	16	35	8.8	84.6
70-79	9	14	23	5.8	90.4
80-89	9	4	13	3.3	93.7
90-99	2	4	6	1.5	95.2
Unknown adult	14	5	19	4.8	100.0
Total	201	196	397	100.0	100.0

of 8.5 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 137.5 million was served by the participating centers, including portions of 35 states and the District of Columbia. Noting the 243.4 million estimated United States population, the data presented represent an estimated 57% of the human poison exposures which precipitated poison center contacts in the United States during 1987. Thus, the 1,166,940 human poison exposures reported in this database can be extrapolated to predict a nationwide incidence of more than two million human poison exposures. However, extrapolations from the number of reported poisonings to the number of actual poisonings occurring annually in the United States 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 18.7 poisonings/1,000 population reported for one state, then 4.6 million poisonings would have been reported to poison control centers in 1987. Because of the growth and development of this relatively new data collection project, with increasing center participation from year to year, the data do not directly identify a trend in the overall incidence of poisonings in the United States. However, an analysis of data from 55 centers that participated for the entirety of 1986 and 1987 indicates a 4.2% increase in reported poison exposures from 1986 to 1987 within the regions served by these 55 centers. This increase may reflect greater public awareness of poison center services rather than an actual increase in poisonings.

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

No. of Substances	No. of Cases	Percentage of Cases
1	1,098,302	94.1
2	51,873	4.4
3	10,617	0.9
4	2,990	0.3
5	1,116	0.1
6	424	0.0
7	225	0.0
8	103	0.0
9	50	0.0
≥10	253	0.0
Unknown	987	0.1
Total	1,166,940	100.0

TABLE 6. Reason for Human Poison Exposure Cases

Reason	No.	Percentage
Accidental		
General	978,391	83.8
Misuse*	31,568	2.7
Occupational	21,276	1.8
Environmental	5,181	0.4
Unknown	1,133	0.1
Total	1,037,549	88.9
Intentional		
Suicidal	67,383	5.8
Abuse†	12,427	1.1
Misuse‡	12,004	1.0
Unknown	13,677	1.2
Total	105,491	9.0
Adverse reaction		
Drug	9,611	0.8
Food	6,501	0.6
Other	2,058	0.2
Total	18,170	1.6
Unknown	5,730	0.4
Total	1,166,940	100.0

* Improper use of a substance where 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 where misreading the label of a product results in an unintended exposure.

† Improper use of a substance where the patient was seeking a psychotropic effect.

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

REVIEW OF THE DATA

The 1,166,940 human poison exposures reported to the AAPCC in 1987 represent the largest poison exposure database ever compiled in the United States, and a 6.2% increase in total reports from 1986. An analysis of the data indicates that 91.9% of exposures occurred

TABLE 7. Distribution of Reason for Exposure by Age, Human Exposure Cases Only

Reason	<6 Yr No. (%)		6-12 Yr No. (%)		13-17 Yr No. (%)		>17 Yr No. (%)		Unknown No. (%)		Total No. (%)	
Accidental	724,939	(62.1)	57,926	(5.0)	25,214	(2.2)	221,833	(19.0)	7,637	(0.6)	1,037,549	(88.9)
Intentional	3,827	(0.3)	2,943	(0.3)	24,107	(2.1)	73,170	(6.3)	1,444	(0.1)	105,491	(9.0)
Adverse reaction	2,139	(0.2)	1,236	(0.1)	884	(0.1)	13,661	(1.2)	250	(0.0)	18,170	(1.6)
Unknown	720	(0.0)	343	(0.0)	774	(0.1)	3,684	(0.3)	209	(0.0)	5,730	(0.4)
Total	731,625	(62.7)	62,448	(5.4)	50,979	(4.4)	312,348	(26.8)	9,540	(0.8)	1,166,940	(100.0)

Note: Column percentages are utilized in this table.

TABLE 8. Distribution of Reason for Exposure and Age for 397 Human Fatalities

Reason	<6 Yr	6-12 Yr	13-17 Yr	>17 Yr	Total
Accidental					
General	7	2	0	6	15
Environmental	6	0	1	14	21
Misuse	5	0	1	14	20
Occupational	0	0	0	6	6
Unknown	1	0	1	2	4
Total	19	2	3	42	66
Intentional					
Suicide	0	1	15	210	226
Misuse	1	0	0	8	9
Abuse	0	0	10	30	40
Unknown	1	0	2	26	29
Total	2	1	27	274	304
Adverse Reaction	0	0	0	6	6
Unknown	1	0	0	20	21
Total	22	3	30	342	397

TABLE 9. Distribution of Route of Exposure for Human Poison Exposure Cases and 397 Fatalities

Route	All Cases; No. (%)		Fatalities; No. (%)	
Ingestion	944,603	(77.5)	310	(75.2)
Dermal	83,912	(6.9)	4	(0.9)
Ophthalmic	72,180	(5.9)	0	(0.0)
Inhalation	64,190	(5.3)	60	(14.6)
Bites and stings	42,026	(3.4)	2	(0.5)
Parenteral	3,452	(0.3)	22	(5.3)
Other/unknown	7,882	(0.6)	14	(3.4)

Note: Multiple routes of exposure were observed in many poison exposure victims. Percentage is based on the total number of exposure routes (1,218,245 for all patients, 412 for fatal cases) rather than the total number of human exposures (1,166,940) or fatalities (397).

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

Symptom Assessment	No. (%)	
Asymptomatic	759,595	(65.1)
Symptomatic, related to exposure	316,141	(27.1)
Symptomatic, unrelated to exposure	17,815	(1.5)
Symptomatic, unknown if related	51,010	(4.4)
Unknown	22,379	(1.9)
Total	1,166,940	(100.0)

in the home (Table 2). Two unlikely sites of poisonings, health care facilities and schools, accounted for 6,018 (0.5%) and 9,545 (0.8%) poison exposures, respectively. Poison center peak call volumes were noted from 5 PM to 9 PM, although call frequency remained consistently high between 9 AM and 10 PM, with 82.6% of calls logged during this 13-hour period.

The age and sex distribution of human poison exposure victims is outlined in Table 3. Children under 3 years of age were involved in 47.1% of cases; and 62.3% occurred in children under 6 years of age. A male predominance is found among poison exposure victims aged less than 12 years, but the gender distribution is reversed in teenagers and adults. Table 4 gives the age and sex distribution for 397 fatalities. Despite variations from decade to decade among adults, males account for a greater number of fatalities overall in children, teenagers, and adults.

A single substance was implicated in 94.1% of reports, and only 1.4% of patients were exposed to more than two possibly poisonous drugs or products (Table 5). Most cases of human exposure were acute (98.7%), as were most poison-related fatalities (90.2%). (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 (88.9%) of poison exposures were accidental; suicidal intent was present in 5.8% of cases (Table 6). Nearly one quarter (23.8%) of cases with suicidal intent occurred in patients aged 13 to 17 years. Whereas accidental poisonings outnumbered both in-

TABLE 11. Management Site of Human Poison Exposure Cases

Site	No. (%)	
Non-health care facility	873,194	(74.8)
Health care facility	268,525	(23.0)
Already there at time of call to poison center	134,949	(11.6)
Referred by poison center	133,576	(11.4)
Other/unknown	25,221	(2.2)
Total	1,166,940	(100.0)

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

Outcome	<6 Yr; No. (%)	6-12 Yr; No. (%)	13-17 Yr; No. (%)	>17 Yr; No. (%)	Unknown; No. (%)	Total; No. (%)
No effect	436,805 (59.7)	23,945 (38.3)	13,399 (26.3)	58,051 (18.6)	2,889 (30.3)	535,089 (45.9)
Minor effect	102,168 (14.0)	19,930 (31.9)	21,002 (41.2)	136,080 (43.6)	2,609 (27.4)	281,789 (24.1)
Moderate effect	5,232 (0.7)	1,335 (2.1)	3,027 (5.9)	21,654 (6.9)	339 (3.6)	31,587 (2.7)
Major effect	422 (0.0)	86 (0.0)	335 (0.7)	2,740 (0.9)	48 (0.5)	3,631 (0.3)
Death	22 (0.0)	3 (0.0)	30 (0.1)	341 (0.1)	1 (0.0)	397 (0.0)
Unknown, nontoxic*	160,842 (22.0)	12,982 (20.8)	5,892 (11.6)	41,773 (13.4)	1,343 (14.1)	222,832 (19.1)
Unknown, potentially toxic†	14,991 (2.1)	2,444 (3.9)	6,065 (11.9)	37,859 (12.1)	1,900 (19.9)	63,259 (5.4)
Unrelated effect	9,760 (1.3)	1,617 (2.6)	1,104 (2.2)	13,132 (4.2)	241 (2.5)	25,854 (2.2)
Unknown	1,383 (0.2)	106 (0.2)	125 (0.3)	718 (0.2)	170 (1.8)	2,502 (0.2)
Total	731,625 (100.0)	62,448 (100.0)	50,979 (100.0)	312,348 (100.0)	9,540 (100.0)	1,166,940 (100.0)

Note: Column percentages are provided in this table; data in parentheses are percentages.
* No follow-up provided as exposure was assessed as nontoxic.
† Patient lost to follow-up. Exposure was assessed as potentially toxic.

tentional poisonings and adverse reactions in all age groups (Table 7), the ratio was lower in teenage and adult cases. In contrast, of the 397 human poisoning fatalities reported, this ratio was reversed among the adult deaths, with 6.5 times as many deaths resulting from intentional than from accidental exposures (Table 8).

Ingestions accounted for 77.5% of poison exposures (Table 9), followed in frequency by dermal exposures, ophthalmic exposures, inhalation, bites and stings, and parenteral exposures. For the 397 fatalities, ingestion and inhalation 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 8,546 initially asymptomatic patients. Thus, symptoms definitely related to the exposure eventually developed in at least 27.8% of patients.

The majority of cases reported to poison centers were managed in a non-health care facility (74.8%), usually at the site of exposure, the patient's own home (Table 11). Treatment in a health care facility was rendered or recommended in 23.0% of cases, and of these, 53.7% involved treatment and release, 17.7% involved admission for medical care, and 2.5% involved admission for psychiatric treatment; 8.2% refused referral, and 17.9% were lost to follow-up.

Table 12 displays the medical outcome of the human 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 database. These must be interpreted as minimum frequencies because of the limitations of telephone data gathering. Ipecac syrup was administered in 10.1% of cases. In children, ipecac syrup was most often administered outside a health care facility (Table 15).

A summary of the 397 fatal exposures is presented in

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

Outcome	Accidental No. (%)	Intentional No. (%)	Adverse Reaction No. (%)	Unknown No. (%)	Total No. (%)
No effect	510,836 (43.8)	21,484 (1.8)	1,706 (0.1)	1,063 (0.1)	535,089 (45.9)
Minor effect	233,940 (20.0)	36,917 (3.2)	9,413 (0.8)	1,519 (0.1)	281,789 (24.1)
Moderate effect	19,570 (1.7)	10,319 (0.9)	1,217 (0.1)	481 (0.0)	31,587 (2.7)
Major effect	1,295 (0.1)	2,163 (0.2)	64 (0.0)	109 (0.0)	3,631 (0.3)
Death	66 (0.0)	304 (0.0)	6 (0.0)	21 (0.0)	397 (0.0)
Unknown, nontoxic	211,853 (18.2)	7,817 (0.7)	2,526 (0.2)	636 (0.1)	222,832 (19.1)
Unknown, potentially toxic	35,376 (3.0)	24,852 (2.1)	1,621 (0.1)	1,410 (0.1)	63,259 (5.4)
Unrelated effect	22,437 (1.9)	1,392 (0.1)	1,576 (0.1)	449 (0.0)	25,854 (2.2)
Unknown	2,176 (0.2)	243 (0.0)	41 (0.0)	42 (0.0)	2,502 (0.2)
Total	1,037,549 (88.9)	105,491 (9.0)	18,170 (1.6)	5,730 (0.5)	1,166,940 (100.0)

TABLE 14. Therapy Provided in Human Poison Exposure Cases

Therapy	No.
Initial decontamination	
Dilution	463,285
Irrigation/washing	223,404
Ipecac syrup	118,055
Activated charcoal	60,396
Cathartic	51,647
Gastric lavage	21,685
Other emetic	2,440
Measures to enhance elimination	
Alkalinization (with or without diuresis)	2,795
Hemodialysis	310
Forced diuresis	271
Hemoperfusion (charcoal)	124
Acidification (with or without diuresis)	73
Hemoperfusion (resin)	35
Peritoneal dialysis	33
Exchange transfusion	25
Specific antidote administration	
Naloxone	3,417
N-acetylcysteine (PO)	3,337
Atropine	541
Deferoxamine	520
Antivenin/antitoxin	392
Ethanol	361
Hydroxocobalamin	359
Physostigmine	309
FAB fragments	232
Dimercaprol (BAL)	160
Pralidoxime (2-PAM)	123
N-acetylcysteine (IV)	110
Cyanide antidote kit	97
Penicillamine	97
EDTA	87
Pyridoxine	81
Methylene blue	51

Table 16. Each of these cases was abstracted and/or 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 36.5% of cases. The highest blood level of implicated substances is provided where available to the reporting poison center. Cases with prehospital cardiac or respiratory arrest are indicated. Prehospital arrests occurred in 32.2% of all fatalities and 85.0% of the fatal inhalation and parenteral cases. Abstracts are provided in the appendix for interesting or unusual cases.

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 1,166,940 exposures, presented by category. Table 17 focuses on non-pharmaceuticals; Table 18 presents drugs. A breakdown of plant exposures is provided for those most commonly implicated (Table 19). 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 20 presents the most common categories listed by frequency of exposure. Table 21 lists the substance categories with the largest number of reported deaths. A remarkable chronologic constancy of selected demographic data elements is demonstrated in Table 22, despite the considerable overall growth of the data collection system.

(Text continues on page 506.)

TABLE 15. Ipecac Administration by Site and Age

Age; Yr	Non-health-care Facility No. (%)	Health-care Facility No. (%)	Unknown No. (%)	Total No. (%)
<1	1,877 (1.6)	1,467 (1.2)	6 (0.0)	3,350 (2.8)
1	13,689 (11.6)	6,882 (5.8)	37 (0.0)	20,608 (17.5)
2	22,933 (19.4)	11,656 (9.9)	67 (0.1)	34,656 (29.4)
3	11,279 (9.6)	5,438 (4.6)	27 (0.0)	16,744 (14.2)
4	3,990 (3.4)	1,752 (1.5)	16 (0.0)	5,758 (4.9)
5	1,562 (1.3)	650 (0.6)	4 (0.0)	2,216 (1.9)
6-12	2,011 (1.7)	1,272 (1.1)	9 (0.0)	3,292 (2.8)
13-17	759 (0.6)	8,063 (6.8)	12 (0.0)	8,834 (7.5)
>17	3,004 (2.5)	18,902 (16.0)	24 (0.0)	21,930 (18.6)
Unknown	224 (0.2)	432 (0.4)	11 (0.0)	667 (0.6)
Total	61,328 (51.9)	56,514 (47.9)	213 (0.2)	118,055 (100.0)

TABLE 16. Summary of Fatal Exposures

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels
Adhesives					
1*	22 yr	Carpet adhesive	Inhalation	Unknown	
Alcohols					
2*†	15 yr	Ethanol	Ingestion	Int abuse	530 mg/dL
3*	79 yr	Ethanol	Ingestion	Int abuse	221 mg/dL
4	33 yr	Methanol	Ingestion	Int abuse	175 mg/dL
5	38 yr	Methanol	Ingestion	Int suicide	402 mg/dL
6	44 yr	Methanol	Ingestion	Unknown	39 mg/dL
See also cases 47, 79, 106, 123, 132, 135, 159, 165, 191, 202, 203, 216, 225, 228, 239, 278, 289, 304, 311, 314, 359, 373, 374, 385 (ethanol)					
Automotive/aircraft/boat products					
7‡	56 yr	Delcer (methanol)	Ingestion	Int abuse	198 mg/dL
8	18 yr	Ethylene glycol antifreeze	Ingestion	Int suicide	89 mg/dL
9	40 yr	Ethylene glycol antifreeze	Ingestion	Int suicide	3,239 mg/dL
10†	42 yr	Ethylene glycol antifreeze	Ingestion	Int unknown	
11	47 yr	Ethylene glycol antifreeze	Ingestion	Int suicide	926.7 mg/dL§
12	61 yr	Ethylene glycol antifreeze	Ingestion	Unknown	
13	49 yr	Methanol antifreeze	Ingestion	Int suicide	35.2 mg/dL
14†‡	7 mo	Methanol windshield washing solution	Ingestion	Acc misuse	110 mg/dL
Bites and Envenomations					
15†	75 yr	Brown recluse	Envenomation	Acc gen	
16*	40 yr	Rattlesnake	Envenomation	Unknown	
Chemicals					
17*†	6 wk	Ammonia (industrial)	Inhalation	Acc environ	11,000 µg/dL
18†	6 mo	Ammonium chloride	Ingestion	Acc misuse	
19†	27 yr	Ammonium chloride amphetamine ephedrine	Ingestion	Int unknown	
20	50 yr	Battery acid (H_2SO_4)	Ingestion	Int suicide	
21†	24 yr	Boron tribromide	Dermal	Acc occup	
22*	63 yr	Carbolic acid	Ingestion	Int suicide	
23†	42 yr	Chloroform	Ingestion	Int suicide	
24	72 yr	Cyanide	Ingestion	Int suicide	
25*	20 yr	Cyanide (sodium)	Ingestion	Int suicide	9 µg/mL§
26	67 yr	Cyanide barbiturates benzodiazepines	Ingestion	Int suicide	1.5 µg/mL
27‡	>17 yr	DMSO	Unknown	Adv rxn	
28	14 yr	Ethylene glycol	Ingestion	Int unknown	222 mg/dL
29	28 yr	Ethylene glycol	Ingestion	Int unknown	418 mg/dL
30	30 yr	Ethylene glycol	Ingestion	Int unknown	
31	54 yr	Ethylene glycol	Ingestion	Int unknown	
32	37 yr	Ethylene glycol aspirin	Ingestion	Int suicide	
33†	30 yr	Ethylene glycol phenobarbital phenytoin	Ingestion	Int suicide	2,554 mg/dL; 49.8 µg/mL, 28 h, 35 µg/mL, 28 h
34	27 yr	Hydrochloric acid	Ingestion	Int suicide	
35	83 yr	Hydrochloric acid	Ingestion	Int suicide	
36*	25 yr	Methylene chloride phenol	Inh & Derm	Acc occup	
37†	24 yr	Oxalic acid	Ingestion	Int suicide	2 mg/L§
Cleaning substances					
38	77 yr	Acid descaler (HCL)	Ingestion	Int suicide	
39	86 yr	Ammonium chloride (<10%) cold water wash	Ing & Inh	Acc gen	
40	30 yr	Cationic detergent/disinfectant	Ingestion	Int suicide	
41†	38 yr	Drain opener (NaOH)	Ingestion	Int suicide	

