



1997 Annual Report of the American Association of Poison Control Centers Toxic Exposure Surveillance System

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

From its inception in 1983, TESS has grown dramatically, with increases in the number of participating poison centers, population served by those centers, and reported human exposures (Table 1).¹⁻¹⁴

The cumulative AAPCC database now contains 22.6 million human poison exposure cases. This report includes 2,192,088 human exposure cases reported by 66 participating poison centers during 1997, an increase of 1.7% compared with 1996 poisoning reports.

CHARACTERIZATION OF PARTICIPATING CENTERS

Of the 66 reporting centers, 62 submitted data for the entire year. Forty-nine of the 66 participating centers were certified as regional poison centers by the AAPCC in 1997. Annual center call volumes (human exposure cases only) ranged from 3,889 to 101,067 (mean 34,887) for centers

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

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

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

Age (yr)	Male		Female		Unknown		Total		Cumulative Total	
	No.	Row %	No.	Row %	No.	Row %	No.	Col %	No.	Col %
<1	74,302	52.4	66,987	47.2	507	0.4	141,796	6.5	141,796	6.5
1	190,377	52.9	168,759	46.9	793	0.2	359,929	16.4	501,725	22.9
2	192,735	53.4	167,164	46.3	784	0.2	360,683	16.5	862,408	39.3
3	89,331	55.0	72,804	44.8	346	0.2	162,481	7.4	1,024,889	46.7
4	43,260	56.2	33,473	43.5	185	0.2	76,918	3.5	1,101,807	50.3
5	26,121	56.7	19,770	42.9	144	0.3	46,035	2.1	1,147,842	52.4
Unknown child ≤5	1,316	42.6	1,165	37.7	608	19.7	3,089	0.1	1,150,931	52.5
6-12	86,117	56.3	66,201	43.3	670	0.4	152,988	7.0	1,303,919	59.5
13-19	69,110	43.0	91,097	56.7	500	0.3	160,707	7.3	1,464,626	66.8
Unknown child	1,105	38.1	1,058	36.5	735	25.4	2,898	0.1	1,467,524	66.9
Total children (<20)	773,774	52.7	688,478	46.9	5,272	0.4	1,467,524	66.9	1,467,524	66.9
20-29	80,245	44.3	100,773	55.6	194	0.1	181,212	8.3	1,648,736	75.2
30-39	78,770	42.7	105,541	57.2	198	0.1	184,509	8.4	1,833,245	83.6
40-49	50,772	41.3	71,956	58.6	99	0.1	122,827	5.6	1,956,072	89.2
50-59	24,146	38.8	37,964	61.1	59	0.1	62,169	2.8	2,018,241	92.1
60-69	13,339	36.8	22,913	63.2	26	0.1	36,278	1.7	2,054,519	93.7
70-79	9,702	34.8	18,183	65.2	21	0.1	27,906	1.3	2,082,425	95.0
80-89	4,388	30.6	9,940	69.3	18	0.1	14,346	0.7	2,096,771	95.7
90-99	690	25.9	1,971	74.1	0	0.0	2,661	0.1	2,099,432	95.8
Unknown adult	32,645	39.0	48,936	58.4	2,148	2.6	83,729	3.8	2,183,161	99.6
Total adults	294,697	41.2	418,177	58.4	2,763	0.4	715,637	32.6	2,183,161	99.6
Unknown age	2,827	31.7	3,720	41.7	2,380	26.7	8,927	0.4	2,192,088	100.0
Total	1,071,298	48.9	1,110,375	50.7	10,415	0.5	2,192,088	100.0	2,192,088	100.0

were observed in the warmer months (up to 6,396/day in June) compared to 5,387 consultations per day in December.

The age and gender distribution of human poison exposure victims is outlined in Table 3. Children younger than 3 years of age were involved in 39.3% of cases, and 52.5% occurred in children younger than 6 years. A male predominance is found among poison exposure victims younger than 13 years of age, but the gender distribution is reversed in teenagers and adults. Although the gender distribution was nearly equal for unintentional exposures, 59.8% of intentional exposures occurred in females, as did 63.8% of adverse

reactions. Of all poison exposures captured, 7,250 occurred in pregnant women. Of those with known pregnancy duration, 31% occurred in the first trimester, 38% in the second trimester, and 31% in the third trimester. In 4.6% of cases (100,521 cases) multiple patients were implicated in the poison exposure episode (eg, siblings "shared" a household product, multiple patients inhaled vapors at a hazardous materials spill).

Table 4 presents the age and gender distribution for the 786 reported fatalities. Although responsible for the majority of poisoning reports, children younger than 6 years of age comprised just 3.2% (25) of the fatalities. Sixty percent of poisoning fatalities occurred in 20- to 49-year-old individuals.

A single substance was implicated in 88.6% of reports, and 1.7% of patients were exposed to more than two possibly poisonous drugs or products (Table 5). In contrast, 13.9% of fatal cases involved more than two drugs or products. The overwhelming majority of human exposures were acute (93.7%) compared to only 57.4% of poison-related fatal exposures. Chronic exposures comprised 2.2% of all poison exposure

TABLE 4. Distribution of Age and Gender for 786 Fatalities

Age (yr)	Male	Female	Total	%	Cumulative	Cumulative
					Total	%
<1	4	4	8	1.0	8	1.0
1	2	2	4	0.5	12	1.5
2	4	0	4	0.5	16	2.0
3	2	1	3	0.4	19	2.4
4	2	2	4	0.5	23	2.9
5	2	0	2	0.3	25	3.2
6-12	2	2	4	0.5	29	3.7
13-19	28	20	48	6.1	77	9.8
20-29	71	41	112	14.2	189	24.0
30-39	108	70	178	22.6	367	46.7
40-49	97	83	180	22.9	547	69.6
50-59	46	44	90	11.5	637	81.0
60-69	24	32	56	7.1	693	88.2
70-79	21	29	50	6.4	743	94.5
80-89	14	12	26	3.3	769	97.8
90-99	1	4	5	0.6	774	98.5
Unknown adult	4	8	12	1.5	786	100.0
Total	432	354	786	100.0	786	100.0

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

No. of Substances	No. of Cases	% of Cases
1	1,942,079	88.6
2	213,619	9.7
3	20,197	0.9
4	7,951	0.4
5	3,166	0.1
6	1,449	0.1
7	631	0.0
8	321	0.0
≥9	2,675	0.1
Total	2,192,088	100.0

TABLE 6. Reason for Human Poison Exposure Cases

Reason	No.	%
Unintentional		
General	1,444,152	65.9
Therapeutic error	131,872	6.0
Bites and envenomations	85,659	3.9
Misuse	70,416	3.2
Environmental	57,218	2.6
Food poisoning	50,553	2.3
Occupational	45,726	2.1
Unknown	3,324	0.2
Total	1,888,920	86.2
Intentional		
Suicidal	163,842	7.5
Misuse	33,963	1.5
Abuse	30,203	1.4
Unknown	11,377	0.5
Total	239,385	10.9
Other		
Malicious	6,564	0.3
Contaminant/tampering	4,480	0.2
Total	11,044	0.5
Adverse Reaction		
Drug	31,896	1.5
Other	9,996	0.5
Food	5,220	0.2
Total	47,112	2.1
Unknown	5,627	0.3
Total	2,192,088	100.0

reports, and acute-on-chronic exposures comprised 3.5%. (Chronic exposures were defined as continuous or repeated exposures occurring in a period exceeding 8 hours.)

Reason for exposure was coded according to the following definitions: *Unintentional general*: All unintentional exposures not specifically defined below. Most unintentional exposures in children are captured here. *Environmental*: Any passive, nonoccupational exposure that results from contamination of air, water, or soil. Environmental exposures are usually caused by man-made contaminants. *Occupational*: An exposure that occurs as a direct result of the person being on the job or in the workplace. *Therapeutic error*: An unintentional deviation from a proper therapeutic regimen that results in the wrong dose, incorrect route of administration, administration to the wrong person, or administration of the wrong substance. Only exposures to medications or products substituted for medications are included. Drug interactions resulting from unintentional administration of drugs or foods which are known to interact are also included. *Unintentional misuse*: Unintentional improper or incorrect use of a nonpharmaceutical substance. Unintentional misuse

differs from intentional misuse in that the exposure was unplanned or not foreseen by the patient. *Bite/sting*: All animal bites and stings, with or without envenomation, are included. *Food poisoning*: Suspected or confirmed food poisoning; ingestion of food contaminated with microorganisms is included. *Unintentional unknown*: An exposure determined to be unintentional but the exact reason is unknown. *Suspected suicidal*: An exposure resulting from the inappropriate use of a substance for reasons that are suspected to be self destructive or manipulative. *Intentional misuse*: An exposure resulting from the intentional improper or incorrect use of a substance for reasons other than the pursuit of a psychotropic effect. *Intentional abuse*: An exposure resulting from the intentional improper or incorrect use of a substance where the victim was likely attempting to achieve a euphoric or psychotropic effect. All recreational use of substances for any effect is included. *Intentional unknown*: An exposure that is determined to be intentional but the specific motive is unknown. *Contaminant/tampering*: The patient is an unintentional victim of a substance that has been adulterated (either maliciously or unintentionally) by the introduction of an undesirable substance. *Malicious*: This category is used to capture patients who are victims of another person's intent to harm them. *Adverse reaction*: An adverse event occurring with normal, prescribed, labeled or recommended use of the product, as opposed to overdose, misuse or abuse. Included are cases with an unwanted effect due to an allergic, hypersensitive, or idiosyncratic response to the active ingredients, inactive ingredients, or excipients. Concomitant use of a contraindicated medication or food is excluded, and coded instead as a therapeutic error.

The vast majority (86.2%) of poison exposures were unintentional; suicidal intent was present in 7.5% of cases (Table 6). Therapeutic errors comprised 6.0% of exposures (131,872 cases), with unintentional nonpharmaceutical product misuse comprising another 3.2% of exposures (70,416 cases). Unintentional poisonings outnumbered intentional poisonings in all age groups (Table 7). In contrast, of the 786 human poisoning fatalities reported, 79% of adult deaths (older than 19 years of age) were intentional (Table 8).

Ingestions accounted for 74.0% of exposure routes (Table 9), followed in frequency by dermal, inhalation, and ocular exposures. For the 786 fatalities, ingestion, inhalation, and parenteral were the predominant exposure routes.

Clinical effects (signs, symptoms, or laboratory abnormalities) were coded in 30.6% of cases (17.6% had one effect, 7.6% had two effects, 3.4% had three effects, 1.3% had four effects, 0.4% had five effects, and 0.3% had more than five effects). Of 1,452,691 clinical effects coded, 78.8% were

TABLE 7. Distribution of Reason for Exposure by Age

Reason	<6 Years		6-12 Years		13-19 Years		>19 Years		Unknown		Total	
	No.	Row %	No.	Row %	No.	Row %	No.	Row %	No.	Row %	No.	Col %
Unintentional	1,143,980	60.6	139,877	7.4	83,953	4.4	513,055	27.2	8,055	0.4	1,888,920	86.2
Intentional	1,332	0.6	8,156	3.4	70,208	29.3	156,665	65.4	3,024	1.3	239,385	10.9
Other	971	8.8	1,581	14.3	2,004	18.1	6,340	57.4	148	1.3	11,044	0.5
Adverse Reaction	4,149	8.8	2,842	6.0	3,659	7.8	36,104	76.6	358	0.8	47,112	2.1
Unknown	499	8.9	532	9.5	883	15.7	3,473	61.7	240	4.3	5,627	0.3
Total	1,150,931	52.5	152,988	7.0	160,707	7.3	715,637	32.6	11,825	0.5	2,192,088	100.0

TABLE 8. Distribution of Reason for Exposure and Age for 786 Fatalities

Reason	<6 Years	6-12 Years	13-19 Years	>19 Years	Total
Unintentional					
General	14	1	0	3	18
Environmental	3	0	2	17	22
Occupational	0	0	0	11	11
Therapeutic error	2	0	0	42	44
Misuse	0	0	0	4	4
Bite/sting	1	0	0	3	4
Food poisoning	0	0	0	2	2
Unknown	0	0	0	2	2
Total	20	1	2	84	107
Intentional					
Suicide	0	0	20	398	418
Misuse	0	0	1	26	27
Abuse	1	1	18	95	115
Unknown	0	0	3	40	43
Total	1	1	42	559	603
Other	0	1	0	1	2
Adverse Reaction	2	0	1	17	20
Unknown	2	1	3	48	54
Total	25	4	48	709	786

deemed related, 8.0% were considered not related, and 13.2% were coded as "unknown if related."

The majority of cases reported to poison centers were managed in a non-health care facility (74.9%), usually at the site of exposure, the patient's own home (Table 10). Treatment in a health care facility was rendered in 21.7% of cases and recommended in another 2.1% of patients who refused the referral. Of cases managed in a health care facility, 58.0% were treated and released without admission, 12.4% were admitted for critical care, and 6.9% were admitted for noncritical care. Where treatment was provided in a health care facility, 40.5% of the patients were referred in by the poison center and 59.5% were already in or en route to the health care facility when the poison center was contacted. Health care facilities used included acute care hospitals (85.9%), physician offices or clinics (11.8%), and freestanding emergency centers (2.2%).

Table 11 displays the medical outcome of the human poison exposure cases distributed by age, showing more

TABLE 9. Distribution of Route of Exposure for Human Poison Exposure Cases and 786 Fatalities

Route	All Exposure Cases		Fatal Exposure Cases	
	No.	%	No.	%
Ingestion	1,704,987	74.0	645	76.2
Dermal	189,976	8.2	10	1.2
Inhalation	155,206	6.7	85	10.0
Ocular	138,249	6.0	3	0.4
Bites and stings	88,843	3.9	4	0.5
Parenteral	7,972	0.3	47	5.6
Aspiration	3,730	0.2	10	1.2
Other	5,606	0.2	2	0.2
Unknown	8,899	0.4	40	4.7
Total	2,303,468	100.0	846	100.0

NOTE: Multiple routes of exposure were observed in many poison exposure victims. Percentage is based on the total number of exposure routes (2,303,468 for all patients, 846 for fatal cases) rather than the total number of human exposures (2,192,088) or fatalities (786).

TABLE 10. Management Site of Human Poison Exposure Cases

Site	No.	%
Managed on-site, non-health care facility	1,640,916	74.9
Managed in health care facility		
Treated and released	276,012	12.6
Admitted to critical care	59,211	2.7
Admitted to noncritical care	32,872	1.5
Admitted to psychiatry	29,409	1.3
Lost to follow-up; left AMA	78,303	3.6
Unspecified level of care	466	0.0
Subtotal	476,273	21.7
Other	18,867	0.9
Refused referral	45,636	2.1
Unknown	10,396	0.5
Total	2,192,088	100.0

ABBREVIATION: AMA, against medical advice.

severe outcomes in the older age groups. Table 12 compares medical outcome and reason for exposure, and demonstrates the greater frequency of serious outcome in intentional exposures. Table 13 demonstrates the increasing duration of the clinical effects observed with more severe outcomes. Medical outcome categories were as follows: *No effect*: The patient developed no signs or symptoms as a result of the exposure. *Minor effect*: The patient developed some signs or symptoms as a result of the exposure but they were minimally bothersome, and generally resolved rapidly with no residual disability or disfigurement. A minor effect is often limited to the skin or mucous membranes (eg, self-limited gastrointestinal symptoms, drowsiness, skin irritation, first degree dermal burn, sinus tachycardia without hypotension, and transient cough). *Moderate effect*: The patient exhibited signs or symptoms as a result of the exposure that were more pronounced, more prolonged, or more of a systemic nature than minor symptoms. Usually some form of treatment is indicated. Symptoms were not life-threatening and the patient has no residual disability or disfigurement (eg, corneal abrasion, acid-base disturbance, high fever, disorientation, hypotension that is rapidly responsive to treatment, and isolated brief seizures that respond readily to treatment). *Major effect*: The patient exhibited signs or symptoms as a result of the exposure that were life-threatening or resulted in significant residual disability or disfigurement (eg, repeated seizures or status epilepticus, respiratory compromise requiring intubation, ventricular tachycardia with hypotension, cardiac or respiratory arrest, esophageal stricture, and disseminated intravascular coagulation). *Death*: The patient died as a result of the exposure or as a direct complication of the exposure. Only those deaths that were probably or undoubtedly related to the exposure are coded here. *Not followed, judged as nontoxic exposure*: No follow-up calls were made to determine the patient's outcome because the substance implicated was nontoxic, the amount implicated was insignificant, or the route of exposure was unlikely to result in a clinical effect. *Not followed, minimal clinical effects possible*: No follow-up calls were made to determine the patient's outcome because the exposure was likely to result in only minimal toxicity of a trivial nature. (The patient was expected to experience no more than a minor effect.) *Unable to follow, judged as a potentially toxic exposure*: The patient was lost to follow-up, refused follow-up, or was not followed but the exposure was

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

Outcome	<6 Years		6-12 Years		13-19 Years		>19 Years		Unknown		Total	
	No.	Col %	No.	Col %	No.	Col %	No.	Col %	No.	Col %	No.	%
No effect	395,487	34.4	31,782	20.8	30,313	18.9	93,007	13.0	1,296	11.0	551,885	25.2
Minor effect	123,836	10.8	32,706	21.4	44,485	27.7	186,714	26.1	1,592	13.5	389,333	17.8
Moderate effect	9,202	0.8	3,798	2.5	13,020	8.1	58,253	8.1	415	3.5	84,688	3.9
Major effect	607	0.1	211	0.1	1,187	0.7	7,552	1.1	32	0.3	9,589	0.4
Death	25	0.0	4	0.0	48	0.0	709	0.1	0	0.0	786	0.0
No follow-up, nontoxic	290,122	25.2	28,177	18.4	12,604	7.8	58,528	8.2	1,479	12.5	390,910	17.8
No follow-up, minimal toxicity	297,884	25.9	47,839	31.3	40,012	24.9	214,753	30.0	3,263	27.6	603,751	27.5
No follow-up, potentially toxic	14,053	1.2	3,407	2.2	13,761	8.6	53,033	7.4	3,256	27.5	87,510	4.0
Unrelated effect	19,715	1.7	5,064	3.3	5,277	3.3	43,088	6.0	492	4.2	73,636	3.4
Total	1,150,931	52.5	152,988	7.0	160,707	7.3	715,637	32.6	11,825	0.5	2,192,088	100.0

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

Outcome	Unintentional		Intentional		Other		Adverse Reaction		Unknown		Total	
	No.	Col %	No.	Col %	No.	Col %	No.	Col %	No.	Col %	No.	Col %
No effect	503,687	26.7	45,765	19.1	1,318	11.9	704	1.5	411	7.3	551,885	25.2
Minor effect	309,320	16.4	65,498	27.4	2,728	24.7	10,894	23.1	893	15.9	389,333	17.8
Moderate effect	45,872	2.4	33,091	13.8	551	5.0	4,493	9.5	681	12.1	84,688	3.9
Major effect	2,257	0.1	6,709	2.8	36	0.3	347	0.7	240	4.3	9,589	0.4
Death	107	0.0	603	0.3	2	0.0	20	0.0	54	1.0	786	0.0
No follow-up, nontoxic	383,632	20.3	4,752	2.0	1,076	9.7	1,255	2.7	195	3.5	390,910	17.8
No follow-up, minimal toxicity	544,522	28.8	36,324	15.2	3,436	31.1	18,175	38.6	1,294	23.0	603,751	27.5
No follow-up, potentially toxic	41,553	2.2	41,494	17.3	969	8.8	2,393	5.1	1,101	19.6	87,510	4.0
Unrelated effect	57,970	3.1	5,149	2.2	928	8.4	8,831	18.7	758	13.5	73,636	3.4
Total	1,888,920	86.2	239,385	10.9	11,044	0.5	47,112	2.1	5,627	0.3	2,192,088	100.0

significant and may have resulted in a moderate, major, or fatal outcome. *Unrelated effect*: The exposure was probably not responsible for the effect. *Confirmed nonexposure*: This outcome option was used during coding to designate cases where there was reliable and objective evidence that an exposure initially believed to have occurred actually never occurred (eg, all missing pills are later located). All cases coded as confirmed non-exposure are excluded from this report. In 1997 there were 6,582 such cases reported nationally.

Tables 14 and 15 outline the use of decontamination procedures, specific antidotes, and measures to enhance elimination in the treatment of patients reported in this database. These must be interpreted as minimum frequencies because of the limitations of telephone data gathering. Ipecac syrup was administered in 1.5% of cases. In children under 6 years of age, ipecac syrup was most often administered outside a health care facility. This pattern was reversed in teenagers and adults. Ipecac was used more often in

children under 6 years of age (82.6% of all ipecac use). Table 16 demonstrates a continued decline in the use of ipecac-induced emesis in the treatment of poisoning.

Table 17A presents the most common substance categories listed by frequency of exposure. Tables 17B and 17C present similar data for children and adults, respectively, and show the considerable differences between pediatric and adult poison exposures. Table 18 lists the substance categories with the largest number of reported deaths; analgesics and antidepressants led this list. A remarkable chronologic constancy of selected demographic data elements is shown in Table 19. A breakdown of plant exposures is provided for those most commonly implicated (Table 20).

A summary of the 786 fatal exposures is presented in Table 21. Each of these cases was abstracted and verified by the reporting center, with only those exposures deemed "probably" or "undoubtedly" responsible for the fatality included in this compendium. The highest blood level of implicated substances is provided where available to the reporting poison center. Prehospital cardiac and/or respiratory arrests occurred in 40% of all fatalities, and these are indicated in Table 21.

TABLE 13. Duration of Clinical Effects by Medical Outcome

Duration of Effect	Minor Effect (Col %)	Moderate Effect (Col %)	Major Effect (Col %)
≤2 hours	41.8	7.1	2.8
>2 hours, ≤8 hours	24.6	22.2	8.9
>8 hours, ≤24 hours	18.6	30.2	28.1
>24 hours, ≤3 days	7.1	17.9	29.1
>3 days, ≤1 week	2.1	8.2	12.9
>1 week, ≤1 month	0.6	2.9	6.8
>1 month	0.2	0.9	1.2
Anticipated permanent	0.0	0.2	3.1
Unknown	4.9	10.5	7.0

TABLE 14. Decontamination and Therapeutic Intervention

Therapy	No. of Patients	%
Decontamination only	1,275,061	58.2
No therapy provided	281,034	12.8
Observation only	273,929	12.5
Decontamination and other therapy	126,474	5.8
Other therapy only (no decontamination)	81,274	3.7
Unknown if therapy provided/patient refused	154,316	7.0

TABLE 15. Therapy Provided in Human Exposure Cases

Therapy	No.
Decontamination	
Dilution/irrigation	1,094,301
Activated charcoal, single dose	142,826
Cathartic	98,236
Gastric lavage	53,342
Ipecac syrup	32,098
Activated charcoal, multidose	13,387
Other emetic	6,365
Whole bowel irrigation	1,986
Measures to Enhance Elimination	
Hemodialysis	927
Hemoperfusion	55
Other extracorporeal procedure	33
Specific Antidote Administration	
<i>N</i> -acetylcysteine (oral)	10,034
Naloxone	7,044
Flumazenil	2,200
Antivenin	856
Atropine	758
Ethanol	714
<i>N</i> -acetylcysteine (IV)	552
Hyperbaric oxygen	522
Phytonadione	324
Pyridoxine	294
Deferoxamine	286
Fab fragments	231
Folate	211
Pralidoxime (2-PAM)	201
Physostigmine	188
Succimer	143
Dimercaprol (BAL)	125
EDTA	114
Sodium thiosulfate	73
Methylene blue	66
Amyl nitrite	47
Sodium nitrite	43
Penicillamine	36
Hydroxocobalamin	28
Other Intervention	
Alkalinization (with or without diuresis)	6,702
Transplantation	20
ECMO	12

TABLE 16. Decontamination Trends

Year	Human Exposures Reported	% of Exposures		Ipecac Administered (% of Exposures)	Activated Charcoal Administered (% of Exposures)
		Involving Children <6 Years			
1983	251,012	64.0	13.4	4.0	
1984	730,224	64.1	12.9	4.0	
1985	900,513	63.4	15.0	4.6	
1986	1,098,894	63.0	13.3	5.2	
1987	1,166,940	62.3	10.1	5.2	
1988	1,368,748	61.8	8.4	6.5	
1989	1,581,540	61.1	7.0	6.4	
1990	1,713,462	60.8	6.1	6.7	
1991	1,837,939	59.9	5.2	7.0	
1992	1,864,188	58.8	4.3	7.3	
1993	1,751,476	56.0	3.7	7.3	
1994	1,926,438	54.1	2.7	6.8	
1995	2,023,089	52.9	2.3	7.7	
1996	2,155,952	52.8	1.8	7.3	
1997	2,192,088	52.5	1.5	7.1	

TABLE 17A. Substances Most Frequently Involved in Human Exposures

Substance	No.	%*
Cleaning substances	227,489	10.4
Analgesics	226,452	10.3
Cosmetics and personal care products	198,084	9.0
Plants	123,139	5.6
Cough and cold preparations	110,870	5.1
Bites/envenomations	96,153	4.4
Foreign bodies	94,023	4.3
Insecticides/pesticides (includes rodenticides)	88,255	4.0
Topicals	80,403	3.7
Food products, food poisoning	79,640	3.6
Sedatives/hypnotics/antipsychotics	75,266	3.4
Antidepressants	69,338	3.2
Antimicrobials	68,073	3.1
Hydrocarbons	66,645	3.0
Alcohols	64,870	3.0
Chemicals	58,061	2.6

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

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

Several observations are worth noting following a review of the fatalities. Fatal overdoses with acetaminophen, aspirin, tricyclic antidepressants and calcium channel blockers remain common. Even with the advent of new antidepressant drugs, tricyclic antidepressants still account for a large number of fatalities. The unusually large number of combined phenobarbital and ethanol fatalities this year were due to the mass suicide by 42 members of a cult.

As debate continues on the role of gastrointestinal decontamination in managing acute oral intoxications, it is interesting to note fatal cases where blood levels continued to rise for a prolonged period of time after the ingestion. Several aspirin, carbamazepine and valproate deaths demonstrated marked delays in peak blood levels.

TABLE 17B. Substances Most Frequently Involved in Pediatric Exposures (Children Under 6 Years)

Substance	No.	%*
Cosmetics and personal care products	146,661	12.7
Cleaning substances	129,346	11.2
Analgesics	96,158	8.4
Plants	84,615	7.4
Cough and cold preparations	72,185	6.3
Foreign bodies	67,729	5.9
Topicals	59,826	5.2
Pesticides (includes rodenticides)	45,391	3.9
Antimicrobials	40,546	3.5
Vitamins	37,990	3.3
Gastrointestinal preparations	36,455	3.2
Arts/crafts/office supplies	29,771	2.6
Hydrocarbons	26,896	2.3
Hormones and hormone antagonists	22,415	1.9
Food products/food poisoning	22,043	1.9

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

*Percentages are based on the total number of exposures in children under 6 years, rather than the total number of substances.

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

Substance	No.	%*
Analgesics	73,691	10.3
Cleaning substances	66,045	9.2
Bites/envenomations	52,974	7.4
Sedatives/hypnotics/antipsychotics	49,404	6.9
Antidepressants	40,979	5.7
Food products, food poisoning	39,653	5.5
Alcohols	31,036	4.3
Cosmetics and personal care products	28,027	3.9
Insecticides/pesticides (includes rodenticides)	27,320	3.8
Chemicals	27,106	3.8
Fumes/gases/vapors	26,450	3.7
Hydrocarbons	25,312	3.5
Cardiovascular	20,542	2.9
Plants	18,400	2.6
Cough and cold preparations	18,105	2.5

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

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

Unintentional poisoning deaths continue to occur in young children. Nonpharmaceuticals were responsible for over half of the fatalities in children under 6 years of age. Cleaners and caustics accounted for six of these deaths.

Alcohols, analgesics and antidepressants were responsible for almost half of the adolescent deaths. The intentional abuse of volatile inhalants and their attribution to loss of life in school age children is a troubling, persistent problem. Of the 48 adolescent deaths, 21% were due to inhalation of air fresheners, hydrocarbons or fluorocarbons. The low cost and ease of access to these substances make them readily available to adolescents and pre-adolescents. Continued vigilance and accelerated interventions for this form of substance abuse are needed.

Tables 22A and 22B provide comprehensive demographic data on patient age, reason for exposure, medical outcome, and use of a health care facility for all 2,192,088 exposures, presented by category. Table 22A focuses on nonpharmaceuticals; Table 22B presents drugs. Of the 2,445,869 sub-

TABLE 18. Categories with Largest Numbers of Deaths

Category	No.	% of All Exposures in Category
Analgesics	246	0.109
Antidepressants	154	0.222
Sedative/hypnotics/antipsychotics	132	0.175
Stimulants and street drugs	127	0.305
Alcohols	112	0.173
Cardiovascular drugs	77	0.183
Gases and fumes	41	0.091
Chemicals	34	0.059
Anticonvulsants	25	0.116
Antihistamines	25	0.048
Cleaning substances	25	0.011
Asthma therapies	22	0.127
Cold and cough preparations	14	0.013
Insecticides/pesticides (includes rodenticides)	14	0.016
Automotive products	13	0.089

TABLE 19. 15-Year Comparisons of Fatality Data

Year	Total Fatalities		Suicides		Pediatric Deaths (<6 years)	
	No.	% of Cases	No.	% of Deaths	No.	% of Deaths
1983	95	0.038	60	63.2	10	10.5
1984	293	0.040	165	56.3	21	7.2
1985	328	0.036	178	54.3	20	6.1
1986	406	0.037	223	54.9	15	3.7
1987	397	0.034	226	56.9	22	5.5
1988	545	0.040	297	54.5	28	5.1
1989	590	0.037	323	54.7	24	4.1
1990	612	0.036	350	57.2	25	4.1
1991	764	0.042	408	53.4	44	5.8
1992	705	0.038	395	56.0	29	4.1
1993	626	0.036	338	54.0	27	4.3
1994	766	0.040	410	53.5	26	3.4
1995	724	0.036	405	55.9	20	2.8
1996	726	0.034	358	49.3	29	4.0
1997	786	0.036	418	53.2	25	3.2

stances logged in Tables 22A and 22B, 57.2% were nonpharmaceuticals and 42.8% were pharmaceuticals. The reason for the exposure was intentional for 25.7% of pharmaceutical substances implicated compared with only 4.2% of nonpharmaceutical substances. Correspondingly, treatment in a health care facility was provided in a higher percentage of exposures to pharmaceutical substances (34.3%) compared with nonpharmaceutical substances (16.4%). Pharmaceutical exposures also had more severe outcomes. Of substances implicated in fatal cases, 75.6% were pharmaceuticals, compared with only 42.8% in nonfatal cases. Similarly, 76.9% of substances implicated in major outcomes were pharmaceuticals.

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

TABLE 20. Frequency of Plant Exposures by Plant Type

Botanical Name	Common Name	Frequency
<i>Capsicum annum</i>	Pepper	5,136
<i>Philodendron</i> spp	Philodendron	4,236
<i>Euphorbia pulcherrima</i>	Poinsettia	3,216
<i>Spathiphyllum</i> spp	Peace lily	3,155
<i>Ilex</i> spp	Holly	2,927
<i>Dieffenbachia</i> spp	Dumbcane	2,354
<i>Phytolacca americana</i>	Pokeweed, inkberry	2,041
<i>Toxicodendron radicans</i>	Poison ivy	1,738
<i>Crassula</i> spp	Jade plant	1,724
<i>Epipremnum aureum</i>	Pothos, devil's ivy	1,438
<i>Eucalyptus</i> spp	Eucalyptus	1,186
<i>Rhododendron</i> spp	Rhododendron, azalea	1,106
<i>Chrysanthemum</i> spp	Chrysanthemum	1,098
<i>Hedera helix</i>	English ivy	1,096
<i>Taxus</i> spp	Yew	1,031
<i>Taraxacum officinale</i>	Dandelion	1,028
<i>Pyracantha</i> spp	Pyracantha	1,011
<i>Schlumbergera Bridgesii</i>	Christmas cactus	953
<i>Brassaia actinophylla</i>	Umbrella tree	908
<i>Nerium oleander</i>	Oleander	900

NOTE: This table provides the frequency of involvement of plants in exposures reported to poison centers with no correlation with severity of toxicity. Several of the plants on the list pose little, if any, ingestion hazard.

