



1986 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. During that pilot year, 251,012 human poison exposures were reported from 16 poison centers.¹ In 1984 and 1985, 730,224 and 900,513 human exposures were reported, respectively.^{2,3} This report includes 1,098,894 human exposure cases reported by 57 participating poison centers during 1986.

CHARACTERIZATION OF PARTICIPATING CENTERS

All 57 reporting centers submitted data for the entire year. Twenty-six of the 57 centers were certified as regional poison control centers by the AAPCC. Annual center call volumes (human exposure cases only) ranged from 1,273 to 72,351 (mean, 19,525). Center penetrance (defined as the number of human poison exposure cases reported to a center divided by the

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

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Centers participating in this year's report include Alabama Poison Center, Tuscaloosa, AL; Arizona Poison Control System, Tucson, AZ; St. Luke's Poison Center, Phoenix, AZ; Fresno Community Hospital Regional Poison Control Center, Fresno, CA; Orange County Poison Center, Orange, CA; San Diego Regional Poison Center, San Diego, CA; San Francisco Bay Area Regional Poison Center, San Francisco, 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; 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; St. Louis 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; Greater Cleveland Poison Control Center, Cleveland, OH; Central Ohio Poison Control Center, Columbus, OH; Oregon Poison Center, Portland, OR; LeHigh Valley Poison Center, Allentown, PA; Keystone Regional Poison Center, Altoona, PA; Northwest Poison Center, Erie, PA; Capital Area Poison Center, Hershey, PA; Delaware Valley Regional Poison Control Center, Philadelphia, PA; Pittsburgh Poison Center, Pittsburgh, PA; Rhode Island Poison Center, Providence, RI; Southern Poison Center, Inc., Memphis, TN; North Central 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; 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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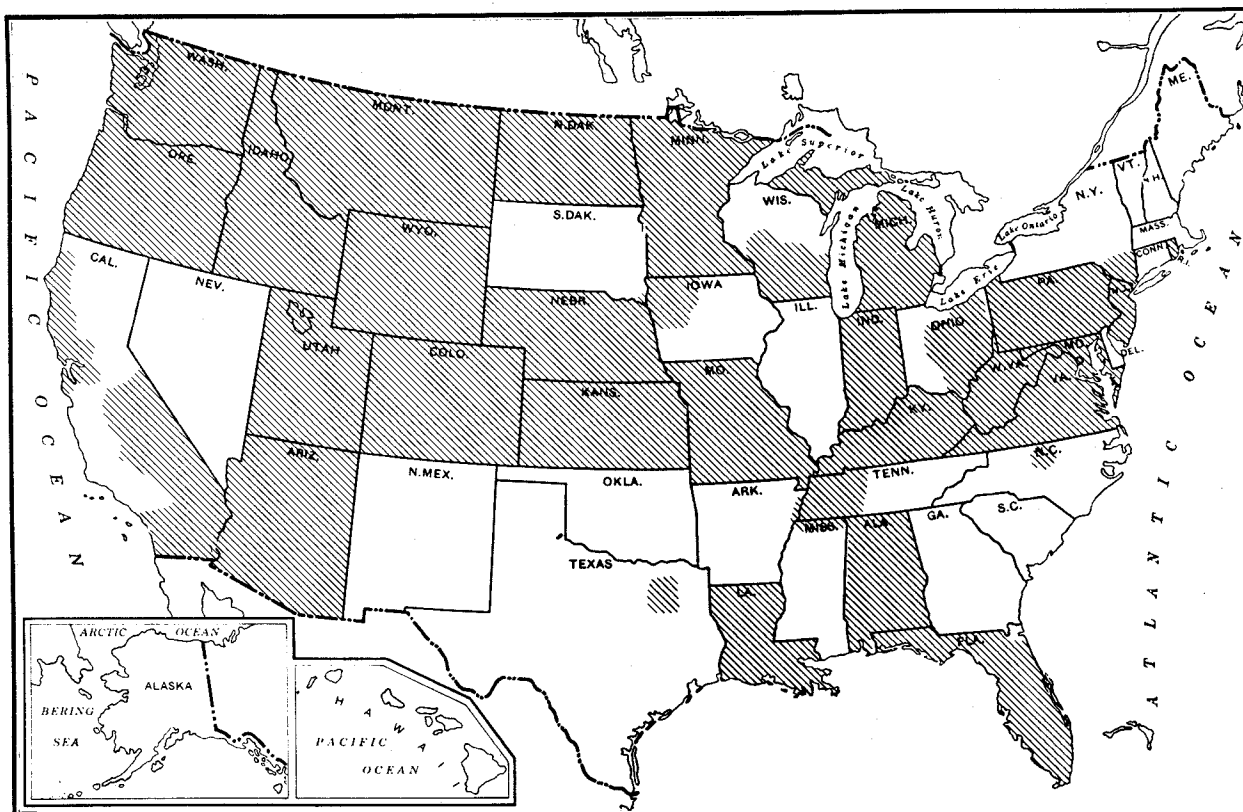


FIGURE 1. Fifty-seven centers participated in the Data Collection System in 1986. The cross-hatched areas denote regions served by reporting centers. (Map adapted from Hammond's Outline Map of the United States.)

TABLE 1. Site of Caller and Site of Exposure, Human Exposure Cases

	Site of Caller (%)	Site of Exposure (%)
Residence	82.1	91.6
Health care facility	14.1	0.5
Workplace	1.5	2.5
School	0.6	0.8
Other	1.3	2.1
Unknown	0.5	2.4
TOTAL	100.0	100.0

population served by that center) ranged from 3.1 to 19.9/1,000, with a mean of 9.1 reported exposures per thousand population.

A total population of 132.1 million was served by the participating centers including portions of 33 states and the District of Columbia (Fig. 1). Noting the 241.1 million estimated United States population, the data presented represent an estimated 55% of the human poison exposures reported to poison control centers in the United States during 1986. Thus, the 1,098,894 human poison exposures reported in this data base can be extrapolated to predict a nationwide

TABLE 2. Age and Sex Distribution of Human Poison Exposure Cases*

Age (yr)	Male	Female	Unknown	Total
<1	46,538 (4.2)	41,834 (3.8)	1,246 (0.1)	89,618 (8.2)
1	111,421 (10.1)	97,475 (8.9)	2,112 (0.2)	211,008 (19.2)
2	115,748 (10.5)	97,827 (8.9)	2,275 (2.1)	215,850 (19.6)
3	55,890 (5.1)	46,194 (4.2)	1,183 (0.1)	103,267 (9.4)
4	24,629 (2.2)	19,389 (1.8)	514 (0.0)	44,532 (4.1)
5	13,031 (1.2)	10,236 (0.9)	315 (0.0)	23,582 (2.1)
6-12	32,699 (3.0)	24,044 (2.2)	792 (0.1)	57,535 (5.2)
13-17	19,330 (1.8)	27,498 (2.5)	507 (0.0)	47,335 (4.3)
>17	122,646 (11.2)	157,593 (14.3)	4,112 (0.4)	284,351 (25.9)
Unknown†	7,582 (0.7)	8,678 (0.8)	5,556 (0.5)	21,816 (2.0)
TOTAL	549,514 (50.0)	530,768 (48.3)	18,612 (1.7)	1,098,894 (100.0)

* Numbers in parentheses are percentages.

† In the unknown category, although the exact age was not reported, 915 cases were infants and 3,810 were children aged 2 to 5 years.

TABLE 3. Distribution of Age and Sex of 406 Fatalities

Age (yr)	Male	Female	Unknown	Total*
<1	3	1	1	5 (1.2)
1	3	2	0	5 (1.2)
2	2	1	0	3 (0.7)
3	1	0	0	1 (0.2)
4	1	0	0	1 (0.2)
5	0	0	0	0 (0.0)
6-12	2	0	0	2 (0.5)
13-19	22	19	0	41 (10.1)
20-29	55	35	0	90 (22.2)
30-39	46	25	0	71 (17.5)
40-49	19	25	0	44 (10.8)
50-59	26	23	0	49 (12.1)
60-69	11	27	0	38 (9.4)
70-79	13	14	0	27 (6.7)
80-89	4	5	0	9 (2.2)
90-99	0	3	0	3 (0.7)
Unknown adult	10	6	0	16 (3.9)
Unknown	0	0	1	1 (0.2)
TOTAL	218	186	2	406 (100.0)

* Data in parentheses are percentages.

TABLE 4. Number of Substances Involved in Human Poison Exposure Cases

Number of Substances	Cases	
	No.	%
1	1,027,452	93.5
2	53,759	4.9
3	9,949	0.9
4	2,726	0.2
5	1,011	0.1
6	433	0.0
7	179	0.0
8	92	0.0
9	65	0.0
≥ 10	231	0.0
Unknown	2,997	0.3
TOTAL	1,098,894	100.0

incidence of 2 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 19.9 poisonings/1,000 population reported for one state, then 4.8 million poisonings would have been reported to poison control centers in 1986. 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 47 centers that par-

TABLE 5. Reason for Human Poison Exposure Cases

	No.	%
Accidental		
General	930,320	84.7
Misuse*	24,345	2.2
Occupational	19,115	1.7
Environmental	5,237	0.5
Unknown	1,192	0.1
TOTAL	980,209	89.2
Intentional		
Suicidal	61,788	5.6
Abuse†	12,841	1.2
Misuse‡	11,312	1.0
Unknown	10,190	0.9
TOTAL	96,131	8.7
Adverse Reaction		
Drug	7,751	0.7
Food	6,079	0.6
Other	1,424	0.1
TOTAL	15,254	1.4
Unknown	7,300	0.7
TOTAL	1,098,894	100.0

* Improper use of a substance where therapeutic or beneficial results were intended, e.g., 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, e.g., intentional excessive dosing to obtain a more rapid or superior pharmacologic effect for presumed "therapeutic purposes."

TABLE 6. Distribution of Reason for Exposure by Age, Human Exposure Cases Only*

Reason	<6 Years	6-12 Years	13-17 Years	>17 Years	Unknown	Total
Accidental	687,801 (99.3)	53,334 (92.7)	23,962 (50.6)	202,180 (71.1)	12,932 (75.7)	980,209 (89.2)
Intentional	1,105 (0.2)	2,712 (4.7)	21,943 (46.4)	66,857 (23.5)	3,514 (20.1)	96,131 (8.7)
Adverse reaction	1,774 (0.3)	1,037 (1.8)	693 (1.5)	11,380 (4.0)	370 (2.2)	15,254 (1.4)
Unknown	1,902 (0.3)	452 (0.8)	737 (1.6)	3,935 (1.4)	274 (1.6)	7,300 (0.7)
TOTAL	692,582 (63.0)	57,535 (5.2)	47,335 (4.3)	284,352 (25.9)	17,090 (1.6)	1,098,894 (100.0)

* Data in parentheses are percentages.

TABLE 7. Distribution of Reason for Exposure and Age for 406 Human Fatalities

	<6 Years	6-12 Years	13-17 Years	>17 Years	Unknown	Total
Accidental						
General	9	1	0	10	0	20
Environmental	1	1	2	8	0	12
Misuse	3	0	2	13	0	18
Occupational	0	0	0	5	0	5
Unknown	0	0	0	4	0	4
TOTAL	13	2	4	40	0	59
Intentional						
Suicide	0	0	16	207	0	223
Misuse	0	0	1	12	0	13
Abuse	1	0	3	40	1	45
Unknown	0	0	1	31	0	32
TOTAL	1	0	21	290	1	313
Adverse Reaction	0	0	0	4	0	4
Unknown	1	0	0	29	0	30
TOTAL	15	2	25	363	1	406

TABLE 8. Distribution of Route of Exposure for Human Poison Exposure Cases and 406 Fatalities*

	All Cases	Fatalities
Ingestion	897,518 (78.5)	326 (77.1)
Dermal	75,127 (6.6)	4 (0.9)
Ophthalmic	63,558 (5.6)	0 (0.0)
Inhalation	60,520 (5.3)	46 (10.9)
Bites and stings	35,395 (3.1)	1 (0.2)
Parenteral	3,524 (0.3)	31 (7.3)
Other/unknown	7,496 (0.7)	15 (3.5)

* Multiple routes of exposure were observed in many poison exposure victims. Percentages (in parentheses) are based on the total number of exposure routes (1,143,138 for all patients, 423 for fatal cases) rather than the total number of human exposures (1,098,894) or fatalities (406).

TABLE 9. Symptom Assessment at Time of Initial Call to Poison Center

	No. (%)
Asymptomatic	725,129 (66.0)
Symptomatic, related to exposure	285,811 (26.0)
Symptomatic, unrelated to exposure	17,273 (1.6)
Symptomatic, unknown if related	48,230 (4.4)
Unknown	22,451 (2.0)
TOTAL	1,098,894 (100.0)

TABLE 10. Management Site of Human Poison Exposure Cases

	No. (%)
Non-healthcare facility	820,629 (74.7)
Healthcare facility	
Already there at time of call to poison center	127,807 (11.6)
Referred by poison center	125,694 (11.4)
Other/unknown	24,764 (2.3)
TOTAL	1,098,894 (100.0)

anticipated for the entirety of 1985 and 1986 indicates an 8.4% increase in reported poison exposures from 1985 to 1986 within the regions served by these 47 centers.

REVIEW OF THE DATA

The 1,098,894 human poison exposures reported to AAPCC in 1986 represent the largest poison exposure data base ever compiled in the United States and an 18.1% increase in total reports from 1985. An analysis of the data indicates that 91.6% of exposures occurred in the home (Table 1). Two unlikely sites of poisonings, health care facilities and schools, accounted for 5,716 (0.5%) and 9,147 (0.8%) poison exposures, respectively. Poison center peak call volumes were

noted from 5 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 2. Forty-seven percent of cases involved children under 3 years of age, and 62.6% occurred in children under 6 years of age. A male predominance is found among poison exposure victims less than 12 years old, but the gender distribution is reversed in teenagers and adults. Table 3 gives the age and sex distribution for 406 fatalities. Despite variations from decade to decade among adults, overall, males account for a greater number of fatalities in children, teenagers, and adults.

A single substance was implicated in 93.5% of reports, and only 1.3% of patients were exposed to more than two possibly poisonous drugs or products (Table 4). Most cases of human exposure were acute (98.7%), as were most poison-related fatalities (91.1%). (Chronic exposures were arbitrarily defined as repeated exposures to the same toxic substance or a single exposure lasting longer than eight hours.)

Most poison exposures (89.2%) were accidental; suicidal intent was present in 5.6% of cases (Table 5). Nearly one quarter (23.2%) of cases with suicidal intent occurred in patients who were 13 to 17 years old. Whereas accidental poisonings outnumbered both intentional poisonings and adverse reactions in all age groups (Table 6), the ratio was lower in teenage and adult cases. In contrast, of the 406 human poisoning fatalities reported, this ratio was reversed among the adult deaths, with 7.25 times as many deaths resulting from intentional as compared with accidental exposures (Table 7).

Ingestions accounted for 78.5% of poison exposures (Table 8), followed in frequency by dermal contact, ophthalmic exposure, inhalation, bites and stings, and parenteral exposure. For the 406 fatalities, ingestion and inhalation were the predominant exposure routes.

Table 9 displays the symptom assessment at the time of the initial call to the participating poison center. In addition to the 26.0% of patients with initial symptoms clearly related to the exposure, symptoms developed during the subsequent course in 8,413 initially asymptomatic patients. Thus, symptoms definitely related to the exposure eventually developed in at least 26.8% of patients.

Most of the patients reported to poison centers were managed in a non-health care facility (74.7%), usually at the site of exposure, the patient's own home (Table 10). Treatment in a health care facility was rendered or recommended in 23.0% of cases, and of these, 53.0% involved treatment and release, 17.3% involved admission for medical care, and 2.3% involved admission for psychiatric treatment; 8.5% refused referral, and 19.0% were lost to follow-up.

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

	<6 Years	6-12 Years	13-17 Years	>17 Years	Unknown	Total
No effect	404,125 (58.4)	21,974 (38.2)	11,937 (25.2)	52,736 (18.5)	3,935 (23.0)	494,707 (45.0)
Minor effect	90,917 (13.1)	17,337 (30.1)	18,670 (39.4)	118,737 (41.8)	5,325 (31.2)	250,986 (22.8)
Moderate effect	4,616 (0.7)	1,275 (2.2)	3,196 (6.8)	20,271 (7.1)	579 (3.4)	29,937 (2.7)
Major effect	627 (0.1)	95 (0.2)	321 (0.7)	2,981 (1.0)	77 (0.5)	4,101 (0.4)
Death	15 (0.0)	2 (0.0)	25 (0.1)	363 (0.1)	1 (0.0)	406 (0.0)
Unknown, nontoxic†	159,997 (23.1)	11,946 (20.8)	5,376 (11.4)	35,819 (12.6)	2,452 (14.3)	215,590 (19.6)
Unknown, potentially toxic‡	20,425 (2.9)	3,196 (5.6)	6,648 (14.0)	40,752 (14.3)	3,939 (23.0)	74,960 (6.8)
Unrelated effect	9,446 (1.4)	1,523 (2.6)	1,001 (2.1)	11,630 (4.1)	522 (3.1)	24,122 (2.2)
Unknown	2,414 (0.3)	187 (0.3)	161 (0.3)	1,063 (0.4)	260 (1.5)	4,085 (0.4)
TOTAL	692,582 (63.0)	57,535 (5.2)	47,335 (4.3)	284,352 (25.9)	17,090 (1.6)	1,098,894 (100.0)

* 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.

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

	Accidental	Intentional	Adverse Reaction	Unknown	Total
No effect	474,546 (43.2)	17,082 (1.6)	1,607 (0.1)	1,472 (0.1)	494,707 (45.0)
Minor effect	208,248 (19.0)	33,261 (3.0)	7,726 (0.7)	1,751 (0.2)	250,986 (22.8)
Moderate effect	18,288 (1.7)	10,112 (0.9)	1,044 (0.1)	493 (0.0)	29,937 (2.7)
Major effect	1,621 (0.1)	2,299 (0.2)	75 (0.0)	106 (0.0)	4,101 (0.4)
Death	59 (0.0)	313 (0.0)	4 (0.0)	30 (0.0)	406 (0.0)
Unknown, nontoxic	206,647 (18.8)	5,754 (0.5)	1,820 (0.2)	1,369 (0.1)	215,590 (19.6)
Unknown, potentially toxic	45,921 (4.2)	25,709 (2.3)	1,667 (0.2)	1,663 (0.2)	74,960 (6.8)
Unrelated effect	21,257 (1.9)	1,241 (0.1)	1,268 (0.1)	356 (0.0)	24,122 (2.2)
Unknown	3,622 (0.3)	360 (0.0)	43 (0.0)	60 (0.0)	4,085 (0.4)
TOTAL	980,209 (89.2)	96,131 (8.7)	15,254 (1.4)	7,300 (0.7)	1,098,894 (100.0)

* Data in parentheses are percentages.

Table 11 shows the medical outcome of the human poison exposure victims distributed by age, emphasizing the more severe outcome observed in the older age groups. Table 12 compares medical outcome and reason for exposure, emphasizing the greater frequency of serious outcome in intentional exposures.