TABLE 16. Continued

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels
42†	49 yr	Drain opener (H_2SO_4)	Ingestion	Int suicide	
43	55 yr	Drain opener (HCL) amitriptyline	Ingestion	Int suicide	
44†	20 yr	Pine oil cleaner	Ing & Inh	Int suicide	
45†	70 yr	Pine oil cleaner	Ingestion	Acc gen	
46	78 yr	Pine oil cleaner cationic cleaner	Ingestion	Int suicide	
47†	52 yr	Spot remover (phosphoric acid) ethanol mineral oil	Ingestion	Int suicide	312 mg/dL
48†	43 yr	Toilet bowl cleaner (HCL)	Ingestion	Int suicide	
49	52 yr	Toilet bowl cleaner (HCL)	Ingestion	Int suicide	
50*†	18 yr	Trichloroethane cleaning fluid	Inhalation	Int abuse	
See also cases 46 (cationic cleaner); 189 (halogenated hydrocarbon cleaner)					
Cosmetics/personal care products					
51*	16 mo	Sculptured nail remover (acetonitrile)	Ingestion	Acc gen	3.1 μg/mL§ (cyanide)
52†	4 yr	Mouthwash (ethanol)	Ingestion	Acc gen	53 mg/dL, 12-16 h
See also case 162 (mouthwash, ethanol)					
Fumes, gases, and vapors					
53*	15 yr	Acetylene trichloroethane (TCF)	Inhalation	Int abuse	
54	36 yr	Arsine	Inhalation	Acc occup	
55	15 yr	Carbon dioxide	Inhalation	Acc environ	
56	18 mo	Carbon monoxide/smoke inhalation	Inhalation	Acc environ	
57*	2 yr	Carbon monoxide/smoke inhalation	Inhalation	Acc environ	
58*†	3 yr	Carbon monoxide/smoke inhalation	Inhalation	Acc environ	20.9%
59*	4 yr	Carbon monoxide/smoke inhalation	Inhalation	Acc environ	
60*	5 yr	Carbon monoxide/smoke inhalation	Inhalation	Acc environ	
61*	15 yr	Carbon monoxide	Inhalation	Int suicide	
62*	20 yr	Carbon monoxide/smoke inhalation	Inhalation	Acc environ	
63*	20 yr	Carbon monoxide	Inhalation	Int suicide	
64*	21 yr	Carbon monoxide	Inhalation	Int suicide	39%
65*	31 yr	Carbon monoxide/smoke inhalation	Inhalation	Acc environ	68%§
66*†	35 yr	Carbon monoxide	Inhalation	Int suicide	53.8%
67*	39 yr	Carbon monoxide	Inhalation	Int suicide	30%
68*	40 yr	Carbon monoxide	Inhalation	Acc occup	47%
69*	41 yr	Carbon monoxide/smoke inhalation	Inhalation	Acc environ	43%
70	41 yr	Carbon monoxide	Inhalation	Unknown	35%
71*	42 yr	Carbon monoxide	Inhalation	Int suicide	75%
72*	48 yr	Carbon monoxide	Inhalation	Int suicide	70%
73	65 yr	Carbon monoxide/smoke inhalation	Inhalation	Acc environ	20.3%
74*	66 yr	Carbon monoxide/smoke inhalation	Inhalation	Acc environ	79%§
75*	75 yr	Carbon monoxide/smoke inhalation	Inhalation	Acc environ	36%§
76*	86 yr	Carbon monoxide/smoke inhalation	Inhalation	Acc environ	72%§
77*	>17 yr	Carbon monoxide	Inhalation	Int suicide	
78*	>17 yr	Carbon monoxide/smoke inhalation	Inhalation	Acc environ	37%
79*	31 yr	Carbon monoxide	Inhalation	Int suicide	51.9%, 1.5 h

TABLE 16. Continued

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels
		acetaminophen/codeine	Ingestion		40.4 μg/mL‖
		ethanol			230 mg/dL
80*	23 yr	Carbon monoxide	Inhalation	Int suicide	24%§
		amitriptyline	Ingestion		1,830 ng/mL§
					1,130 ng/mL§ (nortriptyline)
		imipramine			1,290 ng/mL§
					790 ng/mL§ (desipramine)
81*	38 yr	Carbon monoxide	Inhalation	Acc environ	74.2%§
		liquid petroleum gas			
82*	54 yr	Carbon monoxide	Inhalation	Acc environ	67.4%§
		liquid petroleum gas			
83*	55 yr	Carbon monoxide	Inhalation	Acc environ	50.8§
		liquid petroleum gas			
84*	62 yr	Hydrogen sulfide	Inhalation	Acc environ	
85	70 yr	Methyl bromide	Inhalation	Acc environ	
86†	65 yr	Sulfuryl fluoride	Inhalation	Acc environ	0.5 mg/L
See also cases 81, 82, 83 (liquid petroleum gas)					
Herbicides					
87†	57 yr	Arsenic containing herbicide	Ingestion	Int suicide	134 μg/mL, 1 h
88†	23 yr	Endothall	Ingestion	Int suicide	
89†	22 yr	Paraquat	Ingestion	Int suicide	29.5 μg/mL, 1.5 h
Hydrocarbons					
90*	16 yr	Butane	Inhalation	Int abuse	
91*	14 yr	Freon	Inhalation	Int abuse	
92*	14 yr	Freon	Inhalation	Int abuse	
93*	13-17 yr	Freon	Inhalation	Int abuse	
94*	13-17 yr	Freon	Inhalation	Int abuse	
95*	18 yr	Freon	Inhalation	Int abuse	
96*	23 yr	Freon	Inh/Dermal	Acc occup	
97*	14 yr	Gasoline	Inhalation	Acc unknown	
98*†	15 yr	Gasoline	Inhalation	Int abuse	
99*	15 yr	Toluene (engine degreaser)	Inhalation	Int abuse	
100*	18 yr	Trichloroethane (fabric protector)	Inhalation	Int abuse	
101	>17 yr	Trichloroethane	Inh & Derm	Acc occup	
102	4 yr	Trichloroethylene	Inhalation	Acc misuse	
See also cases 47 (mineral oil), 53 (trichloroethylene)					
Insecticides and pesticides					
103†	40 yr	Amitraz	Ingestion	Int suicide	
104†	74 yr	Endosulfan	Ingestion	Acc misuse	
105	67 yr	Malathion	Ingestion	Int suicide	RBC cholinesterase 830 (nL 3,590-6,666)
106	47 yr	Malathion	Ingestion	Int suicide	RBC cholinesterase 1,030 (nL 3,590-6,666)
		ethanol			262 mg/dL
107	27 yr	Organophosphate	Ingestion	Acc gen	
See also case 285 (lindane shampoo)					
Paints and stripping agents					
108*	76 yr	Paint remover (toluene, methanol, acetone, methylene chloride)	Ingestion	Int suicide	
Plants					
109*†	16 yr	*Cicuta douglasii* (water hemlock)	Ingestion	Acc misuse	
Rodenticides					
110	>17 yr	Strychnine	Ingestion	Acc gen	

TABLE 16. Continued

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels
Analgesics					
111†	4 yr	Acetaminophen (adult)	Ingestion	Acc unknown	250 μg/mL
112†	9 yr	Acetaminophen (adult)	Ingestion	Acc gen	33 μg/mL, 18 h
113	15 yr	Acetaminophen (adult)	Ingestion	Int suicide	110 μg/mL, 5 h
114*†	30 yr	Acetaminophen (adult)	Ingestion	Int suicide	100 μg/mL, 13.5 h
115	40 yr	Acetaminophen (adult)	Ingestion	Int suicide	145 μg/mL, 6.5 h
116†	44 yr	Acetaminophen (adult)	Ingestion	Int unknown	14 μg/mL, 2 days
117	61 yr	Acetaminophen (adult)	Ingestion	Unknown	52 μg/mL, 24 h
118*	30 yr	Acetaminophen	Ingestion	Int suicide	134 μg/mL
119	71 yr	Acetaminophen	Ingestion	Int suicide	
120†	56 yr	Acetaminophen acetaminophen/codeine imipramine	Ingestion	Int suicide	324 μg/mL, 8 h
121	44 yr	Acetaminophen (adult) benzodiazepine	Ingestion	Int suicide	260 μg/mL
122	60 yr	Acetaminophen amitriptyline	Ingestion	Int suicide	36 μg/mL, >24 h
123†‡	65 yr	Acetaminophen (adult) ethanol	Ingestion	Unknown	495 μg/mL, 4-24 h
124	67 yr	Acetaminophen (adult) ibuprofen	Ingestion	Int suicide	
125	24 yr	Acetaminophen phenobarbital phenytoin	Ingestion	Int suicide	121 μg/mL, 17 h 37.5 μg/mL, 17 h 21.2 μg/mL, 17 h
126	68 yr	Acetaminophen quinine phenobarbital	Ingestion	Int suicide	321 μg/mL, 24 h 16.9 μg/mL
127	29 yr	Acetaminophen/codeine amphetamines	Ingestion	Int unknown	10 μg/mL,‖ 48 h
128	39 yr	Acetaminophen/codeine glutethimide	Ingestion	Int unknown	39.7 μg/mL,‖ 19 h
129	57 yr	Acetaminophen/hydrocodone aspirin/dihydrocodeine/ caffeine triazolam	Ingestion	Int suicide	105 μg/mL,‖ 8 h
130*	16 yr	Acetaminophen/propoxyphene	Ingestion	Int suicide	90 μg/mL,‖ 8 h 191 μg/L, 24 h (propoxyphene) 767 μg/L, 24 h (norpropoxyphene)
131*	33 yr	Acetaminophen/propoxyphene	Ingestion	Int suicide	125 μg/mL,‖ 4 h
132*	44 yr	Acetaminophen/propoxyphene atenolol ethanol	Ingestion	Int suicide	229 μg/dL,‖ 8 h
133*	36 yr	Acetaminophen/propoxyphene carisoprodol	Ingestion	Int suicide	
134	93 yr	Acetaminophen/propoxyphene diazepam	Ingestion	Int suicide	4 μg/mL,‖ 4 h
135*	21 yr	Acetaminophen/propoxyphene ethanol	Ingestion	Int suicide	178 μg/mL‖
136*	16 yr	Acetaminophen/propoxyphene propranolol	Ingestion	Int suicide	20.3 μg/mL,‖ >8 h
137	20 yr	Aspirin (adult)	Ingestion	Int suicide	130 mg/dL, 11 h
138†‡	21 yr	Aspirin (adult)	Ingestion	Int misuse	87 mg/dL§
139	27 yr	Aspirin (adult)	Ingestion	Int suicide	90 mg/dL, 17.5 h
140*‡	30 yr	Aspirin (adult)	Ingestion	Int misuse	119 mg/dL
141†	32 yr	Aspirin (adult)	Ingestion	Int suicide	78 mg/dL, 24 h
142	32 yr	Aspirin (adult)	Ingestion	Int unknown	100.1 mg/dL
143	32 yr	Aspirin (adult)	Ingestion	Int suicide	94.4 mg/dL, 24 h
144	42 yr	Aspirin (adult)	Ingestion	Int suicide	82 mg/dL, >6 h
145	49 yr	Aspirin (adult)	Ingestion	Int suicide	130 mg/dL, 11 h
146	46 yr	Aspirin (adult)	Ingestion	Int suicide	123 mg/dL

TABLE 16. Continued

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels
147‡	65 yr	Aspirin (adult)	Ingestion	Int misuse	113.2 mg/dL
148	67 yr	Aspirin (adult)	Ingestion	Int suicide	90.1 mg/dL, 13 h
149	83 yr	Aspirin (adult)	Ingestion	Int suicide	96 mg/dL, 24 h
150‡	84 yr	Aspirin (adult)	Ingestion	Int misuse	75 mg/dL
151	87 yr	Aspirin (adult)	Ingestion	Int suicide	59.5 mg/dL, 8-10 h
152‡	37 yr	Aspirin	Ingestion	Int misuse	105 mg/dL
153	48 yr	Aspirin	Ingestion	Int unknown	67.1 mg/dL§
154	51 yr	Aspirin	Ingestion	Int suicide	78 mg/dL
155‡	58 yr	Aspirin	Ingestion	Unknown	94 mg/dL
156	91 yr	Aspirin	Ingestion	Int suicide	45.5 mg/dL, 15-16 h
157†	54 yr	Aspirin desipramine thiothixene	Ingestion	Int suicide	96 mg/dL, 6 h
158	>17 yr	Aspirin doxepin diphenhydramine	Ingestion	Int suicide	56 mg/dL
159	46 yr	Aspirin ethanol	Ingestion	Int suicide	126 mg/dL, 5-7h
160*	48 yr	Aspirin ibuprofen	Ingestion	Int suicide	124 mg/dL§ 400 µg/mL§
161*†‡	55 yr	Aspirin magnesium sulfate sorbitol	Ingestion	Acc misuse	60 mg/dL 16.5 mEq/L (magnesium)
162	46 yr	Aspirin mouthwash (ethanol)	Ingestion	Int suicide	114.6 mg/dL 4 mg/dL
163*	29 yr	Aspirin/oxycodone doxepin diazepam	Ingestion	Int suicide	210 ng/mL
164	44 yr	Aspirin (adult) sleep-aid/diphenhydramine	Ingestion	Int suicide	113 mg/dL
165	24 yr	Aspirin valproic acid ethanol	Ingestion	Int unknown	88.2 mg/dL§ 538 µg/mL§ 160 mg/dL
166*	32 yr	Codeine other opiate	Ing/Paren	Int abuse	0.20 mg/L
167†	69 yr	Colchicine	Ingestion	Int suicide	
168	59 yr	Colchicine loperamide	Ingestion	Int suicide	
169	68 yr	Hydromorphone	Ingestion	Int suicide	
170*†	12 mo	Methadone	Ingestion	Int unknown	
171	21 yr	Methadone doxepin acetaminophen	Ingestion	Int suicide	
172*	26 yr	Morphine diazepam	Unknown	Int abuse	
173*	45 yr	Propoxyphene amitriptyline/perphenazine alprazolam	Ingestion	Int suicide	

See also cases 200, 229, 250, 331, 368 (acetaminophen); 79, 191, 259, 335, 338 (acetaminophen/codeine); 284, 335 (acetaminophen/oxycodone); 329 (acetaminophen/propoxyphene); 32, 194, 231, 251, 252, 320, 331, 370 (aspirin); 390 (aspirin/butalbital); 188 (aspirin/butalbital/codeine); 339 (coedine); 377, 386 (hydromorphone); 378 (morphine); 190, 379, 380 (opiates); 197 (pentazocine); 315 (propoxyphene)

Anesthetics

174†	2 yr	Local anesthetic ointment (dibucaine)	Ingestion	Acc gen	1.3 µg/mL§

Anticholinergics

See cases 253, 345 (benztropine); 219 (hydroxyzine).

Anticoagulants

See case 304 (warfarin).

Anticonvulsants

TABLE 16. Continued

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels
175	62 yr	Carbamazepine	Ingestion	Int suicide	47.04 μg/mL§
176	61 yr	Phenytoin	Ingestion	Int unknown	74.2 μg/mL
See also cases 33, 125, 242, 350, 351 (phenytoin); 165 (valproic acid).					
Antidepressants					
177†	17 mo	Amitriptyline	Ingestion	Acc gen	
178	13 yr	Amitriptyline	Ingestion	Int suicide	4,200 ng/mL§
179*	27 yr	Amitriptyline	Ingestion	Int suicide	
180	29 yr	Amitriptyline	Ingestion	Int suicide	
181	39 yr	Amitriptyline	Ingestion	Int suicide	
182	40 yr	Amitriptyline	Ingestion	Int suicide	
183*	44 yr	Amitriptyline	Ingestion	Int suicide	
184	45 yr	Amitriptyline	Ingestion	Int suicide	
5	47 yr	Amitriptyline	Ingestion	Int suicide	
186*	49 yr	Amitriptyline	Ingestion	Int suicide	910 ng/mL 240 ng/mL (nortriptyline)
187	56 yr	Amitriptyline	Ingestion	Int suicide	
188	>17 yr	Amitriptyline aspirin/butalbital/codeine	Ingestion	Int suicide	
189	35 yr	Amitriptyline cleaning fluid (trichloroethane, perchlorethylene, mineral spirits) flurazepam	Ingestion	Int suicide	
190	27 yr	Amitriptyline cocaine opiates	Ingestion	Int suicide	
191	30 yr	Amitriptyline ethanol acetaminophen/codeine	Ingestion	Int suicide	1,000 ng/mL§ 1,400 ng/mL§ (nortriptyline) 220 mg/dL§
192	59 yr	Amitriptyline nortriptyline	Ingestion	Int suicide	
193	34 yr	Amitriptyline propranolol	Ingestion	Int suicide	
194	37 yr	Amitriptyline aspirin	Ingestion	Int suicide	1,570 ng/mL, 24 h 870 ng/mL, 24 h (nortriptyline)
195	35 yr	Amitriptyline thioridazine	Ingestion	Int suicide	800 ng/mL
196	16 yr	Amitriptyline verapamil	Ingestion	Int suicide	
197*	54 yr	Amitriptyline/perphenazine pentazocine	Ingestion	Int suicide	2,595 ng/mL
198	16 yr	Amoxapine	Ingestion	Int suicide	
199	42 yr	Amoxapine	Ingestion	Int suicide	5,400 ng/mL§
200	30 yr	Amoxapine acetaminophen	Ingestion	Int suicide	38 μg/mL, 18 h
201	15 yr	Amoxapine cocaine	Ingestion	Int suicide	
202*	22 yr	Amoxapine ethanol	Ingestion	Int suicide	
203*	34 yr	Amoxapine ethanol	Ingestion	Int suicide	
204	58 yr	Amoxapine nortriptyline doxepin	Ingestion	Int suicide	
205	15 yr	Desipramine	Ingestion	Int suicide	
206*	16 yr	Desipramine	Ingestion	Int suicide	
207	19 yr	Desipramine	Ingestion	Int suicide	

TABLE 16. Continued

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels
208*	25 yr	Desipramine	Ingestion	Int suicide	
209	26 yr	Desipramine	Ingestion	Int suicide	
210	27 yr	Desipramine	Ingestion	Int suicide	
211	34 yr	Desipramine	Ingestion	Int suicide	
212	47 yr	Desipramine	Ingestion	Int suicide	
213	78 yr	Desipramine	Ingestion	Int suicide	
214	>17 yr	Desipramine	Ingestion	Int suicide	
215	46 yr	Desipramine alprazolam ethopropazine	Ingestion	Int suicide	>1,000 ng/mL
216	30 yr	Desipramine ethanol	Ingestion	Int suicide	1,200 ng/mL 152 mg/dL
217	57 yr	Desipramine hydrochlorothiazide	Ingestion	Int suicide	
218	25 yr	Desipramine lorazepam	Ingestion	Int suicide	
219	17 yr	Desipramine thiothixene hydroxyzine	Ingestion	Int suicide	
220*	16 yr	Doxepin	Ingestion	Int unknown	
221*	18 yr	Doxepin	Ingestion	Int suicide	
222	28 yr	Doxepin	Ingestion	Int suicide	
223	47 yr	Doxepin	Ingestion	Int unknown	
224	>17 yr	Doxepin	Ingestion	Int suicide	
225*	19 yr	Doxepin benzodiazepine ethanol	Ingestion	Int suicide	
226	30 yr	Doxepin cocaine	Unknown	Unknown	2,370 ng/mL
227	89 yr	Doxepin copper naphthenate (20%)	Ingestion	Int suicide	
228	40 yr	Doxepin ethanol	Ingestion	Int suicide	
229	40 yr	Doxepin acetaminophen butalbital	Ingestion	Int suicide	6,100 ng/mL§ 37.9 μg/mL 3.2 μg/mL§
230	28 yr	Doxepin loxapine	Ingestion	Int suicide	8,260 ng/mL 740 ng/mL§ (desmethyldoxepin) 4,740 ng/mL§
231	12 yr	Doxepin methamphetamine aspirin	Ingestion	Int suicide	306 ng/mL 218 ng/mL (desmethyldoxepin) 94 mg/dL
232*	13 mo	Imipramine	Ingestion	Acc gen	
233*	20 yr	Imipramine	Ingestion	Int suicide	
234	28 yr	Imipramine	Ingestion	Int suicide	2,096 ng/mL§ 1,080 ng/mL§ (desipramine)
235	28 yr	Imipramine	Ingestion	Int suicide	
236*	64 yr	Imipramine	Ingestion	Int suicide	20,500 ng/mL§¶
237	36 yr	Imipramine chloral hydrate	Ingestion	Int suicide	507 ng/mL, 2-5 h 310 ng/mL, 2-5 h (desipramine)
238	35 yr	Imipramine haloperidol	Ingestion	Int suicide	
239*	30 yr	Imipramine lithium ethanol	Ingestion	Int suicide	6,600 ng/mL§ 4,600 ng/mL§ (desipramine) 3.5 mEq/L 162 mg/dL