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1997

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval After Exposure
NONPHARMACEUTICALS							
Alcohols							
1 ^{NP}	14 yr	Ethanol	A	Ingestion	Int abuse	348 mg/dL	
2 ^P	20 yr	Ethanol	A	Ingestion	Int abuse	600 mg/dL	
3 ^{NP}	20 yr	Ethanol	A	Ingestion	Int abuse	340 mg/dL§	
4 ^P	39 yr	Ethanol	A/C	Ingestion	Int abuse		
5	43 yr	Ethanol acetaminophen	U	Ingestion	Ther error	3 µg/mL	
6	32 yr	Ethanol amitriptyline	A	Ingestion	Int suicide	331 mg/dL	
7 ^P	55 yr	Ethanol clozapine	A/C	Ingestion	Int abuse	376 mg/dL§	
8	41 yr	Ethanol cocaine marijuana	U	Unknown	Int abuse		
9	40 yr	Ethanol isopropanol acetone	U	Ingestion	Int abuse	14 mg/dL 18.1 mg/dL	
10 ^P	18 yr	Ethanol methadone clonidine	A	Ingestion	Int abuse	180 mg/dL	
11 ^P	56 yr	Ethanol oxycodone propoxyphene	A/C	Ingestion	Int abuse	182 mg/dL§ 130 ng/mL§ 0.47 µg/mL§	
12 ^P	> 19 yr	Ethanol prochlorperazine	U	Ingestion	Unknown	norpropoxyphene 2.2 µg/mL§	
13 ^P	55 yr	Ethanol propoxyphene fluoxetine	A/C	Ingestion	Int suicide	50 mg/dL§ 4.3 µg/mL§ norpropoxyphene 4.4 µg/mL§ 200 ng/mL§ norfluoxetine 300 ng/mL§	
14 ^P	62 yr	Isopropanol	A	Ingestion	Int suicide	200 mg/dL	
15 ^P	47 yr	Isopropanol pine oil	A	Ingestion	Int suicide		
16	17 yr	Methanol	A	Ingestion	Unknown	275 mg/dL	
17 ^A	17 yr	Methanol	A	Ingestion	Int abuse	76 mg/dL	
18 ^P	18 yr	Methanol	A	Ingestion	Int abuse		
19	27 yr	Methanol	A	Ingestion	Int suicide	85 mg/dL	
20 ^A	33 yr	Methanol	A	Ingestion	Int abuse	142 mg/dL	
21	40 yr	Methanol	A	Ingestion	Int suicide	280 mg/dL	
22	40 yr	Methanol	A	Ingestion	Int suicide	100 mg/dL	
23	41 yr	Methanol ethanol	U	Ingestion	Int abuse	184 mg/dL 200 mg/dL	
24 ^P	27 yr	Methanol olanzapine	A	Ingestion	Int suicide	72 mg/dL	
25	35 yr	Unidentified alcohol	U	Ingestion	Int suicide		
26	47 yr	Unidentified alcohol or glycol	A	Ingestion	Int unknown		
See also cases 23, 41, 42, 49, 138, 139, 140, 141, 142, 219, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 275, 316, 344, 349, 351, 357, 358, 363, 364, 369, 418, 419, 420, 421, 422, 423, 424, 426, 438, 465, 485, 513, 523, 598, 602, 616, 617, 630, 639, 652 thru 690, 696, 733, 743, 763, 764, 765 (ethanol); 9 (isopropanol).							
Automotive products							
27 ^P	23 yr	Antifreeze (ethylene glycol)	U	Ingestion	Int suicide		
28	24 yr	Antifreeze (ethylene glycol)	A	Ingestion	Int suicide	273 mg/dL	
29 ^A	29 yr	Antifreeze (ethylene glycol)	A	Ingestion	Int suicide	240 mg/dL	12 h
30 ^P	30 yr	Antifreeze (ethylene glycol)	A	Ingestion	Int suicide	43 mg/dL	
31	37 yr	Antifreeze (ethylene glycol)	A	Ingestion	Int suicide	160 mg/dL	
32	38 yr	Antifreeze (ethylene glycol)	A	Ingestion	Int suicide		
33	41 yr	Antifreeze (ethylene glycol)	A	Ingestion	Malicious	49 mg/dL	
34	41 yr	Antifreeze (ethylene glycol)	A	Ingestion	Int unknown	110 mg/dL	
35	50 yr	Antifreeze (ethylene glycol)	A	Ingestion	Int suicide		
36	51 yr	Antifreeze (ethylene glycol)	A	Ingestion	Int suicide	9 mg/dL	
37	51 yr	Antifreeze (ethylene glycol)	A	Ingestion	Int unknown	17 mg/dL	
38 ^P	54 yr	Antifreeze (ethylene glycol)	A	Ingestion	Int suicide	270 mg/dL§	

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1997 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval After Exposure
39	80 yr	Antifreeze (ethylene glycol)	A	Ingestion	Int suicide	178 mg/dL	
40	26 yr	Antifreeze (ethylene glycol)	A	Ingestion	Int suicide		
41 ^a	63 yr	diphenhydramine Antifreeze (ethylene glycol)	A	Ingestion	Int suicide	27 mg/dL§ 99 mg/dL	
42	76 yr	ethanol Antifreeze ethylene glycol)	A/C	Ingestion	Int suicide	340 mg/dL	
43	46 yr	ethanol Antifreeze (ethylene glycol)	U	Ingestion	Int unknown		
44	47 yr	meclizine	A	Ingestion	Int suicide	62 mg/dL§	
45	28 yr	Fuel treatment (methanol)	A	Ingestion	Int suicide	150 mg/dL	
46	40 yr	Windshield washer fluid (methanol)	A	Ingestion	Int abuse	219 mg/dL	
47 ^p	40 yr	Windshield washer fluid (methanol)	A/C	Ingestion	Int abuse		
48	48 yr	Windshield washer fluid (methanol)	A	Ingestion	Int unknown	635 mg/dL	
Bites and envenomations							
49 ⁱ	35 yr	Cobra (monocled) cocaine ethanol	A	Bite/Ing/Inh	Bite/sting		
50	85 yr	Hymenoptera stings	A	Bite/sting	Bite/sting		
51 ^p	51 yr	Insect bite or sting	A	Bite/sting	Bite/sting		
52 ^a	4 yr	Rattlesnake	A	Bite	Bite/sting		
Building and construction products							
53 ^p	22 yr	Cement (powdered)	A	Aspiration	Occ		
Chemicals							
54 ^p	24 yr	Cyanide	A	Ingestion	Int suicide		
55 ^p	41 yr	Cyanide	A	Ingestion	Int suicide		
56 ^p	63 yr	Cyanide	A	Ingestion	Int suicide		
57	89 yr	Cyanide	A	Ingestion	Int suicide		
58 ^p	58 yr	Cyanide strychnine	A	Ingestion	Int suicide		
59	18 yr	Ethylene glycol	A	Ingestion	Int unknown	41 mg/dL	
60 ^p	36 yr	Ethylene glycol	A	Ingestion	Int unknown		
61	41 yr	Ethylene glycol	U	Ingestion	Int suicide		
62	37 yr	Ethylene glycol	A	Ingestion	Int suicide	26 mg/dL	
		acetaminophen				9 µg/mL	
63	43 yr	Ethylene glycol propylene glycol carbon monoxide	A	Ingestion	Int unknown	30 mg/dL 50 mg/dL	
64	69 yr	Formaldehyde (10%)	A	Other	Ther error		
65	73 yr	Glycine	A	Other	Ther error		
66	43 yr	Hydrochloric acid	A	Ingestion	Int unknown		
67 ^a	30 yr	Hydrofluoric acid nitric acid	A	Derm/Inh	Occ		
68 ^{pp}	40 yr	Pepper spray	A	Derm/ Inh/Oc	Adv rxn		
69	6 yr	Phenol	U	Ingestion	Unknown		
70 ^p	56 yr	Sodium hydroxide/sodium sulfide	A	Derm/ Inh/Oc	Occ		
71	33 yr	Unknown liquid	A	Ingestion	Occ		
<i>See also cases 9 (acetone); 136, 137 (cyanide); 67 (nitric acid); 63 (propylene glycol); 58 (strychnine).</i>							
Cleaning substances							
72 ^p	8 mo	Cleaner	A	Aspiration	Unint gen		
73 ^p	11 mo	Cleaner in water	A	Aspiration	Unint gen		
74	24 yr	Cleaner (phosphoric acid, 12%)	A	Ingestion	Int suicide		
75 ^a	2 yr	Condenser coil cleaner (hydrofluoric acid/ hydrochloric acid)	A	Ingestion	Unint gen		
76	94 yr	Deodorizing cleaner (phenol 0.4%)	A	Asp/Ing	Unint gen		
77	74 yr	Dishwashing liquid (hand)	A	Ingestion	Unknown		
78	82 yr	Drain opener	A	Dermal	Unint gen		
79	61 yr	Drain opener (alkali)	A	Ingestion	Int suicide		
80	43 yr	Drain opener (hydrochloric acid 15-18%)	A	Ingestion	Int suicide		
81	45 yr	Drain opener (Hydrochloric acid, 15-18%)	A	Ingestion	Int suicide		

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1997 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval After Exposure
82	70 yr	Drain opener (hydrochloric acid, 15-18%)	A	Ingestion	Int suicide		
83 ^a	30 yr	Drain opener (sodium hydroxide)	A	Ingestion	Int suicide		
84	40 yr	Drain opener (sodium hydroxide)	A	Ingestion	Int suicide		
85	72 yr	Drain opener (sodium hydroxide, 14%/ potassium hydroxide, 0.5%)	A	Ingestion	Int suicide		
86 ^p	>19 yr	Drain opener (sodium hydroxide/sodium hypochlorite)	A	Ingestion	Int suicide		
87	57 yr	Drain opener (sodium hydroxide crystals) drain opener (sulfuric acid)	A	Ingestion	Int suicide		
88	45 yr	Drain opener (sodium hydroxide/sodium hypochlorite) fluoxetine naproxen	A	Ingestion	Int suicide		
89	3 yr	Drain opener (sulfuric acid)	A	Derm/Ing/Oc	Unint gen		
90 ^a	37 yr	Drain opener (sulfuric acid, 97%)	A	Ingestion	Int suicide		
91	52 yr	Drain opener (sulfuric acid)	A	Ingestion	Int suicide		
92 ^a	37 yr	Lye (sodium hydroxide)	A	Ingestion	Int suicide		
93	78 yr	Pine oil/isopropanol cleaner	A	Ingestion	Int suicide		
94 ^a	18 mo	Rust remover (hydrofluoric acid/ammonium bifluoride)	A	Asp/Ing	Unint gen		
95 ^a	32 yr	Rust remover (hydrofluoric acid, 6-8%)	A	Ingestion	Int suicide		
96 ^a	3 yr	Wheel cleaner (ammonium fluoride/ammonium bifluoride)	A	Asp/Ing	Unint gen		
<i>See also cases 727 (bleach); 87 (drain opener, sulfuric acid); 15 (pine oil).</i>							
Cosmetics and personal care products							
97 ^a	4 yr	Mouthwash (ethanol)	A	Ingestion	Unint gen	220 mg/dL	
98 ^p	48 yr	Perfume (ethanol)	A	Asp/Ing	Int unknown		
Deodorizers							
99 ^{ap}	13 yr	Air freshener (aerosol)	A	Inhalation	Int abuse		
100 ^p	16 yr	Air freshener	U	Inhalation	Int abuse		
101 ^p	17 yr	Air freshener (aerosol)	A	Inhalation	Int abuse		
Food products/food poisoning							
102	35 yr	<i>E coli</i> food poisoning	A	Ingestion	Food poisoning		
103 ⁱ	81 yr	<i>Salmonella</i> food poisoning	A	Ingestion	Food poisoning		
Fire extinguishers							
104 ^p	21 yr	Fire extinguisher (bromochlorodifluoromethane)	U	Inhalation	Int abuse		
Foreign body							
<i>See also cases 268, 597 (activated charcoal).</i>							
Fumes, gases and vapors							
105 ^{ap}	25 yr	Argon gas	A	Inhalation	Occ		
106 ^{ap}	30 yr	Carbon dioxide	A	Inhalation	Int unknown		
107 ^p	4 yr	Carbon monoxide/smoke	A	Inhalation	Env	13%	
108 ^p	4 yr	Carbon monoxide/smoke	A	Inhalation	Env		
109 ^p	5 yr	Carbon monoxide/smoke	A	Inhalation	Env	40%	
110 ^p	17 yr	Carbon monoxide	A	Inhalation	Int suicide	30%	
111	20s yr	Carbon monoxide	A	Inhalation	Unknown	66%§	
112	28 yr	Carbon monoxide	A	Inhalation	Unknown	4%	
113 ^p	30 yr	Carbon monoxide	A	Inhalation	Int suicide		
114 ^p	30 yr	Carbon monoxide	A	Inhalation	Int suicide		
115 ^p	31 yr	Carbon monoxide	A	Inhalation	Int suicide	25%	
116 ^p	31 yr	Carbon monoxide	A	Inhalation	Int suicide		
117 ^p	36 yr	Carbon monoxide/smoke	A	Inhalation	Env	48%	
118 ^p	37 yr	Carbon monoxide	A	Inhalation	Env		
119 ^p	42 yr	Carbon monoxide	A	Inhalation	Unknown		
120 ^p	42 yr	Carbon monoxide	A	Inhalation	Int suicide		
121 ^p	42 yr	Carbon monoxide	A	Inhalation	Int suicide		
122 ^a	45 yr	Carbon monoxide	A	Inhalation	Int suicide	32%	

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1997 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval After Exposure
123 ^P	46 yr	Carbon monoxide	A	Inhalation	Env		
124 ^P	47 yr	Carbon monoxide	A	Inhalation	Int suicide	35%	
125 ^P	48 yr	Carbon monoxide	A	Inhalation	Int suicide		
126 ^P	51 yr	Carbon monoxide	A	Inhalation	Int suicide	43%	
127 ^{AP}	54 yr	Carbon monoxide	C	Inhalation	Env	79%§	
128 ^P	66 yr	Carbon monoxide/smoke	A	Inhalation	Env		
129	70 yr	Carbon monoxide/smoke	A	Inhalation	Env	25%	
130 ^P	71 yr	Carbon monoxide	A	Inhalation	Env		
131 ^P	82 yr	Carbon monoxide/smoke	A	Inhalation	Env	56%	
132	85 yr	Carbon monoxide	A	Inhalation	Env	38%	
133	>19 yr	Carbon monoxide	A	Inhalation	Unknown		
134	>19 yr	Carbon monoxide/smoke	U	Inhalation	Env		
135 ^P	29 yr	Carbon monoxide bupropion	A	Ing/Inh	Int suicide	30%	
136	19 yr	Carbon monoxide/smoke cyanide	A	Inhalation	Env	22%	
137	50 yr	Carbon monoxide/smoke cyanide	A	Inhalation	Env	27%	
138 ^P	29 yr	Carbon monoxide ethanol	A	Ing/Inh	Int suicide	61%	
139 ^P	39 yr	Carbon monoxide ethanol	A	Ing/Inh	Env	90 mg/dL 53%§	
140 ^P	43 yr	Carbon monoxide ethanol	A	Ing/Inh	Int suicide	108 mg/dL§ 81%§	
141 ^P	49 yr	Carbon monoxide ethanol	A	Ing/Inh	Env	70 mg/dL§ 12%§	
142 ^P	61 yr	Carbon monoxide/smoke ethanol	A	Ing/Inh	Env	195 mg/dL§	
143 ^P	>19 yr	Carbon monoxide opiate	A	Inh/Paren	Env	38%	
144	48 yr	Ethylene compressed gas	A	Inhalation	Occ		
145 ^{AP}	30s yr	Hydrogen sulfide carbon monoxide	A	Inhalation	Occ	23%	
146 ^P	11 yr	Isobutane/propane propellants (hair sculpting foam)	A	Inhalation	Int abuse		
<i>See also cases 63, 145 (carbon monoxide).</i>							
Heavy metals							
147 ^A	57 yr	Arsenic-iron-strychnine tonic	A	Ingestion	Int suicide	arsenic 0.07 µg/mL iron 121 µg/dL	
148 ^P	70 yr	Copper zinc	A	Ingestion	Unknown	471 µg/L§ 3,070 µg/L§	
149 ^I	48 yr	Dimethylmercury	A	Dermal	Occ	4,000 µg/L	
150	48 yr	Galvanized zinc	U	Inhalation	Occ		
Herbicides							
151 ^A	61 yr	Copper sulfate herbicide	A	Ingestion	Int suicide		
152 ^A	35 yr	Diquat	A	Ingestion	Int suicide	4.384 µg/mL	
153	69 yr	Glyphosate (41%)	A	Asp/Ing	Int suicide		
154 ^A	41 yr	Paraquat	A	Dermal	Occ	0.169 µg/mL	
155	51 yr	Paraquat	A	Ingestion	Unint misuse		
156	68 yr	2,4-dichlorophenoxyacetic acid	A	Ingestion	Int suicide		
Hydrocarbons							
157 ^P	30 yr	Aerosol propellant	A	Inhalation	Int abuse		
158 ^P	16 yr	Butane	U	Inhalation	Int abuse		
159 ^P	19 yr	Butane	A	Inhalation	Int abuse		
160 ^P	13 yr	Chlorodifluoromethane	A	Inhalation	Int abuse		
161 ^{AP}	14 yr	Chlorodifluoromethane	A	Inhalation	Env		
162 ^{AP}	14 yr	Fluorochlorocarbons	A	Inhalation	Int abuse		
163 ^{AP}	19 mo	Gasoline	A	Asp/Ing	Unint gen		

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1997 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval After Exposure
164 ^P	15 yr	Gasoline	A/C	Inhalation	Int abuse		
165 ^A	34 yr	Gasoline midazolam morphine	A	Derm/ Paren	Env		
166 ^P	19 yr	Hydrocarbon solvent in paint	A	Inhalation	Int abuse		
167 ^A	11 mo	Paint thinner (mineral spirits)	A	Asp/Ing	Unint gen		
168 ^{AP}	42 yr	Toluene	A/C	Inhalation	Int abuse		
<i>See also cases 316 (turpentine).</i>							
Insecticides/pesticides (excluding rodenticides)							
169 ^A	>19 yr	Chlordane paroxetine	A	Ingestion	Int suicide		
170 ^P	72 yr	Chlorpyrifos	A	Ingestion	Int suicide		
171	56 yr	Diazinon	A	Ingestion	Int suicide		
172	25 yr	Kelthane acephate	U	Derm/Inh	Occ		
173 ^A	36 yr	Methyl bromide chloropicrin	C	Inhalation	Env	bromide 27 mg/dL	
174 ^P	45 yr	Organophosphate	A	Ingestion	Unint misuse		
175	38 yr	Roach spray (chlorpyrifos) cocaine	A	Derm/Inh	Unint misuse		
176	81 yr	Unknown insecticide	A	Ingestion	Unknown		
<i>See also case 271 (acephate).</i>							
Lacrimators							
<i>See also case 173 (chloropicrin).</i>							
Mushrooms							
177 ^A	32 yr	<i>Amanita phalloides</i>	A	Ingestion	Unint misuse		
178 ^P	28 yr	Psilocybin mushrooms benzodiazepine unknown drugs	U	Unknown	Int abuse		
Rodenticides							
179	46 yr	Anticoagulant (long-acting)	U	Ingestion	Int unknown		
180 ^P	21 yr	Anticoagulant aspirin	U	Ingestion	Int suicide		
181 ^A	39 yr	Brodifacoum	U	Ingestion	Int suicide	160 ng/mL§	
<i>See also cases 305 (brodifacoum); 467 (rodenticide).</i>							
Tobacco							
182 ^{AP}	11 mo	Cigarette butts diazepam	A	Ingestion	Unint gen		
PHARMACEUTICALS							
Analgesics							
183 ^A	18 mo	Acetaminophen	C	Ingestion	Ther error	46 µg/mL	
184 ^A	3 yr	Acetaminophen	U	Ingestion	Unknown	11 µg/mL	
185	15 yr	Acetaminophen	A	Ingestion	Int misuse		
186	18 yr	Acetaminophen	A	Ingestion	Int suicide	203 µg/mL	17 h
187	18 yr	Acetaminophen	U	Ingestion	Int unknown	33 µg/mL	
188	22 yr	Acetaminophen	A	Ingestion	Int suicide	23 µg/mL	36 h
189	23 yr	Acetaminophen	A	Ingestion	Int suicide	104 µg/mL	48 h
190	26 yr	Acetaminophen	C	Ingestion	Ther error		
191	30 yr	Acetaminophen	A	Ingestion	Int suicide	333 µg/mL	
192	31 yr	Acetaminophen	A	Ingestion	Int suicide		
193	34 yr	Acetaminophen	A	Ingestion	Int suicide		
194	36 yr	Acetaminophen	C	Ingestion	Int suicide	276 µg/mL	
195	36 yr	Acetaminophen	C	Ingestion	Int misuse	43 µg/mL	
196	37 yr	Acetaminophen	U	Ingestion	Unint unknown		
197	38 yr	Acetaminophen	A	Ingestion	Int suicide		
198	38 yr	Acetaminophen	U	Ingestion	Int unknown	33 µg/mL	
199	39 yr	Acetaminophen	A	Ingestion	Int suicide		
200	41 yr	Acetaminophen	A	Ingestion	Int suicide	92 µg/mL	

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1997 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval After Exposure
201	44 yr	Acetaminophen	A	Ingestion	Int misuse	106 µg/mL	15 h
202 ^a	45 yr	Acetaminophen	A	Ingestion	Int suicide		
203	50 yr	Acetaminophen	A/C	Ingestion	Int suicide	56 µg/mL	12 h
204	54 yr	Acetaminophen	A	Ingestion	Int suicide	118 µg/mL	
205	55 yr	Acetaminophen	A	Ingestion	Int suicide	167 µg/mL	
206	56 yr	Acetaminophen	C	Ingestion	Ther error	9 µg/mL	
207	56 yr	Acetaminophen	C	Ingestion	Ther error	87 µg/mL	
208	57 yr	Acetaminophen	A	Ingestion	Int suicide	132 µg/mL	12 h
209	60 yr	Acetaminophen	C	Ingestion	Ther error		
210	61 yr	Acetaminophen	C	Ingestion	Int misuse	123 µg/mL	
211 ^a	64 yr	Acetaminophen	C	Ingestion	Int misuse		
212	64 yr	Acetaminophen	U	Ingestion	Int unknown	40 µg/mL	
213	75 yr	Acetaminophen	C	Ingestion	Int misuse	225 µg/mL	
214	84 yr	Acetaminophen	C	Ingestion	Ther error	45 µg/mL	
215	39 yr	Acetaminophen	U	Ingestion	Unknown	68 µg/mL	
216 ^a	39 yr	acetaminophen/codeine acetaminophen/codeine	C	Ingestion	Ther error	51 µg/mL	
217 ^b	43 yr	Acetaminophen acetaminophen/dextromethorphan/ pseudoephedrine/doxylamine aspirin	A/C	Ingestion	Int suicide	22 µg/mL	
218	49 yr	Acetaminophen acetaminophen/propoxyphen	A/C	Ingestion	Int suicide	14 mg/dL 19 µg/mL	24 h
219	57 yr	Acetaminophen acetaminophen/propoxyphene ethanol	U	Ingestion	Int unknown	98 µg/mL	24 h
220 ^b	36 yr	Acetaminophen amlodipine amitriptyline	A/C	Ingestion	Int suicide	1,365 µg/mL 168 ng/mL§ nortriptyline 208 ng/mL§	
221	41 yr	Acetaminophen cocaine opiate	U	Ingestion	Unknown	76 µg/mL	
222	82 yr	Acetaminophen dimenhydrinate acetaminophen/propoxyphene	A/C	Ingestion	Int misuse	83 µg/mL	
223	34 yr	Acetaminophen ethanol	C	Ingestion	Ther error	9 µg/mL	
224	40 yr	Acetaminophen ethanol	U	Ingestion	Int suicide	50 µg/mL 56 mg/dL	
225	45 yr	Acetaminophen ethanol	U	Ingestion	Int misuse	40 µg/mL	>48 h
226	45 yr	Acetaminophen ethanol	A/C	Ingestion	Int misuse	6 µg/mL	
227	54 yr	Acetaminophen ethanol	C	Ingestion	Ther error		
228	59 yr	Acetaminophen ethanol	A/C	Ingestion	Int suicide	22 µg/mL	
229	63 yr	Acetaminophen ethanol	A/C	Ingestion	Unknown	11 µg/mL	
230	63 yr	Acetaminophen ethanol	U	Ingestion	Unknown	68 µg/mL 15 mg/dL	
231	50 yr	Acetaminophen ethanol acetaminophen/oxycodone	C	Ingestion	Ther error	2 µg/mL	
232	32 yr	Acetaminophen ethanol cocaine	U	Ingestion	Unknown	52 µg/mL	
233	41 yr	Acetaminophen lisinopril hydrochlorothiazide	A	Ingestion	Int suicide	191 µg/mL	14 h
234	74 yr	Acetaminophen lithium tamoxifen	A/C	Ingestion	Int suicide	120 µg/mL 1.4 mEq/L	

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1997 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval After Exposure
235	69 yr	Acetaminophen opiate	A/C	Ingestion	Int suicide	117 µg/mL	12 h
236	43 yr	Acetaminophen phenobarbital	U	Ingestion	Unknown	12 µg/mL 22.7 µg/mL	>24 h
237	25 yr	Acetaminophen phenytoin valproic acid	A	Ingestion	Int suicide	120 µg/mL 15.6 µg/mL 89 µg/mL	
238	44 yr	Acetaminophen tricyclic antidepressant	A	Ingestion	Int suicide	32 µg/mL 214 ng/mL	
239	59 yr	Acetaminophen/codeine	A	Ingestion	Int misuse	39 µg/mL‡	
240	47 yr	Acetaminophen/codeine cyclobenzaprine	A	Ingestion	Int suicide		
241 ^P	36 yr	Acetaminophen/codeine diclofenac alprazolam	A	Ingestion	Int suicide		
242	29 yr	Acetaminophen/diphenhydramine	A	Ingestion	Int suicide	87 µg/mL‡	12-16 h
243	46 yr	Acetaminophen/diphenhydramine acetaminophen/pentazocine	A	Ingestion	Int suicide	424 µg/mL‡	26 h
244	40 yr	Acetaminophen/diphenhydramine acetaminophen/pseudoephedrine acetaminophen/pseudoephedrine/ diphenhydramine	A	Ingestion	Int suicide		
245 ^P	28 yr	Acetaminophen/hydrocodone	A	Ingestion	Int suicide	147 µg/mL‡	
246	34 yr	Acetaminophen/hydrocodone	C	Ingestion	Int misuse	18 µg/mL‡	
247	41 yr	Acetaminophen/hydrocodone	C	Ingestion	Int misuse		
248	46 yr	Acetaminophen/hydrocodone	A	Ingestion	Int suicide		
249	53 yr	Acetaminophen/hydrocodone	C	Ingestion	Int misuse	71 µg/mL‡	
250	34 yr	Acetaminophen/hydrocodone amitriptyline	U	Ingestion	Int suicide	27 µg/mL‡	
251 ^P	72 yr	Acetaminophen/hydrocodone aspirin/butalbital/caffeine	A	Ingestion	Int suicide	66 µg/mL‡§ 62 mg/dL¶ butalbital 24 µg/mL§	
252 ^P	14 yr	Acetaminophen/hydrocodone carisoprodol	A	Ingestion	Int suicide		
253	29 yr	Acetaminophen/hydrocodone carisoprodol	U	Ingestion	Int suicide		
254	74 yr	Acetaminophen/hydrocodone clonazepam	A/C	Ingestion	Int suicide		
255 ^I	35 yr	Acetaminophen/hydrocodone cocaine	A	Ing/Inh	Adv rxn		
256	55 yr	Acetaminophen/hydrocodone iodinated glycerol/dextromethorphan	A	Ingestion	Int suicide		
257	69 yr	Acetaminophen/hydrocodone salicylate	C	Ingestion	Int abuse	99 µg/mL‡ 13 mg/dL	
258	88 yr	Acetaminophen/hydrocodone temazepam propoxyphene	A/C	Ingestion	Unknown		
259	42 yr	Acetaminophen/isometheptene/ dichloralphenazone aspirin/butalbital/caffeine	A	Ingestion	Int suicide	0.1 µg/mL‡ 4 mg/dL¶ butalbital 3 µg/mL	
260	46 yr	Acetaminophen/oxycodone	A/C	Ingestion	Ther error	107 µg/mL‡	
261	28 yr	Acetaminophen/propoxyphene	A	Ingestion	Int suicide	3 µg/mL‡	
262	35 yr	Acetaminophen/propoxyphene	A/C	Ingestion	Int suicide		
263 ^P	35 yr	Acetaminophen/propoxyphene	A	Ingestion	Int suicide	propoxyphene 1.6 µg/mL§ norpropoxyphene 2.2 µg/mL§	
264	36 yr	Acetaminophen/propoxyphene	U	Ingestion	Unknown	175 µg/mL‡	
265	65 yr	Acetaminophen/propoxyphene	A	Ingestion	Int suicide	420 µg/mL‡	
266	68 yr	Acetaminophen/propoxyphene	A	Ingestion	Int suicide	125 µg/mL‡	
267	25 yr	Acetaminophen/propoxyphene acetaminophen/codeine	A/C	Ingestion	Unknown	6 µg/mL‡	
268	69 yr	Acetaminophen/propoxyphene activated charcoal	C	Ingestion	Int unknown		

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1997 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval After Exposure
269 ^P	31 yr	Acetaminophen/propoxyphene amitriptyline sertraline	A	Ingestion	Int unknown	224 µg/mL§¥ propoxyphene 2.0 µg/mL§ 490 ng/mL§ nortriptyline 1,490 ng/mL§ 1,160 ng/mL§	
270 ^P	44 yr	Acetaminophen/propoxyphene butalbital codeine	A	Ingestion	Int suicide	35 µg/mL¥ 13.8 µg/mL 990 ng/mL	
271 ^P	30s yr	Acetaminophen/propoxyphene carbamazepine amitriptyline	A/C	Ingestion	Int suicide	>200 µg/mL¥ 40.8 µg/mL	
272 ^P	25 yr	Acetaminophen/propoxyphene	A	Ingestion	Int suicide	propoxyphene 3.10 µg/mL§ norpropoxyphene 2.40 µg/mL§ 22.0 µg/mL§	
273 ^P	45 yr	Acetaminophen/propoxyphene carisoprodol gabapentin	A/C	Ingestion	Int suicide		
274	45 yr	Acetaminophen/propoxyphene clonazepam	A/C	Ingestion	Int suicide	424 µg/mL¥	
275 ^P	32 yr	Acetaminophen/propoxyphene ethanol	A	Ingestion	Int suicide	35 µg/mL¥ 222 mg/dL	8 h
276 ^P	47 yr	Acetaminophen/propoxyphene	A	Ingestion	Int suicide	100 µg/mL¥ propoxyphene 0.6 µg/mL 4.8 µg/mL	
277	40 yr	Acetaminophen/propoxyphene hydroxyzine ibuprofen	A/C	Ingestion	Int abuse	154 µg/mL¥	
278 ^P	58 yr	Acetaminophen/propoxyphene lorazepam	A	Ingestion	Int suicide		
279	34 yr	Acetaminophen/propoxyphene risperidone venlafaxine	A/C	Ingestion	Int suicide	16 µg/mL¥	
280 ^P	60 yr	Acetaminophen/propoxyphene verapamil	A/C	Ingestion	Int suicide	522 µg/mL¥ propoxyphene 7.8 µg/mL 0.99 µg/mL	
281	16 yr	Aspirin	A	Ingestion	Int suicide	122 mg/dL	
282	24 yr	Aspirin	U	Ingestion	Unknown	77 mg/dL	
283	24 yr	Aspirin	A	Ingestion	Int suicide	378 mg/dL	
284	28 yr	Aspirin	A	Ingestion	Int suicide	96 mg/dL	
285 ^A	29 yr	Aspirin	U	Ingestion	Int misuse	111 mg/dL	
286	32 yr	Aspirin	A	Ingestion	Int suicide	106 mg/dL	
287	38 yr	Aspirin	A	Ingestion	Int suicide	100 mg/dL	
288	40 yr	Aspirin	A	Ingestion	Int suicide	53 mg/dL	
289	41 yr	Aspirin	A	Ingestion	Int suicide	52 mg/dL	
290	48 yr	Aspirin	A	Ingestion	Int unknown	65 mg/dL	
291	50 yr	Aspirin	C	Ingestion	Ther error	87 mg/dL	
292	51 yr	Aspirin	A	Ingestion	Int suicide	95 mg/dL	
293 ^A	52 yr	Aspirin	A	Ingestion	Int suicide	106 mg/dL	
294 ^A	54 yr	Aspirin	A	Ingestion	Int suicide	130 mg/dL	10 h
295	58 yr	Aspirin	U	Ingestion	Int unknown	95 mg/dL	
296	59 yr	Aspirin	C	Ingestion	Ther error	17 mg/dL	
297 ^A	66 yr	Aspirin	U	Ingestion	Unknown	94 mg/dL	
298	73 yr	Aspirin	A	Ingestion	Int suicide	95 mg/dL	
299	78 yr	Aspirin	A	Ingestion	Int suicide	70 mg/dL	1 h
300 ^A	79 yr	Aspirin	A	Ingestion	Int suicide	86 mg/dL	10 h
301	81 yr	Aspirin	A	Ingestion	Int suicide	107 mg/dL	
302	84 yr	Aspirin	C	Ingestion	Ther error	62 mg/dL	
303 ^P	14 yr	Aspirin acetaminophen	A	Ingestion	Int suicide	80 mg/dL 200 µg/mL	4 h
304	36 yr	Aspirin acetaminophen	C	Ingestion	Int misuse	48 mg/dL	
305	54 yr	Aspirin acetaminophen brodifacoum	A/C	Ingestion	Int suicide	81 mg/dL 160 µg/mL	
306	76 yr	Aspirin acetaminophen valproic acid	A	Ingestion	Int suicide	48 mg/dL 95 µg/mL	