Table 13 outlines the use of initial decontamination

TABLE 13. Therapy Provided in Human Poison Exposure Cases

	No.
Initial decontamination	
Dilution	423,744
Irrigation/washing	201,583
Ipecac syrup	145,949
Activated charcoal	56,619
Cathartic	47,013
Gastric lavage	17,639
Other emetic	2,537
Measures to enhance elimination	
Urinary alkalinization (with or without diuresis)	2,347
Forced diuresis	300
Hemodialysis	297
Hemoperfusion (charcoal)	99
Urinary acidification (with or without diuresis)	75
Peritoneal dialysis	62
Exchange transfusion	33
Hemoperfusion (resin)	23
Specific antidote administration	
N-acetylcysteine (PO)	3,009
Naloxone	3,209
Atropine	529
Deferoxamine	506
Ethanol	453
Physostigmine	375
Antivenin/antitoxin	349
Hydroxocobalamin	202
N-acetylcysteine (IV)	153
Pralidoxime (2-Pam)	151
Dimercaprol (BAL)	147
Penicillamine	130
Fab fragments	105
Pyridoxine	103
Methylene blue	90
Cyanide antidote kit	84
EDTA	84

procedures, specific antidotes, and measures to enhance elimination in the treatment of patients reported in this data base. These figures must be interpreted as minimum frequencies because of the limitations of telephone data gathering. Ipecac syrup was administered in 13.3% of cases. In children, ipecac syrup was most often administered outside a health care facility (Table 14).

A summary of the 406 fatal exposures is presented in Table 15. Each of these cases was abstracted and/or verified by the reporting center, with only those fatalities deemed "probably" or "undoubtedly" related to the exposure included in this compendium. Confirmation of the cause of death by a postmortem report was obtained in 38.9% of cases. The highest blood level of implicated substances is provided where available to the reporting poison center. Cases with prehospital cardiorespiratory arrests are indicated. Abstracts are provided in the appendix for interesting or unusual cases.

Tables 16 and 17 provide comprehensive demographic data on patient age, reason for exposure, medical outcome, and use of a health care facility for all 1,098,894 exposures, presented by category. Table 16 focuses on nonpharmaceuticals; Table 17 presents drugs. Table 18 presents the most common categories listed by frequency of exposure. Table 19 lists the substance categories with the largest number of reported deaths.

A review of the fatality data demonstrates that 29.6% of the patients experienced cardiorespiratory arrest prior to arrival in the emergency department. Of the 49 patients who intentionally inhaled or injected toxins, 34 (69.4%) sustained a prehospital cardiac arrest. The 10 patients who ingested cyanide also experienced a higher incidence of prehospital cardiac arrest (70%); of the remaining three cases, two were agonal on presentation. In 19 ethylene glycol or methanol fatalities, diagnosis was substantially delayed in seven (36.8%), and two never received ethanol-blocking therapy.

(Text continues on page 435.)

TABLE 14. Ipecac Administration by Site and Age*

Age (yr)	Non-health Care Facility	Health Care Facility	Unknown	Total
<1	3,841 (2.6)	1,653 (1.1)	4 (0.0)	5,507 (3.8)
1	18,929 (13.0)	7,541 (5.2)	28 (0.0)	26,526 (18.2)
2	25,921 (17.8)	11,941 (8.2)	56 (0.0)	37,951 (26.0)
3	13,653 (9.4)	5,949 (4.1)	36 (0.0)	19,662 (13.5)
4	4,907 (3.4)	2,100 (1.4)	14 (0.0)	7,026 (4.8)
5	1,996 (1.4)	815 (0.6)	3 (0.0)	2,818 (1.9)
6-12	3,006 (2.1)	1,617 (1.1)	7 (0.0)	4,636 (3.2)
13-17	967 (0.7)	8,199 (5.6)	9 (0.0)	9,182 (6.3)
>17	5,208 (3.6)	22,404 (15.4)	31 (0.0)	27,667 (19.0)
Unknown	2,521 (1.7)	2,412 (1.7)	10 (0.0)	4,974 (3.4)
TOTAL	80,949 (55.5)	64,631 (44.3)	198 (0.1)	145,949 (100.0)

* Data in parentheses are percentages.

TABLE 15. Summary of Fatal Exposures

Case	Age (yr)	Substances	Route of Exposure	Reason	Blood Levels**
Adhesives					
1*	29	Glue: methylene chloride, trichloroethane, diethyl ether	Inhalation	Acc occup	
Alcohols					
2*	51	Ethanol	Ingestion	Int unknown	511 mg/dl
3†	60	Isopropanol	Parenteral	Acc misuse	
4*	17	Methanol	Ingestion	Acc misuse	40 mg/dl, 36 hr
5	19	Methanol	Ingestion	Int unknown	170 mg/dl
6	24	Methanol	Ingestion	Int suicide	46 mg/dl
7‡	29	Methanol, methylene chloride, toluene	Ing and inh	Int suicide	109 mg/dl
8*†	48	Methanol	Ingestion	Int unknown	585 mg/dl
9	55	Methanol	Ingestion	Int unknown	
<i>See also cases 13, 78, 95, 124, 127, 150, 172, 193, 198, 200, 236, 237, 238, 249, 290, 294, 304, 324, 327, 333, 347, 357, 387, 388, 389, 390 (ethanol).</i>					
Arts and crafts, and office supplies					
Typewriter correction fluids (TCF)					
10	15	Trichloroethane	Inhalation	Int abuse	
11*	16	Trichloroethane/ethylene	Inhalation	Int abuse	
12*‡	18	Trichloroethane	Inhalation	Int abuse	
13‡	32	TCF (unknown ingredients) paint ethanol	Inhalation Ingestion	Int abuse	140 mg/dl
Automotive/aircraft/boat products					
14	26	Ethylene glycol antifreeze	Ingestion	Int suicide	
15	28	Ethylene glycol antifreeze	Ingestion	Int unknown	
16	37	Ethylene glycol antifreeze	Ingestion	Int suicide	525 mg/dl
17	44	Ethylene glycol antifreeze	Ingestion	Int suicide	584 mg/dl
18	24	Methanol gasoline antifreeze	Ingestion	Int unknown	
19	27	Methanol	Ingestion	Unknown	200 mg/dl
20	28	Methanol windshield wash	Ingestion	Int suicide	233 mg/dl
21	55	Methanol windshield wash	Ingestion	Int unknown	135 mg/dl, >24 hr
22*	55	Methanol gasoline antifreeze	Ingestion	Int suicide	203 mg/dl
Bites and envenomations					
23†	69	Brown recluse spider bite	Bite/sting	Acc gen	
Chemicals					
24	25	Cyanide	Ingestion	Int suicide	2.5 mg/L
25*†	26	Cyanide	Ingestion	Int suicide	
26*	27	Cyanide	Ingestion	Int suicide	
27†	28	Cyanide	Ingestion	Int suicide	
28*	37	Cyanide	Inhalation	Int suicide	
29*	40	Cyanide (capsule tampering)	Ingestion	Int misuse	

TABLE 15. Continued

Case	Age (yr)	Substances	Route of Exposure	Reason	Blood Levels**
30*	41	Cyanide	Inhalation	Int suicide	
31*	47	Cyanide	Ingestion	Int suicide	
32*	48	Cyanide	Ingestion	Acc unknown	
33	52	Cyanide (capsule tampering)	Ingestion	Int misuse	
34†	29	Ethylene glycol	Ingestion	Int suicide	154 mg/dl, 18 hr
35†	32	Ethylene glycol	Ingestion	Unknown	
36‡	62	Ethylene glycol	Ingestion	Int unknown	
37	78	Ethylene glycol	Ingestion	Unknown	
38	31	Hydrochloric acid	Ingestion	Int suicide	
39†	22	Hydrofluoric acid	Dermal	Acc occup	
40†	33	Hydrofluoric acid	Ingestion	Int suicide	720 µg/ml§
41	19	Methylene chloride	Ing, inh, derm	Unknown	
42	>17	Methemoglobin producer	Unknown	Int unknown	88.0%
43*†	58	Strychnine (<i>nux vomica</i>)	Ingestion	Acc misuse	
44	68	Sodium hydroxide (lye)	Ingestion	Unknown	
See also case 7 (<i>methylene chloride</i>).					
Cleaning substances					
45	45	Alkaline drain opener	Ingestion	Int suicide	
46	73	Alkaline drain opener	Ingestion	Int suicide	
47	74	Ammonia (household)	Ingestion	Int suicide	
48†	67	Brass cleaner (chromic acid, sodium bisulfate/bifluoride)	Ingestion	Int suicide	
49	67	Cationic cleaner	Ingestion	Acc unknown	
50	84	Cationic cleaner	Ingestion	Acc gen	
51	85	Cationic cleaner—industrial	Ingestion	Acc gen	
52	3 mo	Spot remover (naphtha)	Ingestion	Int abuse	
53	39	Toilet bowl cleaner (HCl)	Ingestion	Int suicide	
54	40	Toilet bowl cleaner (HCl)	Ingestion	Acc gen	
55†	43	Toilet bowl cleaner (HCl)	Ingestion	Int suicide	
56	56	Toilet bowl cleaner (HCl)	Ingestion	Int suicide	
57†	59	Toilet bowl cleaner (HCl)	Ingestion	Int suicide	
58	>17	Toilet bowl cleaner (HCl)	Ingestion	Acc gen	
Cosmetics/personal care products					
See cases 104 (<i>aftershave, ethanol</i>), 123 (<i>acetone, nail polish remover</i>).					
Fumes, gases, and vapors					
59*	>17	Anhydrous ammonia	Inhalation	Acc occup	
60*	6 mo	Carbon monoxide/burns/smoke inhalation	Inhalation	Acc environ	31.5%
61*	14	Carbon monoxide	Inhalation	Int suicide	35.9%
62*	17	Carbon monoxide	Inhalation	Acc environ	
63*	18	Carbon monoxide	Inhalation	Acc environ	
64*	20	Carbon monoxide	Inhalation	Int suicide	82.2%
65*	21	Carbon monoxide	Inhalation	Int suicide	58.0%
66*	24	Carbon monoxide	Inhalation	Int suicide	
67*†	25	Carbon monoxide	Inhalation	Acc environ	44.0%, 1 hr
68*	25	Carbon monoxide/smoke inh	Inhalation	Acc environ	
69	26	Carbon monoxide/smoke inh	Inhalation	Acc environ	
70	28	Carbon monoxide	Inhalation	Acc environ	
71*	28	Carbon monoxide	Inhalation	Int suicide	52.4%, 2–3 hr
72*	36	Carbon monoxide	Inhalation	Int suicide	44.4%
73*	37	Carbon monoxide	Inhalation	Acc environ	54.8%
74*	53	Carbon monoxide	Inhalation	Int suicide	
75‡	54	Carbon monoxide	Inhalation	Acc environ	16.3%
76*	85	Carbon monoxide	Inhalation	Int suicide	
77*	>17	Carbon monoxide	Inhalation	Acc environ	
78*	20	Carbon monoxide/smoke inh ethanol	Inhalation	Acc gen	
79*†	29	Hydrogen sulfide	Inhalation	Acc occup	
80*	>17	Hydrogen sulfide	Inhalation	Acc environ	
81*	>17	Methane	Inhalation	Unknown	
Fungicides (nonmedicinal)					
82†	30	Calcium polysulfide/hydroxypolyoxyethylene	Ingestion	Int suicide	

TABLE 15. Continued

Case	Age (yr)	Substances	Route of Exposure	Reason	Blood Levels**
Heavy metals					
83†‡	35	Copper	Ingestion	Int misuse	
<i>See also case 150 (lead).</i>					
Herbicides					
84	40	2,4-D	Ingestion	Int suicide	
85†	30	Paraquat	Ingestion	Int suicide	
86	52	Paraquat	Ingestion	Int suicide	
87†	64	Paraquat	Ingestion	Int suicide	
Hydrocarbons					
88†	79	Carbon tetrachloride	Ingestion	Int suicide	
89*	15	Freon	Inhalation	Acc misuse	
90*	23	Freon	Inhalation	Int suicide	
91*	15	Isobutane	Inhalation	Int unknown	
92†	12	Lamp oil	Ingestion	Acc gen	
93*†	13 mo	Mineral spirits	Ingestion	Acc gen	
94	27	Toluene	Inhalation	Int abuse	
95*	15	Trichloroethane ethanol	Inhalation Ingestion	Int abuse	
96	53	Turpentine	Ingestion	Unknown	
<i>See also cases 194 (lighter fluid/naphtha); 7 (toluene).</i>					
Insecticides and pesticides					
97	70	Arsenic pesticide	Ingestion	Unknown	
98†	2	Aldicarb	Unknown	Acc gen	
99*	41	Diazinon	Ingestion	Int suicide	
100	57	Diazinon, malathion	Ingestion	Int suicide	
101†	41	Lindane	Ingestion	Unknown	1.3 µg/ml
102†	16	Methyl bromide	Inhalation	Acc environ	
103	6	Organophosphate	Inhal + derm	Acc environ	
104	59	Phosphothioate aftershave (ethanol)	Ingestion	Int misuse	
105	24	Propoxur/pyrethrins/piperonyl butoxide combo	Paren + ing	Int suicide	
106†	13 mo	Sodium fluoride roach powder	Ing + dermal	Acc gen	
Paints and stripping agents					
107†	62	Combo with methanol/ Acetone/ Isopropanol/ Methylene chloride	Ingestion	Int suicide	104 mg/dl, 2 hr 114 mg/dl, 2 hr 101 mg/dl, 2 hr
<i>See also case 13 (paint).</i>					
Plants					
108*	26	Ambrosia artemisiifolia cow parsnip	Ingestion	Int unknown	
109†	>17	<i>Marah oreganus</i> seeds (tea)	Ingestion	Int abuse	
Radioisotopes					
110*	32	Argon	Inhalation	Acc occup	
Rodenticides					
111†‡	35	Brodifacoum	Ingestion	Int abuse	
112*†	18	Strychnine rodenticide	Ingestion	Int suicide	
113*	>17	Strychnine rodenticide	Ingestion	Int suicide	
<i>See also case 402 (unknown rodenticide).</i>					
Analgesics					
114	20	Acetaminophen (adult)	Ingestion	Int suicide	45 µg/ml, 24 hr
115†	20	Acetaminophen (adult)	Ingestion	Int suicide	67 µg/ml, >40 hr
116	24	Acetaminophen (adult)	Ingestion	Int unknown	175 µg/ml, 4 hr
117†‡	25	Acetaminophen (adult)	Ingestion	Int misuse	22 µg/ml
118	25	Acetaminophen (adult)	Ingestion	Int suicide	172 µg/ml, 5 hr
119†	29	Acetaminophen (adult)	Ingestion	Int suicide	175 µg/ml, 13 hr
120	63	Acetaminophen (adult)	Ingestion	Int suicide	65 µg/ml
121†	65	Acetaminophen	Ingestion	Unknown	739 µg/ml, 7 hr
122	>17	Acetaminophen (adult) aspirin	Ingestion	Int suicide	>590 µg/ml, 20 hr 10-20 mg/dl, 20 hr

TABLE 15. Continued

Case	Age (yr)	Substances	Route of Exposure	Reason	Blood Levels**
123†	42	Acetaminophen (adult) acetone (nail polish remover)	Ingestion	Int suicide	3 µg/ml
124‡	60	Acetaminophen (adult) ethanol	Ingestion	Int unknown	45 µg/ml [¶]
125	41	Acetaminophen sleep-aid (diphenhydramine) temazepam	Ingestion	Int unknown	300 µg/ml, 12 hr
126	46	Acetaminophen/codeine	Ingestion	Int suicide	70 µg/ml, >12 hr [¶]
127*	23	Acetaminophen/hydrocodone ethanol	Ingestion	Int suicide	60 µg/ml, ≤4 hr [¶]
128†	65	Acetaminophen/oxycodone	Ingestion	Int suicide	1,000 µg/ml, 6–12 hr [¶]
129*	19	Acetaminophen/propoxyphene	Ingestion	Int abuse	42 µg/ml ^{§¶}
				Propoxyphene	2.8 µg/ml [§]
				Norpropoxyphene	13.5 µg/ml [§]
130‡	26	Acetaminophen/propoxyphene	Ingestion	Int suicide	216 µg/ml [¶]
131*	39	Acetaminophen/propoxyphene	Unknown	Unknown	
132‡	42	Acetaminophen/propoxyphene acetaminophen (adult)	Ingestion	Int misuse	56 µg/ml [¶]
133	59	Acetaminophen/propoxyphene	Ingestion	Int suicide	491 µg/ml [¶]
134	66	Acetaminophen/propoxyphene	Ingestion	Int suicide	9 µg/ml [¶]
				Norpropoxyphene	315 ng/ml
				Codeine	0.2 µg/ml
135	14	Acetaminophen/codeine Aspirin (adult)	Ingestion	Int suicide	90 mg/dl, 14 hr
136	24	Aspirin (adult)	Ingestion	Unknown	125 mg/dl
137	32	Aspirin	Ingestion	Int suicide	111 mg/dl, 3 hr
138	44	Aspirin	Ingestion	Int suicide	125 mg/dl
139	48	Aspirin (adult)	Ingestion	Int suicide	144 mg/dl
140	51	Aspirin	Ingestion	Int suicide	131 mg/dl
141	54	Aspirin	Ingestion	Int suicide	85 mg/dl, 11 hr
142	70	Aspirin (adult)	Ingestion	Int suicide	
143	71	Aspirin	Ingestion	Int suicide	79 mg/dl
144	72	Aspirin (adult)	Ingestion	Int suicide	62 mg/dl
145‡	63	Aspirin acetaminophen (adult)	Ingestion	Int suicide	21 mg/dl 92 µg/ml
146‡	37	Aspirin acetaminophen/oxycodone	Ingestion	Int misuse	65 mg/dl <8 µg/ml [¶]
147‡	37	Aspirin cimetidine	Ingestion	Int misuse	90 mg/dl
148	20	Aspirin diphenhydramine	Ingestion	Int suicide	100 mg/dl
149	22	Aspirin (adult) diphenhydramine	Ingestion	Int unknown	100 mg/dl
150	54	Aspirin (adult) ethanol	Ingestion	Int suicide	130 mg/dl, 12–15 hr 170 mg/dl, 12–15 hr
151	66	Aspirin (adult) lead (buckshot)	Ingestion	Int suicide	59 mg/dl
152	64	Aspirin (adult) loxapine	Ingestion	Int suicide	90 mg/dl
153†	23	Aspirin methylene blue Rush (isobutyl nitrate)	Ing + paren	Int unknown	115 mg/dl
154*	30	Aspirin/butalbital/codeine	Ingestion	Int unknown	
155	25	Aspirin/carisiprodol	Ingestion	Int suicide	
156	57	Codeine diazepam acetaminophen	Ingestion	Unknown	0.63 µg/ml [§] 0.78 µg/ml ^{§#} 11 µg/ml [§]
157†	57	Colchicine	Ingestion	Int suicide	
158*	62	Colchicine	Ingestion	Adv rxn	
159†	78	Colchicine	Ingestion	Acc misuse	
160*	>17	Fentanyl diazepam	Parenteral	Int suicide	
161	>17	Indomethacin	Ingestion	Int unknown	
162*	34	Methadone	Ingestion	Int abuse	0.22 µg/ml [§]

