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2009 Annual Report of the American Association of Poison Control Centers' National Poison Data System (NPDS): 27th Annual Report

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Abstract

Background: This is the 27th Annual Report of the American Association of Poison Control Centers' (AAPCC) National Poison Data System (NPDS). As of 1 July 2009, 60 of the nation's 60 US poison centers (PCs) uploaded case data automatically. The upload time was 19.9 [9.7, 58.7] (median [25%, 75%]) minutes, creating a near real-time national exposure and information database and surveillance system.

Methodology: We analyzed the case data tabulating specific indices from NPDS. The methodology was similar to that of previous years. Where changes were introduced, the differences are identified. Poison center cases with medical outcomes of death were evaluated by a team of 29 medical and clinical toxicologist reviewers using an ordinal scale of 1-6 to determine Relative Contribution to Fatality (RCF) of the exposure to the death.

Results: In 2009, 4,280,391 calls were captured by NPDS: 2,479,355 closed human exposures, 116,408 animal exposures, 1,677,403 information calls, 6,882 human confirmed nonexposures, and 343 animal confirmed nonexposures. The top 5 substance classes most frequently involved in all human exposures were analgesics (11.7%), cosmetics/personal care products (7.7%), household cleaning substances (7.4%), sedatives/hypnotics/antipsychotics (5.8%), and foreign bodies/toys/miscellaneous (4.3%). Analgesic exposures as a class increased the most rapidly (12,494 calls per year) over the last decade. The top 5 most common exposures in children age 5 or less were cosmetics/personal care products (13.0%), analgesics (9.7%), household cleaning substances (9.3%), foreign bodies/toys/miscellaneous (7.0%), and topical preparations (6.8%). Drug identification requests comprised 63.0% of all information calls. NPDS documented 1,544 human exposures resulting in death with 1,158 human fatalities judged related with an RCF of 1-Undoubtedly responsible, 2-Probably responsible, or 3-Contributory.

Conclusions: Unintentional and intentional exposures continue to be a significant cause of morbidity and mortality in the US. The near real-time, always current status of NPDS represents a national public health resource to collect and monitor US exposure cases and information calls. The continuing mission of NPDS is to provide a nationwide infrastructure for public health surveillance for all types of exposures, public health event identification, resilience response and situational awareness tracking. NPDS is a model system for the nation and global public health.

WARNING: Comparison of exposure or outcome data from previous AAPCC Annual Reports is problematic. In particular, the identification of fatalities (attribution of a death to the exposure) differed from pre-2006 Annual Reports (see Fatality Case Review – Methods). Poison center death cases are described as all cases resulting in death and those determined to be exposure-related fatalities. Likewise, Table 22 (Exposure Cases by Generic Category) since year 2006 restricts the breakdown including deaths to single-substance cases to improve precision and avoid misinterpretation.

Introduction

This is the 27th Annual Report of the American Association of Poison Control Centers' (AAPCC; http://www.aapcc.org) National Poison Data System (NPDS). [1] On 1 January 2009, Sixty-one regional Poison Centers (PCs) serving the entire population of the 50 United States, American Samoa, District of Columbia, Federated States of Micronesia, Guam, Puerto Rico, and the US Virgin Islands submitted information and exposure case data collected during the course of providing telephonic patient tailored exposure management. On 30 June 2009, The DeVos Children's Hospital Regional Poison Center, Grand Rapids, Michigan, serving upper Michigan ceased operation. Michigan is now served by one poison center. During this transition national coverage remained seamless. Data is compiled by the American Association of Poison Control Centers' (AAPCC) National Poison Data System (NPDS). PCs place emphasis on exposure management, accurate data collection and coding, and the continuing need for poison related public and professional education. The centers' health care professionals are available free of charge to all, 24-hours a day, every day of the year. PCs respond to questions from the public, health care professionals, and public health agencies. The continuous staff dedication at the regional PCs is manifest as the number of exposure and information calls exceeds 4.2 million annually. Calls to PCs either involve an exposed human or animal (EXPOSURE CALL) or a request for information (INFORMATION CALL) with no exposed person or animal.

What's New in NPDS and the Annual Report

Several enhancements were made to the tables and figures in this 27th Annual Report. Continuing goals of the writing team have been to remove inconsistencies, improve the reader's ability to clearly understand the data, and provide additional data where appropriate. Achievement of these goals has been exemplified by the new version of Table 22 that was introduced with the 2006 Annual Report and last year's corrections for clarity to the age labels in all tables (described below). The improvements made to the tables and figures are listed below:

Tables

Five new tables (16B, 17B, 17E, 17F, and 19B) have been added to provide additional information on decontamination trends, change of substance exposure rates over time, pediatric exposures, information calls, and deaths. Table 16B - Decontamination Trends: Total Human and Pediatric Exposures $\leq$5 Years (2009) provides decontamination trends for 2009 for all exposures and pediatric exposures. Tables 17B, 17E and 17F expand the Table 17 series. Table 17B - Substance Categories with the Greatest Rate of

Exposure Increase (Top 25), identifies changes in the year over year rate of substances involved in exposures. Table 17E - Substance Categories Most Frequently Involved in Pediatric (≤5 years) Deaths, provides information related to substances associated with pediatric deaths. Table 17F - Substance Categories Most Frequently Identified in Drug Identification Calls (Top 25), provides information related to the substances that triggered drug identification (Drug ID) calls to the centers. Table 19B - Comparisons of Death Data (2006-2009), provides a breakdown of deaths, suicides and pediatric deaths based on the source of the case, either death or death, indirect report. (Death cases that are directly reported to PCs are classified as direct cases and cases that are identified through other sources such as news feeds or medical examiner data, but did not manage nor answer any questions about are classified as death, indirect report.)

For 2009, the population served has been corrected for 2009 in Table 1A - Growth of the AAPCC Population Served and Exposure Reporting (1983-2009) to include all 50 United States, American Samoa, District of Columbia, Federated States of Micronesia, Guam, Puerto Rico, and the US Virgin Islands. [2–6].

This year, further enhancements for clarity were made to the age labels in the summary tables. All major age brackets were conformed to the following major categories: ≤5 years, 6 – 12 years, 13 – 19 years, ≥ 20 years, Unknown Adult, Unknown Child and Unknown Age. Last year the ≥ 20 years age bracket included ≥ 20 years and Unknown Adult and the Unknown Age bracket included Unknown Child and Unknown Age. Starting this year, these age brackets were reported separately for Table 6B, Table 7, Table 8, Table 11, Table 15, and Table 22. Separation of the age brackets did not affect the total data reported. Also, it is important to note that NPDS age values may only be integers. So recorded age cannot be 5½ or 20½, they are recorded as 5 or 20 respectively.

Additional information has been added to 10 existing tables. Raw data counts were added to the existing percentages for Table 2 and Table 13. For each route on Table 9 a percentage of cases was provided in addition to the previously provided data. Table 5 which displays the number of substances involved in human exposure cases has been extended to include the number of substances for fatality cases. The Table 17 series has historically provided information related to the number of substances reported. A case may involve more than one substance and may, therefore, contribute to more than one count in the Table 17 series tables reported previously. This year the Table 17 series tables contain additional information related to those cases that involve only one substance. Both the raw counts for single-substance cases and the percentage of single-substance cases have been added to Table 17A, 17C, 17D and 17E.

This year, Table 21 lists human exposures with medical outcome of death or death, indirect report regardless of RCF score. Cases are denoted by their Annual Report ID for ease of case retrieval. Pregnancy status is clearly indicated in the report layout although there were no reports of death involving a pregnant patient this year. The Fatality Review process continued with the new system introduced in 2007. However, the fatality case selection process for narrative publication excluded cases with medical outcome of death, indirect report for the last 2 years.

Additionally, the calculations and column headings in several tables have been enhanced this year. These table columns are defined as follows:

Table 4

This table counts the number of human exposure cases that resulted in the outcome of death or death, indirect. This report indicates that there were 21 pediatric fatality cases where the substances were determined to have contributed to the death where the patient was ≤5 yrs old.

Table 17 (A, C, D, E)

All substances column – This column displays the number of substances that were related to any human exposure case regardless of the Relative Contribution to Fatality value. This was the only column in previous reports.

Single substance exposures column – This column, added this year, displays the number of human exposure cases that had one substance (one case, one substance) regardless of Relative Contribution to Fatality.

We have replaced the term All Mentions with the more descriptive term, All Substances, meaning each total category count includes every substance from every exposure that belongs in that category. Thus all substances are counted from every exposure in the 2009 database.

Table 17B & Figure 5

Table 17B (new this year) reports the 25 categories which were increasing the most rapidly over the last 10 years. Figure 5 shows the linear regressions for the top 4 categories. As 17B provides the complimentary data to Table 17A, we numbered it 17B and renumbered 17B-D as 17C-E.

Table 17F

Table 17F (new this year) reports the 25 most frequent categories of drugs identified in 2009.

Table 18

All substances column - This column displays the number of substances that were related to any human exposure case that was determined to be undoubtedly responsible,

probably responsible or contributory by the AAPCC review team. This was the only column in previous reports.

Single substance exposures column – This column (new this year) displays the number of human exposure cases that had one substance (one case, one substance) AND was determined to be undoubtedly responsible, probably responsible or contributory by the AAPCC fatality review team.

Table 22

Although Table 22 calculations have not changed since 2006, the column headings have changed:

Column 1: All Exposures displays the number of times the specific generic code was reported in all human exposure cases. If a human exposure case has multiple instances of a specific generic code it is only counted once.

Column 2: Single substance exposures column – This column was previously named 'No. of Single Exposures' and was renamed this year for clarity displays the number of human exposure cases that had one substance (one case, one substance). The succeeding columns (Age, Reason, Treatment Site, and Outcome) show selected detail from these single-substance exposure cases. Death cases are only those that had a relative contribution to fatality of 1-undoubtedly responsible, 2-probably responsible or 3-contributory.

Figures

Second order (quadratic) least squares regression for 2000-2009 has been included and shows a statistically significant departure from linearity (declining rate of increase) for Human Exposure Calls, Information Calls, Animal Exposure Calls. All Drug ID Calls and Law Enforcement Drug ID Calls are increasing at an increasing rate (Figures 1 and 2). This year we added Figure 3 , a graphic summary and analyses of Health Care Facility (HCF) Exposure Calls (increasing linearly) and HCF Information Calls (rate is declining since 2005).

The NPDS Application

In 2009, numerous enhancements were introduced in the NPDS web-based application. Many of these focused on surveillance and are described in the Surveillance Section. Others were primarily focused on extending the enterprise reporting tools available for extracting and analyzing the data. Fourteen reports that provide system usage information were added. These reports identify a variety of information about the user community such as identifying the most popular enterprise reports.

The Case Log Reports were extended to include additional parameters including Clinical Effects. Results can now be displayed as aggregated counts, time series graphs (line and bar), US Map, or the traditional case listing. The user may also select the specific data that is included for each case in the usual case listing. Previously the NPDS reports were restricted to a single calendar year. Twenty-eight reports were modified to allow the user to run the report for any time period between 1 January 2000 and the current date. In order to assist the user with selecting the appropriate generic codes and/or product codes for a specific report, 2 new functions were added to the NPDS system. These functions display the generic codes and product codes in a classification tree hierarchy with major and minor generic code categories. This eliminates the need for the user to manually enter a list of generic or product codes and reduces typographical errors. Finally, a new data quality report was introduced that can be performed for an individual PC or nationally. The results of this report provide insight into how NPDS data quality can be maintained and improved. Additional information is also provided by the 2 new Case Log Counts reports. These reports allow the user to extract distributions for a user defined data item such as medical outcome. The user is allowed to define up to 16 different parameters to filter the cases for the result stratification desired. For example, a user may request case counts by medical outcome for exposure cases that involved female patients in their 30s.

NPDS aggregate and case detail web services operate continuously, allowing external systems or viewers to analyze NPDS data in ways not otherwise possible in the NPDS application. The aggregate web service provides total call volume, human exposure call volume, or clinical effects counts allowing an external system such as RODS (Real-time Outbreak and Disease Surveillance, University of Pittsburgh, Department of Biomedical Informatics) to create time-series. Unique to NPDS, the aggregate case count web service is not only accessible by external computer systems but also directly by system users to create their own time series without the need for external system software. Two state health departments utilize the case detail web service to analyze data from their PCs. Four state health departments access the aggregate count web service for data. The web services allow NPDS data to be provisioned in a federated manner where the data is always current in NPDS and can be readily accessed as needed without the need for costly cloning and warehousing.[7]

Limitations and Plans

As outlined above, the exposure reports and information questions which comprise NPDS are collected from the spontaneous, self-reported calls made to the US PCs. These reflect the limitations of this type of reporting system (see

DISCLAIMER). The current AAPCC generic code system categorizes combination products in most cases by their active ingredients and tables are ordered by these groupings. Thus our current review and reporting methods do not distinguish between the individual components of a combination product.

Nonetheless the scope and immediacy of these data have much to offer. In particular the 27 year history offers a unique opportunity to assess the long term (secular) trends in exposures and information calls.

There are a number of plans to improve the data system and reporting for 2009 and beyond including:

- Enhancements to NPDS Real-time geographic information system (GIS) with more data display options for appropriate data analyses;
- Improvements in data quality edits;
- Security paradigm enhancements to support product specific product access for reports and surveillance;
- Aggregate enterprise report modifications to span multiple years or parts of years;
- Enterprise report enhancements;
- New auto-upload requirements and improved solution;
- Lexicon based analysis of the current generic code system to better meet current exposure tracking and surveillance needs.

These and other initiatives are under continuous review by the AAPCC Board, NPDS Steering Committee, and CDC.

METHODS

Characterization of Participating Poison Centers (PCs)

61 participating centers submitted data to AAPCC through 30 June 2009, with the total center count decreasing to 60 for the remainder of 2009. Fifty-seven centers (95%) were accredited by AAPCC as of 1 July 2009. The entire population of the 50 states, American Samoa, the District of Columbia, Federated States of Micronesia, Guam, Puerto Rico, and the US Virgin Islands was served by the US PC network in 2009.

The average number of human exposure cases managed per day by all US PCs was 6,793. Similar to other years, higher volumes were observed in the warmer months, with a mean of 7,118 cases per day in June compared with 6,584 per day in January. On average, US PCs received a call about a suspected or actual human exposure every 12.7 seconds.

Call Management – Specialized Poison Exposure Emergency Providers

Most PC operations management, clinical education, and instruction are directed by Managing Directors (most are PharmDs and RNs with American Board of Applied Toxicology [ABAT] board certification). Medical direction is provided by Medical Directors who are board-certified physician medical toxicologists. At some PCs, the Managing and Medical Director positions are held by the same person.

Calls received at US PCs are managed by healthcare professionals who have received specialized training in toxicology and managing exposure emergencies. These providers include medical and clinical toxicologists, registered nurses, doctors of pharmacy, pharmacists, chemists, hazardous materials specialists, and epidemiologists. Specialists in Poison Information (SPIs) are primarily registered nurses, PharmDs, and pharmacists. They work under the supervision of a Certified Specialist in Poison Information (CSPI). SPIs must log a minimum of 2,000 calls over a 12 month period to become eligible to take the CSPI examination for certification in poison information. Poison Information Providers (PIPs) are allied healthcare professionals. They manage information-type and low acuity (non-hospital) calls and work under the supervision of a CSPI. Of note is the fact that no nursing or pharmacy school offers a toxicology curriculum designed for PC work and SPIs must be trained in programs offered by their respective PC. Centers are accredited by the AAPCC meeting strict standards and must be reaccredited every 5 years.

NPDS – Near Real-time Data Capture

Launched on 12 April 2006, NPDS is the data repository for all of the US regional PCs. In 2009, 61 of the 61 US PCs uploaded case data automatically to NPDS through 30 June 2009. The center count decreased to 60 as of 30 June 2009. All centers submitted data in near real-time making NPDS one of the few operational systems of its kind. PC staff record calls contemporaneously in 1 of 4 case management systems. Each center uploads case data periodically as it is entered. The time to upload data for all PCs is 19.9 [9.7, 58.7] (median [25%, 75%]) minutes creating a real-time national exposure database and surveillance system.

The web-based NPDS software facilitates querying, reporting and a myriad of surveillance uses allowing AAPCC, its member centers and public health agencies to utilize US exposure data. Users are able to access local and regional data for their own areas and view national aggregate data. The application allows for increased ''drill-down'' capability and mapping via a geographic information system (GIS). Custom surveillance definitions are available along with ad hoc reporting tools. Information in the NPDS database is dynamic. Each year the database is locked prior to extraction of annual report data to prevent inadvertent changes and ensure consistent, reproducible reports. The 2009 database was locked on 1 October 2010 at 1700 hours EDT.

Annual Report Case Inclusion Criteria

The information in this report reflects only those cases that are not duplicates and classified by the regional PC as CLOSED. A case is closed when the PC has determined that no further follow-up/recommendations are required or no further information is available. Exposure cases are followed to obtain the most precise medical outcome possible. Depending on the case specifics, most calls are ''closed'' within the first hours of the initial call. Some calls regarding complex hospitalized patients or cases resulting in death may remain open for weeks or months while data continues to be collected. Follow-up calls provide a proven mechanism for monitoring the appropriateness of management recommendations, augmenting patient guidelines and providing poison prevention education, enabling continual updates of case information as well as obtaining final/known medical outcome status to make the data collected as accurate and complete as possible.

Statistical Methods

All tables except the new Table 17B were generated directly by the NPDS web-based application and can thus be reproduced by any AAPCC member. The Figures and Table 17B statistics were created using SAS JMP version 6.0.0 (SAS Institute, Cary, NC).

NPDS Surveillance

As previously noted, all of the active US PCs upload case data automatically to NPDS. This unique near real-time upload is the foundation of the NPDS surveillance system. This makes possible both spatial and temporal case volume and case based surveillance. NPDS software allows creation of volume and case based definitions. Definitions can be applied to national, regional, state, or ZIP code coverage areas. Geocentric definitions can also be created. This functionality is available not only to the AAPCC surveillance team, but to every regional PC. PCs also have the ability to share NPDS real-time surveillance technology with external organizations such as their state and local health departments or other regulatory agencies. Another NPDS feature is the ability to generate system alerts on adverse drug events and other products of public health interest like contaminated food or product recalls. NPDS can thus provide real-time adverse event monitoring and surveillance for resilience response and situational awareness.

Surveillance definitions can be created to monitor a variety of volume parameters, any desired substance or commercial product in the product database (Micromedex® Healthcare Series [Internet database]. Greenwood Village, CO: Thomson Reuters [Healthcare] Inc.). The database contains over 360,000 entries, or case based definitions using a variety of mathematical options and historical baseline periods from 1 to 10 years. NPDS surveillance tools include:

Volume Alerts Surveillance Definitions
- Total Call Volume
- Human Exposure Call Volume
- Clinical Effects Volume (signs and symptoms, or laboratory abnormalities)

Case Based Surveillance Definitions
- Substance
- Clinical Effects
- Various NPDS data fields linked in Boolean expressions

Incoming data is monitored continuously and anomalous signals generate an automated email alert to the AAPCC's surveillance team or designated regional PC or public health agency. These anomaly alerts are reviewed daily by the AAPCC surveillance team and/or the regional PC that created the surveillance definition. When reports of potential public health significance are detected, additional information is obtained via e-mail or phone from reporting PCs. The regional PC then alerts their respective affected state or local health departments. Public health issues are brought to the attention of the National Center for Environmental Health – Health Studies Branch at the Centers for Disease Control and Prevention (CDC). This unique near real-time tracking ability is a unique feature offered by NPDS and the regional PCs.

AAPCC Surveillance Team clinical and medical toxicologists review surveillance definitions on a regular basis to fine-tune the queries. CDC, as well as State and local health departments with NPDS access as granted by their respective regional PCs, also have the ability to create surveillance definitions to respond to emerging public health events.

Fatality Case Review and Abstract Selection

NPDS fatality cases can be recorded as either DEATH or DEATH, INDIRECT REPORT. Medical outcome of death is by direct report. Death, indirect report are deaths that the PC acquired from medical examiners or media, but did not manage nor answer any questions about the death.

Although PCs may report DEATH as an outcome, the death may not be the direct result of the exposure. We define exposure-related fatality as a death judged by the AAPCC Fatality Review Team to be at least contributory to the exposure. The definitions used for the Relative Contribution to Fatality (RCF) classification are defined in Appendix B and the methods to select abstracts for publications is described in Appendix C. For details of the AAPCC fatality review process, see the 2008 annual report.[1]

RESULTS

2009 Case Summary

In 2009, the participating PCs logged 4,280,391 total cases including 2,479,355 closed human exposure cases (Table 1A), 116,408 animal exposures (Table 1B), 1,677,403 information calls (Table 1C), 6,882 human confirmed nonexposures, and 343 animal confirmed nonexposures. An additional 1,990 calls were still open at the time of database lock. The cumulative AAPCC database now contains nearly 51 million human exposure case records (Table 1A). A total of 13,010,466 information calls have been logged by NPDS since the year 2000.

Figure 1 shows the human exposures, information calls and animal exposures by day since 2000. Second order (quadratic) least squares regression for 2000-2009 has shown a statistically significant departure from linearity (declining rate of calls since mid-2007) for Human

Table 1A. Growth of the AAPCC Population Served and Exposure Reporting (1983–2009)

Year	No. of participating centers	Population served (in millions)	Human exposures	Exposures per thousand population
1983	16	43.1	251,012	5.8
1984	47	99.8	730,224	7.3
1985	56	113.6	900,513	7.9
1986	57	132.1	1,098,894	8.3
1987	63	137.5	1,166,940	8.5
1988	64	155.7	1,368,748	8.8
1989	70	182.4	1,581,540	8.7
1990	72	191.7	1,713,462	8.9
1991	73	200.7	1,837,939	9.2
1992	68	196.7	1,864,188	9.5
1993	64	181.3	1,751,476	9.7
1994	65	215.9	1,926,438	8.9
1995	67	218.5	2,023,089	9.3
1996	67	232.3	2,155,952	9.3
1997	66	250.1	2,192,088	8.8
1998	65	257.5	2,241,082	8.7
1999	64	260.9	2,201,156	8.4
2000	63	270.6	2,168,248	8.0
2001	64	281.3	2,267,979	8.1
2002	64	291.6	2,380,028	8.2
2003	64	294.7	2,395,582	8.1
2004	62	293.7	2,438,643	8.3
2005	61	296.4	2,424,180	8.2
2006	61	299.4	2,403,539	8.0
2007	61	305.6	2,482,041	8.1
2008	61	304.1	2,491,049	8.2
2009	60[a]	311.4[b]	2,479,355	8.0
Total			**50,935,385**	

[a]As of 1 July 2009 there were 60 Participating Centers.
[b]As of 1 July 2009 Mid Year US Census (50 United States, American Samoa, District of Columbia, Federated States of Micronesia, Guam, Puerto Rico, and the US Virgin Islands).

Table 1B. Non-Human Exposures by Animal Type

Animal	N	%
Dog	105,470	90.60
Cat	9,551	8.20
Bird	326	0.28
Rodent/lagomorph	318	0.27
Horse	282	0.24
Cow	81	0.07
Sheep/goat	71	0.06
Aquatic	20	0.02
Other	289	0.25
Total	**116,408**	**100.00**

Table 1C. Distribution of Information Calls

Information call type	N	% of Info.calls
Drug identification		
Public inquiry: Drug sometimes involved in abuse	509,177	30.36
Public inquiry: Drug not known to be abused	222,625	13.27
Public inquiry: Unknown abuse potential	8,579	0.51
Public inquiry: Unable to identify	103,616	6.18
HCP inquiry: Drug sometimes involved in abuse	9,365	0.56
HCP inquiry: Drug not known to be abused	16,701	1.00
HCP inquiry: Unknown abuse potential	607	0.04
HCP inquiry: Unable to identify	6,926	0.41
Law Enf. Inquiry: Drug sometimes involved in abuse	101,330	6.04
Law Enf. Inquiry: Drug not known to be abused	54,191	3.23
Law Enf. Inquiry: Unknown abuse potential	2,004	0.12
Law Enf. Inquiry: Unable to identify	16,327	0.97
Other drug ID	6,184	0.37
Subtotal	**1,057,632**	**63.05**
Drug information		
Adverse effects (no known exposure)	15,149	0.90
Brand/generic name clarifications	4,651	0.28
Calculations	246	0.01
Compatibility of parenteral medications	212	0.01
Compounding	875	0.05
Contraindications	2,050	0.12
Dietary supplement, herbal, and homeopathic	895	0.05
Dosage	15,925	0.95
Dosage form/formulation	3,457	0.21
Drug use during breast-feeding	5,161	0.31
Drug-drug interactions	32,995	1.97

(*continued*)

Table 1C. (*Continued*)

Information call type	N	% of Info.calls
Drug-food interactions	1,925	0.11
Foreign drug	898	0.05
Generic substitution	2,069	0.12
Indications/therapeutic use	80,418	4.79
Medication administration	6,351	0.38
Medication availability	9,598	0.57
Medication disposal	4,367	0.26
Pharmacokinetics	2,720	0.16
Pharmacology	2,307	0.14
Regulatory	6,361	0.38
Stability/storage	3,684	0.22
Therapeutic drug monitoring	769	0.05
Other drug info	36,860	2.20
Subtotal	**239,943**	**14.30**
Environmental information		
Air quality	2,029	0.12
Carbon monoxide - no known patient(s)	977	0.06
Carbon monoxide alarm use	485	0.03
Chem/bioterrorism/weapons (suspected or confirmed)	13	0.00
Clarification of media reports of environmental contamination	24	0.00
Clarification of substances involved in a HAZMAT incident - no known victim(s)	96	0.01
General questions about contamination of air and/or soil	590	0.04
HAZMAT planning	147	0.01
Lead - no known patient(s)	781	0.05
Mercury thermometer cleanup	3,999	0.24
Mercury (excluding thermometers) cleanup	3,632	0.22
Notification of a HAZMAT incident - no known patient(s)	416	0.02
Pesticide application by a professional pest control operator	605	0.04
Pesticides (other)	2,856	0.17
Potential toxicity of chemicals in the environment	1,445	0.09
Radiation	101	0.01
Safe disposal of chemicals	1,928	0.11
Water purity/contamination	774	0.05
Other environmental	5,684	0.34
Subtotal	**26,582**	**1.58**
Medical information		
Dental questions	168	0.01
Diagnostic or treatment recommendations for diseases or conditions - non-toxicology	15,392	0.92
Disease prevention	4,965	0.30
Explanation of disease states	3,041	0.18
General first-aid	1,731	0.10
Interpretation of non-toxicology laboratory reports	145	0.01
Medical terminology questions	105	0.01
Rabies - no known patient(s)	313	0.02
Sunburn management	147	0.01
Other medical	53,921	3.21
Subtotal	**79,928**	**4.76**
Occupational information		
Occupational treatment/first-aid guidelines - no known patient(s)	63	0.00
Information on chemicals in the workplace	160	0.01
MSDS interpretation	67	0.00
Occupational MSDS requests	1,354	0.08
Routine toxicity monitoring	30	0.00
Safe handling of workplace chemicals	114	0.01
Other occupational	237	0.01
Subtotal	**2,025**	**0.12**
Poison information		
Analytical toxicology	854	0.05
Carcinogenicity	109	0.01
Food poisoning - no known patient(s)	3,734	0.22
Food preparation/handling practices	7,822	0.47
General toxicity	35,530	2.12
Mutagenicity	85	0.01
Plant toxicity	4,767	0.28
Recalls of non-drug products (including food)	1,291	0.08
Safe use of household products	3,948	0.24
Toxicology information for legal use/litigation	246	0.01
Other poison	19,141	1.14
Subtotal	**77,527**	**4.62**
Prevention/Safety/Education		
Confirmation of poison center number	15,498	0.92
General (non-poison) injury prevention requests	737	0.04
Media requests	293	0.02
Poison prevention material requests	14,734	0.88
Poison prevention week date inquiries	79	0.00
Professional education presentation requests	457	0.03
Public education presentation requests	699	0.04
Other prevention	1,492	0.09
Subtotal	**33,989**	**2.03**
Teratogenicity information		
Teratogenicity	3,738	0.22
Subtotal	**3,738**	**0.22**
Other information		
Other	49,176	2.93
Subtotal	**49,176**	**2.93**
Substance Abuse		

(*continued*)

Table 1C. (*Continued*)

Information call type	N	% of Info.calls

(*continued*)

Table 1C. (*Continued*)

Information call type	N	% of Info.calls
Drug screen information	8,133	0.48
Effects of illicit substances - no known patient(s)	348	0.02
New trend information	245	0.01
Withdrawal from illicit substances - no known patient(s)	260	0.02
Other substance abuse	1,046	0.06
Subtotal	**10,032**	**0.60**
Administrative		
Expert witness requests	36	0.00
Faculty activities	64	0.00
Funding	83	0.00
Personnel issues	491	0.03
Poison center record request	150	0.01
Product replacement/malfunction (issues intended for the manufacturer)	2,336	0.14
Scheduling of poison center rotations	148	0.01
Other administration	21,200	1.26
Subtotal	**24,508**	**1.46**
Caller Referred		
Immediate referral - animal poison center or veterinarian	16,798	1.00
Immediate referral - drug identification	16,094	0.96
Immediate referral - drug information	1,292	0.08
Immediate referral - health department	7,571	0.45
Immediate referral - medical advice line	1,225	0.07
Immediate referral - pediatric triage service	75	0.00
Immediate referral - pesticide hotline	367	0.02
Immediate referral - pharmacy	3,302	0.20
Immediate referral - poison center	4,677	0.28
Immediate referral - private physician	3,215	0.19
Immediate referral - psychiatric crisis line	151	0.01
Immediate referral - teratology information program	116	0.01
Other call referral	17,440	1.04
Subtotal	**72,323**	**4.31**
Total	**1,677,403**	**100.00**

Exposure Calls. Information Calls are showing a declining rate of increase and Animal Exposure Calls have been declining since mid-2005.

A hallmark of PC case management is the use of follow-up calls to monitor case progress and medical outcome. US PCs made 2,814,502 follow-up calls in 2009. Follow-up calls were done in 44.4% of human exposure cases. One follow-up call was made in 21.7% of human exposure cases, and multiple follow-up calls (range 2-128) were placed in 22.7% of cases.

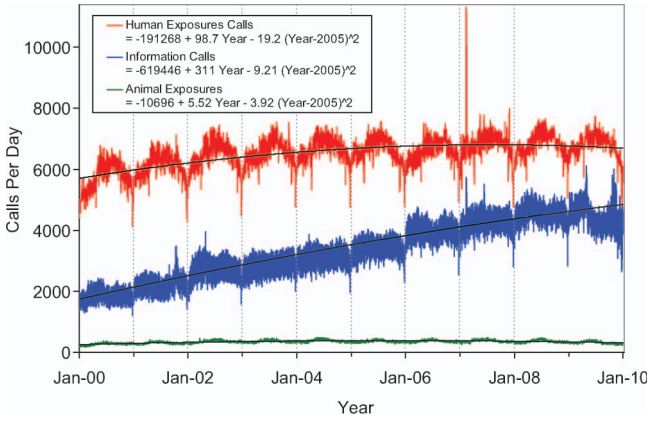

Fig. 1. Human Exposure Calls, Information Calls, and Animal Exposure Calls by Day since 1 January 2000.

Black lines show least-squares second order regression – both linear and second order (quadratic) terms were statistically significant for each of the 3 regressions.

Information Calls to Poison Centers (PCs)

Data from 1,677,403 information calls to PCs in 2009 (Table 1C) was transmitted to NPDS, including calls in optional reporting categories such as prevention/safety/education (33,989), administrative (24,508) and caller referral (72,323).

Second order (quadratic) least squares regression for All Drug ID Calls also showed a declining rate of increase for these calls, whereas, Law Enforcement Drug ID Calls are increasing at an increasing rate (Figure 2). The most frequent information call was for Drug ID, comprising 1,057,632 calls to PCs during the year. Of these, 126,869 (12.0%) could not be identified over the telephone. The majority of the Drug ID calls were received from the public, followed by law enforcement and health professionals. Most of the Drug ID requests from the public and law enforcement were regarding drugs sometimes involved in abuse; however, these cases were categorized based on the drug's abuse potential without knowledge of whether abuse was actually intended.

Drug information calls increased 4.3% from 2008 (230,084 calls) to 2009 (239,943) and comprised 14.3% of all information request calls. Of these, the most common requests were in regards to therapeutic use and indications, followed by drug-drug interactions, questions about dosage and inquiries of adverse effects. Environmental inquiries comprised 1.6% of all information calls. Of these environmental inquiries, questions related to cleanup of mercury (thermometers and other) remains the most common followed by questions involving pesticides.

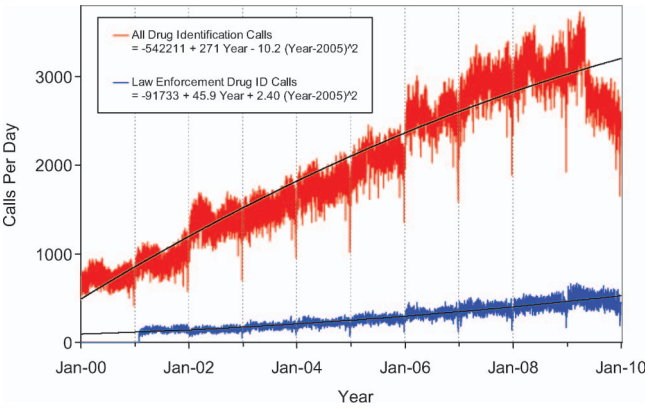

Fig. 2. All Drug Identification and Law Enforcement Drug Identification Calls by Day since 1 January 2000.

Black lines show least-squares second order regression – both linear and second order (quadratic) terms were statistically significant for each of the 2 regressions.

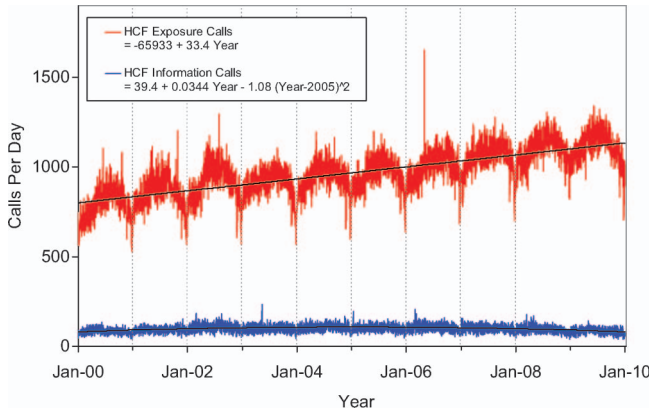

Fig. 3. Health Care Facility (HCF) Exposure Calls and HCF Information Calls by Day since 1 January 2000.

Black lines show least-squares first and second order regressions – linear regression for HCF Exposure Calls (second order term was not statistically significant) and second order regression for HCF Information Calls. All terms shown were statistically significant for each of the 2 regressions.

Of all the information calls, poison information comprised 4.6% of the requests with inquiries involving general toxicity the most common followed by questions involving food preparation practices, plant toxicity and safe use of household products.

Exposure Calls to Poison Centers (PCs)

Figure 3 shows a graphic summary and analyses of Health Care Facility (HCF) Exposure and HCF Information calls. HCF Exposure Calls did not depart from linearity (continued to increase at a steady rate) while the rate of HCF Information Calls has been declining since early 2005. This linearly increasing use of the PCs for the more serious exposures (HCF calls) is important in the face of the declining growth of all exposure and information calls. The 2 May 2006, exposure data spike on the figure was the result of 602 children in a Midwest school reporting a noxious odor which caused anxiety, but resolved without sequalae.

Tables 22A (Nonpharmaceuticals) and 22B (Pharmaceuticals) provide summary demographic data on patient age, reason for exposure, medical outcome, and use of a health care facility for all 2,479,355 human exposure cases, presented by substance categories.

Column 1: All Exposures displays the number of times the specific generic code was reported in all human exposure cases. If a human exposure case has multiple instances of a specific generic code it is only counted once.

Column 2: Single substance exposures column – This column was previously named 'No. of Single Exposures' and was renamed this year for clarity displays the number of human exposure cases that had one substance (one case, one substance). The succeeding columns (Age, Reason, Treatment Site, and Outcome) show selected detail from these single-substance exposure cases. Death cases are only those that had a relative contribution to fatality of 1-undoubtedly responsible, 2-probably responsible or 3-contributory.