TABLE 16. Continued

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels
240	41 yr	Imipramine lithium	Ingestion	Int suicide	1,050 ng/mL 0.4 mEq/L
241*†	36 yr	Imipramine phenelzine diphenoxylate/atropine	Ingestion	Int suicide	
242	58 yr	Imipramine phenytoin	Ingestion	Int suicide	2,700 ng/mL 11.8 μg/mL
243	68 yr	Imipramine theophylline haloperidol	Ingestion	Int suicide	2,170 ng/mL 94 μg/mL
244	23 yr	Lithium	Ingestion	Int suicide	7.0 mEq/L
245‡	77 yr	Lithium	Ingestion	Acc unknown	2.6 mEq/L
246*	33 yr	Loxapine	Ingestion	Int suicide	11,800 ng/mL§ 3,600 ng/mL§ (8-hydroxy-loxapine)
247†‡	63 yr	MAO inhibitor	Ingestion	Unknown	
248	31 yr	Nortriptyline	Ingestion	Int suicide	
249	38 yr	Nortriptyline	Ingestion	Int suicide	>1,500 ng/mL
250	34 yr	Nortriptyline acetaminophen	Ingestion	Int unknown	 210 μg/mL
251	15 yr	Nortriptyline aspirin	Ingestion	Int suicide	9,360 ng/mL 100 mg/dL
252	27 yr	Nortriptyline aspirin	Ingestion	Int suicide	 41.6 mg/dL
253*	27 yr	Nortriptyline benztropine trifluoperazine	Ingestion	Int suicide	
254	36 yr	Nortriptyline chlorpromazine diphenhydramine	Ingestion	Int suicide	863 ng/mL, 48 h
255*	27 yr	Nortriptyline desipramine trifluoperazine	Ingestion	Int suicide	
256	20 yr	Nortriptyline phencyclidine	Ingestion	Int suicide	4,100 ng/mL§ <80 ng/mL
257†	34 yr	Phenelzine thioridazine temazepam	Ingestion	Int suicide	 155 μg/mL§
258‡	>17 yr	Phenelzine desipramine diphenhydramine	Ingestion	Adv rxn	 530 ng/mL
259	52 yr	Trimipramine acetaminophen/codeine chorazepate	Ingestion	Int suicide	
See also cases 43, 80, 122, 290, 299, 341 (amitriptyline); 173, 380 (amitriptyline/perphenazine); 157, 284 (desipramine); 158, 163, 171, 346 (doxepin); 80, 120, 355 (imipramine); 350 (trazodone); 318 (unspecified tricyclic antidepressant).					
Antihistamines					
260	25 yr	Diphenhydramine mesoridazine	Ingestion	Int suicide	
See also cases 158, 254, 258, 371 (diphenhydramine).					
Antimicrobials					
261*†	2 yr	Chloroquine	Ingestion	Acc gen	9.9 μg/mL§
262*	59 yr	Hydroxychloroquine	Ingestion	Int suicide	
263	20 yr	Isoniazid	Ingestion	Int suicide	
See also case 269 (erythromycin).					
Asthma therapies					
264*	63 yr	Albuterol	Ingestion	Acc misuse	
265	74 yr	Aminophylline	Parenteral	Acc misuse	74 μg/mL
266*	16 yr	Theophylline	Ingestion	Int suicide	120 μg/mL
267‡	67 yr	Theophylline	Ingestion	Unknown	54 μg/mL
268†	72 yr	Theophylline	Parenteral	Acc misuse	47 μg/mL

TABLE 16. Continued

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels
269‡	74 yr	Theophylline erythromycin	Ingestion	Adv rxn	60 μg/mL
270	75 yr	Theophylline	Ingestion	Int suicide	116.5 μg/mL
271‡	75 yr	Theophylline	Ingestion	Acc misuse	34 μg/mL
272‡	81 yr	Theophylline (long acting)	Ingestion	Acc unknown	30.6 μg/mL
273‡	82 yr	Theophylline	Ingestion	Acc misuse	58 μg/mL
274	83 yr	Theophylline (long acting)	Ingestion	Int suicide	100 μg/mL
275‡	90 yr	Theophylline (long acting) digoxin	Ing & Paren	Acc misuse	37 μg/mL 4.7 ng/mL
276‡	>17 yr	Theophylline	Ingestion	Unknown	48 μg/mL, 17 h
277‡	>17 yr	Theophylline	Ingestion	Unknown	72 μg/mL
See also cases 243, 354 (theophylline).					
Cardiovascular drugs					
278*†	37 yr	Acebutolol ethanol	Ingestion	Int suicide	 247 mg/dL, 1.75 h
279	70 yr	Digoxin	Ingestion	Int suicide	18.5 ng/mL
280	73 yr	Digoxin	Parenteral	Acc misuse	3.0 ng/mL
281‡	81 yr	Digoxin	Ingestion	Acc gen	4.0 ng/mL
282‡	83 yr	Digoxin	Ingestion	Unknown	4.4 ng/mL
283	92 yr	Digoxin	Ingestion	Unknown	8.5 ng/mL
284	41 yr	Digoxin desipramine acetaminophen/oxycodone	Ingestion	Int suicide	3.5 ng/mL
285	96 yr	Digoxin pediculocide shampoo (lindane)	Ingestion	Unknown	4.9 ng/mL
286†	60 yr	Digoxin verapamil	Ingestion	Int suicide	15 ng/mL, 1 day
287†	20 yr	Digoxin verapamil metoprolol	Ingestion	Int suicide	47 ng/mL 2.0 μg/mL§ 0.9 μg/mL§
288	53 yr	Digoxin verapamil	Ingestion	Int suicide	29.2 ng/mL, 2 h
289	49 yr	Disopyramide nifedipine ethanol	Ingestion	Int suicide	 270 mg/dL
290	18 yr	Encainide amitriptyline	Ingestion	Int suicide	
291†‡	70 yr	Flecainide	Ingestion	Acc misuse	1,500 ng/mL
292	32 yr	Lidocaine	Parenteral	Acc misuse	22.6 μg/mL
293	22 yr	Nifedipine propranolol clonidine	Ingestion	Int suicide	
294	2 wk	Nitroprusside	Parenteral	Acc misuse	15.5 μg/mL (thiocyanate)
295‡	45 yr	Nitroprusside	Parenteral	Int misuse	
296‡	67 yr	Procainamide	Parenteral	Int misuse	28.4 μg/mL 54 μg/mL (*N*-acetylprocainamide)
297*	16 yr	Propranolol	Ingestion	Int suicide	
298*	17 yr	Propranolol	Ingestion	Int suicide	0.64 mg/dL§
299*	36 yr	Propranolol amitriptyline alprazolam	Ingestion	Int suicide	1.8 mg/dL§ 400 ng/mL§ 600 ng/mL§ (nortriptyline)
300†	7 yr	Propranolol/hydrochlorothiazide	Ingestion	Acc gen	2,465 ng/mL,10.5 h
301*‡	48 yr	Quinidine	Ingestion	Acc misuse	11.3 μg/mL
302*	63 yr	Quinidine diltiazem	Ingestion	Int suicide	
303	42 yr	Quinidine thioridazine levodopa/carbidopa	Ingestion	Int suicide	

TABLE 16. Continued

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels
304	54 yr	Quinidine warfarin ethanol	Ingestion	Int suicide	
305†	7 day	Verapamil	Ingestion	Acc misuse	
306*	49 yr	Verapamil	Ingestion	Int suicide	0.77 mg/dL§
307	30 yr	Verapamil	Ingestion	Int suicide	
308	40 yr	Verapamil	Ingestion	Int suicide	
309	60 yr	Verapamil	Ingestion	Int suicide	
310	90 yr	Verapamil	Ingestion	Int suicide	
311	40 yr	Verapamil ethanol	Ingestion	Int suicide	 198 mg/dL
312	30 yr	Verapamil metoprolol methyldopa/hydrochlorothiazide	Ingestion	Int suicide	
313*	60 yr	Verapamil propranolol diazepam	Ingestion	Int suicide	
314*	43 yr	Verapamil propranolol ethanol	Ingestion	Int suicide	
315	34 yr	Verapamil secobarbital/amobarbital propoxyphene	Ingestion	Int suicide	

See also cases 132 (atenolol); 293 (clonidine); 275 (digoxin); 302 (diltiazem); 287, 312 (metoprolol); 289 (nifedipine); 321 (procainamide hydrochloride); 136, 193, 293, 313, 314 (propranolol); 126 (quinine); 196, 286, 287, 288 (verapamil).

Cold and cough preparations

316*‡	65 yr	Acetaminophen/doxylamine/ pseudoephedrine/ dextromethorphan	Ingestion	Int suicide	180 mcg/mL‖
317†	39 yr	Phenylpropanolamine	Ingestion	Int suicide	
318	41 yr	Phenylpropanolamine tricyclic antidepressant	Ingestion	Int suicide	

See also cases 19, 372 (ephedrine).

Diuretics

See case 217 (hydrochlorothiazide).

Electrolytes and minerals

319†	10 mo	Ferrous sulfate	Ingestion	Acc gen	7,000 μg/dL
320	30 yr	Ferrous sulfate aspirin	Ingestion	Int suicide	1,700 μg/dL, 3 h 63.5 mg/dL, 3 h
321*	>17 yr	Potassium chloride procainamide hydrochloride	Ingestion	Unknown	6.3 mEq/L (K^+)
322†	5 day	Sodium chloride	Ingestion	Unknown	227 mEq/L (Na^+)

See also case 387 (sodium chloride).

Gastrointestinal preparations

323†	67 yr	Kaolin/pectin liquid diet preparation	Parenteral	Acc misuse	
324	85 yr	Diphenoxylate/atropine	Ingestion	Adv rxn	

See also case 241 (diphenoxylate/atropine); 168 (loperamide); 161 (magnesium sulfate); 161 (sorbitol).

Heavy Metals

See case 227 (copper naphthenate).

Hormones and hormone antagonists

325	19 yr	Glyburide	Ingestion	Int suicide	

Miscellaneous drugs

326†‡	4 yr	Ipecac	Ingestion	Int misuse	 400 ng/mL§ (emetine)

TABLE 16. Continued

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels
327*	61 yr	Levodopa/carbidopa bromocriptine	Ingestion	Int suicide	
328	61 yr	Mannitol	Ingestion	Acc misuse	
See also cases 303 (levodopa/carbidopa); 312 (methyldopa/hydrochlorothiazide); 359 (phenazopyridine).					
Muscle relaxants					
329	19 yr	Cyclobenzaprine acetaminophen/propoxyphene	Ingestion	Int suicide	 100 μg/mL,‖ 12 h
See also cases 133 (carisoprodol); 346 (cyclobenzaprine).					
Sedative/hypnotic and antipsychotic agents					
330	73 yr	Alprazolam triazolam	Ingestion	Int suicide	
331	48 yr	Butalbital aspirin acetaminophen	Ingestion	Int suicide	 18 mg/dL 150 μg/mL
332*	35 yr	Chloral hydrate	Ingestion	Unknown	
333	63 yr	Diazepam	Ingestion	Int suicide	
334*†	66 yr	Diazepam	Ingestion	Int suicide	0.16 mg/dL§
335*	30 yr	Ethchlorvynol acetaminophen/codeine acetaminophen/oxycodone	Ingestion	Int suicide	
336	25 yr	Glutethimide	Ingestion	Int suicide	
337	35 yr	Glutethimide	Ingestion	Int suicide	
338*	32 yr	Glutethimide acetaminophen/codeine	Ingestion	Int unknown	 <5 μg/mL‖
339*	22 yr	Glutethimide codeine	Ingestion	Int abuse	0.16 mg/dL
340†‡	38 yr	Haloperidol	Ingestion	Adv rxn	
341	36 yr	Haloperidol amitriptyline	Ingestion	Int suicide	
342*	35 yr	Pentobarbital (euthanasia solution)	Ingestion	Int suicide	50 μg/mL§
343*	40 yr	Pentobarbital/ phenytoin (euthanasia solution	Parenteral	Int suicide	60 μg/mL 66 μg/mL
344†	30 yr	Perphenazine	Ingestion	Int suicide	
345	51 yr	Perphenazine benztropine chlorpromazine	Ingestion	Adv rxn	
346*	>17 yr	Perphenazine doxepin cyclobenzaprine	Ingestion	Int suicide	
347	22 yr	Phenobarbital	Ingestion	Int suicide	159 μg/ml
348†	40 yr	Phenobarbital	Ingestion	Unknown	55.6 μg/mL
349*	49 yr	Phenobarbital chlordiazepoxide	Ingestion	Int suicide	62 μg/mL 85 μg/mL
350*	36 yr	Phenobarbital phenytoin trazodone	Ingestion	Int suicide	145 μg/mL
351	>17 yr	Phenobarbital phenytoin flurazepam	Ingestion	Int suicide	
352	57 yr	Primidone mephobarbital	Ingestion	Int suicide	
353†	35 yr	Thioridazine methamphetamine doxylamine	Ingestion	Int unknown	0.32 mg/L§ 0.03 mg/L§ 0.05 mg/L§
354	43 yr	Thiothixene theophylline	Ingestion	Int suicide	 70 μg/mL
355	27 yr	Trifluoperazine imipramine	Ingestion	Int suicide	

TABLE 16. Continued

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels
356	27 yr	Sleep aid (acetaminophen/ diphenhydramine)	Ingestion	Int suicide	60 μg/ml,‖ 32 h
See also cases 173, 215, 299 (alprazolam); 229 (butalbital); 237 (chloral hydrate); 259 (chlorazepate); 254, 345, (chlorpromazine); 134, 163, 172, 313 (diazepam); 215 (ethoprazine); 189, 351 (flurazepam); 128 (glutethimide); 238, 243 (haloperidol); 218 (lorazepam); 352 (mephobarbital); 260 (mesoridazine); 33, 125, 126 (phenobarbital); 315 (secobarbital/amobarbital); 164 (sleep aid/diphenhydramine); 257 (temazepam); 195, 257, 303 (thioridazine); 157, 219 (thiothixene); 129 (triazolam); 253, 255 (trifluoperazine); 26 (unspecified barbiturate); 26, 121, 225 (unspecified benzodiazepine).					
Stimulants and street drugs					
357	21 yr	Amphetamine	Ingestion	Int suicide	
358	>17 yr	Amphetamine	Unknown	Int unknown	
359	24 yr	Caffeine phenazopyridine ethanol	Ingestion	Int suicide	
360*	20 yr	Cocaine	Unknown	Int abuse	
361*	23 yr	Cocaine	Parenteral/Ing	Int abuse	3.2 μg/mL 8.6 μg/mL (benzoylecgonine)
362†	26 yr	Cocaine	Inhalation	Int abuse	
363	28 yr	Cocaine	Ingestion	Int abuse	
364	29 yr	Cocaine	Parenteral	Int abuse	
365*	30 yr	Cocaine	Inhalation	Int unknown	
366*	31 yr	Cocaine	Inhalation	Int abuse	
367*	49 yr	Cocaine	Inhalation	Int abuse	
368	35 yr	Cocaine amphetamine acetaminophen	Ingestion	Int suicide	116 μg/mL, 12 h
369†	31 yr	Cocaine amphetamine marijuana	Unknown	Int unknown	
370	27 yr	Cocaine aspirin	Parenteral	Int abuse	
371*	30 yr	Cocaine diphenhydramine marijuana	Ingestion	Int unknown	0.34 mg/dL§
372	>17 yr	Cocaine ephedrine	Unknown	Int unknown	
373*	29 yr	Cocaine ethanol	Inhalation Ingestion	Int abuse	268 mg/dL
374*	40 yr	Cocaine (crack) ethanol	Inhalation Ingestion	Int abuse	
375	30 yr	Cocaine heroin	Parenteral	Int abuse	
376	>17 yr	Cocaine heroin	Parenteral	Int abuse	
377*	32 yr	Cocaine hydromorphone	Parenteral	Int abuse	
378*	>17 yr	Cocaine morphine	Inhalation Unknown	Int abuse	
379	21 yr	Cocaine opiates	Unknown	Int unknown	
380	29 yr	Cocaine opiates amitriptyline/perphenazine	Unknown	Int unknown	
381	22 yr	Cocaine phencyclidine	Ingestion	Unknown	0.0007 mg/dL§ 0.12 mg/dL§ (cocaine metabolite) 2 ng/mL§
382*	25 yr	Cocaine phencyclidine	Unknown	Int abuse	0.028 mg/dL§ 0.06 mg/dL§ (cocaine metabolite) 130 ng/dL§
383*	23 yr	Heroin	Parenteral	Int abuse	

TABLE 16. Continued

Case No.	Age	Substances	Route of Exposure	Reason	Blood Levels
384*	31 yr	Heroin cocaine	Parenteral	Int abuse	
385*	39 yr	Heroin ethanol	Parenteral Ingestion	Int abuse	
386	57 yr	Heroin hydromorphone cocaine	Ingestion	Int unknown	
387	>17 yr	Heroin sodium chloride	Parenteral	Int unknown	
388*	33 yr	Methamphetamine	Ingestion	Int suicide	
389	35 yr	Methamphetamine	Ingestion	Int abuse	
390*	27 yr	Opiates aspirin/butalbital	Ing & Paren	Int unknown	1.8 μg/mL§ (butalbital)
391	35 yr	Phencyclidine	Unknown	Int abuse	
392	38 yr	Phencyclidine	Unknown	Int abuse	
393	17 yr	Phencyclidine marijuana	Unknown	Int abuse	10 ng/mL
394†	42 yr	Phentermine	Ingestion	Int suicide	
395*†	32 yr	Phenylpropanolamine (diet aid)	Ingestion	Int suicide	
See also cases 19, 127, 231, 353 (amphetamine); 190, 201, 226 (cocaine); 256 (phencyclidine).					
Tropicals					
396†‡	56 yr	Merthiolate	Ingestion	Int misuse	
Unknown Drug					
397	74 yr	Unknown drug	Ingestion	Int suicide	

Note: Where multiple blood levels were available, the highest level obtained is reported. Time postexposure is unknown unless indicated.
* Prehospital (cardiac and/or respiratory) arrest.
† Abstract of case provided in appendix.
‡ Chronic exposure.
§ Level obtained postmortem.
‖ Acetaminophen level.
¶ Level includes metabolite and parent compound.