TABLE 15. Continued

Case	Age (yr)	Substances	Route of Exposure	Reason	Blood Levels**
163*	40	Methadone	Ingestion	Int suicide	14 µg/ml metab: 8 µg/ml
164*	39	Methadone	Ingestion	Int suicide	
		triazolam			
165*	>17	Morphine sympathomimetic	Parenteral	Int abuse	
166	Unk	Opiate	Parenteral	Int abuse	
167*	51	Pentazocine	Ingestion	Int suicide	12.5 µg/ml
168*	15	Propoxyphene	Ingestion	Int suicide	4,500 ng/ml
169*	29	Propoxyphene	Ingestion	Int suicide	
170	28	Propoxyphene cocaine dextromethorphan	Ingestion	Int abuse	
171†	37	Propoxyphene	Ingestion	Int abuse	1,021 ng/ml
				Norpropoxyphene	2,786 ng/ml
		diazepam			1.67 µg/ml
				Nordiazepam	62.9 µg/ml
172*	>17	Propoxyphene ethanol	Ingestion	Int suicide	
173	33	Sufentanil	Parenteral	Int suicide	
<i>See also cases 190 (acetaminophen); 342, 343, 383 (acetaminophen/codeine); 192, 233 (acetaminophen/propoxyphene); 190, 327 (aspirin); 301 (aspirin/dihydrocodone); 203, 290 (aspirin/oxycodone); 313 (aspirin/propoxyphene); 340, 391 (codeine); 197 (colchicine); 315, 350 (diflunisal); 245, 302 (ibuprofen); 227 (indomethacin); 315 (meperidine); 198 (morphine); 193, 358 (opiate); 382 (propoxyphene); 330 (salsalate).</i>					
Anticholinergics					
174†	31	Benztrapine amphetamine	Ingestion	Int unknown	
<i>See also cases 196, 250 (benztropine).</i>					
Anticonvulsants					
175	2	Carbamazepine	Ingestion	Acc gen	19 µg/ml§
176†	19	Carbamazepine	Ingestion	Int suicide	120 µg/ml, 4 hr
177†	34	Carbamazepine	Ingestion	Acc unknown	55 µg/ml
178	38	Carbamazepine amitriptyline	Ingestion	Int suicide	
179†	3	Phenytoin	Ingestion	Acc gen	50 µg/ml, <4 hr
Antidepressants					
180	17	Amitriptyline	Ingestion	Int suicide	
181	29	Amitriptyline	Ingestion	Int suicide	203 ng/ml
182	32	Amitriptyline	Ingestion	Int suicide	
183	46	Amitriptyline	Ingestion	Int suicide	1,311 ng/ml
				Nortriptyline	625 ng/ml
184	47	Amitriptyline	Ingestion	Int suicide	
185	48	Amitriptyline	Ingestion	Int suicide	
186*	48	Amitriptyline	Ingestion	Int unknown	
187‡	59	Amitriptyline	Ingestion	Int suicide	1,582 ng/ml#
188*	59	Amitriptyline	Ingestion	Int suicide	3,389 ng/ml
				Nortriptyline	533 ng/ml
189*	68	Amitriptyline	Ingestion	Int suicide	1,200 ng/ml§#
190	67	Amitriptyline acetaminophen (adult) aspirin (adult)	Ingestion	Int suicide	103 µg/ml, 12 hr 60 mg/dl, 12 hr
191*	40	Amitriptyline alprazolam	Ingestion	Int suicide	
192*	42	Amitriptyline alprazolam	Ingestion	Int suicide	
		acetaminophen/propoxyphene			
193	34	Amitriptyline ethanol opiate	Ingestion	Int suicide	180 mg/dl, 3-5 hr
194	18	Amitriptyline lighter fluid/naphtha flurazepam	Ingestion	Int suicide	
195	65	Amitriptyline glutethimide	Ingestion	Int suicide	

TABLE 15. Continued

Case	Age (yr)	Substances	Route of Exposure	Reason	Blood Levels**
196*	33	Amitriptyline haloperidol benztropine	Ingestion	Int suicide	
197	30	Amitriptyline lithium colchicine	Ingestion	Int suicide	4.0 mEq/L
198*	51	Amitriptyline morphine ethanol	Ingestion	Unknown	
199	46	Amitriptyline nortriptyline	Ingestion	Int suicide	28,000 ng/ml 19,000 ng/ml
200	61	Amitriptyline perphenazine ethanol	Ingestion	Int suicide	
201	28	Amitriptyline propranolol	Ingestion	Int suicide	
202	18	Amitriptyline theophylline (long-acting)	Ingestion	Int suicide	
203	74	Amitriptyline/perphenazine aspirin/oxycodone	Ingestion	Int suicide	390 ng/ml#
204	50	Amitriptyline/perphenazine diazepam	Ingestion	Int suicide	
205†	59	Amitriptyline/perphenazine triazolam	Ingestion	Int suicide	
206†	18	Amoxapine	Ingestion	Int suicide	
207	36	Amoxapine	Ingestion	Int suicide	
208	37	Amoxapine	Ingestion	Int suicide	
209†	60	Amoxapine	Ingestion	Int suicide	
210	40	Amoxapine perphenazine	Ingestion	Int suicide	
211	14	Desipramine	Ingestion	Int suicide	4,200 ng/ml§
212	17	Desipramine	Ingestion	Int suicide	1,334 ng/ml, >4 hr
213	17	Desipramine	Ingestion	Int suicide	2,518 ng/ml
214	18	Desipramine	Ingestion	Int suicide	
215	25	Desipramine	Ingestion	Int suicide	
216*	26	Desipramine	Ingestion	Unknown	
217*	31	Desipramine	Ingestion	Int suicide	1,145 ng/ml
218	37	Desipramine	Ingestion	Int misuse	
219	38	Desipramine	Ingestion	Int suicide	
220	40	Desipramine	Ingestion	Int suicide	
221	43	Desipramine	Ingestion	Int suicide	1,936 ng/ml
222	60	Desipramine	Ingestion	Int suicide	
223	66	Desipramine	Ingestion	Int suicide	1,960 ng/ml
224	47	Desipramine alprazolam	Ingestion	Int suicide	
225*	31	Desipramine amphetamine	Ingestion	Int unknown	
226	20	Desipramine imipramine	Ingestion	Int suicide	
227*	22	Desipramine indomethacin	Ingestion	Int suicide	
228*	16	Desipramine thiothixene pindolol	Ingestion	Int suicide	3,885 ng/ml
229	24	Doxepin	Ingestion	Int suicide	
230	34	Doxepin	Ingestion	Int suicide	9,900 ng/ml§ Nordoxepin 600 ng/ml§
231	36	Doxepin	Ingestion	Int suicide	3,413 ng/ml Nordoxepin 243 ng/ml
232	73	Doxepin	Ingestion	Int suicide	
233	50	Doxepin acetaminophen/propoxyphene lorazepam	Ingestion	Int suicide	

TABLE 15. Continued

Case	Age (yr)	Substances	Route of Exposure	Reason	Blood Levels**
234	43	Doxepin desipramine	Ingestion	Int suicide	
235	35	Doxepin	Ingestion	Int suicide	8,500 ng/ml§ 4.1 µg/ml§
236*	27	diphenhydramine Doxepin	Ingestion	Int suicide	1,300 ng/ml
237*	30	ethanol Doxepin	Ingestion	Int suicide	1,400 ng/ml§ Nordoxepin 500 ng/ml§ 300 mg/dl§
238	38	ethanol Doxepin metoprolol ethanol	Ingestion	Int suicide	233 mg/dl
239*	30	Doxepin phenobarbital	Ingestion	Int suicide	75.3 µg/ml
240*	31	Imipramine	Ingestion	Int suicide	
241	34	Imipramine	Ingestion	Int suicide	4,210 ng/ml§
242*	36	Imipramine	Ingestion	Int suicide	
243*	45	Imipramine	Ingestion	Int suicide	
244‡	80	Imipramine	Ingestion	Acc misuse	1,078 ng/ml
245	14	Imipramine	Ingestion	Int suicide	
246	25	alprazolam ibuprofen Imipramine chloral hydrate loxapine	Ingestion	Int suicide	
247	20	Imipramine clorazepate	Ingestion	Int suicide	
248*	50	Imipramine diazepam	Ingestion	Int suicide	
249	33	Imipramine ethanol	Ingestion	Int suicide	
250	19	Imipramine	Ingestion	Int suicide	5,210 ng/ml§ Desipramine 4,040 ng/ml§
251	53	perphenazine benztropine Imipramine thioridazine mesoridazine	Ingestion	Int suicide	
252†	64	Lithium	Ingestion	Int suicide	8.5 mEq/L
253‡	70	Lithium	Ingestion	Unknown	2.7 mEq/L
254	38	Loxapine	Ingestion	Int suicide	
255	49	Loxapine	Ingestion	Unknown	
256	58	Loxapine	Ingestion	Int suicide	
257	52	Maprotiline	Ingestion	Int suicide	
258	64	amitriptyline/perphenazine Nortriptyline desipramine doxepin	Ingestion	Int suicide	
259	22	Phenelzine	Ingestion	Int suicide	
260†	24	Phenelzine	Ingestion	Int suicide	
261†	39	Phenelzine	Ingestion	Int suicide	140 ng/ml§
262	54	Phenelzine alprazolam	Ingestion	Int suicide	
263†	44	Tranlycypromine	Ingestion	Int suicide	
264	30	Tranlycypromine l-thyroxine flurazepam	Ingestion	Int suicide	
265†	67	Trazodone digoxin	Ingestion	Int suicide	5,800 ng/ml 2.0 ng/ml
266	66	Unk cyclic antidepressant	Ingestion	Unknown	

See also cases 178, 316 (amitriptyline); 314 (amitriptyline/perphenazine); 348 (desipramine); 325 (lithium); 152 (loxapine); 338 (maprotiline); 293 (nortriptyline); 310 (trazodone).

TABLE 15. Continued

Case	Age (yr)	Substances	Route of Exposure	Reason	Blood Levels**
Antihistamines					
267†	15	Diphenhydramine	Ingestion	Int suicide	9.7 µg/ml§
<i>See also cases 147 (cimetidine); 148, 149, 235, 355, 394 (diphenhydramine).</i>					
Antimicrobials					
268	1 mo	Chloramphenicol (100-fold dosing error)	Parenteral	Acc misuse	
269*†	12 mo	Chloroquine	Ingestion	Acc gen	
Antineoplastics					
270	24	Methotrexate (3 grams)	Parenteral	Acc misuse	
Asthma therapies					
271†‡	6 mo	Theophylline	Ingestion	Acc misuse	40 µg/ml
272‡	2	Theophylline	Ingestion	Acc misuse	41 µg/ml
273†	15	Theophylline (long-acting)	Ingestion	Int suicide	190 µg/ml
274†	17	Theophylline (long-acting)	Ingestion	Int suicide	117 µg/ml
275	28	Theophylline	Ingestion	Int suicide	108 µg/ml, 4 hr
276	44	Theophylline	Ingestion	Int suicide	160 µg/ml, 1-3 hr
277	62	Theophylline	Ingestion	Int suicide	50 µg/ml, 2 hr
278‡	65	Theophylline (long-acting)	Ingestion	Acc misuse	60 µg/ml
279‡	70	Theophylline (long-acting)	Ingestion	Unknown	53 µg/ml
280‡	70	Theophylline (long-acting)	Ingestion	Acc gen	40 µg/ml
281‡	71	Theophylline	Ingestion	Int unknown	120 µg/ml
282‡	72	Theophylline	Parenteral	Acc misuse	65 µg/ml
283‡	76	Theophylline	Ingestion	Unknown	72 µg/ml
284‡	77	Theophylline (long-acting)	Ingestion	Acc gen	36 µg/ml
285‡	81	Theophylline (long-acting)	Ingestion	Acc misuse	64 µg/ml
286‡	83	Theophylline	Ingestion	Acc misuse	40 µg/ml
287	73	Theophylline (long-acting) digoxin	Ingestion	Int suicide	82 µg/ml 5.6 ng/ml
288†‡	72	Theophylline ethchlorvynol	Ingestion	Int misuse	40 µg/ml
289‡	51	Theophylline (long-acting) phenylpropanolamine	Ingestion	Acc gen	57 µg/ml 4.7 µg/ml§
<i>See also cases 202, 306 (theophylline).</i>					
Cardiovascular drugs					
290*	55	Acebutolol aspirin/oxycodone ethanol	Ingestion	Int suicide	
291†	65	Amiodarone	Ingestion	Unknown	14 µg/ml
292	15	Atenolol diltiazem	Ingestion	Int suicide	
293*	27	Captopril nortriptyline flurazepam	Ingestion	Int suicide	1,400 ng/ml 90 ng/ml
294†	63	Captopril ethanol	Ingestion	Int suicide	238 mg/dl§
295	4	Digoxin	Ingestion	Acc gen	
296†	54	Digoxin	Ingestion	Int suicide	30.8 ng/ml, 2 hr
297‡	70	Digoxin	Ingestion	Acc misuse	5 ng/ml
298	71	Digoxin	Ingestion	Acc unknown	3.4 ng/ml
299†	79	Digoxin	Ingestion	Int suicide	24.9 ng/ml
300‡	91	Digoxin	Ingestion	Int unknown	3.4 ng/ml
301	34	Digoxin aspirin/dihydrocodone	Ingestion	Int suicide	6 ng/ml, 10 hr
302	70	Digoxin ibuprofen	Ingestion	Int suicide	9.8 ng/ml
303†	78	Digoxin methyldopa	Ingestion	Unknown	3.9 ng/ml
304†	48	Digoxin metoprolol ethanol	Ingestion	Int suicide	10 ng/ml

TABLE 15. Continued

Case	Age (yr)	Substances	Route of Exposure	Reason	Blood Levels**
305	58	Digoxin propranolol diazepam	Ingestion	Int suicide	
306‡	65	Digoxin theophylline (long-acting)	Ingestion	Int misuse	12 ng/ml 35 µg/ml
307*	90	Digoxin triazolam	Ingestion	Int suicide	
308	16	Diltiazem	Ingestion	Int suicide	5,500 ng/ml
309	40	Disopyramide trifluoperazine	Ingestion	Int suicide	
310	25	Disopyramide metoprolol trazodone	Ingestion	Int suicide	
311*	29	Encainide	Ingestion	Int suicide	
312†	21	Flecainide propranolol	Ingestion	Int suicide	10.9 µg/ml§ 1.1 µg/ml§
313	68	Methyldopa aspirin/propoxyphene	Ingestion	Int suicide	
314	32	Metoprolol amitriptyline/perphenazine	Ingestion	Int suicide	24.3 µg/ml§ 510 ng/ml§ Nortriptyline 210 ng/ml§
315	42	amphetamine Metoprolol diflunisal meperidine	Ingestion	Int suicide	
316	64	Metoprolol amitriptyline prazosin	Ingestion	Int suicide	0.3 µg/ml§ 110 ng/ml§#
317	22	Nifedipine propranolol clonidine	Ingestion	Int suicide	
318	52	Procainamide nifedipine	Ingestion	Int suicide	
319‡	85	Procainamide	Ingestion	Acc misuse	59 µg/ml
320	86	Procainamide (10-fold error)	Parenteral	Acc misuse	
321	16	Propafenone	Ingestion	Int suicide	
322*	55	Propranolol	Ingestion	Int suicide	
323	70	Quinidine	Ingestion	Int suicide	
324	48	Verapamil atenolol ethanol	Ingestion	Int unknown	210 mg/dl
325	40	Verapamil lithium	Ingestion	Int suicide	1.3 mEq/L 1.1 mg/dl§
326	51	Verapamil	Ingestion	Int suicide	
<i>See also cases 265, 287 (digoxin); 238 (metoprolol); 228 (pindolol); 201 (propranolol).</i>					
Cold and cough preparations					
327	19	Tripolidine/pseudoephedrine aspirin ethanol	Ingestion	Unknown	85 mg/dl, 8 hr
<i>See also case 170 (dextromethorphan).</i>					
Electrolytes and minerals					
328†	18 mo	Ferrous sulfate	Ingestion	Acc gen	23,000 µg/dl
Gastrointestinal preparations					
329*	67	Dicyclomine	Ingestion	Unknown	
330†	40	Loperamide salsalate	Ingestion	Int suicide	90 mg/dl
331†	16	Sodium bicarbonate	Ingestion	Int misuse	
Hormones and hormone antagonists					
<i>See also cases 264, 362 (l-thyroxine).</i>					
Miscellaneous drugs					
<i>See also case 153 (methylene blue).</i>					

TABLE 15. Continued

Case	Age (yr)	Substances	Route of Exposure	Reason	Blood Levels**
Sedative/hypnotic and antipsychotic agents.					
332*	69	Alprazolam	Ingestion	Int suicide	
333	>17	Butabarbital ethanol	Ingestion	Int suicide	30 µg/ml
334	50	Chloral hydrate	Ingestion	Int suicide	
335	55	Chloral hydrate	Ingestion	Int suicide	
336	53	Chlorpromazine	Ingestion	Int suicide	
337	63	Chlorpromazine	Ingestion	Int suicide	
338*	35	Clonazepam chloral hydrate maprotiline	Ingestion	Int suicide	151 ng/ml
339*	>17	Ethchlorvynol diazepam	Ingestion	Int suicide	45 µg/ml
340	33	Ethchlorvynol glutethimide codeine	Ingestion	Int unknown	
341*	54	Ethinamate	Ingestion	Int suicide	
342*	18	Glutethimide acetaminophen/codeine	Ingestion	Int abuse	9 µg/ml§ 12 µg/ml§*
343*	32	Glutethimide acetaminophen/codeine	Ingestion	Int abuse	5.2 µg/ml 12 µg/ml*
344†	31	Haloperidol	Parenteral	Adv rxn	0.1 µg/ml
345	75	Mesoridazine	Ingestion	Int suicide	
346*	87	Pentobarbital	Ingestion	Int suicide	30.8 µg/ml
347	18	Pentobarbital ethanol	Ingestion	Int suicide	27 µg/ml
348	35	Perphenazine desipramine chlorpromazine	Ingestion	Int suicide	
349	39	Phenobarbital	Ingestion	Int suicide	91 µg/ml, 12–15 hr
350	37	Promethazine diflunisal	Ingestion	Int suicide	0.1 µg/ml§ 260 µg/ml§
351*	39	Temazepam	Ingestion	Int suicide	
352	59	Thioridazine	Ingestion	Int suicide	11 µg/L
353†‡	>17	Thioridazine	Ingestion	Adv rxn	
354‡	92	Thioridazine haloperidol	Ingestion	Adv rxn	
355	22	Thiothixene diphenhydramine	Ingestion	Int suicide	
356	58	Triazolam	Ingestion	Int suicide	
357*	20	Unknown barbiturate ethanol	Ingestion	Int suicide	
358	24	Sleep-aid/diphenhydramine opiate	Ingestion	Int suicide	
359*	31	Sleep-aid/diphenhydramine	Ingestion	Int suicide	
See also cases 191, 192, 224, 245, 262 (alprazolam); 246 (chloral hydrate); 247 (clorazepate); 156, 160, 171, 204, 248, 305, 382, 386 (diazepam); 288 (ethchlorvynol); 194, 264, 293 (flurazepam); 195, 383 (glutethimide); 196 (haloperidol); 233 (lorazepam); 403 (meprobamate); 251 (mesoridazine); 200, 210, 250 (perphenazine); 239 (phenobarbital); 125 (temazepam); 251 (thioridazine); 228 (thiothixene); 164, 205, 307 (triazolam); 309 (trifluoperazine); 125 (sleep-aid/diphenhydramine); 2 (unspecified benzodiazepine).					
Stimulants and street drugs					
360*	38	Amphetamines	Ingestion	Int unknown	
361†	1	Caffeine (diet aid)	Ingestion	Acc gen	161 mg/dl, >40 hr
362	15	Caffeine l-thyroxine	Ingestion	Int suicide	
363†	19	Cocaine	Ingestion	Int misuse	
364	20	Cocaine	Inhalation	Int abuse	
365	20	Cocaine	Parenteral	Int abuse	
366*	23	Cocaine	Ingestion	Unknown	24 µg/ml§
367*	23	Cocaine	Unknown	Int abuse	
368	25	Cocaine	Inhalation	Int abuse	
369	26	Cocaine	Parenteral	Int unknown	
370*	27	Cocaine	Inhalation	Int abuse	
371*	28	Cocaine	Unknown	Int abuse	
372	29	Cocaine	Ingestion	Int suicide	0.015 µg/ml§#
373*	29	Cocaine	Parenteral	Int Abuse	
374	30	Cocaine	Unknown	Int abuse	
375*	31	Cocaine	Parenteral	Int abuse	