Tables 22A and 22B restrict the breakdown columns to single-substance cases. Prior to 2007, when multi-substance exposures were included, a relatively innocuous substance was mentioned in a death column when, for example, the death was attributed to an antidepressant, opioid, or cyanide. This subtlety was not always appreciated by the user of this table. The restriction of the breakdowns to single-substance exposures should increase precision and reduce misrepresentation of the results in this unique by-substance table. Single substance cases reflect the majority (90.4%) of all exposures (Table 5).

Tables 22A and 22B tabulate 2,849,086 substance-exposures, of which 2,241,191 were single-substance exposures including 1,176,304 (52.5%) nonpharmaceuticals and 1,064,887 (47.5%) pharmaceuticals.

In 16.8% of single-substance exposures that involved pharmaceutical substances, the reason for exposure was intentional, compared to only 3.2% when the exposure involved a nonpharmaceutical substance. Correspondingly, treatment in a health care facility was provided in a higher percentage of exposures that involved pharmaceutical substances (26.5%) compared with nonpharmaceutical substances (14.0%). Exposures to pharmaceuticals also had more severe outcomes. Of single-substance exposure-related fatal cases, 497 were pharmaceuticals compared with 221 nonpharmaceuticals.

Age and Gender Distributions

The age and gender distribution of human exposures is outlined in Table 3. Children younger than 3 years were

involved in 38.9% of exposures and children younger than 6 years accounted for just over half of all human exposures (51.9%). A male predominance is found among cases involving children younger than 13 years, but this gender distribution is reversed in teenagers and adults, with females comprising the majority of reported exposures.

Table 2. Site of Call and Site of Exposure, Human Exposure Cases

	Site of caller		Site of exposure	
Site	N	%	N	%
Residence				
Own	1,833,514	73.95	2,260,975	91.19
Other	46,836	1.89	65,126	2.63
Workplace	30,376	1.23	37,478	1.51
Health care facility	407,446	16.43	8,215	0.33
School	12,103	0.49	31,228	1.26
Restaurant/food service	622	0.03	5,834	0.24
Public area	8,452	0.34	22,887	0.92
Other	132,087	5.33	26,449	1.07
Unknown	7,919	0.32	21,163	0.85

Caller Site and Exposure Site

As shown in Table 2, of the 2,479,355 human exposures reported, 75.8% of calls originated from a residence (own or other) but 93.8% actually occurred at a residence (own or other). Another 16.4% of calls were made from a health care facility. Exposures occurred in the workplace in 1.5% of cases, schools (1.3%), health care facilities (0.3%), and restaurants or food services (0.2%).

Exposures in Pregnancy

Exposure during pregnancy occurred in 8,005 women (0.32% of all human exposures). Of those with known pregnancy duration (n = 7,302), 31.5% occurred in the first trimester, 38.0% in the second trimester, and 30.4% in the third trimester. Most (72.6%) were unintentional exposures and 20.3% were intentional exposures. There were no deaths involving pregnant females in 2009.

Table 3. Age and Gender Distribution of Human Exposures

	Male		Female		Unknown gender		Total		Cumulative total	
Age (y)	N	% of age group total	N	% of age group total	N	% of age group total	N	% of total exposures	N	%
Children (<20)										
<1	65,544	51.75	60,669	47.90	452	0.36	126,665	5.11	126,665	5.11
1	211,488	51.89	195,456	47.96	627	0.15	407,571	16.44	534,236	21.55
2	225,233	52.36	204,234	47.48	712	0.17	430,179	17.35	964,415	38.90
3	102,260	55.07	83,043	44.72	394	0.21	185,697	7.49	1,150,112	46.39
4	48,859	56.23	37,821	43.52	219	0.25	86,899	3.50	1,237,011	49.89
5	28,617	56.80	21,585	42.84	180	0.36	50,382	2.03	1,287,393	51.92
Unknown ≤5	1,430	42.17	1,395	41.14	566	16.69	3,391	0.14	1,290,784	52.06
Child 6–12	88,743	58.13	63,091	41.33	821	0.54	152,655	6.16	1,443,439	58.22
Teen 13–19	75,700	46.27	87,404	53.42	511	0.31	163,615	6.60	1,607,054	64.82
Unknown Child	2,359	37.94	2,305	37.07	1,554	24.99	6,218	0.25	1,613,272	65.07
Subtotal	**850,233**	**52.70**	**757,003**	**46.92**	**6,036**	**0.37**	**1,613,272**	**65.07**	**1,613,272**	**65.07**
Adults (≥20)										
20–29	90,385	46.43	104,060	53.46	216	0.11	194,661	7.85	1,807,933	72.92
30–39	65,448	42.97	86,734	56.95	125	0.08	152,307	6.14	1,960,240	79.06
40–49	57,929	41.36	82,030	58.57	107	0.08	140,066	5.65	2,100,306	84.71
50–59	44,504	39.76	67,359	60.18	73	0.07	111,936	4.51	2,212,242	89.23
60–69	25,759	37.41	43,071	62.55	32	0.05	68,862	2.78	2,281,104	92.00
70–79	14,789	35.07	27,369	64.90	15	0.04	42,173	1.70	2,323,277	93.70
80–89	8,894	32.57	18,401	67.38	13	0.05	27,308	1.10	2,350,585	94.81
≥90	1,453	28.98	3,557	70.96	3	0.06	5,013	0.20	2,355,598	95.01
Unknown adult	43,577	39.36	64,285	58.06	2,851	2.58	110,713	4.47	2,466,311	99.47
Subtotal	**352,738**	**41.35**	**496,866**	**58.25**	**3,435**	**0.40**	**853,039**	**34.41**	**2,466,311**	**99.47**
Other										
Unknown age	4,327	33.17	5,702	43.71	3,015	23.11	13,044	0.53	2,479,355	100.00
Total	**1,207,298**	**48.69**	**1,259,571**	**50.80**	**12,486**	**0.50**	**2,479,355**	**100.00**	**2,479,355**	**100.00**

Table 4. Distribution of Age[a] and Gender for Fatalities[b]

Age (y)	Male	Female	Unknown	Total (%)	Cumulative total (%)
<1 year	2	0	0	2 (0.2%)	2 (0.2%)
1 year	3	4	0	7 (0.6%)	9 (0.8%)
2 years	4	3	0	7 (0.6%)	16 (1.4%)
3 years	2	0	0	2 (0.2%)	18 (1.6%)
4 years	0	1	0	1 (0.1%)	19 (1.6%)
5 years	1	1	0	2 (0.2%)	21 (1.8%)
Child 6–12 years	5	5	0	10 (0.9%)	31 (2.7%)
Teen 13–19 years	25	23	0	48 (4.2%)	79 (6.8%)
20–29 years	112	65	0	177 (15.3%)	256 (22.1%)
30–39 years	89	97	0	186 (16.1%)	442 (38.2%)
40–49 years	114	142	0	256 (22.1%)	698 (60.3%)
50–59 years	95	107	0	202 (17.4%)	900 (77.7%)
60–69 years	57	50	0	107 (9.2%)	1,007 (87.0%)
70–79 years	34	40	0	74 (6.4%)	1,081 (93.4%)
80–89 years	19	24	0	43 (3.7%)	1,124 (97.1%)
≥90 years	5	8	0	13 (1.1%)	1,137 (98.2%)
Unknown adult	15	3	0	18 (1.6%)	1,155 (99.7%)
Unknown age	3	0	0	3 (0.3%)	1,158 (100.0%)
Total	**585**	**573**	**0**	**1,158 (100.0%)**	**1,158 (100.0%)**

[a]Age includes cases with both actual and estimated ages as shown in Table 21.
[b]Includes cases with relative contribution to fatality of 1-Undoubtedly responsible, 2-Probably responsible, or 3-Contributory.

Table 5. Number of Substances Involved in Human Exposure Cases

No. of Substances	Human exposures		Fatal exposures[a]	
	N	%	N	%
1	2,241,179	90.39	491	42.4
2	154,206	6.22	275	23.75
3	48,071	1.94	167	14.42
4	19,084	0.77	94	8.12
5	8,209	0.33	56	4.84
6	3,870	0.16	31	2.68
7	1,962	0.08	17	1.47
8	1,083	0.04	9	0.78
≥9	1,691	0.07	18	1.55
Total	**2,479,355**	**100.00**	**1,158**	**100.00**

[a]Includes cases with relative contribution to fatality of 1-Undoubtedly responsible, 2-Probably responsible, or 3-Contributory.

Multiple Patients

In 2009, 9.5% (234,811) of human exposures involved multiple patients. Examples of these include siblings sharing found medication, multiple victims of carbon monoxide exposure such as a family, or multiple patients inhaling vapors at a hazardous material spill.

Chronicity

Most human exposures, 2,239,950 (90.3%) were acute cases (single, repeated or continuous exposure occurring over 8

Table 6A. Reason for Human Exposure Cases

Reason	N	% Human exposures
Unintentional		
Unintentional - General	1,462,351	59.0
Unintentional - Therapeutic error	276,694	11.2
Unintentional - Misuse	125,742	5.1
Unintentional - Bite / sting	64,870	2.6
Unintentional - Environmental	55,339	2.2
Unintentional - Food poisoning	29,075	1.2
Unintentional - Occupational	23,966	1.0
Unintentional - Unknown	5,118	0.2
Subtotal	**2,043,155**	**82.4**
Intentional		
Intentional - Suspected suicide	219,595	8.9
Intentional - Misuse	58,152	2.3
Intentional - Abuse	47,726	1.9
Intentional - Unknown	18,950	0.8
Subtotal	**344,423**	**13.9**
Adverse Reaction		
Adverse reaction - Drug	44,460	1.8
Adverse reaction - Other	12,284	0.5
Adverse reaction - Food	5,718	0.2
Subtotal	**62,462**	**2.5**
Unknown		
Unknown reason	14,231	0.6
Subtotal	**14,231**	**0.6**
Other		
Other - Malicious	7,716	0.3
Other - Contamination / tampering	5,965	0.2
Other - Withdrawal	1,403	0.1
Subtotal	**15,084**	**0.6**
Total	**2,479,355**	**100.0**

Table 6B. Scenarios for Therapeutic Errors by Age[a]

Scenario	N	≤5 y (Row %)	6–12 y (Row %)	13–19 y (Row %)	≥20 y (Row %)	Unknown child (Row %)	Unknown adult (Row %)	Unknown age (Row %)
Inadvertently took/given medication twice	87,013	21.94	13.11	5.86	52.78	0.11	5.96	0.23
Wrong medication taken/given	40,675	16.24	12.29	6.64	57.76	0.07	6.64	0.37
Other incorrect dose	37,849	32.92	13.26	7.47	41.81	0.11	4.15	0.29
Medication doses given/taken too close together	26,600	22.26	11.15	7.22	52.79	0.09	6.32	0.17
Inadvertently took/given someone else's medication	24,974	20.71	19.14	6.77	48.28	0.12	4.78	0.20
Other/unknown therapeutic error	17,042	22.10	12.05	7.85	50.52	0.23	6.68	0.56
Incorrect dosing route	15,198	9.15	4.51	3.34	70.73	0.19	11.38	0.70
Confused units of measure	11,352	55.54	18.27	5.99	18.23	0.07	1.80	0.11
More than 1 product containing same ingredient	6,958	15.13	17.03	16.25	45.66	0.03	5.69	0.20
Incorrect formulation or concentration given	6,541	46.80	18.88	5.50	26.05	0.17	2.43	0.17
Health professional/iatrogenic error (pharmacist/nurse/physician)	6,312	31.15	11.77	5.91	43.76	0.40	5.96	1.06
Dispensing cup error	5,955	59.09	20.84	5.26	13.08	0.18	1.51	0.03
Drug interaction	1,835	9.70	8.07	8.34	61.91	0.33	11.28	0.38
Incorrect formulation or concentration dispensed	1,704	44.95	17.66	5.05	29.23	0.18	2.82	0.12
10-fold dosing error	1,614	55.51	7.43	4.21	30.42	0.19	1.92	0.31
Exposure through breast milk	155	87.10	0.00	1.29	5.16	1.94	4.52	0.00

[a]Of the human exposure cases reported to U.S. Poison Centers in 2009, 430,200 (17.4%) were coded to 1 or more of the 54 scenarios.

hours or less) compared to 801 acute cases of 1,544 fatalities (51.9%). Chronic exposures (continuous or repeated exposures occurring over > 8 hours) comprised 1.9% (47,118) of all human exposures. Acute-on-chronic exposures (single exposure that was preceded by a continuous, repeated, or intermittent exposure occurring over a period greater than eight hours) numbered 167,047 (6.7%).

Reason for Exposure

The reason for most human exposures was unintentional (82.4%); unintentional general reason code was reported in 59% of all exposures (Table 6A). Unintentional misuse comprised 5.1% of all exposures. Therapeutic errors accounted for 11.2% of exposures. Of the total 276,694 therapeutic errors, the most common scenarios for all ages included: inadvertent double-dosing in (31.4%) cases, wrong medication taken or give (14.7%), other incorrect dose (13.7%), doses given/taken too close together (9.6%) and inadvertent exposure to someone else's medication (9.0%). The types of therapeutic errors observed are different for each age group and are summarized in Table 6B.

Intentional exposures accounted for 13.9% of human exposures. Suicidal intent was suspected in 8.9% of cases, intentional misuse in 2.3% and intentional abuse in 1.9%. Unintentional exposures outnumbered intentional exposures in all age groups with the exception of age 13-19 years (Table 7). Intentional exposures were reported as frequently as unintentional exposures in patients aged 13-19 years. In contrast, of the 1,158 reported fatalities, the majority reason reported for children ≤5 years was unintentional while most fatalities in adults (≥ 20 years) were intentional (Table 8).

Route of Exposure

Ingestion was the route of exposure in 83.9% of cases (Table 9), followed in frequency by dermal (7.25%), inhalation/nasal (5.35%), and ocular routes (4.5%). For the 1,158 exposure-related fatalities, ingestion (85.1%), inhalation/nasal (8.8%), and parenteral (3.5%) were the predominant exposure routes.

Clinical Effects

The NPDS database allows for the coding of up to 131 different clinical effects (signs, symptoms, or laboratory abnormalities) for each case. Each clinical effect can be further defined as related, not related, or unknown if related. Clinical effects were coded in 849,516 (34.3%) cases. (17.6% had 1 effect, 8.9% had 2 effects, 4.6% had 3 effects, 1.8% had 4 effects, 0.7% had 5 effects, and 0.7% had >5 effects coded). Of clinical effects coded, 79.7% were deemed related to the exposure(s), 9.1% were considered not related, and 11.2% were coded as unknown if related.

The duration of effect is required for all cases that report at least one clinical effect and have a medical outcome of

Table 7. Distribution of Reason for Exposure by Age

	≤5 y		6–12 y		13–19 y		≥20 y		Unknown child		Unknown adult		Unknown age		Total	
Reason	N	Row %	N	Row %	N	Row %	N	Row %	N	Row %	N	Row %	N	Row %	N	%
Unintentional	1,282,635	65.59	136,941	7.00	72,658	3.72	455,951	23.32	5,585	0.29	82,108	4.20	7,277	0.37	2,043,155	82.41
Intentional	1,333	0.41	10,007	3.06	81,720	24.98	230,377	70.42	284	0.09	16,998	5.20	3,704	1.13	344,423	13.89
Adverse reaction	4,762	8.78	3,521	6.49	5,175	9.54	39,869	73.53	163	0.30	8,080	14.90	892	1.65	62,462	2.52
Other	1,302	10.09	1,401	10.86	2,039	15.80	7,859	60.92	101	0.78	2,082	16.14	300	2.33	15,084	0.61
Unknown	752	5.92	785	6.18	2,023	15.93	8,270	65.11	85	0.67	1,445	11.38	871	6.86	14,231	0.57
Total	**1,290,784**	**54.64**	**152,655**	**6.46**	**163,615**	**6.93**	**742,326**	**31.42**	**6,218**	**0.26**	**110,713**	**4.69**	**13,044**	**0.55**	**2,479,355**	**100.00**

Table 8. Distribution of Reason for Exposure and Age for Fatalities[a]

Reason	≤5 y	6–12 y	13–19 y	≥20 y	Unknown child	Unknown adult	Unknown age	Total
Unintentional								
Unintentional - General	15	0	1	31	0	0	0	47
Unintentional - Environmental	3	5	1	26	0	2	0	37
Unintentional - Occupational	0	0	0	12	0	2	0	14
Unintentional - Therapeutic error	0	1	0	23	0	0	0	24
Unintentional - Misuse	0	0	0	14	0	0	0	14
Unintentional - Bite/sting	0	0	0	3	0	0	0	3
Unintentional - Unknown	0	0	0	6	0	0	0	6
Subtotal	**18**	**6**	**2**	**115**	**0**	**4**	**0**	**145**
Intentional								
Intentional - Suspected suicide	0	0	32	611	0	8	1	652
Intentional - Misuse	0	1	1	35	0	1	0	38
Intentional - Abuse	0	0	7	86	0	2	2	97
Intentional - Unknown	0	1	1	75	0	2	0	79
Subtotal	**0**	**2**	**41**	**807**	**0**	**13**	**3**	**866**
Other								
Other - Contamination/tampering	0	0	1	1	0	0	0	2
Other - Malicious	1	2	0	3	0	0	0	6
Other - Withdrawal	0	0	0	1	0	0	0	1
Subtotal	**1**	**2**	**1**	**5**	**0**	**0**	**0**	**9**
Adverse reaction								
Adverse reaction - Drug	1	0	0	30	0	0	0	31
Adverse reaction - Food	0	0	0	2	0	0	0	2
Subtotal	**1**	**0**	**0**	**32**	**0**	**0**	**0**	**33**
Unknown								
Unknown reason	1	0	4	99	0	1	0	105
Subtotal	**1**	**0**	**4**	**99**	**0**	**1**	**0**	**105**
Total	**21**	**10**	**48**	**1,058**	**0**	**18**	**3**	**1,158**

[a]Includes cases with relative contribution to fatality of 1-Undoubtedly responsible, 2-Probably responsible, or 3-Contributory.

Table 9. Route of Exposure for Human Exposure Cases

	Human exposures			Fatal exposures[a]		
Route	N	% of All Routes	% of All Cases	N	% of All Routes	% of All Cases
Ingestion	2,080,781	79.88	83.92	985	79.12	85.06
Dermal	179,832	6.90	7.25	12	0.96	1.04
Inhalation/nasal	132,683	5.09	5.35	102	8.19	8.81
Ocular	110,940	4.26	4.47	2	0.16	0.17
Bite/sting	64,888	2.49	2.62	3	0.24	0.26
Parenteral	16,998	0.65	0.69	41	3.29	3.54
Unknown	9,395	0.36	0.38	83	6.67	7.17
Other	3,031	0.12	0.12	3	0.24	0.26
Otic	2,494	0.10	0.10	0	0.00	0.00
Aspiration (with ingestion)	1,699	0.07	0.07	14	1.12	1.21
Vaginal	1,178	0.05	0.05	0	0.00	0.00
Rectal	779	0.03	0.03	0	0.00	0.00
Not Coded	65	0.00	0.00	0	0.00	0.00
Total Number of Routes	**2,604,763**	**100.00**	**105.06[b]**	**1,245**	**100.00**	**107.51[b]**

[a]Includes cases with relative contribution to fatality of 1-Undoubtedly responsible, 2-Probably responsible, or 3-Contributory.
[b]Each exposure case may have more than one route.

Table 10. Management Site of Human Exposures

Site of management	N	%
Managed on site, nonhealth care facility	1,797,645	72.5
Managed in healthcare facility		
Treated/evaluated and released	291,545	11.8
Patient lost to follow-up / left AMA	99,179	4.0
Admitted to critical care unit	95,429	3.9
Admitted to noncritical care unit	60,122	2.4
Admitted to psychiatric facility	51,512	2.1
Subtotal (managed in HCF)	**597,787**	**24.1**
Refused referral	43,589	1.8
Other	28,218	1.1
Unknown	12,116	0.5
Total	**2,479,355**	**100.0**

minor, moderate or major effect (n = 455,084). Table 13 demonstrates an increasing duration of the clinical effects observed with more severe outcomes.

Case Management Site

The majority of cases reported to PCs were managed in a non–health care facility (72.5%), usually at the site of exposure, primarily the patient's own residence (Table 10). Another 1.8% of cases were referred to a health care facility but refused to go. Treatment in a health care facility was rendered in 24.1% of cases.

Of the 597,787 cases managed in a health care facility, 291,545 (48.8%) were treated and released, 95,429 (16.0%) were admitted for critical care, and 60,122 (10.1%) were admitted for noncritical care.

The percentage of patients treated in a health care facility varied considerably with age. Only 11.2% of children $\leq$5 years or younger and only 13.2% of children between 6 and 12 years were managed in a health care facility compared with 22.1% of teenagers (13-19 years) and 40.2% of adults (age $\geq$20 years).

Medical Outcome

Table 11 displays the medical outcome of the human exposure cases distributed by age, showing a greater incidence of severe outcomes in the older age groups. Table 12 compares medical outcome and reason for exposure and shows a greater frequency of serious outcomes in intentional exposures.

Decontamination Procedures and Specific Antidotes

Tables 14 and 15 outline the use of decontamination procedures, specific antidotes, and measures to enhance elimination in the treatment of patients reported in the NPSD database. These must be interpreted as minimum frequencies because of the limitations of telephone data gathering.

Ipecac-induced emesis for poisoning continues to decline as shown in Tables 16A and 16B. Ipecac was administered in only 330 (<0.01%) pediatric exposures in 2009. The continued decrease in ipecac syrup use in the last decade was likely a result of ipecac use guidelines issued in 1997 by the American Academy of Clinical Toxicology; European Association of Poisons Centres and Clinical Toxicologists and updated in 2004.[8,9] In a separate report, the American Academy of Pediatrics concluded not only that ipecac should no longer be used routinely as a home treatment strategy, but also recommended disposal of ipecac currently in homes.[10]

Top Substances in Human Exposures

Table 17A presents the most common 25 substance categories, listed by frequency of human exposure. This ranking provides an indication where we might focus public health resources on prevention, as well as the types of exposures PCs frequently manage. It is relevant to know whether exposures to these substances are increasing or decreasing. We examined exposures per year over the last decade for the change over time for each of the 67 major generic categories via least squares linear regression. The calls per year were increasing for 42 and decreasing for 25 of the 67 categories. The change over time for the 10 yearly values was statistically significant ($p < 0.05$) for 52 of the 67 categories. Table 17B shows the 25 categories which were increasing the most rapidly. Statistical significance of the 25 regressions can be verified by noting the 95% confidence interval on the rate of increase excludes zero. Figure 5 shows the linear regressions for the top 4 increasing categories in Table 16B.

Tables 17C and 17D present exposure results for children and adults, respectively, and show the differences between substance categories involved in pediatric and adult exposures.

Table 17E (new this year) reports the 25 categories of substances most frequently involved in pediatric ($\leq$5 years) fatalities in 2009.

Table 17F (new this year) reports the 25 Drug ID categories most frequently identified in 2009. The most often identified drug category is miscellaneous and unknown – this category includes medications which could not be identified and for which no answer recorded (null response). The null response is permitted because the product identified is not a required field for Information Calls. Drug ID information is of value to AAPCC, public health, public safety, and regulatory agencies. Internet based resources do not allow data capture nor do they afford the caller the ability to speak with a specialist in poison information if the inquiry is more than a drug identification question. Proper resources to continue this vital public service are essential, especially since the top 10 substance categories include antibiotics as well as drugs with widespread use and abuse potential such as opioids and benzodiazepines.

Table 11. Medical Outcome of Human Exposure Cases by Patient Age[a]

	≤5 y		6–12 y		13–19 y		≥20 y		Unknown child		Unknown adult		Unknown age		Total	
Outcome	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
No effect	323,975	25.10	26,303	17.23	26,704	16.32	91,704	12.35	1,365	21.95	11,101	10.03	1,050	8.1	482,202	19.45
Minor effect	95,781	7.42	21,029	13.78	39,738	24.29	165,503	22.30	448	7.20	16,084	14.53	1,638	12.6	340,221	13.72
Moderate effect	10,726	0.83	3,940	2.58	19,874	12.15	93,412	12.58	132	2.12	4,211	3.80	521	4.0	132,816	5.36
Major effect	769	0.06	229	0.15	2,015	1.23	15,649	2.11	8	0.13	280	0.25	44	0.3	18,994	0.77
Death	31	0.00	11	0.01	50	0.03	1,327	0.18	0	0.00	29	0.03	4	0.0	1,452	0.06
No follow-up, nontoxic	248,736	19.27	23,537	15.42	9,195	5.62	44,336	5.97	864	13.90	11,217	10.13	750	5.8	338,635	13.66
No follow-up, minimal toxicity	572,633	44.36	70,427	46.13	46,510	28.43	248,819	33.52	2,271	36.52	47,156	42.59	4,035	30.9	991,851	40.00
No follow-up, potentially toxic	22,128	1.71	3,766	2.47	15,238	9.31	52,300	7.05	878	14.12	16,240	14.67	4,694	36.0	115,244	4.65
Unrelated effect	15,999	1.24	3,413	2.24	4,284	2.62	29,213	3.94	252	4.05	4,385	3.96	302	2.3	57,848	2.33
Death, indirect report	6	0.00	0	0.00	7	0.00	63	0.01	0	0.00	10	0.01	6	0.1	92	0.00
Total	**1,290,784**	**100.00**	**152,655**	**100.0**	**163,615**	**100.00**	**742,326**	**100.00**	**6,218**	**100.00**	**110,713**	**100.00**	**13,044**	**100.00**	**2,479,355**	**100.00**

[a]Total number of cases where Death was an outcome (1,452+92) is greater than the number of fatalities (1,158) judged to be exposure-related (relative contribution to fatality of 1-Undoubtedly responsible, 2-Probably responsible, or 3-Contributory).

Table 12. Medical Outcome by Reason: Human Exposures[a]

	Unintentional		Intentional		Other		Adverse reaction		Unknown		Total	
Outcome	N	%	N	%	N	%	N	%	N	%	N	%
No effect	420,740	20.59	57,091	16.58	1,805	11.97	1,436	2.30	1,130	7.94	482,202	19.45
Minor effect	225,433	11.03	94,921	27.56	2,891	19.17	14,798	23.69	2,178	15.30	340,221	13.72
Moderate effect	45,961	2.25	74,870	21.74	1,060	7.03	8,252	13.21	2,673	18.78	132,816	5.36
Major effect	2,734	0.13	14,382	4.18	140	0.93	767	1.23	971	6.82	18,994	0.77
Death	192	0.01	999	0.29	11	0.07	61	0.10	189	1.33	1,452	0.06
No follow-up, nontoxic	331,300	16.22	5,020	1.46	1,027	6.81	969	1.55	319	2.24	338,635	13.66
No follow-up, minimal toxicity	922,688	45.16	39,051	11.34	5,393	35.75	22,693	36.33	2,026	14.24	991,851	40.00
No follow-up, potentially toxic	53,873	2.64	51,671	15.00	1,659	11.00	4,670	7.48	3,371	23.69	115,244	4.65
Unrelated effect	40,218	1.97	6,366	1.85	1,092	7.24	8,813	14.11	1,359	9.55	57,848	2.33
Death, indirect report	16	0.00	52	0.02	6	0.04	3	0.00	15	0.11	92	0.00
Total	**2,043,155**	**100.00**	**344,423**	**100.00**	**15,084**	**100.00**	**62,462**	**100.00**	**14,231**	**100.00**	**2,479,355**	**100.00**

[a]Total number of cases where Death was an outcome (1,452+92) is greater than the number of fatalities (1,158) judged to be exposure-related (relative contribution to fatality of 1-Undoubtedly responsible, 2-Probably responsible, or 3-Contributory).

Table 13. Duration of Clinical Effects by Medical Outcome

	Minor effect		Moderate effect		Major effect	
Duration of effect	N	%	N	%	N	%
≤2 hours	113,414	36.78	8,334	6.50	476	2.57
>2 hours, ≤8 hours	87,470	28.36	28,589	22.31	1,156	6.23
>8 hours, ≤24 hours	59,788	19.39	42,949	33.51	4,486	24.18
>24 hours, ≤3 days	15,974	5.18	24,314	18.97	6,033	32.52
>3 days, ≤1 week	4,306	1.40	7,657	5.97	3,325	17.92
>1 week, ≤1 month	1,149	0.37	1,710	1.33	1,067	5.75
>1 month	439	0.14	426	0.33	175	0.94
Anticipated permanent	96	0.03	143	0.11	303	1.63
Unknown	25,744	8.35	14,032	10.95	1,529	8.24
Total	**308,380**	**100.00**	**128,154**	**100.00**	**18,550**	**100.00**

Table 14. Decontamination and Therapeutic Interventions

Therapy	N	%
Decontamination Only	1,035,450	41.8
Therapeutic Intervention Only	216,859	8.8
Decontamination and Therapeutic Intervention	420,360	17.0
Not Coded	806,686	32.5
Total	**2,479,355**	**100.0**

Distribution of Suicides

Table 19 shows the modest variation in the distribution of suicides over the past 2 decades as reported to the NPDS national database (45-68%). Since 1985, the percent of fatal cases has increased from 0.036% to 0.070% and the percent of pediatric cases has decreased from 6.1% to 2.4%.

Plant Exposures

Table 20 provides the number of times the specific plant occurred in NPDS. The 25 most commonly involved plant species and categories account for 24,344 of a total number of plants that were reported (58,933). The top 3 categories in the table are essentially synonymous for unknown plant and comprise 14.3% (8,427/58,933) of all plant exposures. For a variety of reasons it was not possible to make a precise identification in these 3 groups. The top 5 most frequent plant exposures where a positive plant identification was made were (descending order): *Spathiphyllum* spp. Not otherwise specified (NOS),

Table 15. Therapy Provided in Human Exposures by Age

Therapy	≤5 y	6–12 y	13–19 y	≥20 y	Unknown child	Unknown adult	Unknown age	Total
Decontamination								
Cathartic	3,122	286	4,450	13,814	2	337	23	22,034
Charcoal, multiple doses	178	23	472	1,638	0	13	7	2,331
Charcoal, single dose	18,990	1,187	15,451	45,910	10	837	89	82,474
Dilute/irrigate/wash	642,776	64,323	37,811	206,305	1,779	35,139	2,736	990,869
Food/snack	158,044	12,776	6,374	29,591	196	4,014	394	211,389
Fresh air	7,535	4,539	5,594	41,449	892	11,351	1,065	72,425
Ipecac	330	41	68	192	0	25	2	658
Lavage	238	32	1,162	4,571	1	84	5	6,093
Other emetic	5,236	521	880	3,959	10	342	39	10,987
Whole bowel irrigation	130	20	355	1,580	0	22	1	2,108
Other Therapies								
2-PAM	4	0	5	48	0	0	0	57
Alkalinization	128	50	1,571	7,694	2	77	17	9,539
Amyl nitrite	2	0	1	7	0	0	0	10
Antiarrhythmic	12	3	50	510	0	3	0	578
Antibiotics	2,013	1,000	1,360	11,177	19	965	66	16,600
Anticonvulsants[a]	46	10	106	623	1	6	1	793
Antiemetics	700	296	3,368	8,366	2	149	10	12,891
Antihistamines	2,923	1,832	2,029	10,684	36	1,357	60	18,921
Antihypertensives	12	15	110	1,664	0	26	2	1,829
Antivenin (fab fragment)	364	238	229	1,312	1	21	4	2,169
Antivenin/antitoxin[b]	45	28	44	287	0	3	1	408
Atropine	103	16	98	950	0	10	1	1,178
BAL	11	0	2	14	0	1	0	28
Benzodiazepines	855	375	3,804	17,926	3	226	28	23,217
Bronchodilators	535	240	354	3,974	6	246	17	5,372
Calcium	9,936	600	253	1,884	3	90	5	12,771
Cardioversion	3	2	20	148	0	2	0	175
CPR	36	6	53	591	1	8	1	696
Deferoxamine	5	0	18	30	0	1	0	54
ECMO	3	1	6	3	0	0	0	13
EDTA	41	2	1	4	0	0	0	48
Ethanol	3	0	8	82	0	3	0	96
Extracorp. procedure (other)	1	1	0	21	0	1	0	24
Fab fragments	18	20	27	549	0	2	0	616
Fluids, IV	6,269	1,473	20,221	94,039	10	1,199	148	123,359
Flumazenil	123	26	175	1,793	1	26	2	2,146
Folate	17	2	30	878	0	4	1	932
Fomepizole	129	9	106	1,479	0	16	4	1,743
Glucagon	24	2	57	1,331	0	13	0	1,427
Glucose, > 5%	320	22	202	2,289	1	26	4	2,864
Hemodialysis	8	9	119	2,025	1	18	4	2,184
Hemoperfusion	0	0	1	25	0	0	0	26
Hydroxocobalamin	2	4	2	36	0	2	1	47
Hyperbaric oxygen	36	28	41	268	0	10	4	387
Insulin	12	9	61	1,206	0	7	0	1,295
Intubation	445	86	1,467	16,361	2	241	33	18,635
Methylene blue	17	2	9	79	0	0	1	108
NAC, IV	225	87	3,524	12,251	2	148	23	16,260
NAC, PO	166	43	2,161	7,317	1	101	17	9,806
Nalmefene	2	0	1	16	0	0	0	19
Naloxone	956	105	1,519	14,654	1	211	36	17,482
Neuromuscular blocker	26	6	108	969	0	6	2	1,117
Octreotide	68	3	16	193	0	0	0	280
Other	47,496	9,791	13,741	82,916	172	6,882	744	161,742
Oxygen	1,518	608	3,190	34,664	33	664	80	40,757
Pacemaker	1	0	3	152	0	0	0	156

(*continued*)

Table 15. (*Continued*)

Therapy	≤5 y	6–12 y	13–19 y	≥20 y	Unknown child	Unknown adult	Unknown age	Total
Penicillamine	1	0	1	2	0	0	0	4
Physostigmine	6	5	54	126	0	3	0	194
Phytonadione	43	7	64	737	0	5	0	856
Pyridoxine	14	5	81	446	0	5	0	551
Sedation (other)	253	70	1,091	10,355	0	126	14	11,909
Sodium nitrite	3	0	1	19	0	1	0	24
Sodium thiosulfate	3	3	1	44	0	3	1	55
Steroids	750	435	488	4,376	13	490	28	6,580
Succimer	105	7	8	74	0	2	1	197
Transplantation	0	1	3	20	0	0	0	24
Vasopressors	71	23	246	4,317	0	37	7	4,701
Ventilator	389	74	1,296	14,619	1	202	23	16,604

[a]Excludes benzodiazepines.
[b]Excludes Fab fragments.