TABLE 17. Demographic Profile of Exposure Cases by Generic Category of Substances and Products: Nonpharmaceuticals

		Age (yr)			Reason				Outcome*				
	No. of Exposures	<6	6-17	>17	Acc	Int	Adv Rxn	Treated in HCF	None	Minor	Moderate	Major	Death
Adhesives/glues	13,632	7,787	1,688	3,985	13,360	189	57	2,201	5,727	4,029	245	7	1
Alcohols													
Ethanol†	16,440	3,070	1,735	11,478	5,436	10,427	224	11,062	3,203	6,011	2,295	247	16
Isopropanol†	4,720	3,419	259	1,006	4,306	388	2	1,086	2,646	1,061	118	23	0
Methanol	844	306	81	451	762	65	1	466	348	268	41	11	3
Rubbing alcohol													
Ethanol	1,634	1,280	107	239	1,565	61	2	208	1,025	260	16	4	0
Isopropanol	6,659	5,210	391	1,026	6,200	425	1	1,259	3,528	1,238	91	12	0
Unknown type	103	79	8	15	93	10	0	30	52	26	1	0	0
Other/unknown	1,133	346	117	656	596	481	15	661	335	379	93	8	0
Total	31,533	13,710	2,698	14,870	18,958	11,857	245	14,772	11,137	9,243	2,655	305	19
Arts/crafts/office supplies	20,745	16,614	2,664	1,367	20,387	307	19	1,001	11,615	1,733	64	3	1
Auto/aircraft/boat products													
Glycols	2,451	765	192	1,442	2,372	73	0	852	1,024	825	85	15	5
Hydrocarbons	1,592	863	120	594	1,560	27	2	361	769	615	43	5	0
Methanol	757	386	58	305	714	41	0	386	409	193	24	6	3
Other/unknown	1,075	506	112	449	1,050	23	1	315	364	463	41	0	0
Total	5,875	2,540	482	2,790	5,696	164	3	1,914	2,476	2,116	193	26	8
Batteries													
Penlight/flashlight/ dry cells	1,991	1,399	361	223	1,961	27	1	247	922	666	24	0	0
Automotive	1,390	254	141	978	1,382	7	0	516	240	756	107	6	0
Button batteries	1,276	895	219	155	1,256	17	0	858	895	134	10	1	0
Other/unknown	319	184	87	45	312	7	0	60	157	106	6	0	0
Total	4,976	2,732	808	1,401	4,911	58	1	1,681	2,214	1,662	147	7	0

TABLE 17. Continued

	No. of Exposures	Age (yr)			Reason				Outcome*				
		<6	6-17	>17	Acc	Int	Adv Rxn	Treated in HCF	None	Minor	Moderate	Major	Death
Bites and envenomations													
Fish and coelenterate	1,253	117	245	872	1,242	0	11	415	63	691	147	6	0
Insects													
Bee/wasp/hornet	15,406	3,779	3,423	8,056	15,080	14	306	3,062	875	10,849	742	18	0
Scorpion	3,297	290	507	2,474	3,288	2	3	428	155	2,329	211	15	0
Other	4,221	1,533	747	1,876	4,145	1	72	887	606	2,253	146	4	0
Mammals	3,142	805	999	1,282	3,117	9	13	1,391	470	1,674	92	3	0
Reptile, other/unknown	256	86	100	68	251	2	1	48	62	105	5	1	0
Snakes, exotic	350	17	82	242	345	2	2	250	36	161	73	5	0
Snakes, indigenous to US													
Rattlesnake	291	15	49	222	287	3	0	274	26	70	97	54	1
Copperhead	12	2	2	8	12	0	0	9	1	6	4	0	0
Coral	11	0	0	11	11	0	0	9	2	2	3	0	0
Cottonmouth	31	1	8	22	30	0	1	27	3	17	4	1	0
Nonpoisonous snake	474	78	244	151	471	0	3	93	142	233	1	0	0
Unknown crotalid	5	1	1	3	5	0	0	5	0	2	2	0	0
Unknown type of snake	1,271	139	426	689	1,256	1	14	609	234	647	82	14	0
Spiders													
Black widow	1,623	224	200	1,188	1,618	1	3	481	313	832	201	17	0
Brown recluse	760	96	108	540	749	0	9	506	26	303	175	11	1
Other/unknown	11,568	2,659	1,983	6,822	11,440	6	103	2,603	831	6,952	731	11	0
Total	43,971	9,842	9,124	24,526	43,347	41	541	11,097	3,845	27,126	2,716	160	2
Building/construction supplies	5,010	2,852	345	1,768	4,957	31	13	1,126	2,006	1,361	267	8	0
Chemicals													
Acetone (excluding nail polish removers)	993	543	75	364	957	30	1	254	368	309	21	2	0
Acids													
Hydrofluoric acid	913	52	24	821	906	3	0	747	56	465	248	16	0
Other/unknown acid	5,277	828	561	3,789	5,142	105	8	2,472	932	2,820	471	30	4
Alkali	3,594	1,416	332	1,803	3,512	60	9	1,498	1,090	1,521	333	25	1
Ammonia	3,763	1,273	400	2,038	3,641	104	4	1,199	823	1,976	196	9	1
Borates/boric acid (excluding topicals and insecticides)	2,268	1,468	184	592	2,159	102	2	374	1,169	242	24	0	0
Chlorates (excluding matches and fireworks)	33	6	5	20	33	0	0	18	3	16	3	1	0
Cyanide (excluding rodenticides)	322	11	15	287	270	43	6	207	78	113	23	6	3
Formaldehyde/formalin	1,212	290	161	737	1,165	33	8	480	311	552	49	1	0
Glycols (excluding automotive products)	2,092	1,219	125	730	1,995	81	4	551	911	521	70	22	6
Ketones	1,019	363	45	602	1,009	5	4	485	265	485	76	1	0
Methylene chloride (excluding paint strippers)	1,155	273	132	736	1,141	11	1	462	219	630	77	7	1
Nitrates and nitrites (excluding medications and abused substances)	604	182	167	244	570	29	3	185	246	194	21	2	0
Phenol/creosote (excluding disinfectants)	1,379	287	143	927	1,359	10	7	558	231	771	117	1	2
Strychnine (excluding rodenticides)	53	12	10	31	35	17	0	34	17	5	5	1	0
Toluene diisocyanate	388	39	14	327	381	6	1	194	72	199	41	1	0
Other	10,281	4,428	1,019	4,711	9,958	173	94	3,152	3,413	3,308	406	27	5
Total	35,365	12,694	3,413	18,772	34,252	812	152	12,881	10,210	14,131	2,182	152	23
Cleaning substances													
Ammonia cleaners	3,462	1,854	239	1,351	3,351	84	9	663	1,219	1,349	114	5	0
Bleaches (household)													
Hypochlorite-containing	20,062	10,064	1,545	8,285	19,543	439	19	3,955	6,492	8,380	544	8	0
Other/unknown	1,190	842	59	269	1,168	17	4	187	577	334	13	1	0
Cleansers													
Anionic/nonionic	6,051	5,051	209	763	5,960	79	4	454	3,307	1,165	57	3	0
Other/unknown	1,105	869	51	173	1,079	23	0	131	601	243	8	0	0
Disinfectants (household)													
Hypochlorite-containing	3,887	1,526	444	1,883	3,796	76	8	978	1,072	1,872	179	9	0
Phenol	1,990	1,218	156	599	1,841	133	8	423	854	665	38	2	0
Pine oil	6,404	5,152	270	945	6,203	178	3	1,357	3,541	1,486	105	8	3
Other/unknown	654	403	30	217	634	20	0	172	288	221	22	0	0
Drain Cleaners													
Acid	320	34	30	250	314	4	0	129	34	189	47	0	2
Alkali	1,236	366	98	750	1,151	77	1	547	250	599	139	19	1
Other/unknown	101	18	4	78	96	4	0	45	17	52	9	0	0
Electric dishwasher detergent													
Alkali	4,669	4,095	130	424	4,635	26	1	283	2,935	865	30	3	0
Other/unknown	1,367	1,182	42	138	1,361	5	1	79	845	231	11	0	0

TABLE 17. Continued

	No. of Exposures	Age (yr)			Reason				Outcome*				
		<6	6-17	>17	Acc	Int	Adv Rxn	Treated in HCF	None	Minor	Moderate	Major	Death
Fabric softeners													
Cationic	1,032	902	25	101	1,011	17	4	85	615	165	7	0	0
Other/unknown	27	21	1	5	27	0	0		15	4	0	0	0
Glass cleaners (household)	5,785	4,797	399	555	5,686	89	1	316	3,173	1,210	29	1	0
Hand dishwashing detergents	7,333	5,631	442	1,224	7,253	67	4	336	3,164	2,157	40	2	0
Industrial cleaners													
Acids	320	45	32	238	309	9	0	203	55	158	52	4	0
Alkali	892	167	79	634	878	11	1	426	208	453	91	7	0
Other/unknown	787	222	53	501	760	25	0	360	213	382	54	3	1
Laundry detergents													
Anionic/nonionic	6,102	4,911	225	940	6,008	54	32	576	2,964	1,782	69	3	0
Alkali	3,234	2,798	101	316	3,187	39	7	467	1,522	1,072	62	5	0
Other/unknown	993	776	51	160	971	9	13	128	474	297	25	2	0
Miscellaneous													
Acid	462	169	28	258	449	10	2	169	148	205	25	1	1
Alkali	4,672	2,308	350	1,968	4,538	112	11	1,615	1,583	1,966	297	32	0
Anionic/nonionic	5,791	4,011	380	1,359	5,602	93	85	853	2,604	1,672	74	5	0
Cationic	2,894	1,868	194	809	2,816	64	5	644	1,354	865	82	3	2
Methanol/glycols	1,941	1,471	140	319	1,920	19	0	199	873	674	17	0	0
Isopropanol	987	742	63	179	944	39	2	146	461	240	12	2	0
Ethanol	63	37	2	22	62	1	0	12	30	19	2	0	0
Other/unknown	2,223	1,476	143	580	2,146	40	20	461	925	646	78	12	0
Oven cleaners													
Alkali	2,780	889	194	1,661	2,746	25	2	1,085	522	1,566	232	7	0
Other/unknown	148	34	14	96	145	3	0	61	22	82	11	1	0
Rust removers													
Hydrofluoric acid	726	96	41	582	719	7	0	482	112	421	120	2	0
Other acid	852	270	51	519	834	17	0	244	223	450	59	1	0
Other/unknown	220	49	13	154	218	1	1	41	63	101	6	2	0
Spot remover/dry cleaning agents	727	457	48	213	699	23	4	155	325	259	17	1	2
Starch	522	447	39	34	517	4	1	19	302	52	1	0	0
Toilet bowl cleaners													
Acid	2,417	1,187	178	1,024	2,328	83	3	633	937	983	119	8	2
Other/unknown	1,848	1,569	39	229	1,823	19	1	171	1,133	208	19	2	0
Wall/floor/tile cleaners													
Alkali	2,187	1,038	105	1,022	2,157	19	5	636	655	1,027	109	4	0
Anionic/nonionic	899	629	49	214	882	15	1	123	437	227	7	0	0
Glycols	764	594	34	127	756	6	1	83	391	194	10	0	0
Other/unknown	2,762	1,634	147	948	2,702	50	6	591	1,164	972	110	5	0
Total	114,888	73,928	6,967	33,116	112,225	2,135	270	20,723	48,679	38,160	3,152	173	14
Cosmetics/personal care products													
Bath oil/bubble bath	3,278	3,093	90	84	3,242	18	12	105	1,864	447	11	1	0
Creams, lotions, make-up	8,364	7,292	289	748	8,200	96	48	386	4,823	706	22	2	0
Dental care products	2,214	1,232	205	750	2,132	24	44	226	1,067	529	29	2	0
Deodorants	5,975	5,300	279	376	5,873	88	6	243	3,176	905	22	0	0
Depilatories	336	178	42	112	301	19	14	80	144	119	14	1	0
Douches	164	123	6	34	155	2	6	27	97	17	2	0	0
Eye products	784	676	21	80	771	3	9	48	419	86	5	0	0
Hair care products	13,336	10,523	910	1,838	12,947	277	82	1,315	6,408	3,317	178	12	0
Lipsticks and lip balms	1,883	1,801	45	30	1,869	12	2	29	1,066	89	4	0	0
Mouthwash	3,494	2,346	571	560	3,264	204	11	453	1,927	633	53	2	2
Nail polish	5,931	5,471	233	201	5,874	45	6	361	3,030	1,427	24	1	0
Nail polish removers	6,719	5,696	383	615	6,553	139	6	815	4,026	1,283	41	2	0
Nail products, miscellaneous	1,218	949	56	203	1,201	10	6	159	582	328	19	2	1
Perfume/cologne/aftershave	22,637	21,129	591	857	22,316	264	14	1,224	14,090	3,241	70	3	0
Peroxide	7,578	4,649	599	2,269	7,377	167	19	489	3,672	1,462	44	4	0
Powders	2,329	2,148	84	92	2,299	23	2	201	1,194	617	11	0	0
Soaps, (bar, hand, complexion)	6,414	5,530	254	601	6,293	68	38	339	3,218	1,347	43	2	0
Suntan/sunscreen products	1,695	1,456	100	130	1,666	15	14	104	802	480	14	0	0
Total	94,349	79,592	4,758	9,580	92,333	1,474	339	6,604	51,605	17,033	606	34	3
Deodorizers (not for personal use)													
Air Fresheners	4,076	3,635	172	254	4,037	30	3	271	2,521	535	13	1	0
Diaper pail deodorizers	1,263	1,246	4	13	1,259	4	0	41	889	73	3	0	0
Other	2,639	2,266	94	262	2,611	24	4	357	1,562	439	22	0	0
Total	7,978	7,147	270	529	7,907	58	7	669	4,972	1,047	38	1	0
Dyes	2,294	1,967	149	169	2,265	18	9	141	1,362	173	13	2	0
Essential oils	1,695	1,228	261	200	1,631	42	17	262	613	754	16	2	0
Fertilizers	6,133	4,681	453	966	6,075	39	14	339	3,512	556	30	1	0
Fire extinguishers	1,243	193	262	771	1,215	20	2	372	319	608	32	1	0
Food products/food poisoning	37,571	9,498	4,703	22,858	31,205	250	5,908	3,974	9,443	13,155	921	16	0
Foreign bodies/toys/miscellaneous													
Bubble blowing solutions	2,099	1,968	92	34	2,086	12	0	42	1,027	575	9	0	0

TABLE 17. Continued

	No. of Exposures	Age (yr)			Reason				Outcome*				
		<6	6-17	>17	Acc	Int	Adv Rxn	Treated in HCF	None	Minor	Moderate	Major	Death
Christmas ornaments	1,179	1,101	46	26	1,173	6	0	50	676	99	5	0	0
Coins	2,829	2,384	354	85	2,809	14	2	926	1,430	311	17	0	0
Dessicants	9,756	8,903	569	214	9,674	68	2	351	5,520	157	3	2	0
Feces/urine	1,373	1,256	41	71	1,351	16	5	78	695	88	3	0	0
Glass	904	463	95	342	881	11	9	148	405	124	9	0	0
Soil	1,632	1,410	44	176	1,624	6	1	177	803	222	14	0	0
Thermometer	7,054	4,265	1,709	1,007	6,996	36	16	336	3,979	232	12	0	0
Toys	2,668	2,291	309	60	2,649	16	0	132	1,538	220	8	0	0
Other/unknown foreign body	10,796	7,803	1,264	1,667	10,651	86	40	1,730	5,473	1,585	149	5	0
Total	40,290	31,844	4,523	3,682	39,894	271	75	3,970	21,546	3,613	229	7	0
Fumes/gases/vapors													
Carbon monoxide	4,908	582	602	3,616	4,669	186	10	2,840	530	2,639	471	99	28
Chloramine	1,234	37	58	1,123	1,221	9	1	350	63	800	74	2	0
Chlorine gas (mixing household products)	396	7	28	354	387	9	0	116	26	281	41	0	0
Chlorine gas (other)	3,696	418	632	2,592	3,663	21	8	1,322	356	2,445	299	7	0
Hydrogen sulfide	480	44	36	376	475	2	1	210	102	212	31	11	1
Methane	909	116	111	669	868	35	5	388	191	423	44	6	0
Polymer fume fever	7	1	0	6	7	0	0	1	4	2	1	0	0
Propane/simple asphyxiants	872	76	158	609	787	77	5	377	142	431	67	8	4
Other/unknown	1,854	251	188	1,366	1,820	21	9	768	365	885	112	3	3
Total	14,356	1,532	1,813	10,711	13,897	360	39	6,372	1,779	8,118	1,140	136	36
Fungicides (nonmedicinal)	1,325	536	122	648	1,293	23	5	350	516	368	43	4	0
Heavy metals													
Arsenic	466	111	35	310	412	35	2	240	147	96	34	3	1
Copper	549	138	150	250	536	11	1	158	178	199	21	1	1
Lead	1,387	732	166	476	1,345	20	3	433	582	198	39	3	0
Mercury	1,597	798	220	541	1,537	42	3	317	832	184	25	3	0
Metal fume fever	909	37	34	826	904	2	3	271	75	545	92	2	0
Selenium	60	26	6	27	57	0	3	16	20	17	1	0	0
Thallium	22	13	1	8	20	1	0	7	7	0	2	0	0
Other/unknown	1,305	527	123	639	1,261	25	11	468	464	361	57	8	0
Total	6,295	2,382	735	3,077	6,072	136	26	1,910	2,305	1,600	271	20	2
Herbicides													
2,4-D or 2,4,5-T	1,629	589	164	855	1,594	12	9	403	552	500	44	0	1
Diquat/paraquat	201	29	25	142	198	3	0	107	48	65	10	1	1
Other/unknown	2,337	646	261	1,398	2,306	17	7	656	727	751	73	2	1
Total	4,167	1,264	450	2,395	4,098	32	16	1,166	1,327	1,316	127	3	3
Hydrocarbons													
Benzene	71	25	5	41	69	1	0	34	19	32	5	0	0
Diesel fuel	1,300	447	177	658	1,278	15	4	322	428	537	45	4	0
Gasoline	14,388	5,224	2,786	6,269	13,914	440	4	2,574	4,722	7,144	277	13	2
Halogenated hydrocarbons	3,796	485	288	2,956	3,673	90	15	1,271	1,036	1,701	149	9	9
Kerosene	2,758	2,115	156	471	2,710	42	1	1,012	1,166	982	133	16	0
Lighter fluid/naphtha	2,274	1,742	121	398	2,190	77	2	711	1,131	701	79	5	1
Lubricating/motor oils	2,756	2,293	116	335	2,727	24	3	305	1,811	451	19	0	0
Mineral seal oil	1,372	1,247	34	86	1,341	29	0	237	957	196	24	1	0
Mineral spirits/varsol	5,022	3,186	402	1,382	4,891	117	6	1,217	2,206	1,829	135	11	0
Toluene/xylene	2,157	697	182	1,240	2,027	119	2	870	598	965	148	12	1
Turpentine	1,300	738	144	401	1,184	103	2	389	512	456	41	4	0
Other/unknown	8,992	5,490	629	2,786	8,776	190	11	2,341	4,131	2,922	282	15	0
Total	46,186	23,689	5,040	17,023	44,780	1,247	50	11,283	18,717	17,916	1,337	90	13
Insecticides/pesticides (Excluding rodenticides)													
Arsenic-pesticides only	1,593	1,353	68	154	1,545	47	1	448	1,246	156	19	3	0
Borates/boric acid	2,130	1,773	56	284	2,074	50	0	304	1,155	164	10	0	0
Carbamates	4,458	2,905	227	1,280	4,374	64	14	905	2,447	758	75	7	0
Chlorinated hydrocarbon	3,650	1,984	325	1,299	3,507	89	43	1,003	1,696	804	92	11	2
Metaldehyde	182	156	4	18	180	2	0	20	114	12	1	0	0
Organophosphate alone	9,032	3,147	702	5,068	8,765	201	37	2,646	3,306	2,636	355	41	3
Organophosphate and carbamate	2,478	1,158	229	1,070	2,386	76	14	479	1,090	644	47	4	0
Organophophate and chlorinated hydrocarbon	438	151	62	219	427	9	1	84	172	128	20	0	0
Organophosphate and other pesticide	791	407	61	309	764	22	3	205	342	223	14	3	0
Piperonyl butoxide alone	107	48	12	45	100	5	1	34	39	39	3	0	0
Piperonyl butoxide and pyrethrins	2,892	1,299	355	1,194	2,791	63	31	621	1,003	958	104	2	0
Pyrethrins alone	1,949	737	208	973	1,878	49	20	469	623	615	48	1	0
Insect repellents	2,460	1,805	416	226	2,416	22	16	243	1,100	844	29	2	0
Other/unknown	5,696	3,210	466	1,883	5,547	89	37	1,073	2,802	1,250	109	10	1
Total	37,856	20,133	3,191	14,022	36,754	788	218	8,534	17,135	9,231	926	84	6
Lacrimators	2,473	870	774	791	2,365	77	3	486	322	1,715	69	0	0
Matches/fireworks/explosives													
Matches	2,008	1,925	35	40	1,996	11	0	57	1,316	74	8	0	0