TABLE 15. Continued

Case	Age (yr)	Substances	Route of Exposure	Reason	Blood Levels**
376*	35	Cocaine	Unknown	Unknown	
377*	36	Cocaine	Inhalation	Int abuse	
378*	49	Cocaine	Parenteral	Int abuse	16 µg/ml§
379*	50	Cocaine	Inhalation	Int abuse	
380*	58	Cocaine	Parenteral	Int abuse	6.2 µg/ml§
381*	28	Cocaine	Parenteral	Int abuse	
		amphetamine			
382*	33	Cocaine	Ing + paren	Int abuse	2.4 µg/ml§#
		propoxyphene			9.8 µg/ml§
				Norpropoxyphene	20.8 µg/ml§
				Nordiazepam	0.3 µg/ml§
		diazepam			
383	36	Cocaine	Ing + paren	Int unknown	
		glutethimide			13.4 mg/dl
		acetaminophen/codeine			85 µg/ml ^f
384	54	Cocaine	Parenteral	Int abuse	
		heroin			
385*	27	Heroin	Parenteral	Int abuse	
386†	25	Heroin	Ing + inhal	Int abuse	
		cocaine	+ parenteral		
		diazepam			
387*	29	Heroin	Paren + ing	Int abuse	160 ng/ml§#
		cocaine			
		ethanol			71 mg/dl
388*	26	Heroin	Paren + ing	Int abuse	
		ethanol			
		cocaine			
389*	27	Heroin	Paren + ing	Int abuse	160 ng/ml§#
		ethanol			100 mg/dl§
		marijuana			98 ng/ml§#
390*	31	Heroin	Paren + ing	Int abuse	
		ethanol			
391*	46	Heroin	Parenteral	Int abuse	870 ng/ml§#
		methamphetamine			
		codeine			
392	26	Methamphetamine	Unknown	Int unknown	
393*	47	Methamphetamine	Unknown	Int unknown	4.7 µg/ml§#
394	29	Methamphetamine	Ingestion	Int abuse	
		diphenhydramine			
395*	26	Methylphenidate	Parenteral	Int unknown	
396	38	Methylphenidate	Ingestion	Unknown	
397*	27	Phencyclidine	Unknown	Int abuse	
398	30	Phencyclidine	Ingestion	Int suicide	0.4 µg/ml§
399	21	Phencyclidine	Ingestion	Int abuse	
		cocaine			
400	29	Phencyclidine	Ingestion	Int unknown	
		cocaine			
401	33	Phencyclidine	Ingestion	Int abuse	
		cocaine			
402	25	Phencyclidine	Ingestion	Unk reason	
		rodenticide (unknown type)			
403*	29	Phenmetrazine	Parenteral	Int abuse	
		meprobamate			

See also cases 174, 225, 314 (amphetamines); 170 (cocaine); 153 (isobutyl nitrite, Rush); 289 (phenylpropanolamine); 165 (unspecified sympathomimetic).

Topicals

404*	4 mo	Merthiolate (?aspiration)	Ingestion	Unknown	
405†	52	Povidone iodine antiseptic	Other	Acc misuse	
406	20	Camphorated oil	Ingestion	Unknown	5 µg/ml§

* Prehospital cardiac arrest

† Abstract of case provided at conclusion of manuscript.

‡ Chronic exposure; all others are acute

§ Level obtained postmortem

^f Acetaminophen level

Level includes metabolite and parent compound

** Where multiple blood levels were available, the highest level obtained is reported. Time after exposure is unknown unless indicated.

TABLE 16. Demographic Profile of Exposure Cases by Generic Category of Substances and Products: Nonpharmaceuticals*

	Number of Exposures	Age (years)			Reason			Treated			Outcome			
		<6	6-17	>17	Acc	Int	Adv Rxn	HCF	None	Minor	Moderate	Major	Death	
														118
Adhesives/glues	11,747	6,642	1,490	3,336	11,581	118	11	2,120	4,757	3,577	238	9	1	
Alcohols														
Ethanol†	17,608	4,088	1,910	11,116	6,921	10,104	177	11,106	3,829	5,933	1,709	288	19	
Isopropanol†	4,245	3,005	278	912	3,920	285	7	926	2,267	959	89	14	0	
Methanol	975	370	102	480	898	61	4	500	435	309	27	11	6	
Rubbing alcohol														
Ethanol	1,561	1,239	82	226	1,489	48	3	228	974	249	11	2	0	
Isopropanol	5,798	4,546	309	880	5,415	362	0	1,102	3,092	1,041	99	15	1	
Unknown type	249	187	18	40	231	18	0	64	133	51	4	1	0	
Other/unknown	909	351	102	445	601	276	12	438	299	271	63	8	0	
TOTAL	31,345	13,786	2,801	14,099	19,475	11,154	203	14,364	11,029	8,813	2,002	339	26	
Arts/crafts/office supplies	18,809	15,060	2,367	1,204	18,542	192	8	875	10,341	1,334	62	6	4	
Auto/aircraft/boat products														
Glycols	1,822	556	148	1,080	1,739	72	1	672	742	564	57	21	4	
Hydrocarbons	998	608	78	295	992	5	0	184	460	353	18	2	0	
Methanol	706	345	57	293	655	47	1	375	377	166	25	9	5	
Other/unknown	999	449	105	425	979	16	1	316	329	447	41	5	0	
TOTAL	4,525	1,958	388	2,093	4,365	140	3	1,547	1,908	1,530	141	37	9	
Batteries														
Penlight/flashlight/dry cells	1,794	1,283	328	171	1,770	21	0	194	819	597	28	1	0	
Automotive	1,215	211	138	837	1,203	9	1	415	225	642	99	4	0	
Button batteries	1,221	893	166	149	1,202	17	0	801	798	110	14	4	0	
Other/unknown	257	155	47	51	253	1	1	50	114	91	4	0	0	
TOTAL	4,487	2,542	679	1,208	4,428	48	2	1,460	1,956	1,440	145	9	0	
Bites and envenomations														
Fish and coelenterate	1,076	64	238	750	1,058	3	13	369	51	662	159	2	0	
Insects														
Bee/wasp/hornet	11,597	2,960	2,602	5,861	11,380	2	174	2,099	759	7,953	529	24	0	
Scorpion	2,966	273	510	2,136	2,958	1	3	419	164	2,230	189	16	0	
Other	3,302	1,169	635	1,433	3,247	0	40	757	410	1,862	153	5	0	
Mammals	2,598	675	848	1,006	2,568	8	12	1,175	474	1,237	159	2	0	
Reptile—other/unknown	195	60	79	51	195	0	0	39	40	83	2	0	0	
Snakes—exotic	199	21	39	136	194	0	1	163	16	94	44	8	0	
Snakes indigenous to U.S.														
Rattlesnake	303	19	47	225	301	1	0	273	29	85	92	37	0	
Copperhead	44	6	11	24	43	0	0	41	2	19	14	0	0	
Coral	19	5	5	9	18	0	0	15	2	11	1	0	0	
Cottonmouth	37	2	8	26	37	0	0	34	3	18	8	1	0	
Nonpoisonous snake	611	84	323	196	601	1	4	129	153	335	4	0	0	
Unknown crotalid	6	1	2	3	6	0	0	5	2	1	3	0	0	
Unknown type of snake	1,002	101	351	526	995	0	4	496	223	482	50	1	0	

Spiders	1,537	219	199	1,085	1,532	2	0	487	293	750	209	12	0
Black widow	538	60	62	403	534	0	3	381	33	194	135	12	1
Brown recluse	10,729	2,447	1,787	6,303	10,625	3	79	2,439	671	6,492	713	7	0
Other/unknown	36,759	8,166	7,746	20,173	36,292	21	333	9,321	3,325	22,508	2,464	127	1
TOTAL	4,316	2,404	286	1,530	4,269	12	12	965	1,705	1,154	219	8	0
Building/construction supplies	1,550	992	123	411	1,499	40	1	301	583	446	24	4	0
Chemicals	843	58	25	732	833	5	0	645	85	391	208	18	2
Acetone (excluding nail polish removers)	4,982	756	547	3,519	4,863	91	4	2,372	901	2,611	456	24	1
Acids	3,193	1,233	288	1,601	3,130	47	3	1,236	832	1,292	285	34	1
Hydrofluoric acid	1,782	548	178	1,002	1,720	48	1	594	386	965	84	6	0
Other/unknown acid	2,335	1,548	164	599	2,226	93	3	475	1,280	265	19	4	0
Ammonia	86	35	12	33	84	0	1	23	15	33	3	1	0
Borates/boric acid (excluding topicals and insecticides)	512	32	23	437	424	47	23	300	124	132	25	11	10
Chlorates (excluding matches and fireworks)	18	2	2	13	18	0	0	8	2	1	3	2	0
Cyanide (excluding rodenticides)	1,150	284	154	665	1,089	43	7	483	282	480	53	5	0
Dioxin	2,228	1,198	158	837	2,150	53	6	592	928	615	54	19	4
Formaldehyde/formalin	1,078	426	61	561	1,063	10	2	458	296	471	60	1	0
Glycols (excluding automotive products)	1,404	368	153	836	1,365	25	4	559	295	745	93	4	2
Ketones	721	265	164	276	686	33	2	239	276	225	20	4	1
Methylene chloride (excluding paint strippers)	1,716	446	182	1,034	1,691	15	7	596	351	839	145	4	0
Nitrates and nitrites (excluding medications and abused substances)	66	10	7	46	29	31	1	50	15	15	5	3	1
Phenol/creosote (excluding disinfectants)	392	23	20	328	382	4	3	226	41	210	50	0	0
Strychnine (excluding rodenticides)	9,889	4,709	885	4,043	9,604	187	39	2,875	3,340	2,929	350	26	0
Toluene diisocyanate	33,945	12,933	3,146	16,973	32,856	772	107	12,032	10,032	12,665	1,937	170	22
Other	4,458	2,070	330	1,968	4,310	123	6	1,068	1,382	1,844	177	12	1
TOTAL	18,000	9,405	1,290	6,962	17,495	391	23	3,873	5,969	7,346	460	12	0
Cleaning substances	1,128	741	59	316	1,110	11	4	205	485	331	18	1	0
Ammonia cleaners	6,026	5,107	235	632	5,919	89	4	457	3,188	1,137	49	2	0
Bleaches (household)	1,199	940	53	193	1,181	14	1	152	624	246	15	1	0
Hypochlorite-containing													
Other/unknown													
Cleaners													
Anionic/nonionic													
Other/unknown													

TABLE 16. Continued

	Number of Exposures	Age (years)			Reason			Treated in HCF	Outcome				
		<6	6-17	>17	Acc	Int	Adv Rxn		None	Minor	Moderate	Major	Death
Disinfectants (household)	3,356	1,390	348	1,574	3,295	49	6	798	869	1,526	144	8	0
Hypochlorite-containing	1,705	1,086	121	472	1,592	100	0	364	754	492	28	1	0
Phenol	5,102	4,123	221	706	4,926	147	5	1,152	2,792	1,194	56	6	0
Pine oil	598	367	43	178	574	20	1	147	261	194	16	1	0
Other/unknown	180	28	13	137	178	0	0	86	21	102	22	1	0
Drain Cleaners	255	78	24	144	243	11	0	113	54	121	28	2	2
Acid	40	8	4	23	37	2	0	16	10	16	2	0	0
Alkali													
Other/unknown													
Electric dishwasher detergent	3,801	3,418	72	283	3,783	8	2	250	2,434	647	21	2	0
Alkali	1,095	958	31	103	1,094	0	0	73	602	192	5	0	0
Other/unknown													
Fabric softeners	1,022	945	22	52	1,011	3	3	45	617	117	1	0	0
Cationic	74	64	0	10	73	0	0	5	47	10	1	0	0
Other/unknown													
Glass cleaners	4,720	3,894	288	504	4,631	78	1	320	2,543	960	22	2	0
(household)													
Hand dishwashing detergents	6,598	5,077	377	1,092	6,527	39	6	290	2,783	1,945	39	1	0
Industrial cleaners													
Acids	193	17	17	153	190	3	0	137	27	114	29	4	0
Alkali	683	140	48	450	674	8	0	363	136	365	82	8	0
Other/unknown	807	247	70	470	788	17	1	366	218	365	55	2	1
Laundry detergents													
Anionic/nonionic	5,808	4,786	211	763	5,725	42	20	493	2,708	1,736	55	3	0
Alkali	2,714	2,398	70	234	2,685	19	4	394	1,332	815	60	1	0
Other/unknown	890	723	35	126	873	8	5	97	418	263	11	0	0
Miscellaneous													
Acid	423	145	40	226	414	9	0	171	125	179	42	1	1
Alkali	5,873	2,619	449	2,652	5,678	172	6	2,151	1,798	2,414	397	46	0
Anionic/nonionic	5,905	4,273	295	1,267	5,775	96	7	744	2,565	1,518	63	2	0
Cationic	2,418	1,465	190	717	2,343	59	7	566	1,047	749	66	6	2
Methanol/glycols	1,621	1,262	100	246	1,591	25	1	179	776	496	16	1	0
Isopropanol	1,141	876	63	194	1,076	60	1	202	577	220	15	4	0
Ethanol	83	70	5	7	80	3	0	14	41	21	3	0	0
Other/unknown	1,892	1,281	123	444	1,847	37	2	424	835	470	44	1	0
Oven cleaners													
Alkali	2,488	887	219	1,290	2,456	24	1	945	474	1,359	216	11	0
Other/unknown	161	47	13	98	154	6	0	69	27	72	17	1	0
Rust removers													
Hydrofluoric acid	555	86	29	420	540	13	0	406	86	287	93	4	0

Other acid	1,110	324	77	686	1,089	16	0	365	295	559	76	3	0
Other/unknown	169	44	12	103	166	3	0	46	55	70	10	2	0
Spot remover/dry cleaning agents	416	259	19	133	401	12	1	98	184	140	12	1	1
Starch	326	292	17	13	324	1	1	7	194	30	1	0	0
Toilet bowl cleaners													
Acid	2,133	1,110	126	865	2,058	64	4	607	823	840	113	24	6
Other/unknown	1,595	1,309	55	211	1,581	9	0	181	937	241	14	0	0
Wall/floor/tile cleaners													
Alkali	2,005	1,015	109	827	1,965	28	6	569	564	941	85	4	0
Anionic/nonionic	1,012	751	54	193	992	16	1	125	503	239	15	0	0
Glycols	678	559	27	88	669	5	1	62	361	151	5	0	0
Other/unknown	2,090	1,386	97	578	2,041	40	4	386	950	662	47	1	0
TOTAL	104,546	68,070	6,101	28,803	102,154	1,880	135	19,581	43,491	33,726	2,746	182	14
Cosmetics/personal care products													
Bath oil/bubble bath	3,039	2,873	76	76	3,019	4	7	98	1,649	446	3	0	0
Creams, lotions, make-up	7,094	6,170	224	652	6,980	65	21	321	4,056	582	12	0	0
Dental care products	1,826	1,050	135	614	1,768	29	16	173	897	399	13	0	0
Deodorants	5,581	4,934	228	388	5,497	57	6	261	2,910	791	28	0	0
Depilatories	312	170	29	104	288	16	6	82	98	129	14	0	0
Douches	152	111	10	28	148	2	1	28	85	18	1	0	0
Eye products	756	674	24	47	748	3	3	31	417	60	0	0	0
Hair care products	11,917	9,609	710	1,478	11,659	159	57	1,121	5,557	2,929	140	6	0
Lipsticks and lip balms	1,876	1,770	54	44	1,868	1	3	52	1,031	117	2	0	0
Mouthwash	3,121	2,075	549	471	2,897	191	8	388	1,701	540	35	3	0
Nail polish	5,289	4,896	196	165	5,242	32	3	316	2,734	1,195	17	2	0
Nail polish removers	6,015	5,136	334	500	5,857	141	1	771	3,554	1,117	30	5	1
Nail products, miscellaneous	1,055	822	45	172	1,048	1	2	164	504	269	20	2	0
Perfume/ cologne/ aftershave	21,268	19,962	509	732	21,033	165	16	1,167	13,037	2,741	65	6	1
Peroxide	903	520	59	311	875	11	13	119	338	286	13	0	0
Powders	2,274	2,110	63	93	2,245	15	3	181	1,159	560	14	0	0
Soaps (bar, hand, complexion)	6,576	5,636	271	616	6,435	55	67	432	3,102	1,414	36	2	0
Suntan/sunscreen products	1,160	1,007	60	83	1,138	5	12	80	537	310	10	0	0
TOTAL	80,214	69,525	3,576	6,574	78,745	952	245	5,785	43,366	13,900	453	26	2
Deodorizers (not for personal use)													
Air Fresheners	3,402	3,051	149	184	3,368	18	5	212	2,041	433	13	0	0
Diaper pail deodorizers	1,339	1,311	8	17	1,337	1	0	46	935	59	2	3	0
Other	2,552	2,244	92	194	2,532	9	1	329	1,545	333	13	2	0
TOTAL	7,293	6,606	249	395	7,237	28	6	587	4,521	825	28	5	0
Dyes	2,618	2,318	126	159	2,590	7	15	137	1,532	126	13	0	0
Essential oils	1,655	1,158	278	199	1,567	71	11	310	572	752	21	0	0
Fertilizers	5,883	4,460	452	898	5,827	34	7	320	3,353	482	24	2	0
Fire extinguishers	1,081	132	243	661	1,047	29	0	341	294	531	27	1	0