Table 16A. Decontamination Trends (1985–2009)

Year	Human exposures	Ipecac administered (% of all exposures)	Activated charcoal administered (% of all exposures)	Exposures involving children ≤5 y (% of all exposures)	Ipecac administered (% of child exposures)	Activated charcoal administered (% of child exposures)
1985	886,389	132,947 (14.999)	41,063 (4.6)	568,691 (64.2)	94,919 (16.6908)	14,718 (2.59)
1986	1,095,228	145,516 (13.286)	56,481 (5.2)	690,137 (63.0)	99,688 (14.4447)	18,191 (2.64)
1987	1,164,648	117,840 (10.118)	60,310 (5.2)	730,228 (62.7)	83,443 (11.427)	18,507 (2.53)
1988	1,364,113	114,654 (8.4050)	88,876 (6.5)	843,106 (61.8)	80,749 (9.5776)	26,118 (3.10)
1989	1,578,968	110,545 (7.0011)	101,368 (6.4)	963,924 (61.0)	79,192 (8.2156)	30,345 (3.15)
1990	1,646,946	98,986 (6.0103)	108,341 (6.6)	999,751 (60.7)	73,469 (7.3487)	31,579 (3.16)
1991	1,836,364	94,877 (5.1666)	129,092 (7.0)	1,099,179 (59.9)	73,069 (6.6476)	36,177 (3.29)
1992	1,862,796	79,493 (4.2674)	135,625 (7.3)	1,094,256 (58.7)	63,486 (5.8018)	38,937 (3.56)
1993	1,747,147	65,078 (3.7248)	127,893 (7.3)	978,560 (56.0)	50,834 (5.1948)	35,791 (3.66)
1994	1,926,992	51,356 (2.6651)	138,247 (7.2)	1,042,651 (54.1)	41,489 (3.9792)	35,670 (3.42)
1995	2,023,089	47,359 (2.3409)	155,880 (7.7)	1,070,472 (52.9)	38,372 (3.5846)	38,095 (3.56)
1996	2,155,952	39,376 (1.8264)	157,331 (7.3)	1,137,263 (52.7)	32,622 (2.8685)	37,986 (3.34)
1997	2,192,088	32,098 (1.4643)	156,213 (7.1)	1,150,931 (52.5)	26,536 (2.3056)	35,856 (3.12)
1998	2,241,082	26,653 (1.1893)	152,134 (6.8)	1,180,989 (52.7)	22,247 (1.8838)	34,302 (2.90)
1999	2,201,156	21,942 (0.9968)	145,853 (6.6)	1,154,799 (52.5)	18,326 (1.5869)	33,812 (2.93)
2000	2,168,248	18,177 (0.8383)	145,911 (6.7)	1,142,796 (52.7)	15,239 (1.3335)	31,554 (2.76)
2001	2,267,979	16,058 (0.7080)	149,442 (6.6)	1,169,478 (51.6)	13,389 (1.1449)	30,367 (2.60)
2002	2,380,028	13,555 (0.5695)	149,527 (6.3)	1,227,381 (51.6)	11,163 (0.9095)	30,340 (2.47)
2003	2,395,582	9,284 (0.3875)	140,412 (5.9)	1,245,584 (52.0)	7,310 (0.5869)	28,888 (2.32)
2004	2,438,643	4,701 (0.1928)	135,969 (5.6)	1,250,536 (51.3)	3,366 (0.2692)	28,335 (2.27)
2005	2,424,180	3,027 (0.1249)	123,263 (5.1)	1,233,695 (50.9)	1,999 (0.1620)	26,338 (2.13)
2006	2,403,539	2,176 (0.0905)	111,351 (4.6)	1,223,815 (50.9)	1,337 (0.1092)	23,843 (1.95)
2007	2,482,041	1,740 (0.0701)	106,010 (4.3)	1,271,595 (51.2)	1,052 (0.0827)	22,829 (1.80)
2008	2,491,049	1,205 (0.0484)	97,297 (3.9)	1,292,754 (51.9)	641 (0.0496)	21,286 (1.65)
2009	2,479,355	658 (0.0265)	84,805 (3.4)	1,290,784 (52.1)	330 (0.0256)	19,168 (1.48)

Phytolacca americana (L.), *Toxicodendron radicans* (L.), *Philodendron* spp. (NOS), and *Ilex* spp. (NOS).

Deaths and Exposure-related Fatalities

A listing of cases (Table 21) and summary of cases (Tables 4, 5, 8, 9, 11, 12, 18, 19, and 22) are provided for fatal cases for which there exists reasonable confidence that the death was a result of that exposure (exposure-related fatalities). Of the 1,544 cases initially reviewed, 1,158 were judged exposure-related fatalities (Relative Contribution to Fatality Category = 1-Undoubtedly responsible, 2-Probably responsible, or 3-Contributory). The remaining 386 cases were judged as follows: 62: RCF = 4-Probably not responsible, 45: 5-Clearly not responsible, and 279: RCF = 6-Unknown.

Table 16B. Decontamination Trends: Total Human and Pediatric Exposures ≤5 Years (2009)[a]

Therapy	Human exposures N	Human exposures %	Exposures children ≤5 y N	Exposures children ≤5 y %
Activated charcoal administered	84,805	3.42	19,168	1.48
Cathartic	22,034	0.89	3,122	0.24
Ipecac administered	658	0.03	330	0.03
Lavage	6,093	0.25	238	0.02
Other Emetic	10,987	0.44	5,236	0.41
Whole Bowel Irrigation	2,108	0.09	130	0.01
Total	**126,685**	**5.11**	**28,224**	**2.19**

[a]Human exposures = 2,479,355; Pediatric exposures = 1,290,784.

Table 17A. Substance Categories Most Frequently Involved in Human Exposures (Top 25)

Substance category	All substances	%[a]	Single substance exposures	%[b]
Analgesics	337,650	11.75	225,431	10.06
Cosmetics/Personal Care Products	222,774	7.75	215,788	9.63
Cleaning Substances (Household)	212,616	7.40	191,341	8.54
Sedative/Hypnotics/ Antipsychotics	167,916	5.84	67,828	3.03
Foreign Bodies/Toys/ Miscellaneous	125,179	4.35	122,156	5.45
Topical Preparations	116,377	4.05	114,027	5.09
Antidepressants	102,792	3.58	44,650	1.99
Cardiovascular Drugs	95,527	3.32	47,778	2.13
Antihistamines	95,304	3.32	69,008	3.08
Pesticides	92,240	3.21	86,404	3.86
Alcohols	91,973	3.20	46,262	2.06
Cold and Cough Preparations	89,722	3.12	66,836	2.98
Vitamins	73,080	2.54	64,187	2.86
Bites and Envenomations	70,857	2.46	70,039	3.13
Antimicrobials	70,592	2.46	59,406	2.65
Hormones and Hormone Antagonists	59,762	2.08	41,534	1.85
Plants	58,933	2.05	55,642	2.48
Gastrointestinal Preparations	56,635	1.97	45,814	2.04
Anticonvulsants	47,013	1.64	21,178	0.94
Stimulants and Street Drugs	46,242	1.61	27,292	1.22
Hydrocarbons	43,479	1.51	41,283	1.84
Chemicals	40,613	1.41	34,707	1.55
Arts/Crafts/Office Supplies	36,229	1.26	35,245	1.57
Electrolytes and Minerals	34,162	1.19	28,720	1.28
Fumes/Gases/Vapors	32,875	1.14	30,099	1.34

[a]Percentages are based on the total number of substances reported in all exposures (N = 2,874,768).
[b]Percentages are based on the total number of single substance exposures (N = 2,241,191).

Table 17B. Substance Categories with the Greatest Rate of Exposure Increase (Top 25)

Substance category	Increase in exposures per year[a] Mean	Increase in exposures per year[a] 95% CI[a]	All substances in 2009
Analgesics	12,494	[10745, 14242]	337,650
Sedative/Hypnotics/ Antipsychotics	9,090	[8530, 9650]	167,916
Cardiovascular Drugs	4,986	[4672, 5299]	95,527
Antihistamines	3,634	[2779, 4489]	95,304
Alcohols	3,087	[2474, 3699]	91,973
Gastrointestinal Preparations	2,612	[2315, 2910]	56,635
Vitamins	2,450	[2086, 2814]	73,080
Cleaning Substances (Household)	2,440	[707, 4173]	212,616
Topical Preparations	2,282	[928, 3637]	116,377
Cosmetics/Personal Care Products	2,265	[598, 3931]	222,774
Hormones and Hormone Antagonists	2,065	[1700, 2431]	59,762
Other/Unknown Nondrug Substances	1,988	[1352, 2625]	31,838
Anticonvulsants	1,896	[1495, 2296]	47,013
Foreign Bodies/Toys/ Miscellaneous	1,709	[603, 2816]	125,179
Antidepressants	1,641	[412, 2870]	102,792
Miscellaneous Drugs	1,350	[916, 1785]	24,613
Muscle Relaxants	1,302	[1129, 1475]	28,317
Antimicrobials	1,267	[918, 1615]	70,592
Anticholinergic Drugs	1,204	[867, 1540]	11,034
Unknown Drug	825	[698, 953]	20,279
Asthma Therapies	823	[245, 1402]	22,711
Dietary Supps/Herbals/ Homeopathic	776	[255, 1298]	29,635
Eye/Ear/Nose/Throat Preparations	687	[631, 743]	22,200
Deodorizers	676	[349, 1003]	26,562
Essential Oils	628	[547, 710]	9,913

[a]Increase and confidence intervals are based on least squares linear regression of the number of calls per year for 2000–2009.

Deaths are sorted in Table 21 according to the category, patient age and substance deemed most likely responsible for the death (Substance Rank). The Cause Rank permits the PC to judge 2 or more substances as indistinguishable in terms of cause, e.g., 2 substances which appear equally likely to have caused the death could have Substance Rank of 1,2 and Cause Rank of 1,1. Additional agents implicated are listed below the primary agent in the order of their contribution to the fatality.

As shown in Table 5, a single substance was implicated in 90.4% of reported human exposures, and 9.6% of patients were exposed to 2 or more drugs or products. The exposure-related fatalities involved a single substance in 491 cases (42.4%), 2 substances in 275 cases (23.7%), 3 in 167 cases (14.4%), and 4 or more in the balance of the cases (Table 5). The cross-references at the end of each major category

Table 17C. Substance Categories Most Frequently Involved in Pediatric (≤5 years) Exposures (Top 25)[a]

Substance category	All substances	%[b]	Single substance exposures	%[c]
Cosmetics/Personal Care Products	174,073	12.97	170,258	13.57
Analgesics	130,213	9.70	118,971	9.48
Cleaning Substances (Household)	125,394	9.34	120,772	9.63
Foreign Bodies/Toys/ Miscellaneous	93,574	6.97	91,439	7.29
Topical Preparations	91,127	6.79	89,703	7.15
Vitamins	53,717	4.00	49,011	3.91
Antihistamines	48,046	3.58	42,977	3.43
Cold and Cough Preparations	45,033	3.36	40,698	3.24
Pesticides	41,882	3.12	40,786	3.25
Plants	39,771	2.96	38,344	3.06
Gastrointestinal Preparations	38,615	2.88	35,564	2.84
Antimicrobials	37,009	2.76	34,813	2.78
Arts/Crafts/Office Supplies	27,241	2.03	26,563	2.12
Alcohols	27,087	2.02	26,648	2.12
Hormones and Hormone Antagonists	26,729	1.99	20,872	1.66
Cardiovascular Drugs	26,566	1.98	17,389	1.39
Electrolytes and Minerals	24,389	1.82	22,285	1.78
Deodorizers	22,851	1.70	22,600	1.80
Dietary Supplements/ Herbals/Homeopathic	20,897	1.56	19,285	1.54
Sedative/Hypnotics/ Antipsychotics	16,258	1.21	12,783	1.02
Other/Unknown Nondrug Substances	15,290	1.14	14,804	1.18
Hydrocarbons	14,798	1.10	14,365	1.15
Asthma Therapies	14,671	1.09	13,347	1.06
Antidepressants	14,310	1.07	10,622	0.85
Information Calls	12,726	0.95	12,143	0.97

[a]Includes all children with actual or estimated ages ≤5 years old. Results do not include ''Unknown Child'' or ''Unknown Age''.
[b]Percentages are based on the total number of substances reported in pediatric exposures (N = 1,341,999).
[c]Percentages are based on the total number of single substance pediatric exposures (N = 1,254,384).

Table 17D. Substance Categories Most Frequently Involved in Adult (≥20 years) Exposures (Top 25)[a]

Substance category	All substances	%[b]	Single substance exposures	%[c]
Analgesics	148,780	13.06	69,989	10.14
Sedative/Hypnotics/ Antipsychotics	127,708	11.21	42,943	6.22
Antidepressants	70,294	6.17	24,643	3.57
Cleaning Substances (Household)	69,924	6.14	55,704	8.07
Cardiovascular Drugs	60,507	5.31	24,992	3.62
Alcohols	54,237	4.76	13,404	1.94
Bites and Envenomations	46,322	4.07	45,841	6.64
Pesticides	41,301	3.63	37,167	5.38
Anticonvulsants	32,313	2.84	12,218	1.77
Cosmetics/Personal Care Products	31,571	2.77	29,403	4.26
Antihistamines	28,799	2.53	14,049	2.04
Hormones and Hormone Antagonists	27,848	2.44	16,812	2.44
Antimicrobials	23,830	2.09	17,083	2.47
Chemicals	23,350	2.05	19,319	2.80
Fumes/Gases/Vapors	23,033	2.02	21,004	3.04
Hydrocarbons	22,313	1.96	20,901	3.03
Stimulants and Street Drugs	21,868	1.92	10,061	1.46
Muscle Relaxants	21,781	1.91	7,897	1.14
Cold and Cough Preparations	21,606	1.90	11,384	1.65
Topical Preparations	18,620	1.63	17,957	2.60
Food Products/Food Poisoning	17,779	1.56	17,109	2.48
Gastrointestinal Preparations	14,049	1.23	7,387	1.07
Information Calls	13,691	1.20	12,670	1.84
Foreign Bodies/Toys/ Miscellaneous	13,472	1.18	12,848	1.86
Miscellaneous Drugs	12,989	1.14	6,882	1.00

[a]Includes all adults with actual or estimated ages ≥20 years old. Results also include ''Unknown Adult'' but do not include ''Unknown Age''.
[b]Percentages are based on the total number of substances reported in adult exposures (N = 1,138,978).
[c]Percentages are based on the total number of single substance adult exposures (N = 690,346).

section list all cases that identify this substance as other than the primary substance.

The Annual Report ID number [bracketed] indicates that the abstract for that case is included in Appendix C. The letters following the Annual Report ID number include: i = death, indirect report after the fatality occurred in 46 cases (4.0%), p = prehospital cardiac and/or respiratory arrest in 402 (34.7%), h = hospital records reviewed in 223 cases (19.3%), a = autopsy report reviewed in 325 cases (28.1%).

The distribution of NPDS RCF was: 1 = Undoubtedly responsible in 518 cases (44.7%), 2 = Probably responsible in 461 cases (39.8%), 3 = Contributory in 179 cases (15.5%).

All fatalities – all ages

Table 4 presents the age and gender distribution for these 1,158 exposure-related fatalities. The age distribution of reported fatalities is similar to that in past years with 93.2% (1,079 of 1,158) of fatal cases occurring in adults (age > 19 years). Although children younger than 6 years were involved in the majority of exposures, the 21 fatalities comprised just 1.8% of the exposure-related fatalities. Most (70.9%) of the fatalities occurred in 20-to 59-year-old individuals.

Table 21 lists each of the 1,158 human fatalities along with all of the substances involved. Please note: the Substance listed in column 3 of Table 21 was chosen to be the most specific generic name based upon the substances entered for that case. This Substance name may not agree

Table 17E. Substance Categories Most Frequently Involved in Pediatric (≤5 years) Deaths[a]

Substance category	All substances	%[b]	Single substance exposures	%[c]
Analgesics	6	12.77	4	12.90
Batteries	4	8.51	4	12.90
Hydrocarbons	4	8.51	3	9.68
Plants	4	8.51	1	3.23
Cold and Cough Preparations	3	6.38	2	6.45
Fumes/Gases/Vapors	3	6.38	3	9.68
Pesticides	3	6.38	3	9.68
Antidepressants	2	4.26	1	3.23
Chemicals	2	4.26	2	6.45
Cleaning Substances (Household)	2	4.26	2	6.45
Dietary Supplements/ Herbals/Homeopathic	2	4.26	0	0.00
Sedative/Hypnotics/ Antipsychotics	2	4.26	0	0.00
Alcohols	1	2.13	0	0.00
Anticoagulants	1	2.13	0	0.00
Antihistamines	1	2.13	1	3.23
Bites and Envenomations	1	2.13	1	3.23
Cosmetics/Personal Care Products	1	2.13	0	0.00
Gastrointestinal Preparations	1	2.13	0	0.00
Hormones and Hormone Antagonists	1	2.13	1	3.23
Information Calls	1	2.13	1	3.23
Other/Unknown Nondrug Substances	1	2.13	1	3.23
Unknown Drug	1	2.13	1	3.23
Total	**47**	**100.00**	**31**	**100.00**

[a]Includes all children with actual or estimated ages ≤5 years old. Results do not include ''Unknown Child'' or ''Unknown Age''.
[b]Percentages are based on the total number of substances reported in pediatric fatalities (N = 47).
[c]Percentages are based on the total number of single substance pediatric fatalities (N = 31).

Table 17F. Substance Categories Most Frequently Identified in Drug Identification Calls (Top 25)

Substance category	All substances	%[a]
Miscellaneous Unknown Drugs	154,805	12.52%
Acetaminophen with Hydrocodone	145,507	11.77%
Benzodiazepines	131,007	10.60%
Acetaminophen with Oxycodone	72,270	5.85%
Oxycodone Alone or in Combination (Excluding Combination Products with Acetaminophen or Acetylsalicylic Acid)	58,080	4.70%
Systemic Antibiotic Preparations (Oral, Intravenous, Intramuscular)	35,334	2.86%
Other Antihistamines Alone (Excluding Cough and Cold Preparations)	32,385	2.62%
Tramadol	27,717	2.24%
Morphine	24,055	1.95%
Acetaminophen Alone, Adult	23,932	1.94%
Drug Information	23,349	1.89%
Cyclobenzaprine	23,037	1.86%
Selective Serotonin Reuptake Inhibitors	22,329	1.81%
Naproxen	19,338	1.56%
Other Types of Anticonvulsant (Excluding Barbiturates)	18,547	1.50%
Other Types of Skeletal Muscle Relaxant	18,146	1.47%
Ibuprofen	17,717	1.43%
Acetaminophen with Propoxyphene	16,307	1.32%
Carisoprodol (Formulated Alone)	15,508	1.25%
Other or Unknown Narcotics	15,449	1.25%
Other Types of Nonsteroidal Antiinflammatory Drug	15,170	1.23%
Methadone	14,996	1.21%
Amphetamines and Related Compounds	14,798	1.20%
Trazodone	14,296	1.16%
Methocarbamol	14,148	1.14%

[a]Percentages are based on the total number of substances reported in all drug identification calls (N = 1,236,428).

with the AAPCC generic categories used in the summary tables (including Table 22).

Table 18 lists the top 25 substance categories associated with reported fatalities and the number of single substance exposure fatalities for that category – sedative/hypnotics/antipsychotics, cardiovascular drugs, opioids, and acetaminophen in combination products, lead this list followed by antidepressants, acetaminophen alone, alcohols, and stimulants/street drugs. Although sedative/hypnotics/antipsychotics ranks 4th and antidepressants 7th among the most frequent exposures (Table 17A), there is otherwise little concordance between the frequency of exposures to a substance and the number of fatalities. Note that Table 18 summarizes all substances to which a patient was exposed (i.e., a patient exposed to an opioid may have also been exposed to 1 or more other products).

The first ranked substance was a pharmaceutical in 925 of the 1,158 fatalities (79.9%). These 925 first ranked pharmaceuticals included:

- 441 analgesics (100 acetaminophen, 62 acetaminophen/hydrocodone, 49 methadone, 37 salicylate);
- 123 cardiovascular drugs (18 cardiac glycoside, 18 verapamil, 14 amlodipine, 12 diltiazem, 11 metoprolol, 8 diltiazem (extended release));
- 91 antidepressants (20 amitriptyline, 8 doxepin, 7 bupropion, 7 bupropion (extended release);
- 79 sedative/hypnotic/antipsychotics (20 quetiapine, 11 alprazolam, 6 diazepam, 6 zolpidem);
- 65 stimulants/street drugs (22 heroin, 16 cocaine, 12 methamphetamine, 4 MDMA)

The exposure was acute in 621 (53.7%), A/C = acute on chronic in 250 (21.6%), C = chronic exposure in 77 (6.6%) and U = unknown in 210 (18.1%).

Table 18. Categories Associated with Largest Number of Fatalities (Top 25)[a]

Substance	All substances	%[b]	Single substance exposures	%[c]
Miscellaneous Sedative/ Hypnotics/Antipsychotics	395	14.24	21	2.92
Miscellaneous Cardiovascular Drugs	280	10.09	47	6.55
Opioids	266	9.59	51	7.10
Acetaminophen Combinations	240	8.65	81	11.28
Miscellaneous Antidepressants	181	6.52	18	2.51
Acetaminophen Alone	170	6.13	63	8.77
Miscellaneous Alcohols	169	6.09	19	2.65
Miscellaneous Stimulants and Street Drugs	133	4.79	38	5.29
Miscellaneous Muscle Relaxants	81	2.92	3	0.42
Cyclic Antidepressants	79	2.85	17	2.37
Miscellaneous Anticonvulsants	79	2.85	8	1.11
Miscellaneous Fumes/ Gases/Vapors	76	2.74	57	7.94
Acetylsalicylic Acid Alone	59	2.13	20	2.79
Nonsteroidal Antiinflammatory Drugs	53	1.91	5	0.70
Miscellaneous Antihistamines	51	1.84	6	0.84
Miscellaneous Unknown Drug	48	1.73	55	7.66
Oral Hypoglycemic	38	1.37	8	1.11
Miscellaneous Chemicals	35	1.26	28	3.90
Miscellaneous Hormones and Hormone Antagonists	33	1.19	9	1.25
Miscellaneous Diuretics	26	0.94	0	0.00
Automotive Products	21	0.76	10	1.39
Other Miscellaneous Drugs	20	0.72	9	1.25
Cannabinoids and Analogs	19	0.68	0	0.00
Miscellaneous Hydrocarbons	12	0.43	9	1.25
Antihistamine and/or Decongestant without Phenylpropanolamine	10	0.36	2	0.28

[a]Numbers represent total exposures associated with 1,158 fatalities (with relative contribution to fatality of 1-Undoubtedly responsible, 2-Probably responsible, or 3-Contributory); each fatality may have had exposure to more than one substance.
[b]Percentages are based on the total number of substances reported in fatal exposures (N = 2,774).
[c]Percentages are based on the total number of single substance fatal exposures (N = 718).

A total of 3,375 tissue concentrations for 1 or more related analytes were reported in 457 cases (39.5%).

Route of exposure was: Ingestion in 985 cases (79.0%), inhalation/nasal in 102 cases (7.9%), parenteral in 24 cases (2.1%). (Table 9)

Intentional exposure reasons: Suspected suicide in 652 cases (56.3%), Intentional-Abuse in 97 cases (17.4%), Intentional-Misuse in 38 cases (3.3%).

Table 19A. Comparisons of Death Data (1985–2009)[a]

	Total fatalities		Suicides		Pediatric deaths	
Year	N	% of cases	N	% of deaths	N	% of deaths
1985	328	0.036	174	(53.0)	20	(6.1)
1986	406	0.037	223	(54.9)	15	(3.7)
1987	398	0.034	227	(57.0)	22	(5.5)
1988	544	0.040	296	(54.4)	30	(5.5)
1989	590	0.037	323	(54.7)	24	(4.1)
1990	553	0.032	320	(57.9)	21	(3.8)
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)
1998	775	0.035	421	(54.3)	16	(2.1)
1999	873	0.040	472	(54.1)	24	(2.7)
2000	921	0.042	477	(51.8)	20	(2.2)
2001	1,085	0.048	553	(51.0)	27	(2.5)
2002	1,170	0.049	635	(54.3)	27	(2.3)
2003	1,109	0.046	592	(53.4)	35	(3.2)
2004	1,190	0.049	642	(53.9)	27	(2.3)
2005	1,438	0.059	674	(46.9)	32	(2.2)
2006	1,515	0.063	705	(46.5)	39	(2.6)
2007	1,597	0.064	737	(46.1)	47	(2.9)
2008	1,756	0.070	797	(45.4)	39	(2.2)
2009	1,544	0.062	779	(50.5)	37	(2.4)

[a]Human pediatric (≤5 years of age) exposures with medical outcome of death or death, indirect regardless of Relative Contribution to Fatality.

Unintentional exposure reasons: Environmental in 37 cases (3.2%), Therapeutic error in 24 cases (2.1%), Misuse in 14 cases 1.2%). (Table 8)

Acetaminophen/Propoxyphene Fatalities

The current AAPCC generic code system categorizes combination products in most cases by their active ingredients and tables ordered by these groupings. Our current review and reporting methods do not distinguish between the individual components of a combination product. To better understand this issue, an independent team of fatality medical toxicologists reviewed one group of fatality cases (acetaminophen/propoxyphene combination products) as a pilot.

Eight fatalities involved acetaminophen/propoxyphene only – age ranged from 19 to 74 (median 43) year, 5 were female, 6 of the calls were from health care facilities, relative contribution to fatality (RCF) determined by the initial contributor was 1 for 3 cases, 2 for 3 cases, and 3 for 2 cases. An independent team of medical toxicologists (DH Jang and LS Nelson) reviewed these cases for the relative contribution of acetaminophen and propoxyphene to the fatality. Their determination of the relative contribution to fatality (RCF) based on the reports was 1 for 1 case, 2 for 1

Table 19B. Comparisons of Death Data (2006–2009)[a]

	All deaths			Suicides					Pediatric deaths				
Year	Total	Direct	Indirect	Total	% of deaths	Direct	% of direct	Indirect	Total	% of deaths	Direct	% of direct	Indirect
2006	1515	1415	100	705	46.53	687	48.55	18	39	2.57	32	2.26	7
2007	1597	1502	95	737	46.15	712	47.40	25	47	2.94	41	2.73	6
2008	1756	1535	221	797	45.39	750	48.86	47	39	2.22	32	2.08	7
2009	1544	1452	92	779	50.45	748	51.52	31	37	2.40	31	2.13	6

[a]Human exposures with medical outcome of death or death, indirect regardless of Relative Contribution to Fatality.

Table 20. Frequency of Plant Exposures (Top 25)

	Botanical name or Category	AAPCC Generic Code Name	N
1	Botanical terms	Unknown Toxic Types or Unknown if Toxic	3,386
2	Plants-general-unknown	Unknown Toxic Types or Unknown if Toxic	2,863
3	Unknown botanical Name	Unknown Toxic Types or Unknown if Toxic	2,178
4	*Spathiphyllum* spp. (NOS)[a]	Oxalates	1,856
5	*Phytolacca americana* (L.)	Gastrointestinal Irritants (Excluding Oxalate Containing Plants)	1,438
6	*Toxicodendron radicans* (L.)	Skin Irritants (Excluding Oxalate Containing Plants)	1,038
7	*Philodendron* spp. (NOS)	Oxalates	999
8	*Ilex* spp. (NOS)	Gastrointestinal Irritants (Excluding OxalaContaining Plants)	992
9	Arachis hypogaea	Non-Toxic	974
10	*Euphorbia pulcherrima* (Willd.)	Gastrointestinal Irritants (Excluding Oxalate Containing Plants)	906
11	Cherry spp. (NOS)	Amygdalin and/or Cyanogenic Glycosides	636
12	Plants-cardiac glycosides (NOS)	Cardiac Glycosides (Excluding Drugs)	627
13	Plants-cyanogenic glycosides (NOS)	Amygdalin and/or Cyanogenic Glycosides	619
14	*Caladium* spp. (NOS)	Oxalates	569
15	Berry (NOS)	Unknown Toxic Types or Unknown if Toxic	549
16	Mold (NOS)	Unknown Toxic Types or Unknown if Toxic	523
17	Plants-pokeweed	Other Toxic Types	512
18	*Narcissus* pseudonarcissus (L.)	Gastrointestinal Irritants (Excluding Oxalate Containing Plants)	492
19	*Taraxacum officinale*	Non-Toxic	481
20	*Schlumbergera bridgesii*	Non-Toxic	481
21	*Epipremnum areum*	Oxalates	475
22	*Malus* spp. (NOS)	Amygdalin and/or Cyanogenic Glycosides	459
23	*Nandina domestica* (Thumb)	Unknown Toxic Types or Unknown if Toxic	437
24	*Zantedeschia aethiopica*	Oxalates	428
25	*Solanum dulcamara*	Solanine	426

[a]Not otherwise specified.

case, and 3 for 2 cases, 4 or 6 for 4 cases. In none of the cases was acetaminophen clearly the cause of death. In 6 of 8 cases other causes were judged more likely than propoxyphene to have caused the death (propoxyphene was contributory or not involved).

Pediatric fatalities – age ≤5 years

Although children younger than 6 years were involved in the majority of exposures, they comprised 37 of 1,158 (2.4%) of fatalities. These numbers are similar to those reported since 1985 (Table 19 A). The percentage fatalities in children ≤5 years related to total pediatric exposures was 21/1,290,784 = 0.00163%. By comparison, 1,076/853,039 = 0.126% of all adult exposures involved a fatality. Of these 21 pediatric fatalities, 18 (85.7%) were reported as unintentional and 1 (4.7%) were coded as resulting from malicious intent (Table 8). These 21 cases included 7 pharmaceuticals and 14 nonpharmaceuticals. The first ranked substances associated with these fatalities included: disc battery (4 cases); methadone and smoke (3 cases each); kerosene (2 cases) and 10 other substances (1 each).

Pediatric fatalities – ages 6-12 years

In the age range 6 to 12 years, there were 10 reported fatalities (Table 8), 6 of which were unintentional exposures and 2 intentional exposures. These 10 cases included 3 pharmaceuticals and 7 nonpharmaceuticals. The first ranked substances associated with these fatalities included: carbon monoxide or smoke inhalation (5 cases); air freshener aerosol, benzonatate, isopropranol, quetiapine, senna (1 each).

Adolescent fatalities – ages 13-19 years

In the age range 13 to 19 years, there were 48 reported fatalities (Table 8). These 48 cases included 42 pharmaceuticals and 6 nonpharmaceuticals. The first ranked pharmaceuticals associated with these fatalities included: methadone (5 cases); acetaminophen and acetaminophen/diphenhydramine (3 cases each); carbon monoxide, heroin, MDMA, opioid, oxycodone, and unknown drug (2 each) and 23 other substances (1 each).

Of the 48 reported fatalities for adolescents, 32 (66.7%) were suspected suicides, and 7 (14.6%) were intentional abuse exposures (Table 8). The suspected suicide percentage is higher than in recent years. The percentage of intentional abuse cases is lower than in recent years (25.8% in 2006 to 35.7% in 2008). As in the past years, only a small number (2 of 48) of adolescent fatalities were coded as being unintentional.

Pregnancy and fatalities

A total of 26 deaths of pregnant women have been reported from the years 2000 through 2008. An average of 2 deaths per year was recorded from 2000 through 2004. Since 2005, the average number of deaths in pregnant women reported to NPDS doubled to 4 per year. The majority (20 of 26) were intentional exposures of misuse, abuse and suspected suicide. There were no deaths in pregnant women reported to NPDS in 2009.

AAPCC Surveillance Results

A key component of the NPDS surveillance system is the variety of monitoring tools available to the NPDS user community. In addition to AAPCC national surveillance definitions, 37 regional PCs utilize NPDS as part of their surveillance programs. Eleven state health departments have been given NPDS access by their regional centers. Since Surveillance Anomaly 1, generated at 2:00 pm EDT on 17 September 2006, over 151,000 anomalies have been detected. More than 600 were confirmed as being of public health significance with regional PCs working collaboratively with their local and state health departments and in some instances CDC on the public health issues identified.

At the time of this report, 378 surveillance definitions run continuously, monitoring case and clinical effects volume and a variety of case based definitions from food poisoning to nerve agents. These definitions represent the surveillance work by many regional PCs, state health departments, the AAPCC, and Health Studies Branch, Division of Environmental Hazards and Health Effects, National Center for Environmental Health, Centers for Disease Control and Prevention.

In 2009, the NPDS surveillance application module underwent incremental improvements. These included analysis process enhancements such as clinical effect analysis notes simplification. Surveillance reporting enhancements were also implemented in 2009. More enhancements were scheduled for 2010 including: information call surveillance, animal exposure call surveillance, updates to anomaly status tracking and case based time series reports.

Automated surveillance continues to remain controversial as a viable methodology to detect the index case of a public health event. Uniform evaluation algorithms are not available to determine the optimal methodologies.[11] Less controversial is the benefit to situational awareness that NPDS can provide. Typical NPDS surveillance data detects a response to an event rather than event prediction. This aids in situational awareness and resilience during and after a public health event.

On Saturday, 25 April 2009, the Director-General of WHO declared the 2009 H1N1 outbreak a Public Health Emergency of International Concern and recommended that countries intensify surveillance for unusual outbreaks of influenza-like illness and severe pneumonia. Cases were suspected in New York City, Ohio and Kansas.[12] The US followed with declaration of a nationwide public health emergency on 26 April 2009. Calls were also coming into US PCs. Several centers had activated Public Health Emergency lines to specifically manage questions from the public. On 1 May 2009 and again on 20 August 2009, AAPCC and Micromedex® activated two H1N1 vaccine product codes (Inactivated and Live, attenuated) in the Poisindex® products database. Earlier in 2009, on 27 April a general product code for the H1N1 virus was activated. These codes allowed PCs to track exposure and medical information calls related to the Pandemic.

Figure 4 shows a by-week graph of All Information Call data for weeks 15-52 of 2009 showing an unusual ''dip'' between week 18 and week 43. The bottom line shows All H1N1 Info Calls, i.e., calls where the product was H1N1, the live H1N1 Vaccine, or the H1N1. The red curve shows the weighted % of cases of Influenza Like Illness (ILI) data from CDC.[12] The green curve Google Trends for H1N1 over the same interval (relative scale only).[13] The similarity in these profiles illustrates the importance of public access to PCs in times of public health events. US PCs represent the only 24/7 365 system always open where anyone can speak to a health care professional at no charge. This data demonstrates how the public utilizes PCs in times of crisis. This unique system can be supported and enhanced to serve as a national public health hotline providing information and management beyond traditional poison exposure calls.[12]

DISCUSSION

The exposure cases and information requests reported by PCs in 2009 do not reflect the full extent of PC efforts which also include activities such as poison prevention and education.

NPDS exposure data may be considered as providing ''numerator data'', but we lack a true denominator, that is, we do not know the number of actual exposures that occur in the population. NPDS data covers only those exposures which are reported to PCs.

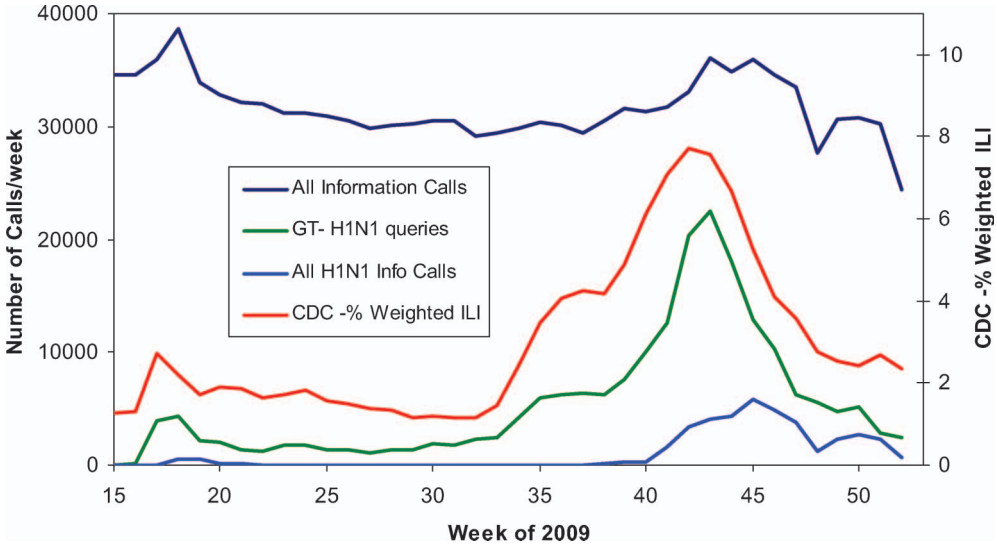

Fig. 4. All Information Calls, H1N1 Information Calls, CDC Influenza-Like Illness, Google H1N1 queries by Week since 6-Apr-2009.

All Information Calls and All H1N1 Calls/week are shown on the left axis, patients with influenza-like illness (ILI) reported to CDC are shown on the right axis. Google Trends for H1N1 is not a scaled variable and is shown at a convenience scale.