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TABLE 21. Summary of Fatal Exposures Reported to TESS in 1997 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval After Exposure
307	40 yr	Aspirin acetaminophen/propoxyphene	A	Ingestion	Int suicide	110 mg/dL	13 h
308	32 yr	Aspirin amitriptyline imipramine	A	Ingestion	Int suicide	53 mg/dL	
309	27 yr	Aspirin amphetamine clonidine	A	Ingestion	Int suicide	97 mg/dL	
310	42 yr	Aspirin carisoprodol	A	Ingestion	Int suicide	83 mg/dL	
311	25 yr	Aspirin diphenhydramine phencyclidine	U	Ingestion	Unknown	76 mg/dL	
312	43 yr	Aspirin ibuprofen	A	Ingestion	Int suicide	>125 mg/dL	
313	60 yr	Aspirin ibuprofen	U	Ingestion	Int suicide	100 mg/dL	7 h
314	49 yr	Aspirin ibuprofen ketoprofen	A	Ingestion	Int suicide	106 mg/dL	6-8 h
315	69 yr	Aspirin propoxyphene	A	Ingestion	Int suicide	160 mg/dL 0.117 µg/mL	4 h 4 h
316	24 yr	Aspirin turpentine ethanol	A	Ingestion	Int suicide		
317	35 yr	Aspirin valproic acid clonidine	A	Ingestion	Int suicide	66 mg/dL	13 h
318	41 yr	Aspirin venlafaxine lithium	A	Ingestion	Int suicide	97 mg/dL	
319 ^P	33 yr	Aspirin/carisoprodol alprazolam acetaminophen/hydrocodone	A/C	Ingestion	Int suicide		
320	31 yr	Aspirin/hydrocodone/caffeine	C	Ingestion	Int misuse	88 mg/dL¶	
321	64 yr	Codeine	A	Ingestion	Unint unknown	6.37 µg/mL§	
322 ^A	29 yr	Colchicine	A	Ingestion	Int suicide	29 ng/mL	
323	48 yr	Colchicine	A/C	Ingestion	Ther error		
324	77 yr	Colchicine	A	Ingestion	Int suicide		
325 ^P	21 yr	Fentanyl cocaine methylenedioxyamphetamine	A	Unknown	Int misuse	0.52 µg/L benzoylecgonine 0.42 µg/mL methylenedioxyamphetamine 0.047 µg/mL§	
326 ^I	28 yr	Fentanyl meperidine propoxyphene	U	Unknown	Unknown		
327 ^P	36 yr	Hydrocodone cocaine alprazolam	A/C	Ing/Unk	Int abuse	97 ng/mL§ 70 ng/mL§	
328 ^P	6 yr	Hydrocodone/chlorpheniramine	A	Ingestion	Unint gen	hydrocodone 720 ng/mL§ chlorpheniramine 0.30 µg/mL§	
329 ^P	>19 yr	Hydromorphone diazepam	A	Ingestion	Int suicide		
330	27 yr	Hydromorphone phenelzine	A	Unknown	Int unknown		
331 ^{AP}	2 yr	Ibuprofen	C	Ingestion	Adv rxn		
332 ^A	2 yr	Methadone	A	Ingestion	Unint gen		
333 ^P	28 yr	Methadone	A/C	Ingestion	Int abuse	0.25 µg/mL§	
334	30 yr	Methadone	A	Parenteral	Ther error		
335 ^P	31 yr	Methadone	A/C	Ingestion	Int suicide		
336 ^P	35 yr	Methadone	A/C	Ingestion	Int suicide		
337	41 yr	Methadone	A	Ingestion	Int unknown		
338	42 yr	Methadone propoxyphene	A	Ingestion	Int unknown		
339 ^P	27 yr	Methadone risperidone	A/C	Ingestion	Int suicide		

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1997 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval After Exposure
340 ^P	>19 yr	Methadone zolpidem metoprolol	C	Ingestion	Unknown	0.19 µg/mL§	
341 ^P	19 yr	Morphine	A	Ingestion	Int abuse	250 ng/mL§	
342 ^P	53 yr	Morphine acetaminophen/butalbital/caffeine	U	Ingestion	Int suicide		
343 ^P	39 yr	Morphine cocaine diazepam	A/C	Ing/Inh	Int abuse		
344 ^P	54 yr	Morphine ethanol acetaminophen/propoxyphene	U	Ingestion	Int unknown	19 mg/dL	
345 ^P	30 yr	Morphine methadone cocaine	A/C	Ingestion	Int abuse		
346 ^P	23 yr	Morphine phenobarbital trazodone	A	Ingestion	Int suicide	24.5 µg/mL	
347 ^P	27 yr	Morphine pseudoephedrine	A	Unknown	Int abuse	morphine (free) 28 ng/mL§ ephedrine- pseudoephedrine 100 ng/mL§	
348 ^P	22 yr	Morphine tramadol fluoxetine	A/C	Ingestion	Int suicide		
349 ^P	42 yr	Opiate acetaminophen/codeine ethanol	A	Ing/Paren	Int abuse	120 mg/dL	
350 ^P	42 yr	Opiate benzodiazepine	A/C	Ing/Paren	Int suicide		
351 ^P	40 yr	Opiate benzodiazepine ethanol	A	Ingestion	Int suicide		
352	25 yr	Opiate cocaine	A/C	Parenteral	Int abuse		
353 ^P	38 yr	Opiate cocaine	U	Unknown	Int abuse		
354	41 yr	Opiate cocaine	U	Unknown	Unknown		
355	38 yr	Opiate marijuana	U	Unknown	Int unknown		
356 ^P	44 yr	Oxycodone alprazolam	A/C	Ingestion	Int suicide	795 ng/mL§ 140 ng/mL§	
357 ^P	41 yr	Oxycodone ethanol	A/C	Ingestion	Int suicide	1,200 ng/mL§ 46 mg/dL§	
358 ^P	30 yr	Oxycodone ethanol chlorpheniramine	A	Ingestion	Int abuse	210 ng/mL§ 57 mg/dL§ 10 ng/mL§	
359 ^{aiP}	6 yr	Oxycodone imipramine	U	Ingestion	Malicious	700 ng/mL§ 1,300 ng/mL§ desipramine 1,400 ng/mL§	
360 ^P	53 yr	Propoxyphene	A	Ingestion	Int suicide		
361 ^P	55 yr	Propoxyphene acetaminophen	A	Ingestion	Int suicide	188 µg/mL	
362 ^P	62 yr	Propoxyphene chloral hydrate temazepam	A	Ingestion	Int suicide		
363 ^P	38 yr	Propoxyphene ethanol	A	Ingestion	Int suicide	9.8 µg/mL§ norpropoxyphene 2.7 µg/mL§ 267 mg/dL§	
364 ^P	53 yr	Propoxyphene ethanol	A	Ingestion	Int suicide	3.12 µg/mL§ norpropoxyphene 0.74 µg/mL§ 220 mg/dL§	
365	14 yr	Salicylate brompheniramine ephedrine	A	Ingestion	Int suicide	96 mg/dL	

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TABLE 21. Summary of Fatal Exposures Reported to TESS in 1997 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval After Exposure
366	62 yr	Salicylate nifedipine enalapril	A/C	Ingestion	Ther error	39 mg/dL	
367 ^P	27 yr	Tramadol acetaminophen/butalbital/caffeine	A/C	Ingestion	Int suicide		
368 ^P	45 yr	Tramadol meprobamate disulfiram	U	Ingestion	Int suicide	2,250 ng/mL§ 6.43 µg/mL§	
<i>See also cases 5, 62, 303, 304, 305, 306, 361, 391, 608, 629, 725 (acetaminophen); 463 (acetaminophen/butalbital); 342, 367 (acetaminophen/butalbital/caffeine); 215, 216, 267, 349, 582 (acetaminophen/codeine); 319, 409, 523, 621, 622, (acetaminophen/hydrocodone); 231, 436, 624 (acetaminophen/oxycodone); 243 (acetaminophen/pentazocine); 218,219, 222, 307, 344, 410, 411, 412, 562 (acetaminophen/propoxyphene); 180, 217, 387, 641 (aspirin); 251, 259, 483, 511 (aspirin/butalbital/caffeine); 270, 766 (codeine); 241 (diclofenac); 277, 312, 313, 314, 518, 544 (ibuprofen); 314 (ketoprofen); 326 (meperidine); 10, 345, 692, 737 (methadone); 165 (morphine); 88 (naproxen); 143, 221, 235, 497, 632, 640, 644, 739, 740, 741 (opiate); 11 (oxycodone); 11, 13, 258, 315, 326, 338, 424 (propoxyphene); 257 (salicylate); 431 (tolmetin); 348, 632, 742 (tramadol).</i>							
Anesthetics							
369 ^A	31 yr	Halothane ethanol	A	Ing/Paren	Int abuse		
370 ^P	45 yr	Ketamine pentobarbital	U	Ing/Inh	Int suicide		
371	80 yr	Lidocaine (topical cream)	A	Ingestion	Unint gen		
Anticholinergic drugs							
372 ^P	>19 yr	Benztropine	A	Ingestion	Int unknown		
373	13 yr	Benztropine haloperidol	A/C	Parenteral	Adv rxn		
<i>See also cases 489 (amantadine); 454 (benztropine).</i>							
Anticoagulants							
374	82 yr	Warfarin	U	Ingestion	Adv rxn		
<i>See also cases 434, 435, 490 (warfarin).</i>							
Anticonvulsants							
375 ^A	5 yr	Carbamazepine	A	Ingestion	Unint gen	44 µg/mL	
376	19 yr	Carbamazepine	A/C	Ingestion	Int suicide	47.7 µg/mL§	
377	19 yr	Carbamazepine	A	Ingestion	Int suicide	47 µg/mL	
378 ^A	27 yr	Carbamazepine	A/C	Ingestion	Int suicide	51.4 µg/mL	
379	37 yr	Carbamazepine	A/C	Ingestion	Int suicide	122 µg/mL	
380	42 yr	Carbamazepine	A	Ingestion	Int suicide	112.9 µg/mL§	
381	47 yr	Carbamazepine	A/C	Ingestion	Int suicide	43 µg/mL	
382 ^P	56 yr	Carbamazepine	A/C	Ingestion	Int unknown	61 µg/mL	
383	58 yr	Carbamazepine lorazepam imipramine	A	Ingestion	Int suicide	16.6 µg/mL	
384	71 yr	Carbamazepine nifedipine amoxapine	A	Ingestion	Int suicide	40 µg/mL	
385 ^A	24 yr	Valproic acid	A/C	Ingestion	Int suicide	2,200 µg/mL	12 h
386 ^P	43 yr	Valproic acid	A	Ingestion	Int suicide	1,010 µg/mL	
387	57 yr	Valproic acid aspirin	A/C	Ingestion	Int suicide	1,087 µg/mL 35 mg/dL	
388	38 yr	Valproic acid carbamazepine risperidone	A	Ingestion	Int suicide		
389 ^P	37 yr	Valproic acid diazepam sertraline	A/C	Ingestion	Int suicide	1,200 µg/mL§ 300 ng/mL§ nordiazepam 200 ng/mL§ 20 ng/mL§ desmethylsertraline 30 ng/mL§	
390	37 yr	Valproic acid diphenhydramine	A/C	Ingestion	Int suicide	480 µg/mL	
391 ^A	20 yr	Valproic acid olanzapine acetaminophen	A	Ingestion	Int suicide	2,058 µg/mL 39 µg/mL	>30 h 3-4 h
<i>See also cases 271, 388, 413, 414 (carbamazepine); 273 (gabapentin); 237, 649 (phenytoin); 237, 306, 317, 409, 441, 501 (valproic acid).</i>							

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1997 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval After Exposure
Antidepressants							
392	27 yr	Amitriptyline	A	Ingestion	Int suicide		
393 ^P	30 yr	Amitriptyline	A	Ingestion	Int suicide		
394	32 yr	Amitriptyline	A/C	Ingestion	Int suicide	317 ng/mL nortriptyline 529 ng/mL	
395 ^P	33 yr	Amitriptyline	A/C	Ingestion	Int suicide		
396	34 yr	Amitriptyline	A	Ingestion	Int suicide		
397	35 yr	Amitriptyline	A	Unknown	Unknown		
398	35 yr	Amitriptyline	A	Ingestion	Int suicide		
399	40 yr	Amitriptyline	A	Ingestion	Int suicide		
400	40 yr	Amitriptyline	A	Ingestion	Int unknown		
401	42 yr	Amitriptyline	A	Ingestion	Int suicide		
402 ^P	42 yr	Amitriptyline	U	Ingestion	Int suicide		
403 ^P	42 yr	Amitriptyline	A/C	Ingestion	Int suicide		
404 ^a	45 yr	Amitriptyline	A	Ingestion	Int suicide	3,114 ng/mL	
405 ^a	45 yr	Amitriptyline	A/C	Ingestion	Int suicide		
406	54 yr	Amitriptyline	A	Ingestion	Int suicide		
407	59 yr	Amitriptyline	A/C	Ingestion	Int suicide	1,456 ng/mL	
408	72 yr	Amitriptyline	A	Ingestion	Int suicide	2,200 ng/mL nortriptyline 200 ng/mL	
409	30 yr	Amitriptyline acetaminophen/hydrocodone valproic acid	A/C	Ingestion	Int suicide		
410 ^P	27 yr	Amitriptyline acetaminophen/propoxyphene	A	Ingestion	Int suicide		
411 ^P	36 yr	Amitriptyline acetaminophen/propoxyphene	A/C	Ingestion	Int suicide	55 ng/mL nortriptyline 250 ng/mL 2.49 µg/mL [‡] propoxyphene 0.37 µg/mL norpropoxyphene 1.8 µg/mL	
412	39 yr	Amitriptyline acetaminophen/propoxyphene	A	Ingestion	Int suicide	56 ng/mL [§] 230.64 µg/mL ^{‡¶} propoxyphene 0.54 µg/mL [§] norpropoxyphene 0.82 µg/mL [§]	
413	20 yr	Amitriptyline carbamazepine	C	Ingestion	Int suicide		
414	40 yr	Amitriptyline carbamazepine thiothixene	A	Ingestion	Int suicide		
415 ^P	35 yr	Amitriptyline cocaine cannabinoids	A	Ing/Unk	Int abuse	3,400 ng/mL [§] nortriptyline 750 ng/mL [§] 160 ng/mL [§] benzoylcegonine 740 ng/mL [§] delta-9 THC 1.5 ng/mL [§] 9-carboxy-THC 6.0 ng/mL [§]	
416	54 yr	Amitriptyline doxepin	U	Ingestion	Int suicide		
417	32 yr	Amitriptyline ephedrine	U	Ingestion	Int suicide	7,500 ng/mL [§] nortriptyline 4,500 ng/mL [§]	
418	33 yr	Amitriptyline ethanol	A	Ingestion	Int suicide		
419	35 yr	Amitriptyline ethanol	A	Ingestion	Int suicide		
420	68 yr	Amitriptyline ethanol	U	Ingestion	Unknown		
421 ^P	36 yr	Amitriptyline ethanol diazepam	A/C	Ingestion	Int suicide	2,600 ng/mL [§] nortriptyline 130 ng/mL [§] 172 mg/dL [§] 55 ng/mL [§] nordiazepam 170 ng/mL [§]	
422	28 yr	Amitriptyline ethanol diphenhydramine	A	Ingestion	Int suicide		

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1997 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval After Exposure
423 ^P	24 yr	Amitriptyline ethanol naltrexone	A/C	Ingestion	Int suicide	2,552 ng/mL 25 mg/dL	
424 ^P	47 yr	Amitriptyline ethanol propoxyphene	A	Ingestion	Int suicide	260 mg/dL	
425 ^P	66 yr	Amitriptyline lorazepam	A	Ingestion	Int suicide	1,300 ng/mL§ nortriptyline 430 ng/mL§	
426 ^P	32 yr	Amitriptyline methamphetamine (crystal) ethanol	A	Ingestion	Int suicide		
427 ^P	28 yr	Amitriptyline metoprolol enalapril	A	Ingestion	Int suicide	>500 ng/mL	
428	39 yr	Amitriptyline omeprazole	A	Ingestion	Int suicide		
429	36 yr	Amitriptyline paroxetine insulin	A	Ing/Paren	Int suicide		
430 ^P	47 yr	Amitriptyline phentermine	A/C	Ingestion	Int suicide	1,300 ng/mL§ nortriptyline 110 ng/mL§ 240 ng/mL§	
431	43 yr	Amitriptyline thioridazine tolmetin	U	Ingestion	Int suicide		
432 ^P	>19 yr	Amitriptyline thiothixene cocaine	A/C	Ingestion	Int suicide	815 ng/mL§#	
433 ^P	53 yr	Amitriptyline trifluoperazine	U	Ingestion	Int suicide		
434	81 yr	Amitriptyline warfarin	C	Ingestion	Adv rxn	1,100 ng/mL	
435	67 yr	Amitriptyline warfarin unknown drug	C	Ingestion	Ther error		
436 ^P	31 yr	Amitriptyline/perphenazine acetaminophen/oxycodone	A	Ingestion	Int suicide		
437	77 yr	Amitriptyline/perphenazine atenolol alprazolam	A/C	Ingestion	Int suicide		
438	38 yr	Amitriptyline/perphenazine promethazine ethanol	A	Ingestion	Int suicide		
439	60 yr	Amoxapine	A	Ingestion	Int suicide		
440	42 yr	Bupropion hydroxyzine	A	Ingestion	Int suicide		
441 ^P	13 yr	Bupropion trazodone valproic acid	A/C	Ingestion	Int suicide	116 µg/mL	
442	49 yr	Cyclic antidepressant benzodiazepine	A	Ingestion	Int suicide	>1,000 ng/mL >300 ng/mL	
443	15 yr	Desipramine	A	Ingestion	Int suicide		
444	21 yr	Desipramine	A	Ingestion	Int suicide		
445	38 yr	Desipramine risperidone	U	Ingestion	Int suicide	7,900 ng/mL§ 0.09 µg/mL§	
446	38 yr	Doxepin	A	Ingestion	Int suicide	803 ng/mL	
447 ^P	42 yr	Doxepin	A/C	Ingestion	Int suicide	6,300 ng/mL§ desmethyldoxepin 1,100 ng/mL§	
448 ^P	42 yr	Doxepin	A	Ingestion	Int suicide		
449 ^P	42 yr	Doxepin	A/C	Ingestion	Unknown		
450	63 yr	Doxepin	A/C	Ingestion	Int suicide		
451	65 yr	Doxepin	A/C	Ingestion	Int suicide		
452	84 yr	Doxepin	A/C	Ingestion	Adv rxn		
453	39 yr	Doxepin atenolol verapamil	U	Ingestion	Int suicide		

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1997 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval After Exposure
454	30 yr	Doxepin benztropine clonazepam	A	Ingestion	Int suicide		
455	30 yr	Doxepin cocaine	A/C	Ingestion	Int suicide		
456	18 yr	Doxepin lorazepam	A	Ingestion	Int suicide		
457 ^P	48 yr	Fluoxetine amitriptyline	A	Ingestion	Int suicide		
458	47 yr	Fluoxetine doxepin	U	Ingestion	Int suicide	35 ng/mL§ norfluoxetine 570 ng/mL§ 49 ng/mL§ desmethyldoxepin 170 ng/mL§	
459 ^P	32 yr	benzodiazepine Fluvoxamine doxepin diazepam	A	Ingestion	Int suicide	26 µg/mL 430 ng/mL 200 ng/mL	
460 ^P	16 yr	Imipramine	A	Ingestion	Int suicide		
461 ^P	19 yr	Imipramine	A	Ingestion	Int suicide		
462	46 yr	Imipramine	A	Ingestion	Int suicide		
463	49 yr	Imipramine atenolol acetaminophen/butalbital	A	Ingestion	Int suicide		
464	32 yr	Imipramine	A/C	Ingestion	Int suicide	1,649 ng/mL desipramine 536 ng/mL	
465 ^P	36 yr	cocaine alprazolam Imipramine ethanol	A/C	Ingestion	Int suicide		
466	28 yr	Imipramine	A	Ingestion	Int suicide	1,555 ng/mL desipramine 557 ng/mL	
467	18 yr	flurazepam Imipramine rodenticide marijuana	A/C	Ing/Inh	Int suicide		
468	40 yr	Lithium	U	Ingestion	Int suicide		
469 ^a	47 yr	Lithium	C	Ingestion	Unknown	7.8 mEq/L	
470	49 yr	Lithium	U	Ingestion	Unknown	5.0 mEq/L	
471	52 yr	Lithium	U	Ingestion	Int unknown	2.4 mEq/L	
472	54 yr	Lithium	A/C	Ingestion	Int suicide	5.9 mEq/L	
473	51 yr	Lithium selegeline	U	Ingestion	Unknown	4.2 mEq/L	
474	17 yr	Lithium thioridazine	U	Ingestion	Unknown	3.3 mEq/L	
475	41 yr	Loxapine	A	Ingestion	Int suicide		
476	38 yr	Loxapine diphenhydramine	U	Ingestion	Int suicide		
477	14 yr	Maprotiline	A	Ingestion	Int suicide		
478 ^b	27 yr	Nortriptyline	U	Ingestion	Int unknown		
479	28 yr	Nortriptyline	A	Ingestion	Int suicide	7,500 ng/mL§	
480	34 yr	Nortriptyline	A	Ingestion	Int suicide		
481 ^P	44 yr	Nortriptyline	A	Ingestion	Int suicide		
482	75 yr	Nortriptyline	A/C	Ingestion	Int suicide		
483 ^P	51 yr	Nortriptyline alprazolam aspirin/butalbital/caffeine	U	Ingestion	Int suicide		
484 ^P	45 yr	Nortriptyline amlodipine	A/C	Ingestion	Int suicide		
485	55 yr	Nortriptyline ethanol diazepam	A	Ingestion	Int suicide	2,000 ng/mL	
486	58 yr	Nortriptyline fluvoxamine lorazepam	A/C	Ingestion	Int suicide		

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1997 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval After Exposure
487	52 yr	Paroxetine	U	Ingestion	Unknown		
488	46 yr	Paroxetine	U	Ingestion	Unknown		
489	73 yr	amitriptyline risperidone					
490	68 yr	Paroxetine phenelzine amantadine	C	Ingestion	Ther error		
491 ^a	54 yr	Paroxetine warfarin	A/C	Ingestion	Unknown		
491 ^a	54 yr	Phenelzine amoxapine amitriptyline	A	Ingestion	Int unknown		
492	40 yr	Phenelzine buspirone	U	Ingestion	Int suicide		
493	56 yr	clonazepam Phenelzine mirtazapine amitriptyline	A/C	Ingestion	Int suicide		
494 ^P	31 yr	Sertraline	A	Ingestion	Int suicide	950 ng/mL§ methylsertraline 1,000 ng/mL§	
495 ^P	16 yr	Sertaline buspirone lorazepam	A/C	Ingestion	Int suicide		
496	89 yr	Sertraline theophylline	A/C	Ingestion	Int suicide	37 µg/mL	
497 ^P	30 yr	Trazodone opiate	U	Unknown	Unknown		
498	32 yr	Tricyclic antidepressant	U	Ingestion	Int suicide	5,000 ng/mL	
499 ^P	48 yr	Tricyclic antidepressant	U	Ingestion	Unknown		
500	25 yr	Tricyclic antidepressant clonazepam	A	Ingestion	Int suicide		
501	32 yr	Tricyclic antidepressant valproic acid	U	Ingestion	Unknown	522 µg/mL	
502 ^P	35 yr	risperidone Trimipramine	A	Ingestion	Int suicide		
503	56 yr	Venlafaxine	A	Ingestion	Int suicide		
504 ^P	42 yr	Venlafaxine amitriptyline	U	Ingestion	Int suicide	34 µg/mL 650 ng/mL	

See also cases 6, 220, 250, 269, 271, 308, 457, 488, 491, 493, 504, 615, 644 (amitriptyline); 384, 491 (amoxapine); 135 (bupropion); 698 (clomipramine); 416, 458, 459, 643 (doxepin); 13, 88, 348, 605, 636, 766, 783 (fluoxetine); 486 (fluvoxamine); 308, 359, 383 (imipramine); 234, 318, 694 (lithium); 493 (mirtazapine); 574, 691 (nortriptyline); 169, 429, 520, (paroxetine); 330, 489 (phenelzine); 473 (selegeline); 269, 389, 600, 619 (sertraline); 346, 441, 601, (trazodone); 238, 514, 633, 781 (tricyclic antidepressant); 279, 318 (venlafaxine).

Antihistamines

505 ^a	27 yr	Astemizole	A	Ingestion	Int suicide		
506 ^P	21 yr	Diphenhydramine	A	Ingestion	Int suicide	7.7 µg/mL	
507	21 yr	Diphenhydramine	A	Ingestion	Int suicide		
508 ^P	27 yr	Diphenhydramine	A	Ingestion	Int suicide	48.5 µg/mL§	
509	37 yr	Diphenhydramine	A	Ingestion	Int suicide	10.2 µg/mL	
510 ^P	40 yr	Diphenhydramine	A	Ingestion	Int suicide		
511	26 yr	Diphenhydramine aspirin/butalbital/caffeine cyclobenzaprine	A/C	Ingestion	Int suicide		
512	36 yr	Diphenhydramine cocaine	A	Ing/Inh	Int suicide		
513	22 yr	Diphenhydramine ethanol	C	Ingestion	Int suicide	120 mg/dL	
514 ^P	37 yr	Diphenhydramine tricyclic antidepressant marijuana	A/C	Ingestion	Int suicide		
515 ^P	76 yr	Hydroxyzine	A	Ingestion	Int suicide		
516	46 yr	Hydroxyzine diazepam chlorpromazine	A	Ingestion	Int suicide		

See also cases 365 (brompheniramine); 358, 616 (chlorpheniramine); 222 (dimenhydrinate); 40, 311, 390, 422, 476, 545, 631, 732, 778 (diphenhydramine); 276, 440 (hydroxyzine); 43 (meclizine); 438 (promethazine).