TABLE 16. Continued

	Number of Exposures	Age (years)			Reason			Treated				Outcome			
		<6	6-17	>17	Acc	Int	Adv Rxn	In HCF	None	Minor	Moderate	Major	Death	In	
														HCF	Death
Food products/food poisoning	38,691	9,207	4,934	23,333	32,500	170	5,767	4,366	9,836	12,554	1,011	17	0		
Foreign bodies/toys/miscellaneous	1,849	1,746	76	19	1,841	0	0	43	839	505	3	0	0		
Bubble blowing solutions	1,089	1,027	38	21	1,089	0	0	54	594	76	1	0	0		
Christmas ornaments	2,585	2,168	332	72	2,572	10	0	749	1,204	289	9	1	0		
Coins	10,290	9,341	619	250	10,232	25	0	434	5,614	154	2	0	0		
Dessicants	1,161	1,030	44	82	1,140	14	2	65	569	73	2	0	0		
Feces/urine	881	430	65	366	869	5	7	142	388	129	16	0	0		
Glass	1,462	1,327	24	102	1,459	0	0	104	766	125	19	1	0		
Soil	7,433	4,392	1,933	976	7,385	29	2	384	3,948	197	4	0	0		
Thermometer	2,903	2,492	329	64	2,885	7	4	140	1,736	167	6	0	0		
Toys	11,868	8,478	1,233	2,024	11,711	69	22	1,970	5,575	1,602	311	25	0		
Other/unknown foreign body	41,521	32,431	4,693	3,976	41,183	159	37	4,085	21,233	3,317	373	27	0		
TOTAL	4,287	514	552	3,093	4,068	157	2	2,404	462	2,337	429	53	19		
Fumes/gases/vapors	1,299	37	49	1,167	1,271	28	0	394	88	817	104	1	0		
Carbon monoxide	673	34	34	579	660	12	0	256	44	470	80	3	0		
Chloramine	3,174	429	589	2,096	3,151	15	2	1,231	363	1,899	311	14	0		
Chlorine gas (mixing household products)	439	40	25	346	434	1	0	172	67	212	37	2	2		
Chlorine gas (other)	941	144	102	649	894	41	0	436	163	464	57	5	1		
Hydrogen sulfide	20	3	4	13	20	0	0	5	7	8	3	0	0		
Methane	547	58	130	340	478	64	0	219	109	267	43	1	0		
Polymer fume fever	2,469	298	217	1,827	2,423	29	8	1,041	462	1,127	173	12	1		
Propane/simple asphyxiants	13,849	1,557	1,702	10,110	13,399	347	12	6,158	1,765	7,601	1,237	91	23		
Other/unknown	1,203	522	142	510	1,188	10	2	259	477	337	33	1	1		
TOTAL	399	109	27	248	360	25	2	208	112	87	21	7	0		
Fungicides (non-medical)	583	142	148	255	564	15	3	207	176	234	22	0	1		
Heavy metals	1,181	647	162	350	1,153	21	1	391	506	120	31	4	1		
Arsenic	1,121	368	225	440	1,081	26	6	284	573	155	13	6	0		
Copper	836	66	24	724	828	3	1	254	70	471	106	2	0		
Lead	45	16	3	21	34	6	4	13	17	10	2	0	0		
Mercury	13	6	0	6	11	2	0	7	5	2	1	1	0		
Metal fume fever	1,000	390	89	489	975	12	4	357	337	263	47	6	0		
Selenium	5,178	1,744	678	2,533	5,006	110	21	1,721	1,796	1,342	243	26	2		
Thallium	1,450	541	145	742	1,428	14	2	410	490	426	55	5	1		
Other/unknown	224	28	19	168	208	11	2	118	54	71	6	1	3		
TOTAL	1,450	541	145	742	1,428	14	2	410	490	426	55	5	1		
Herbicides	224	28	19	168	208	11	2	118	54	71	6	1	3		
2,4-D or 2,4,5-T															
Diquat/paraquat															

Other/unknown	2,209	629	227	1,271	2,171	16	16	705	667	705	95	4	0
TOTAL	3,883	1,198	391	2,181	3,807	41	20	1,233	1,211	1,202	156	9	4
Hydrocarbons													
Benzene	100	29	8	61	92	5	0	46	32	36	9	1	0
Diesel fuel	1,494	509	210	672	1,453	40	0	400	481	623	32	0	0
Gasoline	13,271	4,527	2,745	5,849	12,818	397	1	2,416	4,366	6,348	284	13	0
Halogenated													
hydrocarbons	3,097	328	222	2,379	2,979	90	3	980	866	1,271	100	6	4
Kerosene	2,771	2,160	133	448	2,733	25	1	995	1,211	935	130	8	0
Lighter fluid/naphtha	2,081	1,597	118	347	1,999	78	0	580	1,052	589	65	8	1
Lubricating/motor oils	2,386	1,958	116	290	2,369	14	0	297	1,572	374	19	0	0
Mineral seal oil	1,200	1,090	26	74	1,181	17	0	233	810	159	25	9	0
Mineral spirits/varsol	3,998	2,639	272	1,035	2,910	68	1	947	1,881	1,301	90	8	1
Toluene/xylene	2,510	945	256	1,236	2,344	147	2	900	751	1,104	118	17	1
Turpentine	1,421	840	144	413	1,325	83	2	408	540	499	27	2	1
Other/unknown	11,676	7,390	763	3,310	11,387	220	12	2,798	5,615	3,335	323	27	2
TOTAL	46,005	24,012	5,013	16,114	44,590	1,184	22	11,000	19,177	16,574	1,222	99	10
Insecticides/pesticides (excluding rodenticides)													
Arsenic-pesticides only	149	113	5	30	140	8	1	57	98	18	4	2	1
Borates/boric acid	2,410	1,972	92	328	2,336	60	1	465	1,393	239	18	3	0
Carbamates	4,423	2,932	209	1,205	4,331	63	8	896	2,387	761	105	12	2
Chlorinated hydrocarbon	3,743	2,059	357	1,228	3,606	86	33	976	1,751	829	86	7	1
Metaldhyde	257	211	10	30	251	6	0	50	161	14	2	0	0
Organophosphate alone	8,583	3,027	683	4,620	8,373	135	34	2,650	3,082	2,548	309	62	4
Organophosphate and carbamate	2,420	1,086	189	1,069	2,300	91	10	518	971	647	59	13	0
Organophosphate and chlorinated hydrocarbon	527	190	46	267	497	25	0	125	218	142	9	1	0
Organophosphate and other pesticide	612	283	42	275	596	12	1	165	237	178	20	3	0
Piperonyl butoxide alone	146	68	14	63	144	1	1	35	45	45	2	0	0
Piperonyl butoxide and pyrethrins	2,809	1,356	304	1,073	2,725	38	36	651	969	891	109	6	0
Pyrethrins alone	1,737	723	155	815	1,661	42	22	434	559	581	62	4	0
Insect repellants	2,439	1,850	357	211	2,401	13	7	230	1,119	807	21	0	0
Other/unknown	6,286	3,759	445	1,873	6,128	121	14	1,381	3,366	1,177	120	15	2
TOTAL	36,541	19,629	2,908	13,087	35,489	701	168	8,633	16,356	8,877	926	128	10
Lacrimators	2,403	868	733	721	2,353	27	6	492	285	1,690	84	4	0
Matches/fireworks/ explosives													
Matches	2,103	2,030	32	34	2,086	8	0	74	1,270	65	2	1	0
Other/unknown	635	519	71	37	626	6	1	69	352	83	9	0	0
TOTAL	2,738	2,549	103	71	2,712	14	1	143	1,622	148	11	1	0
Moth repellents													
Naphthalene	1,811	1,598	68	134	1,791	3	0	335	1,281	162	17	2	0
Paradichlorobenzene	443	383	13	43	441	1	0	33	282	44	0	0	0

TABLE 16. Continued

	Number of Exposures	Age (years)			Reason			Treated			Outcome			
		>17			Int			in HCF						
		<6	6-17	>17	Acc	Int	Adv Rxn	None	Minor	Moderate	Major	Death		
Other/unknown	1,672	1,480	87	92	1,660	9	1	266	1,143	112	1	0	0	
TOTAL	3,926	3,461	168	269	3,892	13	1	634	2,706	318	18	2	0	
Mushrooms	8,330	6,885	482	879	7,868	365	51	1,744	5,910	948	215	22	0	
Paints and stripping agents	13,610	8,588	965	3,827	13,353	181	21	2,142	6,008	3,130	269	20	2	
Photographic products	842	602	57	171	835	4	0	112	441	125	13	0	0	
Plants														
Anticholinergic	457	237	113	102	326	122	1	192	209	108	52	4	0	
Cardiac glycosides	2,097	1,627	252	200	2,051	35	4	352	1,356	163	24	4	0	
Colchicine	18	15	1	2	18	0	0	1	12	1	0	0	0	
Cyanogenic glycosides	2,924	2,373	328	193	2,883	14	16	202	1,731	137	12	4	0	
Depressants	372	349	14	8	369	1	0	26	283	17	0	0	0	
Dermatitits	10,082	6,782	990	2,148	9,882	44	106	911	4,134	2,679	301	6	1	
Gastrointestinal irritants	15,121	13,075	894	1,024	14,920	109	41	999	9,205	1,530	111	5	0	
Hallucinogenic	295	213	42	37	265	28	1	54	178	27	4	1	0	
Nicotine (no tobacco products)	236	164	36	33	221	7	7	62	109	50	3	0	0	
Nontoxic plant	24,491	22,438	926	896	24,293	70	50	650	12,766	1,006	60	4	0	
Oxalate	15,327	14,233	478	520	15,232	56	4	567	9,653	2,155	78	2	0	
Solanine	2,167	1,874	143	130	2,143	9	12	272	1,537	195	24	9	0	
Stimulants	316	263	25	25	313	2	0	66	203	35	5	0	0	
Toxalbumins	289	201	37	48	273	11	0	123	162	68	21	0	0	
Other/unknown	10,217	8,670	892	555	10,015	94	48	886	6,187	971	91	9	1	
TOTAL	84,409	72,514	5,171	5,921	83,204	602	290	5,363	47,725	9,142	786	48	2	
Polishes and waxes	1,795	1,458	73	252	1,761	28	2	187	1,007	397	16	1	0	
Radio-isotopes	126	15	16	90	123	2	0	47	23	58	5	0	1	
Rodenticides														
Anticoagulants	7,723	6,972	178	481	7,490	199	3	1,911	4,934	222	29	1	1	
Strychnine	103	39	9	49	78	18	0	54	44	13	3	1	2	
Other/unknown	879	682	38	136	825	48	0	338	532	63	10	3	1	
TOTAL	8,705	7,693	225	666	8,393	265	3	2,303	5,510	298	42	5	4	
Sporting equipment	672	424	151	84	652	18	0	185	357	114	23	7	0	
Swimming pool/aquarium products	1,719	1,188	167	354	1,701	12	2	237	809	446	23	1	0	
Tobacco products	7,385	6,882	205	268	7,269	89	11	1,223	4,073	1,585	71	10	0	
Unknown nondrug substances	8,854	4,437	1,425	2,734	8,496	165	79	1,938	3,466	2,316	199	24	0	

Abbreviations: acc, accidental; adv rxn, adverse reaction; int, intentional.

* Medical outcome data were also collected in categories labeled "unknown, nontoxic," "unknown, potentially toxic," and "unrelated effect." Thus, the numbers listed here do not represent the total poison exposure experience. Patients with totally unknown age, reason or medical outcome were omitted from the respective tabulations.

† Excluding rubbing alcohol.

Antivirals	282	137	37	102	215	45	18	84	120	45	7	1	0
Other/unknown	94	57	11	21	79	13	1	27	48	16	6	0	0
TOTAL	32,450	21,657	3,483	6,875	26,563	3,873	1,786	5,996	16,114	4,147	411	61	2
Antineoplastics	220	89	8	113	196	13	9	118	109	49	4	0	1
Asthma therapies													
Aminophylline/													
theophylline	4,497	1,622	1,157	1,624	2,989	1,278	153	2,693	1,569	1,282	495	84	21
Beta-2 agonists	2,191	1,449	359	361	1,809	287	83	813	1,067	600	66	2	0
Other/unknown	193	99	41	50	166	20	7	40	103	28	5	1	0
TOTAL	6,881	3,170	1,557	2,035	4,964	1,585	243	3,546	2,739	1,910	566	87	21
Cardiovascular drugs													
Antiarrhythmics	748	224	52	456	583	127	35	351	344	131	31	15	10
Anti-hypertensives	2,249	1,271	163	782	1,713	453	60	1,445	953	576	225	61	4
Beta-blockers	3,535	1,555	383	1,552	2,456	962	72	1,922	1,824	601	182	44	14
Calcium antagonists	1,272	579	78	596	1,008	226	29	606	655	226	53	25	7
Cardiac glycosides	1,357	720	94	529	1,074	240	21	816	668	198	98	60	15
Vasodilators	3,129	2,124	203	779	2,669	396	41	1,048	1,907	403	76	13	0
Other/unknown	84	41	5	34	65	14	3	36	43	13	1	2	0
TOTAL	12,374	6,514	978	4,728	9,568	2,418	261	6,224	6,394	2,148	666	220	50
Cold and cough preparations													
Acetaminophen + decongestant/antihistamine	5,707	3,737	744	1,164	4,550	1,008	116	1,775	2,785	1,296	110	11	0
Aspirin + acetaminophen + decongestant/antihistamine	91	42	15	30	52	37	2	54	37	30	3	0	0
Aspirin + decongestant/antihistamine	1,340	791	236	299	1,021	284	25	442	652	271	34	2	1
Expectorants/antitussives	4,117	3,257	381	461	3,830	227	66	740	2,160	781	69	7	0
Other formulations for cough/colds	44,448	34,926	4,253	4,960	40,005	3,587	623	10,782	23,174	10,588	684	56	0
TOTAL	55,703	42,753	5,629	6,914	49,458	5,143	832	13,793	28,808	12,966	900	76	1
Diagnostic agents	221	119	18	74	201	10	9	76	103	40	14	2	0
Diuretics	3,698	2,112	408	1,141	2,766	801	79	1,529	1,823	747	113	22	0
Electrolytes/minerals													
Calcium salts	3,587	3,195	146	225	3,493	52	21	150	1,996	154	5	2	0
Fluoride (excluding vitamins)	3,511	3,189	226	81	3,469	22	8	325	1,911	654	19	1	0
Iron (excluding vitamins)	2,574	1,911	246	383	2,171	367	18	1,270	1,246	601	113	16	1
Magnesium salts	133	62	10	55	119	9	3	39	48	32	3	3	0
Potassium salts	617	360	72	172	517	82	15	194	351	76	13	0	0
Sodium salts	1,200	906	151	135	1,169	27	1	190	659	234	17	2	0
Zinc	739	390	41	288	694	20	19	178	283	202	41	1	0
Other/unknown	72	40	6	26	63	3	4	15	28	11	2	0	0
TOTAL	12,433	10,053	898	1,365	11,695	582	89	2,361	6,522	1,964	213	25	1
Eye/ear/nose/throat preparations	8,118	5,761	447	1,789	7,904	112	71	1,203	4,412	1,557	86	10	0
Gastrointestinal preparations													

TABLE 17. Continued

	Number Of Exposures	Age (years)			Reason			Treated In			Outcome			
		<6	6-17	>17	Acc	Int	Adv Rxn	HCF	None	Minor	Moderate	Major	Death	
														329
Antacids	6,994	6,360	262	336	6,873	62	37	329	3,920	350	18	3	1	
Antidiarrheals/ antispasmodics	2,438	1,448	310	650	1,766	593	50	1,310	1,095	615	126	24	2	
Laxatives	9,029	7,308	599	1,045	8,554	385	60	1,210	3,852	2,250	146	7	0	
Other/unknown	1,061	696	98	255	866	138	51	282	525	142	23	1	0	
TOTAL	19,522	15,812	1,269	2,286	18,059	1,178	198	3,131	9,392	3,357	313	35	3	
Hormones and hormone antagonists	2,876	2,080	191	566	2,633	155	78	315	1,482	211	17	8	0	
Corticosteroids	280	32	11	227	177	80	18	158	106	50	19	6	0	
Insulin	7,349	6,679	415	204	7,086	222	25	537	4,082	303	6	3	0	
Oral contraceptives	691	375	57	249	534	138	14	432	376	121	48	14	0	
Oral hypoglycemics	2,231	1,717	149	342	2,018	193	8	643	1,327	203	47	6	2	
Thyroid preparations	2,022	1,353	185	459	1,707	246	55	488	1,014	287	33	6	0	
Other/unknown	15,449	12,236	1,008	2,047	14,155	1,034	198	2,573	8,387	1,175	170	43	2	
Miscellaneous drugs	206	142	10	47	173	26	5	64	126	22	2	3	0	
Allopurinol	130	70	4	55	112	16	1	53	70	20	8	2	0	
L-Dopa and related drugs	535	43	20	448	189	281	51	380	98	177	53	4	0	
Disulfiram	487	364	98	22	364	98	22	210	225	121	20	5	0	
Ergot alkaloids	682	523	28	123	606	41	31	152	385	90	15	2	0	
Homeopathic/herbal preparations	3,828	2,695	306	793	3,522	224	69	710	1,615	1,052	100	4	1	
Other	5,884	3,739	413	1,636	4,971	688	179	1,569	2,519	1,482	198	20	1	
TOTAL	2,543	505	355	1,610	934	1,499	53	1,846	590	832	245	46	0	
Muscle relaxants	3,098	834	430	1,750	1,608	1,370	46	2,023	864	919	362	98	3	
Sedative/hypnotics/ antipsychotics	1,690	210	191	1,222	496	1,103	29	1,350	322	564	231	60	3	
Barbiturates	16	3	1	10	5	11	0	15	0	0	8	0	1	
Long acting Short/intermediate- acting	19,835	3,264	1,593	14,390	6,163	12,901	266	14,812	3,580	7,246	1,806	412	20	
Unknown type	304	76	21	190	123	164	12	243	41	120	36	19	4	
Benzodiazepines	307	21	15	267	52	245	1	289	24	94	66	34	3	
Chloral hydrate	209	8	5	191	31	167	3	192	17	67	50	24	5	
Ethchlorvynol	460	48	46	351	147	289	8	354	86	151	70	21	1	
Glutethimide	203	12	29	144	28	168	3	180	14	53	32	5	0	
Meprobamate	3,571	191	538	2,700	691	2,764	15	2,996	714	1,333	316	32	3	
Methaqualone	6,961	1,649	733	4,415	2,979	3,556	293	5,072	1,907	2,345	783	140	18	
OTC sleep aids	272	29	46	191	67	192	6	219	33	63	34	10	0	
Phenothiazines	36,926	6,345	3,648	25,821	12,390	22,930	682	27,745	7,602	12,955	3,794	855	61	
Other/unknown														
TOTAL														