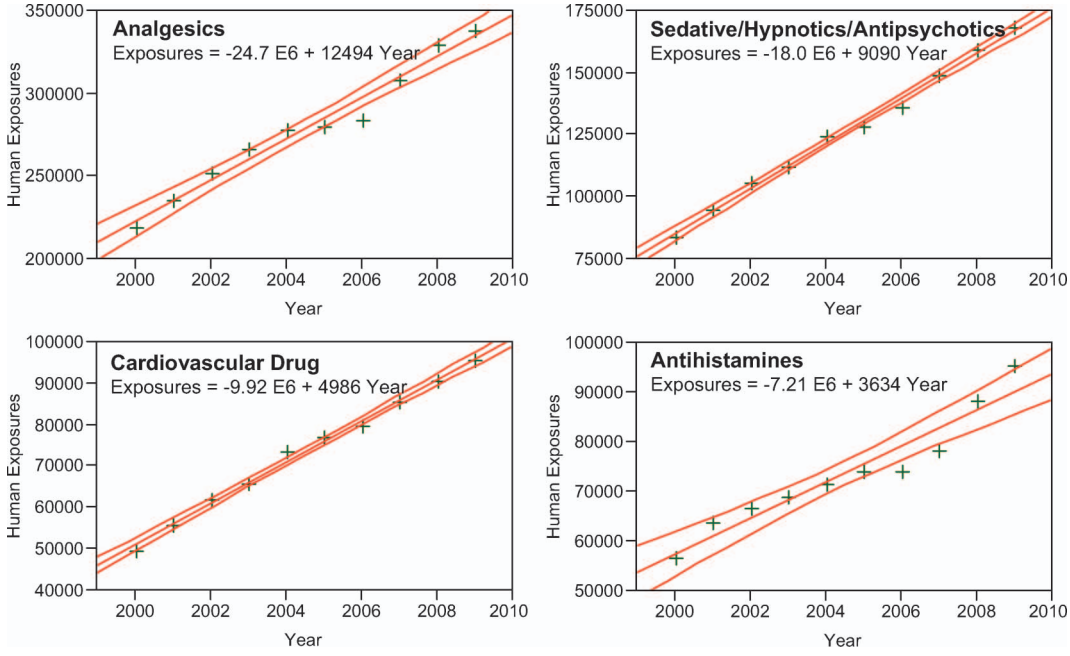

Fig. 5. Human Exposure Calls By Year 2000–2009 – Top 4 Categories.

Solid lines show least-squares linear regressions for the Human Exposure Calls per year for that category (+). Broken lines show 95% confidence interval on the regression.

Depending on the source, the numbers may be different, but NPDS regression analyses confirms that all analgesic exposures including opioids and sedatives are increasing year after year. This trend is shown in Table 17B and Figure 5. NPDS data mirrors CDC data that demonstrates similar findings.[14] Thus NPDS provides a real-time view of these public health issues without the need for data source extrapolations.

One of the limitations of NPDS data has been the perceived lack of fatality case volume compared to other reporting sources. However, when change over time is studied, NPDS is clearly consistent with other public health analyses. One of the issues leading to this problem is the fact that medical record systems seldom have common output streams. This is particularly apparent with the various electronic medical record systems available. It is important to build a federated

approach similar to the one modeled by NDPS to allow data sharing, for example, between hospital emergency departments and other medical record systems including medical examiner offices nationwide. Enhancements to NPDS can promote interoperability between NPDS and electronic medical records systems to better trend poison-related morbidity and mortality in the US and internationally.

SUMMARY

Salient findings from this 27th Annual Report include:

- The number of human exposure calls in 2009 was less than 2008 and the second order least squares regression for 2000-2009 calls by day departed from linearity (declining rate since mid 2007);
- Both total information calls and drug information calls in 2009 were greater than 2008, but the second order least squares regression for 2000-2009 calls by day departed from linearity (declining rate of increase);
- Drug identification calls show a distinct drop in late 2009 and the most frequently identified drug is miscellaneous and unknown – it is important to AAPCC to continue providing and improving this important public health service;
- HCF information calls have been declining since 2005, but HCF exposure calls are continuing to increase linearly since 2000, suggesting PC use in the more severe cases continues to increase.

Unintentional and intentional exposures continue to be a significant cause of morbidity and mortality in the US. The near real-time, always current status of NPDS represents a national public health resource to collect and monitor US exposure cases and information calls. The continuing mission of NPDS is to provide a nationwide infrastructure for public health surveillance for all types of exposures, public health event identification, resilience response and situational awareness tracking. NPDS is a model system for the nation and global public health.

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Disclaimer

The American Association of Poison Control Centers (AAPCC; http://www.aapcc.org) maintains the national database of information logged by the country's regional Poison Centers (PCs) serving all 50 United States, Puerto Rico and the District of Columbia. Case records in this database are from self-reported calls: they reflect only information provided when the public or healthcare professionals report an actual or potential exposure to a substance (e.g., an ingestion, inhalation, or topical exposure, etc.), or request information/educational materials. Exposures do not necessarily represent a poisoning or overdose. The AAPCC is not able to completely verify the accuracy of every report made to member centers. Additional exposures may go unreported to PCs and data referenced from the AAPCC should not be construed to represent the complete incidence of national exposures to any substance(s).

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Non-Pharmaceutical Exposures										
Alcohols										
1pa	8 y M				U	Unk	Oth-M	3		
		isopropranol	1	1						
2pha	19 y M				U	Ingst	Int-S	3		
		ethanol	1	1					ethanol	231 mg/dL In Serum @ Unknown
		ethanol	1	1					ethanol	83 mg/dL In Blood (unspecified) @ Autopsy
		diazepam	2	2					nordiazepam	38 ng/mL In Serum @ Unknown
		diazepam	2	2					diazepam	84 ng/mL In Serum @ Unknown
3p	21 y M				A	Ingst	Int-U	2		
		methanol	1	1					methanol	141 mg/dL In Blood (unspecified) @ Autopsy
		methanol	1	1					methanol	208 mcg/dL In Urine (quantitative only) @ Autopsy
4	25 y F				A	Ingst	Unk	2		
		alcohol, unknown	1	1						
		metformin	2	2						
5pa	30 y M				A/C	Ingst+ Unk	Int-U	2		
		ethanol	1	1					ethanol	0.25 g/dL In Blood (unspecified) @ Autopsy
		ethanol	1	1					ethanol	0.3 g/dL In Vitreous @ Autopsy
		cocaine	2	2					benzoylecognine	0.06 mcg/mL In Blood (unspecified) @ Autopsy
		cocaine	2	2					cocaine	0.07 mcg/mL In Blood (unspecified) @ Autopsy
		heroin	3	3					morphine	0.06 mcg/mL In Blood (unspecified) @ Autopsy
		heroin	3	3					morphine	48 mcg/mL In Bile @ Autopsy
		ibuprofen	4	4						
		drug, unknown	5	5						
6	31 y F				A/C	Ingst	Int-A	2		
		ethanol	1	1						
		acetaminophen/ hydrocodone	2	2					acetaminophen	180 mcg/mL In Serum @ Unknown
7pha	36 y F				C	Ingst	Int-A	3		
		ethanol	1	1						
8	40 y F				A	Ingst+ Par	Int-S	3		
		ethanol	1	1						
		insulin	2	2						
		iron	3	3						
9	40 y F				A	Ingst	Int-S	1		
		methanol	1	1						
10	42 y M				A/C	Ingst	Int-S	2		
		ethanol	1	1						
		acetaminophen	2	2						
		acetaminophen/ hydrocodone	3	3						
		diazepam	4	4						
11pa	43 y F				A/C	Ingst	Unk	2		
		ethanol	1	1					ethanol	0.58 g/dL In Vitreous @ Autopsy
		acetaminophen/ diphenhydramine	2	2						
12pha	44 y F				A	Unk	Int-A	2		
		ethanol	1	1						
		opioid	2	2						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Alcohols, continued										
		drug, unknown	3	3						
[13ph]	44 y F				A	Ingst	Int-S	1		
		methanol	1	1					methanol	14 mg/mL In Serum @ 24 h (pe)
		methanol	1	1					methanol	269 mg/dL In Serum @ 4 h (pe)
14ph	45 y M				A	Ingst	Int-U	3		
		ethanol	1	1					ethanol	0.475 g/dL In Serum @ 1 h (pe)
15	45 y F				A/C	Ingst	Int-A	1		
		ethanol	1	1						
		acetaminophen	2	2						
		acetaminophen/ hydrocodone	3	3						
16pa	46 y F				A/C	Ingst+ Unk	Int-A	2		
		ethanol	1	1					ethanol	0.29% In Blood (unspecified) @ Autopsy
[17]	47 y M				C	Ingst	Int-S	1		
		methanol	1	1					methanol	200 mg/dL In Blood (unspecified) @ Unknown
18pa	47 y F				A	Ingst	Int-A	2		
		ethanol	1	1					ethanol	400 mg/dL In Serum @ Unknown
19a	47 y F				A	Ingst	Int-S	3		
		isopropanol	1	1						
		laundry additive	2	2						
20a	49 y F				A	Ingst	Int-S	3		
		ethanol	1	1					ethanol	0.07 mg/dL In Blood (unspecified) @ 15 m (pe)
		isopropanol	2	2					acetone	1.8 mg/dL In Whole Blood @ Autopsy
		isopropanol	2	2					isopropanol	3 mg/dL In Whole Blood @ Autopsy
		hydrocodone	3	4					hydrocodone	34 ng/mL In Whole Blood @ Autopsy
		midazolam	5	5					midazolam	41 ng/mL In Whole Blood @ Autopsy
		lorazepam	4	6					lorazepam	7.4 ng/mL In Whole Blood @ Autopsy
21p	50 y M				A	Ingst	Int-S	2		
		methanol	1	1						
22a	50 y M				A	Ingst	Unt-G	2		
		ethanol	1	1					ethanol	0.352% (wt/Vol) In Blood (unspecified) @ Unknown
		alprazolam*	2	2					alprazolam	70 ng/mL In Blood (unspecified) @ Unknown
		ibuprofen*	4	2						
		tramadol	3	3					tramadol	54 ng/mL In Blood (unspecified) @ Autopsy
23	50 y M				A	Ingst	Int-S	1		
		ethanol	2	1					ethanol	400 mg/dL In Serum @ Unknown
		antifreeze (ethylene glycol)	1	2					ethylene glycol	1.3 mg/dL In Serum @ Unknown
		antifreeze (ethylene glycol)	1	2					ethylene glycol	1.4 mg/dL In Serum @ Unknown
		drug, unknown	3	3						
24	52 y M				U	Unk	Unk	3		
		ethanol	1	1					ethanol	200 mg/dL In Serum @ Unknown

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Alcohols, continued										
25	52 y M				U	Ingst	Int-S	1		
		methanol	1	1					methanol	288 mg/dL In Serum @ Unknown
		methanol	1	1					methanol	70.2 mg/dL In Serum @ Unknown
26h	52 y M				A	Unk	Unk	3		
		ethanol	1	1						
		diquat	2	2						
27	53 y F				U	Ingst	Unk	1		
		methanol	1	1					methanol	224.8 mg/dL In Blood (unspecified) @ Unknown
28p	54 y M				A	Ingst	Unk	3		
		drug, unknown*	2	1						
		ethanol*	1	1						
29a	54 y M				A	Ingst	Unk	1		
		methanol	1	1					methanol	96 mg/dL In Blood (unspecified) @ Unknown
30	54 y F				A/C	Ingst	Int-U	1		
		isopropanol	1	1						
		ethanol	2	2						
31ha	55 y M				A	Ingst	Int-S	1		
		ethanol	1	1					ethanol	0.023% (wt/Vol) In Serum @ 1 h (pe)
		propylene glycol	2	2						
32	55 y F				A	Ingst	Int-S	3		
		ethanol	1	1						
33	60 y M				A	Ingst	Unt-M	3		
		ethanol	1	1						
34	61 y F				U	Ingst	Int-S	2		
		ethanol	1	1					ethanol	120 mg/dL In Serum @ Unknown
		ethanol	1	1					ethanol	239 mg/dL In Serum @ Unknown
		acetaminophen/ hydrocodone*	2	2						
		antifreeze (ethylene glycol)*	3	2						
		isopropanol	4	3						
35	64 y M				C	Ingst	Int-A	1		
		ethanol	1	1					ethanol	289 mg/dL In Blood (unspecified) @ 1 h (pe)
		ammonia	2	2						
36a	64 y M				A	Ingst	Int-S	2		
		ethanol	1	1						
		opioid	2	2						
37	65 y M				C	Ingst	Int-M	1		
		ethanol	1	1					ethanol	400 mg/dL In Blood (unspecified) @ Unknown
38	73 y F				A	Ingst	Int-S	2		
		alcohol, unknown	1	1						
		zolpidem	2	2						
39	60+ y M				C	Ingst+ Inhal	Oth-W	2		
		ethanol	1	1						
			2	2						

See Also case 71, 86, 87, 88, 104, 143, 184, 192, 193, 202, 216, 221, 229, 232, 240, 252, 255, 263, 276, 278, 284, 297, 301, 304, 318, 330, 342, 353, 357, 361, 367, 368, 378, 380, 383, 384, 390, 394, 400, 402, 403, 404, 409, 414, 418, 419, 429, 432, 451, 453, 473, 477, 478, 479, 484, 494, 498, 499, 502, 512, 514, 516, 519, 529, 531, 558, 561, 567, 571, 578, 599, 611, 621, 623, 626, 635, 643, 658, 668, 682, 689, 692, 703, 708, 715, 722, 736, 738, 749, 751, 756, 775, 777, 778, 788, 792, 828, 847, 859, 868, 874, 880, 882, 892, 900, 961, 970, 971, 992, 1003, 1009, 1010, 1011, 1012, 1034, 1044, 1049, 1056, 1078, 1089, 1097, 1108, 1114, 1120, 1122, 1131, 1158

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Automotive/Aircraft/Boat Products										
40p	19 y F				A	Ingst+ Inhal	Int-S	1		
		methanol	1	1						
		petroleum distillate	2	2						
41	28 y F				A	Ingst	Unt-G	2		
		methanol	1	1						
		chemical, unknown	3	3						
42	30 y M				A	Ingst	Int-S	2		
		antifreeze (ethylene glycol)	1	1					ethylene glycol	10 mg/dL In Unknown @ Unknown
		antifreeze (ethylene glycol)	1	1					ethylene glycol	45 mg/dL In Unknown @ Unknown
43p	32 y M				A	Ingst	Int-S	1		
		antifreeze (ethylene glycol)	1	1						
44	38 y M				U	Ingst	Int-S	2		
		antifreeze (ethylene glycol)	1	1						
		metoprolol	2	2						
		clonazepam	3	3						
		hydroxyzine	4	4						
		citalopram	5	5						
45	42 y M				A	Ingst	Int-S	3		
		antifreeze (ethylene glycol)	1	1						
		acetaminophen	2	2						
46	45 y M				A	Ingst	Int-S	1		
		antifreeze (ethylene glycol)	1	1					ethylene glycol	120 mg/dL In Blood (unspecified) @ Unknown
		drug, unknown	2	2						
47ai	47 y F				U	Unk	Int-S	1		
		antifreeze (ethylene glycol)	1	1					ethylene glycol	110 mg/dL In Serum @ Unknown
		tricyclic antidepressant	2	2						
		barbiturates (extended release)	3	3						
48a	48 y M				A	Ingst	Int-S	1		
		antifreeze (ethylene glycol)	1	1					ethylene glycol	10 mg/dL In Serum @ Unknown
		antifreeze (ethylene glycol)	1	1					glycolic acid	124 mg/dL In Serum @ Unknown
49p	48 y M				A	Ingst	Int-S	1		
		antifreeze (ethylene glycol)	1	1					ethylene glycol	151 mg/dL In Unknown @ Unknown
		chemical. unknown	2	2						
50	48 y F				A	Ingst	Int-S	1		
		antifreeze (ethylene glycol)	1	1						
		drug, unknown	2	2						
51p	50 y M				U	Ingst	Int-S	1		
		antifreeze (ethylene glycol)	1	1						
		brake fluid	2	2						
		lubricating oil	3	3						
		clozapine	4	4						
		gabapentin	5	5						
52	50 y M				A/C	Ingst	Int-S	1		
		antifreeze (ethylene glycol)	1	1					ethylene glycol	32 mg/dL In Serum @ Unknown
[53p]	53 y M				A	Ingst	Int-S	1		
		antifreeze (ethylene glycol)	1	1						
[54pa]	55 y F				U	Ingst	Int-S	1		
		antifreeze (ethylene glycol)	1	1					ethylene glycol	50 mg/dL In Serum @ Unknown

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Automotive/Aircraft/Boat Products, continued										
		methadone	2	2					methadone	134 ng/mL In Serum @ Unknown
		benzodiazepine	3	3					alprazolam	40.8 ng/mL In Serum @ Unknown
55pa	56 y M				A	Ingst	Int-S	1		
		antifreeze (ethylene glycol)	1	1					ethylene glycol	4 mg/dL In Blood (unspecified) @ Autopsy
56	58 y M				A	Ingst	Int-S	1		
		antifreeze (ethylene glycol)	1	1						
57	70 y F				A	Ingst	Int-U	2		
		antifreeze (ethylene glycol)	1	1						
		drug, unknown	2	2						
58	75 y M				A	Ingst	Int-U	1		
		antifreeze (ethylene glycol)	1	1					ethylene glycol	196 mg/dL In Serum @ 34 h (pe)
59a	77 y M				A	Ingst	Unt-G	2		
		cleaner (anionic/ nonionic)	1	1						
Batteries										
[60ha]	2 y M				A	Ingst	Unt-G	1		
		disc battery	1	1						
61a	2 y F				A	Ingst	Unt-G	1		
		disc battery, lithium	1	1						
62pha	15 m M				A	Ingst	Unt-G	1		
		disc battery, lithium	1	1						
63ha	16 m F				A	Ingst	Unt-G	1		
		disc battery, lithium	1	1						
Bites and Envenomations										
64	21 y M				A	B-S	Unt-B	3		
		envenomation, crotalid	1	1						
65	53 y M				A	B-S	Unt-B	3		
		envenomation, crotalid	1	1						
66p	68 y M				A	B-S	Unt-B	1		
		envenomation, crotalid	1	1						
Chemicals										
67	3 y M				A	Ingst	Unt-G	1		
		hydrofluoric acid	1	1						
68pa	21 y M				A	Inhal	Unt-O	1		
		liquid nitrogen	1	1						
[69a]	23 y F				A	Derm	Unt-O	1		
		lithium, alkyls	1	1						
70	25 y M				U	Unk	Int-S	1		
		antifreeze (ethylene glycol)	1	1						
71a	29 y F				A	Ingst	Int-S	1		
		antifreeze (ethylene glycol)	1	1						
		clonazepam	2	2						
		ethanol	3	3						
72h	30 y M				A	Ingst	Int-A	2		
		antifreeze (ethylene glycol)	1	1						
73	31 y M				A	Ingst	Int-U	1		
		sodium hydroxide	1	1						
[74pa]	31 y M				A	Inhal+ Derm	Unt-O	1		
		ammonia	1	1						
75	34 y M				A	Ingst	Unt-G	1		
		antifreeze (ethylene glycol)	1	1						
76p	35 y M				A	Ingst	Int-S	1		
		cyanide	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Chemicals, continued										
77a	42 y F				A	Ingst	Int-S	1		
		antifreeze (ethylene glycol)	1	1					ethylene glycol	310 mg/dL In Blood (unspecified) @ 6 h (pe)
		antifreeze (ethylene glycol)	1	1					ethylene glycol	55 mg/dL In Blood (unspecified) @ 21 h (pe)
78pa	44 y M				A	Ingst	Int-S	1		
		sodium azide	1	1						
[79pa]	45 y M				A	Inhal	Unt-O	1		
		cyanide	1	1					cyanide	18 mcg/mL In Serum @ Autopsy
[80a]	45 y F				A	Inhal	Unt-M	1		
		methyl bromide	1	1						
81	46 y F				A	Ingst	Int-S	1		
		antifreeze (ethylene glycol)	1	1						
82pa	47 y F				U	Ingst+ Unk	Int-S	1		
		antifreeze (ethylene glycol)	1	1					ethylene glycol	691 mg/L In Blood (unspecified) @ Autopsy
		clonazepam	2	2						
		simvastatin	3	3						
83pa	47 y F				A	Ingst	Int-S	1		
		antifreeze (ethylene glycol)	1	1					ethylene glycol	27 mg/dL In Blood (unspecified) @ 24 h (pe)
		acetaminophen/ propoxyphene	2	2					acetaminophen	16.1 mcg/mL In Serum @ Unknown
		alprazolam	3	3						
84	47 y M				A	Ingst	Oth-M	1		
		antifreeze (ethylene glycol)	1	1					ethylene glycol	37 mg/dL In Blood (unspecified) @ Unknown
		antifreeze (ethylene glycol)	1	1					ethylene glycol	74 mg/dL In Blood (unspecified) @ Unknown
		antifreeze (ethylene glycol)	1	1					ethylene glycol	83 mg/dL In Blood (unspecified) @ Unknown
[85h]	53 y M				A	Inhal+ Oc+ Derm	Unt-O	1		
		ammonia	1	1						
86pai	57 y M				A	Ingst	Int-S	1		
		cyanide	1	1					cyanide	13 mg/L In Blood (unspecified) @ Autopsy
		cocaine	2	2					cocaine	0.1 mg/L In Blood (unspecified) @ Autopsy
		cocaine	2	2					benzoylecognine	1 mg/L In Blood (unspecified) @ Autopsy
		diltiazem	3	3					diltiazem	0.1 mg/L In Blood (unspecified) @ Autopsy
		hydrocodone	4	4						
		diphenhydramine	5	5						
		ethanol	6	6					ethanol	0.03% (wt/Vol) In Blood (unspecified) @ Autopsy
		acetaminophen	7	7					acetaminophen	9 mg/L In Blood (unspecified) @ Autopsy

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Chemicals, continued										
87	58 y M				A	Ingst+ Aspir	Unt-T	1		
		carbon	1	1						
		acetaminophen/ diphenhydramine	2	2						
		ethanol	3	3						
88	58 y M				A	Ingst	Unk	1		
		antifreeze (ethylene glycol)	1	1						
		ethanol	2	2						
89	60 y M				A/C	Ingst	Int-S	2		
		borate	3	1						
		insulin	2	2						
		rodenticide, unknown	4	4						
90	62 y M				A	Ingst	Unk	2		
		sulfuric acid	1	1						
		chlorophenoxy	2	2						
91	63 y M				A	Ingst	Int-S	1		
		sulfuric acid	1	1						
92	64 y M				A	Ingst	Unk	1		
		sulfuric acid	1	1						
93	69 y M				A	Ingst	Int-S	1		
		antifreeze (ethylene glycol)	1	1						
		colchicine	2	2						
94	71 y F				A	Ingst	Int-S	2		
		acetic acid	1	1						
[95ha]	75 y M				A	Ingst	Int-S	1		
		drain cleaner (alkali)	1	1						
96a	77 y F				A	Ingst	Int-S	1		
		sodium hydroxide	1	1						
97	81 y M				A	Ingst	Int-S	3		
		carbon black	2	1						
		acetaminophen	1	2					acetaminophen	136 mg/mL In Serum @ 3.2 h (pe)
		acetaminophen	1	2					acetaminophen	45 mg/mL In Serum @ 6 h (pe)
98i	Unknown adult (> = 20 yrs) M				A	Ingst	Int-S	2		
		cyanide	1	1						
See Also case 23, 31, 34, 41, 131, 146, 178, 618										
Cleaning Substances (Household)										
99a	30 y F				A	Ingst+ Aspir+ Derm	Int-S	1		
		sodium hydroxide	1	1						
100	32 y M				A	Ingst	Int-S	1		
		antibacterial all purpose cleaner	1	1						
[101a]	34 y F				A	Ingst	Int-S	1		
		drain cleaner (sulfuric acid)	1	1						
102	36 y F				A	Ingst	Int-S	2		
		drain cleaner	1	1						
		salicylate	2	2					salicylate	6 mg/dL In Blood (unspecified) @ 1 h (pe)
103	56 y F				A	Ingst	Int-S	1		
		laundry detergent	1	1						
104a	56 y M				A	Ingst	Int-A	2		
		disinfectants (pine oil)	1	1						
		dishwasher rinse additive	2	2						
		ethanol	3	3					ethanol	0.129 mg/dL In Blood (unspecified) @ Unknown

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Cleaning Substances (Household), continued										
[105a]	60 y F				A	Ingst	Int-S	1		
		hypochlorite	1	1						
		ammonia	2	2						
[106]	62 y M				A	Ingst	Int-S	1		
		sodium hydroxide	1	1						
107	65 y M				A	Ingst	Int-S	1		
		toilet bowl cleaner (acid)	1	1						
[108ha]	70 y F				A	Ingst	Int-S	1		
		hydrofluoric acid	1	1						
[109a]	70 y F				A	Ingst	Unt-G	2		
		cleaner (anionic/nonionic)	1	1						
110	75 y M				A	Ingst+ Aspir	Int-S	1		
		hydrochloric acid	1	1						
111h	79 y F				A	Derm	Unk	1		
		toilet bowl cleaner (acid)	1	1						
112h	80 y F				A	Ingst+ Aspir+ Derm	Unt-G	1		
		disinfectants (pine oil)	1	1						
113	84 y M				A	Ingst	Unt-G	3		
		soap	1	1						
114	85 y M				A	Ingst	Unt-G	3		
		disinfectants (pine oil)	1	1						
[115a]	88 y F				A	Ingst	Unt-M	1		
		oven cleaner (alkali)	1	1						
See Also case 19, 35, 474, 1136										
Cosmetics/Personal Care Products										
116	40 y M				A	Ingst+ Derm	Int-S	1		
		methacrylic acid	1	1						
117a	49 y M				A	Ingst	Int-A	3		
		aftershave/cologne/perfume	1	1					ethanol	219 mg/dL In Blood (unspecified) @ Unknown
118	51 y M				C	Ingst	Int-A	3		
		ethanol	1	1						
119	65 y M				A	Ingst	Int-A	3		
		ethanol	1	1						
120ha	13 m F				A	Ingst+ Aspir	Unt-G	2		
		baby oil	1	1						
		heparin	2	2						
Deodorizers										
121pa	8 y M				A	Inhal	Int-U	1		
		air freshener aerosol	1	1						
Fire Extinguishers										
[122a]	34 y M				A	Inhal	Int-M	1		
		fire extinguisher, dry	1	1						
Foreign Bodies/Toys/Miscellaneous										
123pha	54 y F				A	Ingst	Int-A	3		
		cocaine*	2	1					cocaine	1.65 ng/mL In Urine (quantitative only) @ Autopsy
		cocaine*	2	1					morphine	12.5 ng/mL In Blood (unspecified) @ Autopsy
		cocaine*	2	1					morphine	2206 ng/mL In Urine (quantitative only) @ Autopsy

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Foreign Bodies/Toys/Miscellaneous, continued										
		cocaine*	2	1					codeine	88 ng/mL In Urine (quantitative only) @ Autopsy
		foreign body*	1	1						
See Also case 686, 763										
Fumes/Gases/Vapors										
124pa	3 y M				A	Inhal	Unt-E	1		
		smoke	1	1					carboxy-hemoglobin	26% In Blood (unspecified) @ Autopsy
125pa	5 y M				A	Inhal	Unt-E	1		
		smoke	1	1					carboxy-hemoglobin	45.3% In Blood (unspecified) @ Autopsy
126p	7 y M				A	Inhal	Unt-E	1		
		smoke	1	1					carboxy-hemoglobin	37% In Blood (unspecified) @ 1 h (pe)
127p	10 y F				A	Inhal	Unt-E	1		
		smoke	1	1					carboxy-hemoglobin	42% (wt/Vol) In Blood (unspecified) @ Unknown
128p	10 y F				A	Inhal	Unt-E	1		
		smoke	1	1						
129pa	11 y M				A	Inhal	Unt-E	1		
130p	11 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxy-hemoglobin	1.4% In Whole Blood @ 6 h (pe)
		hydroxocobalamin	2	2						
131	17 y F				A	Inhal	Unt-E	2		
		carbon monoxide	1	1						
		cyanide	2	2						
[132pha]	18 y M				A	Inhal	Int-S	1		
		hydrogen sulfide	1	1						
133p	19 y F				A	Inhal	Int-S	1		
		carbon monoxide	1	1					carboxy-hemoglobin	66% In Whole Blood @ Unknown
[134ha]	20 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxy-hemoglobin	41.1% In Blood (unspecified) @ Unknown
		alprazolam	2	2						
135pi	20 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
136ph	21 y F				A	Inhal	Unt-E	1		
		smoke	1	1					carboxy-hemoglobin	34.2% In Whole Blood @ Unknown
		carbon monoxide	2	2						
137pa	21 y M				A	Inhal	Int-S	2		
		hydrogen sulfide	1	1						
138pi	22 y M				A	Inhal	Int-S	1		
		hydrogen sulfide	1	1						
139	23 y M				A	Inhal	Unt-O	1		
		hydrogen sulfide	1	1						
140pai	26 y M				A	Ingst	Unt-E	1		
		carbon monoxide	1	1					carboxy-hemoglobin	58% In Blood (unspecified) @ Autopsy
[141a]	29 y M				A	Ingst	Int-S	1		
		phosphine	1	1						
142pha	31 y F				A	Inhal	Int-S	1		
		carbon monoxide	1	1					carboxy-hemoglobin	54% In Whole Blood @ Autopsy
		carbon monoxide	1	1					carboxy-hemoglobin	64% In Blood (unspecified) @ 1 h (pe)

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Fumes/Gases/Vapors, continued										
143pa	33 y F				A	Inhal	Unt-E	1		
		smoke	1	1					carboxy-hemoglobin	34% In Blood (unspecified) @ 1 h (pe)
		ethanol	2	2					ethanol	112 mg/dL In Blood (unspecified) @ 1 h (pe)
144p	38 y F				A	Ingst	Int-U	3		
		helium	1	1						
145pa	40 y M				A	Inhal	Unt-O	1		
		carbon monoxide	1	1					carboxy-hemoglobin	45.9% (wt/Vol) In Blood (unspecified) @ Unknown
146p	40 y M				A	Inhal	Int-M	2		
		smoke	1	1						
		fume, gas, or vapor; unknown	2	2						
		cyanide	3	3						
[147ph]	41 y M				U	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxy-hemoglobin	75% In Blood (unspecified) @ Unknown
148p	42 y M				A	Inhal	Unt-O	1		
		hydrogen sulfide	1	1						
149pai	43 y F				A	Inhal	Unt-E	1		
		smoke	1	1					carboxy-hemoglobin	56% In Blood (unspecified) @ Unknown
150pa	44 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxy-hemoglobin	10.9% In Blood (unspecified) @ Autopsy
151p	44 y M				A	Inhal	Int-S	1		
		methane	1	1						
152p	44 y M				A	Ingst	Int-S	1		
		helium	1	1						
153p	45 y M				A	Inhal	Unt-E	2		
		carbon monoxide	1	1					carboxy-hemoglobin	33.8 mg/dL In Blood (unspecified) @ 1 h (pe)
154phai	46 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxy-hemoglobin	42.7% In Blood (unspecified) @ Autopsy
[155pa]	46 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxy-hemoglobin	42% In Blood (unspecified) @ Autopsy
156pha	46 y F				A	Inhal	Unt-E	1		
		smoke	1	1						
		carbon monoxide	2	2					carboxy-hemoglobin	45.5% (wt/Vol) In Serum @ Unknown
		carbon monoxide	2	2					carboxy-hemoglobin	6% (wt/Vol) In Serum @ Unknown
[157p]	52 y M				A	Inhal	Unt-O	1		
		hydrogen sulfide	1	1						
[158p]	53 y M				A	Inhal	Unt-O	1		
		hydrogen sulfide	1	1						
159p	53 y F				A	Inhal	Unt-E	3		
		carbon monoxide	1	1					carboxy-hemoglobin	48.7% In Whole Blood @ Unknown
[160pa]	54 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxy-hemoglobin	50.4% In Blood (unspecified) @ Autopsy
		oxycodone	2	2					oxycodone	41.7 ng/mL In Blood (unspecified) @ Autopsy

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Fumes/Gases/Vapors, continued										
161p	55 y M				A	Inhal	Unt-O	2		
		sulfur dioxide	1	1						
162h	57 y F				A	Inhal	Unk	3		
		carbon monoxide	1	1						
163p	57 y F				A	Inhal	Int-S	1		
		carbon monoxide	1	1					carboxy-hemoglobin	38% In Blood (unspecified) @ Unknown
164ph	58 y F				A	Inhal	Int-S	1		
		smoke	1	1						
		carbon monoxide	2	2						
165p	59 y M				A	Inhal	Int-S	1		
		helium	1	1						
166ph	59 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxy-hemoglobin	10% In Whole Blood @ 6 h (pe)
[167pa]	62 y M				C	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxy-hemoglobin	73.3% In Blood (unspecified) @ Autopsy
168pa	62 y F				C	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxy-hemoglobin	51.7% In Blood (unspecified) @ Autopsy
169pa	64 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxy-hemoglobin	54.1% In Blood (unspecified) @ Autopsy
170pai	66 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
171ph	69 y F				A	Inhal	Unt-G	2		
		smoke	1	1						
172	72 y F				A	Inhal	Unt-G	3		
		fume, gas, or vapor; unknown	1	1						
		smoke	2	2						
173pi	76 y M				A	Inhal	Unt-E	2		
		carbon monoxide	1	1						
174ha	78 y M				A	Inhal	Unt-E	1		
		carbon monoxide	2	1					carboxy-hemoglobin	32.9% In Whole Blood @ Unknown
		smoke	1	2						
175p	84 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxy-hemoglobin	49% In Blood (unspecified) @ Unknown
176	86 y F				A	Inhal	Unt-E	3		
		smoke	1	1						
177pi	86 y M				A	Inhal	Unt-M	2		
		carbon monoxide	1	1						
178p	93 y F				A	Inhal	Unt-E	3		
		carbon monoxide	1	1						
		cyanide	2	2						
179pha	10 m M				A	Inhal	Unt-E	1		
		smoke	1	1						
180p	30+ y M				U	Inhal	Int-A	1		
		butane	1	1						
181p	60+ y M				A	Inhal	Unt-E	1		
		smoke	1	1						
		hydroxycobalamin	2	2						
182i	Unknown adult (> = 20 yrs) M				A	Inhal	Int-S	2		
		carbon monoxide	1	1						
183	Unknown adult (> = 20 yrs) M				A	Inhal	Unt-O	2		
		Nitrogen oxide	1	1						
184pai	Unknown adult (> = 20 yrs) F				U	Ingst+ Inhal	Int-S	1		

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Fumes/Gases/Vapors, continued										
		carbon monoxide	1	1					carboxy-hemoglobin	70.6% In Blood (unspecified) @ Autopsy
		ethanol*	2	2						
		lorazepam*	3	2					lorazepam	17.7 ng/mL In Plasma @ Autopsy
185p	Unknown adult (> = 20 yrs) F				A	Inhal	Int-S	2		
		carbon dioxide	1	1						
186pa	Unknown adult (> = 20 yrs) M				A	Inhal	Unt-O	1		
		hydrogen sulfide	1	1						
187p	Unknown adult (> = 20 yrs) M				A	Inhal	Unk	1		
		carbon monoxide	1	1						
188p	Unknown adult (> = 20 yrs) M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
189p	Unknown adult (> = 20 yrs) M				A	Inhal	Int-S	2		
		hydrogen sulfide	1	1						
190pi	Unknown adult (> = 20 yrs) M				A	Inhal	Int-S	1		
		carbon monoxide	1	1						
191	Unknown adult (> = 20 yrs) M				A	Inhal	Unt-E	3		
		smoke	1	1						
See Also case 327										
Heavy Metals										
[192ha]	23 y M				A	Ingst+ Aspir	Oth-M	1		
		mercury	1	1					mercury, elemental	3951 mcg/L In Urine (quantitative only) @ 17 h (pe)
		mercury	1	1					mercury, elemental	838 mcg/L In Whole Blood @ 17 h (pe)
		ethanol	2	2						
		quetiapine	3	3						
[193h]	36 y M				A	Ingst	Int-S	1		
		thallium	1	1						
		ethanol	2	2						
[194h]	41 y F				A	Ingst	Int-S	1		
		copper	1	1						
195	73 y M				U	Ingst	Unt-G	2		
		magnesium sulfate	1	1						
See Also case 911, 1054										
Hydrocarbons										
196	2 y F				A	Ingst+ Aspir	Unt-G	1		
		kerosene	1	1						
197p	2 y M				A	Ingst+ Aspir	Unt-G	1		
		lamp oil	1	1						
198	23 y F				A	Inhal	Int-A	1		
		fluorochlorocarbon/ propellant	1	1						
199pi	27 y M				A	Inhal	Int-A	1		
		fluorochlorocarbon/ propellant	1	1						
[200ha]	62 y M				A	Ingst+ Derm	Unt-G	1		
		kerosene	1	1						
201	92 y M				A	Ingst+ Aspir	Unt-M	1		
		hydrocarbons	1	1						
202a	14 m M				A	Ingst+ Aspir+ Oc+ Derm	Unt-G	1		
		mineral spirits	1	1						
		ethanol, denatured	2	2						
[203pha]	14 m M				A	Ingst	Unt-G	1		
		kerosene	1	1						
See Also case 40, 51, 214, 216										