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TABLE 21. Summary of Fatal Exposures Reported to TESS in 1997 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval After Exposure
Antimicrobials							
517	74 yr	Acyclovir	C	Ingestion	Adv rxn		
518 ^{ap}	3 mo	Ceftriaxone ibuprofen	A/C	Ing/Paren	Adv rxn		
519	50 yr	Hydroxychloroquine alprazolam clorazepate	A/C	Ingestion	Int suicide		
520	60 yr	Hydroxychloroquine paroxetine	A	Ingestion	Int suicide		
521	33 yr	Isoniazid	A/C	Ingestion	Int suicide		
522 ^p	34 yr	Pyrimethamine/trimethoprim	A	Ingestion	Int suicide		
523 ^{ap}	17 yr	Tilimicosin ethanol acetaminophen/hydrocodone	A	Ing/Paren	Int suicide	170 mg/dL	
<i>See also case 543 (ciprofloxacin).</i>							
Antineoplastics							
524	50 yr	Cisplatin	A	Parenteral	Ther error		
525	67 yr	Methotrexate	C	Parenteral	Ther error		
526 ^p	65 yr	Paclitaxel carboplatin	A	Parenteral	Adv rxn		
<i>See also cases 526 (carboplatin); 234 (tamoxifen).</i>							
Asthma therapies							
527 ^p	15 yr	Theophylline (long-acting)	A/C	Ingestion	Int suicide	91.2 µg/mL	
528	57 yr	Theophylline (long-acting)	A/C	Ingestion	Int suicide	110 µg/mL	
529	57 yr	Theophylline (long-acting)	C	Ingestion	Ther error	42 µg/mL	
530	66 yr	Theophylline	A/C	Ingestion	Int suicide	39.9 µg/mL	
531	69 yr	Theophylline	U	Ingestion	Unknown	37 µg/mL	
532 ^p	70 yr	Theophylline	C	Ingestion	Unknown	66 µg/mL	
533	73 yr	Theophylline	C	Ingestion	Ther error	38.4 µg/mL	
534	73 yr	Theophylline	A/C	Ingestion	Int misuse	48 µg/mL	
535	76 yr	Theophylline	C	Ingestion	Ther error	44 µg/mL	
536	78 yr	Theophylline	C	Ingestion	Int misuse	35 µg/mL	
537	79 yr	Theophylline	C	Ingestion	Int misuse	37 µg/mL	
538	79 yr	Theophylline	C	Ingestion	Unknown	55 µg/mL	
539	80 yr	Theophylline (long-acting)	C	Ingestion	Ther error	40 µg/mL	
540	83 yr	Theophylline	A/C	Ingestion	Ther error	54 µg/mL	
541	91 yr	Theophylline	C	Ingestion	Ther error	71 µg/mL	
542 ^a	28 yr	Theophylline (long-acting) albuterol	A	Ingestion	Int suicide	270 µg/mL	
543 ^a	72 yr	Theophylline ciprofloxacin	C	Ingestion	Ther error	28 µg/mL	
544 ^a	49 yr	Theophylline diltiazem ibuprofen	A	Ingestion	Int suicide	142 µg/mL	
545	37 yr	Theophylline diphenhydramine albuterol	A/C	Ingestion	Int suicide	109 µg/mL	
<i>See also cases 542, 545 (albuterol); 496 (theophylline).</i>							
Cardiovascular drugs							
546	77 yr	Amlodipine	U	Ingestion	Ther error		
547	51 yr	Amlodipine metformin glyburide	A	Ingestion	Int unknown		
548 ^p	41 yr	Atenolol	U	Ingestion	Int suicide		
549	69 yr	Atorvastatin	C	Ingestion	Adv rxn		
550 ^p	29 yr	Calcium channel blocker-extended release clonidine baclofen	A	Ingestion	Int suicide		
551	54 yr	Digoxin	C	Ingestion	Ther error	6.0 ng/mL	
552	59 yr	Digoxin	C	Ingestion	Unknown	3.4 ng/mL	
553 ^p	68 yr	Digoxin	C	Ingestion	Unknown	3.8 ng/mL	
554 ^p	72 yr	Digoxin	C	Ingestion	Ther error	4.1 ng/mL	
555	74 yr	Digoxin	C	Ingestion	Ther error	2.5 ng/mL	
556 ^p	79 yr	Digoxin	C	Ingestion	Ther error	4 ng/mL	

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1997 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval After Exposure
557	85 yr	Digoxin	C	Ingestion	Ther error	2.9 ng/mL	
558	88 yr	Digoxin	C	Ingestion	Ther error	4.6 ng/mL	
559	92 yr	Digoxin	A/C	Ingestion	Int suicide	7.76 ng/mL	
560	88 yr	Digoxin estazolam furosemide	A/C	Ingestion	Int suicide	36.9 ng/mL	
561	65 yr	Digoxin quinidine verapamil	A/C	Ingestion	Unknown		
562	41 yr	Digoxin verapamil acetaminophen/propoxyphene	A	Ingestion	Int suicide		
563	32 yr	Diltiazem	A	Ingestion	Int suicide	570 ng/mL	
564 ^a	38 yr	Diltiazem (long-acting)	A/C	Ingestion	Int suicide		
565 ^p	40 yr	Diltiazem	A	Ingestion	Int suicide		
566	45 yr	Diltiazem	C	Ingestion	Ther error		
567	50 yr	Diltiazem	C	Parenteral	Adv rxn		
568	65 yr	Diltiazem (long-acting)	A/C	Ingestion	Ther error		
569	67 yr	Diltiazem (long-acting)	A/C	Ingestion	Int suicide		
570	70 yr	Diltiazem	A/C	Ingestion	Int suicide	18,000 ng/mL§	
571	78 yr	Diltiazem	A/C	Ingestion	Int suicide		
572	42 yr	Diltiazem	A/C	Ingestion	Int suicide		
573	82 yr	Diltiazem lovastatin metformin	A	Ingestion	Unknown		
574	46 yr	Diltiazem nortriptyline cocaine	A	Ingestion	Int suicide	1,090 ng/mL 130 ng/mL	
575	63 yr	Diltiazem (long-acting) risperidone captopril	A/C	Ingestion	Int suicide		
576	35 yr	Diltiazem verapamil	A/C	Ingestion	Int suicide		
577 ^a	87 yr	Dobutamine	A	Parenteral	Ther error		
578 ^p	43 yr	Felodipine	A/C	Ingestion	Int suicide		
579 ^p	16 yr	Flecainide	A/C	Ingestion	Int suicide	11 µg/mL§	
580	73 yr	Flecainide	C	Ingestion	Adv rxn		
581 ^p	27 yr	Flecainide cyclobenzaprine cocaine	A	Ingestion	Int suicide	38 µg/mL§	
582	47 yr	Labetalol acetaminophen/codeine	A/C	Ingestion	Int suicide	38 µg/mL¶	
583 ^p	56 yr	Nifedipine	A/C	Ingestion	Int suicide		
584	51 yr	Nifedipine (long-acting) cocaine	A/C	Ing/Inh	Int suicide		
585	37 yr	Nifedipine verapamil	A	Ingestion	Int suicide		
586	70s yr	Procainamide	A	Parenteral	Ther error	58 µg/mL	
587	87 yr	Procainamide	C	Ingestion	Ther error	21.2 µg/mL	
						N-acetylprocainamide	75.1 µg/mL
588 ^p	37 yr	Propranolol	A	Ingestion	Int suicide	13.2 µg/mL§	
589	55 yr	Propranolol barbiturate	A	Ingestion	Unknown		
590	77 yr	Propranolol verapamil	A/C	Ingestion	Int suicide		
591	34 yr	Verapamil	A	Ingestion	Int suicide		
592	34 yr	Verapamil (long-acting)	A	Ingestion	Int suicide		
593	38 yr	Verapamil (long-acting)	A/C	Ingestion	Int suicide		
594	55 yr	Verapamil (long-acting)	A	Ingestion	Int suicide		
595	60 yr	Verapamil	A	Ingestion	Int suicide		
596	72 yr	Verapamil	A/C	Ingestion	Int suicide		
597	56 yr	Verapamil activated charcoal	A	Ingestion	Int suicide		
598	36 yr	Verapamil ethanol	A	Ingestion	Int suicide		

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1997 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval After Exposure
599	53 yr	Verapamil (long-acting)	A	Ingestion	Int suicide	5.23 µg/mL§ norverapamil 1.95 µg/mL§	
600	33 yr	nifedipine (long-acting) Verapamil sertraline	A	Ingestion	Int suicide	4.01 µg/mL§ norverapamil 3.03 µg/mL§ 1390 ng/mL§ norsertaline 320 ng/mL§	
601	63 yr	Verapamil trazodone thiothixene	A	Ingestion	Int suicide		
<i>See also cases 220, 484 (amlodipine); 437, 453, 463 (atenolol); 613 (benazepril); 575, 615 (captopril); 10, 309, 317, 550 (clonidine); 544 (diltiazem); 366, 427 (enalapril); 233, 637 (lisinopril); 340, 427 (metoprolol); 366, 384, 599, (nifedipine); 560 (quinidine); 280, 453, 561, 562, 576, 585, 590, (verapamil).</i>							
Cough and cold preparations							
602	68 yr	Acetaminophen/dextromethorphan/ pseudoephedrine ethanol	U	Ingestion	Unknown		
603	2 mo	Phenylpropanolamine pseudoephedrine	U	Ingestion	Unknown	400 ng/mL§ 380 ng/mL§	
604	34 yr	Phenylpropanolamine/brompheniramine	A	Ingestion	Int misuse		
605	16 yr	Phenylpropanolamine/chlorpheniramine fluoxetine	A	Ingestion	Int abuse		
<i>See also cases 217 (acetaminophen/dextromethorphan/pseudoephedrine/doxylamine); 244 (acetaminophen/pseudoephedrine); 244 (acetaminophen/pseudoephedrine/diphenhydramine); 365, 417, 728 (ephedrine); 730 (guaifenesin/phenylpropanolamine); 256 (iodinated glycerol/dextromethorphan); 347, 603 (pseudoephedrine).</i>							
Diuretics							
606	49 yr	Hydrochlorothiazide	A	Ingestion	Adv rxn		
<i>See also cases 559 (furosemide); 233 (hydrochlorothiazide).</i>							
Electrolytes and minerals							
607 ^a	16 mo	Ferrous sulfate	A	Ingestion	Unint gen	12,000 µg/dL	
608 ^a	10 mo	Iron acetaminophen	C	Ingestion	Ther error	274 µg/dL 25 µg/mL	
<i>See also case 148 (zinc).</i>							
Gastrointestinal preparations							
609 ^b	32 yr	Dicyclomine alprazolam carisoprodol	A	Ingestion	Int suicide		
610	52 yr	Sodium phosphate laxative	A	Ingestion	Adv rxn	phosphate 17.8 mg/dL	
611	92 yr	Sodium phosphate laxative	C	Ingestion	Int misuse	phosphate 26 mg/dL	
<i>See also case 428 (omeprazole).</i>							
Hormones and hormone antagonists							
612	34 yr	Glipizide amphetamine benzodiazepine	A	Ingestion	Int abuse		
613 ^a	2 yr	Glipizide benazepril	A	Ingestion	Unint gen		
614 ^a	30 yr	Insulin	A/C	Parenteral	Int suicide		
615	49 yr	Insulin amitriptyline captopril	A/C	Ing/Paren	Int suicide		
616	47 yr	Insulin chlorpheniramine ethanol	A	Parenteral	Int suicide		
617	36 yr	Insulin ethanol	A	Ing/Paren	Int suicide	227 mg/dL	
618	48 yr	Metformin	A	Ingestion	Int suicide		
619	37 yr	Metformin sertraline alprazolam	A/C	Ingestion	Int suicide		
<i>See also cases 547 (glyburide); 429 (insulin); 547, 573 (metformin).</i>							
Miscellaneous drugs							
620	76 yr	<i>Tabebuia heptaphylla</i>	C	Ingestion	Adv rxn		
<i>See also cases 368 (disulfiram); 729 (gamma hydroxybutyrate); 572 (lovastatin).</i>							

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1997 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval After Exposure
Muscle relaxants							
621 ^P	40 yr	Carisoprodol	A	Ingestion	Int suicide		
		acetaminophen/hydrocodone					
622	46 yr	Carisoprodol	A	Ingestion	Int suicide		
		acetaminophen/hydrocodone				16 µg/mL [‡]	
623 ^A	74 yr	Chlorzoxazone	C	Ingestion	Adv rxn		
624 ^P	48 yr	Cyclobenzaprine	A	Ingestion	Int suicide		
		acetaminophen/oxycodone					
625 ^P	77 yr	Cyclobenzaprine	U	Ingestion	Unknown		
		benzodiazepine					
626 ^P	41 yr	Cyclobenzaprine	A	Ing/Unk	Int unknown		
		benzodiazepine					
		phencyclidine					
<i>See also cases 550 (baclofen); 252, 253, 272, 273, 310, 609 (carisoprodol); 240, 511, 581 (cyclobenzaprine).</i>							
Narcotic Antagonists							
<i>See also cases 423 (naltrexone).</i>							
Sedatives/hypnotics/antipsychotics							
627	19 yr	Alprazolam	U	Ingestion	Unknown		
628	74 yr	Alprazolam	A/C	Ingestion	Int suicide		
629	40 yr	Alprazolam	A/C	Ingestion	Int suicide		
		acetaminophen				46 µg/mL	
		zolpidem					
630 ^P	36 yr	Alprazolam	C	Ing/Inh	Int suicide		
		marijuana					
		ethanol					
631 ^P	46 yr	Alprazolam	A/C	Ingestion	Int suicide		
		temazepam					
		diphenhydramine					
632 ^P	55 yr	Barbiturate	A/C	Ingestion	Int suicide		
		opiate					
		tramadol					
633 ^P	53 yr	Barbiturate	A	Ingestion	Int suicide		
		tricyclic antidepressant					
634 ^P	37 yr	Chloral hydrate	C	Ingestion	Int abuse		
635 ^P	23 yr	Chloral hydrate	A	Ingestion	Int suicide		
		lorazepam					
636 ^P	28 yr	Clonazepam	U	Ingestion	Int suicide		
		fluoxetine					
637 ^P	37 yr	Clonazepam	A	Ingestion	Int unknown		
		lisinopril					
638 ^A	36 yr	Clozapine	A/C	Ingestion	Int suicide	710 ng/mL	
639 ^P	39 yr	Clozapine	A/C	Ingestion	Int abuse	310 ng/mL [§]	
		ethanol				167 mg/dL [§]	
		diazepam				nordiazepam 140 ng/mL [§]	
640 ^P	45 yr	Diazepam	A/C	Unknown	Int abuse		
		opiate					
641	47 yr	Fluphenazine	A/C	Ingestion	Unknown		
		aspirin					
642 ^P	33 yr	Meprobamate	U	Ingestion	Unknown	41.8 µg/mL	
643	90 yr	Meprobamate	A/C	Ingestion	Int suicide		
		doxepin					
644	61 yr	Meprobamate	A	Ingestion	Int suicide	89 µg/mL	
		opiate					
		amitriptyline				84 ng/mL	
						nortriptyline 47 ng/mL	
645 ^P	>19 yr	Mesoridazine	A	Ingestion	Int suicide		
		thioridazine					
646	25 yr	Olanzapine	A/C	Ingestion	Int suicide		
		clonazepam					
647 ^P	29 yr	Olanzapine	A	Ingestion	Int suicide		
		risperidone					
		unknown drug					
648 ^P	31 yr	Pentobarbital	A	Parenteral	Int suicide	22 µg/mL [§]	
		diazepam				nordiazepam 400 ng/mL [§]	
649 ^A	30 yr	Pentobarbital	A	Ingestion	Int suicide		
		phenytoin				9.4 µg/mL	
650 ^P	39 yr	Phenobarbital	A/C	Ingestion	Int suicide	171 µg/mL	
651	76 yr	Phenobarbital	A	Ingestion	Int suicide	130 µg/mL	

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1997 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval After Exposure
652 ^P	26 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
653 ^P	28 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
654 ^P	28 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
655 ^P	29 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
656 ^P	35 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
657 ^P	38 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
658 ^P	40 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
659 ^P	40 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
660 ^P	40 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
661 ^P	41 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
662 ^P	41 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
663 ^P	41 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
664 ^P	41 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
665 ^P	41 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
666 ^P	42 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
667 ^P	42 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
668 ^P	44 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
669 ^P	44 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
670 ^P	44 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
671 ^P	45 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
672 ^P	45 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
673 ^P	45 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
674 ^P	46 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
675 ^P	46 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
676 ^P	47 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
677 ^P	48 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
678 ^P	48 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
679 ^P	50 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
680 ^P	50 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
681 ^P	53 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
682 ^P	54 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
683 ^P	54 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
684 ^P	58 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
685 ^P	59 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1997 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval After Exposure
686 ^P	63 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
687 ^P	63 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
688 ^P	65 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
689 ^P	65 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
690 ^P	72 yr	Phenobarbital ethanol	A	Ingestion	Int suicide		
691	43 yr	Phenobarbital temazepam nortriptyline	U	Ingestion	Int suicide	113 µg/mL	
692 ^P	36 yr	Promethazine methadone	U	Ingestion	Int unknown	0.20 µg/mL 0.50 µg/mL	
693	58 yr	Risperidone	C	Ingestion	Adv rxn		
694 ^P	60 yr	Risperidone lithium	A/C	Ingestion	Int suicide		
695 ^P	37 yr	Secobarbital	A	Ingestion	Int suicide		
696 ^P	41 yr	Thioridazine	A/C	Ingestion	Int misuse	2,000 ng/mL§ mesoridazine 930 ng/mL§ 23 mg/dL§	
697 ^a	26 yr	Thioridazine haloperidol	C	Ingestion	Adv rxn		
698	63 yr	Trifluoperazine clomipramine	C	Ingestion	Adv rxn		
<i>See also cases 241, 319, 327, 356, 437, 464, 483, 519, 609, 619, 743, 760 (alprazolam); 589, 702 (barbiturate); 178, 350, 351, 442, 458, 612, 625, 626, 741, 776 (benzodiazepine); 492, 495 (buspirone); 270 (butalbital); 362 (chloral hydrate); 519 (clorazepate); 516 (chlorpromazine); 254, 274, 454, 492, 500, 646 (clonazepam); 7 (clozapine); 182, 329, 343, 389, 421, 459, 485, 516, 639, 648, 762 (diazepam); 559 (estazolam); 466 (flurazepam); 373, 697 (haloperidol); 278, 383, 425, 456, 486, 495, 635 (lorazepam); 368; 737 (meprobamate); 165 (midazolam); 24, 391, 761, (olanzapine); 370 (pentobarbital); 236, 346 (phenobarbital); 12 (prochlorperazine); 279, 339, 388, 445, 488, 501, 575, 647 (risperidone); 258, 362, 631, 691 (temazepam); 431, 474, 645 (thioridazine); 414, 432, 601 (thiothixene); 433 (trifluoperazine); 340, 629 (zolidem).</i>							
Stimulants and street drugs							
699	27 yr	Amphetamine	A	Ingestion	Int abuse		
700	28 yr	Amphetamine	A	Parenteral	Int abuse		
701	48 yr	Amphetamine	A	Unknown	Int abuse		
702	26 yr	Amphetamine barbiturate	U	Unknown	Int abuse		
703	39 yr	Amphetamine cocaine	A/C	Ing/Unk	Int abuse		
704 ^P	29 yr	Amphetamine phentermine	U	Inhalation	Int abuse		
705 ^P	21 yr	Cocaine	A	Ingestion	Int unknown	5,588 ng/mL§	
706	21 yr	Cocaine	A	Unknown	Int unknown		
707 ^{ap}	25 yr	Cocaine	A	Ingestion	Int abuse		
708 ^P	25 yr	Cocaine	A	Parenteral	Int abuse		
709 ^P	26 yr	Cocaine	A	Ingestion	Int misuse		
710	26 yr	Cocaine (crack)	A	Inhalation	Int abuse		
711 ^P	28 yr	Cocaine (crack)	A/C	Inhalation	Int abuse	0.48 µg/mL	
712 ^{ap}	29 yr	Cocaine (crack)	A	Inhalation	Int abuse	benzoylecgonine 3.54 µg/mL 5.34 µg/mL§ benzoylecgonine 6.5 µg/mL§	
713 ^P	29 yr	Cocaine	A	Ingestion	Int misuse		
714 ^P	30 yr	Cocaine	A	Unknown	Int unknown		
715	31 yr	Cocaine	U	Unknown	Int abuse		
716 ^P	35 yr	Cocaine	A/C	Parenteral	Int abuse		
717 ^P	36 yr	Cocaine	C	Parenteral	Int abuse		
718 ^P	36 yr	Cocaine	A	Ingestion	Int abuse		
719	36 yr	Cocaine	A	Inhalation	Int abuse		
720	37 yr	Cocaine	U	Unknown	Int abuse		
721	37 yr	Cocaine	A	Unknown	Int unknown		
722	40 yr	Cocaine	A	Unknown	Int abuse		
723 ^P	45 yr	Cocaine	A/C	Inhalation	Int abuse		
724	>19 yr	Cocaine	A	Inhalation	Int abuse		

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1997 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval After Exposure
725 ^a	29 yr	Cocaine (crack) acetaminophen	C	Ingestion	Int suicide	143 µg/mL	
726 ^P	30 yr	Cocaine amphetamine tetrahydrocannabinoids	A	Unknown	Int abuse		
727	50 yr	Cocaine bleach (sodium hypochlorite)	A	Ing/Unk	Int abuse		
728 ^P	34 yr	Cocaine	A/C	Ingestion	Int abuse	0.084 µg/mL§ benzoylecgonine 6.4 µg/mL§	
729	33 yr	ephedrine Cocaine gamma hydroxybutyrate	A	Ingestion	Int abuse		
730	37 yr	Cocaine guaifenesin/phenylpropanolamine	U	Ing/Unk	Int unknown		
731 ^{ip}	21 yr	Cocaine heroin	A	Inhalation	Int abuse		
732 ^{ip}	40 yr	Cocaine heroin diphenhydramine	A/C	Unknown	Int abuse	benzoylecgonine 0.25 µg/mL§ morphine 25 ng/mL§ 9 ng/mL§	
733 ^{ip}	36 yr	Cocaine heroin ethanol	A/C	Ing/Inh	Int abuse	benzoylecgonine 0.4 µg/mL§ morphine 188 ng/mL§ 102 mg/dL§	
734 ^P	34 yr	Cocaine marijuana	U	Unknown	Int abuse		
735	39 yr	Cocaine marijuana	U	Parenteral	Unknown		
736 ^P	40 yr	Cocaine marijuana	A/C	Inhalation	Int abuse		
737 ^P	36 yr	Cocaine	A/C	Ingestion	Int misuse	0.04 µg/mL benzoylecgonine 2.4 µg/mL 0.26 µg/mL 10.4 µg/mL	
738 ^P	31 yr	methadone meprobamate Cocaine methamphetamine	A	Ingestion	Int abuse		
739	30 yr	Cocaine opiate	A	Unknown	Int abuse		
740	43 yr	Cocaine opiate	A	Ingestion	Int abuse		
741 ^P	20 yr	Cocaine opiate benzodiazepine	A	Ing/Paren	Int abuse		
742	40 yr	Cocaine tramadol	A/C	Ing/Unk	Int unknown		
743 ^P	22 yr	Ephedrine ethanol alprazolam	A	Ingestion	Int abuse		
744 ^{sp}	38 yr	Fenfluramine	A	Ingestion	Int suicide		
745 ^P	18 yr	Heroin	A/C	Inhalation	Int abuse		
746 ^P	20 yr	Heroin	C	Parenteral	Int abuse		
747 ^P	21 yr	Heroin	A/C	Parenteral	Int abuse		
748 ^P	21 yr	Heroin	A/C	Parenteral	Int abuse		
749 ^P	29 yr	Heroin	A	Parenteral	Int suicide		
750 ^P	31 yr	Heroin	A/C	Unknown	Int abuse	morphine 42 ng/mL§	
751 ^P	37 yr	Heroin	A	Parenteral	Int abuse		
752 ^P	37 yr	Heroin	A/C	Parenteral	Int abuse		
753	42 yr	Heroin	A/C	Parenteral	Int abuse		
754 ^P	43 yr	Heroin	A/C	Parenteral	Int abuse		
755 ^P	48 yr	Heroin	A/C	Unknown	Int abuse		
756	50 yr	Heroin	A	Parenteral	Int abuse		
757 ^P	19 yr	Heroin cocaine	A	Unknown	Int abuse	morphine 280 ng/mL	
758 ^P	46 yr	Heroin cocaine	A/C	Ing/Paren	Int abuse	morphine 520 ng/mL§ 280 ng/mL§	
759 ^P	48 yr	Heroin cocaine	A	Parenteral	Int abuse	morphine 0.28 µg/mL benzoylecgonine 0.21 µg/mL	
760 ^P	35 yr	Heroin cocaine alprazolam	U	Ing/Unk	Int abuse		

(Continued on following page)

TABLE 21. Summary of Fatal Exposures Reported to TESS in 1997 (Cont'd)

Case	Age	Substances	Chronicity	Route	Reason	Blood Concentrations	Interval After Exposure
761	1 day	Heroin cocaine olanzapine	C	Ing/Paren	Int abuse		
762 ^p	44 yr	Heroin diazepam	A/C	Parenteral	Int abuse	morphine 98 ng/mL§ 100 ng/mL§ nordiazepam 170 ng/mL§	
763 ^p	26 yr	Heroin ethanol	A	Unknown	Int abuse	morphine 150 ng/mL§ 64 mg/dL§	
764 ^p	43 yr	Heroin ethanol	A	Ing/Paren	Int abuse	morphine 250 ng/mL§ 112 mg/dL§	
765 ^p	46 yr	Heroin ethanol	A/C	Ing/Inh	Int abuse	morphine 110 ng/mL 160 mg/dL	
766 ^p	47 yr	Heroin fluoxetine codeine	A/C	Ing/Paren	Int abuse	morphine 370 ng/mL§ 385 ng/mL§ norfluoxetine 430 ng/mL§ 30 ng/mL§	
767	22 yr	Heroin methamphetamine	A	Parenteral	Int abuse		
768 ^{op}	31 yr	Heroin methamphetamine	A/C	Parenteral	Int suicide		
769 ^p	17 yr	Methamphetamine	A/C	Inhalation	Int abuse		
770 ^a	18 yr	Methamphetamine	U	Ingestion	Int unknown		
771	22 yr	Methamphetamine	A	Ingestion	Int misuse		
772	24 yr	Methamphetamine	A	Unknown	Int abuse	1.20 µg/mL	
773	25 yr	Methamphetamine	A	Ingestion	Int abuse		
774 ^p	30 yr	Methamphetamine	U	Unknown	Int abuse	0.30 µg/mL§	
775 ^a	40 yr	Methamphetamine	A	Ingestion	Int abuse	18 µg/mL§	
776 ^p	24 yr	Methamphetamine benzodiazepine amphetamine	U	Ing/Inh	Int abuse		
777	28 yr	Methamphetamine cocaine	U	Unknown	Int abuse		
778	53 yr	Methamphetamine diphenhydramine	A	Ing/Paren	Int abuse		
779	29 yr	Methamphetamine marijuana	U	Ingestion	Int suicide		
780	37 yr	Methamphetamine marijuana	U	Inh/Unk	Int abuse	0.39 µg/mL§	
781	50 yr	Methamphetamine (crystal) tricyclic antidepressant	A/C	Ing/Paren	Int abuse		
782 ^p	39 yr	Methylphenidate	U	Ingestion	Int unknown	76 ng/mL§	
783	37 yr	Methylphenidate fluoxetine benzphetamine	C	Ingestion	Int abuse		
784	19 yr	Phenylpropanolamine (diet aid)	A	Ingestion	Int suicide		
785	21 yr	Phenylpropanolamine (diet aid)	A/C	Ingestion	Int suicide		
<i>See also cases 309, 612, 726, 776 (amphetamine); 783 (benzphetamine); 415 (cannabinoids); 8, 49, 175, 221, 232, 255, 325, 327, 343, 345, 352, 353, 354, 415, 432, 455, 464, 512, 574, 581, 584, 703, 757, 758, 759, 760, 761, 777 (cocaine); 731, 732, 733 (heroin); 8, 355, 467, 514, 630, 734, 735, 736, 779, 780, (marijuana); 426, 738, 767, 768 (methamphetamine); 325 (methylenedioxymethamphetamine); 311, 626 (phencyclidine); 430, 704 (phentermine); 726 (tetrahydrocannabinoids).</i>							
Topical preparations							
786 ^p	27 yr	Camphor	A	Ingestion	Int suicide		

Unknown substances

See also cases 178, 435, 647 (unknown drug).

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

ABBREVIATIONS: C, chronic exposure; A, acute exposure; A/C, acute on chronic; U, unknown; Oc, ocular; Inh, inhalation; Ing, ingestion; Adv rxn, adverse reaction; Env, environmental; Int, intentional; Occ, occupational; Ther error, therapeutic error; Unint gen, unintentional general.

^aAbstract provided in Appendix.

^pPrehospital (cardiac and/or respiratory) arrest.

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

§Concentration obtained postmortem.

¥Acetaminophen concentration.

¶Salicylate concentration.

#Concentration includes metabolite and parent compound.

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Adhesives/glues														
Cyanoacrylates	12,360	3,676	2,834	4,744	12,142	152	36	22	2,772	1,853	2,651	662	4	0
Epoxy	893	324	49	446	875	9	1	7	301	217	169	85	0	0
Toluene/xylene	1,723	1,100	315	249	1,638	65	11	5	253	526	343	49	2	0
Non-toxic	1,594	1,052	374	148	1,540	38	11	4	71	286	120	12	0	0
Unknown	5,137	2,826	736	1,289	4,906	140	23	58	871	1,256	988	164	6	0
*Category totals	21,707	8,978	4,308	6,876	21,101	404	82	96	4,268	4,138	4,271	972	12	0
Alcohols														
Ethanol (beverage)	40,823	6,681	6,347	25,180	13,123	26,183	330	877	22,967	5,085	11,024	4,606	893	97
Ethanol (other)	2,470	1,352	271	752	2,249	174	11	30	351	811	383	47	3	0
Higher alcohols	225	107	19	80	218	5	0	1	66	77	60	10	0	0
Isopropanol	9,837	6,395	913	2,224	8,724	1,003	62	18	1,969	3,524	1,786	295	45	2
Methanol	987	218	142	524	846	116	8	3	521	264	241	69	21	10
Rubbing alcohol														
Ethanol, with methyl salicylate	39	34	1	4	38	1	0	0	4	16	4	0	0	0
Ethanol, without methyl salicylate	274	209	13	48	263	9	1	1	34	103	36	2	1	0
Isopropanol, with methyl salicylate	274	197	18	54	250	21	1	0	58	109	56	4	3	0
Isopropanol, without methyl salicylate	9,278	6,465	753	1,857	8,376	816	52	16	1,434	3,208	1,629	188	24	1
Unknown rubbing alcohol	43	27	4	8	38	5	0	0	9	14	2	3	0	0
Other alcohol	49	18	5	23	41	4	0	3	18	14	13	3	2	0
Unknown alcohol	571	149	97	290	295	256	4	9	255	75	136	42	8	2
*Category totals	64,870	21,852	8,583	31,044	34,461	28,593	469	958	27,686	13,300	15,370	5,269	1,000	112
Arts/crafts/office supplies														
Artist paints, non-water- color														
Chalk	2,030	1,821	146	53	1,993	31	3	2	51	419	65	6	0	0
Clay	1,989	1,691	162	115	1,949	15	10	13	75	372	105	9	0	0
Crayon	2,713	2,417	190	97	2,687	13	5	6	49	439	52	3	0	0
Glazes	246	104	48	85	241	2	2	1	34	74	22	2	0	0
Office supplies:														
miscellaneous														
Pencil	3,544	1,815	1,361	314	3,429	64	48	1	168	480	341	25	0	0
Pens/ink	15,181	10,642	3,695	645	14,724	364	47	37	397	3,445	572	37	1	0
Typewriter correction fluid	2,591	1,746	587	224	2,462	114	12	2	180	919	264	19	0	0
Water color	3,782	3,071	384	295	3,730	38	5	7	104	863	138	14	0	0
Other	6,702	5,261	726	607	6,573	97	10	17	273	1,368	331	36	1	0
Unknown	369	261	69	34	357	9	0	3	15	81	16	0	0	0
*Category totals	40,786	29,768	7,590	2,885	39,743	777	146	95	1,511	8,887	2,105	177	3	0
Automotive/aircraft/boat products														
Ethylene glycol	4,867	826	722	2,870	4,466	342	45	4	1,591	1,172	1,018	276	76	9
Glycols: other	1,719	471	180	915	1,652	56	5	4	520	402	603	92	7	0
Glycol and methanol	108	39	19	43	102	5	0	1	33	41	25	1	2	0
Hydrocarbons	3,469	1,596	402	1,238	3,315	121	20	9	939	1,026	1,066	159	6	0
Methanol	1,501	434	221	711	1,404	83	9	1	637	503	393	64	7	4
Non-toxic	47	36	8	3	46	1	0	0	4	10	5	0	0	0
Other	2,758	1,291	356	945	2,666	48	12	27	889	586	951	185	10	0
Unknown	137	39	26	57	128	4	2	3	58	31	44	7	0	0
*Category totals	14,606	4,732	1,934	6,782	13,779	660	93	49	4,671	3,771	4,105	784	108	13
Batteries														
Automotive batteries														
Disc batteries														
Alkaline (MnO ₂)	43	35	8	0	43	0	0	0	34	23	5	1	0	0
Lithium	112	44	15	43	110	2	0	0	71	32	30	6	2	0
Mercuric oxide	5	3	0	1	5	0	0	0	3	2	1	0	0	0
Nickel cadmium	10	2	3	1	10	0	0	0	2	4	2	0	0	0
Silver oxide	31	22	3	5	31	0	0	0	21	19	4	0	0	0
Zinc-air	58	19	8	28	55	2	0	0	37	33	2	0	0	0

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn	Facility	None	Minor	Moderate	Major	Death
Other	7	4	2	1	7	0	0	0	4	1	0	0	0	0
Unknown	1,611	1,023	379	186	1,571	26	1	0	1,050	817	71	18	2	0
Dry cell batteries	4,514	2,334	1,102	822	4,324	161	10	12	643	1,172	1,125	161	7	0
Other batteries	75	29	20	20	75	0	0	0	16	14	18	8	0	0
Unknown batteries	13	5	4	0	13	0	0	0	2	3	0	0	0	0
*Category totals	8,317	3,678	1,820	2,260	8,061	199	16	17	2,440	2,283	2,018	366	15	0
Bites and Envenomations														
Coelenterate	898	125	424	316	889	1	0	7	114	8	253	40	2	0
Fish	1,381	43	231	1,010	1,367	11	0	3	426	73	412	140	2	0
Other/unknown marine animal	521	287	79	133	512	4	0	5	74	103	67	18	2	0
Insects														
Ant/fire ant	2,957	1,185	418	1,227	2,923	16	9	8	269	136	994	119	5	0
Bee/wasp/hornet	16,227	3,213	3,716	8,381	16,205	16	1	5	1,515	469	6,666	738	20	1
Caterpillar	3,230	908	833	1,335	3,204	11	3	11	274	129	1,013	60	1	0
Centipede/millipede	150	56	36	51	150	0	0	0	6	2	38	3	0	0
Mosquito	334	135	59	118	332	0	0	2	57	6	90	21	0	0
Scorpion	13,918	1,075	2,894	9,620	13,903	5	1	9	862	248	7,596	547	12	0
Tick	3,203	802	720	1,472	3,192	2	0	7	528	199	575	56	3	0
Other insect	15,693	3,229	2,894	8,772	15,511	34	97	44	2,065	869	4,408	843	14	1
Mammals														
Bat	323	48	93	151	313	1	0	1	154	55	42	4	0	0
Cat	950	154	211	509	941	2	1	2	357	23	172	28	0	0
Dog	1,726	361	656	639	1,714	9	0	2	883	36	281	45	1	0
Fox	15	5	5	5	14	0	0	0	5	0	1	0	0	0
Human	68	16	19	29	63	1	3	0	19	5	10	1	1	0
Raccoon	134	11	28	78	133	1	0	0	61	12	27	3	0	0
Rodents/lagomorphs	1,751	451	668	528	1,730	4	11	5	331	124	393	23	2	0
Skunk	269	32	70	129	267	0	1	0	25	40	72	3	0	0
Other mammal	1,632	290	531	670	1,623	3	0	4	636	137	425	28	0	0
Reptile: other/unknown	1,330	402	508	381	1,306	6	2	12	255	115	353	27	0	0
Snakes														
Copperhead	494	31	106	328	491	1	0	1	425	9	206	171	9	0
Coral	68	4	24	36	68	0	0	0	59	4	36	8	1	0
Cottonmouth	88	2	19	63	86	2	0	0	69	8	40	12	3	0
Crotalid: unknown	3	0	0	1	3	0	0	0	3	0	1	0	0	0
Rattlesnake	854	50	162	609	845	5	0	2	741	25	224	342	89	1
Exotic snakes														
Poisonous	72	8	16	39	71	0	0	1	55	3	23	14	5	1
Nonpoisonous	220	18	90	98	220	0	0	0	83	6	83	9	0	0
Unknown if poisonous	2	0	1	1	2	0	0	0	1	1	0	0	0	0
Nonpoisonous snake bite	2,276	256	1,055	857	2,264	6	1	5	537	129	878	65	2	0
Unknown snake	1,638	115	537	900	1,632	5	0	1	976	70	742	184	14	0
Spiders														
Black widow	2,757	304	438	1,946	2,743	8	2	1	783	323	950	369	11	0
Brown recluse	2,014	183	291	1,306	2,001	9	0	3	953	42	432	434	24	0
Other spider	8,236	1,243	1,609	4,827	8,221	3	6	2	1,284	409	2,537	450	12	0
Tarantula	261	25	86	123	257	0	0	4	57	18	88	11	0	0
Unknown insect or spider	10,398	1,538	1,956	6,306	10,368	10	14	3	1,964	340	3,351	544	12	0
Other/unknown animal bite	62	12	11	31	61	0	0	1	23	1	13	2	0	0
*Category totals	96,153	16,617	21,494	52,975	95,627	176	152	151	16,929	4,177	33,492	5,362	247	4
Building and construction products														
Caulking compounds and putties	3,826	2,874	216	591	3,767	24	11	24	275	969	266	54	2	0
Cement, concrete	1,640	367	132	944	1,609	17	4	9	685	208	402	326	18	1
Insulation														
Asbestos	189	20	15	129	188	1	0	0	55	32	15	5	1	0
Fiberglass	1,664	642	305	600	1,620	15	5	21	209	201	389	66	0	0
Urea/formaldehyde	104	35	4	51	102	0	0	2	30	11	26	4	0	0
Other	396	188	50	125	386	4	4	2	48	96	73	12	0	0
Unknown	44	19	3	20	42	1	0	1	9	14	7	1	0	0
Soldering flux	505	206	75	189	490	10	4	0	151	117	149	35	3	0