Serums, toxoids & vaccines	214	50	24	132	148	1	65	87	42	71	21	1	0
Stimulants and street drugs													
Amphetamines	3,778	1,254	713	1,688	1,981	1,676	57	2,506	1,043	1,152	357	42	11
Amyl/butyl nitrites	185	29	37	103	81	99	0	107	31	65	18	2	0
Caffeine	3,769	1,080	1,322	1,284	1,824	1,783	87	1,929	962	1,515	212	18	2
Cocaine	2,353	60	121	2,039	300	1,999	17	2,036	128	825	372	104	28
Diet aids													
Phenylpropanolamine (PPA)	1,876	902	433	514	1,179	632	37	959	832	463	97	13	1
PPA and caffeine	616	281	160	162	375	222	13	320	227	175	38	2	0
Other/unknown	367	202	60	98	239	116	7	186	138	93	22	0	0
Heroin	427	9	15	376	55	362	4	390	32	98	88	63	8
LSD	615	27	182	359	134	465	7	462	32	231	91	11	0
Marijuana	805	145	213	400	260	520	11	501	108	335	67	6	0
Mescaline/peyote	200	65	46	85	117	80	0	102	32	93	24	0	0
Phencyclidine	526	27	114	352	142	356	5	465	47	183	125	35	6
PPA-containing "look-alikes"	149	54	26	68	66	78	2	106	38	49	13	2	0
Other/unknown	443	73	99	255	132	302	2	343	59	128	44	9	1
TOTAL	16,109	4,208	3,541	7,783	6,885	8,690	249	10,412	3,709	5,405	1,568	307	57
Topicals													
Acne preparations	550	370	79	98	524	8	13	50	260	136	11	1	0
Boric acid antiseptics	559	391	38	122	538	12	4	71	328	76	4	1	0
Calamine	2,912	2,359	118	412	2,865	32	2	248	1,614	253	5	0	0
Camphor	4,260	3,521	181	525	4,168	75	8	1,402	2,679	743	47	10	1
Camphor and methyl salicylate	1,241	945	80	203	1,202	28	10	297	604	350	16	0	0
Diaper care products	8,936	8,706	79	111	8,902	7	3	120	5,208	532	10	0	0
Hexachlorophene antiseptics	265	179	23	58	254	7	1	48	130	55	1	1	0
Hydrogen peroxide	8,824	5,495	781	2,380	8,609	173	8	564	4,294	1,756	59	2	0
Iodine antiseptics	1,417	612	161	619	1,223	163	19	405	669	276	30	4	1
Mercurial antiseptics	1,426	1,229	42	139	1,370	50	2	159	879	81	4	1	1
Methyl salicylate	5,072	4,281	249	495	5,020	31	11	599	2,866	971	32	6	0
Podophyllin	50	19	9	22	45	3	2	24	16	12	6	1	0
Steroids	3,898	3,382	113	381	3,862	15	7	88	2,196	229	8	0	0
Wart preparations	1,369	1,039	142	177	1,324	30	8	191	639	384	18	3	0
Other/unknown	1,957	1,519	126	284	1,897	39	12	290	1,089	319	20	3	0
TOTAL	42,736	34,047	2,221	6,026	41,803	673	110	4,556	23,471	6,163	271	33	3
Veterinary drug (no human equivalent)	1,296	803	92	367	1,270	19	4	204	678	241	13	1	0
Vitamins													
Multiple vitamins (adult preparations)													
No iron, no fluoride	2,830	2,271	260	281	2,632	131	55	273	1,460	262	21	1	0
With iron, no fluoride	3,021	2,465	265	279	2,709	273	24	793	1,897	352	30	1	0
With iron, with fluoride	79	67	5	7	74	5	0	20	48	13	1	0	0
No iron, with fluoride	23	22	0	1	22	1	0	4	15	3	0	0	0

TABLE 17. Continued

	Number of Exposures	Age (years)			Reason			Treated in HCF	Outcome														
		<6	6-17	>17	Acc	Int	Adv Rxn		None	Minor	Moderate	Major	Death										
Multiple vitamins (pediatric preparations)																							
No iron, no fluoride	7,237	6,498	696	31	7,150	58	7	265	4,295	524	9	4	0										
With iron, no fluoride	11,256	10,220	969	44	11,130	98	5	1,961	6,874	1,630	70	15	0										
With iron, with fluoride	420	402	17	0	417	1	0	66	280	48	1	0	0										
No iron, with fluoride	1,793	1,748	39	3	1,782	5	0	70	1,317	93	1	0	0										
Vitamin A	620	493	42	77	571	29	15	69	341	56	3	0	0										
Niacin	637	131	30	447	361	36	237	83	60	434	15	0	0										
Pyridoxine	122	93	9	19	102	15	4	16	62	13	3	0	0										
Other B complex vitamins	803	609	52	131	729	37	28	83	401	129	5	0	0										
Vitamin C	1,862	1,527	202	112	1,756	79	20	105	956	200	10	2	0										
Vitamin D	229	181	11	32	208	14	7	42	135	13	2	1	0										
Vitamin E	638	528	44	63	602	23	10	45	340	40	2	1	0										
Other/unknown	1,661	1,326	138	179	1,530	112	15	362	977	208	12	0	0										
TOTAL	33,231	28,581	2,779	1,706	31,775	917	427	4,257	19,458	4,018	185	25	0										
Unknown drug	7,163	2,737	1,133	3,091	5,027	1,586	208	3,790	2,270	1,837	365	68	0										

ABBREVIATIONS: acc, accidental; adv rxn, adverse reaction; int, intentional.

* Medical outcome data were also collected in categories labeled "unknown, nontoxic," "unknown, potentially toxic," and "unrelated effect." Thus, the numbers listed here do not represent the total poison exposure experience. Patients with totally unknown age, reason or medical outcome were omitted from the respective tabulations.

Hydrochloric-acid-containing toilet bowl cleaners were implicated in six fatalities in 1986, appearing for the first time in this data base. In the group of 13 patients with ingestions of caustic agents, six (46.2%) presented with acute respiratory insufficiency from severe chemical pneumonitis.

Significant metabolic acidosis occurred early in five of the 21 deaths involving acetaminophen alone or in combination as a primary agent. Three of these cases were associated with severe hypoglycemia. Case 117 may represent an example of fatal chronic acetaminophen toxicity. In case 119, the delay in treatment resulting from failure to tolerate the oral form of *N*-acetylcysteine may have contributed to the poor outcome.

In the group of cases primarily involving cyclic antidepressants, 28 reports noted the QRS complex, and 20 (71.4%) observed it to be widened. Case 205 is sketchy but suggests a delayed catastrophic deterioration in a cyclic antidepressant overdose. Two cases were reported that demonstrated severe deterioration following the use of physostigmine in cyclic antidepressant poisoning. All five of the amoxapine cases were associated with early seizures, and at least three were refractory to conventional therapy.

The reason for the exposure was listed as accidental in 59 (14.5%) and intentional in 313 (77.1%) of the fatal cases. This trend was reversed where theophylline was the primary agent with nine (52.9%) of the 17 cases with known reason classified as accidental and at least two more as intentional but not suicidal (64.7% nonsuicidal). All of the nonsuicidal theophylline

TABLE 18. Substances Most Frequently Involved in Human Poison Exposures*

	No.	%†
Cleaning substances	104,546	9.2
Analgesics	102,759	9.0
Plants	84,409	7.4
Cosmetics	80,214	7.1
Cough and cold preparations	55,703	4.9
Hydrocarbons	46,005	4.1
Pesticides (includes rodenticides)	45,246	4.0
Topicals	42,736	3.8
Foreign bodies	41,521	3.7
Food poisoning	38,691	3.4
Sedative/hypnotics/antipsychotics	36,926	3.3
Bites/envenomations	36,759	3.2
Chemicals	33,945	3.0
Vitamins	33,231	2.9
Antimicrobials	32,450	2.9
Alcohols	31,345	2.8

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

† Percentages are based on total number of known substances (1,135,701) rather than the total number of human exposures cases.

TABLE 19. Categories with Largest Numbers of Deaths

	No.	Percentage of All Exposures in Category
Antidepressants	100	0.7
Analgesics	82	0.1
Sedative/hypnotics	61	0.2
Stimulants and street drugs	57	0.4
Cardiovascular drugs	50	0.4
Alcohols/glycols	35	0.1
Gases and fumes	23	0.2
Chemicals	22	0.1
Asthma therapies	21	0.3
Cleaning substances	14	0.0
Insecticides/pesticides/rodenticides	14	0.0
Hydrocarbons	10	0.0

fatalities occurred in the very young or the elderly. The average peak theophylline level was 118 µg/ml in the acute cases and 56 µg/ml in the chronic cases. Hemoperfusion or dialysis was employed in four (21.1%) of the 19 fatal theophylline cases.

Five of the 10 digoxin fatalities with levels recorded had peak digoxin levels less than 6 ng/ml. Case 300 may represent a case of digoxin-specific fab fragment failure in a very elderly patient. The failure to treat early with digoxin-specific fab fragments (secondary to limited availability) or the administration of grossly inadequate amounts occurred in eight of the 13 digoxin fatalities (61.5%) in which digoxin was the primary agent.

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

Appendix: Abstracts of Fatal Poisoning Cases

Case 3. A 60-year-old man was admitted to the hospital with gastrointestinal bleeding. While undergoing a radiologic procedure, he was inadvertently injected with 4 ml of 70% isopropanol via the mesenteric artery. The patient died three weeks later from acute peritonitis and sepsis secondary to bowel infarction from the isopropanol injection. Autopsy revealed extensive necrosis of the small and large intestines. The peritoneal cavity was occupied by a conglomerate, necrotic mass of intestine.

Case 8. A 48-year-old man presented after ingesting

methanol. Initially, he was comatose and in full arrest. The initial methanol level was 585 mg/dl (falling to 290 mg/dl at eight hours and 188 mg/dl at 14 hours after presentation). Potassium was 9.1 mEq/L; glucose, 466 mg/dl; PO₂, 100 mm Hg; PCO₂, 43 mm Hg; and pH 6.98. Ethanol infusion and dialysis were initiated within three hours of presentation. Hypotension persisted (40 mm Hg, systolic) despite dopamine. Dialysis was continued for four hours, discontinued for two hours, then performed for another four-hour period. The patient died 19 hours after presentation. At autopsy the ethanol level was 260 mg/dl, and methanol level was 150 mg/dl.

Case 23. A 69-year-old woman was hospitalized with a necrotizing gluteal abscess from a spider bite of one week earlier. A **brown recluse spider** had been found at her home and was the presumed culprit. She was treated with a variety of antibiotics in addition to incision, drainage, and local care. Two weeks following admission, the patient developed refractory lactic acidosis associated with enterococcal sepsis. Cardiac arrest ensued.

Case 25. A 26-year-old schizophrenic man told a fellow resident that he was about to take his medications (thiothixene, diphenhydramine, benztropine, methocarbamol, and ibuprofen) and that he should pray for him. Fifteen minutes later, the man collapsed in respiratory arrest. The paramedics found him with apnea and bradycardia and initiated cardiopulmonary resuscitation (CPR). In the emergency department (ED), he was treated unsuccessfully with an external and then internal cardiac pacer, fluids, and isoproterenol. He died 45 minutes after presentation. Later, a suicide note was found with a one-third-empty bottle of **potassium cyanide**. Cyanide was demonstrated in body tissues on postmortem examination.

Case 27. A 28-year-old man presented after an intentional ingestion of cyanide. On arrival he was unconscious with respiratory depression and seizures. The cyanide antidote kit was administered with an immediate response. He was awake and breathing spontaneously when admitted. At five hours after ingestion, he became hypotensive (91/52 mm Hg), with tachycardia (138/min) and tachypnea (48/min). He became comatose and developed respiratory and renal failure; the patient died 15 hours after ingestion.

Case 34. A 29-year-old man presented approximately 18 hours after intentionally ingesting **ethylene glycol**. Initial toxicologic analysis revealed ethylene glycol (154 mg/dl). The poison center was contacted 12 hours after presentation. At the time of the call, the patient was severely acidotic (pH, 7.03), was experiencing intermittent seizures, was comatose, and had been dialyzed for an unknown period of time. An ethanol infusion was initiated after prompting from the poison center. He continued to deteriorate and be-

came markedly hypotensive, necessitating a dopamine infusion. The patient died approximately 4.5 days after the ingestion. Postmortem examination confirmed the cause of death as ethylene glycol intoxication.

Case 35. A 32-year-old man presented in a coma: empty bottles of aspirin/butalbital and diazepam were brought to the ED as well. On admission, his serum was negative for aspirin and barbiturates; the ethanol level was 9 mg/dl; sodium, 163 mEq/L; potassium, 4.7 mEq/L; glucose, 321 mg/dl; and blood urea nitrogen, 16 mg/dl. Multiple urinalyses were negative for crystals but became trace-positive for blood. Arterial blood-gas sampling revealed a pH of 6.9 and then 7.05 after 500 mEq of sodium bicarbonate. The poison center was first contacted to determine if diazepam was dialyzable. A serum osmolality determination was recommended and was 371 mOsm/kg H₂O. An ethanol infusion was initiated. The patient seized and required dopamine for blood pressure maintenance. Because he was too unstable to transfer for hemodialysis, peritoneal dialysis was initiated. An electroencephalogram (EEG) showed no electrical activity. The patient died 24 hours later. Postmortem examination revealed acute tubular necrosis with intratubular calcium oxalate crystals (probably secondary to **ethylene glycol**) and fatty changes of liver with centrilobular hydropic degeneration.

Case 39. A 22-year-old man was exposed to **hydrofluoric acid** used to clean trucks. He sustained 27% surface area burns to his arms and back. He experienced increasing pain despite three doses of meperidine. Thirty minutes after presentation, the patient became dusky, with circumoral cyanosis and difficulty protecting his airway. Naloxone was administered, and he was intubated. Blood pressure was 90 mm Hg (palpable); pulse, 120/min; and respirations, 24/min. The cardiac monitor showed a widened QRS. All blood specimens drawn were hemolyzed. He arrested 90 minutes after presentation and could not be resuscitated. Postmortem examination revealed massive hemorrhaging in the mediastinum and distal colon. The right lung was edematous. The laboratory reported an unofficial ionized calcium level of 1.7 mg/dl because the blood pH could only be raised to 7.15.

Case 40. A 33-year-old man intentionally ingested a product containing **hydrofluoric acid** one hour prior to presentation. The paramedics found him unresponsive, with a pulse of 110/min; respirations, 18/min; and blood pressure, 140 mm Hg (palpable). He was given intravenous calcium chloride and sodium bicarbonate, which improved his level of consciousness. At two hours after ingestion, he arrested. Postmortem examination revealed marked pulmonary congestion and hemorrhage, mucosal sloughing in the trachea, esophageal inflammation, gastric mucosal necrosis, and

pancreatic autolysis. The blood ethanol level was 80 mg/dl, and fluoride level was 720 $\mu\text{g/ml}$ (normal, $<37 \mu\text{g/ml}$).

Case 43. A 58-year-old woman accidentally ingested 120 ml of a diluted Christmas tree life extender containing aluminum sulfate, potassium chloride, benzalkonium chloride, and iron. She was asymptomatic, and dilution was the only treatment recommended by the poison center. The patient was determined to empty her stomach and sought ipecac from her family physician. She was given the last remaining ounce of a 4-oz bottle labeled "for vomiting." Thirty minutes after the administration of this medicine, she called the physician to report stiffness and tingling throughout her body. The paramedics found her in cardiac arrest. During intubation, her neck and jaw were noted to be stiff. The patient did not respond to the usual resuscitative measures. Postmortem examination revealed severe acute erosions and inflammation of the esophagus and gastrum. Analysis of the gastric contents and blood revealed large amounts of strychnine. Analysis of the tree life extender proved negative for strychnine. It was later learned that *nux vomica* had been stored in the family physician's office 30 years earlier by a previous physician tenant.

Case 48. A 67-year-old man presented one hour after intentionally ingesting 60 ml of a brass cleaner containing chromic acid, sodium bisulfate, sodium bifluoride, and ammonium chloride. Initially, he complained of chills, abdominal cramps, and watery black stools. Hypertension and dyspnea were noted on examination. Charcoal was administered. At 90 minutes after ingestion, a chest radiograph was normal. At 26 hours after ingestion, the patient developed increased dyspnea and hypotension. A central venous pressure of 6 mm Hg was observed. Vital signs remained stable, although the watery stool continued. Acute renal failure occurred, but he remained conscious and otherwise stable. He died at 115 hours after ingestion despite dialysis (initiated 90 hours after ingestion).

Case 55. A 43-year-old woman presented two hours after intentionally ingesting 32 oz of toilet bowl cleaner containing 15% hydrochloric acid. On presentation she had severe oral burns and was frothing a blue-green solution. Her blood pH was 6.7, and sodium bicarbonate was administered. She arrested and could not be resuscitated. Postmortem examination revealed oral burns, gastric perforation, and chemical pneumonia.

Case 57. A 59-year-old man was discharged from a health care facility with the diagnosis of "coin lesion" in the right lung and depression. That evening he ingested 32 ounces of a toilet bowl cleaner containing 23% hydrochloric acid and vomited spontaneously. After gastric lavage, he complained of "feeling sick," with erythematous, swollen lips. He became acidotic

and hypotensive, requiring ventilation and pressor agents. A toxicology screen was negative. On the fourth day after ingestion, he underwent total gastrectomy, pancreatectomy, splenectomy, esophagectomy, cholecystectomy and jejunostomy. Postoperatively, he experienced acute renal failure requiring dialysis, adult respiratory distress syndrome (ARDS), and sepsis. He died on the sixteenth day after ingestion. During surgery, biopsy was done of the "coin lesion" in the right lung; it was found to be benign.

Case 67. A 25-year-old man experienced arrest after an estimated 5-minute exposure to carbon monoxide from a kitchen fire. His initial carboxyhemoglobin level was 44%. At the hyperbaric facility, he was unresponsive and ventilator dependent, with a pulse of 116/min and a blood pressure of 160/102 mm Hg. The carboxyhemoglobin level fell to 22% after 60 minutes of 100% oxygen and was 2% just prior to hyperbaric oxygen. The carboxyhemoglobin level was 0% after hyperbaric oxygen. Nonetheless, he remained unresponsive. On the second day after exposure, an EEG showed no electrical activity. The EEG was unchanged 24 hours later, and respiratory support was removed.

Case 79. A 29-year-old man was trapped while cleaning a meat-processing fat vat thought to be filled with hydrogen sulfide. The patient was unconscious and was given 100% oxygen and basic life support by EMTs but could not be resuscitated. Postmortem examination showed acute tracheal bronchitis with severe pulmonary edema and hemorrhage of the lungs.

Case 82. A 30-year-old woman presented after ingesting 480 ml of a product containing 26% calcium polysulfide and 10% alpha-(*p*-(1,1,3,3-tetramethylbutyl) phenyl-omega-hydroxypoly (oxyethylene)). She vomited spontaneously and 30 minutes later lost consciousness and seized. She was administered diazepam, sodium bicarbonate, and amyl nitrite. She was subsequently placed in a hyperbaric oxygen chamber, where she manifested a right bundle branch block and arrested. Resuscitation was unsuccessful, and she died 7.5 hours after presentation. Autopsy revealed no significant anatomic findings.

Case 83. A 35-year-old woman had been taking copper supplements for eight years on the advice of a chiropractor. She developed progressive hepatic and renal failure. She presented with coma, ascites, anuria, reticulosis, phosphaturia, choreoathetoid movements, Coombs-negative hemolytic anemia, and hypophosphatemia (1.1 mg/dl). Kayser-Fleischer rings were noted in the eyes. She was given 150 mg of dimercaprol and hemodialyzed once. There was a modest improvement in blood pressure, but later she arrested and died.

Case 85. A 30-year-old man intentionally ingested paraquat 10 hours prior to presentation. He underwent

intubation and lavage, and received charcoal hemoperfusion. He was given multiple doses of charcoal, and diatomaceous earth retention enemas were administered. He became hypoxic and hypotensive—requiring vasopressors—and then experienced upper gastrointestinal bleeding, metabolic acidosis, and anuria. The patient died on the second hospital day.