TABLE 17. *Continued*

	No. of Exposures	Age (yr)			Reason				Outcome*				
		<6	6-17	>17	Acc	Int	Adv Rxn	Treated in HCF	None	Minor	Moderate	Major	Death
Other/unknown	814	583	156	70	795	18	0	126	389	167	17	1	0
Total	2,822	2,508	191	110	2,791	29	0	183	1,705	241	25	1	0
Moth repellents													
Naphthalene	1,720	1,484	79	143	1,696	11	6	271	1,220	185	12	0	0
Paradichlorobenzene	391	333	19	39	381	9	1	28	262	40	2	0	0
Other/unknown	2,308	2,050	100	147	2,273	19	8	333	1,575	144	7	0	0
Total	4,419	3,867	198	329	4,350	39	15	632	3,057	369	21	0	0
Mushrooms	7,023	5,807	412	777	6,630	306	69	1,462	5,157	813	220	12	0
Paints & stripping agents	15,299	9,345	1,120	4,705	14,977	262	36	2,507	6,633	3,891	349	15	1
Photographic products	792	521	76	191	782	8	1	110	370	163	11	0	0
Plants													
Anticholinergic	384	193	94	93	283	96	2	143	164	85	50	3	0
Cardiac glycosides	2,095	1,599	263	224	2,051	39	3	325	1,351	179	17	2	0
Colchicine	14	11	3	0	14	0	0	1	11	1	0	0	0
Cyanogenic glycosides	3,130	2,534	376	203	3,057	47	23	163	1,887	138	12	3	0
Depressants	83	74	5	4	81	2	0	3	52	5	0	0	0
Dermatitis	11,620	7,307	1,264	2,955	11,398	102	109	1,166	4,573	3,646	333	10	0
Gastrointestinal irritants	15,988	14,011	905	997	15,703	220	39	904	9,978	1,571	106	0	0
Hallucinogenic	268	197	36	34	238	26	4	44	149	33	4	0	0
Nicotine (no tobacco products)	218	123	54	41	204	8	6	75	114	61	6	0	0
Nontoxic plant	24,364	22,243	1,036	941	24,095	167	81	595	13,165	980	61	4	0
Oxalate	15,222	14,062	561	537	15,100	110	5	513	9,632	2,308	57	1	0
Solanine	2,180	1,893	144	132	2,120	34	22	269	1,507	234	17	2	0
Stimulants	335	270	28	36	326	5	4	65	215	52	3	1	1
Toxalbumins	275	183	48	36	263	9	2	116	176	42	13	0	0
Other/unknown	12,075	10,174	1,099	728	11,852	130	80	1,127	7,284	1,441	128	4	0
Total	88,251	74,874	5,916	6,961	86,785	995	380	5,509	50,258	10,776	807	30	1
Polishes and waxes	3,200	2,595	166	424	3,139	52	2	320	1,947	627	33	1	0
Radio-isotopes	115	17	18	76	107	2	5	38	29	22	1	0	0
Rodenticides													
Anticoagulants	4,197	3,817	96	236	4,046	139	2	879	2,612	156	10	1	0
Long-acting anticoagulant	4,382	4,041	88	227	4,235	131	2	1,296	3,049	157	9	3	0
Strychnine	87	28	2	56	60	23	0	54	36	16	3	0	1
Other/unknown	997	765	47	164	934	57	1	382	611	87	6	1	0
Total	9,663	8,651	233	683	9,275	350	5	2,611	6,308	416	28	5	1
Sporting equipment	768	505	156	100	754	13	0	184	436	124	21	3	0
Swimming pool/aquarium products	2,618	1,643	314	642	2,586	22	5	357	1,139	794	51	0	0
Tobacco products	7,875	7,414	154	292	7,745	98	15	1,314	4,477	1,719	74	7	0
Unknown nondrug substances	9,237	5,170	1,553	2,413	8,912	193	66	1,769	4,115	2,349	187	18	0

Abbreviations: acc, accidental; int, intentional; adv rxn, adverse reaction; HCF, health care facility.
* Medical outcome data was 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. Note: Patients with totally unknown age, reason, or medical outcome were omitted from the respective tabulations.
† Excludes rubbing alcohol.

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

	No. of Exposures	Age (yr)			Reason				Outcome*				
		<6	6-17	>17	Acc	Int	Adv Rxn	Treated in HCF	None	Minor	Moderate	Major	Death
Analgesics													
Acetaminophen only													
Adult formulation	13,695	4,317	4,057	5,208	6,467	6,944	95	8,331	6,520	2,456	531	92	11
Pediatric formulation	34,490	33,157	1,100	168	34,050	371	38	4,161	23,992	1,374	111	13	0
Unknown type	4,182	2,118	817	1,203	2,571	1,526	28	2,035	2,024	578	168	34	8
Acetaminophen combination with:													
Aspirin	1,236	268	397	557	481	692	43	738	430	399	49	3	0
Codeine	5,327	1,135	816	3,316	2,059	2,857	336	3,453	1,500	1,710	289	42	7
Oxycodone	1,464	216	146	1,086	535	793	104	929	355	466	86	20	0
Propoxyphene	2,507	402	317	1,759	799	1,567	81	1,893	606	896	184	41	8
Other narcotic/analog	1,158	149	129	860	395	631	93	759	267	357	59	14	1
Other drug	2,575	611	507	1,431	1,033	1,426	64	1,691	877	832	116	13	0
Aspirin only													
Adult formulation	4,803	1,547	1,337	1,882	2,255	2,391	75	2,714	1,876	1,220	276	30	16
Pediatric formulation	1,597	1,476	95	21	1,541	45	8	316	1,100	141	13	3	0
Unknown type	7,245	1,963	2,178	3,034	2,987	4,026	100	4,700	2,482	1,937	483	47	19
Aspirin in combination with:													
Codeine	984	181	135	651	372	548	42	646	224	364	71	7	1

TABLE 18. Continued

	No. of Exposures	Age (yr)			Reason				Outcome*				
		<6	6-17	>17	Acc	Int	Adv Rxn	Treated in HCF	None	Minor	Moderate	Major	Death
Oxycodone	628	124	58	439	262	308	45	370	146	176	44	7	1
Propoxyphene	168	34	26	105	62	93	6	123	60	51	12	5	0
Other narcotic/analog	302	66	41	194	116	145	33	202	60	115	16	3	1
Other drug	3,038	777	821	1,404	1,280	1,624	80	1,888	1,038	1,004	164	21	0
Narcotics													
Codeine	837	360	115	357	495	274	54	419	294	242	26	6	2
Meperidine	441	60	54	319	156	238	36	312	60	154	38	5	0
Methadone	160	21	16	119	61	85	11	126	17	49	24	6	2
Morphine	159	31	25	97	77	71	3	105	25	44	12	4	2
Pentazocine	288	36	24	221	86	157	37	196	41	105	31	7	1
Propoxyphene	616	99	68	432	225	362	12	456	143	193	55	19	1
Other/unknown	569	157	57	346	287	221	47	333	136	174	53	13	7
Nonaspirin salicylates	560	283	77	196	388	148	19	226	266	122	24	2	0
Nonsteroidal antiinflammatory													
Ibuprofen, OTC	9,458	6,106	1,380	1,911	6,902	2,356	126	2,900	5,611	1,248	125	9	1
Ibuproten, R_x	4,775	1,599	768	2,377	2,309	2,297	105	2,559	2,066	1,048	143	15	0
Ibuprofen, unknown if OTC or R_x	1,710	573	345	776	822	807	65	932	679	367	72	5	1
Other/unknown	5,378	1,973	837	2,526	2,953	2,031	313	2,595	2,284	1,218	214	26	2
Other analgesics, misc	798	513	89	193	611	141	41	287	386	181	23	4	1
Total	111,148	60,352	16,832	33,188	72,637	35,175	2,140	46,395	55,585	19,221	3,512	516	93
Anesthetics	3,396	2,522	275	577	3,187	140	60	628	1,895	629	57	8	1
Anticholinergic	3,563	1,321	406	1,810	1,954	1,386	163	2,137	1,320	1,059	274	42	2
Anticoagulants	358	202	20	133	272	77	5	165	171	43	17	6	1
Anticonvulsants													
Carbamazepine	1,928	659	359	891	1,198	643	58	1,209	638	590	249	58	1
Phenytoin	2,577	708	293	1,522	1,375	1,047	91	1,780	851	767	278	44	4
Valproic acid	529	227	107	188	419	96	5	213	272	103	25	1	1
Other/unknown	108	38	33	36	84	22	2	43	52	26	5	1	0
Total	5,142	1,632	792	2,667	3,076	1,808	156	3,245	1,813	1,486	557	104	6
Antidepressants													
Cyclic antidepressants													
Amitriptyline	3,695	518	396	2,728	1,038	2,491	74	3,132	639	1,135	727	293	25
Amoxapine	361	44	38	276	97	243	16	322	56	127	54	36	7
Desipramine	1,093	206	129	752	396	641	39	903	269	350	149	58	19
Doxepin	2,041	179	169	1,666	481	1,464	45	1,775	319	714	366	148	16
Imipramine	2,206	505	407	1,268	866	1,223	79	1,772	600	722	306	84	13
Maprotiline	256	42	19	193	82	165	4	214	59	82	27	20	0
Nortriptyline	702	36	78	583	171	482	30	591	120	257	87	40	11
Protriptyline	65	11	9	44	22	39	1	51	21	23	7	2	0
Formulated with a:													
Benzodiazepine	363	50	24	285	92	247	4	304	57	136	64	19	0
Phenothiazine	809	148	63	590	236	527	20	689	174	279	133	40	2
Other/unknown	417	48	21	339	155	405	25	508	89	203	124	37	4
Lithium	1,636	191	137	1,288	599	875	116	1,295	429	524	218	61	4
MAO inhibitor	547	75	12	449	197	242	97	423	123	182	84	27	4
Trazodone	1,375	152	105	1,101	415	872	67	1,044	330	488	124	25	0
Other/unknown	605	57	63	477	120	236	51	309	90	154	27	2	0
Total	16,171	2,262	1,670	12,039	4,967	10,152	668	13,323	3,375	5,376	2,497	892	105
Antihistamines													
H_2 blockers	1,511	632	220	653	908	521	63	733	735	305	51	14	0
Diphenhydramine	8,677	4,384	1,123	3,110	5,459	2,972	157	3,998	3,433	2,625	395	47	3
Other/unknown	4,181	2,052	812	1,293	2,872	1,162	112	1,745	2,023	990	141	14	0
Total	14,369	7,068	2,155	5,056	9,239	4,655	332	6,476	6,191	3,920	587	75	3
Antimicrobials													
Antibiotics	27,215	17,878	3,522	5,623	21,115	3,826	2,108	5,958	13,407	4,136	402	24	1
Antifungals	3,380	2,637	183	541	3,262	67	46	181	1,808	390	18	0	0
Antihelmintics													
Diethylcarbamazine	2,662	1,744	78	829	2,629	29	4	106	1,683	88	3	1	0
Other/unknown	783	585	73	119	757	18	8	103	475	78	9	0	0
Antiparasitics													
Antimalarials	117	52	13	52	82	19	14	67	44	31	8	3	2
Metronidazole	643	153	79	404	357	178	99	254	217	163	22	0	0
Other/unknown	461	293	53	113	364	35	59	93	226	77	8	0	0
Antituberculars													
Isoniazid	160	47	37	76	74	72	6	126	46	23	26	22	1
Other/unknown	39	21	3	15	24	8	5	22	18	10	3	1	0
Antivirals	168	72	13	79	113	41	13	64	71	29	5	0	0
Other/unknown	70	40	5	25	58	7	3	19	32	14	5	0	0
Total	35,698	23,522	4,059	7,876	28,835	4,300	2,365	6,993	18,027	5,039	509	51	4
Antineoplastics	255	92	15	143	216	23	15	132	124	60	12	1	0
Asthma therapies													
Aminophylline/ theophylline	4,712	1,695	1,210	1,781	3,094	1,321	230	2,832	1,743	1,430	501	64	15
Beta-2 agonists	2,902	2,040	394	455	2,438	353	98	1,092	1,395	837	98	3	1

TABLE 18. Continued

	No. of Exposures	Age (yr)			Reason				Outcome*				
		<6	6-17	>17	Acc	Int	Adv Rxn	Treated in HCF	None	Minor	Moderate	Major	Death
Other/unknown	199	101	39	57	165	31	3	51	104	35	6	1	0
Total	7,813	3,836	1,643	2,293	5,697	1,705	331	3,975	3,242	2,302	605	68	16
Cardiovascular drugs													
Antiarrhythmics	746	207	42	492	585	118	33	300	345	127	35	11	10
Antihypertensives	2,628	1,484	197	930	2,016	508	74	1,617	1,235	679	198	49	0
Beta-blockers	3,882	1,650	375	1,833	2,643	1,097	105	2,187	2,029	752	189	52	11
Calcium antagonists	1,835	828	105	893	1,422	351	53	941	981	285	107	36	18
Cardiac glycosides	1,399	693	72	624	1,111	214	52	809	712	215	131	52	11
Vasodilators	3,429	2,326	186	899	2,984	379	44	1,110	2,137	471	76	9	2
Other/unknown	66	37	1	28	49	9	8	27	32	10	5	0	0
Total	13,985	7,225	978	5,699	10,810	2,676	369	6,991	7,471	2,539	741	209	52
Cold and cough preparations													
Acetaminophen + decongestant/ antihistamine	7,090	4,272	1,065	1,720	5,324	1,562	160	2,396	3,451	1,689	144	10	1
Aspirin + acetaminophen + decongestant/ antihistamine	128	53	26	49	76	49	2	62	58	37	0	1	0
Aspirin + decongestant/ antihistamine	1,158	682	200	265	870	236	43	377	556	257	21	3	0
Expectorants/antitussives	4,575	3,623	434	507	4,177	299	77	855	2,442	885	75	0	0
Other formulations for cough/colds	49,289	39,425	4,617	5,082	44,476	3,941	712	11,830	26,443	12,353	747	43	3
Total	62,240	48,055	6,342	7,623	54,923	6,087	994	15,520	32,950	15,221	987	57	4
Diagnostic agents	246	127	9	105	208	11	25	93	118	54	14	0	0
Diuretics	3,933	2,261	467	1,183	2,971	850	73	1,565	2,107	757	112	17	2
Electrolytes/minerals													
Calcium salts	1,256	1,060	56	136	1,191	51	13	87	704	116	6	0	0
Fluoride (excluding vitamins)	3,373	3,052	218	97	3,325	36	9	282	1,868	616	17	1	0
Iron (excluding vitamins)	2,910	2,170	297	429	2,454	420	18	1,366	1,538	664	108	19	2
Magnesium salts	130	55	12	62	123	6	0	55	47	33	7	1	0
Potassium salts	657	434	57	161	556	84	12	203	382	83	10	4	1
Sodium salts	1,224	907	156	152	1,169	42	5	221	692	227	13	2	2
Zinc	658	338	55	258	617	27	12	180	264	185	30	1	0
Other/unknown	87	42	8	36	73	6	8	23	38	16	1	1	0
Total	10,295	8,058	859	1,331	9,508	672	77	2,417	5,533	1,940	192	29	5
Eye/ear/nose/throat preparations	9,074	6,173	592	2,234	8,780	175	98	1,418	4,742	1,976	139	7	0
Gastrointestinal preparations													
Antacids	10,301	9,471	379	421	10,075	131	80	358	5,979	497	29	3	0
Antidiarrheals/ antispasmodics	2,631	1,493	343	774	1,818	691	82	1,424	1,203	702	136	14	3
Laxatives	9,011	7,219	625	1,127	8,415	480	99	1,286	3,822	2,445	171	4	1
Other/unknown	1,224	816	122	282	1,007	150	55	338	639	171	35	3	0
Total	23,167	18,999	1,469	2,604	21,315	1,452	316	3,406	11,643	3,815	371	24	4
Hormones and hormone antagonists													
Corticosteroids	2,736	1,865	185	663	2,426	196	108	389	1,402	263	28	3	0
Insulin	317	35	31	246	200	91	17	185	111	69	30	5	0
Oral contraceptives	7,553	6,785	456	292	7,179	334	23	568	4,153	384	11	1	0
Oral hypoglycemics	888	483	63	337	687	175	18	581	484	189	55	18	1
Thyroid preparations	2,333	1,800	149	373	2,097	202	26	616	1,460	195	33	7	0
Other/unknown	1,979	1,328	185	457	1,660	244	65	463	1,035	270	28	2	0
Total	15,806	12,296	1,069	2,368	14,249	1,242	257	2,802	8,645	1,370	185	36	1
Miscellaneous drugs													
Allopurinol	200	138	13	49	165	28	5	57	131	23	1	0	0
L-dopa and related drugs	147	72	1	72	121	21	2	57	78	31	4	0	1
Disulfiram	491	45	15	424	167	250	62	358	99	155	59	6	0
Ergot alkaloids	483	216	60	205	322	108	44	236	215	132	18	2	0
Homeopathic/herbal preparations	702	530	42	124	632	43	21	146	398	93	12	1	0
Other	4,021	2,686	334	972	3,576	337	104	727	1,884	1,033	79	11	4
Total	6,044	3,687	465	1,846	4,983	787	238	1,581	2,805	1,467	173	20	5
Muscle relaxants	2,989	579	383	1,996	1,056	1,788	85	2,216	752	1,032	287	51	2
Sedative/hypnotics/antipsychotics													
Barbiturates													
Long-acting	2,937	809	349	1,745	1,496	1,339	45	1,937	828	911	357	106	8
Short/intermediate-acting	1,689	170	212	1,285	470	1,146	37	1,334	311	649	207	49	5
Unknown type	10	0	2	7	0	10	0	8	1	2	3	0	1
Benzodiazepines	20,160	3,363	1,463	15,076	6,203	13,127	315	15,187	3,917	7,716	1,774	336	10
Chloral Hydrate	297	92	36	165	135	137	13	210	49	132	39	16	2
Ethchlorvynol	232	13	11	201	32	186	3	213	11	74	48	27	1
Glutethimide	254	4	18	229	29	219	3	235	16	96	54	31	5
Meprobamate	469	61	44	359	144	301	9	371	95	167	68	28	0