(Continued on following page)

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Other construction product	2,037	1,199	195	539	1,987	30	6	10	295	432	323	64	5	0
Unknown construction product	70	14	8	39	68	0	0	2	26	9	17	7	0	0
*Category totals	10,475	5,564	1,003	3,227	10,259	102	34	71	1,783	2,089	1,667	574	29	1
Chemicals														
Acetone	1,505	517	200	692	1,411	63	17	13	462	324	424	84	1	0
Acids														
Hydrochloric	3,270	235	576	2,132	3,156	85	12	13	1,186	391	1,225	364	13	1
Hydrofluoric	1,663	113	122	1,186	1,633	21	1	5	1,263	157	635	398	21	3
Other	5,629	773	914	3,226	5,439	115	40	24	2,277	601	2,169	728	23	1
Unknown	510	64	81	310	488	9	9	2	209	55	185	70	3	0
Alkali	5,545	1,321	916	2,731	5,341	106	43	39	2,457	838	1,697	797	43	2
Ammonia	5,923	1,642	823	2,931	5,649	205	32	28	1,786	665	1,919	630	22	0
Borates/boric acid	3,484	1,932	332	1,074	3,233	174	44	23	581	1,092	325	38	1	0
Chlorates	35	14	7	10	33	2	0	0	16	5	8	9	0	0
Cyanide	347	12	20	266	291	38	13	1	197	47	90	31	6	7
Dioxin	14	0	2	8	14	0	0	0	9	1	5	0	1	0
Formaldehyde/formalin	1,510	231	302	786	1,390	183	25	10	591	216	439	104	8	1
Glycol: ethylene	1,307	162	627	447	1,173	116	6	1	377	702	196	70	48	13
Glycol: other	1,368	500	252	511	1,288	48	18	11	413	283	402	69	6	1
Ketones	974	262	73	533	955	10	2	4	454	167	312	99	9	0
Methylene chloride	665	103	78	416	645	12	5	3	311	88	243	69	5	0
Nitrates and nitrites	1,018	258	377	314	928	61	18	8	237	264	199	40	3	0
Phenol/creosote	1,306	194	146	827	1,274	13	2	12	445	142	399	141	6	1
Strychnine	40	13	5	18	23	7	6	1	19	11	5	2	0	0
Toluene diisocyanate	750	146	94	426	718	21	2	8	219	97	187	45	1	0
Other chemicals	17,925	6,119	2,591	7,303	16,736	563	201	318	4,954	3,711	3,707	960	49	3
Unknown chemicals	3,273	1,577	502	966	3,136	45	43	37	450	639	344	110	2	1
*Category totals	58,061	16,188	9,040	27,113	54,954	1,797	539	561	18,913	10,496	15,115	4,858	271	34
Cleaning substances (household)														
Ammonia cleaners (all purpose)	3,682	1,596	343	1,556	3,499	137	27	13	705	802	1,015	194	7	0
Automatic dishwasher detergents														
Granules	5,119	4,372	181	486	5,067	28	19	3	239	2,235	874	46	0	0
Liquids	2,650	2,195	107	296	2,631	9	6	4	150	1,015	500	40	2	0
Rinse agents	1,597	1,504	29	53	1,589	5	1	2	40	425	228	3	0	0
Other/unknown	861	692	60	96	849	10	2	0	66	307	167	14	0	0
Bleaches														
Borate	471	216	46	179	447	13	0	11	71	119	127	18	1	0
Hypochlorite	54,453	22,184	5,976	23,010	51,693	2,022	417	231	9,388	9,899	16,713	2,182	49	1
Nonhypochlorite	992	465	98	352	944	28	1	19	140	239	279	16	0	0
Other/unknown	213	108	11	81	198	7	3	5	49	39	61	12	0	0
Carpet/upholstery cleaners	4,489	3,337	306	709	4,369	45	13	58	454	1,366	850	69	1	0
Cleansers														
Anionic/nonionic	6,042	4,424	430	1,018	5,824	145	33	30	644	1,813	1,040	132	2	0
Other/unknown	1,333	822	129	324	1,250	55	13	11	225	375	292	42	0	0
Disinfectants														
Hypochlorite	7,570	4,421	754	2,156	7,374	116	21	50	1,250	1,980	2,123	365	1	0
Phenol	3,836	2,529	407	729	3,651	140	29	14	547	995	995	77	6	0
Pine oil	10,232	7,002	801	2,173	9,665	453	61	34	1,838	3,445	2,254	203	24	1
Other/unknown	2,914	1,629	338	772	2,758	116	21	18	588	716	772	118	3	0
Drain cleaners														
Acid	1,078	148	116	657	1,025	31	7	12	375	105	349	184	3	7
Alkali	3,816	688	395	2,278	3,564	204	30	12	1,286	539	1,279	530	36	7
Other/unknown	483	116	46	274	437	33	7	5	133	106	99	36	2	1
Fabric softeners/ antistatic agents														
Aerosol/spray	67	25	15	22	63	3	0	1	5	14	8	1	0	0
Dry/powder	1	0	0	1	0	1	0	0	1	0	1	0	0	0
Liquid	1,414	1,174	72	147	1,384	19	4	7	99	514	171	13	0	0
Solid/sheet	328	288	21	15	323	2	1	2	11	97	20	1	0	0
Other/unknown	25	22	0	3	25	0	0	0	2	8	2	0	0	0

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn	None	Minor	Moderate	Major	Death	
Glass cleaners														
Ammonia	2,031	1,574	185	214	1,960	58	7	6	174	642	390	20	0	0
Anionic/nonionic	42	25	4	13	40	1	0	1	8	16	9	1	1	0
Isopropanol	7,245	5,732	629	758	6,962	219	38	18	576	2,177	1,464	68	6	0
Other/unknown	3,627	2,828	317	378	3,472	124	22	7	287	1,123	717	30	1	0
Hand dishwashing														
Anionic/nonionic	9,582	6,328	844	2,037	9,136	152	125	152	607	1,812	2,100	120	1	1
Other/unknown	1,058	614	112	245	980	20	22	33	81	176	198	8	0	0
Laundry additives														
Bleuing/brightening agent	62	41	6	14	58	3	0	1	8	21	12	2	0	0
Detergent booster	24	14	2	6	24	0	0	0	5	7	7	2	0	0
Enzyme/microbiological additive	117	76	7	30	110	4	0	3	11	26	30	2	0	0
Water softener	125	21	19	73	110	2	7	6	20	32	16	0	0	0
Other/unknown	121	72	10	27	110	0	0	10	24	28	27	8	1	0
Laundry detergents														
Granules	8,241	7,028	399	685	8,046	110	20	54	803	2,448	2,186	127	1	0
Liquids	3,539	2,519	267	616	3,381	87	12	58	448	846	859	81	4	0
Soaps	189	130	10	41	181	5	2	1	16	48	38	3	0	0
Other/unknown	130	70	12	41	124	2	1	3	27	32	32	6	1	0
Laundry prewash/stain removers														
Dry solvent-based	106	101	2	3	106	0	0	0	4	28	11	0	0	0
Liquid solvent-based	568	461	32	64	555	7	2	4	54	174	117	11	0	0
Spray solvent-based	469	382	23	47	454	3	7	5	66	125	147	17	0	0
Other/unknown solvent- based	57	37	5	12	56	1	0	0	8	18	5	1	0	0
Dry surfactant-based	530	435	27	37	508	4	1	16	21	133	74	2	0	0
Liquid surfactant-based	2,046	1,706	102	201	2,029	12	0	3	214	573	546	62	1	0
Spray surfactant-based	298	255	12	28	296	2	0	0	30	78	98	5	0	0
Other/unknown surfactant-based	30	25	1	4	30	0	0	0	4	9	6	0	0	0
Other/unknown	29	21	2	5	28	1	0	0	6	10	3	1	0	0
Miscellaneous cleaner														
Acid	796	290	51	360	773	17	2	4	207	200	258	55	0	0
Alkali	7,975	4,115	808	2,596	7,662	228	36	42	2,379	1,861	2,338	600	29	1
Anionic/nonionic	8,195	5,476	690	1,719	7,860	210	44	72	1,054	2,068	1,689	146	5	0
Cationic	3,170	1,573	395	996	2,990	123	25	26	852	746	941	142	4	2
Ethanol	1,089	783	111	159	1,052	25	7	5	85	286	275	25	0	0
Glycols	2,932	2,114	240	496	2,840	59	15	16	334	985	566	50	1	0
Isopropanol	2,493	1,565	357	469	2,384	73	29	6	339	745	560	45	4	1
Methanol	46	24	6	13	42	4	0	0	14	15	9	3	0	0
Phenol	302	171	26	86	277	16	3	5	58	75	105	13	0	0
Other/unknown	3,122	1,735	310	912	2,972	94	24	28	648	801	758	107	3	0
Oven cleaner														
Acid	13	9	1	3	12	1	0	0	4	6	3	1	0	0
Alkali	3,563	926	453	1,808	3,439	60	39	22	1,464	412	1,260	533	12	0
Detergent type	66	17	10	32	63	1	0	2	11	9	18	3	0	0
Other/unknown	305	66	40	164	283	10	6	5	119	40	90	36	1	0
Rust remover														
Alkali	23	6	1	11	23	0	0	0	7	5	6	2	0	0
Anionic/nonionic	1	0	0	1	1	0	0	0	0	0	0	1	0	0
Hydrofluoric acid	1,109	93	67	864	1,091	15	0	3	658	125	504	256	12	2
Acid other	579	196	56	290	549	24	2	3	153	145	171	38	3	0
Other/unknown	264	44	29	159	252	2	0	10	54	47	95	35	0	0
Spot removers/dry cleaning agents														
Anionic/nonionic	599	452	39	91	587	4	2	5	42	162	139	10	0	0
Glycol	114	78	7	21	113	0	0	1	13	44	13	1	0	0
Perchloroethylene	88	25	6	52	80	8	0	0	8	59	9	4	0	0
Other halogenated hydrocarbon	136	43	8	72	132	1	1	2	30	29	36	4	0	0
Isopropanol	12	10	0	2	12	0	0	0	2	2	1	0	0	0

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Other nonhalogenated														
hydrocarbon	136	86	20	27	128	8	0	0	28	32	47	8	1	0
Other/unknown	274	218	13	38	265	3	3	3	34	83	48	9	0	0
Starch/fabric finishes/sizing	1,274	1,039	102	100	1,227	33	2	10	51	329	139	10	2	0
Toilet bowl cleaner														
Acid	3,921	1,517	401	1,606	3,752	138	13	12	1,055	818	1,367	342	18	0
Alkali	710	486	28	171	694	11	2	3	59	259	108	18	1	0
Other/unknown	2,395	1,888	111	306	2,347	27	9	8	194	749	231	40	0	0
Wall/floor/tile cleaner														
Acid	3,625	1,704	287	1,395	3,527	68	9	19	815	788	1,391	267	6	0
Alkali	9,921	6,047	795	2,711	9,631	185	34	61	1,965	2,567	3,281	491	15	0
Anionic/nonionic	759	446	73	198	734	19	3	2	126	189	163	19	0	0
Cationic	1,677	1,094	102	407	1,624	32	6	14	234	454	502	54	4	0
Ethanol	5	3	0	1	5	0	0	0	2	1	2	0	0	0
Glycols	1,817	1,268	140	349	1,746	44	12	11	214	545	349	35	3	0
Isopropanol	99	64	8	24	97	1	0	0	14	37	19	4	0	0
Methanol	1	0	0	1	1	0	0	0	1	0	1	0	0	0
Other/unknown	451	206	54	135	431	10	3	5	112	102	122	31	1	0
*Category totals	217,989	126,329	19,555	61,811	209,083	5,993	1,313	1,328	35,247	53,555	56,925	8,311	279	24
Industrial cleaners														
Acids	1,547	441	208	756	1,474	38	26	7	617	267	584	191	1	1
Alkali	3,414	773	513	1,694	3,254	97	45	13	1,737	503	1,290	495	16	0
Anionic/nonionic	1,315	744	158	338	1,274	31	4	5	285	312	362	47	0	0
Cationic	946	239	168	427	870	54	12	8	390	144	380	91	3	0
Other/unknown	2,278	798	275	1,030	2,169	68	27	13	755	407	769	180	4	0
*Category totals	9,500	2,995	1,322	4,245	9,041	288	114	46	3,784	1,633	3,385	1,004	24	1
Cosmetics/personal care products														
Bath oil, bubble bath	9,154	8,487	387	228	9,008	40	21	84	248	2,539	997	18	2	0
Creams, lotions, make-up	18,238	14,372	1,214	2,227	17,458	224	58	489	824	4,333	1,464	86	6	0
Dental care products														
False teeth cleaning	1,388	261	101	957	1,334	34	11	4	104	421	167	10	1	0
Toothpaste with fluoride	12,855	10,890	665	1,040	12,197	121	25	497	344	4,058	1,140	38	1	0
Toothpaste without fluoride	530	403	33	78	510	8	1	10	15	160	39	4	0	0
Other	1,513	900	165	399	1,437	34	0	42	100	388	262	13	1	0
Deodorants	11,051	9,094	800	951	10,323	136	29	555	401	2,557	1,167	56	2	0
Depilatories	903	274	136	405	677	30	9	185	211	142	248	82	2	0
Douches	201	149	17	31	190	8	1	2	14	65	13	0	0	0
Eye products	1,599	1,145	120	275	1,552	17	1	29	120	373	203	26	0	0
Hair care products														
Coloring agents	2,144	922	224	849	1,912	31	9	192	459	429	646	126	4	0
Rinses, conditioners, relaxers	3,994	2,928	320	606	3,766	69	4	148	898	1,153	888	210	3	0
Shampoos	9,188	7,187	696	1,139	8,792	263	18	110	651	2,241	1,679	99	2	0
Sprays	3,503	2,365	478	562	3,107	353	24	16	473	993	824	60	8	0
Other	3,396	2,244	323	697	3,146	101	18	126	609	869	678	145	7	1
Lipsticks/balms, with camphor	755	688	36	26	741	8	0	4	14	159	44	2	0	0
Lipsticks/balms, without camphor	2,541	2,372	92	64	2,504	14	2	21	54	515	91	4	1	0
Mouthwash														
Ethanol	12,703	4,108	2,609	5,271	11,634	948	54	43	1,008	3,439	1,178	125	23	1
Non-ethanol	394	199	84	102	334	50	0	10	55	110	47	2	0	0
Fluoride	2,935	1,712	984	208	2,900	28	0	6	41	866	98	5	0	0
Unknown	316	57	174	71	277	15	22	1	43	27	166	13	0	0
Nail products														
Polish	9,971	8,683	776	418	9,818	122	14	13	555	2,928	1,670	44	1	0
Polish removers: acetone	3,622	2,853	411	331	3,513	87	17	2	348	1,332	671	26	1	0
Polish removers: other	2,530	1,989	297	218	2,467	52	10	1	220	905	476	22	0	0
Polish removers: unknown	10,533	7,867	1,299	1,161	10,181	275	53	17	1,063	3,469	1,924	70	0	0
Other miscellaneous	4,894	2,777	962	961	4,802	46	8	36	1,421	1,101	1,320	329	5	0

(Continued on following page)

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Perfume, cologne, aftershave	27,745	24,503	1,787	1,263	27,151	406	119	54	1,440	9,894	4,771	129	5	1
Peroxide	14,520	7,135	1,665	4,925	14,004	357	45	100	979	3,490	2,488	175	9	0
Powders: talc	4,330	3,817	237	230	4,251	58	5	13	351	1,243	1,114	43	5	0
Powders: without talc	1,360	1,281	49	24	1,343	7	4	6	40	287	303	6	1	0
Soaps	13,215	9,958	975	1,914	12,566	186	72	377	717	3,385	2,088	96	1	0
Suntan/sunscreen products	6,063	5,028	569	398	5,840	25	9	187	342	1,320	1,536	67	3	0
*Category totals	198,084	146,648	18,685	28,029	189,735	4,153	663	3,380	14,162	55,191	30,400	2,131	94	3
Deodorizers														
Air fresheners	14,305	11,714	1,283	937	13,845	270	60	123	877	4,000	2,774	113	7	3
Diaper pail deodorizers	446	419	11	12	444	2	0	0	14	206	18	1	0	0
Toilet bowl deodorizers	950	866	37	42	942	8	0	0	74	365	78	7	0	0
Other	4,232	2,949	352	741	4,048	81	16	83	596	1,260	763	73	2	0
Unknown	61	48	5	5	59	0	1	0	7	21	12	0	0	0
*Category totals	19,994	15,996	1,688	1,737	19,338	361	77	206	1,568	5,852	3,645	194	9	3
Dyes														
Fabric	886	700	73	90	864	9	1	11	91	297	45	5	0	0
Food dye (eg, Easter egg)	1,081	909	110	45	1,045	19	3	9	25	276	53	1	1	0
Leather	106	85	10	10	104	0	0	2	9	23	8	0	0	0
Other	663	404	148	92	638	11	3	11	63	196	54	11	2	0
Unknown	65	35	12	14	58	0	0	7	9	13	5	2	0	0
*Category totals	2,801	2,133	353	251	2,709	39	7	40	197	805	165	19	3	0
Essential oils														
	3,990	2,720	508	651	3,778	128	9	70	474	1,021	1,224	67	4	0
Fertilizers														
Household plant food	5,241	3,328	704	1,059	5,169	39	17	12	172	1,465	200	9	0	0
Outdoor fertilizers	3,390	2,276	333	643	3,341	17	5	26	168	1,015	215	32	1	0
Plant hormones	140	47	19	66	136	1	0	3	39	40	21	4	0	0
Other	382	211	43	111	372	3	3	3	34	85	40	4	1	0
Unknown	2,081	1,378	236	405	2,024	25	8	20	172	563	195	39	0	0
*Category totals	11,234	7,240	1,335	2,284	11,042	85	33	64	585	3,168	671	88	2	0
Fire extinguishers														
	3,247	324	958	1,538	2,961	88	182	11	825	522	1,080	171	1	1
Food products/food poisoning														
	79,640	22,030	13,002	39,656	74,181	602	836	3,873	6,300	9,569	13,183	2,393	101	2
Foreign bodies/toys/ miscellaneous														
Ashes	664	591	32	33	658	2	3	0	26	150	62	6	1	0
Bubble blowing solutions	4,513	4,214	223	63	4,491	15	4	2	101	882	1,064	10	0	0
Charcoal	951	716	62	151	910	19	5	17	51	261	84	13	6	2
Christmas ornaments	1,160	1,024	62	65	1,155	3	2	0	68	292	77	5	0	0
Coins	3,463	2,877	499	62	3,427	30	3	0	988	1,074	297	45	1	0
Desiccants	26,503	23,642	1,701	956	26,280	160	52	5	667	5,555	179	15	0	0
Feces/urine	4,930	4,041	261	534	4,794	31	93	9	174	1,022	197	10	0	0
Glass	2,280	840	320	928	2,159	16	93	10	271	454	263	23	0	0
Incense, punk	273	246	9	14	268	4	0	1	16	87	20	4	0	0
Soil	2,545	2,180	118	219	2,522	13	3	5	90	519	126	8	0	0
Thermometer	15,583	7,688	4,240	2,766	15,453	90	28	7	884	3,341	216	14	0	0
Toys	7,919	5,301	2,336	222	7,834	63	13	5	393	1,662	1,305	25	1	0
Other	23,044	14,231	5,868	2,438	22,260	334	301	126	1,864	5,114	2,861	177	6	0
Unknown	195	132	34	24	179	4	8	3	28	45	29	0	0	0
*Category totals	94,023	67,723	15,765	8,475	92,390	784	608	190	5,621	20,458	6,780	355	15	2
Fumes/gases/vapors														
Carbon dioxide	523	45	170	259	479	28	7	5	120	63	137	37	0	1
Carbon monoxide	20,930	3,116	3,530	11,869	20,445	396	23	22	7,509	2,597	6,242	1,708	191	37
Chloramine	3,445	156	268	2,717	3,325	102	12	3	772	143	1,478	414	6	0
Chlorine: acid mixed with hypochlorite	874	19	101	668	857	12	4	0	268	20	381	158	1	0
Chlorine: other	5,437	444	1,058	3,354	5,274	94	16	45	1,700	313	2,376	926	11	0
Methane and natural gas	4,662	748	860	2,504	4,598	59	1	3	1,166	894	1,369	239	14	0
Hydrogen sulfide	1,627	223	215	865	1,608	12	1	2	501	186	476	155	12	1
Polymer fume fever	1	1	0	0	1	0	0	0	0	1	0	0	0	0
Propane/simple asphyxiants	3,048	295	686	1,683	2,793	234	6	9	1,007	362	973	302	16	1

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

Substance Implicated in the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Other	2,534	320	349	1,559	2,453	41	11	22	868	324	734	226	15	1
Unknown	1,772	206	271	975	1,731	14	15	8	472	248	561	84	1	0
*Category totals	44,853	5,573	7,508	26,453	43,564	992	96	119	14,383	5,151	14,727	4,249	267	41
Fungicides														
Carbamate fungicide	315	106	38	148	294	10	2	7	86	56	61	14	0	0
Mercurial fungicide	10	8	0	2	10	0	0	0	1	6	1	0	0	0
Non-mercurial fungicide	517	90	47	272	484	8	4	20	151	70	139	25	1	0
Phthalimide fungicide	237	123	24	73	229	4	1	3	39	64	28	8	0	0
Other/unknown	491	131	43	215	475	3	4	9	101	97	119	20	0	0
*Category totals	1,570	458	152	710	1,492	25	11	39	378	293	348	67	1	0
Heavy metals														
Aluminum	952	450	96	309	862	13	65	8	118	173	86	20	0	0
Arsenic (excluding pesticides)	863	134	61	573	618	33	101	17	479	110	90	42	9	1
Barium	21	1	5	13	14	1	0	6	11	4	3	1	2	0
Cadmium	135	38	12	65	123	3	3	0	60	14	17	4	1	0
Copper	1,086	215	353	436	1,006	58	10	7	325	195	289	52	3	2
Fireplace flame colors	18	13	2	3	17	1	0	0	1	7	2	0	0	0
Gold	3	1	0	2	3	0	0	0	1	1	0	0	0	0
Lead	3,572	1,652	586	1,110	3,418	63	35	14	1,316	639	208	91	10	0
Manganese	58	11	18	28	55	2	0	1	19	10	10	3	0	0
Mercury	3,185	906	880	1,069	2,933	163	33	37	638	939	125	43	4	0
Metal fume fever	1,153	50	77	919	1,140	7	0	3	318	54	357	172	0	1
Selenium	147	63	15	59	124	7	0	15	34	30	16	7	0	0
Thallium	147	37	7	61	121	4	3	14	32	15	18	6	2	0
Other	977	299	152	447	861	52	18	41	309	198	159	65	3	0
Unknown	35	4	5	23	23	2	8	1	11	4	3	1	0	0
*Category totals	12,352	3,874	2,269	5,117	11,318	409	276	164	3,672	2,393	1,383	507	34	4
Herbicides														
Carbamate herbicide	51	5	5	25	51	0	0	0	24	5	18	2	0	0
2,4-D or 2,4,5-T	2,810	825	282	1,164	2,684	33	9	80	547	572	554	91	9	1
Diquat	471	97	47	283	442	21	0	5	153	119	131	22	9	1
Paraquat	219	15	23	119	204	7	4	1	119	40	36	22	2	2
Paraquat/diquat	1	0	0	1	1	0	0	0	0	0	0	0	0	0
Triazine herbicide	482	86	63	245	462	7	2	10	151	77	105	20	1	0
Urea herbicide	58	12	9	34	58	0	0	0	19	9	6	6	1	0
Other	5,996	1,694	648	2,940	5,597	66	30	288	1,271	1,343	1,326	137	4	1
Unknown	291	86	56	127	270	5	11	4	58	36	63	13	0	0
*Category totals	10,379	2,820	1,133	4,938	9,769	139	56	388	2,342	2,201	2,239	313	26	5
Hydrocarbons														
Benzene	174	21	20	106	168	0	4	0	96	17	59	22	0	0
Carbon tetrachloride	43	4	2	27	41	2	0	0	16	6	7	2	1	0
Diesel fuel	1,024	250	116	563	982	33	4	4	260	174	390	35	1	0
Fluorochlorocarbons/ propellants	7,185	632	1,040	4,488	6,898	226	34	14	1,307	1,396	1,778	315	11	4
Gasoline	14,146	4,206	2,875	6,267	13,293	763	59	6	2,125	2,696	6,006	359	15	3
Halogenated hydrocarbon: other														
Kerosene	1,732	205	135	493	918	29	5	8	397	132	341	72	1	0
Lighter fluid/naphtha	3,861	991	233	417	1,667	46	14	1	522	467	568	113	7	0
Lubricating oils/motor oil	4,421	2,117	399	1,132	3,614	157	62	16	1,121	1,062	1,170	206	13	0
Mineral seal oil	4,421	2,928	412	904	4,295	75	34	8	620	1,615	674	82	6	0
Mineral seal oil	234	188	14	28	229	4	0	1	24	144	23	1	0	0
Mineral spirits/varsol	5,499	2,522	777	1,862	5,199	223	43	27	1,223	1,390	1,621	219	14	1
Toluene/xylene	2,201	483	281	1,165	2,014	159	16	9	948	379	725	229	15	1
Turpentine	1,139	424	191	456	962	159	10	6	315	266	302	48	4	1
Other	6,692	3,264	836	2,124	6,417	193	20	46	1,688	1,874	1,496	352	18	2
Unknown	17,329	8,656	2,297	5,282	16,569	623	80	44	3,968	4,538	5,534	856	41	0
*Category totals	66,645	26,891	9,628	25,314	63,266	2,692	385	190	14,630	16,156	20,694	2,911	147	12
Insecticides/pesticides (excluding rodenticides)														
Arsenic pesticides	383	299	25	52	374	7	2	0	47	163	22	4	0	0
Borates/boric acid	2,958	2,353	167	378	2,859	71	17	10	332	1,061	135	21	2	0
Carbamate only	4,781	2,057	455	1,799	4,497	157	39	80	846	1,198	694	170	17	0

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Carbamate with other pesticide	1,168	434	116	497	1,103	26	7	32	210	276	242	34	1	0
Chlorinated hydrocarbon only	3,065	1,306	524	1,066	2,800	122	7	122	1,022	898	652	109	9	2
Chlorinated hydrocarbon with other pesticide	167	55	19	78	162	4	0	1	37	46	41	0	0	0
Metaldehyde	402	257	25	100	382	10	3	4	76	138	23	2	1	0
Nicotine	13	2	0	8	10	3	0	0	4	2	6	0	0	0
Organophosphate only	16,012	5,208	1,226	7,415	15,206	390	71	307	3,559	3,547	2,712	646	71	5
With carbamate	1,264	402	146	633	1,207	35	10	11	180	337	211	33	2	0
With chlorinated hydrocarbon	206	48	17	109	197	4	1	4	42	39	46	7	0	0
With other pesticide	2,601	793	209	1,096	2,434	54	13	96	470	494	613	63	1	0
With carbamate & chlorinated hydrocarbon	52	8	9	29	50	1	0	1	14	14	20	1	0	0
Piperonyl butoxide only	107	49	10	43	102	2	0	2	26	24	29	10	1	0
Piperonyl butoxide/pyrethrin	7,963	2,806	1,294	3,072	7,225	184	43	502	1,556	1,578	1,669	317	13	0
Pyrethrins only	8,698	2,903	1,168	3,877	7,964	233	50	438	1,853	1,599	2,093	381	10	0
Repellants (insect)	7,276	4,928	1,184	844	6,738	66	40	424	725	1,845	1,738	94	6	0
Rotenone	118	43	17	48	114	2	0	2	20	35	15	2	1	0
Veterinary insecticide	4,902	2,488	676	1,509	4,668	124	8	101	614	1,329	862	82	5	0
Other	4,466	2,760	301	1,088	4,310	59	15	77	569	1,183	439	63	3	0
Unknown	4,137	1,118	514	2,113	3,815	120	85	92	1,047	637	748	170	13	1
*Category totals	70,739	30,317	8,102	25,854	66,217	1,674	411	2,306	13,249	16,443	13,010	2,209	156	8
Lacrimators														
Capsicum/peppers	332	130	118	69	299	5	24	4	36	12	204	5	0	0
Lacrimators: CN	3,774	1,113	1,249	1,116	3,269	71	357	19	617	183	2,006	102	4	0
Lacrimators: CS	242	103	78	53	230	2	8	1	47	15	140	7	0	0
Other	81	10	14	50	81	0	0	0	26	3	38	1	0	1
Unknown	595	145	197	206	503	11	74	3	86	16	322	29	0	0
*Category totals	5,024	1,501	1,656	1,494	4,382	89	463	27	812	229	2,710	144	4	1
Matches/fireworks/explosives														
Explosives	257	124	75	42	230	17	6	2	56	62	46	15	0	0
Fireworks	471	367	79	23	464	7	0	0	48	168	53	19	0	0
Matches	1,645	1,529	51	50	1,624	17	1	2	64	501	36	6	0	0
Other	48	24	13	9	44	3	0	0	19	15	7	5	0	0
Unknown	3	2	0	0	3	0	0	0	1	0	0	0	0	0
*Category totals	2,424	2,046	218	124	2,365	44	7	4	188	736	142	45	0	0
Moth repellants														
Naphthalene	1,883	1,477	109	246	1,849	23	7	3	414	920	112	18	0	0
Paradichlorobenzene	40	23	5	11	38	0	2	0	4	10	5	0	0	0
Other	112	90	3	16	112	0	0	0	6	50	12	0	0	0
Unknown	2,801	2,041	191	451	2,735	38	19	4	559	1,089	222	32	3	0
*Category totals	4,836	3,631	308	724	4,734	61	28	7	983	2,069	351	50	3	0
Mushrooms														
Coprine	27	16	2	8	26	1	0	0	3	14	5	2	0	0
Cyclopeptide	54	10	18	25	43	9	0	2	39	9	6	8	8	1
Gastrointestinal irritants	258	139	53	57	231	21	0	6	64	76	63	13	1	0
Hallucinogenic	705	70	371	224	140	554	9	1	441	91	133	221	9	1
Ibotenic acid	45	3	15	27	28	15	1	1	27	6	11	11	1	0
Miscellaneous, nontoxic	200	69	33	86	172	4	0	24	34	49	42	7	0	0
Monomethylhydrazine	86	5	10	67	78	3	0	5	42	16	23	22	3	0
Muscarine	10	3	3	4	7	3	0	0	6	2	4	2	0	0
Orellanine	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other potentially toxic	10	8	1	1	9	1	0	0	5	3	0	0	1	0
Unknown	9,082	6,770	1,261	927	8,294	676	15	76	2,431	5,443	840	246	16	0
*Category totals	10,477	7,093	1,767	1,426	9,028	1,287	25	115	3,092	5,709	1,127	532	39	2
Paints and stripping agents														
Paint: anti-algae	16	4	0	10	16	0	0	0	6	2	4	2	0	0
Paint: anticorrosion	93	18	15	52	91	2	0	0	24	17	38	5	0	0