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Mushrooms										
[204h]	31 y F				A	Ingst	Unt-G	1		
		Amanita phalloides	1	1						
[205ha]	51 y M				A	Ingst	Int-M	1		
		mushrooms	1	1						
206	74 y M				A	Ingst	AR-F	3		
		Ganoderma lucidum	2	1						
		acetaminophen	1	2						
207	82 y M				A	Ingst	AR-F	2		
		Amanita species	1	1						
Other/Unknown Nondrug Substances										
208i	14 y M				A	Ingst	Oth-C	2		
		substance (non-drug), unknown	1	1						
209p	38 y F				A	Inhal	Unk	1		
		hyperthermia	1	1						
210p	40 y M				A	Inhal	Unk	1		
		hyperthermia	1	1						
211ha	43 y M				U	Unk	Unk	3		
		substance (non-drug), unknown	1	1						
212p	49 y F				A	Unk	Unt-E	2		
		hyperthermia	1	1						
213i	60+ y F				A	Ingst	Oth-C	2		
		substance (non-drug), unknown	1	1						
See Also case 535										
Paints and Stripping Agents										
214ph	33 y F				A	Ingst	Unt-G	2		
		paint, aerosol	1	1						
		fluorochlorocarbon/ propellant	2	2						
Pesticides										
[215]	2 y F				A	Ingst	Unt-G	1		
		endosulfan	1	1						
[216pha]	23 y M				A	Ingst	Int-S	2		
		pesticide, unknown	1	1						
		ethanol	2	2						
		xylene	3	3						
217	28 y M				A	Ingst	Int-S	1		
		paraquat	1	1						
218	28 y M				A	Ingst	Int-S	1		
		paraquat	1	1						
219	31 y M				A	Ingst	Int-S	2		
		glyphosate	1	1						
		benzodiazepine	2	2						
		SSRI	3	3						
[220pa]	43 y M				A	Ingst	Int-S	1		
		strychnine	1	1					strychnine	22.6 mg/L In Whole Blood @ Autopsy
		trazodone	2	2					trazodone	0.25 mg/L In Whole Blood @ Autopsy
221	50 y M				A	Ingst	Int-S	1		
		phosphine	1	1						
		ethanol	2	2					ethanol	163 mg/dL In Blood (unspecified) @ Unknown
222p	53 y F				A	Unk	Unk	2		
		aldicarb	1	1						
223	53 y F				A	Ingst	Int-S	2		
		bromethalin	1	1						
224h	55 y M				A	Ingst	Int-S	1		
		mexacarbate	1	1						
[225a]	56 y M				A	Inhal+ Derm	Unt-O	1		
		methyl bromide	1	1						
226	56 y M				A	Ingst	Int-S	1		
		organophosphate	1	1						
227	56 y M				A	Ingst	Int-S	3		

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Pesticides, continued										
		glyphosate	1	1						
228	60 y M				A	Ingst	Int-S	1		
		malathion	1	1						
229	60 y M				A	Ingst	Int-S	2		
		carbamate herbicide	3	1						
		cocaine	2	2						
		ethanol	1	3						
230p	83 y M				A	Ingst	Int-S	2		
		parathion/toxaphene	1	1						
[231]	30+ y F				C	Unk	Unk	1		
		brodifacoum	1	1						
See Also case 26, 39, 80, 89, 90, 552, 623, 971										
Plants										
232p	28 y M				A	Ingst	Int-A	2		
		Datura stramonium	1	1						
		ethanol	2	2						
233	53 y F				A	Ingst	Int-S	1		
		cardiac glycoside	1	1						
See Also case 812										
Pharmaceutical Exposures										
Analgesics										
234i	2 y M				A	Ingst	Unt-G	2		
		methadone	1	1					ethanol	345 mg/dL In Whole Blood @ 45 h (pe)
		methadone	1	1					methadone	45 ng/mL In Plasma @ 5 h (pe)
		methadone	1	1					methadone	45 ng/mL In Plasma @ Autopsy
		methadone	1	1					methadone	56 ng/mL In Whole Blood @ Autopsy
235pha	2 y M				A	Ingst	Unt-G	1		
		methadone	1	1					methadone	0.8 mg/L In Blood (unspecified) @ Unknown
236phai	15 y F				A	Ingst+ Inhal	Int-A	1		
		buprenorphine	1	1						
		marijuana	2	2						
		clonazepam	3	3						
237p	17 y F				A	Ingst	Unt-G	1		
		opioid	1	1						
		benzodiazepine	2	2						
238ph	17 y M				A	Ingst	Int-U	1		
		oxycodone	1	1						
239	17 y F				C	Ingst	Int-S	1		
		acetaminophen/ diphenhydramine	1	1						
240p	17 y F				A	Ingst	Int-S	1		
		buprenorphine/ naloxone	1	1						
		alprazolam	2	2						
		ethanol	3	3						
		duloxetine	4	4						
241ph	17 y F				A	Ingst	Int-S	1		
		opioid	1	1						
		acetaminophen	2	2						
		celecoxib	3	3						
		amoxicillin	4	4						
242p	17 y M				A	Ingst	Int-A	2		
		methadone	1	1					methadone	5 Other (see abst) In Unknown @ Unknown
243pa	17 y M				U	Ingst	Int-S	1		
		morphine	1	1						
		marijuana	2	2						
244	17 y M				U	Ingst+ Unk	Unk	2		
		oxycodone	1	1						
		propofol	2	2						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
245	17 y M				U	Ingst	Int-S	2		
		oxymorphone	1	1						
		risperidone	2	2						
[246pha]	17 y M				U	Ingst	Int-S	1		
		methadone	1	1					methadone	267 ng/mL In Blood (unspecified) @ Autopsy
		methadone	1	1					eddp (2-ethylidene-1,5-dimethyl-3,3-diphenyl pyrrolidine)	35.5 ng/mL In Blood (unspecified) @ Autopsy
		propranolol	2	2						
		gabapentin*	4	3					gabapentin	31.1 ng/mL In Blood (unspecified) @ Autopsy
		venlafaxine*	3	3						
		fexofenadine	5	4						
		lovastatin	6	6						
247a	17 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1						
		loratadine	2	2						
248	17 y M				A	Ingst+ Inhal	Int-A	1		
		methadone	1	1						
		cocaine	2	2						
		methylenedioxy methamphetamine (MDMA)	3	3						
		clonazepam	4	4						
		marijuana	5	5						
249	17 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1						
250	18 y F				U	Ingst	Int-S	2		
		acetaminophen/ diphenhydramine	1	1					acetaminophen	300 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/ diphenhydramine	1	1					acetaminophen	433 mcg/mL In Blood (unspecified) @ Unknown
251	18 y M				U	Ingst+ Unk	Unk	1		
		methadone	1	1						
252pai	19 y M				A	Ingst	Int-M	1		
		buprenorphine/ naloxone	1	1						
		ethanol	2	2					ethanol	0.15% (wt/Vol) In Serum @ Autopsy
		ethanol	2	2					ethanol	0.2% (wt/Vol) In Vitreous @ Autopsy
		ethanol	2	2					dextro-methorphan	0.44 mg/L In Serum @ Autopsy
		ethanol	2	2					delta-9-carboxy-thc	18 mcg/L In Urine (quantitative only) @ Autopsy
		ethanol	2	2					delta-9-carboxy-thc	6 mcg/L In Serum @ Autopsy
253	19 y F				A	Ingst	Int-S	1		
		salicylate	1	1					salicylate	18 mg/dL In Serum @ Unknown
		acetaminophen	2	2					acetaminophen	73 mg/L In Serum @ Unknown
254	19 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen	147 mcg/mL In Serum @ 16 h (pe)
255	19 y M				A/C	Ingst	Unk	3		
		colchicine	1	1						
		acetaminophen*	4	2						
		analgesic, unknown*	2	2						
		ethanol	3	3						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
256pa	19 y M				A	Ingst	Unk	1		
		chlorpheniramine/ phenylephrine*	3	1						
		fentanyl transdermal*	1	1					fentanyl	0.015 mg/L In Blood (unspecified) @ Autopsy
		fentanyl transdermal*	1	1					fentanyl	0.029 mg/kg In Liver @ Autopsy
		oxycodone	2	2					oxycodone	0.1 mg/L In Blood (unspecified) @ Autopsy
257	19 y F				A	Ingst	Int-S	1		
		acetaminophen/ propoxyphene	1	1						
258p	19 y M				A	Ingst	Int-S	2		
		methadone	1	1					methadone	0.02 mg/L In Blood (unspecified) @ Autopsy
		clonazepam	2	2						
		oxycodone	3	3						
		zolpidem	4	4						
259h	19 y F				A	Ingst	Int-S	1		
		acetaminophen/ diphenhydramine	1	1					acetaminophen	270 mcg/mL In Serum @ Unknown
		acetaminophen/ diphenhydramine	1	1					acetaminophen	324 mcg/mL In Serum @ Unknown
[260ha]	20 y M				A	Ingst	Int-S	1		
		morphine	1	1					morphine	126 mcg/L In Blood (unspecified) @ 2 h (pe)
261p	20 y M				A	Ingst	Int-U	2		
		methadone	1	1						
262p	20 y M				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen	428 mcg/mL In Serum @ Unknown
		acetaminophen/ salicylate	2	2						
263a	20 y F				A	Par	Int-U	2		
		acetaminophen/ hydrocodone	1	1					hydrocodone	0.01 mg/L In Blood (unspecified) @ Autopsy
		acetaminophen/ hydrocodone	1	1					acetaminophen	14.6 mcg/mL In Blood (unspecified) @ Unknown
		amitriptyline	2	2					amitriptyline	0.5 mg/L In Blood (unspecified) @ Unknown
		alprazolam	3	3					alprazolam	0.03 mg/L In Blood (unspecified) @ Unknown
		ethanol	4	4					ethanol	12 mg/dL In Blood (unspecified) @ Unknown
		oxycodone	5	5						
264	20 y F				A	Ingst	Int-S	1		
		salicylate	1	1						
265pi	20 y M				A	Ingst	Unk	2		
		oxymorphone	1	1						
266pi	20 y M				U	Ingst	Int-A	2		
		methadone	1	1						
267pa	20 y M				A	Ingst	Int-S	1		
		opioid	1	1						
		benzodiazepine	2	2						
		diphenhydramine	3	3						
268	20 y F				A/C	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen	20 mcg/mL In Serum @ 12 h (pe)

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
		salicylate	2	2					salicylate	21 mg/dL In Serum @ 27 h (pe)
		salicylate	2	2					salicylate	45 mg/dL In Serum @ 12 h (pe)
		salicylate	2	2					salicylate	61.2 mg/dL In Serum @ 17 h (pe)
		clonazepam	3	3						
		tricyclic antidepressant	4	4						
269	20 y M				U	Ingst	Unk	2		
		methadone	1	1					methadone	190 ng/mL In Blood (unspecified) @ Autopsy
		alprazolam*	3	2					alprazolam	15 ng/mL In Blood (unspecified) @ Autopsy
		oxycodone*	2	2					oxycodone (free)	140 ng/mL In Blood (unspecified) @ Autopsy
		naproxen	4	4					naproxen	8 mcg/mL In Blood (unspecified) @ Autopsy
270pha	21 y F				A	Ingst	Int-S	2		
		salicylate	1	1					salicylate	134 mg/dL In Serum @ Unknown
271pai	21 y F				A	Ingst	Int-U	2		
		oxycodone	1	1					oxycodone (total)	271 ng/mL In Blood (unspecified) @ Autopsy
		heroin*	2	2					6-monoacetyl-morphine	5.8 ng/mL In Blood (unspecified) @ Autopsy
		heroin*	2	2					morphine (total)	95.3 ng/mL In Blood (unspecified) @ Autopsy
		lorazepam*	4	2						
		clonazepam*	5	3						
		diazepam*	3	3					diazepam	82.7 ng/mL In Blood (unspecified) @ Autopsy
		buspirone	6	4						
[272pha]	21 y M				A	Ingst	Int-S	1		
		oxycodone	1	1					oxycodone (total)	6.33 mg/L In Blood (unspecified) @ Autopsy
		carisoprodol	2	2					carisoprodol	20.2 mg/L In Blood (unspecified) @ Autopsy
		alprazolam	3	3					alprazolam	0.007 mg/L In Blood (unspecified) @ Autopsy
273	21 y M				A	Ingst	Int-S	1		
		acetaminophen/ hydrocodone	1	1					acetaminophen	262.1 mcg/mL In Blood (unspecified) @ Unknown
		paroxetine	2	2						
		drug, unknown	3	3						
274p	21 y F				U	Ingst	Int-S	1		
		methadone	4	1						
		alprazolam	5	2						
		acetaminophen/ hydrocodone	3	3						
		hydrocodone	6	4						
		proclorperazine	1	5						
		dicyclomine	2	6						
		lamotrigine	7	7						
		esomeprazole	8	8						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
275pai	21 y M				A	Ingst	Int-A	1		
		acetaminophen/ hydrocodone	1	1					hydrocodone	0.18 mcg/mL In Whole Blood @ Autopsy
		diazepam	2	2					nordiazepam	0.28 mcg/mL In Whole Blood @ Autopsy
		diazepam	2	2					diazepam	0.62 mcg/mL In Whole Blood @ Autopsy
276pa	21 y M				A	Ingst	Int-A	2		
		oxycodone	1	1						
		ethanol	2	2						
277p	21 y M				U	Ingst	Unk	1		
		methadone	1	1						
278h	21 y F				A	Ingst	Int-S	1		
		salicylate	1	1					salicylate	79 mg/dL In Blood (unspecified) @ Unknown
		acetaminophen/ hydrocodone	2	2					acetaminophen	404 mg/L In Blood (unspecified) @ Unknown
		ethanol	3	3						
279pa	21 y M				A	Ingst	Int-S	2		
		methadone*	1	1					methadone	277 ng/mL In Blood (unspecified) @ Autopsy
		methadone*	1	1					eddp (2-ethylidene-1,5-dimethyl-3,3-diphenyl pyrrolidine)	41.4 ng/mL In Blood (unspecified) @ Autopsy
		naproxen*	2	1						
		methocarbimol	3	2						
280	22 y F				A	Ingst	Int-S	1		
		acetaminophen/opioid	1	1					acetaminophen	430 mg/L In Serum @ Unknown
281pa	22 y M				A	Inhal	Int-U	1		
		oxymorphone	1	1					oxymorphone	0.07 mg/L In Blood (unspecified) @ Autopsy
282pa	22 y M				U	Ingst	Int-U	2		
		fluoxetine*	2	1						
		methadone*	1	1					methadone	59 ng/mL In Blood (unspecified) @ Autopsy
283p	22 y M				A/C	Ingst	Int-S	2		
		oxycodone	7	1						
		trazodone	2	2						
		ziprasidone	3	3						
		clonazepam	4	4						
		naproxen	5	5						
		alprazolam	6	6						
		cyclobenzaprine	1	7						
		gabapentin	8	8						
284	22 y M				U	Ingst	Int-U	2		
		acetaminophen	1	1					acetaminophen	83.5 mcg/mL In Unknown @ Unknown
		acetaminophen/ oxycodone	3	2						
		ethanol	2	3						
285pa	22 y M				A	Ingst+ Par	Int-U	2		
		methadone	1	1					methadone	0.1 mg/L In Blood (unspecified) @ Autopsy
286	23 y F				U	Ingst	Int-U	1		
		acetaminophen/ diphenhydramine	1	1					acetaminophen	208 mg/L In Serum @ Unknown
287a	23 y F				A	Ingst	Int-S	1		
		acetaminophen/ diphenhydramine	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
288	23 y M				U	Ingst	Unk	3		
		acetaminophen/ hydrocodone	1	1						
		methylenedioxy methamphetamine (MDMA)	2	2						
289pa	23 y M				A	Ingst	Unt-G	1		
		methadone	1	1					methadone	416 ng/mL In Blood (unspecified) @ Autopsy
		methadone	1	1					methadone metabolite	81.1 ng/mL In Blood (unspecified) @ Autopsy
290a	23 y M				A/C	Ingst	Int-A	1		
		methadone	1	1					methadone	0.14 mg/L In Blood (unspecified) @ Autopsy
		tramadol	2	2					tramadol	0.72 mg/L In Blood (unspecified) @ Autopsy
		alprazolam	3	3					alprazolam	0.03 mg/L In Blood (unspecified) @ Autopsy
		marijuana	4	4						
		acetaminophen/codeine	5	5						
291pha	24 y F				A/C	Ingst	Int-M	3		
		morphine	1	1						
292p	24 y M				U	Par	Int-A	1		
		methadone	1	1						
		heroin	2	2						
293pai	24 y M				U	Ingst+ Inhal	Int-S	2		
		methadone	1	1					methadone	206 ng/mL In Blood (unspecified) @ Autopsy
		alprazolam	2	2						
		marijuana	3	3						
294pa	24 y M				A	Ingst	Int-S	1		
		methadone	1	1					eddp (2-ethylidene-1,5-dimethyl-3,3-diphenyl pyrrolidine)	20 ng/mL In Blood (unspecified) @ Autopsy
		methadone	1	1					methadone	480 ng/mL In Blood (unspecified) @ Autopsy
		methadone	2	2						
295	24 y M				A	Ingst	Int-S	2		
		acetaminophen/ hydrocodone	1	1						
296h	24 y F				U	Ingst	Unk	1		
		acetaminophen	1	1					acetaminophen	231 mcg/mL In Serum @ Unknown
		methadone	2	2						
297pa	24 y M				C	Unk	Unk	2		
		acetaminophen/ oxycodone	1	1					oxycodone (total)	445 ng/mL In Blood (unspecified) @ Autopsy
		alprazolam	2	2					alprazolam	49.1 ng/mL In Blood (unspecified) @ Autopsy
		ethanol	3	3					ethanol	0.099 % (wt/Vol) In Blood (unspecified) @ Autopsy
		ethanol	3	3					ethanol	0.114 % (wt/Vol) In Vitreous @ Autopsy
298ha	25 y F				A/C	Par	Int-M	3		
		oxycodone	1	1					oxycodone (free)	440 ng/mL In Blood (unspecified) @ 1 h (pe)

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
		cocaine	2	2					benzoylecognine	230 ng/mL In Blood (unspecified) @ 1 h (pe)
299	25 y F				U	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen	484 mcg/mL In Blood (unspecified) @ 6 m (pe)
		acetaminophen	1	1					acetaminophen	809 mcg/mL In Blood (unspecified) @ 2 h (pe)
		SSRI	2	2						
		benzodiazepine	3	3						
		antidepressant	4	4						
300pi	25 y F				A	Ingst	Int-S	1		
		acetaminophen/ hydrocodone	1	1						
301	25 y F				A	Ingst	Int-S	1		
		acetaminophen/ diphenhydramine	1	1						
		ethanol	2	2						
302	25 y F				A/C	Ingst	Int-S	2		
		opioid	2	1						
		cyclobenzaprine	1	2						
		clonazepam	3	3						
303	25 y F				A	Ingst	Int-S	1		
		salicylate	1	1						
		acetaminophen	2	2						
[304pha]	26 y M				A	Par	Int-S	1		
		methadone	1	1						
		ethanol	2	2					ethanol	3 mg/dL In Vitreous @ Autopsy
		ethanol	2	2					ethanol	79.8 mg/dL In Serum @ Unknown
305h	26 y F				C	Ingst	Int-M	2		
		acetaminophen/ hydrocodone	1	1					acetaminophen	118.9 mcg/mL In Blood (unspecified) @ Unknown
306	26 y M				A/C	Ingst	Int-S	3		
		acetaminophen/ hydrocodone	1	1					acetaminophen	10 mcg/mL In Unknown @ 1 d (pe)
		acetaminophen/ hydrocodone	1	1					acetaminophen	38.7 mcg/mL In Unknown @ Unknown
307p	26 y M				A	Ingst	Int-S	1		
		methadone	1	1						
		oxycodone	2	2						
		alprazolam	3	3						
308pa	26 y M				U	Unk	Unk	2		
		methadone	1	1					methadone	0.59 mg/L In Blood (unspecified) @ Autopsy
		hydrocodone*	2	2						
		ropinirole*	4	2						
		citalopram	3	3						
309p	26 y M				A/C	Ingst	Int-U	2		
		morphine	1	1					morphine	843 ng/mL In Urine (quantitative only) @ Autopsy
		acetaminophen/ hydrocodone	2	2						
		amphetamine/ dextroamphetamine	3	3						
		marijuana	4	4					thc (tetrahydro-cannabinol)	5.7 ng/mL In Blood (unspecified) @ Autopsy
310	26 y M				A	Ingst	Int-S	1		
		oxycodone	1	1						
311	26 y F				A	Ingst	Int-S	1		

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
		acetaminophen	1	1						
		acetaminophen/ hydrocodone	3	2						
		diphenhydramine	2	3						
		duloxetine	4	4						
312	26 y F				A	Ingst	Int-S	1		
		acetaminophen/ oxycodone	1	1					acetaminophen	7.7 mcg/mL In Serum @ Unknown
		acetaminophen/ hydrocodone	2	2						
		alprazolam	3	3						
313h	26 y M				C	Ingst	Int-U	2		
		acetaminophen	1	1						
314i	26 y M				A	Ingst	Int-S	1		
		cocaine*	1	1					cocaine	150 ng/mL In Blood (unspecified) @ Autopsy
		cocaine*	1	1					benzoylecognine	2400 ng/mL In Blood (unspecified) @ Autopsy
		methadone*	2	1					methadone metabolite	290 ng/mL In Blood (unspecified) @ Autopsy
		methadone*	2	1					methadone	510 ng/mL In Blood (unspecified) @ Autopsy
		alprazolam	4	2						
		oxycodone*	3	3					oxycodone (free)	110 ng/mL In Blood (unspecified) @ Autopsy
		oxycodone*	3	3					oxymorphone	16 ng/mL In Blood (unspecified) @ Autopsy
		sertraline*	5	3						
		naproxen	6	4						
315	26 y M				A	Ingst	Int-S	2		
		acetaminophen/ diphenhydramine	1	1						
316pa	27 y F				U	Ingst	Unk	2		
		methadone	1	1					methadone	0.41 mg/L In Whole Blood @ Autopsy
		carisoprodol	2	2					meprobamate	12 mg/L In Whole Blood @ Autopsy
		cocaine	3	3					benzoylecognine	1.3 mg/L In Urine (quantitative only) @ Autopsy
		methamphetamine	4	4					amphetamine	0.19 mg/L In Urine (quantitative only) @ Autopsy
		methamphetamine	4	4					methamphetamine	0.22 mg/L In Urine (quantitative only) @ Autopsy
		drug, unknown	5	5						
317	27 y M				A	Ingst	Int-A	2		
		morphine	1	1						
		oxycodone	2	2						
		tricyclic antidepressant	3	3						
		diphenhydramine	4	4						
		ibuprofen	5	5						
		acetaminophen	6	6						
318h	27 y F				A	Ingst	Int-S	1		
		acetaminophen/ diphenhydramine	1	1					acetaminophen	955 mg/L In Plasma @ 10 h (pe)
		ethanol	2	2					ethanol	217 mg/dL In Plasma @ 5 m (pe)
319	27 y M				A/C	Ingst	Int-A	3		
		methadone	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
320pha	27 y M				C	Ingst+ Inhal	Int-A	2		
		oxycodone	1	1					oxycodone (free)	170 ng/mL In Serum @ Unknown
		cocaine	2	2						
		benzodiazepine	3	3						
321	27 y M				A	Ingst	Int-S	2		
		acetaminophen/ hydrocodone	1	1						
322a	27 y F				A	Ingst	Int-A	1		
		acetaminophen/ hydrocodone	1	1					hydrocodone	0.24 mcg/mL In Whole Blood @ Unknown
		acetaminophen/ hydrocodone	1	1					acetaminophen	79.2 mcg/mL In Whole Blood @ Unknown
		carisoprodol	2	2					meprobamate	41.1 mcg/mL In Serum @ Unknown
		carisoprodol	2	2					carisoprodol	6.8 mcg/mL In Serum @ Unknown
		amitriptyline	3	3						
323a	27 y F				A/C	Ingst	Unk	2		
		acetaminophen	1	1					acetaminophen	25 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen	39.4 mcg/mL In Serum @ Unknown
		acetaminophen/ oxycodone	2	2						
		oxycodone	3	3						
		topiramate	4	4					topiramate	2.7 mg/L In Blood (unspecified) @ Unknown
		ibuprofen	5	5					ibuprofen	27 mg/L In Blood (unspecified) @ Unknown
		salicylate	6	6					salicylate	8 mg/dL In Serum @ Unknown
		oseltamivir	7	7						
324	27 y M				A	Ingst	Int-A	1		
		acetaminophen/ hydrocodone	1	1						
		carisoprodol	2	2						
325	27 y M				A	Ingst	Int-S	1		
		acetaminophen/ diphenhydramine	2	1					acetaminophen	280 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/ hydrocodone	1	2						
		acetaminophen/ propoxyphene	3	3						
326p	27 y M				U	Par	Unk	1		
		methadone	1	1						
		alprazolam	2	2						
327pa	27 y M				A	Ingst+ Inhal	Unk	1		
		fentanyl transdermal	1	1					fentanyl	6.8 ng/mL In Blood (unspecified) @ Autopsy
		carbon monoxide	2	2						
328	27 y F				C	Ingst	Int-M	2		
		acetaminophen/ hydrocodone	1	1					acetaminophen	31 mcg/mL In Serum @ Unknown
329	28 y M				A/C	Ingst+ Inhal	Int-S	2		
		salicylate	1	1						
		methamphetamine	2	2						
330a	28 y M				A/C	Ingst	Int-S	1		
		acetaminophen/ hydrocodone	4	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
		ethanol	3	2						
		methadone	2	3						
		antipsychotic, unknown	1	4						
331h	28 y F				C	Ingst	Unk	3		
		acetaminophen/ hydrocodone	1	1						
		acetaminophen	2	2						
332	28 y F				A	Ingst	Int-S	2		
		acetaminophen	1	1						
		alprazolam	2	2						
333h	28 y M				U	Ingst	Int-U	1		
		acetaminophen/ hydrocodone	1	1						
334pa	28 y M				U	Ingst	Unk	2		
		methadone	1	1					methadone	0.42 mg/L In Blood (unspecified) @ Autopsy
		methadone	1	1					methadone	0.48 mg/L In Blood (unspecified) @ Autopsy
		methadone	1	1					methadone	3.4 mg/kg In Liver @ Autopsy
		oxycodone	2	2						
		alprazolam	3	3					alprazolam	0.036 mg/L In Blood (unspecified) @ Autopsy
335ph	28 y M				A/C	Ingst	Int-A	2		
		oxycodone	1	1						
		buprenorphine/ naloxone	2	2						
		quetiapine	3	3						
		methadone	4	4						
		alprazolam	5	5						
336	28 y F				A	Ingst	Int-S	2		
		acetaminophen/ hydrocodone	1	1						
		acetaminophen/ diphenhydramine	2	2						
337p	28 y F				A	Ingst	Int-S	2		
		acetaminophen/ propoxyphene	1	1						
338	29 y F				U	Ingst	Int-S	1		
		acetaminophen/ hydrocodone	1	1					acetaminophen	67 mcg/mL In Plasma @ Unknown
		diflunisal	2	2						
339pa	29 y M				U	Ingst	Int-M	3		
		acetaminophen/ hydrocodone	1	1					hydrocodone	0.4 mcg/mL In Whole Blood @ Autopsy
		carisoprodol	2	2						
		cyclobenzaprine	3	3						
340h	29 y F				C	Ingst	Int-A	2		
		acetaminophen/ hydrocodone	1	1					acetaminophen	14.4 mcg/mL In Serum @ Unknown
		acetaminophen	2	2						
341p	29 y M				A	Ingst	Unt-M	2		
		opioid	1	1						
		benzodiazepine	2	2						
		cocaine	3	3						
		marijuana	4	4						
342pa	29 y F				U	Ingst	Int-S	1		
		acetaminophen/codeine	1	1						
		methadone	2	2						
		tizanidine	3	3						
		ethanol	4	4						
343p	29 y M				A	Ingst	Int-S	3		
		fentanyl transdermal	1	1						
		clonazepam	2	2						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
		venlafaxine (extended release)	3	3						
		acetaminophen/ hydrocodone	4	4						
		tizanidine	5	5						
		levetiracetam	6	6						
		primidone	7	7						
344pa	29 y M				U	Ingst	Unk	2		
		morphine*	1	1					morphine	1 mg/L In Blood (unspecified) @ Autopsy
		morphine*	1	1					morphine	204 mg/L In Bile @ Autopsy
		sertraline*	2	1						
		diazepam	3	3					diazepam	0.082 mg/L In Blood (unspecified) @ Autopsy
345a	29 y F				C	Ingst	AR-D	3		
		acetaminophen/ hydrocodone	1	1						
		ibuprofen	2	2						
346	30 y M				U	Ingst	Int-U	1		
		fentanyl transdermal	1	1						
		heroin	2	2						
		clonazepam	3	3						
347a	30 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1						
348a	30 y F				A	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen	249 mg/dL In Plasma @ Unknown
		ibuprofen	2	2						
349p	30 y M				A	Ingst	Int-S	2		
		acetaminophen/ propoxyphene	3	1						
		diazepam	1	2						
		mirtazapine	2	3						
350pa	30 y F				A/C	Ingst	Unk	3		
		methadone	1	1					methadone	1195 ng/mL In Blood (unspecified) @ Autopsy
		methadone	1	1					eddp (2-ethylidene-1,5-dimethyl-3,3-diphenyl pyrrolidine)	198 ng/mL In Blood (unspecified) @ Autopsy
		methadone	1	1					methadone	4350 ng/mL In Urine (quantitative only) @ Autopsy
		gabapentin	2	2					gabapentin	24.5 ng/mL In Blood (unspecified) @ Autopsy
		amitriptyline	3	3					amitriptyline	130 ng/mL In Blood (unspecified) @ Autopsy
		amitriptyline	3	3					nortriptyline	64.7 ng/mL In Blood (unspecified) @ Autopsy
		duloxetine	4	4					duloxetine	146 ng/mL In Blood (unspecified) @ Autopsy
		hydrocodone	5	5					hydrocodone	546 ng/mL In Urine (quantitative only) @ Autopsy
		hydrocodone	5	5					hydromorphone	63 ng/mL In Urine (quantitative only) @ Autopsy
		oxycodone	6	6					oxycodone	1451 ng/mL In Urine (quantitative only) @ Autopsy

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
		oxycodone	6	6					oxymorphone	679 ng/mL In Urine (quantitative only) @ Autopsy
351p	30 y M				A	Ingst	Int-S	1		
		acetaminophen/ hydrocodone	1	1						
		methadone	2	2						
		carisoprodol	3	3						
		zolpidem	4	4						
352	30 y F				A	Ingst	Int-S	1		
		acetaminophen/ hydrocodone	1	1					acetaminophen	51.5 mcg/mL In Plasma @ Unknown
		benzodiazepine	2	2						
353a	30 y F				A	Ingst	Int-S	2		
		acetaminophen/ diphenhydramine	2	1					diphenhydramine	1.8 mg/L In Blood (unspecified) @ Autopsy
		acetaminophen/ diphenhydramine	2	1					acetaminophen	102.5 mcg/mL In Serum @ Unknown
		clomipramine	1	2					clomipramine	0.86 mg/L In Blood (unspecified) @ Autopsy
		acetaminophen/ hydrocodone	3	3						
		sulfamethoxazole/ trimethoprim	4	4						
		ethanol	5	5						
354pa	31 y F				U	Ingst	Int-A	1		
		methadone	1	1					methadone	1100 ng/mL In Whole Blood @ Autopsy
		methadone	1	1					eddp (2-ethylidene-1,5-dimethyl-3,3-diphenyl pyrrolidine)	200 ng/mL In Whole Blood @ Autopsy
		alprazolam	2	2						
		trazodone	3	3						
		lamotrigine	4	4						
		zolpidem	5	5						
355	31 y M				A/C	Ingst	Int-S	1		
		acetaminophen/ propoxyphene	1	1						
		fentanyl transdermal	2	2						
356ph	31 y F				U	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen	11 mcg/mL In Plasma @ Unknown
357ph	31 y M				A	Ingst	Unk	2		
		methadone	1	1						
		ethanol	2	2						
358pha	31 y F				A/C	Ingst	Int-U	2		
		methadone	1	1					methadone	0.66 mg/L In Whole Blood @ Autopsy
		citalopram	2	2					citalopram	0.24 mg/L In Whole Blood @ Autopsy
		caffeine	3	3						
359h	31 y M				A	Inhal	Int-A	1		
		salicylate	1	1						
		diphenhydramine	2	2						
360	31 y F				A	Ingst	Int-S	1		
		acetaminophen/ diphenhydramine	1	1					acetaminophen	474 mcg/mL In Serum @ 10 m (pe)
		acetaminophen/ diphenhydramine	1	1					acetaminophen	543 mcg/mL In Serum @ 33 h (pe)
		acetaminophen/ diphenhydramine	1	1					acetaminophen	747 mg/mL In Serum @ 25 h (pe)
361a	31 y M				A	Ingst	Int-S	1		
		salicylate	1	1					salicylate	122 mg/dL In Serum @ Unknown
		salicylate	1	1					salicylate	42 mg/dL In Serum @ Unknown

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
		salicylate	1	1					salicylate	51 mg/dL In Serum @ Unknown
		salicylate	1	1					salicylate	93 mg/dL In Serum @ Unknown
		acetaminophen	2	2					acetaminophen	66 mcg/mL In Serum @ Unknown
		ethanol	3	3					ethanol	214 mg/dL In Serum @ Unknown
		diphenhydramine	4	4						
		cough and cold preparation	5	5						
362	32 y M				A/C	Ingst	Int-S	1		
		acetaminophen/ oxycodone	1	1					acetaminophen	0 mcg/mL In Blood (unspecified) @ 4 h (pe)
		acetaminophen/ oxycodone	1	1					acetaminophen	12.8 mcg/mL In Blood (unspecified) @ 3 h (pe)
		diazepam	2	2						
363ha	32 y M				A/C	Ingst	Unt-M	2		
		acetaminophen	1	1					acetaminophen	29 mcg/mL In Serum @ 3 d (pe)
364p	32 y F				U	Ingst	Int-A	2		
		methadone	1	1						
365	32 y F				A	Ingst	Int-S	1		
		acetaminophen/ diphenhydramine	1	1						
		duloxetine	2	2						
366a	32 y F				A	Ingst	Int-S	1		
		acetaminophen/ butalbital/caffeine*	3	1					acetaminophen	500 mcg/mL In Blood (unspecified) @ 48 h (pe)
		acetaminophen/ butalbital/caffeine*	3	1					acetaminophen	774 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/ diphenhydramine*	1	1						
		esmolol	2	2						
367	32 y F				C	Ingst	Int-M	2		
		acetaminophen	1	1					acetaminophen	28.6 mcg/mL In Blood (unspecified) @ Unknown
		ibuprofen	2	2						
		ethanol	3	3					ethanol	8 mg/dL In Blood (unspecified) @ Unknown
368pa	32 y M				U	Ingst	Int-S	1		
		oxymorphone	1	1					oxymorphone	0.505 mg/L In Urine (quantitative only) @ Unknown
		ethanol	2	2						
		clonazepam	4	3					clonazepam	0.04 mg/L In Urine (quantitative only) @ Unknown
		acetaminophen	3	4						
369	33 y M				A	Ingst	Unk	2		
		acetaminophen	1	1					acetaminophen	31 mcg/mL In Serum @ Unknown
370pa	33 y F				U	Ingst	Int-U	2		
		oxycodone	1	1					oxycodone	0.84 mcg/mL In Blood (unspecified) @ Autopsy
		acetaminophen/ hydrocodone	2	2					hydrocodone	0.14 mcg/mL In Blood (unspecified) @ Autopsy
		trazodone	3	3					trazodone	0.41 mcg/mL In Blood (unspecified) @ Autopsy