TABLE 18. Continued

	No. of Exposures	Age (yr)			Reason				Outcome*				
		<6	6-17	>17	Acc	Int	Adv Rxn	Treated in HCF	None	Minor	Moderate	Major	Death
Methaqualone	136	10	15	109	23	110	0	116	17	39	14	3	0
OTC sleep aids	3,193	196	505	2,446	640	2,482	18	2,664	724	1,267	230	23	1
Phenothiazines	7,270	1,699	805	4,681	2,999	3,740	384	5,279	2,002	2,567	760	152	15
Other/unknown	204	17	29	157	43	152	2	163	34	63	15	4	0
Total	36,851	6,434	3,489	26,460	12,214	22,949	829	27,717	8,005	13,683	3,569	775	48
Serums, toxoids & vaccines	284	80	26	172	202	4	77	113	78	94	15	2	0
Stimulants and street drugs													
Amphetamines	3,883	1,347	861	1,630	2,136	1,594	97	2,514	1,185	1,199	378	39	11
Amyl/butyl nitrites	164	31	40	89	77	82	0	95	32	76	11	3	0
Caffeine	4,232	1,224	1,542	1,425	2,000	2,059	102	2,229	1,121	1,795	257	12	1
Cocaine	2,445	76	145	2,164	290	2,082	20	2,191	167	908	408	88	27
Diet aids													
Phenylpropanolamine (PPA)	1,696	767	394	525	994	658	24	937	731	497	74	5	1
PPA and caffeine	631	267	166	196	363	245	15	368	247	191	43	4	0
Other/unknown	195	96	27	69	125	56	14	92	79	50	5	1	0
Heroin	334	4	7	315	34	290	4	311	22	104	76	34	7
LSD	682	14	276	381	90	582	3	550	39	329	123	9	0
Marijuana	723	120	203	385	249	461	10	448	94	302	62	8	1
Mescaline/peyote	224	69	57	96	140	76	2	102	37	97	27	2	0
Phencyclidine	466	33	90	331	98	345	3	416	28	196	97	19	6
PPA-containing "look-alikes"	188	64	36	86	82	102	1	150	55	68	19	2	0
Other/unknown	161	28	43	89	43	116	0	132	31	58	15	1	0
Total	16,024	4,140	3,887	7,781	6,721	8,748	295	10,535	3,868	5,870	1,595	227	54
Topicals													
Acne preparations	849	538	140	164	797	26	26	87	395	205	13	0	0
Boric acid antiseptics	384	277	26	77	376	6	1	34	223	56	2	0	0
Calamine	3,652	2,943	183	505	3,598	42	9	275	2,002	304	9	0	0
Camphor	4,691	3,886	209	578	4,603	71	7	1,499	2,944	839	52	9	0
Camphor and methyl salicylate	1,082	784	74	221	1,037	23	21	263	550	316	10	0	0
Diaper care products	10,013	9,738	95	147	9,947	52	6	149	5,758	610	12	1	0
Hexachlorophene antiseptics	153	98	14	38	145	5	1	30	85	28	1	0	0
Hydrogen peroxide	4,293	2,610	328	1,331	4,180	93	9	363	1,923	1,161	45	1	0
Iodine antiseptics	1,515	645	187	665	1,297	168	31	410	709	373	33	8	0
Mercurial antiseptics	787	670	28	84	751	32	2	92	480	63	5	0	1
Methyl salicylate	5,437	4,508	267	640	5,375	52	7	628	3,044	1,153	34	2	0
Podophyllin	64	27	7	28	56	2	5	29	23	26	2	1	0
Steroids	4,656	3,925	153	554	4,598	27	31	133	2,663	319	11	1	0
Wart preparations	1,480	1,112	150	211	1,443	30	2	192	681	441	27	0	0
Other/unknown	2,355	1,756	172	415	2,295	35	22	308	1,296	459	13	0	0
Total	41,411	33,517	2,033	5,658	40,498	664	180	4,492	22,776	6,353	269	23	1
Veterinary drug (no human equivalent)	1,507	891	90	505	1,471	28	2	239	792	312	24	4	0
Vitamins													
Multiple vitamins, adult preparations													
No iron, no fluoride	2,645	2,094	248	290	2,429	142	67	235	1,595	306	19	2	0
With iron, no fluoride	4,174	3,417	416	334	3,785	344	37	990	2,627	548	45	1	0
With iron, with fluoride	48	43	2	2	45	3	0	14	32	9	0	0	0
No iron, with fluoride	99	95	4	0	99	0	0	6	67	5	0	0	0
Multiple vitamins, pediatric preparations													
No iron, no fluoride	6,180	5,525	622	18	6,080	91	5	216	3,915	431	14	0	0
With iron, no fluoride	9,586	8,619	923	30	9,437	139	5	1,590	6,209	1,324	86	2	0
With iron, with fluoride	427	405	19	3	420	5	2	61	263	52	8	3	0
No iron, with fluoride	1,782	1,708	58	14	1,765	14	0	69	1,307	77	0	0	0
Vitamin A	618	489	46	82	569	32	15	93	333	54	8	1	0
Niacin	794	180	53	555	470	35	285	95	92	527	16	0	0
Pyridoxine	208	134	26	46	159	36	11	40	109	21	4	2	0
Other B complex vitamins	711	557	49	104	643	40	26	82	376	118	8	0	0
Vitamin C	1,705	1,416	177	106	1,605	77	20	82	899	161	1	0	0
Vitamin D	267	211	19	33	247	18	2	66	159	15	0	0	0
Vitamin E	603	503	30	68	562	34	5	44	334	43	3	0	0
Other/unknown	1,519	1,255	125	134	1,412	85	17	244	817	146	11	1	1
Total	31,366	26,651	2,817	1,819	29,727	1,095	497	3,927	19,134	3,837	223	12	1
Unknown drug	9,587	3,706	1,394	4,298	6,983	1,892	359	4,630	2,860	2,605	445	78	1

Abbreviations: acc, accidental; int, intentional; adv rxn, adverse reaction; HCF, health care facility; OTC, over the counter; R_x, prescription.
* Medical outcome data was 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. Note: Patients with totally unknown age, reason, or medical outcome were omitted from the respective tabulations.

TABLE 19. Frequency of Plant Exposures by Plant Type

Botanical Name	Common Name	Frequency
Dieffenbachia spp.	Dumbcane	3,670
Philodendron spp.	Philodendron	3,476
Euphorbia pulcherrima	Poinsettia	2,611
Crassula spp.	Jade plant	2,354
Ilex spp.	Holly	2,128
Brassaia & *Schefflera* spp.	Schefflera	1,938
Phytolacca americana	Pokeweed, pokeberry	1,712
Capsicum annuum	Pepper	1,552
Taxus spp.	Yew	1,395
Rhus radicans	Poison ivy	1,369
Saintpaulia spp.	African violet	1,216
Epipremnum areum	Pothos, devil's ivy	1,098
Pyracantha spp.	Firethorn	1,015
Solanum dulcamara	Climbing nightshade	923
Rhododendron spp.	Rhododendron, azalea	844
Sorbus spp.	Mountain ash	806
Spathiphyllum spp.	Peace lily	792
Chrysanthemum spp.	Chrysanthemum	772
Begonia spp.	Begonia	758
Chlorophytum spp.	Spider plant	755

TABLE 20. Substances Most Frequently Involved in Human Poison Exposures

Substance	No.	%*
Cleaning substances	114,888	9.4
Analgesics	111,148	9.1
Cosmetics	94,349	7.7
Plants	88,251	7.2
Cough and cold preparations	62,240	5.1
Hydrocarbons	46,186	3.8
Bites/envenomations	43,971	3.6
Topicals	41,411	3.4
Foreign bodies	40,290	3.3
Pesticides (includes rodenticides)	37,856	3.1
Food poisoning	37,571	3.1
Sedative/hypnotics/antipsychotics	36,851	3.0
Antimicrobials	35,698	2.9
Chemicals	35,365	2.9
Alcohols	31,533	2.6
Vitamins	31,366	2.6

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 total number of known ingested substances (1,221,855) rather than the total number of human exposures cases.

TABLE 21. Categories with Largest Numbers of Deaths

Category	No.	% of All Exposures in Category
Antidepressants	105	0.649
Analgesics	93	0.083
Stimulants and street drugs	54	0.337
Cardiovascular drugs	52	0.372
Sedative/hypnotics	48	0.130
Gases and fumes	36	0.250
Chemicals	23	0.065
Alcohols/glycols	19	0.060
Asthma therapies	16	0.204
Cleaning substances	14	0.012
Hydrocarbons	13	0.028

TABLE 22. 5 Year Comparisons

	1983	1984	1985	1986	1987
No. of reported poison exposures	251,012	730,224	900,513	1,098,894	1,116,940
% of exposures involving children aged <6 yr	64.1	64.9	63.9	63.0	66.6
No. of deaths	95	293	328	406	397
% of annual exposures which are deaths	0.038	0.040	0.036	0.037	0.034
No. of suicides	60	165	178	223	226
% of annual deaths which are suicides	63.2	56.3	54.3	55.0	57.0
No. of pediatric deaths (aged <6 yr)	10	21	20	15	22
% of annual deaths which are pediatric	10.5	7.2	6.1	3.7	5.5
Ipecac administration (% of exposures)	13.4	12.9	15.0	13.3	10.1
Activated charcoal use (% of exposures)	4.0	3.6	4.6	5.2	5.2

REFERENCES

1. Veltri JC, Litovitz TL: 1983 annual report of the American Association of Poison Control Centers National Data Collection System. Am J Emerg Med 1984;2:420-443
2. Litovitz TL, Veltri JC: 1984 annual report of the American Association of Poison Control Centers National Data Collection System. Am J Emerg Med 1985;3:423-450
3. Litovitz TL, Normann SA, Veltri JC: 1985 annual report of the American Association of Poison Control Centers National Data Collection System. Am J Emerg Med 1986;4:427-458
4. Litovitz TL, Martin TG, Schmitz B: 1986 annual report of the American Association of Poison Control Centers National Data Collection System. Am J Emerg Med 1987;5:405-445

Appendix: Abstracts of Selected Fatal Poisoning Cases

Case 2. A 15-year-old boy ingested a fifth of brandy over 10 minutes to win a bet. He presented in cardiorespiratory arrest and was intubated and resuscitated with the return of spontaneous circulation. The patient was hypothermic, with a temperature of 31°C. The initial blood **ethanol** level was 512 mg/dL, increasing to 530 mg/dL four hours later. Arterial blood gases were pH 7.10, PCO_2 81 mmHg and PO_2 412 mmHg. Hemodialysis was carried out for approximately 70 minutes. About 8 hours after resuscitation, seizures began and were controlled with diazepam and phenytoin. Anoxic encephalopathy was diagnosed and nuclear medicine studies documented no flow to the brain. Mechanical ventilation was discontinued and the patient died 5 days after admission.

Case 10. This 42-year-old diabetic woman was found unresponsive at home. Diabetic ketoacidosis was diagnosed because of an elevated blood glucose with ketoacidosis. The pH and mental status failed to respond to conventional treatment for diabetic ketoacidosis. Her husband discovered a wine jug containing **ethylene glycol**. When the ethylene glycol ingestion was recognized, the patient had an anion gap of 30, pH 6.87, and required dopamine for hypotension. Urinalysis revealed 25 to 30 red blood cells/HPF, 5 to 6 white blood cells/HPF and calcium oxalate crystals. An ethanol drip was initiated, but it is unclear if the ethanol level ever approached 100 mg/dL. Despite large boluses of sodium bicarbonate the acidosis could not be corrected. During transfer for hemodialysis, the patient suffered a cardiorespiratory arrest. She was resuscitated and underwent 3 hours of hemodialysis but remained flaccid and unresponsive.

Case 14. A 7-year-old boy presented unresponsive with severe metabolic acidosis. The parents described intermittent tachypnea, eyes rolling back, cyanosis, stiffening, and one episode of projectile vomiting and choking. The patient was intubated and given atropine and antibiotics. Examination revealed blood pressure 85/56 mmHg, pulse 130/min, respirations 24/min, and temperature 34.6°C, axillary. The pupils were fixed and dilated, with bilateral retinal hemorrhages but crisp disc margins. The patient was completely unresponsive to deep pain. There were no gag, corneal, plantar, or patellar reflexes, no doll's eyes movement, and no spontaneous respirations. Initial arterial blood gases were: pH 6.78, PCO_2 16 mmHg, and PO_2 221 mmHg. Initial urine drug screen was negative except for **methanol** (serum level 110 mg/dL). Intravenous ethanol was begun as soon as the methanol level was determined. Additionally, leucovorin and folic acid were administered. Bicarbonate and dopamine infusions were required to correct acidosis and maintain blood pressure. On the second hospital day no brain stem reflexes could be elicited, coma was deemed irreversible, and two EEGs confirmed cortical death. Supportive measures were discontinued and the child was pronounced dead. The source of the methanol was formula made with water from an improperly dewinterized camper water system. The child was fed an unknown amount of this formula over a 2-day period.

Case 15. A 75-year-old man presented with fever, malaise, and a reddened area on his left arm 24 hours after laying irrigation pipe. He was treated as an outpatient initially with oral penicillin, but fever persisted and he became lethargic. The patient was hospitalized and switched to parenteral antibiotics. He developed a distended abdomen, chest pain, and ventricular tachycardia over the next 24 hours. The patient gradually developed a bull's eye lesion on his arm with a central 1 mm diameter blister with a black center surrounded by 2 cm of erythema. Laboratory results included: urine 4 to 6 RBC/HPF, creatinine 3.2 mg/dL, elevated lactate dehydrogenase and prothrombin time, decreased platelet count, and WBC differential with a marked left shift. The patient died, 96 hours after presenting, of refractory ventricular tachycardia and hypotension. Systemic **loxoscelism**, combined with underlying renal and cardiac disease, were cited as probable causes of death.

Case 17. A 6-week-old girl was found dead in her bed. **Ammonia** fumes had leaked from a storage tank close to her open bedroom window. Postmortem serum ammonia level was 11,000 μg/dL.

Case 18. A 6-month-old boy with tracheobronchial malacia, pulmonary hypertension, and chronic lung disease was inadvertently administered 10 g **ammonium chloride** via nasogastric tube (200 mg was ordered). Shortly afterwards he had a massive stool. Twenty minutes following the dose, the child experienced a cardiac arrest and was not successfully resuscitated. Arterial blood gases obtained during the resuscitation showed only a metabolic acidosis with pH 7.22. The bicarbonate was 8 mEq/L, chloride was 115 mEq/L (up from 93 mEq/L, predrug), potassium 10 mEq/L (hemolyzed), and calcium 7.6 mg/dL.

Case 19. A 27-year-old woman resident of a state mental health hospital ingested **ammonium chloride.**

Esophagogastroscopy 1 hour postingestion showed circumferential esophageal and gastric burns. Her admitting blood gases were pH 7.11, PCO_2 56 mmHg, PO_2 50 mmHg. Despite bicarbonate therapy and hydration, decreased urine output and obtundation developed. Twelve hours postingestion, the abdomen became distended and rigid. Hypotension requiring dopamine developed. Death occurred 36 hours postingestion. Postmortem examination showed necrotic bowel with peritonitis and cerebral edema. The toxicology screen showed **ephedrine** and **amphetamines** in her urine.

Case 21. A 24-year-old man was working in a chemical plant when a process using **boron tribromide** exploded. Two other workers with mild exposures were treated and released. This patient had third degree skin burns over 10% of his body, severe ocular burns with loss of scleral tissue, opaque corneas, and severe laryngeal burns with edema. The patient was intubated, given fluid resuscitation and antibiotics. The day after admission the patient developed adult respiratory distress syndrome. The patient died on the seventh day after the injury.

Case 23. A 42-year-old alcoholic man presented with a 3-day history of vomiting and midepigastric pain after ingesting one half cup of **chloroform** in a suicide attempt. The patient was alert with stable vital signs and arterial blood gas results of pH 7.36, PCO_2 24 mmHg, and PO_2 81 mmHg on room air. Physical exam revealed jaundice, scleral icterus, and midepigastric tenderness. A nasogastric tube removed 500 mL of guaiac positive, coffee ground emesis. Admitting laboratory included: hematocrit 48.9%, potassium 5.9 mEq/L, creatinine 3.2 mg/dL, BUN 33 mg/dL, total bilirubin 10 mg/dL, SGOT 25,532 U/mL, prothrombin time 42.1 seconds, partial thromboplastin time 46 seconds, and ammonia 86 μg/dL. Within 3 days, the patient's level of consciousness deteriorated and endotracheal intubation and mechanical ventilation were initiated. The patient developed asterixis. Despite aggressive medical management, the patient continued to deteriorate with worsening metabolic acidosis, renal failure, intrapulmonary shunt and hypotension. Four days following admission, the patient suffered a refractory cardiac arrest.

Case 33. A 30-year-old woman with a history of seizures and depression presented with hypotension (40 mmHg), but was responsive to pain. The arterial blood gas was pH 6.79, PCO_2 8 mmHg, and PO_2 130 mmHg. Bicarbonate, fluids, and dopamine therapy brought the systolic BP up to 100 mmHg. Serum levels were **phenytoin** 35 μg/mL, **phenobarbital** 49.8 μg/mL, primidone 87 μg/mL, and acetaminophen 9 μg/mL. The anion gap was 18 to 20 mEq/L and osmolar gap 36 to 40 mOsm/L. **Ethylene glycol** ingestion was denied but a level was drawn. After hemodialysis the patient was more alert and the pH was 7.5 and bicarbonate 21 mEq/L. The patient received activated charcoal, N-acetylcysteine, and methylprednisolone. Disseminated intravascular coagulation and hemorrhagic pancreatitis decreased the hematocrit from 36% to 18%. The SGOT was 423 U/mL, prothrombin time was 56 seconds, and bilirubin was normal. Complete renal failure ensured with worsening acidosis and shock. The patient was given packed red blood cells, fresh frozen plasma, platelets, and sodium bicarbonate. The patient died on the second hospital day. Afterwards, an ethylene glycol level of 2,554 mg/dL was reported.

Case 37. A 24-year-old woman intentionally ingested **oxalic acid** powder mixed with water. Muscle cramps, severe vomiting, diarrhea, and burning of the mouth and throat were noted, followed 4 hours later by drowsiness and hypotension. She was intubated, but progressive hemorrhage and hypotension ensued. She died of a massive gastrointestinal bleed 6 hours after presentation. Postmortem examination revealed hemorrhagic gastritis and duodenitis, and pulmonary edema. The blood oxalate level (postmortem) was 2 mg/L.

Case 41. A 38-year-old woman intentionally ingested a crystalline **sodium hydroxide** drain opener. The patient had severe oral burns and skin burns on the hands and face. She was intubated for respiratory distress. Endoscopy revealed second and third degree burns of the mouth, pharynx and esophagus. Chest radiograph showed a right lower lobe infiltrate. The temperature increased to 39.4°C by the second day after ingestion. She was started on a multiple antibiotic regimen, hyperalimentation, and morphine for pain. On hospital day 3, the patient extubated herself and a permanent tracheostomy was placed. Over the next 30 days, the patient was fed via a gastrostomy tube and gradually improved. Approximately 50 days after the ingestion the patient spiked a fever and chest radiograph revealed a right middle lobe pneumonia thought to be secondary to silent aspiration. Further radiographs revealed a tracheoesophageal fistula. The patient continued to deteriorate and on day 55 had a respiratory arrest and died.

Case 42. A 49-year-old woman admitted draining a "pint" of professional strength liquid drain cleaner (**sulfuric acid**) 2 hours before arrival. The patient demonstrated signs of esophageal injury and was cyanotic. She experienced severe metabolic acidosis and died 39 hours after exposure. Postmortem findings included moderate chemical burns of the esophagus and duodenum, and severe burns of the stomach (with perforation), spleen, and left diaphragm (with perforation and herniation of the stomach and spleen).

Case 44. A 20-year-old retarded man drank eight ounces of a cleaner containing **pine oil**. One hour postingestion, he presented in marked respiratory distress

ued (BP 138/79 mmHg, heart rate 117/min). The patient was treated in a hyperbaric chamber for 47 minutes with an air break at 66 feet. CO level at the end of the dive was 9%. Myoclonic jerking developed. Twenty hours postadmission she was no longer tripping the ventilator and her pupils remained fixed and dilated. The patient was declared dead on the second hospital day.

Case 86. A 65-year-old woman had her home fumigated with **sulfuryl fluoride**. She and her husband left the home and were allowed to reenter the following day. The next day she suffered weakness and extreme nausea then subsequently developed chills, shortness of breath, and dizziness. Six days postexposure, the patient presented with profound weakness and dyspnea. Diffuse interstitial lung disease was found on chest radiograph, and arterial blood gases showed PO_2 45 mmHg, PCO_2 30 mmHg, and pH 7.51. The erythrocyte sedimentation rate was 126 seconds, platelet count 123,000/μL, and potassium 2.7 mEq/L. After oxygen the PO_2 initially rose to 70 mmHg but fell back to 58 mmHg the next morning. Empiric antibiotic treatment included erythromycin, gentamicin, and ceftizoxime. The following day she developed ventricular tachycardia followed by refractory ventricular fibrillation. Postmortem findings revealed massive edema of the lungs, coronary atherosclerosis, and generalized visceral congestion. The cause of death was reported as cardiopulmonary failure secondary to massive severe pulmonary edema due to exposure to a toxic agent. Toxicologic examination showed a serum fluoride level of 0.5 mg/L on the day of admission, and tissue was negative for fluoride.

Case 87. A 57-year-old man intentionally ingested 8 ounces of an **arsenic**-containing weed killer. By 20 minutes postingestion he was comatose and seizing. He was given diazepam and required mechanical ventilation. Upon transfer to another hospital, the pupils were fixed and dilated, he was unresponsive and without spontaneous respirations. The blood arsenic level upon arrival was 134 μg/mL. He was given British anti-Lewisite 300 mg every four hours, d-penicillamine 250 mg every 6 hours, phenytoin, and phenobarbital. The patient steadily deteriorated and developed many complications including aspiration pneumonitis, hypocalcemia, acute renal failure (creatinine 6.4 mg/dL), gastrointestinal bleeding, and seizures. He was pronounced dead 5 days after the ingestion.