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Paint: oil-base	4,520	1,306	961	1,900	4,213	261	16	22	1,000	760	1,377	236	15	0
Paint: water-base	4,312	3,069	280	719	4,258	25	1	25	371	982	377	50	3	0
Stains	1,143	468	96	483	1,102	12	9	18	188	254	268	40	1	0
Stripping agents														
Methylene chloride	1,407	230	139	889	1,364	24	2	15	469	120	595	148	6	0
Other	817	168	65	463	800	12	0	5	288	93	303	89	3	0
Unknown	396	124	40	191	381	9	0	6	108	58	130	19	2	0
Varnishes, lacquers	949	292	90	459	915	24	5	5	234	151	251	57	1	0
Wood preservatives	604	147	69	337	588	4	0	12	129	90	129	33	1	0
Other paint/varnish/lacquer	1,313	587	183	462	1,279	24	3	7	250	260	290	53	0	0
Unknown paint/varnish/ lacquer	10,831	6,768	960	2,505	10,491	239	31	61	1,436	2,108	1,177	223	12	1
*Category totals	26,401	13,181	2,898	8,470	25,498	636	67	176	4,503	4,895	4,939	955	44	1
Photographic products														
Developers/fixing/stop baths	512	67	174	221	501	6	2	3	169	83	185	27	0	0
Photographic coating fluids	8	3	1	3	8	0	0	0	1	0	2	0	0	0
Other	403	208	45	136	388	11	2	2	53	109	55	8	1	0
Unknown	10	3	1	4	10	0	0	0	3	2	4	1	0	0
*Category totals	933	281	221	364	907	17	4	5	226	194	246	36	1	0
Plants														
Amygdalin/cyanogenic glycosides	3,627	2,604	592	340	3,523	43	2	58	175	1,026	130	11	0	0
Anticholinergic	1,026	310	497	181	510	490	10	10	555	192	157	306	17	0
Cardiac glycosides	2,939	2,045	457	400	2,812	104	5	17	402	1,193	181	38	1	0
Colchicine	15	13	1	1	15	0	0	0	2	7	2	0	0	0
Depressants	128	48	16	52	71	25	0	31	40	37	16	6	1	0
Dermatitis	29,209	12,420	6,047	8,922	26,821	461	826	1,010	2,551	3,849	9,103	721	11	1
Gastrointestinal irritants	19,737	15,657	1,887	1,890	19,083	358	21	252	1,187	6,371	1,505	146	6	0
Hallucinogenic	358	152	95	101	230	102	1	25	124	96	40	49	3	0
Nicotine	216	103	56	51	198	10	2	6	54	56	57	14	1	0
Non-toxic plant	21,744	18,027	1,956	1,489	21,191	231	21	283	685	4,406	857	97	8	0
Oxalate	14,572	12,687	1,125	627	14,361	153	9	42	524	5,484	1,912	71	3	0
Solanine	1,779	1,376	183	184	1,711	26	7	34	185	744	96	18	0	0
Stimulants	848	408	142	272	618	141	1	82	321	257	142	74	4	0
Toxalbumins	194	91	38	56	166	19	5	4	94	63	37	9	0	0
Other	3,873	2,773	461	549	3,639	83	12	132	377	1,034	355	60	8	1
Unknown	22,874	15,889	3,068	3,288	21,846	433	40	528	1,782	6,966	1,953	250	20	0
*Category totals	123,139	84,615	16,621	18,403	116,795	2,679	962	2,514	9,058	31,781	16,543	1,870	83	2
Polishes and waxes	7,717	5,958	553	983	7,509	134	25	43	896	2,993	1,338	110	2	0
Radioisotopes	227	36	36	115	211	4	2	8	59	29	8	4	0	0
Rodenticides														
ANTU	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Anticoagulant: standard	1,390	1,199	60	108	1,314	64	7	4	425	554	24	6	3	0
Anticoagulant: long-acting	13,405	12,005	459	804	12,901	451	31	7	4,515	5,543	172	50	20	3
Barium carbonate	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cyanide	3	1	1	1	3	0	0	0	0	0	0	0	0	0
Monofluoroacetate	2	0	1	1	1	1	0	0	2	0	0	0	1	0
Strychnine	206	37	29	119	97	59	30	8	116	43	18	20	5	2
Vacor	4	1	0	1	3	1	0	0	3	3	0	0	0	0
Other	1,051	798	64	159	970	64	8	8	284	411	35	18	1	0
Unknown	1,455	1,024	93	273	1,273	123	39	4	636	441	76	21	5	1
*Category totals	17,516	15,065	707	1,466	16,562	763	115	31	5,981	6,995	325	115	35	6
Sporting equipment														
Fishing bait	79	57	13	9	74	3	1	1	4	19	6	0	0	0
Fishing products, other	38	28	3	6	38	0	0	0	3	10	6	1	0	0
Golf balls	71	9	46	14	65	6	0	0	19	9	33	7	0	0
Gun bluing	39	21	0	14	37	1	0	1	22	10	14	4	0	0
Hunting products, other	378	201	84	75	332	22	20	0	115	128	33	7	1	0
Other	194	115	59	17	180	9	4	0	27	58	9	3	0	0
Unknown	3	2	0	1	2	0	0	1	0	2	0	0	0	0
*Category totals	802	433	205	136	728	41	25	3	190	236	101	22	1	0

(Continued on following page)

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome					
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death	
Swimming pool/aquarium	7,309	3,453	1,328	2,149	7,109	69	22	103	1,111	1,626	2,119	401	8	0	
Tobacco products	9,717	8,433	419	745	9,311	248	38	109	1,690	3,766	2,127	141	1	1	
Other/unknown nondrug substances	16,630	6,036	2,822	6,486	13,748	712	1,149	471	4,284	3,106	2,848	677	91	1	
Total number of nonpharmaceutical substances	1,399,160	725,941	188,002	413,963	1,310,537	58,072	9,549	18,098	229,165	308,947	284,150	48,520	3,164	284	
% of nonpharmaceutical substances		51.9%	13.4%	29.6%	93.7%	4.2%	0.7%	1.3%	16.4%	22.1%	20.3%	3.5%	0.2%	0.0%	
% of all substances		57.2%	29.7%	7.7%	16.9%	53.6%	2.4%	0.4%	0.7%	9.4%	12.6%	11.6%	2.0%	0.1%	0.0%

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

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

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Analgesics														
Acetaminophen only														
Adult formulations	28,480	7,532	10,263	9,739	13,751	14,283	19	338	16,087	9,201	4,150	1,367	340	31
Pediatric formulations	32,917	29,445	2,839	545	32,208	545	14	128	3,950	10,300	619	68	8	0
Unknown formulations	11,183	3,568	3,456	3,706	5,706	5,235	14	148	6,070	2,873	1,559	678	218	34
Acetaminophen in combination with:														
Aspirin (with other ingredients)	3,672	1,325	1,106	1,114	2,032	1,453	4	175	1,583	1,085	680	167	14	0
Aspirin (no other ingredients)	30	4	14	11	12	16	0	1	17	11	9	2	0	0
Codeine	7,254	1,596	1,417	3,878	3,283	3,389	9	530	3,751	1,718	1,668	444	94	8
Oxycodone	3,639	567	446	2,364	1,442	1,843	2	327	1,866	660	828	284	59	3
Propoxyphene	6,094	1,035	822	3,842	2,456	3,314	4	287	3,538	1,263	1,569	515	133	23
Other narcotics	10,975	1,813	1,627	6,862	4,755	5,266	19	865	5,373	2,081	2,573	733	147	19
Other drugs, adult formulations	15,510	2,974	3,826	7,980	5,969	9,001	22	447	9,242	3,797	3,759	1,335	210	7
Other drugs, pediatric formulations	53	14	7	30	28	23	0	0	27	12	12	8	1	1
Aspirin alone														
Adult formulations	4,974	1,847	1,509	1,491	2,681	2,141	8	125	2,411	1,504	798	400	25	8
Pediatric formulations	566	427	88	48	514	37	2	13	121	221	44	5	0	0
Unknown formulations	10,108	2,267	3,725	3,699	3,877	5,980	8	185	6,462	2,529	2,015	1,217	137	36
Aspirin in combination with:														
Codeine	529	118	56	326	224	274	0	29	300	96	129	48	9	0
Oxycodone	269	42	34	180	117	133	0	18	140	48	69	17	4	0
Propoxyphene	45	6	2	35	21	18	0	4	28	11	8	6	2	0
Other narcotics	78	20	9	46	39	29	0	8	37	17	16	4	0	1
Other drugs, adult formulations	2,148	652	467	926	1,126	900	1	104	1,029	537	427	146	24	3
Other drugs, pediatric formulations	3	2	0	1	2	1	0	0	1	2	0	0	0	0
Narcotics														
Codeine	1,488	610	317	474	1,015	354	0	116	436	386	235	55	10	1
Meperidine	820	170	122	463	414	304	1	87	425	96	173	74	20	1
Methadone	804	104	61	579	287	429	4	67	522	77	142	153	51	12
Morphine	1,060	177	117	684	541	427	7	76	559	174	223	109	54	8
Oxycodone	602	102	58	389	327	203	2	67	247	97	106	50	17	5
Pentazocine	265	27	20	198	95	125	0	44	131	45	67	36	2	0
Propoxyphene	947	170	126	582	360	522	1	58	552	134	193	106	33	9
Other/unknown	2,431	468	306	1,487	1,128	984	6	280	1,231	359	583	252	115	23

(Continued on following page)

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Nonaspirin salicylates	1,193	587	185	379	832	302	2	55	416	388	200	60	5	0
Other nonsteroidal antiinflammatory drugs														
Colchicine	225	81	22	113	171	37	0	17	90	53	32	20	4	3
Ibuprofen	51,738	29,865	10,543	10,162	37,434	13,203	33	967	14,330	17,359	4,747	971	95	6
Indomethacin	907	302	129	426	538	287	2	78	354	244	156	56	3	0
Other	20,694	6,778	4,501	8,490	12,211	6,945	15	1,458	7,568	6,163	3,053	726	64	1
Unknown	16	7	4	4	9	7	0	0	7	3	3	1	0	0
Phenacetin	6	1	2	2	5	1	0	0	2	0	0	2	0	0
Phenazopyridine	927	711	69	137	820	65	0	41	232	378	107	13	4	0
Salicylamide	68	51	6	11	58	8	0	2	22	38	4	0	0	0
Other analgesic	3,595	656	447	2,235	1,730	1,438	7	394	1,679	663	975	326	72	3
Unknown analgesic	139	18	50	61	33	93	0	10	84	14	32	11	0	0
*Category totals	226,452	96,139	48,798	73,699	138,251	79,615	206	7,549	90,920	64,637	31,963	10,465	1,974	246
Anesthetics														
Inhalation anesthetics														
Nitrous oxide	290	63	90	117	172	81	2	32	104	23	55	23	3	0
Other/unknown	212	28	25	122	188	13	6	5	80	35	66	15	4	1
Ketamine and analogs	257	11	102	129	38	200	10	9	208	14	76	58	16	1
Local and topical anesthetics														
Other anesthetic	6,893	4,882	627	1,144	6,327	219	20	314	1,170	2,735	832	110	24	1
Unknown anesthetic	11	3	1	5	9	1	0	1	7	3	0	0	0	0
*Category totals	3	0	2	1	1	0	1	1	2	0	0	0	0	0
*Category totals	7,666	4,987	847	1,518	6,735	514	39	362	1,571	2,810	1,029	206	47	3
Anticholinergic drugs	5,327	1,779	676	2,634	3,074	1,889	17	300	2,789	1,367	947	704	80	3
Anticoagulants														
Heparin	89	20	7	50	74	6	0	9	45	22	18	10	3	0
Warfarin (excluding rodenticides)	1,488	693	92	642	1,212	233	0	39	661	523	81	94	35	4
Other	249	79	14	147	205	24	0	20	80	81	16	8	0	0
Unknown	2	1	0	0	1	1	0	0	1	0	0	0	0	0
*Category totals	1,828	793	113	839	1,492	264	0	68	787	626	115	112	38	4
Anticonvulsants														
Carbamazepine	7,151	2,283	1,508	3,109	4,346	2,422	7	309	4,277	1,742	1,761	1,068	250	14
Phenytoin	4,630	1,102	433	2,869	2,605	1,581	7	356	2,878	1,153	1,008	615	73	2
Succinimides	102	41	45	16	85	13	0	2	35	41	17	4	0	0
Valproic acid	8,085	1,275	1,923	4,499	3,410	4,272	3	344	5,182	2,206	1,857	845	210	9
Other	1,612	355	225	939	1,002	483	2	117	732	443	310	125	35	0
Unknown	8	3	0	4	5	2	0	1	2	1	2	1	0	0
*Category totals	21,588	5,059	4,134	11,436	11,453	8,773	19	1,129	13,106	5,586	4,955	2,658	568	25
Antidepressants														
Cyclic antidepressants														
Amitriptyline	8,817	1,391	1,166	5,802	2,864	5,655	5	193	6,724	1,400	1,963	1,962	960	59
Amoxapine	92	14	19	55	31	52	0	9	65	11	28	14	8	2
Desipramine	732	120	139	427	284	407	2	31	503	141	156	143	45	3
Doxepin	2,697	315	267	1,959	824	1,777	4	64	1,995	353	660	543	236	15
Imipramine	2,697	702	850	1,055	1,416	1,151	5	110	1,672	711	587	364	121	9
Maprotiline	34	8	4	21	15	16	0	2	22	11	4	4	4	1
Nortriptyline	1,999	298	337	1,252	796	1,102	5	84	1,310	404	437	325	104	10
Protriptyline	35	6	4	25	16	18	0	1	21	8	9	6	1	0
Other cyclic antidepressants	784	88	111	538	287	453	2	37	539	154	208	119	35	4
Unknown cyclic antidepressant	63	8	13	40	12	44	1	4	48	7	14	15	9	2
Cyclic antidepressant formulated with a benzodiazepine	120	20	10	84	44	75	0	0	83	21	30	24	13	0
Cyclic antidepressant formulated with a phenothiazine	520	138	67	287	255	243	0	18	302	78	97	72	38	3
Lithium	5,135	509	907	3,416	1,849	2,750	8	431	3,767	1,058	1,279	846	186	9

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
MAO inhibitors	463	55	18	350	210	169	2	73	304	97	75	112	27	6
SSRIs	27,941	4,984	6,858	14,535	10,000	16,494	39	1,271	17,334	7,983	6,196	2,192	293	21
Trazodone	10,460	1,249	1,394	7,139	3,207	6,738	15	454	7,049	2,221	3,120	1,171	165	3
Other antidepressant	6,724	933	1,404	3,983	2,462	3,824	3	398	4,460	1,630	1,687	933	223	7
Unknown antidepressant	25	4	4	16	4	17	1	3	14	5	5	0	2	0
*Category totals	69,338	10,842	13,572	40,984	24,576	40,985	92	3,183	46,212	16,293	16,555	8,845	2,470	154
Antihistamines														
H ₂ receptor antagonists	5,889	3,107	755	1,837	4,677	900	6	286	1,349	1,807	498	154	10	0
Diphenhydramine, unknown if OTC or R _x	6,832	2,483	1,335	2,750	3,924	2,650	14	201	3,110	1,542	1,388	687	109	9
Diphenhydramine, R _x	649	141	118	362	262	367	1	16	378	137	135	85	8	0
Diphenhydramine, OTC	19,381	10,282	2,962	5,601	13,388	5,523	27	408	7,028	5,621	3,835	1,336	133	5
Other	19,363	7,849	4,365	6,486	13,505	5,026	15	740	7,301	5,901	3,126	1,066	117	11
*Category totals	52,114	23,862	9,535	17,036	35,756	14,466	63	1,651	19,166	15,008	8,982	3,328	377	25
Antimicrobials														
Antibiotics: systemic	43,484	24,528	7,111	10,526	33,932	5,074	32	4,358	7,622	10,858	4,142	828	52	3
Antibiotics: topical	7,250	5,483	507	1,077	7,057	66	9	114	236	1,822	333	39	1	0
Antibiotics: unknown	1,473	507	374	520	842	374	2	249	463	324	262	41	6	0
Antifungals: systemic	1,186	626	142	357	924	116	1	141	231	311	115	26	2	0
Antifungals: topical	8,763	6,917	425	1,225	8,498	51	6	197	312	2,314	613	38	1	0
Antifungals: unknown	19	13	0	6	17	1	0	1	3	9	3	0	0	0
Anthelmintics:														
diethylcarbamazine	351	237	8	97	348	3	0	0	18	132	7	2	0	0
Anthelmintics: piperazine	674	518	69	75	652	16	3	3	68	254	25	5	2	0
Anthelmintics: other	670	326	82	235	614	18	3	34	171	147	106	31	0	0
Anthelmintics: unknown	34	20	2	8	28	2	1	3	5	7	2	1	0	0
Antiparasitics: antimalarial	316	100	52	152	218	57	0	41	159	111	42	29	7	2
Antiparasitics:														
metronidazole	1,362	403	200	681	880	238	3	235	328	286	208	40	1	0
Antiparasitics: other	217	120	33	58	175	25	0	17	37	57	27	5	0	1
Antituberculars: isoniazid	480	82	193	187	188	236	0	49	359	100	67	59	75	1
Antituberculars: rifampin	36	13	6	13	20	8	0	8	14	11	6	4	0	0
Antituberculars: other	25	6	4	14	13	7	0	3	15	8	5	1	1	0
Antituberculars: unknown	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Antivirals: systemic	1,509	523	171	727	964	426	0	113	609	459	181	64	13	1
Antivirals: topical	60	31	8	17	50	5	0	4	11	9	8	2	0	0
Antivirals: unknown	50	15	7	26	24	15	0	11	17	13	3	2	0	0
Other antimicrobial	95	66	4	21	81	7	0	7	32	38	8	1	0	0
Unknown antimicrobial	19	8	3	5	13	5	0	1	4	3	1	3	0	0
*Category totals	68,073	40,542	9,401	16,027	55,538	6,750	60	5,589	10,714	17,273	6,164	1,221	161	8
Antineoplastic	943	316	68	491	802	59	1	78	299	316	99	42	3	4
Asthma therapies														
Aminophylline/theophylline	2,609	563	446	1,534	1,624	756	7	184	1,496	607	480	481	70	20
Terbutaline and other beta-2 agonists	11,397	8,587	1,548	1,126	10,278	715	22	356	3,204	4,194	1,749	717	18	1
Other beta agonists	1,580	394	549	572	666	848	3	51	830	364	353	220	8	1
Other	1,740	1,334	226	157	1,514	187	6	26	262	593	128	54	4	0
Unknown	14	4	5	4	5	7	1	1	8	3	0	3	0	0
*Category totals	17,340	10,882	2,774	3,393	14,087	2,513	39	618	5,800	5,761	2,710	1,475	100	22
Cardiovascular drugs														
ACE inhibitors	6,894	2,931	518	3,207	5,691	1,008	6	172	2,398	2,824	509	356	57	3
Alpha blockers	129	39	12	71	77	31	0	19	71	40	23	18	3	0
Antiarrhythmics	1,105	268	46	744	946	100	0	50	427	468	87	60	16	6
Antihypertensives	7,203	2,780	1,955	2,292	5,546	1,375	11	230	3,846	2,292	1,403	954	124	1
Beta blockers	8,553	2,544	937	4,727	6,250	2,020	3	254	4,205	3,356	888	760	150	9
Calcium antagonists	9,077	2,560	681	5,505	6,871	1,910	10	248	4,747	3,487	942	868	232	44
Cardiac glycosides	2,963	1,046	178	1,652	2,420	324	3	195	1,400	1,067	242	328	88	12
Hydralazine	176	60	16	92	133	33	1	6	75	66	26	10	4	0
Long-acting nitrates	688	301	33	328	608	69	0	9	221	296	58	39	2	0
Nitroglycerin	2,398	1,488	144	701	2,082	267	2	42	669	1,192	174	66	11	0
Nitroprusside	30	2	1	23	9	2	0	18	26	6	4	3	1	0

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Other vasodilator	423	214	20	164	357	41	3	20	149	163	36	15	2	0
Unknown types of vasodilators	3	0	1	1	1	2	0	0	3	0	1	1	0	0
Vasopressor	25	6	3	13	23	1	0	0	10	6	3	4	1	0
Other cardiovascular drug	2,438	958	365	1,008	2,143	178	1	111	701	764	355	125	9	2
Unknown cardiovascular drug	59	30	13	16	46	11	0	1	14	17	4	0	0	0
*Category totals	42,164	15,227	4,923	20,544	33,203	7,372	40	1,375	18,962	16,044	4,755	3,607	700	77
Cold and cough preparations	110,870	72,180	18,780	18,109	95,774	11,462	85	3,307	22,073	34,250	16,684	2,917	157	14
Diagnostic agents	450	92	44	255	383	16	0	49	200	94	93	27	2	0
Diuretics														
Furosemide	1,779	895	150	668	1,552	168	2	48	526	585	215	76	8	0
Thiazide	1,675	781	171	670	1,390	231	1	48	512	611	132	68	6	1
Other	1,717	860	174	624	1,427	211	2	70	501	584	153	50	10	0
Unknown	372	185	52	120	301	58	1	9	120	134	34	22	3	0
*Category totals	5,543	2,721	547	2,082	4,670	668	6	175	1,659	1,914	534	216	27	1
Electrolytes and minerals														
Calcium	3,681	3,130	219	297	3,555	69	3	50	185	1,024	136	30	0	0
Fluoride	3,855	3,346	364	121	3,785	42	2	23	212	1,450	378	15	0	0
Iron	4,544	2,810	699	914	3,561	853	10	106	2,042	1,812	712	162	11	2
Magnesium	435	176	58	180	373	26	4	30	122	96	58	20	3	0
Potassium	1,153	590	118	406	982	124	3	42	310	375	97	46	4	0
Sodium	2,425	1,608	401	352	2,287	98	19	17	366	699	421	34	2	0
Zinc	1,978	1,197	179	524	1,779	67	6	120	220	475	230	44	2	1
Other	197	121	18	52	170	5	0	22	24	43	26	3	0	0
Unknown	12	5	3	3	9	2	0	1	3	4	2	0	0	0
*Category totals	18,280	12,983	2,059	2,849	16,501	1,286	47	411	3,484	5,978	2,060	354	22	3
Eye/ear/nose/throat preparations														
Nasal preparations														
Tetrahydrozoline	84	61	5	15	80	1	0	3	23	50	6	3	0	0
Other decongestant	2,412	1,219	295	772	2,191	114	5	100	461	890	375	47	2	0
Other	615	418	36	142	591	9	1	14	27	143	85	5	0	0
Unknown	6	1	2	2	5	1	0	0	0	3	1	0	0	0
Ophthalmic preparations														
Contact lens products	3,851	2,182	337	1,135	3,793	27	3	27	483	764	742	131	1	0
Glaucoma therapies	112	45	3	54	106	3	0	3	21	37	23	9	0	0
Tetrahydrozoline	1,946	1,333	194	350	1,728	78	107	24	736	983	187	34	1	0
Other ophthalmic sympathomimetics	452	208	72	159	369	15	8	60	105	146	97	22	0	0
Other	923	421	122	331	821	23	2	74	122	159	147	34	2	0
Unknown	24	6	3	10	15	4	0	5	5	2	8	2	0	0
Otic preparations														
Combination products	1,103	775	123	178	1,091	6	1	5	97	404	279	9	0	0
Other	2,113	1,179	215	602	2,086	16	0	11	179	507	548	30	2	0
Unknown	32	13	6	8	30	0	0	2	3	4	9	1	0	0
Steroids-topical for eye/nose/throat	1,061	523	220	272	949	45	7	59	97	185	161	16	1	0
Throat preparations														
Lozenges without local anesthetics	792	636	76	72	752	25	1	14	41	205	43	6	1	0
Lozenges with local anesthetics	263	172	52	34	239	10	0	14	23	70	25	2	1	0
Other	379	219	100	47	323	41	1	13	72	147	44	11	0	0
Unknown	7	2	2	3	6	1	0	0	3	2	3	0	0	0
*Category totals	16,175	9,413	1,863	4,186	15,175	419	136	428	2,498	4,701	2,783	362	11	0
Gastrointestinal preparations														
Antacids:														
salicylate-containing	2,373	1,889	217	236	2,190	80	0	99	212	796	131	13	1	0
Antacids: other	17,915	16,183	761	831	17,534	229	13	126	515	4,347	465	44	3	0

(Continued on following page)

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Antidiarrheals:														
diphenoxylate/ atropine	1,646	832	225	535	1,269	260	3	101	681	586	238	75	18	0
Antidiarrheals: non-narcotic	746	573	67	93	701	22	2	19	57	235	26	3	1	0
Antidiarrheals: paregoric	74	55	3	15	60	6	0	6	28	30	11	2	1	0
Antidiarrheals: other narcotic	2	1	0	0	1	1	0	0	1	1	0	0	0	0
Antispasmodics:														
anticholinergic	1,405	502	258	593	833	476	1	89	704	431	278	105	13	1
Antispasmodics: other	10	2	2	3	7	3	0	0	6	5	2	1	0	0
Laxatives	15,099	10,467	1,582	2,732	13,487	1,000	163	414	2,045	3,281	2,746	221	8	2
Other	6,566	5,067	422	949	5,917	399	3	233	1,103	1,958	446	132	14	0
Unknown	1,647	880	145	556	1,343	203	2	96	360	583	140	28	1	1
Category totals	47,483	36,451	3,682	6,543	43,342	2,679	187	1,183	5,712	12,253	4,483	624	60	4
Hormones and hormone antagonists														
Androgens	576	242	67	230	380	109	4	77	174	133	52	19	4	0
Corticosteroids	7,988	4,628	986	2,095	6,939	453	5	562	869	1,883	457	107	11	0
Estrogens	3,482	2,461	216	727	3,183	180	8	104	404	1,066	143	25	2	0
Insulin	1,378	179	107	1,017	966	356	9	38	553	435	123	213	33	4
Oral contraceptives	8,609	7,052	842	604	7,956	487	12	143	676	2,270	342	28	1	0
Oral hypoglycemics	3,846	1,619	370	1,736	3,033	686	5	109	2,475	1,647	331	593	62	4
Progestins	1,210	677	173	328	1,030	100	3	74	190	319	53	15	1	0
Thyroid preparations	6,621	4,084	592	1,759	6,046	476	5	85	1,195	2,041	257	96	7	0
Other hormones	2,673	1,351	380	819	1,897	625	4	135	736	823	334	65	4	1
Other hormone antagonists	309	116	39	133	254	34	2	19	68	96	18	1	2	0
Unknown hormones or antagonists	10	4	1	2	8	1	1	0	2	0	2	0	0	0
Category totals	36,702	22,413	3,773	9,450	31,692	3,507	58	1,346	7,342	10,713	2,112	1,162	127	9
Miscellaneous drugs														
Allopurinol	370	236	24	100	333	25	0	10	77	159	18	7	1	0
L-dopa and related drugs	616	227	13	348	529	55	0	30	210	230	101	32	0	0
Dietary supplements/hor- moneopathic	5,502	3,681	485	1,187	4,443	444	9	586	1,015	1,758	499	117	12	0
Disulfiram	636	93	43	432	264	277	9	78	294	92	135	65	10	0
Ergot alkaloids	670	323	75	244	453	137	2	70	390	223	127	50	3	0
Methysergide	2	0	0	2	1	1	0	0	1	1	0	0	0	0
Neuroleptic blocking agent	10	0	1	7	5	1	0	3	7	1	3	2	0	0
Nicotine pharmaceuticals	856	189	73	545	460	99	1	294	204	138	219	74	2	0
Other	11,336	4,553	1,496	4,715	8,611	1,930	39	704	3,398	3,090	1,922	593	79	3
Category totals	19,998	9,302	2,210	7,580	15,099	2,969	60	1,775	5,596	5,692	3,024	940	107	3
Muscle relaxants														
Carisoprodol formulated alone	4,664	534	479	3,380	1,332	3,178	6	104	3,306	666	1,527	701	145	5
Cyclobenzaprine	4,352	826	739	2,544	1,658	2,541	8	115	2,930	949	1,219	566	101	5
Methocarbamol	1,315	186	197	848	500	763	0	45	807	295	355	110	13	0
Other	2,977	576	432	1,790	1,219	1,607	3	121	1,772	612	765	336	124	3
Unknown	48	6	12	27	9	37	0	2	34	6	19	3	0	0
Category totals	13,356	2,128	1,859	8,589	4,718	8,126	17	387	8,849	2,528	3,885	1,716	383	13
Narcotic antagonists	237	23	22	171	77	111	2	40	158	29	58	40	5	0
Radiopharmaceuticals	14	1	2	8	11	0	0	3	4	1	1	0	0	0
Sedative/hypnotics														
anticonvulsants														
Barbiturates long-acting	4,263	1,041	433	2,574	2,392	1,702	11	108	2,260	934	946	487	167	47
Barbiturates short-acting	1,335	162	171	912	461	811	4	43	862	222	385	162	44	7
Barbiturates unknown type	30	9	6	14	12	18	0	0	23	6	5	11	1	0
benzodiazepines	44,081	7,175	4,552	29,348	14,096	28,384	299	965	29,547	7,819	13,697	4,673	1,002	41
Cloral hydrate	461	135	60	253	198	216	6	39	314	62	160	68	30	3
Ethchlorvynol	100	7	9	76	12	82	1	2	75	6	25	22	11	0
Glutethimide	10	2	2	6	2	7	1	0	7	2	2	2	3	0