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
		nortriptyline	4	4					nortriptyline	0.44 mcg/mL In Blood (unspecified) @ Autopsy
		rosiglitazone	5	5						
		rosuvastatin	6	6						
		diclofenac	7	7						
		trazodone	8	8						
		aripiprazole	9	9						
		lisinopril	10	10						
371	33 y F				A/C	Ingst	Int-S	1		
		acetaminophen/ butalbital/caffeine	1	1					acetaminophen	775 mg/L In Serum @ Unknown
372i	33 y F				A	Ingst	Unt-G	1		
		acetaminophen	1	1					acetaminophen	609 mcg/mL In Blood (unspecified) @ Unknown
373	33 y M				U	Unk	Int-A	2		
		methadone	1	1						
		benzodiazepine	2	2						
374	34 y F				A/C	Ingst	Unt-T	2		
		acetaminophen	1	1					acetaminophen	31.5 mcg/mL In Blood (unspecified) @ 1 h (pe)
		ibuprofen	2	2						
375ha	34 y M				A/C	Ingst	Int-S	1		
		acetaminophen/ propoxyphene	1	1					propoxyphene	0.73 mcg/mL In Serum @ 8 h (pe)
		acetaminophen/ propoxyphene	1	1					norpropoxyphene	1.5 mcg/mL In Serum @ 8 h (pe)
		acetaminophen/ propoxyphene	1	1					acetaminophen	49.5 mg/L In Serum @ 8 h (pe)
376	34 y F				A	Ingst+ Par	Int-S	2		
		acetaminophen/ diphenhydramine	1	1						
		hydrochlorothiazide/ metoprolol	2	2						
		benzodiazepine	3	3						
		zolpidem	4	4						
		lorazepam	5	5						
		fluoxetine	6	6						
		sodium bicarbonate	7	7						
		amphetamine	8	8						
377ha	34 y M				C	Ingst	Int-M	1		
		acetaminophen/ hydrocodone	1	1					acetaminophen	52 mcg/mL In Serum @ Unknown
		acetaminophen/ diphenhydramine	2	2						
378	34 y M				A	Ingst	Int-S	1		
		acetaminophen/ diphenhydramine	1	1						
		diphenhydramine	2	2						
		ethanol	3	3						
		loperamide	4	4						
379h	34 y F				C	Ingst	Unt-M	1		
		acetaminophen/ hydrocodone	1	1						
		tramadol	2	2						
380	34 y M				A	Ingst	Int-S	1		
		acetaminophen	1	1						
		ethanol	2	2						
381p	34 y M				A	Ingst	Int-S	1		
		methadone	1	1						
382a	35 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1						
383p	35 y M				A	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen	101 mcg/mL In Blood (unspecified) @ Unknown

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
		alprazolam	2	2						
		ethanol	3	3					ethanol	103 mg/dL In Blood (unspecified) @ 1 h (pe)
384	35 y M				U	Ingst	Int-S	1		
		acetaminophen/ propoxyphene	1	1					acetaminophen	240.1 mcg/mL In Serum @ Unknown
		ethanol	2	2					ethanol	148 mg/dL In Serum @ Unknown
[385ha]	35 y M				A/C	Ingst	Int-S	1		
		acetaminophen	2	1						1206.5 mg/L In Blood (unspecified) @ Unknown
		citalopram	1	2						24.31 mg/L In Blood (unspecified) @ Unknown
		amlodipine	3	3						
		lisinopril	4	4						
		colchicine	5	5						
		allopurinol	6	6						
386ha	35 y F				A	Ingst	Int-U	3		
		hydromorphone	1	1					hydromorphone	900 ng/mL In Urine (quantitative only) @ Unknown
		oxycodone	2	2					oxymorphone	190 ng/mL In Urine (quantitative only) @ Unknown
		oxycodone	2	2					oxycodone	87 ng/mL In Urine (quantitative only) @ Unknown
		diphenhydramine	3	3					diphenhydramine	1089 ng/mL In Blood (unspecified) @ Unknown
		cyclobenzaprine	4	4					cyclobenzaprine	54 ng/mL In Blood (unspecified) @ Unknown
		venlafaxine	5	5					norvenlafaxine	196 ng/mL In Blood (unspecified) @ Unknown
387p	35 y M				A	Ingst	Int-S	2		
		morphine	1	1						
		oxycodone	2	2						
		gabapentin	3	3						
388p	35 y F				A	Ingst+ Derm	Int-S	1		
		fentanyl transdermal	1	1						
389	35 y M				U	Ingst	Unt-M	2		
		acetaminophen	1	1					acetaminophen	40 mcg/mL In Serum @ Unknown
390	35 y M				U	Ingst	Int-S	1		
		acetaminophen	1	1						
		ethanol	2	2						
391ph	35 y M				A	Ingst	Int-S	1		
		methadone	1	1						
		clonazepam	2	2						
392	36 y F				A	Ingst	Int-S	2		
		salicylate	1	1						
393ph	36 y F				A	Ingst	Int-S	2		
		morphine	1	1						
		anticholinervic/ phenobarbital	2	2						
		levothyroxine	3	3						
		alprazolam	4	4						
		clonazepam	5	5						
394a	36 y F				U	Ingst	Int-M	1		
		acetaminophen/ hydrocodone	1	1					acetaminophen	57.6 mcg/mL In Blood (unspecified) @ Unknown

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
		carisoprodol	2	2						
		methadone	3	3						
		tramadol	4	4						
		ethanol	5	5					ethanol	3.1 mg/dL In Blood (unspecified) @ Unknown
395	36 y F				A	Ingst	Int-S	1		
		salicylate	1	1					salicylate	109 mg/dL In Serum @ Unknown
		salicylate	1	1					salicylate	78 mg/dL In Serum @ Unknown
		salicylate	1	1					salicylate	86 mg/dL In Serum @ Unknown
		quetiapine	2	2						
396h	36 y F				A	Ingst	Int-S	2		
		acetaminophen	1	1						
397a	36 y F				A	Ingst	Int-S	2		
		salicylate	1	1						
398	36 y F				A/C	Ingst	Int-S	2		
		acetaminophen/ oxycodone	1	1						
		oxycodone	2	2						
		venlafaxine	3	3						
		pantoprozole	4	4						
399	37 y F				A/C	Ingst	Int-S	2		
		acetaminophen/ hydrocodone	1	1						
400pa	37 y F				A	Ingst+ Unk	Int-S	3		
		opioid	1	1					fentanyl	10 ng/mL In Blood (unspecified) @ Autopsy
		opioid	1	1					norfentanyl	5.4 ng/mL In Blood (unspecified) @ Autopsy
		ethanol	2	2						
		clonazepam	3	3						
		topiramate	4	4					topiramate	8.3 mcg/mL In Blood (unspecified) @ Autopsy
		aripriprazole	5	5						
		levothyroxine	6	6						
		prednisone	7	7						
		simvastatin	8	8						
		duloxetine	9	9						
		ranitidine	10	10						
		oxcabazepine	11	11					10-hydroxycarbazepine	2.6 mcg/mL In Blood (unspecified) @ Autopsy
		metformin	12	12						
		gemfibrozil	13	13						
		bupropion (extended release)	14	14					hydroxybupropion	340 ng/mL In Blood (unspecified) @ Autopsy
		bupropion (extended release)	14	14					bupropion	47 ng/mL In Blood (unspecified) @ Autopsy
401h	37 y F				A	Ingst	Int-S	2		
		acetaminophen	1	1						
		clonazepam	2	2						
		venlafixine	3	3						
402	37 y M				A	Ingst+ Inhal	Int-A	1		
		fentanyl transdermal	1	1						
		ethanol	2	2					ethanol	154 mg/dL In Serum @ Unknown
403a	37 y F				U	Ingst	Int-S	1		
		oxycodone	1	1						
		amlodipine	4	2						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
		zolpidem	2	3						
		alprazolam	3	4						
		acetaminophen	5	5						
		cyclic antidepressant, unknown	6	6						
		ethanol	7	7						
		naproxen	8	8						
		diphenhydramine	9	9						
		ziprasidone	10	10						
		gabapentin	11	11						
404h	37 y F				C	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen	68 mg/L In Serum @ Unknown
		ethanol	2	2						
		ibuprofen	3	3						
405h	37 y F				A	Ingst	Int-S	2		
		opioid	1	1						
406	37 y M				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen	27.6 mcg/mL In Blood (unspecified) @ 2 d (pe)
		cyclobenzaprine	2	2						
		quetiapine	3	3						
		sertraline	4	4						
407h	37 y M				U	Ingst	Int-S	3		
		acetaminophen	1	1						
408pha	38 y F				A/C	Ingst	Int-S	1		
		acetaminophen/ hydrocodone	1	1					hydromorphone	1400 ng/mL In Urine (quantitative only) @ Unknown
		acetaminophen/ hydrocodone	1	1					acetaminophen	190 mcg/mL In Urine (quantitative only) @ Unknown
		acetaminophen/ hydrocodone	1	1					hydrocodone	5000 ng/mL In Urine (quantitative only) @ Unknown
		acetaminophen/ hydrocodone	1	1					dihydrocodeine/ hydrocodol (free)	960 ng/mL In Urine (quantitative only) @ Unknown
		diazepam	2	2					diazepam	120 ng/mL In Urine (quantitative only) @ Unknown
		diazepam	2	2					nordiazepam	2000 ng/mL In Urine (quantitative only) @ Unknown
		benzodiazepine	3	3					lorazepam	500 ng/mL In Urine (quantitative only) @ Unknown
		doxylamine	4	4					doxylamine	2000 ng/mL In Urine (quantitative only) @ Unknown
		dextromethorphan	5	5					dextromethorphan	1000 ng/mL In Urine (quantitative only) @ Unknown
		pregabalin	6	6						
		topiramate	7	7						
		rizatriptan	8	8						
		zolpidem	9	9						
		duloxetine	10	10						
409a	38 y M				A/C	Ingst+ Par+ Unk	Int-A	2		
		opioid	2	1						
		benzodiazepine	1	2						
		ethanol	4	3					ethanol	0.3 mg/dL In Blood (unspecified) @ Unknown

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
		cocaine	3	4					cocaine	0.05 mcg/mL In Blood (unspecified) @ Autopsy
		citalopram	5	5					citalopram	2 mcg/mL In Unknown @ Autopsy
410pa	38 y F				A/C	Ingst	Int-S	1		
		acetaminophen/ propoxyphene	1	1					propoxyphene	3.9 mg/dL In Blood (unspecified) @ 12 h (pe)
		acetaminophen/ propoxyphene	1	1					acetaminophen	450 mcg/mL In Blood (unspecified) @ 24 m (pe)
		acetaminophen/ propoxyphene	1	1					norpropoxyphene	7 mg/dL In Blood (unspecified) @ 12 h (pe)
411	38 y F				A	Ingst	Int-S	2		
		acetaminophen/ diphenhydramine	1	1						
412i	38 y F				A/C	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen	192 mg/mL In Blood (unspecified) @ Unknown
		carisoprodol	2	2						
413	38 y F				A	Ingst	Int-S	2		
		acetaminophen	1	1						
		alprazolam	2	2						
414a	38 y F				C	Ingst	Int-A	3		
		acetaminophen	2	1						
		ethanol	1	2						
415a	38 y F				U	Ingst	Int-U	1		
		acetaminophen/ hydrocodone	1	1					hydrocodone	0.42 mg/L In Blood (unspecified) @ Unknown
		acetaminophen/ hydrocodone	1	1					acetaminophen	371 mg/L In Serum @ Unknown
416h	38 y F				C	Ingst	Int-M	1		
		acetaminophen*	2	1					acetaminophen	68 mcg/mL In Serum @ Unknown
		acetaminophen/ hydrocodone*	1	1						
		oxycodone	3	3						
417a	38 y F				A/C	Ingst+ Aspir	Int-S	1		
		opioid	1	1					oxycodone	0.59 mg/L In Blood (unspecified) @ Unknown
		topiramate	2	2					topiramate	6.8 mg/L In Blood (unspecified) @ Unknown
		hydromorphone	3	3					hydromorphone	0.04 mg/L In Blood (unspecified) @ Unknown
		verapamil	4	4					verapamil	0.48 mg/L In Blood (unspecified) @ Unknown
		benzodiazepine	5	5					diazepam	0.33 mg/L In Blood (unspecified) @ Unknown
		benzodiazepine	5	5					nordiazepam	0.34 mg/L In Blood (unspecified) @ Unknown
418	38 y F				U	Ingst	Unk	1		
		acetaminophen	1	1					acetaminophen	112 mcg/mL In Serum @ Unknown
		ethanol	2	2					ethanol	53 mg/dL In Serum @ Unknown

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
419h	38 y F				C	Ingst	Unt-M	3		
		acetaminophen	1	1					acetaminophen	32 mcg/dL In Blood (unspecified) @ Unknown
		acetaminophen*	2	2						
		ethanol*	3	2						
420pa	39 y F				A	Ingst+ Unk	Int-U	2		
		fentanyl transdermal	1	1					fentanyl	11.8 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl transdermal	1	1					norfentanyl	5.2 ng/mL In Blood (unspecified) @ Autopsy
		alprazolam	2	2					alprazolam	0.03 mg/L In Blood (unspecified) @ Autopsy
		cocaine	3	3					benzoylecognine	0.22 mg/L In Blood (unspecified) @ Autopsy
421pha	39 y M				A/C	Ingst	Int-S	1		
		methadone	1	1					methadone metabolite	0.22 mcg/mL In Blood (unspecified) @ 6 d (pe)
		methadone	1	1					methadone	1.1 mcg/mL In Blood (unspecified) @ 6 d (pe)
		lorazepam	2	2					lorazepam	60 ng/mL In Serum @ Unknown
		salicylate	3	3					salicylate	18 mg/dL In Serum @ Unknown
		marijuana	4	4					thc (tetrahydro-cannabinol)	13 ng/mL In Urine (quantitative only) @ Unknown
422p	39 y M				A	Ingst	Int-A	2		
		methadone	1	1						
423	39 y F				C	Ingst	Unk	3		
		acetaminophen/ hydrocodone	1	1					acetaminophen	38.6 mcg/mL In Unknown @ Unknown
[424a]	39 y M				A/C	Ingst	Int-S	1		
		colchicine	1	1						
		amlodipine/benazepril	2	2						
		salicylate	3	3						
		allopurinol	4	4						
425a	39 y M				U	Ingst	Unk	3		
		oxycodone	1	1					oxycodone	0.26 mg/L In Blood (unspecified) @ Autopsy
		oxycodone	1	1					oxycodone	0.28 mg/L In Blood (unspecified) @ Autopsy
426	39 y M				A	Ingst	Int-S	1		
		tramadol	1	1						
427a	39 y M				A/C	Ingst	Int-M	1		
		acetaminophen/ oxycodone	1	1					acetaminophen	37.9 mcg/mL In Blood (unspecified) @ Unknown
428pa	39 y M				A/C	Ingst	Int-U	2		
		acetaminophen/ oxycodone	1	1					oxycodone	0.22 mcg/mL In Blood (unspecified) @ Autopsy
		skeletal muscle relaxant	2	2					meprobamate	13 mcg/mL In Blood (unspecified) @ Autopsy
		skeletal muscle relaxant	2	2					carisoprodol	4.8 mcg/mL In Blood (unspecified) @ Autopsy

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
		acetaminophen/ hydrocodone	3	3						
429h	39 y F				U	Ingst	Unk	1		
		acetaminophen/ diphenhydramine	1	1					acetaminophen	76 mcg/mL In Serum @ Unknown
		ethanol	2	2						
430	40 y M				U	Ingst	Unt-T	2		
		acetaminophen	1	1					acetaminophen	12 mcg/mL In Serum @ Unknown
431ha	40 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen	214 mcg/mL In Plasma @ 36 h (pe)
		acetaminophen	1	1					acetaminophen	324 mcg/mL In Plasma @ 1 d (pe)
		acetaminophen/ diphenhydramine	2	2						
432	40 y M				C	Ingst	Int-M	1		
		acetaminophen/ diphenhydramine	1	1					acetaminophen	7.1 mcg/mL In Serum @ Unknown
		ethanol	2	2						
[433a]	40 y M				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen	198 mcg/mL In Serum @ Unknown
		diphenhydramine	2	2					diphenhydramine	0.11 mg/L In Blood (unspecified) @ Unknown
434p	40 y M				A/C	Ingst	Int-S	2		
		acetaminophen/ hydrocodone	1	1						
435pa	40 y M				U	Unk	Int-U	2		
		oxymorphone	1	1					oxymorphone	35.9 ng/mL In Blood (unspecified) @ Autopsy
		alprazolam	2	2					alprazolam	212 ng/mL In Blood (unspecified) @ Autopsy
		alprazolam	2	2					nordiazepam	67.9 ng/mL In Blood (unspecified) @ Autopsy
		hydrocodone	3	3					hydrocodone	68.7 ng/mL In Blood (unspecified) @ Autopsy
436	40 y F				A	Ingst	Int-S	2		
		acetaminophen	1	1						
437ph	40 y F				A/C	Ingst	Int-S	3		
		opioid	1	1						
		benzodiazepine	2	2						
		acetaminophen	3	3					acetaminophen	152.7 mcg/mL In Serum @ Unknown
		acetaminophen	3	3					acetaminophen	27 mcg/mL In Serum @ Unknown
		acetaminophen	3	3					acetaminophen	73.6 mcg/mL In Serum @ Unknown
		quetiapine	4	4						
		ziprasidone	5	5						
		gabapentin	6	6						
		phencyclidine	7	7						
438p	40 y F				U	Unk	Int-U	2		
		oxycodone	1	1						
		benzodiazepine	2	2						
439pa	40 y M				A	Ingst	Int-S	2		
		tramadol*	1	1					tramadol	19 mcg/mL In Blood (unspecified) @ Autopsy
		trichlormethiazide*	4	1						
		citalopram*	2	2						
		ibuprofen*	5	2						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
		diphenhydramine	3	3					diphenhydramine	1.9 mcg/mL In Blood (unspecified) @ Autopsy
440p	40 y F				A	Ingst	Int-S	2		
		acetaminophen	2	1					acetaminophen	131 mcg/mL In Serum @ Unknown
		diazepam	1	2						
441p	40 y F				A	Ingst	Int-S	2		
		acetaminophen/ hydrocodone	1	1						
		clonazepam	2	2						
442pa	41 y F				U	Unk	Unk	2		
		oxycodone	1	1					oxycodone	1 mcg/mL In Whole Blood @ Autopsy
		methamphetamine	2	2					methamphetamine	0.28 mcg/mL In Whole Blood @ Autopsy
		methamphetamine	2	2					methamphetamine	15 mcg/mL In Urine (quantitative only) @ Autopsy
		alprazolam	3	3						
		carisoprodol	4	4						
		metformin	5	5						
443p	41 y F				A	Ingst	Int-S	2		
		acetaminophen/ hydrocodone	3	1						
		oxycodone	2	2						
		diazepam	1	3						
444	41 y F				A	Ingst	Int-S	2		
		acetaminophen/ hydrocodone	1	1						
445	41 y F				A/C	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen	300 mcg/mL In Serum @ Unknown
		quetiapine	2	2						
		diazepam	3	3						
		zolpidem	4	4						
446ph	41 y F				A/C	Ingst	Unt-G	1		
		acetaminophen	1	1					acetaminophen	177 mcg/mL In Plasma @ Unknown
447a	41 y F				A	Ingst	Int-S	2		
		acetaminophen/ propoxyphene	1	1					propoxyphene	0.51 mcg/mL In Serum @ Unknown
		acetaminophen/ propoxyphene	1	1					norpropoxyphene	1.9 mcg/mL In Serum @ Unknown
		acetaminophen/ propoxyphene	1	1					acetaminophen	107 mcg/mL In Serum @ Unknown
		alprazolam	2	2					alprazolam	70 ng/mL In Serum @ Unknown
448	42 y M				A	Ingst	Int-S	2		
		acetaminophen/ diphenhydramine	1	1						
449p	42 y F				U	Ingst	Int-S	2		
		methadone	1	1						
		alprazolam	2	2						
		salicylate	3	3					salicylate	12.5 mg/dL In Blood (unspecified) @ Unknown
450p	42 y F				U	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen	107 mcg/mL In Serum @ Unknown
		drug, unknown	2	2						
		propoxyphene	3	3						
451	42 y M				A	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen	154 mcg/mL In Blood (unspecified) @ Unknown
		metformin	2	2						
		ethanol	3	3						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
452	42 y F				A/C	Ingst	Int-M	2		
		acetaminophen/ diphenhydramine	1	1						
453a	42 y M				U	Ingst	Int-S	3		
		oxymorphone	1	1					oxymorphone	0.06 mg/L In Whole Blood @ Unknown
		benzodiazepine*	4	2					7-aminoclonazepam	0.02 mg/L In Blood (unspecified) @ Unknown
		ethanol*	2	2						
		drug, unknown	3	3						
		valproic acid	5	4					valproic acid	22 mg/L In Blood (unspecified) @ Unknown
		barbiturate	6	5					pentobarbital	3.7 mg/L In Blood (unspecified) @ Unknown
		SSRI	7	6						
		trazodone	8	7						
		acetaminophen/ hydrocodone	9	9						
		zolpidem	10	10						
		omega 3 fish oil	11	11						
[454ha]	42 y F				A	Ingst	Int-S	1		
		acetaminophen/ diphenhydramine	1	1					diphenhydramine	6600 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen/ diphenhydramine	1	1					acetaminophen	780 mcg/mL In Blood (unspecified) @ Unknown
		benzodiazepine	2	2						
455p	42 y F				A	Ingst	Int-M	2		
		fentanyl transdermal	1	1						
456	42 y M				A	Ingst	Int-S	1		
		salicylate	1	1						
		diphenhydramine	2	2						
		quetiapine	3	3						
457ha	42 y F				A	Ingst	Unt-M	3		
		acetaminophen	1	1						
458h	42 y F				A/C	Ingst	Int-S	1		
		acetaminophen/ hydrocodone	1	1						
459	42 y M				A	Ingst	Int-S	1		
		salicylate	1	1					salicylate	64 mg/dL In Blood (unspecified) @ Unknown
		cyclobenzaprine	2	2						
		acetaminophen/ hydrocodone	3	3						
460h	42 y F				A	Ingst	Int-S	1		
		acetaminophen/ diphenhydramine	1	1						
461pa	42 y F				A	Ingst	Int-S	1		
		acetaminophen/ oxycodone	1	1						
		citalopram	2	2						
462pa	42 y F				U	Unk	Unk	1		
		methadone	1	1					eddp (2-ethylidene-1,5-dimethyl-3,3-diphenyl pyrrolidine)	0.1 mg/L In Blood (unspecified) @ Autopsy
		methadone	1	1					methadone	0.25 mg/L In Blood (unspecified) @ Autopsy
		oxycodone	2	2					oxycodone	0.25 mg/L In Blood (unspecified) @ Autopsy

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
		benztropine	3	3					benztropine mesylate	0.12 mg/L In Blood (unspecified) @ Autopsy
		doxepin	4	4					desmethyldoxepin	0.12 mg/L In Blood (unspecified) @ Autopsy
		doxepin	4	4					doxepin	0.27 mg/L In Blood (unspecified) @ Autopsy
		cyclobenzaprine	5	5					cyclobenzaprine	0.05 mg/L In Blood (unspecified) @ Autopsy
		diphenhydramine	6	6					diphenhydramine	0.09 mg/L In Blood (unspecified) @ Autopsy
		fludrocortisone	7	7						
463pa	42 y F				U	Ingst	Int-U	1		
		acetaminophen/ oxycodone	1	1						
464	42 y F				A	Ingst	Int-A	2		
		oxycodone	1	1						
		benzodiazepine	2	2						
465p	42 y F				A	Ingst+ Inhal	Int-A	2		
		fentanyl transdermal	1	1						
		acetaminophen/ hydrocodone	2	2						
		clonazepam	3	3						
466	43 y F				C	Ingst	Int-S	2		
		acetaminophen/ salicylate	1	1					acetaminophen	14 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/ dextromethorphan/ doxylamine	2	2						
		ibuprofen	3	3						
467	43 y F				A	Ingst	Int-U	1		
		acetaminophen	1	1						
468	43 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1						
469a	43 y M				A	Ingst	Int-S	1		
		salicylate	1	1					promethazine	0.19 mg/L In Blood (unspecified) @ Autopsy
		salicylate	1	1					chlorpheniramine	0.51 mg/L In Blood (unspecified) @ Autopsy
		salicylate	1	1					salicylate	1420 mg/L In Blood (unspecified) @ Autopsy
		salicylate	1	1					salicylate	85.6 mg/dL In Blood (unspecified) @ Unknown
		salicylate	1	1					acetaminophen	9.7 mcg/mL In Blood (unspecified) @ Unknown
470	43 y F				A	Ingst	Int-S	1		
		salicylate	1	1						
		diphenhydramine	2	2						
471	43 y F				A	Ingst	Int-S	2		
		acetaminophen/ hydrocodone	1	1						
472pa	44 y F				U	Ingst	Int-U	2		
		hydrocodone	1	1					hydrocodone	108 ng/mL In Blood (unspecified) @ Autopsy

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
		hydromorphone	3	2						
		benzodiazepine	2	3					benzodiazepines	10.5 mg/mL In Blood (unspecified) @ Autopsy
473pha	44 y F				A	Ingst	Int-S	1		
		acetaminophen/ hydrocodone	1	1					hydrocodone	0.12 mg/L In Serum @ Autopsy
		acetaminophen/ hydrocodone	1	1					acetaminophen	20.5 mcg/mL In Serum @ Unknown
		acetaminophen/ hydrocodone	1	1					acetaminophen	31 mg/L In Serum @ Autopsy
		ethanol	2	2					ethanol	0.12 g/dL In Blood (unspecified) @ Autopsy
		ethanol	2	2					ethanol	278 mg/dL In Blood (unspecified) @ Unknown
474	44 y M				A	Ingst	Int-S	1		
		salicylate	1	1					salicylate	83.3 mg/dL In Serum @ 22 h (pe)
		drain cleaner (alkali)	2	2						
		drug, unknown	3	3						
475	44 y M				A	Ingst	Int-S	2		
		morphine	1	1						
		acetaminophen/ propoxyphene	2	2						
		acetaminophen/ hydrocodone	3	3						
		erythromycin	4	4						
		tricyclic antidepressant	5	5						
476	44 y M				A	Ingst	Int-S	1		
		salicylate	1	1					salicylate	137 mg/dL In Blood (unspecified) @ 36 h (pe)
		salicylate	1	1					salicylate	34.5 mg/dL In Blood (unspecified) @ 1 h (pe)
		salicylate	1	1					salicylate	64.8 mg/dL In Blood (unspecified) @ 6 h (pe)
		salicylate	1	1					salicylate	74.6 mg/dL In Blood (unspecified) @ 18 h (pe)
477pha	44 y F				A/C	Ingst	Int-S	1		
		acetaminophen/ propoxyphene	1	1					acetaminophen	116 mcg/mL In Blood (unspecified) @ Unknown
		ethanol	2	2						
		meperidine	3	3						
		ibuprofen	4	4						
478ph	44 y F				A/C	Ingst	Int-S	1		
		salicylate	1	1						
		ethanol	2	2						
479pa	44 y F				A	Ingst	Int-S	1		
		acetaminophen/ hydrocodone	1	1					hydrocodone	0.08 mg/L In Blood (unspecified) @ Autopsy
		acetaminophen/ hydrocodone	1	1					acetaminophen	53.5 mg/mL In Blood (unspecified) @ Autopsy
		ethanol	2	2						
		benzodiazepine	3	3					nordiazepam	60 ng/mL In Blood (unspecified) @ Autopsy
		paroxetine	4	4						
		fluoxetine	5	5					norfluoxetine	0.02 mg/mL In Blood (unspecified) @ Autopsy

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
		fluoxetine	5	5					fluoxetine	0.1 mg/mL In Blood (unspecified) @ Autopsy
480	44 y M				U	Ingst	Unk	2		
		acetaminophen	1	1					acetaminophen	20.3 mcg/mL In Plasma @ Unknown
481	44 y M				U	Ingst+ Aspir	Int-U	3		
		acetaminophen	1	1						
		salicylate	2	2						
482	44 y F				A/C	Ingst	Int-U	1		
		acetaminophen/ hydrocodone	1	1						
483p	44 y F				A/C	Ingst	Int-S	2		
		acetaminophen/ oxycodone	1	1						
484	44 y F				U	Ingst	Int-S	2		
		acetaminophen/ diphenhydramine	2	1					acetaminophen	20 mcg/mL In Unknown @ Unknown
		atenolol	6	2						
		metformin/pioglitazone	4	3						
		ethanol	9	4					ethanol	28 mg/dL In Unknown @ Unknown
		diphenhydramine	5	5						
		salicylate	8	6					salicylate	13 mg/dL In Unknown @ Unknown
		hydrochlorothiazide/ lisinopril	7	7						
		hydrochlorothiazide	3	8						
		ibuprofen	1	9						
485pai	45 y M				U	Ingst	Int-A	2		
		oxycodone	1	1					oxycodone	1276 ng/mL In Blood (unspecified) @ Autopsy
		oxycodone	1	1					oxymorphone	17.2 ng/mL In Blood (unspecified) @ Autopsy
		diazepam	2	2					diazepam	656 ng/mL In Blood (unspecified) @ Autopsy
		diazepam	2	2					nordiazepam	681 ng/mL In Blood (unspecified) @ Autopsy
		alprazolam	3	3					alprazolam	26.7 ng/mL In Blood (unspecified) @ Autopsy
		skeletal muscle relaxant	4	4						
		fluorquinolone	5	5						
		lisinopril	6	6						
486	45 y M				U	Ingst	Int-S	3		
		acetaminophen	1	1						
487pa	45 y F				A/C	Ingst	Int-U	1		
		acetaminophen/ propoxyphene	1	1					acetaminophen	200 mcg/mL In Serum @ Unknown
		acetaminophen/ propoxyphene	1	1					propoxyphene	547 ng/mL In Serum @ Unknown
		opioid	2	2						
488pa	45 y M				A	Unk	Unk	2		
		opioid	1	1					morphine	36 mcg/L In Blood (unspecified) @ Autopsy
489pa	45 y F				U	Ingst	Int-S	2		
		oxycodone	1	1					oxymorphone	12.5 ng/mL In Blood (unspecified) @ Autopsy

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
		oxycodone	1	1					oxycodone (total)	180 ng/mL In Blood (unspecified) @ Autopsy
		methadone	2	2					methadone metabolite	30.2 ng/mL In Blood (unspecified) @ Autopsy
		methadone	2	2					methadone	95 ng/mL In Blood (unspecified) @ Autopsy
		hydrocodone	3	3						
490pa	45 y F				U	Ingst	Int-U	3		
		methadone	1	1						
		carisoprodol	2	2						
		clonazepam	3	3						
		diazepam	4	4						
491	45 y M				A	Ingst	Int-S	2		
		acetaminophen/ propoxyphene	2	1						
		metaxalone	1	2						
492ha	45 y M				A/C	Ingst	Int-S	2		
		acetaminophen/ hydrocodone	1	1					hydrocodone	1401 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen/ hydrocodone	1	1					acetaminophen	28.4 mcg/mL In Blood (unspecified) @ Unknown
		clonazepam	2	2					clonazepam	93 ng/mL In Blood (unspecified) @ Autopsy
493	45 y F				U	Ingst	Int-S	2		
		opioid	1	1						
		benzodiazepine	2	2						
494	45 y M				C	Ingst	Unk	2		
		acetaminophen	1	1						
		ibuprofen	2	2						
		ethanol	3	3						
495	45 y F				A	Ingst	Int-S	1		
		acetaminophen/ hydrocodone	1	1					acetaminophen	200 mcg/mL In Blood (unspecified) @ Unknown
		carisoprodol	2	2						
496ph	46 y F				C	Ingst	Int-M	2		
		oxycodone	1	1						
		acetaminophen	2	2						
497a	46 y F				A	Ingst	Int-S	3		
		acetaminophen	1	1					acetaminophen	153.2 mcg/mL In Blood (unspecified) @ 30 m (pe)
		acetaminophen	1	1					acetaminophen	95.1 mcg/mL In Blood (unspecified) @ 4 h (pe)
498	46 y F				A	Ingst	Int-A	3		
		acetaminophen/ oxycodone	1	1						
		acetaminophen	2	2					acetaminophen	40.2 mcg/mL In Serum @ Unknown
		acetaminophen	2	2					acetaminophen	72 mcg/mL In Serum @ Unknown
		acetaminophen	2	2					acetaminophen	89 mcg/mL In Serum @ Unknown
		ethanol	3	3						
499a	46 y M				A/C	Ingst	Int-A	2		
		acetaminophen	1	1						
		ethanol	2	2						
500	46 y F				A/C	Ingst	Int-S	1		
		acetaminophen/ hydrocodone	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
		acetaminophen/ diphenhydramine	2	2						
		acetaminophen	3	3					acetaminophen	91 mcg/mL In Blood (unspecified) @ Unknown
		ibuprofen	4	4						
501	46 y F				C	Ingst	Int-M	2		
		acetaminophen	1	1						
		acetaminophen/ oxycodone	2	2						
502ph	46 y M				A	Ingst	Int-S	1		
		acetaminophen/ oxycodone	1	1						
		cyclobenzaprine	2	2						
		ethanol	3	3						
503a	46 y F				C	Ingst	Unk	1		
		acetaminophen/ hydrocodone	1	1					acetaminophen	110 mcg/mL In Blood (unspecified) @ 10 h (pe)
		acetaminophen/ hydrocodone	1	1					acetaminophen	120 mcg/mL In Blood (unspecified) @ 5 h (pe)
		acetaminophen/ hydrocodone	1	1					acetaminophen	246 mcg/mL In Serum @ 30 m (pe)
		clonazepam*	2	2					clonazepam	0.044 mg/L In Blood (unspecified) @ 10 h (pe)
		clonazepam*	2	2					7-aminoclonazepam	0.072 mg/L In Blood (unspecified) @ 10 h (pe)
		salicylate*	3	2					salicylate	17.3 mg/dL In Blood (unspecified) @ 30 m (pe)
504	46 y F				A/C	Ingst	Int-U	1		
		acetaminophen	1	1						
505ph	46 y M				A	Derm+ Unk	Unt-U	2		
		methadone	1	1						
		olanzapine	2	2						
		citalopram	3	3						
506ph	46 y F				A	Ingst	Int-M	1		
		acetaminophen	1	1						
		propoxyphene	2	2						
507	46 y F				A/C	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen	151 mcg/mL In Blood (unspecified) @ 12 h (pe)
508	46 y F				A/C	Ingst	Int-U	3		
		acetaminophen	1	1					acetaminophen	19 mcg/mL In Serum @ Unknown
		amitriptyline	2	2						
509p	47 y M				U	Ingst	Unk	2		
		propoxyphene	1	1						
		citalopram	3	2						
		zolpidem	2	3						
510p	47 y F				A	Ingst	Int-S	2		
		oxycodone	1	1						
511pa	47 y F				U	Ingst	Int-U	2		
		methadone	1	1					methadone	410 ng/mL In Blood (unspecified) @ Autopsy
		methadone	1	1					methadone metabolite	47.7 ng/mL In Blood (unspecified) @ Autopsy
		diazepam	2	2					nordiazepam	516 ng/mL In Blood (unspecified) @ Autopsy