Case 87. A 64-year-old man presented after intentionally ingesting 180 ml of **paraquat**. He initially complained of diarrhea and experienced bradycardia and diaphoresis. Atropine was given, followed by charcoal hemoperfusion and administration of diatomaceous earth. He subsequently developed renal failure, fixed and dilated pupils, and hypotension, requiring vasopressors. He had evidence of esophageal burns and pulmonary fibrosis and died 24 hours after exposure.

Case 88. A 79-year-old woman presented 9.5 hours after intentionally ingesting 40 ml of **carbon tetrachloride**. She complained of vomiting and diarrhea although alert with normal vital signs. The leukocyte count was 28,300/mm³; serum glutamic oxaloacetic transaminase (SGOT), 149 U/L; and total bilirubin, 2.1 mg/dl. She was loaded with 9,800 mg *N*-acetylcysteine, followed by 4,900 mg every four hours, orally. On the second hospital day, her condition rapidly deteriorated. She developed metabolic acidosis, weakness, lethargy, and decreased renal function. The serum SGOT was 1,404 U/L; blood urea nitrogen, 38 mg/dl; creatinine, 2.1 mg/dl; and bilirubin, 2.5 mg/dl. She developed pulmonary congestion and hypotension. At 44 hours after ingestion, she developed asystole and died.

Case 92. A 12-year-old boy, with cerebral palsy and mental retardation, accidentally ingested 300 to 360 ml of **lamp oil**. Initially, he experienced vomiting and coughing, and was cyanotic. The chest radiograph showed a total white-out of the right lower lobe. Secretions were oily and pinkish. The patient required intubation and ventilation. By the third day after exposure, the secretions had become copious and bloody. By the sixth day after exposure, the patient had three chest tubes for pneumothoraces. Dopamine was required for hypotension. By the ninth day after exposure, the patient had a total of five chest tubes, required positive end expiratory pressure (PEEP) at 16 cm H₂O and a ventilatory rate of 48/min. On the tenth day after exposure, he developed diffuse subcutaneous crepitus with decreased cardiac and urinary output, and eventually arrested.

Case 93. A 13-month-old boy ingested paint thinner (100% **mineral spirits**). Paramedics observed asystole on arrival but achieved sinus rhythm after intubation. A frothy substance was suctioned from the endotracheal tube. The blood pressure was 84/0 mm Hg. Naloxone, dextrose, and sodium bicarbonate were administered. Arterial blood gases revealed a pH of 6.9;

PCO₂, 53 mm Hg; and PO₂ 71 mm Hg with positive end-expiratory pressure (PEEP). Diazepam and phenobarbital were administered for seizure activity and dopamine for hypotension. A chest tube was inserted five hours after ingestion. Later, the blood pressure was 95/16 mm Hg; pulse, 164/min; respirations, 56/min; pH, 7.51; PCO₂, 13 mm Hg; and PO₂, 471 mm Hg. The drug screen was negative. Urine output ceased and did not respond to albumin or furosemide. Sixteen hours after ingestion CPR was initiated for hypotension and dysrhythmias, resulting in normal sinus rhythm. The patient experienced three more episodes of bradycardia and hypotension, which responded to drug therapy until he died 22.5 hours after ingestion. Arterial blood gases just prior to death were pH, 7.17; PCO₂, 48 mm Hg; and PO₂ 75 mm Hg. Post-mortem examination revealed chemical pneumonitis.

Case 98. A 2-year-old boy presented several hours after exposure to **aldicarb**. Increased secretions, respiratory depression, miosis, hypothermia, and evidence of aspiration were noted. Initial red blood cell cholinesterase levels were depressed. He arrested 14 hours after exposure and was successfully resuscitated. Large doses of atropine resulted in a heart rate of 160/min without resolution of rales. An atropine infusion was maintained for three days. Dopamine and insulin were also required. Blood glucose ranged from 150 to 400 mg/dl. On the third day after exposure, exchange transfusions were performed. Seizures developed on the sixth day and were controlled with diazepam. EEGs indicated no brain activity. Life support systems were discontinued on the thirteenth day. Massive amounts of aldicarb and its metabolites were found in the urine.

Case 101. A 41-year-old (96-kg) man was being admitted to a mental health facility when he drank 60 ml of shampoo containing **lindane**. He vomited spontaneously then was given ipecac syrup. Thirty minutes later, he seized. On arrival at the hospital, he was lethargic and diaphoretic, with a blood pressure of 180/80 mm Hg; pulse, 116/min; and respirations, 16/min. Five minutes later, he arrested and was resuscitated. He underwent lavage and was given lidocaine, phenytoin, charcoal, cholestyramine, and sorbitol. Chest radiograph initially revealed a right lower lobe infiltrate that progressed to diffuse bilateral infiltrates. Clindamycin, tobramycin, and hydrocortisone were added. He remained flaccid and developed pitting edema of the upper extremities. On the fifth day, his creatine phosphokinase peaked at 2,795 U/L, and he was extubated. Arterial blood gas testing revealed a pH of 7.47; PCO₂, 32 mm Hg; and PO₂, 82 mm Hg on 40% oxygen with respirations of 44/min. On the seventh day, he arrested and could not be resuscitated. Lindane levels were 1.3 µg/ml on admission and 0.1 µg/ml on the sixth day. The levels at autopsy were

blood, 0.02 µg/ml; fat, 1.45 mg/kg; heart, 0.26 mg/kg; and liver, 0.16 mg/kg.

Case 102. A 16-year-old boy, intent on burglary, entered a house following methyl bromide fumigation for termites. He was inside for approximately 45 minutes. One hour after leaving the house, he began to vomit and complained of being dizzy. On presentation, his heart rate was 160/min, and pH was 7.0. He experienced respiratory failure from marked pulmonary edema. Benzodiazepines and phenytoin were used to treat seizures. At 16 hours after inhalation he arrested. He was resuscitated but died on the second day after inhalation.

Case 107. A 62-year-old woman presented two hours after intentionally ingesting a furniture-refinishing agent containing 20% methanol, 36% acetone, 20% toluene, and 24% isopropanol. She was unresponsive and apneic with a blood pressure of 60 mm Hg, a pulse of 104/min, and no urine output. Levels on admission were methanol, 104 mg/dl; acetone, 114 mg/dl; isopropanol, 101 mg/dl; and ethanol, 108 mg/dl. Blood pressures remained at 50 mm Hg in spite of dopamine and norepinephrine administration. Charcoal was administered and an ethanol infusion initiated, but the family refused dialysis. She remained unresponsive and hypotensive until her death 48 hours after ingestion.

Case 109. A 40-year-old man presented after ingesting a "wild" or "mock" cucumber (*Echinocystis*) several hours earlier. He developed progressive leg and abdominal cramping. Profound shock and tachycardia were treated with antishock trousers and fluids. Dilated pupils and a hematocrit level of 81% were noted. The poison center determined that a mock cucumber was nontoxic, and information on a wild cucumber was not available. The patient developed disseminated intravascular coagulation and refractory shock despite aggressive supportive therapy. Repeated doses of physostigmine and naloxone were ineffective, and he died several hours later. The medical examiner found seeds in the stomach, identified as *Marah oreganus* (common name, coast manroot). Apparently, the patient had prepared a tea for its hallucinogenic properties. This plant resembles a lemon cucumber. Some of the *Marah* plants contain flavinoids. This particular plant contained cucurbitacin, which is cytotoxic.

Case 111. A 35-year-old man complained of epistaxis, hematuria, gingival bleeding, and bilateral back pain. Examination revealed a blood pressure of 124/70 mm Hg; pulse, 72/min; temperature, 36.8°C; diffuse ecchymosis on left side of body; and an inappropriate affect. Laboratory results revealed a prothrombin time of 60 seconds (control, 12.4 seconds), a bleeding time greater than 15 minutes, and a platelet count of 147,000/mm³. An ingestion was denied, although he

later reported "dreams" of bleeding that required massive doses of vitamin K, and he was vague on questions regarding ingestion of brodifacoum. Treatment consisted of six units of fresh frozen plasma and massive subcutaneous doses of phytonadione over 24 hours, with gradual return of the prothrombin time toward normal. Oral phytonadione was instituted with a prothrombin time of 15.6 seconds (control, 12.4 seconds) on discharge five days later. He returned to clinic for follow-up, but refused laboratory work. Seventeen days after discharge, he was found in status epilepticus. Computed tomographic (CT) scanning revealed a massive intradural bleed with multiple small hemorrhages. He was pronounced brain dead in the ED with a prothrombin time of 60 seconds (control, 12.6 seconds) and partial thromboplastin time of 86.6 seconds (control, 26.8 seconds).

Case 112. An 18-year-old man presented one hour after ingesting a rodenticide. He was comatose, with tonic-clonic activity of both upper and lower extremities. He arrested and was resuscitated in the field. In the ED, he was cyanotic, with a pulse of 122/min; blood pressure, 86 mm Hg; temperature, 38.1°C; and no respirations. Laboratory results included a pH of 6.51; PO₂, 269 mm Hg; PCO₂, 63 mm Hg; creatine phosphokinase, 430 U/L; glucose, 683 mg/dl; and serum lactate, 39.5 mmol/L. The urine toxicology screen was positive for strychnine only. Treatment included sodium bicarbonate, diazepam, fluids, dopamine, and ventilation. Gastric lavage was performed, and charcoal and magnesium citrate were administered. Tonic muscle activity was controlled with pancuronium bromide after no response to phenobarbital. At 12 hours, hyperthermia developed and was treated with cooling blankets and ice packs. Rhabdomyolysis resulted in renal failure. ARDS, requiring PEEP, was complicated by a pneumothorax. Brainstem herniation secondary to acidosis and anoxia were diagnosed. The patient was pronounced dead on day 5 from refractory hypotension and bradycardia.

Case 115. A 20-year-old man presented with vomiting, abdominal pain, and tachycardia 40 hours after an intentional overdose of acetaminophen. He had notified his girlfriend of his intent, but denied the ingestion to police who went to his house to check on him. Oral N-acetylcysteine was initiated. Admission laboratory findings included an SGOT of 2,645 U/L; alkaline phosphatase, 84 IU/L; bilirubin, 4.5 mg/dl; and acetaminophen, 67 µg/ml. On the fourth day after ingestion, the patient became lethargic. Repeat laboratory testing revealed an SGOT of 26,700 U/L; uric acid, 52 mg/dl; and bilirubin, 6.5 mg/dl. He died on the fifth day after ingestion.

Case 117. A 25-year-old man, who had been taking acetaminophen throughout the day prior to hospitalization, presented with right-sided head pain. His wife

stated he had been taking two to three acetaminophen every hour. His acetaminophen level, four hours after the last dose, was 22 µg/ml. The admission laboratory findings included an SGOT of 9,410 U/L; serum glutamic pyruvic transaminase (SGPT), 2,290 U/L; and prothrombin time, 18.3 seconds (control, 11.8 seconds). *N*-acetylcysteine was given, and he did well until he suddenly deteriorated and died.

Case 119. A 29-year-old woman presented 12.5 hours after intentionally ingesting 24.5 g of acetaminophen. The patient vomited spontaneously. The acetaminophen level was 175 µg/ml 13 hours after ingestion, and *N*-acetylcysteine administration was begun. The serum salicylate level was 2.7 mg/dl. She continued to vomit and required metoclopramide, promethazine, and nasogastric tube insertion to retain the *N*-acetylcysteine. She developed progressive hepatic and renal insufficiency requiring lactulose, a protein-sparing diet, and dialysis. Approximately 30 hours after ingestion, the SGOT was greater than 5,000 U/L; SGPT, greater than 5,000 U/L; and lactate dehydrogenase, greater than 6,000 U/L. On the third hospital day, prothrombin time was 77 seconds (control, 11 seconds), and arterial ammonia was 280 mmol/L, rising to 597 mmol/L on the fourth day. She died from multiple organ failure on the fifth hospital day.

Case 121. A 65-year-old woman presented with a history of lethargy for two days prior to an intentional ingestion of acetaminophen. She was unresponsive on examination. The seven-hour acetaminophen level was 739 µg/ml, and the 16-hour level was 503 µg/ml. Toxicology screening was positive only for acetaminophen and benzodiazepines. The patient was started on oral *N*-acetylcysteine by 12 hours after ingestion. Admission laboratory findings included an SGOT of 715 U/L; bilirubin, 1.5 mg/dl; prothrombin time, 13 seconds; glucose, 29 mg/dl (240 mg/dl after 2 g dextrose); pH, 7.08 (after 100 mEq of bicarbonate); PCO₂, 30 mm Hg; and PO₂, 106 mm Hg. On the second day after ingestion, intubation and pressor therapy (dopamine and levarterenol) were required. The patient developed progressive cardiac and renal failure and died later that day.

Case 123. A 42-year-old woman presented with lethargy three days after intentionally ingesting acetaminophen, nail polish remover (87% acetone), and a liquid cough and cold preparation. Vital signs were a temperature of 36°C; pulse, 130/min; respirations, 45/min; and blood pressure, 120/70 mm Hg. Hepatic and renal failure developed with coagulation defects, hypoglycemia, and encephalopathy. Hypotension did not respond to 4 L of saline but did respond to dopamine. Naloxone, 50% dextrose, sodium bicarbonate, and calcium chloride were administered. The initial acetaminophen level was 3.3 µg/ml; alkaline phosphatase, 241 IU/L; creatinine, 6.1 mg/dl; blood urea ni-

trogen, 20 mg/dl; albumin, 3.5 g/dl; salicylate level, 34 mg/dl; lactic acid, 15.4 mEq/L; CO₂, 12 mEq/L; and glucose, 42 mg/dl. A full course of oral *N*-acetylcysteine was given. Hemodialysis and filtration were done to treat renal failure. Ten days after ingestion, a CT scan documented severe cerebral edema. The patient progressively deteriorated and died 21 days after ingestion.

Laboratory Tests

Day	SGOT (U/L)	SGPT (U/L)	Bilirubin (mg/dl)	Prothrombin Time (seconds)
3	20,920	2,950	7	43
6	1,278	654	9	21
8	296	330	10	23
11	118	123	18	15
12	88	81	16	—
20	—	—	31	—
21	—	—	36	—

Case 128. A 65-year-old woman presented six to 12 hours after intentionally ingesting up to 80 500-mg acetaminophen 15-mg oxycodone capsules. Initially, she was comatose, with apnea, hypotension, and fixed and dilated pupils. Gastric lavage was performed and charcoal given. Naloxone (1.6 mg) was given with no response. The admission acetaminophen level was 1,000 µg/ml. *N*-acetylcysteine was administered, and levarterenol was required to maintain the blood pressure. On the first day after ingestion, the patient remained on the ventilator and pressor infusion and developed signs of impending liver failure. She died later that day.

Case 153. A 23-year-old man presented two hours after intentionally inhaling isobutyl nitrite and ingesting salicylates. On arrival he was hallucinating and vomiting. Salicylate concentration was 115 mg/dl. Three hours after presentation, cyanosis appeared, which was unresponsive to oxygen and methylene blue. It was learned that the patient received 70 ml of methylene blue (1%) instead of the recommended 7 ml. He arrested eight hours after ingestion and died. The methemoglobin level was 30% prior to the arrest.

Case 157. A 57-year-old man presented two days after intentionally ingesting 15 mg of colchicine. He complained of vomiting, diarrhea, and anorexia and was hypotensive and febrile. Laboratory findings included leukocytosis and elevated renal function parameters. Multiple doses of charcoal were attempted, but vomiting continued during the next 24 hours. The hypotension was refractory to fluids and necessitated dopamine. Renal function deteriorated, and aspiration pneumonia developed, requiring antimicrobial therapy. On the fourth day after ingestion, bleeding

occurred from multiple sites and renal failure required peritoneal dialysis. He experienced leukopenia and ARDS and died on the fifth day after ingestion.

Case 159. A 78-year-old man presented with diarrhea, weakness, and inability to walk. He had received a prescription for colchicine 10 days prior to admission, and only 14 of 60 tablets remained. His heart rate was 98/min; blood pressure, 104/70 mm Hg; respiration, 14/min; and temperature, 35.8°C. Mucous membranes were dry, and his skin "tenting" secondary to dehydration. There was no sensation in the lower extremities, and no deep tendon reflexes, only sensation around the trunk. Laboratory studies revealed renal insufficiency (creatinine, 5.6 mg/dl; blood urea nitrogen, 54 mg/dl), leukopenia (leukocyte count, 1,600/mm³), and thrombocytopenia (platelets, 110,000/mm³). He became hypotensive but was otherwise stable for 48 hours. Then he became progressively unresponsive, went into third-degree heart block and arrested. Postmortem examination revealed bilateral lower lobe congestion, mild splenomegaly, and mild hepatic fibrosis.

Case 171. A 37-year-old man was admitted to the psychiatric ward of a hospital. Two days later he was found in cardiopulmonary arrest. He responded to intubation, lidocaine, and naloxone. Blood pressure was 90 mm Hg, and body temperature was 35.8°C. Toxicologic screen revealed diazepam, 1.67 µg/ml; nordiazepam, 6.29 µg/ml; propoxyphene, 1,021 ng/ml; norpropoxyphene, 2,786 ng/ml. Seizures were refractory to phenytoin, phenobarbital, and paraldehyde but responded to general anesthesia. Aspiration pneumonia occurred, and the patient progressively deteriorated over the next two weeks.

Case 174. A 31-year-old man presented with an altered mental status, hyperthermia (42.7°C), tachycardia, and hyperkalemia (7.4 mEq/L). The delirium was treated with haloperidol and benztropine. It was later learned that he ingested benztropine several hours earlier. Toxicologic screen was positive for benzodiazepine, nicotine, amphetamines, and phenobarbital. Multiple doses of physostigmine were given without result. Dantrolene sodium was used for the hyperthermia. He developed refractory ventricular arrhythmias and died.

Case 176. A 19-year-old man presented four hours after intentionally ingesting carbamazepine, temazepam, aspirin, and levothyroxine. He was unconscious, with a blood pressure of 120/80 mm Hg; a pulse of 130/min, and shallow respirations. Intubation, ventilation, and lavage were done, and charcoal and a cathartic were administered. A grand mal seizure was treated with diazepam, and dopamine was required for persistent hypotension. The admission carbamazepine level was 120 µg/ml, which decreased to 63.6 µg/ml after three hours of charcoal hemoperfusion. Seven

hours later, the level rebounded up to 108 µg/ml then fell to 75 µg/ml after three additional hours of hemoperfusion. Subsequently, he arrested and was initially resuscitated but died after a second cardiac arrest 35 hours after ingestion. Blood toxicology results were also positive for salicylates 21 mg/dl and temazepam 178 ng/ml. The thyroxine concentration was 21.9 µg/dl. Postmortem examination revealed pulmonary edema.