Case 88. A 23-year-old man ingested 40 mL **endothall** (a herbicide and algicide) and spontaneously vomited. He presented 50 minutes later with abdominal pain and normal vital signs. After milk and charcoal/sorbitol slurry were given, he vomited but appeared well. Five hours postingestion, the patient began to complain of abdominal pain and dyspnea. Arterial blood gases were pH 7.32, PO_2 89 mmHg, and PCO_2 38 mmHg. By 6.5 hours postingestion, BP was 70/20 mmHg, pulse 96/min, and respirations 26/min. Hematemesis was treated with intravenous fluids. The platelet count was 97,000/μL, prothrombin time 14.9 seconds, partial thromboplastin time 48 seconds, and fibrinogen 155 mg/dL. The hypotension required dopamine. Epistaxis and hematomas at puncture sites were treated with fresh frozen plasma. Furosemide was administered for anuria (BUN 34 mg/dL, creatinine 3.2 mg/dL, and potassium 3.0 mEq/L). Severe hypoxia developed requiring 100% O_2 and artificial ventilation. A Swan-Ganz catheter showed right atrial pressure 15 mmHg, pulmonary artery pressure 28/15 mmHg, pulmonary capillary wedge pressure 20 mmHg, and cardiac output 1.15 L/min. Persistent hypotension was refractory to norepinephrine. Metabolic acidosis (pH 6.88) responded transiently to sodium bicarbonate. By 19 hours postingestion, the pupils were fixed and dilated. Twenty-three hours postingestion, ventricular tachycardia led to a refractory cardiac arrest.

Case 89. A 22-year-old man intentionally ingested 1 cup of **paraquat** and vomited 30 minutes later. Oral mucosa, admission laboratory results, and chest radiograph were unremarkable. Bentonite 150 g in sorbitol was administered with repeated 50 g doses every 4 to 6 hours. Paraquat levels were 29.5 and 7.3 μg/mL at 1.5 and 3.5 hours postingestion. Charcoal hemoperfusion with calcium supplementation was performed for 8 hours. The posthemoperfusion (12 hours postingestion) paraquat level was 0.75 μg/mL. Oozing secondary to excess heparin was reversed with protamine and fresh frozen plasma. After a second hemoperfusion for 11 hours, the paraquat level was 0.38 μg/mL (30 hours postingestion). The patient complained of minor gastrointestinal and throat irritation. Twenty-four hours postingestion, a temperature spike to 39°C was treated with a cooling blanket. By 36 hours postingestion, the total bilirubin was 6.5 mg/dL, creatinine was 6.3 mg/dL, and dyspnea with hemoptysis began. Forty-six hours postingestion, intubation and artificial ventilation were performed for a PO_2 of 40 mmHg. Hypotension required low-dose dopamine and epinephrine. Chest radiographs demonstrated progressive pulmonary infiltrates and the patient died 53.5 hours postingestion. Postmortem examination revealed hemorrhagic pneumonitis with effusions and petechial hemorrhages on the epicardial and gastric mucosal surfaces.

Case 98. A 15-year-old boy was found apneic and unconscious, lying next to his car. The patient had apparently been inhaling **gasoline** fumes. Cardiopulmonary resuscitation was started immediately but the child could not be resuscitated. Apparently he had inhaled gasoline fumes for recreational purposes other times in the past.

with hypotension. Intubation and dopamine, norepinephrine, and dobutamine were required. Chest radiographs showed progressive adult respiratory distress syndrome. Renal failure occurred secondary to rhabdomyolysis, and metabolic acidosis developed. Approximately 40 hours postingestion, a refractory cardiac arrest occurred.

Case 45. A 70-year-old man with a history of organic brain syndrome accidentally ingested a **pine oil cleaner** which he thought was orange juice. On presentation he was somnolent and lethargic but responsive to verbal stimuli. The patient vomited twice prior to gastric lavage. Activated charcoal, furosemide, aminophylline, and intravenous fluids were administered. A baseline chest radiograph was normal and arterial blood gases obtained 2 hours postingestion were pH 7.41, PCO_2 41 mmHg, and PO_2 67 mmHg on 36% FiO_2. By 5 hours postingestion, basal rales appeared and the pH was 7.25, PCO_2 28 mmHg, and PO_2 56 mmHg on room air. At 18 hours postingestion, on a partial rebreathing mask (50% to 60% FiO_2), the pH was 7.32, PCO_2 26 mmHg, and PO_2 54 mmHg. A diagnosis of aspiration pneumonia was made after a follow-up chest radiograph showed a total right lung infiltrate. Rectal temperature was 39.4°C. Despite supportive care the patient experienced a refractory cardiopulmonary arrest 20 hours postingestion.

Case 47. A 52-year-old man ingested **phosphoric acid, ethanol** and **mineral oil.** He presented unresponsive with constricted pupils. After intubation, a metabolic acidosis with a respiratory alkalosis was measured. The ethanol level was 312 mg/dL. Hypotension requiring dopamine was observed. A wide osmolar gap was initially reported but repeat measurement without treatment showed a normal gap. Hemodialysis was discontinued after 1.5 hours because of hypotension. After dialysis, the pH improved but arterial PO_2 decreased. The chest radiograph was interpreted as adult respiratory distress syndrome. Enormous quantities of bicarbonate were required. By 4 days after admission, the chest radiograph was improved. At seven days, he was alert and talking but suddenly became hypotensive and could not be resuscitated.

Case 48. A 43-year-old man ingested 6 to 8 oz of 15% **hydrochloric acid** toilet bowl cleaner. By 2.5 hours postingestion, he presented with dyspnea, acidosis (pH 7.1), and a rigid abdomen. The patient was given two ampules of sodium bicarbonate. Blood pressure was 130 to 170/100 mmHg. Hydrocortisone and one unit of blood were given. During surgical exploration the entire stomach was found to be necrotic, and burns of the esophagus and throughout the intestine were noted. The stomach was resected. The patient received additional bicarbonate, and 36 hours postingestion the arterial blood gases were pH 7.20, PCO_2 38 mmHg, PO_2 100 mmHg. The left lung appeared congested. Four days postingestion, the patient developed renal failure (creatinine 6.7 mg/dL, BUN 74 mg/dL) and was dialyzed. A paraldehyde infusion was used to control seizures. Nine days postexposure, an EEG suggested diffuse edema. The patient died on the 12th day postexposure.

Case 50. An 18-year-old man with a history of chronic drug abuse and solvent sniffing was brought to an emergency department in cardiac arrest after sniffing a cleaning fluid containing **trichloroethane.** He had no cardiopulmonary resuscitation for 20 to 30 minutes before arrival. His presenting rhythm was ventricular fibrillation, but this degenerated to asystole despite resuscitative efforts. The postmortem examination revealed myocarditis and the toxicology screen was negative.

Case 52. A 4-year-old boy presented comatose with a metabolic acidosis. The mother reported that the child had been difficult to arouse all day. He was incontinent of urine and stool and had vomited fluid that smelled like mouthwash, then became stiff and unresponsive. On arrival, his blood glucose was 15 mg/dL and **ethanol** 53 mg/dL (12 to 16 hours postingestion). After a 10% dextrose in water infusion, the blood sugar was 146 mg/dL. The patient was intubated and ventilated. Seizure control required diazepam, phenobarbital, phenytoin, and paraldehyde. Posturing and fixed and dilated pupils were noted. Computed tomography and brain scans demonstrated cerebral edema and absent bilateral perfusion. The urine drug screen was positive for acetone, ethanol and phenobarbital. The patient died the day after admission. Postmortem examination revealed pulmonary congestion (bronchopneumonia) and cerebral edema.

Case 58. A 3-year-old child suffering from smoke inhalation arrived in cardiac arrest with pH 6.77 and PO_2 28 mmHg. The child was administered 100% oxygen. Four hours postresuscitation, the child was unresponsive with temperature 37.9°C, pulse 230/min, respirations 36/min, and BP 90/58 mmHg. Dopamine and mannitol were administered. The **carboxyhemoglobin** level was 20.9%. Over the next 19 hours the child remained unstable and therefore could not be transported to the hyperbaric oxygen unit. The pupils were fixed and dilated and there was no respiratory effort. The child was pronounced dead 30 hours postingestion.

Case 66. A 35-year-old woman was found in a cardiopulmonary arrest in a running car that was enclosed in a garage. The patient was resuscitated by paramedics and arrived with pupils fixed and dilated, pulse 90/min, and BP 68/44 mmHg. Arterial blood gas results were pH 6.79, PCO_2 48 mmHg, PO_2 359 mmHg, and **carboxyhemoglobin** (CO) level 53.8%. The BP responded to dopamine and spontaneous respirations began. One hour after arrival dopamine was discontin-

ued (BP 138/79 mmHg, heart rate 117/min). The patient was treated in a hyperbaric chamber for 47 minutes with an air break at 66 feet. CO level at the end of the dive was 9%. Myoclonic jerking developed. Twenty hours postadmission she was no longer tripping the ventilator and her pupils remained fixed and dilated. The patient was declared dead on the second hospital day.

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Case 103. A 40-year-old woman consumed 10 mL of an insecticide, **amitraz**, and presented stuporous with bruising over her joints. Laboratory evaluations at the time of presentation showed an SGPT of 15,000 U/mL, creatinine of 3.7 mg/dL, and abnormal prothrombin time and partial thromboplastin time. Computed tomography revealed cerebral edema; toxicology screen was negative. The patient became hypotensive over the next 24 hours, requiring dopamine. Hepatic and renal failure progressed and on the third hospital day she suffered a refractory cardiac arrest.

Case 104. A 74-year-old man mistakenly ingested two tablespoonfuls of **endosulfan** (insecticide) which he had placed in his pocket thinking it was cough syrup. The patient was given ipecac resulting in emesis 50 minutes postingestion. Shortly after emesis the patient experienced a generalized seizure. After intubation, the seizure responded to treatment with phenytoin, secobarbital, pentobarbital, and diazepam. Arterial blood gases revealed a pH of 6.8. After another series of seizures and sodium bicarbonate therapy, the pH was 7.2. Epistaxis and upper gastrointestinal bleeding occurred. Refractory bradycardia and hypotension progressed to death 4 hours postingestion.

Case 109. A 16-year-old boy ingested a 1-inch long piece of the 1-inch diameter root of a plant that his friend said was edible. Forty-five minutes later the patient became diaphoretic and felt faint. He began frothing at the mouth and choking and soon experienced convulsions and respiratory arrest. His companions tried unsuccessfully to revive him with cardiopulmonary resuscitation and he was pronounced dead within 2 hours of ingestion. A botanist identified the root as *Cicuta douglasii* (**water hemlock**). Blood and urine toxicology screens were negative.

Case 111. A 4-year-old boy had been ill for one week with vomiting, fever, and abdominal pain. The child had received two 500 mg doses of **acetaminophen** on the day before admission (no other dosing history was available). The initial acetaminophen level was 250 μg/mL with transaminase levels of over 10,000 U/mL. The child was being treated with *N*-acetylcysteine but required artificial ventilation and vasopressors. Blood ammonia was 210 μg/dL, SGPT 3,000 U/mL, total bilirubin 6.2 mg/dL, BUN greater than 20 mg/dL, creatinine 2.9 mg/dL, and prothrombin time greater than 30 seconds (treated with fresh frozen plasma). While awaiting liver transplant he experienced three cardiac arrests and pulmonary edema. The patient died, on the third hospital day, of refractory ventricular dysrhythmias, severe liver failure with coagulopathy, and renal failure. Autopsy revealed centrilobular and panlobular hepatic necrosis and marked pulmonary edema with exudates.

Case 112. A 9-year-old girl with a history of microcephaly ingested **acetaminophen** 16 hours before presentation. On arrival she was comatose and was intubated. Abnormal admitting laboratory results 18 hours postingestion were acetaminophen 33 μg/mL, glucose 69 mg/dL, bicarbonate 9 mEq/L, pH 7.08, PCO_2 35 mmHg, and PO_2 50 mmHg. She received the first dose of *N*-acetylcysteine 20 hours postingestion. Coma became deeper with hypotension requiring dopamine. The patient developed renal insufficiency and fulminate hepatic failure and died on the third hospital day.

Case 114. A 30-year-old woman presented 13.5 hours following ingestion of 32.5 g **acetaminophen**. The patient was immediately loaded orally with 140 mg/kg of *N*-acetylcysteine. Acetaminophen level on admission was 100 μg/mL. The oral *N*-acetylcysteine was well tolerated. Forty-nine hours postingestion, the patient began bleeding from disseminated intravascular coagulation and was treated with 4 units of fresh frozen plasma, 4 units of packed red blood cells, and 10 units of platelets. The systolic BP was 60 to 70 mmHg and lactic acidosis was detected. SGOT was 22,000 U/mL, bilirubin was 3.7 mg/dL, partial thromboplastin time was 35 seconds, and prothrombin time was 28 seconds. The patient died 88 hours after ingestion, after receiving 15 doses of *N*-acetylcysteine.

Case 116. A 44-year-old chronic alcoholic woman ingested **acetaminophen** 2 days before presenting. She had a history of a seizure disorder which was treated with phenytoin and phenobarbital. The admitting laboratory findings were acetaminophen 14 μg/mL, SGOT 5,290 U/mL, SGPT 7,760 U/mL, total bilirubin 5.9 mg/dL, BUN 33 mg/dL, creatinine 3.3 mg/dL, and prothrombin time 30 seconds. *N*-acetylcysteine was not administered. Over the next 24 hours, the patient developed hepatic encephalopathy and lapsed into coma. Renal failure required hemodialysis. SGPT peaked at 12,310 U/mL and SGOT at 11,390 U/mL on the day of admission. The total bilirubin peaked at 35.5 mg/dL 15 days after admission. The prothrombin time was corrected with fresh frozen plasma. By the 27th hospital day, the patient was awake but disoriented. By the 35th hospital day, acute respiratory distress developed secondary to 10 L pleural fluid from a suspected peritoneal-thoracic fistula. Fever, semicoma and hypotension developed. On the 41st hospital day, the patient died of status epilepticus, unresponsive to anticonvulsants. Laboratory values on the day before her death were SGOT 66 U/mL, SGPT 16 U/mL, total bilirubin 24.3 mg/dL, prothrombin time 16.4 seconds, BUN nitrogen 89 mg/dL, and creatinine 3.6 mg/dL.

Case 120. A 56-year-old woman ingested **acetaminophen, acetaminophen with codeine,** chlorazepate and **imipramine**. The patient was obtunded on presentation and was intubated. Acetaminophen level 8 hours postingestion was 324 μg/mL. She was treated with *N*-acetylcysteine and multiple dose charcoal. The first *N*-acetylcysteine dose was administered 17.5 hours

postingestion. Liver function tests progressively worsened and she became unresponsive and hypotensive. The patient died on the seventh day postingestion. Postmortem examination showed severe centrilobular hepatic necrosis.

Case 123. A 65-year-old man ingested 3 to 4 bottles of **acetaminophen** tablets and **ethanol** and presented with agitation followed by semicoma. The laboratory studies revealed a pH of 6.80, anion gap 29, SGOT 4,000 U/mL, and SGPT 1100 U/mL. An acetaminophen level drawn between 4 and 24 hours postingestion was 495 μg/mL. Although initially hypertensive, he became hypotensive, requiring dopamine. *N*-acetylcysteine and sodium bicarbonate therapy were instituted. The patient died of respiratory arrest. Blood cultures grew gram-negative rods. Postmortem findings included cirrhosis, massive liver necrosis compatible with acetaminophen toxicity, hemorrhagic pancreatitis, and bilateral aspiration pneumonia.

Case 138. A 21-year-old pregnant woman ingested 55 tablets of **aspirin** over 2 days for a toothache. On arrival she complained of tinnitus. After sodium bicarbonate administration, an arterial blood gas was pH 7.5, PO_2 171.8 mmHg and PCO_2 11.7 mmHg. The admission salicylate level was 75 mg/dL; 7 hours later it was 79 mg/dL. Arterial blood gases were pH 7.7, PCO_2 18 mmHg and PO_2 43.7 mmHg. The 37-week fetus died 12 hours after admission, approximately 4 hours after charcoal and gastric lavage had precipitated repetitive vomiting. With supplemental oxygen and additional sodium bicarbonate, the arterial blood gas was pH 7.45, PCO_2 21.9 mmHg and PO_2 42.7 mmHg. The patient was intubated 2 hours later but died within the hour. The postmortem examination revealed a blood salicylate level of 87 mg/dL and diffuse alveolar damage in the early exudative phase with focal bronchial pneumonia.

Case 141. A 32-year-old woman with a prior history of a seizure disorder ingested three hundred 325 mg **aspirin** tablets. Two hours postingestion, she was alert with normal vital signs; her only symptom was tinnitus. At 2.5 hours postingestion the aspirin level was 52 mg/dL, increasing to 65 mg/dL 7 hours postingestion (anion gap 19 mEq/L). Baking soda and multiple doses of charcoal were administered orally and the urine pH was 6.5. Later (17 hours after the ingestion), intravenous sodium bicarbonate was initiated and the arterial pH was 7.35 with respirations of 38/min. Twenty hours postingestion, the aspirin level was 69 mg/dL and the potassium level 2.7 mEq/L. Potassium supplementation was initiated. Twenty-four hours postingestion, the aspirin level was 78 mg/dL, potassium level still 2.7 mEq/L, and urine pH 5 to 6. The patient complained of dyspnea, and respiratory distress ensued. Twenty-eight hours postingestion, the patient seized. During an attempted intubation, the patient developed refractory ventricular fibrillation. On autopsy, cerebral edema was the only abnormal finding.

Case 157. A 54-year-old woman ingested **aspirin, desipramine,** and **thiothixene.** BP was 210/180 mmHg, pulse 136/min, and respirations 28/min. Ipecac syrup was administered and she became unresponsive, requiring intubation. A generalized seizure was treated with diazepam and phenytoin. The 6-hour salicylate level was 96 mg/dL. She developed labile BP, increasing tachypnea, and significant hyperthermia without widening of the QRS complex. Despite alkalinization and cooling, the temperature rose to 41.7°C, and she died eight hours postingestion.

Case 161. A 55-year-old woman taking **aspirin** chronically was found tachypneic and obtunded and then experienced respiratory arrest. The initial salicylate level was 60 mg/dL and computerized tomography showed cerebral edema. She was dialyzed and began to awaken. Multiple doses of a charcoal and **sorbitol** preparation and **magnesium sulfate** were administered over the first 24 hours. On the second hospital day she became hypotensive and was found to have a markedly elevated magnesium level of 16.5 mEq/L. She was redialyzed, but on the third day became anuric and developed a rigid, distended abdomen. A decision was made not to operate and she died several hours later. The postmortem examination revealed a grossly distended, charcoal-containing, perforated large bowel.

Case 167. A 69-year-old man with a cardiac history intentionally ingested **colchicine.** On presentation, his vital signs were stable and he was alert and oriented. Five hours after presentation, rales and dyspnea developed. Seventeen hours later, positive pressure ventilation was required because of pulmonary edema. Lidocaine was administered for runs of ventricular tachycardia. Renal failure did not respond to fluids and dopamine. Mental status deteriorated and ECG revealed deep depression of the ST segment; enzymes revealed an elevation in creatine phosphokinase. The patient died of refractory hypotension and metabolic acidosis.

Case 170. A 12-month-old's older sibling put **methadone** 35 mg into an 8 oz bottle of milk. The infant drank 1.5 ounces and suffered respiratory, then cardiac, arrest. After naloxone 0.4 mg, the heart beat returned with a rate of 140/min. The patient's pupils were fixed and dilated. He received four more doses of naloxone without response and was placed on a ventilator. The day after admission he sustained a refractory cardiac arrest.