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
		diazepam	2	2					diazepam	759 ng/mL In Blood (unspecified) @ Autopsy
		tramadol	3	3						
		naproxen	4	4						
		acetaminophen/ hydrocodone	5	5						
512	47 y F				A	Ingst	Int-S	2		
		acetaminophen	1	1						
		ethanol	2	2						
513	47 y M				A	Ingst	Int-S	1		
		acetaminophen/ salicylate	1	1						
		naproxen	2	2						
		pseudoephedrine	3	3						
514pa	47 y M				U	Ingst+ Unk	Unk	2		
		acetaminophen/ hydrocodone	4	1						0.059 mcg/mL In Blood (unspecified) @ Autopsy
		ethanol	1	2					ethanol	0.09 g/dL In Vitreous @ Autopsy
		ethanol	1	2					ethanol	0.16 g/dL In Blood (unspecified) @ Autopsy
		phenobarbital	2	3					phenobarbital	13 mcg/mL In Whole Blood @ Autopsy
		alprazolam	3	4					alprazolam	0.043 mcg/mL In Blood (unspecified) @ Autopsy
		methadone	5	5						
515ph	47 y F				A	Ingst	Int-S	2		
		morphine	1	1						
		antipsychotic, unknown	2	2						
		risperdal	3	3						
		SSRI	4	4						
		benzodiazepine	5	5						
		tramadol	7	7						
516h	47 y F				A/C	Ingst+ Unk	Unk	1		
		acetaminophen/ caffeine/salicylate	1	1					salicylate	12 mg/dL In Blood (unspecified) @ Unknown
		acetaminophen	2	2					acetaminophen	178.3 mcg/mL In Whole Blood @ Unknown
		acetaminophen	2	2					acetaminophen	180 mcg/mL In Plasma @ Unknown
		ethanol	3	3					ethanol	45 Other (see abst) In Blood (unspecified) @ Unknown
		opioid	4	4						
517i	47 y F				A	Ingst	Int-S	1		
		acetaminophen/ oxycodone	2	1						
		butalbital/caffein/ salicylate	1	2						
518h	47 y M				A	Ingst	Int-S	2		
		tramadol	1	1						
519ph	47 y M				A	Ingst	Int-S	1		
		oxycodone	1	1						
		alprazolam	2	2						
		ethanol	3	3						
520ha	48 y F				A/C	Ingst	Int-S	1		
		acetaminophen/ hydrocodone	1	1						
521	48 y F				A	Ingst	Unt-G	3		
		acetaminophen/ propoxyphene	1	1					acetaminophen	42 mcg/mL In Plasma @ Unknown

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
522	48 y M				A	Ingst	Int-S	2		
		colchicine	1	1						
		etodolac	2	2						
		sildenafil	3	3						
523ha	48 y M				A	Ingst	Int-S	2		
		acetaminophen/ propoxyphene	1	1					norpropoxyphene	0.63 mcg/mL In Serum @ Unknown
		acetaminophen/ propoxyphene	1	1					propoxyphene	0.79 mcg/mL In Serum @ Unknown
		acetaminophen/ propoxyphene	1	1					acetaminophen	140 mcg/mL In Serum @ Unknown
524	48 y F				U	Ingst+ Unk	Int-S	2		
		acetaminophen*	1	1						
		carisoprodol*	2	1						
525	48 y F				A	Ingst	Int-U	2		
		acetaminophen	1	1						
526ph	48 y M				A	Ingst	Int-S	2		
		tramadol	1	1						
527p	48 y M				U	Ingst	Int-U	3		
		oxymorphone	1	1					oxymorphone	93.9 ng/mL In Blood (unspecified) @ Autopsy
528	49 y F				A	Ingst	Int-S	2		
		acetaminophen/ hydrocodone	1	1					acetaminophen	52 mcg/mL In Serum @ Unknown
529pai	49 y F				U	Ingst	Unk	2		
		propoxyphene	1	1					propoxyphene	217 ng/mL In Blood (unspecified) @ Autopsy
		quetiapine	2	2					quetiapine	270 ng/mL In Blood (unspecified) @ Autopsy
		benzodiazepine	3	3					alprazolam	30.8 ng/mL In Blood (unspecified) @ Autopsy
		ethanol	4	4						
		caffeine	5	5						
530	49 y F				A	Ingst	Int-S	2		
		acetaminophen/ diphenhydramine	1	1						
531p	49 y M				A	Ingst	Int-S	2		
		acetaminophen/ hydrocodone	1	1					acetaminophen	63.1 mcg/mL In Blood (unspecified) @ Unknown
		ethanol	2	2					ethanol	212 mg/dL In Blood (unspecified) @ Unknown
532pa	49 y F				A/C	Ingst	Int-S	1		
		oxycodone	1	1					oxycodone (total)	0.25 mg/L In Blood (unspecified) @ Unknown
		trazodone	2	2					trazodone	0.18 mg/L In Blood (unspecified) @ Autopsy
		trazodone	2	2					trazodone	2.1 mg/L In Blood (unspecified) @ Unknown
533	49 y F				A/C	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen	118 mcg/mL In Serum @ 36 h (pe)
		acetaminophen	1	1					acetaminophen	244 mcg/mL In Serum @ 20 h (pe)
		acetaminophen	1	1					acetaminophen	358 mcg/mL In Serum @ Unknown
534	49 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
535	49 y M				U	Ingst	Unk	2		
		colchicine	2	1						
		substance (non-drug), unknown	1	2						
536	50 y M				U	Ingst	Unk	2		
		acetaminophen/ oxycodone	1	1					acetaminophen	19 mcg/mL In Blood (unspecified) @ 1 h (pe)
537	50 y F				A/C	Ingst	Int-S	2		
		acetaminophen	1	1						
538pai	50 y F				U	Ingst	Unk	2		
		acetaminophen/ oxycodone	1	1					oxycodone	115 ng/mL In Blood (unspecified) @ Autopsy
		omerprazole	2	2						
		metronidazole	3	3						
539ha	50 y F				U	Ingst	Int-S	1		
		acetaminophen/ hydrocodone	1	1					acetaminophen	49 mcg/mL In Serum @ Unknown
		zolpidem	2	2					zolpidem	0.13 mg/mL In Blood (unspecified) @ Autopsy
540h	50 y M				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen	275 mcg/mL In Serum @ Unknown
541	50 y F				U	Ingst	Int-S	2		
		salicylate	1	1					salicylate	99.9 mg/dL In Plasma @ Unknown
		acetaminophen/ propoxyphene	2	2					acetaminophen	33 mcg/mL In Plasma @ Unknown
542h	50 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1						
		carisoprodol	2	2						
		morphine	3	3						
543	50 y M				U	Ingst	Int-U	1		
		acetaminophen	1	1					acetaminophen	155.5 mcg/mL In Blood (unspecified) @ Unknown
544	51 y M				A/C	Ingst+ Unk	Int-S	2		
		acetaminophen/ hydrocodone	1	1						
		alprazolam	2	2						
		drug, unknown	3	3						
545h	51 y F				A/C	Ingst	Int-S	1		
		tramadol	1	1						
		carisoprodol	2	2						
		trazodone	3	3						
		baclofen	4	4						
		lamotrigine	5	5						
		gabapentin	6	6						
		acetaminophen/ hydrocodone	7	7						
		diazepam	8	8						
		lorazepam	9	9						
546i	51 y M				A	Ingst	Oth-M	2		
		acetaminophen	1	1						
547	51 y F				A	Ingst	Int-S	3		
		salicylate	1	1						
		acetaminophen	2	2						
548	51 y F				U	Ingst	Int-S	2		
		salicylate	1	1					salicylate	95 mg/dL In Serum @ 30 m (pe)
549p	51 y F				U	Ingst	Int-S	2		
		morphine	1	1						
		diphenhydramine	3	3						
		tapazole	4	4						
		simvastatin	5	5						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
550pha	51 y M				A	Ingst	Unk	2		
		acetaminophen/ oxycodone	1	1						
551	51 y M				A	Ingst	Unk	2		
		oxycodone	1	1						
552	51 y M				A	Ingst	Int-S	1		
		salicylate	1	1						
		drug, unknown	4	2						
		ibuprofen	3	3						
		brodifacoum	2	4						
553p	51 y M				A	Ingst	Int-S	2		
		acetaminophen/ oxycodone	1	1						
554	51 y M				A	Ingst	Int-U	3		
		fentanyl transdermal	1	1						
555a	51 y M				U	Ingst+ Unk	Int-S	3		
		methadone	1	1					methadone	1.676 mg/L In Blood (unspecified) @ Autopsy
		acetaminophen/ hydrocodone	2	2						
		paroxetine	3	3						
		morphine	4	4					morphine (total)	0.148 mg/L In Blood (unspecified) @ Autopsy
556ha	52 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen	44.8 mcg/mL In Serum @ Unknown
		acetaminophen/ diphenhydramine	2	2						
557	52 y F				U	Ingst	Unk	3		
		acetaminophen	1	1						
558p	52 y F				A	Ingst	Int-S	2		
		acetaminophen/ hydrocodone	1	1					acetaminophen	68 mcg/mL In Blood (unspecified) @ Unknown
		ethanol	2	2					ethanol	230 mg/dL In Blood (unspecified) @ Unknown
559pa	52 y F				U	Ingst	Int-U	2		
		Oxycodone!	1	1					oxycodone	0.091 mg/L In Blood (unspecified) @ Unknown
		alprazolam	2	2						
560	52 y F				A	Ingst	Int-S	1		
		acetaminophen/ diphenhydramine	1	1					acetaminophen	698.4 mcg/mL In Serum @ 1 h (pe)
561pha	52 y F				U	Ingst	Int-U	1		
		acetaminophen	1	1					acetaminophen	186 mcg/mL In Blood (unspecified) @ Unknown
		ethanol	2	2					ethanol	186 mg/dL In Blood (unspecified) @ Unknown
562a	52 y M				A/C	Ingst	Int-A	3		
		methadone	1	1						
		alprazolam	2	2						
		fentanyl transdermal	3	3						
563	52 y F				U	Ingst	Int-S	1		
		salicylate	1	1						
564	52 y M				A	Ingst	Int-M	2		
		acetaminophen	1	1					acetaminophen	86 mcg/mL In Blood (unspecified) @ Unknown
565	52 y M				A	Ingst	Int-S	3		
		acetaminophen/ diphenhydramine	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
566	52 y M				U	Ingst	Unk	1		
		salicylate	1	1						
567h	52 y M				A/C	Ingst	Unt-T	1		
		acetaminophen	1	1					acetaminophen	90 mcg/mL In Serum @ Unknown
		ethanol	2	2						
568	52 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1						
569	53 y M				C	Ingst	Int-M	2		
		acetaminophen	1	1					acetaminophen	0 mcg/mL In Serum @ Unknown
570	53 y F				A/C	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen	277 mcg/mL In Blood (unspecified) @ Unknown
571p	53 y F				A/C	Ingst	Int-S	1		
		acetaminophen/ hydrocodone	1	1					acetaminophen	262.8 mg/L In Serum @ Unknown
		ethanol	2	2					ethanol	346 mg/dL In Blood (unspecified) @ Unknown
572	53 y M				C	Ingst	Unt-T	3		
		acetaminophen	1	1						
573h	54 y F				A	Ingst	Int-S	3		
		morphine	1	1						
		amitriptyline	3	3						
		trazodone	4	4						
574	54 y F				A	Ingst	Int-S	1		
		salicylate	1	1						
575	54 y M				U	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen	443 mcg/mL In Serum @ Unknown
[576a]	54 y M				U	Unk	Int-S	1		
		acetaminophen	1	1						
577pa	54 y F				U	Unk	Unk	1		
		acetaminophen/ propoxyphene	1	1						
		acetaminophen	2	2					acetaminophen	83.9 mg/mL In Serum @ Unknown
		drug, unknown	3	3					propoxyphene	1096 ng/mL In Whole Blood @ Autopsy
		drug, unknown	3	3					ethanol	130 mg/dL In Serum @ 30 m (pe)
		drug, unknown	3	3					amphetamine	223 ng/mL In Whole Blood @ Autopsy
		drug, unknown	3	3					norpropoxyphene	6939 ng/mL In Whole Blood @ Autopsy
578	54 y F				A	Ingst	Unk	2		
		acetaminophen	1	1						
		acetaminophen/ diphenhydramine	2	2						
		ethanol	3	3						
579	54 y F				A/C	Ingst	Int-S	1		
		acetaminophen/ hydrocodone	1	1					acetaminophen	391 mcg/mL In Serum @ Unknown
		acetaminophen/ hydrocodone	1	1					acetaminophen	55.4 mcg/mL In Serum @ 2 d (pe)
		carisoprodol	2	2						
		benzodiazepine	3	3						
		fentanyl transdermal	4	4						
580a	54 y M				A/C	Ingst	Unk	3		
		acetaminophen*	1	1						
		warfarin*	2	1						
		acetaminophen/ hydrocodone	3	3						
		diuretic, unknown	4	4						
		corticosteroids	5	5						
		calcium antagonist	6	6						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
581p	55 y M				A	Par	Int-A	2		
		fentanyl transdermal	1	1						
582	55 y F				A/C	Ingst	Int-S	3		
		acetaminophen/ hydrocodone	1	1						
583ha	55 y F				U	Ingst	Int-S	1		
		salicylate	1	1					salicylate	455 mcg/mL In Blood (unspecified) @ Autopsy
		acetaminophen/codeine	2	2					codeine (free)	0.11 mcg/mL In Blood (unspecified) @ Autopsy
		acetaminophen/codeine	2	2					codeine	0.3 mcg/mL In Blood (unspecified) @ Autopsy
		acetaminophen/codeine	2	2					acetaminophen	23.3 mcg/mL In Blood (unspecified) @ Autopsy
584	55 y M				U	Ingst	Int-S	1		
		salicylate	1	1					salicylate	147 mg/dL In Unknown @ Unknown
		salicylate	1	1					salicylate	80 mg/dL In Unknown @ Unknown
585	55 y M				U	Unk	Unk	2		
		acetaminophen/opioid	1	1					acetaminophen	109 mcg/mL In Blood (unspecified) @ Unknown
		benzodiazepine	2	2						
586a	55 y F				A	Ingst	Int-S	1		
		opioid	1	1					morphine (free)	43 ng/mL In Blood (unspecified) @ 1 h (pe)
		benzodiazepine*	3	2						
		cocaine*	2	2					benzoylecognine	5800 ng/mL In Blood (unspecified) @ 1 h (pe)
		pseudoephedrine	4	4					pseudoephedrine	720 ng/mL In Blood (unspecified) @ 1 h (pe)
		cyclobenzaprine	5	5					cyclobenzaprine	11 ng/mL In Blood (unspecified) @ 1 h (pe)
587p	55 y F				U	Ingst	Int-S	1		
		acetaminophen/ hydrocodone	1	1					acetaminophen	588 mcg/mL In Serum @ Unknown
588ha	55 y F				A	Ingst	Int-S	1		
		acetaminophen/ diphenhydramine	1	1						
589	55 y F				A	Ingst	Int-S	2		
		acetaminophen	1	1						
590	55 y M				U	Ingst	Unk	3		
		salicylate	1	1					salicylate	395 mg/L In Blood (unspecified) @ Unknown
591pa	56 y F				U	Ingst	Int-U	2		
		acetaminophen/ propoxyphene	1	1					propoxyphene	1.1 mcg/mL In Whole Blood @ Autopsy
		acetaminophen/ propoxyphene	1	1					norpropoxyphene	2.4 mcg/mL In Whole Blood @ Autopsy
		hyoscyamine	2	2						
		zolpidem	3	3						
592h	56 y F				A/C	Ingst	Int-U	3		
		acetaminophen/opioid	1	1					acetaminophen	55 mcg/mL In Serum @ Unknown
593pa	56 y F				A	Ingst	Unk	2		
		tramadol	1	1					tramadol	3.1 mcg/mL In Whole Blood @ Autopsy

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
		zolpidem	2	2					zolpidem	0.11 mcg/mL In Whole Blood @ Autopsy
		drug, unknown	3	3						
594pa	56 y F				A/C	Ingst	Unk	2		
		oxycodone	1	1					oxymorphone (total)	0.13 mg/L In Blood (unspecified) @ Autopsy
		oxycodone	1	1					oxycodone (total)	0.42 mg/L In Blood (unspecified) @ Autopsy
		oxycodone	1	1					oxycodone (free)	0.46 mg/L In Blood (unspecified) @ Autopsy
		methadone	2	2					methadone	0.1 mg/L In Blood (unspecified) @ Autopsy
		alprazolam*	4	3						
		skeletal muscle relaxant*	3	3						
595	56 y M				A	Ingst	Int-S	3		
		acetaminophen/ salicylate	1	1					salicylate	51 mg/dL In Blood (unspecified) @ 7 h (pe)
		acetaminophen	2	2						
[596]	56 y F				C	Ingst	Int-M	1		
		acetaminophen	1	1					acetaminophen	12.1 mg/L In Blood (unspecified) @ Unknown
597	57 y F				C	Ingst	Int-A	3		
		acetaminophen/codeine	1	1						
		carisoprodol	2	2						
598h	57 y F				C	Ingst	Int-M	1		
		acetaminophen/ hydrocodone	1	1						
		acetaminophen	2	2					acetaminophen	60.4 mcg/mL In Serum @ Unknown
		acetaminophen/ propoxyphene	3	3						
599a	57 y M				A/C	Ingst	Int-S	1		
		colchicine	1	1						
		acetaminophen	2	2						
		naproxen	3	3						
		fenofibrate	5	4						
		ibuprofen	4	5						
		cholestyramine	6	6						
		ethanol	7	7						
600	58 y M				U	Ingst	Unk	1		
		acetaminophen/ diphenhydramine	1	1					acetaminophen	407 mcg/mL In Serum @ Unknown
601	58 y F				A	Ingst	Int-S	2		
		salicylate	1	1						
		acetaminophen	2	2						
		quetiapine	3	3						
602a	59 y M				A	Ingst	Int-S	1		
		acetaminophen/ butalbital/caffeine	1	1						
603	59 y F				C	Ingst	Int-U	1		
		acetaminophen/codeine	1	1						
604	59 y M				U	Ingst	Int-S	2		
		acetaminophen/ hydrocodone	1	1					acetaminophen	23 mcg/mL In Blood (unspecified) @ Unknown
605	60 y F				A	Ingst	Int-U	2		
		salicylate	1	1					salicylate	44.4 mg/dL In Plasma @ Unknown
606	60 y M				A	Ingst	Int-S	1		
		salicylate	1	1					salicylate	121 mg/dL In Serum @ Unknown

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
607	60 y F				A/C	Ingst	Int-S	1		
		acetaminophen/ hydrocodone	1	1						
608	60 y F				A	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen	172 mcg/mL In Blood (unspecified) @ 8 h (pe)
609pa	60 y M				U	Ingst	Int-U	3		
		hydrocodone	2	1						0.17 mcg/mL In Blood (unspecified) @ Autopsy
		propoxyphene	1	2					propoxyphene	0.24 mcg/mL In Blood (unspecified) @ Autopsy
		diphenhydramine	3	3					diphenhydramine	0.31 mcg/mL In Blood (unspecified) @ Autopsy
		nitroglycerin	4	4						
610ph	60 y F				A/C	Ingst	Int-S	1		
		fentanyl transdermal	1	1						
		acetaminophen/ hydrocodone	2	2					acetaminophen	17.3 mcg/mL In Blood (unspecified) @ Unknown
611	60 y M				U	Unk	Int-S	1		
		acetaminophen	1	1					acetaminophen	44 mcg/mL In Blood (unspecified) @ Unknown
		ethanol	2	2					ethanol	206 mg/dL In Blood (unspecified) @ Unknown
612	61 y F				A	Ingst	Int-S	2		
		acetaminophen/ oxycodone	1	1					acetaminophen	399 mcg/mL In Plasma @ Unknown
613	61 y M				A	Ingst	Int-M	3		
		acetaminophen/ diphenhydramine	1	1						
614	61 y F				C	Ingst	Unt-T	2		
		acetaminophen	1	1						
		acetaminophen/ dextromethorphan	2	2						
615	61 y F				A	Ingst	Int-S	2		
		acetaminophen	1	1						
		diazepam	2	2						
		acetaminophen/ hydrocodone	3	3						
616p	61 y F				A	Ingst	Int-S	2		
		acetaminophen/ diphenhydramine	1	1					acetaminophen	55 mcg/mL In Blood (unspecified) @ 8 h (pe)
617	61 y F				U	Ingst	Unk	3		
		acetaminophen	1	1						
618p	61 y F				A	Ingst	Unk	2		
		acetaminophen	1	1						
		tramadol	2	2						
		antifreeze (ethylene glycol)	3	3						
		phencyclidine	4	4						
619ph	62 y M				A	Ingst	Unk	2		
		methadone	1	1						
		diazepam	2	2						
		quetiapine*	3	3						
		zolpidem*	4	3						
		buspirone	5	4						
		venlafaxine	6	6						
		simvastatin	7	7						
		tramadol	8	8						
		fluoxetine	9	9						
		albuterol	10	10						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
620ha	62 y F				A/C	Ingst	Int-S	1		
		acetaminophen/ hydrocodone	1	1					hydrocodone	0.158 mg/L In Blood (unspecified) @ 2 d (pe)
		acetaminophen/ hydrocodone	1	1					acetaminophen	42 mcg/mL In Blood (unspecified) @ Unknown
		carisoprodol	2	2					carisoprodol	1.2 mcg/mL In Blood (unspecified) @ 2 d (pe)
		carisoprodol	2	2					meprobamate	14 mcg/mL In Blood (unspecified) @ 2 d (pe)
621ha	62 y M				C	Ingst	Unt-T	1		
		acetaminophen/ diphenhydramine	1	1					acetaminophen	88 mcg/mL In Blood (unspecified) @ Unknown
		ethanol	2	2						
622	63 y F				A/C	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen	600 mg/L In Serum @ Unknown
		salicylate	2	2						
		risperidone	3	3						
623	63 y F				U	Ingst	Int-S	1		
		acetaminophen/ diphenhydramine	1	1						
		isopropanol	2	2						
		potassium salts	3	3						
		rodenticide, antocoagulant	4	4						
		ethanol	5	5						
		cimetidine	6	6						
		antacid	7	7						
624	63 y M				U	Ingst	Unk	1		
		acetaminophen	1	1					acetaminophen	16 mcg/mL In Plasma @ Unknown
625h	63 y F				A/C	Ingst	Int-A	2		
		acetaminophen/ hydrocodone	1	1						
		temazepam	2	2						
626	63 y F				U	Ingst	Int-S	1		
		acetaminophen/ diphenhydramine	1	1						
		ethanol	2	2						
627	63 y F				U	Ingst	Int-S	3		
		oxycodone	1	1						
628	63 y F				C	Ingst	Unt-M	3		
		oxycodone/salicylate	1	1						
629a	65 y F				U	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen	160 mcg/mL In Serum @ Unknown
630p	65 y F				C	Ingst	Int-M	2		
		methadone	1	1						
631p	66 y F				A	Ingst	Int-S	1		
		propoxyphene	1	1					acetaminophen	100 mg/mL In Blood (unspecified) @ Unknown
632p	66 y M				A	Ingst	Int-U	2		
		acetaminophen/ hydrocodone	1	1						
		cyclobenzaprine	2	2						
633	66 y M				A	Ingst	Int-S	2		
		acetaminophen/ propoxyphene	1	1						
634	67 y F				U	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen	62 mcg/mL In Serum @ Unknown

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
635h	67 y M				A	Ingst	Int-U	1		
		acetaminophen/ hydrocodone	1	1						
		citalopram	2	2						
		cyclobenzaprine	3	3						
		pramipexole	4	4						
		ethanol	5	5						
636h	67 y M				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen	600 mcg/mL In Plasma @ Unknown
		acetaminophen/ hydrocodone	2	2						
637	67 y F				A	Ingst	Int-S	1		
		salicylate	1	1						
638a	68 y M				A	Ingst	Int-S	1		
		acetaminophen/ oxycodone	1	1					acetaminophen	79 mcg/mL In Blood (unspecified) @ Unknown
639	68 y M				A	Ingst	Int-S	2		
		acetaminophen/ hydrocodone	1	1					acetaminophen	290 mcg/mL In Blood (unspecified) @ Unknown
		benzodiazepine	2	2						
640	68 y M				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen	350 mcg/mL In Serum @ 25 h (pe)
		diphenhydramine	2	2						
641	70 y F				U	Ingst	Int-S	2		
		methadone	1	1						
		hydromorphone	2	2						
		acetaminophen/ oxycodone	3	3						
		desipramine	4	4						
		cyclobenzaprine	5	5						
		fluoxetine	6	6						
		duloxetine	7	7						
		pregabalin	8	8						
		clonazepam	9	9						
		chlordiazepoxide	10	10						
		torsemide	11	11						
		lisinopril	12	12						
		meloxicam	13	13						
		lovastatin	14	14						
		vitamins-multiple	15	15						
		folic acid	17	17						
		calcium	18	18						
		acetaminophen	19	19						
642p	70 y M				A/C	Ingst	Int-S	2		
		tramadol	1	1						
		acetaminophen/ hydrocodone	2	2						
[643a]	70 y M				U	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen	347 mcg/mL In Serum @ Unknown
		ethanol	2	2					ethanol	59 mg/dL In Serum @ 3 d (pe)
644pai	71 y M				A/C	Ingst	Int-A	3		
		oxycodone	1	1					oxycodone	376 ng/mL In Blood (unspecified) @ Autopsy
		propoxyphene	2	2					propoxyphene	1194 ng/mL In Blood (unspecified) @ Autopsy
		propoxyphene	2	2					norpropoxyphene	3513 ng/mL In Blood (unspecified) @ Autopsy
645ha	71 y F				A	Ingst	Int-M	1		
		methadone	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
646	71 y F				C	Ingst	Unt-T	1		
		acetaminophen	1	1						
647	72 y F				A/C	Ingst	Int-S	3		
		acetaminophen/ hydrocodone	1	1						
648	72 y M				A	Ingst	Unt-G	2		
		ibuprofen	1	1						
		docusate	2	2						
649h	73 y M				C	Ingst	Unt-T	1		
		salicylate	1	1						
650a	73 y F				A	Ingst	Int-S	1		
		acetaminophen/ hydrocodone	1	1					hydrocodone	0.96 mg/L In Blood (unspecified) @ Unknown
		acetaminophen/ hydrocodone	1	1					acetaminophen	475 mcg/mL In Blood (unspecified) @ Unknown
		alprazolam	2	2					alprazolam	0.054 mg/L In Blood (unspecified) @ Unknown
651ha	73 y F				U	Ingst	Unk	3		
		salicylate	1	1					salicylate	20.5 mg/dL In Serum @ Unknown
		acetaminophen	2	2					acetaminophen	34.8 mcg/mL In Serum @ Unknown
652h	73 y F				U	Ingst	Unk	1		
		acetaminophen	1	1					acetaminophen	440 mcg/mL In Serum @ 36 h (pe)
653	74 y M				A	Ingst	Int-M	2		
		salicylate	1	1						
654	74 y M				A	Ingst	Int-S	1		
		salicylate	1	1					salicylate	54.8 mg/dL In Serum @ 8 h (pe)
		salicylate	1	1					salicylate	61 mg/dL In Serum @ 15 h (pe)
		salicylate	1	1					salicylate	77 mg/dL In Serum @ 24 h (pe)
655	74 y M				C	Ingst	AR-D	2		
		colchicine	1	1						
656a	74 y F				A/C	Ingst	Int-S	3		
		acetaminophen/ propoxyphene	1	1					acetaminophen	112.5 mcg/mL In Serum @ 6 h (pe)
657a	74 y F				A	Ingst	Int-S	2		
		acetaminophen*	3	1					acetaminophen	48 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen*	3	1					acetaminophen	57 mcg/mL In Blood (unspecified) @ Unknown
		hydrocodone*	1	1						
		diphenhydramine	2	2						
658h	75 y F				A	Ingst	Int-S	3		
		acetaminophen	1	1						
		salicylate	3	2						
		ethanol	2	3						
659h	75 y M				A/C	Ingst	Int-S	2		
		acetaminophen/ diphenhydramine	1	1					acetaminophen	109 mcg/mL In Blood (unspecified) @ Unknown
		sertraline	2	2						
		atenolol	3	3						
660	75 y F				A/C	Ingst	Int-S	1		
		acetaminophen/ oxycodone	1	1					acetaminophen	100 mg/dL In Blood (unspecified) @ Unknown
		oxycodone	2	2						
		morphine	3	3						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
661p	76 y F				U	Ingst	Int-S	2		
		opioid	1	1						
		amitriptyline	2	2						
		diphenhydramine	3	3						
		alprazolam	4	4						
		SSRI	5	5						
		drug, unknown	6	6						
662	76 y F				A/C	Ingst	Int-S	2		
		acetaminophen/ hydrocodone	1	1					acetaminophen	292 mcg/mL In Blood (unspecified) @ Unknown
		alprazolam*	3	2						
		beta blocker*	2	2						
		methadone	4	4						
		furosemide	5	5						
		levothyroxine	6	6						
		simvastatin	7	7						
		pantoprazole	8	8						
		amphetamine	9	9						
663	77 y M				U	Ingst	Int-S	2		
		acetaminophen	1	1						
		muscle relaxant, unknown	2	2						
664a	77 y M				A	Ingst	Int-S	1		
		arformoterol*	2	1						
		salicylate*	1	1						
		acetaminophen	3	3						
665h	77 y F				C	Ingst	Int-A	3		
		acetaminophen/ hydrocodone	1	1						
666	78 y F				U	Ingst	Int-S	2		
		propoxyphene	1	1						
		phenobarbital	2	2					phenobarbital	22.9 mg/L In Serum @ Autopsy
		acetaminophen	3	3					acetaminophen	80.9 mg/L In Serum @ Autopsy
		acetaminophen	3	3					acetaminophen	92 mcg/mL In Blood (unspecified) @ Unknown
		codeine	4	4					codeine	0.3 mg/L In Serum @ Autopsy
667	78 y M				A/C	Ingst	Unt-G	2		
		acetaminophen	1	1						
		angiotensin-converting enzyme inhibitor	2	2						
668pa	79 y M				U	Ingst	Unk	2		
		oxycodone	1	1					oxycodone	0.95 mg/L In Blood (unspecified) @ Autopsy
		trazodone	2	2					trazodone	0.91 mg/L In Blood (unspecified) @ Autopsy
		mirtazapine	3	3						
		drug, unknown	4	5						
669hai	80 y M				A/C	Ingst	Unt-T	1		
		colchicine	1	1						
670	84 y F				A	Ingst	Int-S	1		
		oxycodone	1	1					acetaminophen	246.9 mcg/mL In Blood (unspecified) @ Autopsy
		oxycodone	1	1					acetaminophen	58 mcg/mL In Blood (unspecified) @ Unknown
		lorazepam	2	2						
		metoprolol	3	3						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
671	84 y F				A	Ingst	Int-S	1		
		salicylate	1	1					salicylate	123.9 mg/dL In Blood (unspecified) @ Unknown
672	84 y F				A	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen	286 mcg/mL In Blood (unspecified) @ 1 h (pe)
		diphenhydramine	2	2						
		salicylate	3	3					salicylate	33 mg/dL In Blood (unspecified) @ 1 h (pe)
673h	87 y M				A	Ingst	Unt-T	1		
		methadone	1	1						
674	88 y F				C	Ingst	Unt-T	1		
		acetaminophen	1	1					acetaminophen	154 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen	212 mcg/mL In Blood (unspecified) @ Unknown
675	92 y F				A	Ingst	Int-S	2		
		propoxyphene/ salicylate	1	1						
676pa	12 m F				A	Ingst	Oth-M	1		
		oxycodone	1	1					oxycodone	0.394 mg/L In Blood (unspecified) @ Autopsy
		alprazolam	2	2						
677p	28 d M				U	Unk	Unk	2		
		methadone	1	1					methadone	0.28 mg/L In Blood (unspecified) @ Autopsy
678	50+ y M				A	Ingst	Int-S	2		
		acetaminophen	1	1						
679pa	Unknown adult (> = 20 yrs) M			A	Ingst	Int-U	2			
		acetaminophen/ oxycodone	1	1					oxycodone	1924 ng/mL In Blood (unspecified) @ Autopsy
		paroxetine	2	2						
		alprazolam	3	3					alprazolam	189 ng/mL In Blood (unspecified) @ Autopsy
680	Unknown adult (> = 20 yrs) M			A/C	Ingst	Int-S	2			
		acetaminophen/ propoxyphene	1	1					acetaminophen	265 mcg/mL In Serum @ Unknown
		amitriptyline	2	2						
		alprazolam	3	3						
		beta blocker	4	4						
		lisinopril	5	5						
		meloxicam	6	6						
		salicylate	7	7						
681p	Unknown age M			A/C	Ingst	Int-S	1			
		methadone	1	1						
682pai	Unknown age M			U	Ingst+ Unk	Int-A	2			
		cocaine*	1	1						
		morphine*	4	1					morphine	90 ng/mL In Blood (unspecified) @ Autopsy
		codeine	3	2					codeine	5 ng/mL In Blood (unspecified) @ Autopsy
		ethanol	2	3					ethanol	0.068 % (wt/Vol) In Blood (unspecified) @ Autopsy

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Analgesics, continued										
		marijuana	5	5						
683p	Unknown age M			U	Unk	Int-A	2			
		methadone	1	1					methadone	496 ng/mL In Unknown @ Autopsy
See Also case 5, 6, 10, 11, 12, 15, 20, 22, 34, 36, 45, 54, 83, 86, 87, 93, 97, 102, 160, 206, 685, 688, 689, 691, 693, 696, 698, 704, 709, 714, 719, 726, 728, 730, 745, 751, 759, 761, 764, 768, 769, 775, 777, 782, 783, 785, 789, 791, 795, 797, 798, 802, 819, 829, 832, 833, 834, 837, 841, 846, 848, 849, 859, 866, 867, 872, 875, 879, 885, 893, 900, 901, 902, 906, 921, 936, 950, 953, 961, 963, 965, 967, 968, 971, 977, 981, 983, 986, 987, 988, 990, 993, 994, 995, 996, 997, 1001, 1002, 1005, 1006, 1010, 1014, 1018, 1021, 1023, 1024, 1029, 1030, 1032, 1034, 1036, 1037, 1042, 1043, 1050, 1051, 1052, 1056, 1057, 1058, 1060, 1068, 1071, 1072, 1073, 1079, 1092, 1096, 1101, 1107, 1111, 1113, 1120, 1122, 1123, 1130, 1132, 1138, 1146, 1153										
Anesthetics										
684a	45 y M				A	Oth	AR-D	2		
		sevoflurane	1	1						
		succinylcholine	2	2						
See Also case 1098										
Anticoagulants										
685	50 y F				A/C	Ingst	Int-S	2		
		warfarin	1	1						
		acetaminophen/ hydrocodone	2	2						
		alprazolam	3	3						
		methamphetamine	4	4						
		antipsychotic, unknown	5	5						
See Also case 120, 580, 730, 761, 785, 789, 846, 945										
Anticonvulsants										
686h	19 y M				A/C	Ingst+ Aspir	Int-S	2		
		lamotrigine	1	1					lamotrigine	36 mcg/mL In Blood (unspecified) @ Unknown
		activated charcoal	2	2						
687	21 y F				A/C	Ingst	Int-S	2		
		valproic acid	1	1						
		risperidone	2	2						
688	23 y M				A/C	Ingst	Int-S	2		
		carbamazepine	1	1					carbamazepine	33 mcg/mL In Serum @ 3 d (pe)
		carbamazepine	1	1					carbamazepine	44.6 mcg/mL In Serum @ Unknown
689	28 y M				A	Ingst	Int-S	2		
		topiramate	1	1						
		bupropion	2	2						
		tizanidine	3	3						
		salicylate	4	4						
		ethanol	5	5						
690p	31 y F				A/C	Ingst	Int-S	2		
		topiramate	1	1						
		clonazepam	2	2						
691h	31 y F				A/C	Ingst	Int-S	1		
		gabapentin	1	1						
		acetaminophen/ hydrocodone	2	2					acetaminophen	222 mcg/mL In Serum @ Unknown
		lorazepam	3	3						
		valproic acid	4	4					valproic acid	0 mcg/mL In Serum @ Unknown
692p	32 y F				U	Ingst	Int-S	1		
		lamotrigine	1	1					lamotrigine	60 mcg/mL In Blood (unspecified) @ Autopsy
		ethanol	2	2					ethanol	280 mg/dL In Blood (unspecified) @ Autopsy
		lorazepam	3	3					lorazepam	17 ng/mL In Blood (unspecified) @ Autopsy
		topiramate	4	4					topiramate	19 mg/mL In Blood (unspecified) @ Autopsy