Case 177. A 34-year-old mentally handicapped man presented in a coma and seizures. Vital signs included a blood pressure of 50 mm Hg and a pulse of 75/min. He underwent intubation, ventilation, and lavage. Dopamine, levarterenol, and charcoal were administered. The initial carbamazepine level was 54.8 µg/ml. Seizure activity persisted despite diazepam, phenytoin, and phenobarbital administration. Ventricular tachycardia was treated with lidocaine. At seven hours after the first poison center call, hyperthermia (41.9° C) occurred and was treated with acetaminophen, cooling mats, and ice packs. By 16 hours, the seizure activity had ceased, and the temperature was 38.1° C rectally; pulse, 120/min; and blood pressure, 112/60 mm Hg. By 28 hours, the carbamazepine level had dropped to 12.7 µg/ml. At 52 hours, he was obtunded and anuric. He died at 72 hours. (All times are referenced to the first poison center contact.)

Case 179. A 3-year-old boy presented one hour after ingesting six or more phenytoin capsules. He was ataxic, and emesis was induced with ipecac syrup. Five hours after ingestion, the child was agitated, with tachycardia (130/min) and tachypnea (40/min). Nine hours after ingestion, he experienced a respiratory arrest and was resuscitated. Coma was noted 12 hours after ingestion. A toxicology screen also revealed benzyl alcohol. Multiple doses of charcoal were administered. Pertinent laboratory findings included sodium, 125 mEq/L; potassium, 2.9 mEq/L; arterial pH, 7.3; and PCO₂, 30 mm Hg. At 24 hours postingestion, diabetes insipidus developed, requiring vasopressin. On the third day after ingestion, an EEG showed "minimal" activity; he died later that day.

Time After Ingestion	Plasma Phenytoin Levels (µg/ml)
1 h	50
12 h	47
18 h	43
24-48 h	40

Case 205. A 59-year-old man was admitted unconscious after ingesting amitriptyline/perphenazine, triazolam, and diazepam. He underwent intubation and lavage, and was given charcoal and a cathartic. His

vital signs were "unremarkable," with a pulse of 80/min. He was extubated nine hours after admission. Multiple doses of charcoal were given. He was awake and walking 24 hours after admission. Unexpectedly, he seized, then arrested. The coroner concluded that the death was from cardiac dysrhythmias.

Case 206. An 18-year-old woman intentionally ingested amoxapine. At first she was alert and responsive. She was given ipecac and experienced seizures prior to emesis. The seizures continued despite diazepam, phenytoin, phenobarbital, and sodium bicarbonate administration. She underwent intubation, ventilation, and lavage, and was given charcoal, a cathartic, and physostigmine. The vital signs and cardiac rhythm were normal, and the seizure activity stopped. Later she was described as "bleeding from every orifice" and was unresponsive to any stimuli. The patient died on the third day after ingestion.

Case 209. A 60-year-old woman presented two hours after ingesting amoxapine. A sinus tachycardia was noted, and subsequently she seized. The seizures responded to diazepam, and she was loaded with phenytoin. She underwent intubation and lavage, and was given charcoal, a cathartic, and sodium bicarbonate. Arterial blood gases obtained two hours after ingestion disclosed a pH of 6.97. Five hours after ingestion, seizures recurred and were unresponsive to diazepam, phenytoin, and phenobarbital. Physostigmine was administered, resulting in bradycardia and hypotension. Levarterenol was administered without response, and the patient arrested and died.

Case 252. A 64-year-old woman presented the morning after intentionally ingesting lithium carbonate. She complained of nausea and vomiting but was alert, oriented, and without tremors. The electrocardiogram (EKG) was normal, and the lithium level was 8.5 mEq/L. Charcoal and a cathartic were administered. Urine output was low. The lithium level on the second day after ingestion was 6 mEq/L. The patient continued to be alert and oriented. Mannitol and intravenous fluids were given, and urine output increased to 100 ml/h. Vital signs and the EKG were normal. On the third day after ingestion, she became more lethargic, with a lithium level of 7.1 mEq/L. The urine output was 20 ml/h, and the blood urea nitrogen and creatinine were 47 mg/dl and 4.2 mg/dl, respectively. The patient was hemodialyzed. On the fourth day after ingestion, she arrested and was resuscitated. The lithium level at that time was 5.6 mEq/L. Hypotension (60 mm Hg) occurred and was refractory to levarterenol. Electromechanical dissociation led to her death on the fifth day after ingestion. The toxicologic screen was positive only for lithium.

Case 260. A 24-year-old man presented 14 hours after intentionally ingesting 1.5 g of phenelzine. While initially awake and alert, by 24 hours after ingestion

he was comatose and tremulous with tachycardia (170/min). His blood pressure was normal, but he experienced frequent seizures. The supraventricular tachycardia was treated with propranolol but converted to refractory ventricular tachycardia. He died on the second day after ingestion.

Case 261. A 39-year-old man presented 10 hours after intentionally ingesting phenelzine (3.8 to 8.8 mg/kg). He was diaphoretic and tremulous. Blood pressure was 104/50 mm Hg; pulse, 64/min; respirations, 16/min; and temperature, 35.9° C. The toxicology screen revealed trifluoperazine and phenelzine. Lavage was performed, and he was given serial doses of charcoal, a cathartic, and fluids. Increasing confusion and rigidity required diazepam and restraints. By 36 hours after ingestion, his pulse was 170/min, blood pressure fell to 70 mm Hg, and body temperature was 42° C. The hypotension was refractory to usual therapy including dopamine and norepinephrine. Hyperthermia responded to acetaminophen, cold packs, a cooling blanket, and dantrolene. Refractory pulmonary edema, disseminated intravascular coagulation, and hypercarbia occurred. The pressure fell to 40 mm Hg and was unresponsive to calcium and glucagon. At 43 hours after ingestion, fatal electromechanical dissociation ensued. Postmortem examination revealed marked pulmonary edema and a blood phenelzine level of 140 ng/ml.

Case 263. A 44-year-old man was found unresponsive after intentionally ingesting tranlycypromine (up to 900 mg). He was tremulous with mydriasis. Vital signs included respirations 18/min; blood pressure, 102/72 mm Hg; temperature, 40.4° C; and pulse, 130/min. The EKG demonstrated atrial fibrillation with a QRS duration of 0.11 seconds. He underwent intubation and lavage, and was given charcoal and a cathartic. Arterial blood gases revealed a pH of 7.27, PCO₂, 57; and PO₂, 100 mm Hg. Three hours after admission of the patient, a grand mal seizure was treated with diazepam and phenytoin. Body temperature increased to 42.5° C. After the seizure, he became hypotensive but responded to fluids and dopamine. He was acidemic and anuric. Intermittent wide complex arrhythmias developed, which rapidly deteriorated to ventricular fibrillation. He died from refractory electromechanical dissociation four hours after presentation.

Case 265. A 67-year-old diabetic woman (history of congestive heart failure) intentionally ingested trazodone. The patient was on digoxin therapeutically and had a digoxin level of 2.0 ng/ml on admission. Bradycardia (50/min) with a good pulse was noted. The QTc interval was 0.54 seconds, and QRS was 0.1 seconds. The serum trazodone level was 5,800 ng/ml. Later that day, the patient experienced ventricular tachycardia, then fibrillation. She was intubated then shocked into

asystole. Isoproterenol resulted in a sinus rhythm with pulses. "Torsades de Pointes" developed, which responded to overdrive pacing. Rigidity and decorticate posturing were observed. On the fourth day after ingestion, she was extubated, and the pacer was removed. She was very lethargic and answered some questions appropriately. The QT interval gradually returned to normal (0.43 seconds). On the seventh day after ingestion, she arrested three times. Thereafter, she was unresponsive and died on the nineteenth day after ingestion.

Case 267. A 15-year-old girl presented two to four hours after intentionally ingesting 6,250 mg of **diphenhydramine**. She was seizing, and had a temperature of 41.8° C, a pulse of 160/min, and marked acidosis. The seizures were unresponsive to diazepam, phenytoin, and physostigmine, so the patient was paralyzed with pancuronium. She underwent lavage and was given charcoal. The pulse decreased to 120/min after physostigmine. The patient developed refractory asystole and was pronounced dead five to seven hours after ingestion. The postmortem blood diphenhydramine level was 9.7 µg/ml and liver was 52.6 µg/g.

Case 269. A 12-month-old girl ingested 1 g of **chloroquine**. Unaware of the toxicity, the parents allowed the child to go to sleep. They found her unresponsive 30 minutes later. The child presented in a full cardiopulmonary arrest. She was resuscitated but manifested refractory hypotension. Ventilatory support was terminated on the third day after ingestion.

Case 271. A 6-month-old boy was hospitalized for pulmonary insufficiency from bronchopulmonary dysplasia and right ventricular hypertrophy. The admitting **theophylline** level was 2 µg/ml, and the dosage was increased. Within two days, the level increased to 24 µg/ml, and the dosage was decreased. However, 24 hours later the level was 40 µg/ml, and he manifested tachycardia and shock. Theophylline was discontinued, and charcoal and a cathartic were administered. Seven hours later the level decreased to 33 µg/ml, but the pulse was 190/min. Three hours later refractory asystole occurred, and the patient died.

Case 273. A 15-year-old girl presented after intentionally ingesting 30 g of sustained-action **theophylline**. The initial blood level was 88 µg/ml. She was obtunded, with tachycardia (120 to 130/min) and hypotension (100 mm Hg). Charcoal hemoperfusion was performed but the theophylline level was 190 µg/ml afterward. Ventricular fibrillation occurred but was refractory to treatment. She was placed on cardiac bypass from which she could not be weaned.

Case 274. A 17-year-old girl presented several hours after intentionally ingesting 2.9 g of sustained-release **theophylline**. Her pulse was 190/min and blood pressure was 110/80 mm Hg; and she seized. Her initial theophylline concentration was 93 µg/ml, and a

second level was 117 µg/ml. Fourteen hours after ingestion she was given pancuronium and thiopental for the seizures and dopamine and levarterenol for hypotension. Body temperature reached 40.1° C despite external cooling. Hemodialysis was not performed at this time because of extreme hypotension. On the second day after ingestion, her theophylline level was 80 µg/ml. She developed refractory ventricular fibrillation and was pronounced dead 38 hours after ingestion. The urine toxicology screen revealed no other drugs.

Case 288. A 72-year-old woman had been chronically abusing **ethchlorvinyl** and **theophylline**. She presented with ataxia, vomiting, and multifocal atrial tachycardia (140/min). The theophylline level was 40 µg/ml with a potassium level of 1.9 mEq/L. The theophylline level decreased to 29 µg/ml, and the potassium level increased to 2.9 mEq/L. She developed respiratory failure from aspiration pneumonia and sepsis. The potassium eventually increased to 4.2 mEq/L before she died.

Case 291. A 65-year-old woman presented with suspected **amiodarone** toxicity. The EKG revealed a sinus arrest with a ventricular escape rate of 40/min. Atropine, isoproterenol, and glucagon were ineffective. The pulse remained at 40/min, with a palpable blood pressure of 80. Three hours after admission it was decided that no further life-sustaining measures were to be initiated. The serum amiodarone level was 14 µg/ml (toxic is 2.5 to 6.7 µg/ml). The patient died 24 hours after admission.

Case 294. A 63-year-old woman presented after intentionally ingesting 1 g of **captopril** and some ethanol. She was comatose with miotic pupils, a blood pressure of 72 mm Hg, and a pulse of 104/min. Arterial blood gases revealed a pH of 7.17; PO₂, 45 mm Hg; and PCO₂, 45 mm Hg. She underwent intubation and lavage, and was given fluids, naloxone, dopamine, and charcoal. The hypotension did not respond, and she died within six hours of presentation. Blood ethanol at postmortem examination was 238 mg/dl.

Case 296. A 54-year-old man presented two hours after intentionally ingesting **digoxin**. The pulse was 36/min; temperature, 36.1° C; respirations 24/min; and blood pressure, 96/60 mm Hg. The digoxin level was 30.8 ng/ml, and potassium was 6.1 mEq/L. Lavage was performed and phenytoin infused. Eight hours after ingestion, he became confused and suddenly developed a complex ventricular dysrhythmia. He died nine hours after ingestion without receiving digoxin-specific Fab fragments.

Case 299. A 79-year-old male physician was admitted to rule out a myocardial infarction. A routine serum **digoxin** level, available seven hours after admission, was 24.9 ng/ml. While the digoxin-specific antibody was en route, he arrested but was revived.

He was stabilized on dopamine, epinephrine, and a pacemaker. A digoxin level drawn 17 hours after admission was 16.4 ng/ml. The digoxin-specific Fab fragments were administered 19 hours after admission with little improvement. He experienced arrest again 39 hours after admission and died. An autopsy did not identify any other likely cause of death.

Case 303. A 78-year-old woman became toxic on prescribed digoxin and methyl dopa. She complained of nausea and vomiting, with confusion and decreased bowel sounds noted. An idioventricular rhythm (40/min) was observed, and the blood pressure was 90 mm Hg. The digoxin level was 3.9 ng/ml, and potassium was 3.9 mEq/L. Atropine increased the pulse to 80/min with occasional premature ventricular beats. The blood pressure increased to 110 mm Hg with a dopamine infusion. She appeared stable for several hours until she developed sudden refractory ventricular fibrillation. The patient did not have a repeat digoxin level assay done and never received digoxin-specific fab fragments.

Case 304. A 48-year-old man intentionally ingested digoxin, metoprolol, and ethanol. On arrival he was awake and moaning with a pulse of 30/min. The digoxin level was 10 ng/ml, and digoxin-specific antibodies were requested. While awaiting their arrival, a pacemaker was inserted but did not capture. The patient died seven hours after presentation, before digoxin-specific antibodies could be procured.

Case 312. A 21-year-old woman presented one hour after intentionally ingesting up to 2 g of propranolol and 12 g of flecainide. These drugs were prescribed for her chronic ventricular tachycardia. Her blood pressure was 70/40 mm Hg; pulse, 70/min; respirations 20/min. She developed first-degree heart block 80 minutes after ingestion. She was treated with a theophylline infusion, a transcutaneous pacer, atropine, and dopamine. Two hours after ingestion, she was comatose, the QRS widened, and third-degree heart block was diagnosed. Three hours after ingestion, asystole occurred, which was unresponsive to standard pharmacologic intervention, glucagon, pacing, and open-heart massage. She was pronounced dead 6.5 hours after ingestion. The serum flecainide level at the time of death was 3.2 µg/ml, and postmortem levels were blood, 10.9 µg/ml, and liver, 256 µg/g. The postmortem blood propranolol level was 1.1 µg/ml.

Case 328. An 18-month-old child presented four hours after ingesting ferrous sulfate. The child was unconscious, and the serum iron level six hours after ingestion was 23,000 µg/ml. Intravenous deferoxamine was initiated at 15 mg/kg/h. At 12 to 16 hours after ingestion, hypotension occurred, which responded to fluids. At 24 hours after ingestion, an acute surgical abdomen was diagnosed. An exploratory laparotomy revealed 40 cm of necrotic bowel at the distal ileum,

with perforation and peritonitis. Broad spectrum antibiotics were administered. The serum iron at 24 to 30 hours after ingestion was 200 µg/dl. By 48 to 72 hours after ingestion, elevated liver function tests, bilirubin, and prothrombin time were noted. By 72 hours after ingestion, the child's sensorium cleared. All liver functions returned to normal with supportive care. Respiratory insufficiency beginning seven days after exposure led to the patient's death on the fourteenth day after ingestion.

Case 330. A 40-year-old woman presented after ingestion up to 40 mg of loperamide and an unknown amount of salsalate. Lavage recovered many green tablet particles. She had tachycardia, with a blood pressure of 100/60 mm Hg and respirations of 36/min. Naloxone and sodium bicarbonate were administered. The salicylate level was 77 mg/dl initially and 90 mg/dl 2.5 hours later. At 21 hours after presentation, refractory asystole developed, and the patient died.

Case 331. A 16-year-old bulimic girl presented one hour after intentionally ingesting 8 to 16 ounces of baking soda (sodium bicarbonate) in an attempt to induce vomiting. Lavage was attempted without success because of inability to intubate the stomach. Severe gastrointestinal distension compressed and damaged vital organs. She died 16 hours after ingestion of complications from an infarcted small intestine.

Case 344. A 31-year-old psychotic man received 10 mg of haloperidol intramuscularly every four hours for 24 hours to control his behavior. He was noted to be lethargic all day. He was found in his room, in four-point restraints, in full cardiorespiratory arrest. Resuscitation was unsuccessful. Serum haloperidol level at postmortem examination was 0.1 µg/ml, and no other cause of death was found.

Case 353. An adult woman was found unconscious and hyperthermic (41.7°C). She had been an inpatient at a state mental institution, where thioridazine administration, 150 mg four times daily, was begun three days earlier. She developed ventricular tachycardia with numerous arrests. Despite vigorous resuscitative efforts, her temperature remained between 39.3° and 41.7°C, and extensive multisystem failure occurred. She died two days after admission. The cause of death, as listed by the coroner, was neuroleptic malignant syndrome secondary to thioridazine.

Case 361. A 1-year-old boy presented 15 minutes after ingesting some of his mother's diet pills. He initially convulsed seizure and was treated with diazepam. He was tremulous with a pulse of 200/min; blood pressure, 120/70 mm Hg; and temperature, 38.3° C. Gastric emptying was induced with ipecac syrup; no pill fragments were seen, however. Rigidity, hyperreflexia, and tachycardia (190/min) were noted. During aeromedical transfer 30 hours after ingestion, the child developed status epilepticus and hypoten-

sion (52 mm Hg). He arrested and was resuscitated, underwent lavage, and was given dopamine and albumin. The toxicologic screen showed a caffeine level of 110 mg/dl at 40 hours after ingestion. He developed diabetes insipidus requiring vasopressin. Phenobarbital, glucose, and insulin were administered. The caffeine level after three fourths of an exchange transfusion was 161 mg/dl. A CT scan showed diffuse cerebral edema. He became hypertensive (190/115 mm Hg) and responded to hydralazine and hyperventilation. At 72 hours after ingestion, an EEG indicated brain death. Life support was discontinued.

Case 363. A 19-year-old man ingested five bags of cocaine and presented with tachydysrhythmias and shallow respirations. He was intubated and ventilated, and underwent lavage; charcoal and a cathartic were administered. His tachycardia responded to propranolol. Six hours after presentation, he was extubated. Twelve hours after presentation, he arrested and could not be resuscitated. Cocaine toxicity was confirmed by the medical examiner.

Case 386. A 25-year-old woman presented after injecting heroin, snorting cocaine, and ingesting diaz-

epam. She arrested and was resuscitated with naloxone and dopamine. Her blood pressure was 40 mm Hg, and her temperature was 28.9° C. The hypothermia was due to her boyfriend packing her in ice. She underwent intubation, ventilation, and lavage. Aspiration pneumonia was suspected, but by four hours after admission, she had fulminant pulmonary edema. The PO₂ on 100% oxygen was 50 mm Hg. Naloxone, dopamine, and dobutamine infusions were required. She arrested several times during the night. By the second day after ingestion, no brain stem functions were present. She died from hypoxic encephalopathy and ARDS.

Case 405. A 52-year-old man was exposed to 250 ml of povidone iodine, which was accidentally dropped into his chest cavity during a thoracotomy. His condition deteriorated one hour after the incident. Metabolic acidosis and hypotension required dopamine and large volumes of fluid. Urine output remained low. Aggressive physical therapy and lavage of the povidone iodine from the tracheobronchial tree were employed. He continued to deteriorate, remained acidotic, and died.