Case 174. A 2-year-old boy accidentally ingested **dibucaine** cream, which his mother had used for her episiotomy site. The child was very lethargic and ataxic. The child seized before and after arrival. Ventricular arrhythmias and a respiratory arrest ensued.

Resuscitation was unsuccessful. At postmortem examination, blood dibucaine concentrations was 1.3 μg/ml.

Case 177. A 17-month-old boy arrived unresponsive and seizing. The pulse was 140/min, BP 60/20 mmHg, respirations 32/min, temperature 36.3°C, and QRS complex 0.08 to 0.10 seconds. Computerized tomography and spinal tap were negative. Seizures were unresponsive to phenytoin but controlled by diazepam. Activated charcoal was given and gastric lavage was performed. Sodium bicarbonate was administered. The child was intubated and placed on a ventilator. Toxicological analysis of gastric contents revealed **amitriptyline** and metabolites. Dopamine and levarterenol were required to maintain blood pressure. Pneumothoraces developed secondary to constant high airway pressures. The child progressively deteriorated and died on the twelfth hospital day.

Case 241. A 36-year-old woman ingested **imipramine, phenelzine,** and **diphenoxylate/atropine.** Paramedics found her unconscious and apneic with a pulse of 200/min and an extremely elevated, unspecified BP. In the emergency department the BP was 50 mmHg by Doppler. One hour after presentation, the temperature was 41.7°C, systolic BP was 70 mmHg, pulse was 155/min, and she was actively seizing. Phenytoin and diazepam were administered. The temperature dropped to 37.6°C, BP rose to 115 mmHg, and pulse 140/min after one half hour of therapy with ice packs. Eight hours after presentation, the temperature again rose to 40.9°C and she was treated with ice. BP dropped to 58/30 mmHg but dopamine was withheld because of the MAO inhibitor ingestion. She developed disseminated intravascular coagulation and a metabolic acidosis. Her pupils became fixed and dilated. Fresh frozen plasma, fluids, bicarbonate and finally dopamine was given. By 13 hours after admission, temperature rose to 41.7°C. A cooling blanket and ice packs were used. The patient died 17 hours after admission.

Case 247. A 63-year-old woman with depression, COPD, and hypertension was treated with a **monamine oxidase inhibitor.** Four days before admission she was switched to another monoamine oxidase inhibitor. The morning of admission the patient developed increasing lethargy and marked changes in sensorium. Paramedics found her unresponsive, with a pulse of 150/min, BP 140/90 mmHg, and respirations 40/min. She was given 50% dextrose in water and naloxone. In the emergency department, rectal temperature was 42.2°C, palpable BP 80 then 40 mmHg, and pulse 170/min. Arterial blood gases revealed pH 7.21, PCO_2 51 mmHg, and PO_2 29 mmHg. Muscle tone was stiff with some tremor. The patient had a Glasgow Coma Score of 6 and decerebrate posturing. Ice water lavage returned no pills and charcoal was given. Cooling blanket, tepid soaks, and dantrolene decreased the rectal temperature to 40.6°C. Abnormal laboratory results included BUN 34 mg/dL, creatinine 2.3 mg/dL, SGPT 565 U/L, gamma glutamyl transferase 81 U/L, creatine phosphokinase 855 U/mL, and lactate dehydrogenase 1155 U/L. The toxicology screen was positive for benzodiazepines. The ECG showed peaked T waves. In spite of maximal supportive therapy including a phenylpropanolamine drip for hypotension, the patient progressively deteriorated. ECG showed evidence of diffuse cortical necrosis. During the first 24 hours the creatine phosphokinase rose to 6,000 U/mL, resulting in acute tubular necrosis. During the second 24 hours she developed disseminated intravascular coagulopathy. Neurologic status did not improve despite intensive therapy and the patient died 60 hours after admission.

Case 257. A 34-year-old woman ingested **phenelzine** 150 mg, **thioridazine** 450 mg, **temazepam,** and lorazepam. She presented with lethargy and neuromuscular rigidity. She was lavaged and given activated charcoal. Rectal temperature was 42.2°C and heart rate 160/min. Cooling was initiated with a cooling blanket, ice packs, acetaminophen, and dantrolene. During cooling she experienced bradycardia followed by asystole then ventricular fibrillation. She was resuscitated but remained unresponsive and anuric, requiring pressors. Nasopharyngeal and gastrointestinal bleeding associated with disseminated intravascular coagulation were treated with fresh frozen plasma and vasopressin. She died 24 hours after administration. The postmortem examination revealed pulmonary edema, massive hemolysis, and a thioridazine (and metabolite) level of 155 μg/dL.

Case 261. A 2-year-old girl presented unresponsive, without palpable pulse or BP with "complex irregularities" on ECG, about 90 minutes after ingesting an unknown quantity of **chloroquine** phosphate. The patient was resuscitated, placed on a ventilator, lavaged, and given activated charcoal and a cathartic. She subsequently developed hypotension and seizure activity which were treated with lorazepam, phenytoin, and dobutamine. No signs of purposeful movement or improvement occurred, and all life support was withdrawn 24 hours after presentation. Chloroquine levels were 2.9 μg/mL (serum) 4 hours before death and 9.9 μg/mL (blood) on postmortem examination.

Case 278. A 37-year-old woman ingested up to 18 g **acebutolol.** One hour later, the emergency medical technicians found her alert and oriented with a BP of 130/100 mmHg, respirations 18/min, and in normal sinus rhythm with occasional premature ventricular contractions. During their evaluation, the QRS widened to 0.3 second and the level of consciousness decreased. She was intubated, MAST trousers were inflated, and atropine 1 mg was administered per endotracheal tube. The patient arrived in the emergency

department 1.5 hours postingestion with purposeful responses to deep pain but without BP or pulse. ECG showed an idioventricular rhythm of 20 to 30 beats per minute. Cardiopulmonary resuscitation was initiated, atropine and isoproterenol was administered, and two intravenous pacing wires were placed without capture. Dopamine, dobutamine, epinephrine, and glucagon were administered without response. Gastric lavage was performed and charcoal instilled. Arterial blood gas results on 100% O_2 were pH 7.40, PCO_2 34 mmHg, and PO_2 27 mmHg. The patient was in florid pulmonary edema. **Ethanol** level was 247 mg/dL. The patient was placed on cardiopulmonary bypass approximately 2.5 hours postingestion. Several unsuccessful attempts were made to wean off bypass. Bypass was discontinued 4.5 hours after the ingestion and the patient was declared dead.

Case 286. A 60-year-old man ingested **digoxin** and **verapamil**. One day postingestion, the digoxin level was 15 ng/mL. The patient experienced complete heart block but was successfully supported with a pacemaker. Three days postingestion, he went into ventricular fibrillation for 10 minutes but was resuscitated. Five hours after resuscitation, the patient was unresponsive to pain, had generalized twitching and peripheral edema. The BP was 128/88 mmHg, pacer rate 100/min, and temperature 39.5°C. Therapy included a lidocaine infusion, activated charcoal, and phenytoin. The digoxin level was 7 ng/mL, BUN 40 mg/dL, K+ 4.8 mEq/L, and creatinine 2.6 mg/dL. Refractory intermittent seizures occurred. The pupils were nonreactive and pulse 94/min (junctional rhythm). Four days postingestion, the patient was responsive to deep pain only but maintained a cough reflex. Later, ECG became flat. He died six days postingestion.

Case 287. A 20-year-old man with a history of intravenous drug abuse was found unresponsive. Intentional ingestion of **digoxin, verapamil,** colchicine, allopurinol, and **metoprolol** was suspected as these medications were available in the home. He was given naloxone without response. A junctional bradycardia and hypotension (BP 50 mmHg on dopamine wide open) were noted. He sustained an atrial septal myocardial infarction. Twenty-five minutes later, the systolic BP dropped to 40 mmHg, followed by a refractory cardiac arrest. The digoxin level was 47 ng/mL.

Case 291. A 70-year-old man mistakenly took **flecainide** 300 mg/day instead of the prescribed 200 mg/day. On presentation, he complained of dizziness and falling. He developed ventricular tachycardia with a wide QRS complex, sinus pauses, and idioventricular dysrhythmias. Systolic BP dropped to 72 mmHg and he was placed on dopamine 22 μg/kg/min. Admission laboratory results were normal except for a potassium of 5.1 mEq/L and creatinine of 1.7 mg/dL. The patient sustained at least three cardiac arrests, and ventricular tachycardia persisted for 24 hours. He died 30 hours after presentation. The admission serum flecainide level was 1,500 ng/mL.

Case 300. A 7-year-old girl with Down's Syndrome ingested **propranolol** and **hydrochlorothiazide**. Two hours later, her parents summoned the paramedics. Initial heart rate was 68/min, and she was released at the scene for transport to the emergency department via private vehicle. The child arrived 3 hours postingestion. Lavage was performed and activated charcoal and sorbitol were administered. The child experienced a seizure secondary to a blood glucose of 0 mg/dL. Intubation was performed, and dextrose, isoproterenol, and dopamine were administered. A propranolol level drawn 10.5 hours postingestion was 2,465 ng/mL. A chest radiograph suggested aspiration pneumonia. Hypotension and bradycardia persisted despite the addition of glucagon then dobutamine. After asystole occurred, an epinephrine infusion was initiated, resulting in a BP of 40/30 mmHg and pulse 64/min. The patient died approximately 24 hours postingestion.

Case 305. A 7-day-old boy was given **verapamil** 25 mg orally in a dosage administration accident. Eight hours later, the infant experienced a cardiopulmonary arrest but was resuscitated. The child died 20 hours after the dose.

Case 317. A 39-year-old woman presented 4 hours after ingestion of multiple unidentified medications. Urine toxicology screen showed the presence of acetaminophen, nicotine, and **phenylpropanolamine**. The patient vomited spontaneously and was noted to be in bigeminy with a heart rate of 110/min and a BP of 160/90 mmHg. Shortly after arrival, heart rate fell to 30 to 40/min and BP to 90/60 mmHg. ECG was consistent with anterior myocardial infarction. The cardiac and neurologic status deteriorated rapidly requiring intubation, lidocaine, and dobutamine. Computed tomography showed no evidence of intracranial hemorrhage. The patient developed pulmonary edema and eventually suffered cardiac arrest and died 8 days after presentation.

Case 319. A 10-month-old girl ingested up to 22 g **ferrous sulfate**. The child was drowsy and vomiting blood. On arrival, she was comatose and in shock. Gastric lavage was performed and sodium bicarbonate 5% instilled in the stomach. A continuous infusion of deferoxamine 15 mg/kg/h was begun. Serum iron drawn shortly after arrival was 4,385 μg/dL, increasing to more than 7,000 μg/dL when repeated later. The abdominal radiograph showed many tablets in the gastrointestinal tract. A saline cathartic was given to promote tablet movement through the GI tract. Dopamine was required for BP support and four exchange transfusions were performed. The deferoxamine drip rate was increased to 20 mg/kg/h. Gastric suction and

stools were positive for gross blood. Over the next 24 hours renal and hepatic insufficiency developed. The child died 2 days after ingestion.

Case 322. A 5-day-old boy presented with hypernatremia (sodium 227 mEq/L), coma, and recurrent seizures. Computerized tomography of the brain disclosed cerebral edema which was treated with mannitol, but the pupils remained fixed and dilated. The child died 6 days after admission. Postmortem examination revealed bronchopneumonia, cerebral edema and small subdural hematomas. The hypernatremia was traced to the baby's formula. Analysis of the contents of the child's bottle revealed a **sodium** content of 440 mEq/L, compared with the 14 mEq/L sodium content of the formula in the original can.

Case 323. A 67-year-old man with end-stage squamous cell carcinoma was accidentally given 10 mL of an oral **liquid diet preparation** and 1 mL **kaolin/pectin** in his intravenous line. Approximately 5 minutes later he developed shortness of breath followed by a cardiac arrest. He was found to have multiple pulmonary and intracardiac clots and emboli on postmortem examination.

Case 326. A 4-year-old girl was admitted for rehydration following 3 days of copious vomiting and diarrhea (10 episodes per day). Upper respiratory tract symptoms and a low grade fever accompanied the onset of illness. Two siblings had similar symptoms but recovered quickly. The vomiting and diarrhea persisted but the child was alert, in no distress, with normal vital signs. Abdominal computed tomography, radiographic studies of the upper gastrointestinal tract and small bowel, and evaluation for enteric pathogens were negative. An infectious etiology was suspected and treated with metronidazole. After one month of diarrhea and emesis, a gallop was heard. Chest radiograph revealed a large heart. An echocardiogram showed dilation of all four chambers, tricuspid and mitral insufficiency, and deceased left ventricular contractility. The pulse had increased gradually from 110 to 170/min and BP decreased from 90/60 mmHg to 70/40 mmHg. Dopamine and epinephrine infusions were administered as hypotension worsened. Pleural effusions appeared and 100% FiO_2 was required to provide adequate O_2 saturation. The child died 5 weeks following the onset of diarrhea and 1 week following the clinical appearance of cardiomyopathy. In the last week of hospitalization the mother admitted giving the child **ipecac** throughout the 5-week hospital stay. The mother had a long-standing psychiatric history. Postmortem toxicology studies showed the following emetine levels: blood 400 ng/mL, vitreous 25 ng/mL, bile 1,800 ng/mL and urine 1,700 ng/mL. This was felt to be a case of Munchausen syndrome by proxy.

Case 334. A 66-year-old woman with a history of severe chronic lung disease was found dead at home. The coroner estimated that death had occurred 3 days before her discovery. The patient had apparently secured a large number of 10 mg **diazepam** tablets by illicit means and was thought to have consumed more than 130 tablets. A serum diazepam level measured postmortem was 0.16 mg/dL.

Case 340. A 38-year-old woman with multiple sclerosis and manic depression had been taking **haloperidol**, ranitidine, amantadine, lithium, and baclofen daily. The lithium was discontinued and haloperidol increased to prepare for a surgical procedure. The patient developed progressive hyperthermia (41°C) and obtundation 4 days after the surgery, at which time a poison center was contacted. The patient had received pentothal, halothane, and succinylcholine. A cooling blanket and dantrolene decreased the temperature to 39.8°C. The patient became more alert, with a BP of 98/68 mmHg, heart rate 113/min, and respirations 40/min. The creatine phosphokinase was 3,366 U/mL. By 24 hours after the first poison center contact, the temperature was 37.4°C off the cooling blanket and on low-dose dantrolene. At 42 hours, the patient developed supraventricular tachycardia (160/min) followed by asystole. No resuscitation was performed, at the family's request.

Case 344. This 30-year-old woman ingested **perphenazine** and arrived lethargic with emesis on her face and neck. She was lavaged and given charcoal and cathartic. Twenty-four hours after admission, she was confused but vital signs were stable. Forty-eight hours after admission, chest radiograph revealed aspiration pneumonitis and a left pleural effusion. Fifty-six hours postadmission, the patient died of respiratory failure. Autopsy revealed a ruptured esophagus, bilateral pleural cavity contamination with gastric contents, and pulmonary atelectasis.

Case 353. This 35-year-old man was found unconscious with fixed and dilated pupils, respiration 24/min, BP 110/50 mmHg, and pulse 150/min. The patient was intubated by paramedics, who found an empty bottle of disulfiram. On arrival, the patient's temperature was 41°C and systolic BP was 50 mmHg. The patient was placed in a cool water bath and dantrolene, dopamine, and norepinephrine were administered. Rhabdomyolysis with resultant renal failure and disseminated intravascular coagulation ensued. The patient died 4 hours after admission. The medical examiner's blood toxicology screen revealed **thioridazine** 0.32 mg/L, ethanol 270 mg/dL, **methamphetamine** 0.03 mg/L, **doxylamine** 0.05 mg/L, and dextromethorphan 0.11 mg/L.

Case 362. A 26-year-old man presented with hypertension, obtundation, and hyperthermia (40.6°C), and subsequently developed seizures, hyptension, and shock. Therapy included diazepam, phenytoin, phenobarbital, sodium bicarbonate, intubation, assisted ven-

tilation, naloxone, thiamine, and intravenous glucose. Seizures were refractory and the temperature rose to 42.2°C. After 12 hours, following successful use of pentobarbital to control seizures, temperature dropped to 38.3°C but the patient remained comatose. A toxicology screen demonstrated **cocaine**, lidocaine, caffeine, and nicotine. Computed tomography of the head was negative. On the sixth hospital day, abnormal serum creatinine, BUN nitrogen, and liver function tests were reported. He died on the eighth hospital day. Cause of death was toxic encephalopathy from cocaine and multisystem failure from hyperthermia.

Case 369. A 31-year-old woman collapsed while talking with her neighbor. Emergency medical technicians found her unconscious with fixed, dilated, unequal pupils, heart rate 100/min, BP 180/100 mmHg, and respirations 30/min. In the emergency department, temperature was 40°C and positive Babinski tests and decorticate posturing were observed. Computed tomography and EEG were essentially normal. The patient was intubated and naloxone 0.8 mg was administered with no response. The admitting arterial blood gas was pH 7.36, PCO_2 36 mmHg, and PO_2 82 mmHg on 100% O_2. Urine drug screen revealed **cocaine, tetrahydrocannabinol,** and an **amphetamine**-related substance. Lumbar puncture revealed a pressure of 304 mmHg with 565 RBCs, 1 WBC, protein 41 mg/dL, glucose 86 mg/dL. The elevated intracranial pressure was managed with mannitol, dexamethasone, and hyperventilation. Twenty-four hours after admission, a magnetic resonance scan revealed a massive infarct involving the occipital lobe, midbrain, superior cerebellum, hypothalamus, thalamus, and left cerebral peduncle. The patient died 14 days later.

Case 394. A 42-year-old woman intentionally ingested **phentermine** the day after her father died. On the scene she seized and required intubation. On presentation, the BP was 240/140 mmHg, pulse was 130/min, and decerebrate posturing was present. Computerized tomography showed a massive intracerebral bleed. Urine toxicology screen confirmed amphetamine by-products and caffeine. Despite supportive therapy, she died 6 days later.

Case 395. A 32-year-old woman ingested 27.5 mg/kg of sustained release **phenylpropanolamine.** Paramedics induced emesis with ipecac syrup less than 1.5 hours after ingestion. Prehospital vital signs were: systolic BP 238 mmHg, pulse 50/min, and respirations 16/min. In the emergency department, gastric lavage was performed and activated charcoal with sorbitol administered. Three and one half hours postingestion, a 2-minute episode of supraventricular tachycardia (rate 140/min) resolved spontaneously. Subsequent BP was 180/129 mmHg with pulse 88/min. Four hours postingestion, bigeminy was treated with lidocaine. Six hours postingestion, she began coughing white, frothy sputum then became unresponsive and cyanotic (BP 90/50 mmHg, pulse 50/min). Arterial blood gases on 100% FiO_2 were pH 7.18, PCO_2 55 mmHg, and PO_2 75 mmHg. She was intubated with difficulty and placed on a respirator. After intubation she demonstrated decerebrate posturing. Seven hours postingestion, chest radiograph showed intubation in the right bronchus and possible aspiration pneumonia. Toxicology screening was positive only for an amphetaminelike substance. Sixteen hours postingestion, vital signs were BP 110/70 mmHg, pulse 190/min, and temperature 39.8°C. She was started on penicillin/gentamicin and appropriate cultures were drawn. Twenty hours postingestion, BP was 80/60 mmHg and pulse was 185/min. Propranolol 1 mg intravenous was administered slowly. Over the next 5 minutes she became severely bradycardic, without a BP. During resuscitation attempts, recurrent ventricular tachycardia was observed. She was pronounced dead 21 hours postingestion.

Case 396. A 56-year-old man ingested **merthiolate** chronically, initially as a gargle then actually swallowing the solution. He presented with typical symptoms of mercury poisoning (not specified by reporting center). Treatment included polythiol resin, British anti-Lewisite, penicillamine, and blood transfusions. The patient lapsed into coma and died nine days later.