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Meprobamate	229	31	22	163	92	130	0	5	138	29	46	40	7	4
Methaqualone	19	1	3	13	4	15	0	0	12	1	1	2	3	0
Phenothiazines	11,068	1,965	1,622	6,881	4,745	5,565	18	646	7,274	2,383	2,549	1,815	301	14
Sleep aids (OTC)	2,048	233	343	1,346	493	1,509	2	32	1,461	356	530	294	31	1
Other	11,346	1,236	1,717	7,666	3,570	7,102	9	582	7,702	2,080	3,387	1,431	267	13
Unknown	276	16	60	160	43	216	4	6	211	42	72	32	3	2
*Category totals	75,266	12,013	9,000	49,412	26,120	45,757	355	2,428	49,886	13,942	21,805	9,039	1,870	132
Serum, toxoids, vaccines	1,872	435	295	921	1,333	52	1	476	571	185	387	94	4	0
Stimulants and street drugs														
Amphetamines	17,835	5,121	6,837	5,265	10,557	6,468	152	543	8,984	4,633	3,205	2,214	267	30
Amyl/butyl nitrites	72	4	7	52	25	45	1	1	28	6	12	11	3	0
Caffeine	7,390	1,349	3,899	1,877	2,877	4,125	24	314	3,271	1,028	2,160	885	24	0
Cocaine	4,788	465	649	3,337	989	3,649	47	35	3,671	650	944	980	258	61
Diet aids:														
phenylpropanolamine	1,472	486	570	379	730	679	1	53	811	481	261	186	6	1
Diet aids:														
phenylpropanol- amine and caffeine	306	109	104	78	162	126	0	14	159	90	50	42	0	0
Diet aids: other, OTC	315	132	85	93	172	82	0	60	121	93	64	22	1	0
Diet aids: other, Rx	2,741	1,220	349	1,066	1,786	733	2	203	1,485	1,021	440	280	21	1
Diet aids: unknown	175	43	61	66	74	78	2	21	93	38	36	13	1	0
Heroin	1,409	17	119	1,172	83	1,284	3	27	1,216	111	254	366	151	27
LSD	1,258	119	693	380	289	894	59	11	735	99	258	327	21	0
Marijuana	2,351	382	949	883	773	1,467	33	57	1,293	288	517	370	43	7
Mescaline/peyote	210	44	57	95	141	63	2	4	76	18	58	33	1	0
Phencyclidine	482	78	138	236	147	290	22	4	335	23	88	135	33	0
Phenylpropanolamine look- alike drugs	47	15	7	23	28	18	0	1	18	5	9	3	1	00
Other stimulants	743	135	293	279	205	510	4	20	507	137	204	150	8	0
Other hallucinogens	1	0	1	0	0	1	0	0	1	0	1	0	0	0
Unknown hallucinogens	6	0	3	3	0	4	2	0	4	0	0	5	0	0
Other street drugs	16	0	11	3	2	13	1	0	10	0	4	2	0	0
Unknown stimulant/street drugs	88	19	29	36	31	46	5	4	53	14	12	17	2	0
*Category totals	41,705	9,738	14,861	15,323	19,071	20,575	360	1,372	22,871	8,735	8,577	6,041	841	127
Topical preparations														
Acne preparations	1,923	1,060	433	380	1,760	67	5	90	144	506	313	28	0	0
Boric acid/borates	216	119	29	59	207	8	0	1	18	80	21	1	0	0
Calamine	4,427	3,397	261	698	4,367	36	2	19	232	1,226	266	18	0	0
Camphor	9,335	7,328	623	1,220	9,046	197	19	69	1,092	3,797	1,405	72	7	1
Camphor/methyl salicylate	1,315	1,059	80	150	1,264	14	2	31	147	540	216	6	2	0
Diaper products	23,729	22,291	611	720	23,654	37	6	28	291	5,681	799	20	1	0
Hexachlorophene antiseptic	126	81	16	26	119	6	0	1	16	43	19	0	1	0
Hydrogen peroxide	9,177	4,333	1,067	3,473	8,932	176	31	32	502	2,112	1,781	61	3	0
Iodine or iodide antiseptics	1,834	697	325	682	1,587	180	7	50	448	481	385	51	2	0
Mercury antiseptics	401	325	20	53	378	14	0	9	36	155	21	5	1	0
Methyl salicylate	10,161	7,297	957	1,676	9,946	72	18	121	860	3,135	2,178	71	1	0
Podophyllin	68	21	12	29	57	7	0	4	20	17	6	2	0	0
Silver nitrate	201	25	89	69	182	14	2	1	42	35	58	11	0	0
Topical steroids	7,083	5,216	408	1,255	6,934	49	6	87	203	1,587	410	30	2	0
Topical steroid with antibiotics	1,552	1,162	132	218	1,500	11	1	36	74	399	179	6	0	0
Wart preparations	1,631	1,062	216	306	1,563	35	4	29	190	484	322	30	1	0
Other liniment	2,693	1,361	230	959	2,409	23	8	252	227	582	813	38	0	0
Other topical antiseptic	4,531	2,986	494	914	4,348	98	8	72	461	1,490	580	52	4	0
*Category totals	80,403	59,820	6,003	12,887	78,253	1,044	119	932	5,003	22,350	9,772	502	25	1
Veterinary drugs	4,093	2,163	276	1,439	4,015	54	5	14	345	1,336	511	55	3	0
Vitamins														
Multiple vitamins tablets: adult formulations														
No iron, no fluoride	2,473	1,721	255	437	2,117	188	5	155	304	720	163	20	0	0

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

Substance Implicated In the Exposure	No. of Exposures	Age (yr)			Reason				Treated in Health Care Facility	Outcome				
		<6	6-19	>19	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
With iron, no fluoride	6,048	4,072	747	1,112	5,191	720	6	118	1,276	2,288	438	76	7	0
With iron, with fluoride	67	58	5	3	64	3	0	0	12	23	6	1	0	0
No iron, with fluoride	56	52	3	0	55	0	0	1	3	13	1	0	0	0
Multiple vitamin tablets: pediatric formulations														
No iron, no fluoride	7,526	6,528	908	76	7,389	111	2	15	234	2,198	237	10	1	0
With iron, no fluoride	15,263	13,347	1,796	92	15,002	232	0	23	1,745	6,095	949	52	2	0
With iron, with fluoride	871	832	30	9	871	0	0	0	42	310	14	0	0	0
No iron, with fluoride	1,237	1,165	61	10	1,228	7	1	0	50	371	37	1	0	0
Multiple vitamins liquids: adult formulations														
No iron, no fluoride	65	39	10	15	53	5	0	7	13	10	5	0	0	0
With iron, no fluoride	121	53	11	53	105	5	0	10	24	29	8	1	0	0
With iron, with fluoride	3	2	1	0	3	0	0	0	1	2	0	0	0	0
No iron, with fluoride	1	1	0	0	1	0	0	0	0	0	1	0	0	0
Multiple vitamins liquids: pediatric formulations														
No iron, no fluoride	220	205	12	3	214	3	0	3	10	54	19	1	0	0
With iron, no fluoride	505	486	14	4	497	1	0	7	37	160	46	0	0	0
With iron, with fluoride	84	81	3	0	83	0	0	1	11	32	5	0	0	0
No iron, with fluoride	399	373	19	7	396	1	0	2	14	141	20	0	0	0
Multiple vitamins, unspecified adult formulations														
No iron, no fluoride	26	17	3	5	21	2	0	3	3	6	5	0	0	0
With iron, no fluoride	1,714	1,208	250	229	1,472	185	2	43	357	624	140	28	3	0
With iron, with fluoride	5	4	0	1	5	0	0	0	1	3	0	0	0	0
No iron, with fluoride	19	16	2	1	18	1	0	0	1	12	1	0	0	0
Multiple vitamins, unspecified pediatric formulations														
No iron, no fluoride	24	22	2	0	24	0	0	0	1	10	1	0	0	0
With iron, no fluoride	32	31	1	0	32	0	0	0	5	15	1	0	0	0
With iron, with fluoride	3	3	0	0	3	0	0	0	0	1	0	0	0	0
No iron, with fluoride	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other vitamins														
Vitamin A	1,760	1,462	73	187	1,673	41	0	38	104	434	56	8	1	0
Niacin (B ₃)	2,352	549	372	1,306	1,194	221	1	927	266	168	940	56	1	0
Pyridoxine (B ₆)	322	205	35	71	249	45	1	26	68	85	24	11	5	0
Other B complex vitamins	1,450	995	119	299	1,245	103	1	92	171	351	90	20	1	0
Vitamin C	2,915	2,267	329	274	2,696	144	7	63	164	774	169	18	1	0
Vitamin D	200	134	16	49	183	11	0	6	30	49	13	3	0	0
Vitamin E	1,541	1,237	98	183	1,437	55	0	47	96	401	47	8	0	0
Other	635	393	73	152	528	48	0	57	108	182	73	7	1	0
Unknown	696	430	103	147	569	71	6	48	137	239	58	20	0	0
*Category totals	48,633	37,988	5,351	4,725	44,618	2,203	32	1,692	5,288	15,800	3,567	341	23	0
Unknown drugs	12,796	4,433	2,585	4,966	6,965	4,422	533	527	6,859	2,819	1,858	1,201	367	1
Total number of pharmaceutical substances														
	1,046,709	504,725	168,053	338,096	732,784	268,550	2,579	38,447	358,724	289,041	160,468	58,294	10,552	879
% of pharmaceutical substances														
		48.2%	16.1%	32.3%	70.0%	25.7%	0.2%	3.7%	34.3%	27.6%	15.3%	5.6%	1.0%	0.0%
% of all substances														
	42.8%	20.6%	6.9%	13.8%	30.0%	11.0%	0.1%	1.6%	14.7%	11.8%	6.6%	2.4%	0.4%	0.0%

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

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

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APPENDIX

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

Case 1. A 14-year-old girl became unresponsive after drinking ethanol heavily at a friend's house. One hour earlier she had fallen off a chair, hitting her head; she then slept on the floor and later stopped breathing. Paramedics found her in cardiorespiratory arrest with fixed and dilated pupils. After 40 minutes of resuscitative efforts a pulse and blood pressure returned. Blood ethanol level was 348 mg/dL with an initial blood pH of 6.8. She was declared brain dead on the third hospital day. Postmortem examination revealed ischemic neurons and acute bronchopulmonary pneumonia.

Case 3. A 20-year-old male college student was found dead in his dormitory when his roommate returned from a weekend trip. The previous night the deceased had attended a party where he was noted to be drinking heavily. On postmortem the blood ethanol concentration was reported as 340 mg/dL.

Case 17. A 17-year-old boy was abandoned at the emergency department (ED). He was initially conscious, then collapsed with agonal rhythm and hypotension. The patient was intubated and treated with vasopressors and sodium bicarbonate to correct a pH of 6.4. An ethanol infusion, leucovorin, and folate were adminis-

tered for a blood methanol level of 76 mg/dL. Hemodialysis was instituted for 7 hours. The day after arrival, methanol was not detectable. A blood flow study showed no cerebral blood flow. Vasopressors and ventilator support were removed and the patient died. It was determined that the patient and his uncle (see Case 20) had been drinking methanol from a clandestine methamphetamine laboratory.

Case 20. A 33-year-old man was reportedly binge drinking the day before admission. He presented to the ED with acidosis and a widened QRS complex. His rhythm then changed to atrial fibrillation. Treatment included sodium bicarbonate, antiarrhythmics, lavage, and activated charcoal. His blood ethanol level and serum toxicology screen were reportedly negative. It was later determined that this patient and his 17-year-old nephew (see Case 17) had been drinking methanol from a clandestine methamphetamine laboratory. An osmolar gap of 37 mOsm/L and a methanol level of 142 mg/dL were discovered. The patient received hemodialysis and ethanol therapy; however, by the fourth hospital day he was still requiring vasopressors and had no neurological response. On the 5th hospital day ventilatory support was withdrawn.

Case 29. A 29-year-old man presented to the ED 12 hours after ingesting an unknown amount of ethylene glycol antifreeze. He was comatose with a pH of 6.9 and anion gap of 30 mEq/L. An ethylene glycol level of 240 mg/dL was obtained. Intravenous sodium bicarbonate, calcium, ethanol, and hemodialysis were begun. Within several hours of arrival the patient developed seizure activity. After multiple courses of dialysis the patient showed no urine output and a rising creatinine level. By the 7th day postingestion the patient had persistent renal failure and developed a pneumonia. By 2 weeks after ingestion there was no improvement and life support was withdrawn.

Case 41. A 63-year-old man presented to the ED complaining of nausea, coffee ground emesis, and mid-epigastric pain. Blood pressure was 90/60 mm Hg; heart rate, 80 beats/min; anion gap, 49 mEq/L; and ethanol, 99 mg/dL. Five hours after admission the patient sustained a cardiac arrest, which responded to cardiopulmonary resuscitation (CPR). Arterial blood gas analysis before arrest showed pH, 7.06; PCO₂, 17 mm Hg; and PO₂, 94 mm Hg. Upon further questioning the patient revealed that he had been drinking antifreeze mixed with water. Emergency hemodialysis, ethanol therapy, and pyridoxine were initiated. He developed anuria. Approximately 17 hours after the first cardiac arrest the patient developed asystole from which he could not be revived. The postmortem ethylene glycol level was 27 mg/dL.

Case 52. A 4-year-old boy arrived at the ED for treatment of a rattlesnake bite on the thigh. Initial symptoms included mild swelling and drowsiness. He was given 5 vials of antivenin and was transferred to another facility. While en route, the patient required intubation. Swelling at the bite site became massive. He had a cardiac arrest upon arrival at the second hospital but was resuscitated and admitted to the pediatric intensive care unit. Additional antivenin was administered. The patient had a second cardiac arrest 7 hours after the envenomation and could not be resuscitated.

Case 67. A 30-year-old man was exposed to vapors of hydrofluoric acid and nitric acid and their combustion products after an explosion at work. He was admitted in severe respiratory distress with burns on his face and legs. Intubation was performed and burns were treated with calcium gluconate gel. His admission chest X-ray showed a "white out". He developed severe adult respiratory distress syndrome (ARDS) and died 10 days after the accident. Postmortem examination revealed marked pulmonary congestion and multiple areas of consolidation.

Case 68. A 40-year-old man was sprayed in the face with pepper spray. He had foaming at the mouth and complained of stomach cramping and shortness of breath. The patient died the same day.

Case 75. The mother of a 2-year-old boy turned around to see the child ingest an unknown amount of a **condenser coil cleaner** containing **hydrofluoric and hydrochloric acids**. While waiting for an ambulance to arrive, the mother induced vomiting. After the child arrived at the ED he was emergently intubated. Ampicillin and methylprednisolone were administered and he was taken to the operating room. Esophagoscopy revealed diffuse esophageal injury. While in the operating room he developed recurring cardiac rhythm disturbances, requiring resuscitation five times. Rust-colored urine was also noted. Intravenous calcium was administered without improvement in the child's clinical status. The calcium level was 5.2 mg/dL. The child continued to develop ventricular fibrillation and ultimately died.

Case 83. A 30-year-old woman intentionally drank **sodium hydroxide drain opener** at work and presented to the ED with abdominal pain about 1½ hours later. Vital signs were: blood pressure, 130/70 mm Hg; respiratory rate, 12 to 16 breaths/min; heart rate, 60 beats/min. The patient was breathing easily without stridor. Initial arterial blood gas analysis showed: pH, 7.22; PCO₂, 22 mm Hg; and PO₂, 232 mm Hg with supplemental oxygen. Thirty minutes later the patient developed bradycardia and hypotension; an emergent intubation was performed. Within the next hour she was taken to the operating room. Findings included several perforations and severe caustic injuries to many organs and to the retroperitoneum. Her condition deteriorated over the next 2 days and she died.

Case 90. A 37-year-old man presented to the ED 1 hour after ingestion of a **drain opener (sulfuric acid, 97%)**. On arrival he was awake, alert, and diaphoretic without evidence of drooling. An arterial blood gas analysis showed: pH, 7.15; PCO₂, 39 mm Hg; PO₂, 308 mm Hg; and HCO₃, 14 mEq/L. Over the next 2 hours the patient became unresponsive with an anion gap of 33 mEq/L. Gross hematuria developed. Exploratory laparoscopy demonstrated massive third degree burns, with most of the abdominal structures partially or fully destroyed. The patient was placed on a morphine infusion and died 20 hours after presentation. The postmortem examination identified necrosis and perforations along the entire length of the gastrointestinal tract. Necrosis was also noted in the lungs, pancreas, and diaphragm.

Case 92. A 37-year-old woman presented immediately after the ingestion of 180 mL of **lye (sodium hydroxide)**. She was found to have extensive burns to her mouth and upper respiratory tract requiring immediate airway control. The patient underwent emergent endoscopy that revealed erythema of the superior aspect of the esophagus, deep ulceration at the gastroesophageal junction, and blackened stomach mucosa. Approximately 10 hours after ingestion the patient showed signs of peritoneal inflammation. Exploratory laparotomy revealed extensive full thickness injury to the stomach, duodenum, and proximal jejunum. She died 15 hours after ingestion.

Case 94. An 18-month-old girl with a history of asthma was noted to have difficulty breathing after ingestion of a **rust remover** containing **hydrofluoric acid, ammonium bifluoride**, and 2-butoxyethanol. The ingestion occurred approximately 90 minutes prior to ED arrival. On arrival she was lethargic, listless, limp, and exhibited only nonpurposeful responses to pain. Significant respiratory distress was evident with cyanosis, gurgling respirations, and frothy oral secretions, but a chest X-ray was clear. Respirations were 6 breaths/min; pulse was 220 beats/min; and oxygen saturation was 99% (on oxygen). Initial arterial blood gas analysis showed: pH, 7.15; PCO₂, 43 mm Hg; PO₂, 297 mm Hg; and HCO₃, 14.5 mEq/L. The serum calcium level was less than 5 mg/dL. She was intubated and manually ventilated; thick secretions were suctioned from the endotracheal tube. She was air-lifted to a pediatric intensive care unit, where, approximately 2½ hours after exposure, she was pale, mottled, had no spontaneous eye opening, and was placed on a ventilator. Heart rate was 156 beats/min; blood

pressure was 86/47 mm Hg; and capillary refill was 2 to 3 seconds. Arterial blood gas analysis at this time revealed pH, 7.18; PCO₂, 34 mm Hg; PO₂, 225 mm Hg; HCO₃, 13 mEq/L; and base excess, 16 mEq/L. An ionized calcium level was 0.85 mmol/L (pH corrected, 0.77 mmol/L). Coarse diffuse rhonchi were noted. No perioral or intraoral burns were evident. Bronchoscopy revealed a few petechiae but no mucosal tears or erosions. The esophagus and stomach exhibited only mild erythema and edema. Recurrent ventricular fibrillation developed with evidence of torsades de pointes. Despite aggressive resuscitative efforts including calcium infusion, the child died.

Case 95. A 32-year-old man ingested 20 mL of 6% to 8% **hydrofluoric acid rust remover**. He arrived in the ED 45 minutes after ingestion. Coffee ground emesis was noted. Initial vital signs were: blood pressure, 171/61 mm Hg; heart rate, 69 beats/min; respiratory rate, 20 breaths/min; and temperature, 34.2°C. He received 2 g of calcium chloride and magnesium sulfate in the ED. Repeat laboratory study results 3 hours after ingestion were: total calcium, 4.3 mEq/L; ionized calcium, 0.78 mEq/L; magnesium, 2.5 mEq/L; and potassium, 5.4 mEq/L. Approximately 3.5 hours after ingestion he had an episode of narrow complex pulseless ventricular tachycardia which responded to defibrillation. Over the next hour he had multiple episodes of narrow complex tachyarrhythmias and then later degenerated into ventricular fibrillation and asystole from which he could not be resuscitated. He had received cumulative doses of 9 g of calcium and 19 g of magnesium sulfate.

Case 96. A 3-year-old girl ingested an unknown quantity of a **wheel cleaner** containing **ammonium fluoride and ammonium bifluoride** that had reportedly been poured into a cup. She immediately became ill and vomited. She arrived in the ED approximately 20 minutes after ingestion. On arrival, she was cyanotic, obtunded, and somewhat flaccid, but responsive to painful stimuli. Breath sounds were diminished bilaterally. She underwent emergent endotracheal intubation but remained difficult to ventilate. Bilateral needle thoracentesis and tube thoracostomy revealed no evidence of pneumothorax. She received repeated doses of intravenous and nebulized calcium gluconate. Serum calcium level was not measured. Approximately 30 minutes after arrival, she rapidly developed bradycardia (pulse decrease from 150 to 41 beats/min); asystole ensued. ST segment depression was evident with little change in QRS and QT_c intervals. She was declared dead approximately 80 to 90 minutes after the ingestion. Postmortem examination revealed intrapulmonary hemorrhage and hemorrhagic necrosis of the pharynx, esophagus, and stomach.

Case 97. A 4-year-old boy presented with obtundation, hypothermia, and hypoglycemia after ingestion of a **mouthwash containing ethanol**. He required intubation and passive rewarming. Physical examination revealed multiple bruises and clinical malnutrition (weight, 11 kg). His blood ethanol level was 220 mg/dL; potassium, 2.5 mEq/L. He developed hypotension and a wide complex tachycardia unresponsive to lidocaine which then progressed to ventricular fibrillation responsive to defibrillation. Pulmonary edema followed. A narrow complex tachycardia improved after administration of adenosine and amrinone. However, he deteriorated over the subsequent 5 hours, requiring defibrillation three additional times, and then died. The medical examiner report described lacerations on the hard palate corresponding to the shape of the mouthwash bottle opening. Toxicological laboratory results were negative except for ethanol.

Case 99. A teacher observed two 13-year-old boys spraying an **aerosol air freshener** into a sock, and intentionally inhaling from the sock. When the teacher tried to stop the children, both ran away. One child collapsed and was unresponsive. CPR was initiated about 8 minutes after collapse, but resuscitation efforts were unsuccessful.

Case 105. This 25-year-old man and two others were bleeding a line of **argon gas**. They were working in a concrete-walled pit.

The two other victims left to check on another task. When they returned they observed the patient had descended into the pit and was unresponsive. One of them entered the pit and collapsed. The third entered the pit, began to feel disoriented, and quickly left the area and reported the incident to security. The second man who entered the pit survived but with a major disability. CPR was initiated on the first man but was unsuccessful.

Case 106. A 30-year-old man was found unresponsive next to a "gray cylinder" later identified as containing **carbon dioxide**. He was in cardiac arrest upon arrival in the ED and had evidence of frost bite injury to the nose and mouth. A cardiac rhythm was restored after advanced cardiac life support measures for asystole were instituted; however, pupils were fixed and dilated. He was declared brain dead after 24 hours.

Case 122. A 45-year-old woman was found by family members in the garage of the home with the car running (**carbon monoxide**). The patient was unresponsive and had a carboxyhemoglobin of 32%. She received hyperbaric oxygen therapy twice a day for the next 4 days but never regained consciousness. On the fifth hospital day she was declared brain dead and life support was removed.

Case 127. The body of a 54-year-old man was found in a closed garage by a relative. Apparently he had been working on his car over several days with the garage door closed because of cold temperatures outside. Postmortem carboxyhemoglobin was 79%, and death was attributed to accidental **carbon monoxide** poisoning.

Case 145. An adult man in his 30s was working in a sewer when he was overcome by **hydrogen sulfide** and **carbon monoxide** gases. He was in full cardiac arrest upon arrival in the ED. Initial laboratory values included a carboxyhemoglobin of 23%. Decontamination of the patient was performed several hours after presentation, when hospital personnel became ill. The patient died in the ED.

Case 147. A 57-year-old man ingested an unknown amount of a tonic containing **ferric chloride**, **strychnine sulfate**, **arsenic trioxide**, copper acetate, and cobalt in a suicide attempt. He was brought to the ED 30 minutes after the ingestion. Upon arrival he became unresponsive and asystolic. Pulse and blood pressure returned after administration of epinephrine and endotracheal intubation. However, he remained unresponsive to painful stimuli, with fixed and dilated pupils. Dimercaprol was administered intramuscularly. He developed hypertension and oliguria within 12 hours of arrival. Nitroprusside was required to control blood pressure. Laboratory studies were significant for potassium, 2.6 mEq/L; creatinine, 3.5 mg/dL; and serum iron, 121 µg/dL. Initial arsenic levels were 0.07 µg/mL in blood and 580 µg/mL in urine. The patient's condition deteriorated. He remained profoundly comatose and ventilator dependent. A 24-hour urine arsenic collection showed inorganic arsenic, 581 µg/1,450 mL; and organic arsenic, 570 µg/1,450 mL. After 9 hospital days, life support was withdrawn.

Case 151. A 61-year-old man presented to the ED 2 hours after ingestion of a **copper sulfate herbicide**. He was asymptomatic. Endoscopy showed an intact esophagus and ulcerations of the stomach. Admission laboratory results were normal except for potassium, 6.1 mEq/L; and oxygen saturation, 89% (on 100% oxygen therapy). Twelve hours after endoscopy he was anuric and blood gas analysis showed a metabolic acidosis. His hands, nailbeds, and lips were cyanotic. A methemoglobin level was 19.3%. Dimercaprol and methylene blue were administered without effect on his cyanosis. He had a persistent methemoglobinemia (15% to 22%) despite repeated doses of methylene blue. He remained anuric (creatinine, 7.8 mg/dL); dialysis was begun on the third day. He then developed intravascular hemolysis and multiple runs of supraventricular tachycardia and died 4 days after presentation.

Case 152. A 35-year-old man presented to the ED one hour after ingesting an unknown amount of herbicide containing 35% **diquat**. Gastric lavage was performed and activated charcoal administered. Within the first few hours he had severe vomiting and diarrhea. Examination showed diffuse swelling of the tongue, uvula, and upper airway. Intubation was required for pulmonary edema. He remained hypotensive despite dopamine and phenylephrine. Hemoperfusion was initiated approximately 6 to 7 hours after arrival. Over the first 24 hours of hospitalization he developed acute renal failure, progressive pulmonary edema, and metabolic acidosis. His condition progressively deteriorated and he developed ARDS, coagulopathy, and cerebral edema. He developed a junctional rhythm that degenerated into asystole and he died 56 hours after arrival. Toxicologic analysis of blood samples, 3 hours and 10 hours after ingestion, showed diquat levels of 4.085 µg/mL and 4.384 µg/mL, respectively. Postmortem examination revealed diffuse erosions of the hypopharynx, upper larynx, and esophagus as well as pulmonary and cerebral edema.

Case 154. A 41-year-old aircraft pilot was applying **paraquat** when his aircraft crashed. The spray tanks in the plane contained a solution of approximately 7% paraquat, but were virtually empty at the time of the crash. He sustained third-degree thermal burns involving 35% of his body. Over the first 24 hours he developed respiratory difficulty. During the subsequent 5 days his pulmonary and renal status deteriorated. The initial paraquat level 20 hours after the accident was 0.169 µg/mL. A chest X-ray showed bilateral diffuse interstitial infiltrates as he began to develop worsening ARDS and renal failure. He died 8 days after the accident. Postmortem paraquat analysis showed the following: serum paraquat, 0.178 µg/mL; right lung, 86 ng/g; left lung, less than 50 ng/g; right kidney, 204 ng/g; and left kidney, 212 ng/g.

Case 161. A 14-year-old boy was instructed to deflate an inflatable child's wading pool that the child's grandfather had previously inflated with **chlorodifluoromethane**. The victim was found unresponsive on top of the pool 30 minutes later. When the paramedics arrived he was in cardiorespiratory arrest with ventricular fibrillation, which progressed to asystole after attempted cardioversion. Postmortem examination of the pulmonary arterial and venous blood was positive for chlorodifluoromethane.

Case 162. A 14-year-old girl was "huffing" **fluorochlorocarbons** collected from a neighbor's air conditioner. After four to five doses, she suddenly complained of shortness of breath and collapsed. Bystander CPR was started and paramedics found the patient in asystole, which responded to intravenous epinephrine and atropine. Fluids and dopamine were required to maintain a blood pressure. She remained comatose. Her condition continued to deteriorate over the next 2 days and she was declared brain dead.

Case 163. A 19-month-old girl went into the yard while in the care of adults inside the home. She drank an unknown amount of **gasoline** from a container left on the lawn. She staggered into the house coughing and choking. One of the adults performed a finger sweep of the child's throat because he thought the child was choking on an object. The child vomited and became unconscious. An ambulance was called. When emergency medical personnel arrived the patient was cyanotic, apneic, and unresponsive with blood in her mouth and emesis on the floor. Pulse was 160 beats/min; and respirations, 28 breaths/min. The patient was ventilated with 100% oxygen and transported to the hospital. Upon arrival she remained unresponsive with fixed and dilated pupils and inspiratory and expiratory crackles and wheezes. The emergency physician was unable to auscultate any heart sounds. Initial venous pH was 6.87; this decreased to 6.85 after 3 mEq/kg of sodium bicarbonate was administered. Her PCO₂ was 150 mm Hg. The patient was given atropine by endotracheal tube, intravenously and then intraosseously; she also received 3 doses of epinephrine. Heart rate in the ED was 60 beats/min, gradually decreasing to the 20s. A

Doppler subsequently showed no cardiac activity. The patient was pronounced dead approximately 1 hour after the ingestion.

Case 165. A 34-year-old intoxicated man became entrapped underneath a stationary vehicle in a pool of **gasoline** for 5 hours. The patient finally freed himself and presented to the ED with 35% partial thickness burns. The burns were debrided and dressed with silver sulfadiazine. On the third hospital day he developed tachypnea, hypoxia, and fever. Chest X-ray demonstrated bilateral lower lobe atelectasis with a possible left lower lobe infiltrate. Before arterial and central venous line placement, **midazolam**, **morphine**, and vecuronium were administered. He developed bradycardia and hypotension, and degenerated into pulseless electrical activity. CPR was unsuccessful. Death was believed to be secondary to complications of chemical burns.

Case 167. An 11-month-old boy presented with convulsions and cyanosis after aspiration of a **paint thinner containing mineral spirits**. Following intubation and the administration of lorazepam, phenobarbital, and midazolam, he developed pulseless ventricular tachycardia. He was cardioverted to normal sinus rhythm at 120 beats/min, then became cyanotic with a wide complex dysrhythmia. Copious bronchial secretions were noted. The patient died within 126 minutes of presentation to the hospital. Postmortem findings were consistent with aspiration.

Case 168. A 42-year-old woman with a 2-year history of **toluene** abuse was found in cardiac arrest. She had been inhaling toluene from a rag when she seized and stopped breathing. Several cans of paint thinner were found in her home. She was intubated and cardioverted for a wide complex tachycardia. On arrival in the ED initial blood pressure was 98/60 mm Hg on dopamine. Computed tomography (CT) of the head revealed a massive intraventricular bleed with midline shift. During the next several hours, despite pressor support, the patient continued to become more hypotensive. She died 14 hours after admission.

Case 169. An adult woman presented to the ED 2 hours after ingestion of 240 mL of **chlordane** and an unknown amount of **paroxetine**. Following an unconfirmed seizure, she initially had a decreased level of consciousness but shortly after arrival began to regain consciousness. Metabolic acidosis, with a pH of 7.0, was treated with sodium bicarbonate therapy. A second seizure ensued and the patient became hypotensive. She passed a stool described as milky with an insecticide odor prior to passing a charcoal stool. Despite aggressive fluid hydration her urine output decreased. On the third hospital day the patient required intubation; hemodialysis was initiated. Rising prothrombin time (PT) and partial thromboplastin time (PTT) were treated with fresh frozen plasma. On the fourth hospital day the patient required maximal doses of vasopressors. Despite continuous ultrafiltration she died shortly thereafter.

Case 173. A 36-year-old woman arrived via emergency medical services (EMS), intubated, with a history of seizure activity and a blood sugar level reported as less than 40 mg/dL in the field. The glucose was corrected and screens for salicylates and acetaminophen were negative. Other laboratory values included: creatinine, 3.2 mg/dL; and blood urea nitrogen (BUN), 42 mg/dL. She was reported to smell "funny." The previous day, she had complained to a friend of lethargy and flulike symptoms. The patient continued to have seizures and required a pentobarbital coma as well as vasopressors. Two days after admission it was discovered that the patient lived in a guest house, with the main house on the property having been recently fumigated with **methyl bromide** and 0.5% **chloropicrin**. A trap door with six electrical conduits connecting the main house to the guest house was discovered. Methyl bromide was measured at 15 parts per million in one of the conduits. Blood bromide level was 27 mg/dL. On the eighteenth day the patient's condition had not improved. All supportive measures were withdrawn and she died.

Case 177. A 32-year-old man gathered and ingested wild mushrooms he found under an oak tree behind a house. A portion of

the cap was later identified as *Amanita phalloides*. After 8 hours he experienced nausea, then developed vomiting and diarrhea. He presented to the ED 21 hours after the ingestion. On arrival, PT was 12.3 seconds and the aspartate transaminase (AST) level was 81 U/L. Therapy included intravenous fluids, *N*-acetylcysteine, multiple dose activated charcoal and large doses of penicillin. By 36 hours after ingestion, the AST level was 1,793 U/L and bilirubin, 3.9 mg/dL. On the third day, laboratory results included: AST, 2,412 U/L; alanine transaminase (ALT), 4,142 U/L; and PT, 38.4 seconds. At 84 hours postingestion the AST level had decreased to 1,067 U/L; but PT was greater than 60 seconds; bilirubin, 5.7 mg/dL; and ammonia, 56 μ mol/L. Plans were made for liver transplantation. By the sixth day he developed metabolic acidosis, followed by coma, hypotension, and oliguria. He died on the ninth day. Postmortem examination revealed pulmonary consolidation, and sections of the liver showed complete necrosis of the parenchyma with only a small rim of recognizable hepatocyte outlines around the portal areas. The remaining hepatocytes and sinusoids were completely obliterated.

Case 181. A 39-year-old woman presented to the ED for bleeding facial acne. She had a history of bipolar illness for which she took lithium, risperidone, and amoxapine. PT was greater than 205 seconds and PTT was greater than 93 seconds. Her venipuncture site continued to bleed beyond 20 minutes. She denied ingestion of rat poison or warfarin-containing products, nonprescription medications, or herbal or vitamin products. Her parents reported that she had written a suicide note in the previous week but had destroyed it. Therapy with vitamin K and fresh frozen plasma was begun. Prior to inpatient admission she developed an acute headache and aphasia, and became unresponsive to all but deep pain. At the time of her neurological event her PT was 11.1 seconds. CT of the head revealed a subarachnoid bleed. Follow-up CT 6 hours later revealed herniation. The patient was declared brain dead. A postmortem **brodifacoum** level was 160 ng/mL. Death was attributed to intentional ingestion of a rodenticide.

Case 182. An 11-month-old girl was found dead at home. She had been seen eating **cigarette butts** the night before she was found dead. An autopsy revealed 5 undigested cigarettes and one tablet of **diazepam**. Evidence of asphyxia secondary to aspiration of gastric contents was also noted.

Case 183. An 18-month-old boy was admitted to the hospital with persistent nausea, vomiting, and diarrhea. A plasma **acetaminophen** level of 46 μ g/mL from blood drawn approximately 28 hours after admission established the diagnosis of acetaminophen intoxication. The child was admitted to the intensive care unit and was initially treated with intravenous fluids and oral *N*-acetylcysteine. Three days after admission his condition worsened and he was placed on a ventilator. His liver enzymes became markedly elevated and he developed renal failure. By the fifth hospital day he was receiving lipids with hyperalimentation and antibiotics for a possible pulmonary infection. The child soon developed ARDS, became very unstable, and was placed on extracorporeal membrane oxygenation. Despite supportive treatment he died 11 days after admission.

Case 184. A 3-year-old boy with a history of a fall was evaluated in the ED for lethargy. The possibility of abuse was considered because of multiple bruises and the presence of opiates in the urine. Laboratory data also revealed a blood glucose level of <10 mg/dL, coagulopathy, and liver failure (ALT, 2,453 U/L; PT, 32.6 seconds; bilirubin, 3.4 mg/dL). Further history disclosed that the child had been given both over-the-counter and prescription formulations containing **acetaminophen** over the past 4 to 5 days. A serum acetaminophen level was 11 μ g/mL. A comprehensive drug screen was also positive for pseudoephedrine, dextromethorphan, and codeine. Serologic evaluation excluded viral causes of liver failure. The child received intravenous *N*-acetylcysteine and was transferred for liver transplantation. However, his condition

rapidly deteriorated and he died 3 days after presentation. Centrilobular necrosis was present on postmortem.

Case 202. A 45-year-old woman was brought to the ED 3 days after ingestion of **acetaminophen** in a suicide attempt. She was unresponsive, hypertensive, and febrile. *N*-acetylcysteine was initiated. Laboratory examination revealed renal failure and AST, 4,939 U/L; ALT, 5,082 U/L; and INR, 1.91. By the fourth day after admission the patient had seizure activity, renal failure, and fever. At that time laboratory results showed: ALT, 1,300 U/L; AST, 633 U/L; ammonia, 276 μ g/dL, PT, 24.5 seconds, INR, 2.29; and creatinine, 7.9 mg/dL. Pentobarbital anesthesia and dialysis were instituted. The patient died 7 days after ingestion.

Case 211. A 64-year-old woman presented with vomiting, abdominal pain, and hypotension. The patient had a history of alcoholism and reportedly ingested 7,000 mg of **acetaminophen** daily for a week to treat pain from zoster. Vital signs upon presentation were: blood pressure, 78/40 mm Hg; heart rate, 118 beats/min; and respiratory rate, 28 breaths/min. Initial laboratory results included: AST and ALT, 7,000 U/L; bilirubin, 7.4 mg/dL; BUN, 36 mg/dL; creatinine, 3.6 mg/dL; arterial pH, 6.96; and platelet count, 14,000/ μ L. The patient received intravenous fluids, dopamine, sodium bicarbonate, norepinephrine, and *N*-acetylcysteine (via nasogastric tube). The patient was transferred to a liver transplant center, but was deemed not a transplant candidate because of her chronic alcoholism. She died on the eighth hospital day.

Case 216. A 39-year-old woman took **acetaminophen** and **acetaminophen with codeine** chronically for 2 months for headaches. She presented to the ED dehydrated with evidence of an upper gastrointestinal bleed. Her other medications included aspirin, ampicillin, theophylline, lovastatin, and carisoprodol. Laboratory evaluation showed the following levels: acetaminophen, 51 μ g/mL; salicylate, 2.5 mg/dL; INR, >10; creatinine, 2.4 mg/dL; and AST, 144 U/L. Later in the intensive care unit a repeat acetaminophen level 20 hours after the admission level was 24 μ g/mL. *N*-acetylcysteine was then started and repeat laboratory results included: AST, 6,800 U/L; and ALT, 6,700 U/L. The next day the patient developed respiratory distress requiring intubation. She required vasopressors and glucose supplements and had an increasing PT with bleeding at several sites. She died on the fourth day of admission.

Case 285. A 29-year-old woman was found wandering the streets asking for help. She was transported to an ED where she was described as paranoid and anxious. The patient stated that she was "poisoned," but refused to give additional information. Initial signs and symptoms included supraventricular tachycardia at 160 beats/min, diaphoresis, and mydriasis. Shortly after lavage the patient had a generalized tonic clonic convulsion. Initial arterial blood gas showed a metabolic acidosis; urine drug screen showed salicylates and amphetamines. Serum salicylate level was 111 mg/dL, and the patient admitted taking **aspirin**. The patient had another generalized seizure followed by a cardiac arrest and was pronounced dead.

Case 293. A 52-year-old woman presented to the ED with a history of ingesting up to 500 tablets of **aspirin** (500 mg each). The patient was intubated and lavaged with return of pill fragments; activated charcoal was instilled. Her initial serum salicylate level was 95 mg/dL. Intravenous sodium bicarbonate was given for an arterial pH of 7.26. When her salicylate level was 106 mg/dL she was febrile, hypertensive, and tachycardic with a heart rate of 180 beats/min. Dialysis was planned; however, the patient arrested prior to dialysis. Attempts to oxygenate and resuscitate the patient failed.

Case 294. A 54-year-old man presented 6 hours after ingestion of more than 300 non-enteric coated **aspirin**. The patient complained of nausea and had myoclonic jerking, tachypnea, tachycardia, a normal mental status, and no evidence of pulmonary edema.

His initial salicylate level was 99.5 mg/dL. Arterial blood gas analysis showed a pH of 7.49 and a PCO_2 of 20 mm Hg. The potassium level was 4.8 mEq/L and serum bicarbonate, 16 mEq/L. The patient was treated with activated charcoal and alkalization. A repeat salicylate level 2 hours later was 92 mg/dL with an arterial pH of 7.55; 250 mg of acetazolamide was given. The salicylate level 4 hours after the initial level was 130 mg/dL and hemodialysis was initiated. However, 15 minutes after its initiation the patient suffered a cardiac arrest and died.

Case 297. A 66-year-old woman presented to the ED with lethargy, dyspnea, nausea, and vomiting. The duration of her symptoms was unknown and she denied any medical history or medication. Laboratory examination found an anion gap metabolic acidosis. The patient was admitted with a diagnosis of acute exacerbation of chronic obstructive pulmonary disease (COPD). Approximately 8 hours after presentation a **salicylate** level of 94 mg/dL was obtained. The patient died 15 minutes later.

Case 300. A 79-year-old woman ingested "half a bottle" of **aspirin** 325 mg tablets. Her medical history included chronic depression, coronary artery disease, and congestive heart failure. She was given ipecac by paramedics approximately 45 minutes after the ingestion. Upon arrival at a health care facility the patient had copious vomiting of pill fragments. Ten hours after arrival her condition worsened. She had a respiratory rate of 36 breaths/min and changing mental status. Her initial salicylate level 3 hours after ingestion was 38 mg/dL. In the intensive care unit the patient had a generalized tonic clonic seizure and aspirated. The salicylate concentration 10 hours after ingestion was 86 mg/dL with an anion gap of 20 mEq/L. Her nasogastric tube then began draining bright red blood and asystole ensued.

Case 322. A 29-year-old man ingested 50 **colchicine** 0.6 mg tablets in a suicide attempt. Within 15 hours after the ingestion he presented to the ED with tachycardia (108 beats/min), hypotension, hematemesis, diarrhea, and melena. Initial laboratory study results included: sodium, 139 mEq/L; potassium, 4 mEq/L; chloride, 96 mEq/L; bicarbonate, 23 mEq/L; BUN, 20 mg/dL; creatinine, 3.3 mg/dL; white blood cell count (WBC), 37,000/ μ L; platelets, 168,000/ μ L; AST, 1,246 U/L; ALT, 337 U/L; lactic dehydrogenase (LDH), 3,497 U/L. Acetaminophen and salicylate levels were negative. Despite aggressive fluid resuscitation and an initial improvement, approximately 15 hours after admission he became hypotensive and developed bradycardia progressing to asystole. Postmortem assay of blood obtained prior to death revealed a colchicine level of 29 ng/mL.

Case 331. A 2-year-old boy with gastroenteritis was treated with **ibuprofen** suspension. He had a history of facial swelling approximately 1 month earlier after receiving a dose of ibuprofen. On the first day of ibuprofen treatment for the current illness, he received two doses (1 teaspoonful, then 3/4 teaspoonsful). He received an additional 3/4 teaspoonsful the second day. Facial swelling developed that afternoon and he was seen by his physician. Ibuprofen was discontinued. That evening he was "moaning" and drawing up his legs as though in pain. Acetaminophen was given for pain but the child remained febrile and very restless during the night. On the evening of the third day he was pale with wheezing and gasping respirations. Apnea ensued. CPR was initiated by his father and full resuscitation attempted in the ED without success. The postmortem examination attributed the death to anaphylactic shock.

Case 332. A 2-year-old boy presented 1 hour after ingestion of his mother's **methadone**. Approximately 12 mL of methadone (10 mg/mL) were missing. Cyanosis, lethargy, coma unresponsive to external stimuli, and posturing were evident on presentation. Several doses of intravenous naloxone were administered, without response, and the patient was intubated in the ED. CT of the head revealed cerebral edema and multiple infarcts involving the

cerebellum, brain stem, and watershed areas of the cerebrum. The patient died within 3 days of presentation.

Case 359. A previously healthy 6-year-old girl was found dead in her home. Police reports indicated the child was given between 15 and 20 mg of **oxycodone** by her mother to induce sleep. The child was also on **imipramine** for attention deficit disorder. Postmortem examination revealed a focal greenish tint on the abdominal wall; no other signs of physical trauma were noted. Microscopic examination revealed congestion of the lungs, kidneys, spleen, and liver. Blood (heart) drug concentration of oxycodone was 700 ng/mL (lethal range); imipramine, 1,300 ng/mL; desipramine, 1,400 ng/mL. Liver drug concentrations were imipramine, 14 mg/kg; and desipramine, 20 mg/kg.

Case 369. A 31-year-old man with a history of drug abuse broke into his place of employment after ingesting large amounts of **ethanol** and injected himself with 50 mL of **halothane**. The patient developed shortness of breath and called EMS. At EMS arrival he was in acute respiratory distress and was intubated. Arterial blood gas results were: pH, 7.0; PCO₂, 60 mm Hg; PO₂, 57 mm Hg. The patient's condition continued to deteriorate and he died 5 hours after exposure.

Case 375. A 5-year-old boy reportedly ingested 33 **carbamazepine** 200 mg tablets. The mother induced vomiting, apparently with her finger, gave the child some milk, and did not seek further medical attention until she found him in a coma 4 hours later. In the ED the child was comatose but had a gag reflex; vital signs were within normal limits. He had no nystagmus but was thought to have had some tonic/clonic activity. He was lavaged, given a dose of activated charcoal with sorbitol, then transferred to another hospital for pediatric intensive care. Four hours later, while in the pediatric intensive care unit, he became very lethargic and was intubated for airway protection. He was noted to have an ileus; repetitive activated charcoal was therefore discontinued. Three hours later, the child's blood pressure plummeted and oxygen saturations decreased markedly. The child sustained a cardiac arrest and could not be resuscitated. The admission carbamazepine level was 44 µg/mL.

Case 378. A 27-year-old man with a history of a seizure disorder ingested more than 30 tablets of **carbamazepine**. He presented to the ED approximately 5 hours after the ingestion; at that time he was described as sleepy. Activated charcoal was administered. His serum carbamazepine level was 38.2 µg/mL with a phenobarbital level of 17.4 µg/mL. The patient became more responsive but later experienced possible seizure activity accompanied by vomiting and possible aspiration. On the second hospital day the patient's condition worsened with the development of hypotension requiring pressor support. A repeat carbamazepine level was 51.4 µg/mL. His blood pressure continued to decrease. He developed bradycardia, which progressed to asystole, and could not be resuscitated.

Case 385. A 24-year-old woman presented to the ED 3 hours after ingestion of 1,400 **valproic acid** tablets (250 mg each). Her only complaint was of lightheadedness and drowsiness. Gastric lavage was performed and activated charcoal was administered. Her initial valproic acid level was 407 µg/mL, followed by a level of 1,092 µg/mL 5 hours later. She was unresponsive to noxious stimuli, with a blood pressure of 104/54 mm Hg and a heart rate of 79 beats/min. Over the next 4 hours she required intubation and dopamine. Spontaneous twitching of her arms developed. Her valproic acid level increased to a peak of 2,200 µg/mL. Metabolic acidosis and increasing vasopressor doses were required over the next 24 hours. The patient was declared brain dead 48 hours after presentation.

Case 391. A 20-year-old woman with a history of bipolar disorder was found with a suicide note after ingesting **valproic acid**, **olanzapine**, and **acetaminophen**. On arrival in the ED the patient was minimally responsive to pain, had a normal blood

pressure, and had tachycardia (heart rate, 150 to 160 beats/min). Lavage was performed and activated charcoal and a cathartic were instilled. Six hours after presentation she required intubation and became hypotensive with systolic blood pressure of 80 mm Hg. The valproic acid level was 467 µg/mL. The 3- to 4-hour acetaminophen level was 39 µg/mL. By 12 hours after admission she no longer required vasopressors. *N*-acetylcysteine and multiple doses of activated charcoal were administered. At 24 hours the patient again became hypotensive requiring pressors. Pupils were fixed and dilated. Thirty hours after admission the valproic acid level peaked at 2,058 µg/mL. At 48 hours after presentation she was hypotensive on pressors. Ventilatory support was removed and she died.

Case 404. A 45-year-old woman ingested 100 tablets of **amitriptyline** 150 mg at an unknown time. En route to the hospital the patient experienced a seizure and was intubated. Her QRS complex was 0.16 seconds. She received lavage, multiple doses of activated charcoal, sodium bicarbonate, diazepam, phenytoin, and norepinephrine. The patient experienced up to 7 hours of continuous seizure activity and was placed in a pentobarbital coma. Admission amitriptyline level was 3,114 ng/mL. There was evidence that the patient had aspirated; antibiotics were begun. After 1 week the patient was awake and responsive; however, her pulmonary status continued to decline and she developed ARDS and a pneumothorax. She died on the fourteenth hospital day.

Case 405. A 45-year-old woman took an overdose of **amitriptyline** and informed her family 10 minutes later. In the ED one hour after the ingestion she was lavaged with return of tablet fragments, and she received activated charcoal. She then became unresponsive with a heart rate of 110 beats/min, a QRS duration of 0.12 seconds, and no P waves evident. After intubation and sodium bicarbonate therapy, myoclonic jerking was noted. Seizure activity and hypotension developed with little response to pressors and sodium bicarbonate. She died approximately 5 to 6 hours after the ingestion.

Case 469. A 47-year-old woman presented to the ED unresponsive and in renal failure. The **lithium** level was 7.8 mEq/L. The patient received hemodialysis, but never regained consciousness. CT revealed severe cerebral edema with brain stem compression. Postmortem examination revealed interstitial nephritis and tubular necrosis.

Case 491. A 54-year-old woman with a history of hypothyroidism and depression was noted by her son to have an altered mental status for 24 hours. When the patient lost consciousness EMS was summoned. The patient had prescriptions for **phenelzine**, **amoxapine**, and **amitriptyline**. The patient was unresponsive, with the following vital signs: blood pressure, 180/110 mm Hg; heart rate, 130 to 140 beats/min; respiratory rate, 25 to 35 breaths/min; and rectal temperature 40.5°C. The patient was intubated; gastric lavage did not reveal pill fragments. Electrocardiogram showed no evidence of QRS or QT prolongation or R wave in aVR. The patient had warm, dry skin, dilated nonreactive pupils, dry mucous membranes, and muscle rigidity. Physostigmine (1 mg) was administered for presumed anticholinergic toxicity. Seizures began shortly after the physostigmine injection and were refractory to lorazepam but responded to phenobarbital (17 mg/kg). Serum toxicology tests for salicylates, acetaminophen, theophylline, and lithium were negative. CT of the head and lumbar puncture findings were negative. She had an initial creatine phosphokinase (CPK) level of 9,546 U/L which continued to increase; she was given dantrolene. Twenty hours after presentation, with CPK, creatinine, and AST levels continuing to increase, the patient became hypotensive. Despite multiple pressors the patient remained hypotensive, developed oliguric renal failure, and died approximately 48 hours after presentation.

Case 505. A 27-year-old woman ingested 30 **astemizole** 10 mg tablets, reportedly 1 hour before arrival in the ED. The patient was comatose and required CPR for 30 minutes. She was lavaged

and given activated charcoal. Seizures also developed within 8 hours of the ingestion and were treated with diazepam. Hypotension requiring vasopressors developed as well as ventricular tachycardia for which she received lidocaine, bretylium, magnesium sulfate, and defibrillation. The patient was febrile to 41.1°C. Vasopressors were continued for hypotension. The patient died on the second hospital day.

Case 518. A 3-month-old girl with a history of respiratory syncytial virus and ear infections was prescribed **ibuprofen** suspension 1.5 mL and **ceftriaxone** 250 mg intramuscular. One hour after receiving a dose of each of the medications she was crying and febrile, suffered a respiratory arrest, and died.

Case 523. A 17-year-old girl called her boyfriend and family expressing suicidal ideation. Within 1 hour of the call paramedics arrived to find the patient in cardiorespiratory arrest. Paramedics found a suicide note, an empty bottle of **acetaminophen/hydrocodone** combination tablets, **ethanol**, and a 3-mL syringe that had contained **tilmicosin**, a veterinary antibiotic. Upon presentation to the ED the patient was in asystole. Resuscitative efforts continued for 2 hours without response. A wound consistent with a needle mark was identified in her right deltoid area, believed to be the site of an intramuscular injection of the antibiotic. Blood ethanol level was 170 mg/dL and a urine drug screen was negative for drugs of abuse.

Case 542. A 28-year-old woman ingested three handfuls of her grandmother's sustained release **theophylline** and an unknown amount of **albuterol**. The incident occurred 90 minutes before arrival in the ED. Gastric lavage was performed and activated charcoal administered. In the ED her heart rate was 144 beats/min and blood pressure was 74/61 mm Hg. The initial theophylline level was 152 µg/mL, and potassium was 2.5 mEq/L. Her drug screen was positive for tricyclic antidepressants and benzodiazepines. The patient experienced atrial fibrillation with a few premature ventricular contractions and was placed on a lidocaine infusion. She was revived after a cardiac arrest and her theophylline level increased to 210 µg/mL. Status epilepticus persisted despite multiple medications. The patient's theophylline level peaked at 270 µg/mL and she died 17 hours after admission.

Case 543. A 72-year-old man was found convulsing in bed by his wife. He had no prior seizure history. He had been prescribed **ciprofloxacin** 7 days earlier. Serum **theophylline** level on admission was 28 µg/mL. Seizures were treated with diazepam, phenytoin, phenobarbital, and thiopental. He remained comatose 2 days later with intermittent focal seizure activity despite a decrease in the theophylline level to 13 µg/mL. He died 4 days after admission.

Case 544. A 49-year-old woman presented to the ED awake and oriented with flushing and hypertonicity. Her blood pressure was 98/58 mm Hg and her heart rate was 120 beats/min (sinus). History was significant for mental illness and possible ingestion of **theophylline**, **diltiazem**, **ibuprofen**, and **sertraline**. Gastric lavage was performed and activated charcoal with cathartic was administered. Two hours later the theophylline level was reported as 142 µg/mL and potassium, 2.7 mEq/L. A repeat theophylline level drawn 4.5 hours after the initial level was 113 µg/mL. The patient was drowsy with a blood pressure of 95/70 mm Hg, heart rate of up to 110 beats/min and respiratory rate of 26 to 35 breaths/min. Hemodialysis was initiated; however, during dialysis oxygen saturation decreased and she required intubation. She continued to deteriorate and died approximately 10 hours after arrival.

Case 564. A 38-year-old man presented to the ED 5 hours after ingesting up to 90 **diltiazem** sustained release 300 mg tablets. His vital signs were: blood pressure, 130/91 mm Hg; heart rate, 90 beats/min; and respiratory rate 20 breaths/min. Two hours after arrival the patient developed complete heart block and an idioventricular rhythm. His therapy included dopamine, norepinephrine, and calcium gluconate infusions. Whole bowel irrigation was also initiated. The patient appeared to respond to therapy and became

more awake. Later, urine output decreased and he developed an ileus. He subsequently had a cardiorespiratory arrest and died less than 24 hours after presentation.

Case 577. An 87-year-old woman with a medical history of congestive heart failure, COPD, and coronary artery disease was admitted to an intensive care unit for dehydration. **Dobutamine** 500 mg was administered in error over a period of 1 hour. The patient developed hypotension and tachycardia; hypotension did not respond to dopamine, but responded to norepinephrine. The patient had a myocardial infarction diagnosed on the basis of elevated cardiac enzymes and died on the third hospital day.

Case 607. A 16-month-old, 11.4-kg boy was put to bed for a nap. Four hours later, a pool of vomitus with pill fragments was noted in his crib and he was difficult to arouse. On examination in an ED he was lethargic with tachypnea (28 breaths/min), tachycardia (141 beats/min), cyanosis, and shock. Radiopaque tablets were present in the stomach. **Ferrous sulfate** ingestion was suspected and a serum iron level of 12,000 µg/dL was found. Total WBC was 33,500/µL. Intravenous deferoxamine at 15 mg/kg/h was begun. Frank blood was noted from the nasogastric tube 2.5 hours after presentation. Six hours after presentation the PT was 32.7 seconds and PTT was greater than 200 seconds. The child was transferred to a tertiary children's hospital intensive care unit where he received normal saline and blood products including fresh frozen plasma and packed red blood cells. Whole bowel irrigation was initiated, but was discontinued because of concern that the procedure would exacerbate hypotension. Persistent shock, gastrointestinal bleeding, and coagulopathy marked the patient's hospital course. He died the day after the ingestion.

Case 608. A 10-month-old boy presented with a history of excessive use of **iron** and **acetaminophen** over several days for a febrile illness. He was lethargic and had decreased oral intake and brownish-red emesis. His condition worsened to include bloody vomitus, dehydration, tachycardia, hepatomegaly, and decreased urine output. Laboratory test results included hemoglobin, 9.7 g/dL; ALT, 10,900 U/L; LDH, 32,010 U/L; serum iron, 274 µg/dL; and serum acetaminophen, 25 µg/mL. Blood, cerebrospinal fluid, and hepatitis screens and cultures were negative. On the second hospital day vital signs were: pulse, 165 beats/min; blood pressure, 120/60 mm Hg; and respirations, 26 breaths/min. He was intubated, sedated, and paralyzed. Laboratory tests revealed serum iron, 224 µg/dL; acetaminophen, 16 µg/mL; hemoglobin, 8.5 g/dL; ALT, 8,606 U/L; AST, 16,901 U/L; PT, 23 seconds; INR, 2.44; PTT, 48.8 seconds; and ammonia, 154 µg/dL. Treatment included neomycin, lactulose, double volume exchange transfusion, intravenous *N*-acetylcysteine, deferoxamine, furosemide, and whole bowel irrigation with polyethylene glycol solution. Laboratory tests on the third hospital day revealed serum iron, 80 µg/dL; acetaminophen, <10 µg/mL; hepatic transaminases in the 2,000 U/L range; PT, 14 seconds; and INR, 1.5. The patient's respiratory status and cardiovascular functions began to decline, so dopamine, dobutamine, epinephrine, and high frequency ventilation were started. Anuria developed on the fourth hospital day. Extracorporeal membrane oxygenation was begun on the fifth hospital day to treat ARDS but the child died later that day. An autopsy indicated that death resulted from multiple organ failure caused by iron and acetaminophen toxicity.

Case 613. A 2-year-old boy was found playing with bottles of 10 mg extended-release **glipizide** and 40 mg **benazepril**. The mother reported that tablets were found on the floor but not in the child's mouth. The child was brought to the ED after apparently developing seizures while sleeping. On arrival at the ED he had a fixed stare and was grunting. Seizures were controlled with lorazepam and phenytoin. Initial blood sugar was 59 mg/dL. Five hours after the child arrived at the hospital, he became difficult to arouse; his eyes and head were deviated to the right and it was noted that he had more muscle activity on the right side of the body than on the left. His blood sugar remained between 60 and 70

mg/dL while he received 5% dextrose, therefore 10% dextrose was started 7 hours after presentation. Thirteen hours after presentation, the child suffered a respiratory arrest. He was successfully resuscitated. CT of the head showed massive cerebral edema. Twenty-eight hours after presentation, the patient died.

Case 614. A 30-year-old diabetic woman presented to the ED unresponsive. She had been found with an empty bottle of **insulin**. The initial finger stick glucose was 0 mg/dL. Management included dextrose, thiamine, naloxone, intubation, and assisted ventilation. On admission to the intensive care unit she had a generalized tonic clonic seizure followed by focal seizures. Treatment included anticonvulsants, steroids, and octreotide. Two days after arrival an electroencephalogram showed minimal brain activity and the patient remained unresponsive. Her condition continued to worsen and she died.

Case 623. A 74-year-old woman presented to a community hospital with liver failure. Her medications included: naproxen, levothyroxine, ibuprofen, diltiazem, insulin, and for the past month, **chlorzoxazone**. Her blood chemistry revealed the following levels: AST, 2,566 U/L; ALT, 3,373 U/L; gamma-glutamyl transferase (GGT), 172 U/L; alkaline phosphatase, 205 U/L; bilirubin, 7.6 mg/dL; and ammonia, 249 μ mol/L. Arterial blood gas revealed a metabolic acidosis. Hepatitis viral screens were negative. Acetaminophen was nondetectable. She died 1½ days after presentation.

Case 638. A 36-year-old man presented with confusion, ataxia, and slurred speech. Shortly after arrival he had a cardiorespiratory arrest. After resuscitation he was unresponsive, febrile (39.5° C), and acidotic. He required dopamine for blood pressure support. The initial **clozapine** level was 690 ng/mL; additional levels were 710 ng/mL (unknown time) and 454 ng/mL (7 hours after the first level). The family suggested the patient may not have been compliant with his medication regimen and had taken an entire week's supply just before the clinic visit. On the second day of hospitalization the patient developed diabetes insipidus and his electroencephalogram showed no brain activity; all life support was discontinued.

Case 649. A 30-year-old man with human immunodeficiency virus (HIV) was found unresponsive at his home about 1 hour after ingesting a euthanasia mixture for dogs containing 390 mg of **pentobarbital**. The patient had also taken **phenytoin**. Dopamine was given for blood pressure support and activated charcoal was administered after intubation. The patient remained unresponsive with fixed and dilated pupils. He died 16 hours after the ingestion. The phenytoin level was found to have been 9.4 μ g/mL.

Case 697. A 26-year-old man with a history of mental retardation was brought to the ED for extreme agitation. His medications included therapeutic **thioridazine**, valproic acid, insulin, and benzotropine. His urine was positive for phencyclidine and amphetamine (thought to represent false positives because the results were not confirmed). He was given **haloperidol** for his agitation. He seemed less agitated but a few days later received another dose of haloperidol as well as a dose of lorazepam for agitation. On the seventh hospital day, the patient developed a temperature of 41.4° C and became unresponsive. He received dantrolene but remained unresponsive although hemodynamically stable. While his CPK level was 55,000 U/L, he maintained good urine output and normal BUN and creatinine levels with intravenous hydration. Approximately 40 hours after the onset of the initial fever, the patient's temperature reached 42.8° C. He died later that day.

Case 707. A 25-year-old man was arrested by police and collapsed in the holding cell. The patient was a suspected **cocaine** dealer. He was found with blood coming from his mouth and in cardiorespiratory arrest. Intermittent ventricular tachycardia was responsive to lidocaine. Activated charcoal was also instilled. He remained comatose with continued seizure activity which was

treated with lorazepam; CT of the head showed cerebral edema. Four days after presentation an electroencephalogram confirmed brain death and life support was removed.

Case 712. A 29-year-old man complained about pain behind the eyes while smoking **crack cocaine**. He then experienced multiple discrete convulsions. Upon arrival of the paramedics, the patient was seizing and shortly thereafter developed ventricular fibrillation. On presentation to the ED he was still in cardiac arrest. Resuscitation continued and his condition stabilized. However, in the cardiac care unit the patient again suffered a cardiac arrest. Dialysis was required for the treatment of acute tubular necrosis secondary to rhabdomyolysis. Approximately 29 hours after admission the patient developed hypotension and bradycardia, then died despite attempted resuscitation. Postmortem examination determined the cause of death to be cocaine overdose, with a blood cocaine level of 5.34 μ g/mL and a benzoylecgonine level of 6.5 μ g/mL. A clear, ruptured thin-walled plastic bag was found in the stomach.

Case 725. A 29-year-old man had used **crack cocaine** for a 5-day period. He did not eat during this time. He had also ingested 176 tablets of **acetaminophen**. He presented to the ED complaining of vomiting and back pain. Initial acetaminophen level was 143 μ g/mL; his AST level was 3,128 U/L and ALT level was 3,620 U/L. *N*-acetylcysteine was initiated. The patient developed gastrointestinal bleeding, metabolic acidosis and pulmonary hemorrhage and died 12 hours after admission.

Case 744. A 38-year-old woman was found unresponsive at home with 40 tablets of **fenfluramine** missing. The patient was transported to the ED in cardiac arrest. Pill fragments were found in the gastric aspirate. She had a supraventricular tachycardia and severe acidosis unresponsive to CPR, 400 mEq of sodium bicarbonate, and lorazepam.

Case 768. A 31-year-old man was "acting bizarrely." During apprehension by the police, he sustained a cardiac arrest. He had a history of **heroin** and **methamphetamine** abuse and had intentionally overdosed on these drugs. When the paramedics arrived the patient was apneic and pulseless. After resuscitation, the patient was comatose with a blood pressure of 152/79 mm Hg, a heart rate of 71 beats/min, and a temperature of 37.7° C. His CPK level on the day after admission was 134,000 U/L; he later developed diabetes insipidus. He had brain stem function only, and was therefore extubated and died on the fourth hospital day.

Case 770. A 18-year-old man with a history of drug abuse was in custody. He appeared "shaky, euphoric, and agitated" to the jail staff. He suddenly became unresponsive and displayed abnormal posturing of upper and lower extremities. While having a seizure, he spat out a plastic wrapper containing **methamphetamine**. In the ED his vital signs were: heart rate, 160 beats/min; temperature, 42.2° C; and blood pressure, 140/40 mm Hg. He underwent intubation, sedation, and cooling measures. Therapy included urinary alkalinization and whole bowel irrigation. The next day his CPK level had increased to 55,000 U/L. He died of multiple organ failure 8 days after ingestion.

Case 775. A 40-year-old man presented to the ED with uncontrollable shaking. He stated that he had consumed two beers and that someone had put something into his drink. Vital signs in the ED included: temperature, 42.2° C; heart rate, 160 beats/min; and blood pressure, 96/50 mm Hg. Thirty minutes after arrival he began having hallucinations, followed by tonic-clonic activity. The patient was sedated, paralyzed, and intubated. His sodium level was 154 mEq/L, potassium was 5.8 mEq/L, and bicarbonate was 16 mEq/L. Urine drug screen was positive for amphetamines; the CPK level was 31,729 U/L. The patient's course was marked by hypotension, hypoglycemia, coagulopathy, worsening acidosis, and oliguria. He died the next day. Postmortem examination found a blood **methamphetamine** concentration of 18 μ g/mL.