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Anticonvulsants, continued										
693p	34 y M				A	Ingst	Int-S	2		
		pregabalin	1	1						
		oxycodone	2	2						
694p	36 y F				A	Ingst	Int-S	2		
		valproic acid (extended release)	1	1						
		quetiapine	2	2						
		ziprasidone	3	3						
		alprazolam	4	4						
		amphetamine	5	5						
695p	37 y M				A	Ingst	Int-S	2		
		lamotrigine	1	1						
696ha	37 y F				U	Ingst	AR-D	2		
		levetiracetam	1	1						
		acetaminophen	2	2					acetaminophen	0 mcg/mL In Serum @ Unknown
[697a]	41 y M				A/C	Ingst	Int-S	1		
		valproic acid	1	1					valproic acid	1060 mg/L In Plasma @ Unknown
		gabapentin	2	2						
698	42 y F				A	Ingst	Unk	1		
		carbamazepine	1	1					carbamazepine	65 mcg/mL In Whole Blood @ Unknown
		acetaminophen	2	2					acetaminophen	110 mcg/mL In Blood (unspecified) @ Unknown
699	48 y M				A/C	Ingst	Int-S	3		
		neurontin	1	1						
		cyclobenzaprine	2	2						
[700]	53 y M				A	Ingst	Int-S	1		
		valproic acid (extended release)	1	1						
701	54 y M				A/C	Ingst	Int-S	2		
		pregabalin	1	1						
702	54 y M				A	Ingst	Int-S	2		
		valproic acid	1	1					valproic acid	228 mcg/mL In Blood (unspecified) @ 1 h (pe)
		quetiapine	2	2						
		sertraline	3	3						
[703a]	55 y F				A/C	Ingst	Int-S	1		
		valproic acid (extended release)	1	1						
		ethanol	2	2					ethanol	290 mg/dL In Blood (unspecified) @ Unknown
704	55 y F				A/C	Ingst	Unt-M	3		
		phenytoin	1	1						
		omeprazole	4	2						
		acetaminophen	2	3						
		acetaminophen/ diphenhydramine	3	4						
705	59 y F				A	Ingst	Int-S	1		
		valproic acid (extended release)	1	1					valproic acid	300 mcg/mL In Blood (unspecified) @ Unknown
		paliperidone	2	2						
		lisinopril	3	3						
706a	62 y F				A/C	Ingst	Int-S	2		
		carbamazepine	1	1						
		amitriptyline	2	2						
		perphenazine	3	3						
		synthroid	4	4						
		simvastatin	5	5						
		furosemide	6	6						

See Also case 51, 246, 274, 283, 323, 343, 350, 354, 387, 400, 403, 408, 417, 437, 453, 545, 641, 709, 711, 732, 736, 743, 747, 757, 784, 785, 789, 841, 843, 852, 859, 861, 864, 893, 907, 921, 962, 972, 999, 1013, 1016, 1019, 1044, 1062, 1072, 1113, 1116

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Antidepressants										
707h	15 y M				A	Ingst	Int-S	2		
		bupropion (extended release)	1	1						
		guanfacine	2	2						
708ph	16 y F				U	Ingst	Int-S	1		
		amitriptyline	1	1						
		ethanol	2	2						
709a	16 y F				A	Ingst	Int-S	1		
		bupropion*	1	1					threobupropion	11 mg/L In Blood (unspecified) @ Autopsy
		bupropion*	1	1					bupropion	2 mg/kg In Liver @ Autopsy
		bupropion*	1	1					bupropion	3.8 mg/L In Blood (unspecified) @ Autopsy
		bupropion*	1	1					threobupropion	68 mg/kg In Liver @ Autopsy
		metoprolol*	2	1						
		amlodipine	3	2						
		amphetamine/ dextroamphetamine	4	3						
		quetiapine	5	4						
		lamotrigine	6	5						
		salicylate	7	6					salicylate	32 mg/dL In Serum @ 4.5 h (pe)
		salicylate	7	6					salicylate	48.2 mg/dL In Serum @ 1.5 h (pe)
710ha	19 y F				A/C	Ingst+ Par	Int-S	2		
		citalopram*	1	1						
		haloperidol*	3	1						
		metaxalone	2	2						
711pha	20 y M				A/C	Ingst	Int-S	1		
		sertraline	1	1					sertraline	0.72 mcg/mL In Blood (unspecified) @ Autopsy
		carisoprodol	2	2					carisoprodol (n-isopropyl meprobamate)	0.7 mcg/mL In Blood (unspecified) @ Autopsy
		carisoprodol	2	2					meprobamate	5.9 mcg/mL In Blood (unspecified) @ Autopsy
		antihistamine	3	3					doxylamine	0.14 mcg/mL In Blood (unspecified) @ Autopsy
		diphenhydramine	4	4					diphenhydramine	0.16 mcg/mL In Blood (unspecified) @ Autopsy
		lamotrigine	5	5						
		haloperidol	6	6						
712a	20 y M				A/C	Ingst	Int-S	1		
		venlafaxine	1	1						
		bupropion (extended release)	2	2						
		antipsychotic, unknown	3	3						
713	21 y F				U	Ingst	Int-S	2		
		fluoxetine	1	1						
714a	21 y F				U	Ingst	Int-S	2		
		amitriptyline	1	1						
		phentermine	2	2						
		ibuprofen	3	3						
715	22 y M				A/C	Ingst	Int-S	1		
		venlafaxine (extended release)	1	1						
		ethanol	2	2						
716	22 y M				A/C	Ingst	Int-S	1		
		doxepin	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Antidepressants, continued										
717	23 y F				A	Ingst	Int-S	1		
		bupropion (extended release)	1	1					bupropion	0.5 Other (see abst) In Gastric (stomach content) @ Autopsy
		bupropion (extended release)	1	1					bupropion	0.98 mg/L In Blood (unspecified) @ Autopsy
		fluoxetine	2	2						
718	25 y M				A	Ingst	Int-S	3		
		amitriptyline	1	1						
719	25 y F				A/C	Ingst	Int-S	1		
		venlafaxine	1	1						
		bupropion (extended release)	2	2						
		acetaminophen	3	3					acetaminophen	58 mcg/mL In Serum @ 1 h (pe)
720	26 y F				A	Ingst	Int-S	2		
		bupropion (extended release)	1	1						
		clonazepam	2	2						
721p	28 y F				A/C	Ingst	Int-S	3		
		tricyclic antidepressant	1	1						
722	30 y F				A/C	Ingst	Int-S	1		
		trazodone	1	1						
		bupropion	2	2						
		quetiapine	3	3						
		ethanol	4	4						
723	30 y M				A/C	Ingst	Int-S	1		
		bupropion	1	1						
724	31 y F				A	Ingst	Int-S	2		
		amitriptyline	1	1						
		verapamil	2	2						
725p	32 y M				U	Ingst+ Unk	Unk	3		
		tricyclic antidepressant	1	1						
		cocaine	2	2						
726pa	32 y F				U	Unk	Int-U	2		
		citalopram	1	1					citalopram	2.2 mg/L In Blood (unspecified) @ Autopsy
		propoxyphene	2	2					propoxyphene	0.21 mg/L In Blood (unspecified) @ Autopsy
		oxycodone	3	3					oxycodone	0.08 mg/L In Blood (unspecified) @ Autopsy
		drug, unknown	4	4						
727p	32 y F				U	Ingst	Unk	3		
		doxepin	1	1					doxepin	473 ng/mL In Serum @ Unknown
		duloxetine	2	2						
728p	33 y M				A/C	Ingst	Int-S	2		
		amitriptyline	1	1						
		benzodiazepine	2	2						
		opioid	3	3						
		marijuana	4	4						
729p	35 y F				A	Ingst	Int-S	2		
		citalopram	1	1						
730p	36 y M				A	Ingst	Int-S	1		
		trazodone	1	1						
		warfarin	2	2						
		carvedilol	3	3						
		amiodarone	4	4						
		furosemide	5	5						
		spironolactone	6	6						
		prednisone	7	7						
		digoxin	8	8						
		salicylate	9	9						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Antidepressants, continued										
731	36 y F				A/C	Ingst	Int-S	2		
		venlafaxine	1	1						
		cocaine	2	2					benzoylecognine	304 ng/mL In Blood (unspecified) @ Unknown
		diphenhydramine	3	3						
		lisinopril	4	4						
		escitalopram	5	5						
		sulfonurea	6	6						
732h	37 y M				A/C	Ingst+ Par	Int-S	3		
		fluoxetine	2	1						
		gabapentin	1	2						
		insulin	3	3						
733a	38 y M				A	Ingst	Int-U	1		
		doxepin	1	1					doxepin	8600 ng/mL In Blood (unspecified) @ Autopsy
		quetiapine	2	2						
734	39 y F				A	Ingst	Int-S	2		
		amitriptyline	1	1						
		clonazepam	2	2						
735	39 y F				U	Ingst	Int-S	2		
		bupropion (extended release)	1	1						
736	39 y M				A/C	Ingst	Int-S	2		
		bupropion	1	1						
		quetiapine	2	2						
		gabapentin	3	3						
		fluoxetine	4	4						
		ethanol	5	5					ethanol	176 mg/dL In Blood (unspecified) @ 2 h (pe)
737	40 y M				A	Ingst	Int-S	1		
		tranylcypromine	1	1						
738pa	40 y M				A/C	Ingst	Int-S	1		
		amitriptyline	1	1					nortriptyline	0.4 mg/L In Whole Blood @ 1 h (pe)
		amitriptyline	1	1					amitriptyline	1.84 mg/L In Whole Blood @ 1 h (pe)
		ethanol	2	2					ethanol	140 mg/dL In Blood (unspecified) @ Unknown
739a	40 y M				A	Ingst	Int-S	2		
		cyclic antidepressant, unknown	3	1					diphenhydramine	0.22 mcg/mL In Gastric (stomach content) @ Autopsy
		cyclic antidepressant, unknown	3	1					amitriptyline	0.98 mcg/mL In Blood (unspecified) @ Autopsy
		cyclic antidepressant, unknown	3	1					diphenhydramine	1.08 mcg/mL In Blood (unspecified) @ Autopsy
		cyclic antidepressant, unknown	3	1					amitriptyline	2 mcg/mL In Gastric (stomach content) @ Autopsy
		angiotensin-converting enzyme inhibitor	2	2						
		benzodiazepine	1	3						
740p	40 y F				A	Ingst	Int-S	3		
		nortriptyline	1	1						
741p	41 y F				A	Ingst	Unk	1		
		amitriptyline	1	1						
742a	41 y M				A	Ingst	Int-S	1		
		bupropion	1	1					bupropion	5.3 mg/L In Blood (unspecified) @ Autopsy

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Antidepressants, continued										
		bupropion	1	1					bupropion	5.4 mg/L In Blood (unspecified) @ Autopsy
		clozapine	2	2					clozapine	5.8 mg/L In Blood (unspecified) @ Autopsy
		clozapine	2	2					clozapine	6.7 mg/L In Blood (unspecified) @ Autopsy
		chlorpromazine	3	3					chlorpromazine	6.9 mg/L In Blood (unspecified) @ Autopsy
		chlorpromazine	3	3					chlorpromazine	9.4 mg/L In Blood (unspecified) @ Autopsy
		zolpidem	4	4					zolpidem	1.1 mg/L In Blood (unspecified) @ Autopsy
743p	41 y M				A/C	Ingst	Int-S	2		
		citalopram	1	1						
		bupropion	2	2						
		lisinopril	3	3						
		simvastatin	4	4						
		topiramate	5	5						
744	41 y F				A/C	Ingst+ Par	Int-S	2		
		lithium	2	1						
		insulin	1	2						
745pi	41 y F				A	Ingst	Int-S	2		
		amitriptyline	1	1						
		trazodone	2	2						
		acetaminophen/ hydrocodone	3	3						
		fluoxetine	4	4						
		prednisone	5	5						
		diphenhydramine	6	6						
		clonazepam	7	7						
746	41 y F				A	Ingst	Int-S	3		
		lithium	1	1					lithium	1.5 mEq/L In Blood (unspecified) @ 14 h (pe)
		lithium	1	1					lithium	4.6 mEq/L In Blood (unspecified) @ 2 h (pe)
747pa	42 y F				A/C	Ingst	Int-S	1		
		amitriptyline	1	1					amitriptyline	1189 ng/mL In Serum @ 11 h (pe)
		amitriptyline	1	1					amitriptyline	1665 ng/mL In Whole Blood @ Autopsy
		amitriptyline	1	1					nortriptyline	288 ng/mL In Serum @ 11 h (pe)
		amitriptyline	1	1					nortriptyline	568 ng/mL In Whole Blood @ Autopsy
		carbamazepine	2	2					carbamazepine	21.9 mcg/mL In Whole Blood @ Autopsy
		carbamazepine	2	2					carbamazepine	28.7 mcg/mL In Serum @ 11 h (pe)
748pha	42 y M				A	Ingst+ Inhal	Int-S	3		
		citalopram	1	1						
		cocaine	2	2						
749pa	42 y F				A/C	Ingst	Int-S	3		
		carisoprodol*	1	1						
		trazodone*	3	1						
		ethanol	2	2					ethanol	208 mg/dL In Serum @ Unknown
750a	43 y M				U	Ingst	Int-S	2		
		doxepin	1	1						
		quetiapine	2	2						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Antidepressants, continued										
		trazodone	3	3						
751p	44 y M				U	Ingst	Int-S	1		
		tricyclic antidepressant	1	1						
		ethanol	2	2						
		ibuprofen	3	3						
752p	44 y M				U	Ingst	Int-S	2		
		doxepin	1	1						
753pa	45 y F				A/C	Ingst	Int-S	1		
		amitriptyline	1	1					amitriptyline	1.7 Other (see abst) In Liver @ Autopsy
		amitriptyline	1	1					nortriptyline	4.2 Other (see abst) In Liver @ Autopsy
		alprazolam	2	2						
		fluoxetine	3	3					fluoxetine	0.96 Other (see abst) In Liver @ Autopsy
		fluoxetine	3	3					norfluoxetine	3.4 Other (see abst) In Liver @ Autopsy
754	45 y F				A/C	Ingst	Int-S	1		
		citalopram	1	1						
755	46 y M				U	Ingst	AR-D	2		
		paroxetine	1	1						
		trazodone	2	2						
756h	48 y F				A/C	Ingst	Int-S	3		
		bupropion	1	1						
		hydroxyzine	2	2						
		ethanol	3	3					ethanol	187 mg/dL In Serum @ 11 h (pe)
757pa	48 y M				A/C	Ingst	Int-S	1		
		bupropion	1	1					bupropion	1.42 mg/L In Blood (unspecified) @ Unknown
		quetiapine	2	2					quetiapine	2.52 mg/L In Blood (unspecified) @ Unknown
		lamotrigine	3	3					lamotrigine	17.8 mg/L In Blood (unspecified) @ Unknown
		gabapentin	4	4					gabapentin	28 mg/L In Blood (unspecified) @ Unknown
		clonazepam	5	5						
		esomeprazole	6	6						
758	48 y F				A	Ingst	Int-S	2		
		bupropion	1	1						
		antidepressant	2	2						
759	49 y F				A/C	Ingst	Int-S	3		
		escitalopram	1	1						
		acetaminophen/ hydrocodone	2	2						
		morphine	3	3						
		diazepam	4	4						
760	49 y F				A	Ingst	Int-S	2		
		tricyclic antidepressant	1	1						
761	49 y F				A/C	Ingst	Unk	2		
		amitriptyline	1	1						
		buprenorphine/ naloxone	2	2						
		clonazepam	3	3						
		trazodone	4	4						
		warfarin	5	5						
		tizanidine	6	6						
[762h]	50 y F				A/C	Ingst	Int-S	1		
		desipramine	1	1						
763	50 y F				A/C	Ingst	Int-S	1		
		fluoxetine	1	1						
		activated charcoal	2	2						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Antidepressants, continued										
764ph	50 y F				A	Ingst	Int-S	1		
		doxepin	1	1						
		propranolol	2	2						
		trazodone	3	3						
		buspirone	4	4						
		temazepam	5	5						
		diazepam	6	6						
		acetaminophen/ diphenhydramine	7	7						
765	50 y F				A	Ingst	Int-S	2		
		venlafaxine	1	1						
		metoprolol	2	2						
		alprazolam	3	3						
766pa	52 y F				A/C	Ingst	Int-S	3		
		diltiazem*	1	1						
		sertraline*	3	1						
		hydroxychloroquine	2	2						
767a	52 y F				A/C	Ingst	Int-S	2		
		trazodone	1	1						
		hydroxyzine	2	2						
768	53 y F				A/C	Ingst	Int-S	2		
		amitriptyline	1	1						
		acetaminophen/ hydrocodone	2	2						
		diazepam	3	3						
		levothyroxine	4	4						
769	53 y F				A/C	Ingst	Int-S	3		
		doxepin	1	1						
		methylphenidate	2	2						
		clonazepam	3	3						
		naproxen	4	4						
770p	55 y M				A/C	Ingst	Int-S	2		
		trazodone	1	1						
		cyclobenzaprine	2	2						
771pha	55 y F				A/C	Ingst	Int-S	3		
		mirtazapine	1	1						
772ha	55 y F				A	Ingst	Int-S	3		
		fluoxetine	1	1						
		clonidine	2	2						
773h	55 y M				A	Unk	Unt-U	2		
		tricyclic antidepressant	1	1						
		marijuana	2	2						
774a	55 y F				A	Ingst	Int-S	1		
		amitriptyline	1	1					amitriptyline	0.87 mg/L In Serum @ Unknown
		olanzapine	2	2						
		risperidone	3	3						
		mirtazapine	4	4						
		alprazolam	5	5					alprazolam	1 mg/L In Serum @ Unknown
		lithium	6	6					lithium	4.7 mmol/L In Serum @ Unknown
		zolpidem	7	7					zolpidem	0.17 mg/L In Serum @ Unknown
775	56 y F				A	Ingst	Int-S	1		
		tricyclic antidepressant	1	1						
		ethanol	2	2						
		acetaminophen/ hydrocodone	3	3						
		escitalopram	4	4						
[776a]	56 y M				A/C	Ingst	Int-S	1		
		paroxetine	1	1					paroxetine	5.6 mg/L In Blood (unspecified) @ Autopsy
777	56 y F				A/C	Ingst	Int-U	3		
		venlafaxine (extended release)	1	1						
		tramadol	2	2						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Antidepressants, continued										
		promethazine	3	3						
		oxycontin	4	4						
		oxycodone	5	5						
		clonazepam	6	6						
		lisinopril	7	7						
		metformin	8	8						
		meloxicam	9	9						
		simvastatin	10	10						
		ethanol	11	11						
778a	56 y M				A	Ingst	Int-S	3		
		mirtazapine	1	1					mirtazapine	0.57 mcg/mL In Blood (unspecified) @ Autopsy
		lisinopril	3	2						
		ethanol	2	3					ethanol	0.25 g/dL In Blood (unspecified) @ Autopsy
779	57 y F				C	Ingst	AR-D	3		
		lithium	1	1					lithium	3.57 mEq/L In Blood (unspecified) @ Unknown
780	58 y F				A	Ingst	Int-S	2		
		tricyclic antidepressant	1	1						
		cyclobenzaprine	2	2						
781pa	58 y M				A	Ingst	Int-S	1		
		amitriptyline	1	1					nortriptyline	1206 ng/mL In Blood (unspecified) @ Unknown
		amitriptyline	1	1					amitriptyline	6679 ng/mL In Blood (unspecified) @ Unknown
782	59 y F				A/C	Ingst	Int-S	1		
		imipramine	1	1						
		phenylbutazone	2	2						
		clonazepam	3	3						
783pha	59 y F				A/C	Ingst	Int-S	1		
		amitriptyline	1	1						
		meloxicam	2	2						
		hydroclorothiazide/ lisinopril	3	3						
		acetaminophen/ oxycodone	4	4						
784ph	60 y F				A/C	Ingst	Int-S	2		
		amitriptyline	1	1						
		gabapentin	2	2						
		olanzapine	3	3						
		alprazolam	4	4						
		fluoxetine	5	5						
785	60 y F				A/C	Ingst	Int-S	2		
		bupropion	1	1						
		lorazepam	2	2						
		clopidogrel	3	3						
		lamotrigine	4	4						
		lisinopril	5	5						
		acetaminophen	6	6						
		quetiapine	7	7						
		trazodone	8	8						
786p	60 y F				U	Ingst	Int-S	2		
		bupropion (extended release)	1	1						
787	63 y F				A/C	Ingst	Int-S	2		
		amitriptyline	1	1						
788	64 y F				C	Ingst	Unt-U	2		
		lithium	1	1					lithium	2.7 mmol/L In Blood (unspecified) @ 1 h (pe)
		atenolol	2	2						
		isopropanol	3	3						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Antidepressants, continued										
789pa	65 y M				A/C	Ingst	Int-S	1		
		doxepin	1	1					doxepin	0.49 mg/L In Blood (unspecified) @ Autopsy
		venlafaxine	2	2					venlafaxine	0.34 mg/L In Blood (unspecified) @ Autopsy
		alprazolam	3	3					alprazolam	0.03 mg/L In Blood (unspecified) @ Unknown
		propranolol	4	4						
		warfarin	5	5						
		lamotrigine	6	6						
		modafinil	7	7						
		acetaminophen	8	8						
790h	66 y F				A/C	Ingst	Int-S	1		
		imipramine	1	1						
791	68 y F				A/C	Ingst	Int-S	1		
		lithium	1	1						
		ibuprofen	2	2						
		acetaminophen	3	3						
792	68 y F				A	Ingst	Int-S	1		
		nortriptyline	1	1						
		paroxetine	2	2						
		angiotensin-converting enzyme inhibitor	3	3						
		ethanol	4	4						
		cimetidine	5	5						
793	69 y F				A	Ingst	Int-S	1		
		desipramine	1	1						
794p	72 y M				U	Ingst	Int-S	2		
		nortriptyline	1	1						
795	78 y F				A	Ingst	Int-S	1		
		bupropion (extended release)	1	1					bupropion	25.17 mg/L In Blood (unspecified) @ Unknown
		acetaminophen	2	2					acetaminophen	274.7 mcg/mL In Blood (unspecified) @ Unknown
796	79 y M				A/C	Ingst	Int-S	3		
		trazodone	1	1						
797a	82 y F				A	Ingst	Unt-T	2		
		lithium	3	1						
		acetaminophen/ hydrocodone	4	2						
		clozapine	1	3						
		propranol	2	4						
		docusate	5	5						
798pa	86 y F				A	Ingst	Int-S	1		
		amitriptyline	1	1						
		telmisartin	2	2						
		nitroglycerin	3	3						
		acetaminophen	4	4						
799	92 y M				A/C	Ingst	Int-S	2		
		mirtazapine	1	1						
[800a]	12 m F				A	Ingst	Unt-G	1		
		bupropion (extended release)	1	1						
801a	30+ y M				A	Ingst	Int-S	3		
		doxepin	2	1						
		antipsychotic, unknown	1	2						
		benzodiazepine	3	3						
[802a]	80+ y F				A/C	Ingst	Int-S	1		
		amitriptyline	1	1					amitriptyline	14.5 mg/L In Whole Blood @ Autopsy
		amitriptyline	1	1					nortriptyline	4.77 mg/L In Whole Blood @ Autopsy

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Antidepressants, continued										
		opioid	2	2					codeine	0.03 mg/L In Vitreous @ Autopsy
See Also case 44, 47, 219, 220, 240, 246, 263, 268, 273, 282, 283, 299, 308, 311, 314, 317, 322, 343, 344, 349, 350, 353, 354, 358, 365, 370, 376, 385, 386, 398, 400, 401, 403, 406, 408, 409, 439, 453, 461, 462, 475, 479, 505, 508, 509, 515, 532, 545, 555, 573, 619, 635, 641, 659, 661, 668, 679, 680, 689, 702, 706, 815, 829, 833, 835, 841, 848, 849, 852, 859, 861, 864, 866, 867, 868, 872, 875, 878, 883, 893, 898, 899, 902, 915, 918, 922, 928, 941, 948, 954, 962, 967, 977, 984, 985, 1001, 1002, 1009, 1013, 1016, 1020, 1021, 1034, 1038, 1039, 1040, 1041, 1045, 1046, 1049, 1050, 1054, 1055, 1062, 1063, 1086, 1133, 1138									
Antihistamines										
803p	18 y F				A	Ingst	Int-S	2		
		diphenhydramine	1	1						
804pa	25 y M				A	Ingst	Int-S	2		
		diphenhydramine	1	1					diphenhydramine	10.8 mcg/mL In Whole Blood @ Autopsy
		doxylamine	2	2					doxylamine	9.6 mcg/mL In Whole Blood @ Autopsy
805	36 y F				A	Ingst	Int-S	1		
		diphenhydramine	1	1						
806	55 y F				A	Ingst	Int-S	2		
		diphenhydramine	1	1						
807i	61 y F				A	Ingst	Int-S	2		
		diphenhydramine	1	1						
See Also case 44, 86, 246, 247, 267, 317, 359, 361, 378, 386, 400, 403, 433, 439, 456, 462, 470, 484, 549, 609, 623, 640, 657, 661, 672, 711, 731, 745, 756, 767, 777, 792, 830, 831, 866, 893, 913, 969, 984, 999, 1054, 1055, 1072, 1116										
Antimicrobials										
808h	29 y F				A	Ingst	Int-S	1		
		hydroxychloroquine	1	1						
		methotrexate	2	2						
		prednisone	3	3						
		folic acid	4	4						
809	37 y F				A	Par	AR-D	2		
		vancomycin	1	1						
810a	37 y F				A	Ingst	Int-A	1		
		cocaine*	2	1						
		levamisole*	1	1						
		acetaminophen/ dextromethorphan	3	2					acetaminophen	27 mcg/mL In Serum @ Unknown
811h	39 y M				C	Ingst	AR-D	2		
		dapsone	1	1						
812	47 y F				C	Ingst	Unt-T	3		
		isoniazid	1	1						
		Opuntia trichophora	2	2						
813h	53 y M				C	Ingst	AR-D	2		
		sulfonamide	1	1						
814h	72 y F				A/C	Par	AR-D	2		
		levofloxacin	1	1						
815	40+ y M				U	Ingst	Int-S	3		
		isoniazid	1	1						
		tricyclic antidepressant	2	2						
		ziprasidone	3	3						
		metformin	4	4						
816p	40+ y M				A/C	Ingst	Int-S	2		
		emtricitabine/tenofovir	1	1						
		ritonavir	2	2						
		atazanavir	3	3						
See Also case 241, 323, 353, 475, 485, 538, 766, 891, 1022, 1060										
Antineoplastics										
[817]	52 y F				A	Par	Unt-T	1		
		vincristine	1	1						
[818]	63 y M				A	Oth	Unt-T	1		
		vincristine	1	1						
819	87 y M				C	Ingst	AR-D	2		
		rituximab	1	1						
		acetaminophen	2	2						
See Also case 808, 1154										

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Asthma Therapies										
820	78 y F				C	Ingst	Unt-U	3		
		theophylline	1	1					theophylline	39 mcg/mL In Serum @ 1 h (pe)
821	78 y M				A/C	Ingst	AR-D	1		
		theophylline	1	1						
822h	85 y M				C	Ingst	Unt-G	3		
		theophylline	1	1					theophylline	34.2 mcg/mL In Serum @ Unknown
823	91 y F				C	Ingst	Unk	2		
		theophylline	1	1						
See Also case 619, 664, 848, 1052										
Cardiovascular Drugs										
824	16 y M				A	Ingst	Int-S	2		
		verapamil	2	1						
		drug, unknown	1	2						
825pa	16 y F				A/C	Ingst	Int-S	2		
		flecainide	1	1					flecainide	6 mcg/mL In Blood (unspecified) @ Autopsy
		fluoride	2	2						
[826a]	18 y F				A	Ingst	Int-S	1		
		propafenone	1	1					propafenone	11 mg/L In Blood (unspecified) @ Autopsy
827h	19 y M				U	Ingst	Int-S	1		
		amlodipine	1	1						
		lisinopril	2	2						
		melatonin	3	3						
828	21 y M				U	Ingst	Int-S	3		
		verapamil	1	1						
		gemfibrozil	2	2						
		ethanol	3	3						
[829pa]	21 y M				A	Ingst	Int-S	1		
		amlodipine	1	1						
		metoprolol	2	2					metoprolol	7500 ng/mL In Blood (unspecified) @ 0.5 h (pe)
		citalopram	3	3					citalopram	120 ng/mL In Blood (unspecified) @ 0.5 h (pe)
		benzodiazepine	4	4					clonazepam	4.8 ng/mL In Blood (unspecified) @ 0.5 h (pe)
		benzodiazepine	4	4					7-aminoclonazepam	46 ng/mL In Blood (unspecified) @ 0.5 h (pe)
		benzodiazepine	4	4					diazepam	60 ng/mL In Blood (unspecified) @ 0.5 h (pe)
		acetaminophen	5	5					acetaminophen	8.7 mcg/mL In Blood (unspecified) @ 0.5 h (pe)
830pa	25 y M				A	Ingst	Int-S	1		
		propafenone	1	1						
		pseudoephedrine	2	2					pseudoephedrine	2018 ng/mL In Blood (unspecified) @ Autopsy
		diphenhydramine	3	3						
831p	27 y M				A/C	Ingst	Unk	1		
		metoprolol	1	1						
		hydroxyzine	2	2						
		ziprasidone	3	3						
832	27 y M				A	Ingst	Int-S	2		
		amlodipine	1	1						
		doxazosin	2	2						
		quetiapine	3	3						
		clonazepam	4	4						
		risperidone	5	5						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Cardiovascular Drugs, continued										
		carbidopa/levodopa	6	6						
		furosemide	7	7						
		hydrochlorothiazide	8	8						
		ibuprofen	9	9						
833p	27 y M				A	Ingst	Int-S	2		
		atenolol	1	1						
		oxycodone	2	2						
		benzodiazepine	3	3						
		duloxetine	4	4						
834h	29 y F				A	Ingst	Int-S	2		
		amlodipine	1	1					amlodipine	12 ng/mL In Other @ Autopsy
		atenolol	2	2					atenolol	970 ng/mL In Other @ Autopsy
		salicylate	3	3						
		alprazolam	4	4						
835	29 y M				A	Ingst	Int-S	2		
		metoprolol	1	1						
		risperidone	2	2						
		sertraline	3	3						
836a	31 y M				A	Ingst	Int-S	1		
		verapamil	1	1						
		enalapril	2	2						
837h	34 y F				A	Ingst	Int-S	1		
		benazepril	1	1						
		acetaminophen/ hydrocodone	2	2						
		carvedilol	3	3						
		cyclobenzaprine	4	4						
838	37 y M				C	Ingst	AR-D	2		
		lisinopril	1	1						
		hydralazine	2	2						
		hydrochlorthiazide/ telmisartin	3	3						
		metoprolol	4	4						
839a	38 y F				A	Ingst	Int-S	1		
		diltiazem (extended release)	1	1						
		metoprolol	2	2						
		alprazolam	3	3						
		zolpidem	4	4						
840	38 y M				A	Ingst	Int-S	2		
		diltiazem	1	1						
841a	38 y M				A/C	Ingst	Int-S	1		
		verapamil	1	1					verapamil	6.5 mg/L In Blood (unspecified) @ Autopsy
		citalopram*	2	2					citralopram	1.2 mg/L In Blood (unspecified) @ Autopsy
		paroxetine*	4	2					paroxetine	1.4 mg/L In Blood (unspecified) @ Autopsy
		acetaminophen/ dichloralphenazone/ isometheptene*	5	3					acetaminophen	18 mg/L In Blood (unspecified) @ Autopsy
		benzodiazepine*	3	3					7-aminoclonazepam	0.028 mg/L In Blood (unspecified) @ Autopsy
		benzodiazepine*	3	3					midazolam	0.15 mg/L In Blood (unspecified) @ Autopsy
		prochlorperazine	6	4						
		quetiapine	7	5						
		valproic acid	8	6						
		zolpidem	9	7						
		methylergonovine	10	8						
		beta blocker	11	11						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Cardiovascular Drugs, continued										
		benzodiazepine*	13	12						
		beta blocker*	12	12						
		eszopiclone	14	13						
		cyclobenzaprine	15	14						
		acetaminophen	16	16						
		phenytoin	17	17						
842	39 y F				A	Ingst	Int-S	2		
		verapamil	1	1						
		doxylamine	2	2						
843a	39 y M				U	Ingst+ Par	Int-S	1		
		calcium antagonist	1	1						
		olanzapine	2	2						
		insulin	3	3						
		gabapentin	4	4						
844	39 y F				A/C	Ingst	Int-S	1		
		calcium antagonist	1	1						
[845ha]	40 y M				A	Ingst	Int-S	1		
		propafenone	1	1					propafenone	8.3 mcg/mL In Serum @ Autopsy
		angiotensin-converting enzyme inhibitor	2	2						
846	40 y M				A	Ingst	Int-S	2		
		amlodipine	5	1						
		nisoldipine	8	2						
		tamsulosin	1	3						
		hydralazine	2	4						
		glyburide	3	5						
		furosemide	6	6						
		simvastatin	7	7						
		levothyroxine	4	8						
		clopidogrel	9	9						
		enalapril	10	10						
		acetaminophen/ hydrocodone	11	11						
[847ha]	42 y F				A/C	Ingst	Int-S	2		
		verapamil	1	1						
		quetiapine	2	2						
		ethanol	3	3						
848	42 y F				A	Ingst	Int-S	1		
		nifedipine (extemded release)	1	1						
		acetaminophen/ hydrocodone	2	2						
		quetiapine	3	3						
		duloxetine	4	4						
		hydrochlorthiazide/ telmisartin	5	5						
		montelukast	6	6						
849	42 y F				C	Ingst	Unk	2		
		verapamil	1	1						
		omeprazole	2	2						
		hydromorphone	3	3						
		amitriptyline	4	4						
		ondansetron	5	5						
850p	42 y M				A/C	Ingst	Int-S	2		
		amlodipine	1	1						
851pha	43 y M				A	Ingst	Int-S	1		
		amlodipine	1	1					amlodipine	909 ng/mL In Blood (unspecified) @ Autopsy
		metformin	2	2						
		glipizide	3	3						
		hydrochlorothiazide/ triamterene	4	4						
		caffeine/ergotamine	5	5						
852h	44 y F				A/C	Ingst	Int-S	3		
		metoprolol	1	1						
		lisinopril	2	2						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Cardiovascular Drugs, continued										
		gabapentin	3	3						
		trazodone	4	4						
		aripiprazole	5	5						
		fluoxetine	6	6						
[853a]	45 y F				A	Ingst	Int-S	1		
		amlodipine	1	1						
		metformin	2	2						
		beta blocker	3	3						
		irbesartan	4	4						
		hydrochlorothiazide	5	5						
		sitagliptin	6	6						
		zolpidem	7	7						
		fenofibric acid	8	8						
854a	45 y F				A	Ingst	Int-S	1		
		diltiazem (extended release)	1	1						
		hydrocarbone	2	2						
855p	46 y M				A/C	Ingst	Int-S	1		
		verapamil	1	1						
		metoprolol	2	2						
		gemfibrizol	3	3						
[856a]	46 y F				A	Ingst	Int-S	1		
		diltiazem (extended release)	1	1					diltiazem	10.1 mg/L In Blood (unspecified) @ Autopsy
		diltiazem (extended release)	1	1					diltiazem	4.2 Other (see abst) In Gastric (stomach content) @ Autopsy
		diltiazem (extended release)	1	1					diltiazem	58.4 mg/kg In Liver @ Autopsy
857	47 y F				A	Ingst	Int-S	1		
		metoprolol	1	1						
858	47 y M				U	Ingst	Int-S	1		
		verapamil	1	1						
		angiotensin-converting enzyme inhibitor	2	2						
859a	48 y M				A	Ingst	Int-S	2		
		amlodipine	1	1						
		ethanol	2	2					ethanol	20 mcg/dL In Blood (unspecified) @ Unknown
		ethanol	2	2					ethanol	324 mg/dL In Blood (unspecified) @ Unknown
		lotensin	3	3						
		citalopram	4	4					citalopram	0.17 mg/L In Blood (unspecified) @ Unknown
		citalopram	4	4					citalopram	0.31 mg/L In Blood (unspecified) @ Autopsy
		lamotrigine	5	5					lamotrigine	3.72 mg/L In Blood (unspecified) @ Autopsy
		lamotrigine	5	5					lamotrigine	8.77 mg/L In Blood (unspecified) @ Unknown
		methadone	6	6					eddp (2-ethylidene-1,5-dimethyl-3,3-diphenyl pyrrolidine)	0.03 mg/L In Blood (unspecified) @ Autopsy
		methadone	6	6					methadone	0.04 mg/L In Blood (unspecified) @ Unknown
		methadone	6	6					methadone	0.14 mg/L In Blood (unspecified) @ Autopsy

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Cardiovascular Drugs, continued										
860	48 y M				A/C	Ingst	Unt-T	3		
		verapamil	1	1						
861a	48 y M				A	Ingst	Int-S	2		
		beta blocker	1	1					metoprolol	2200 ng/mL In Blood (unspecified) @ Autopsy
		citalopram	2	2						
		clozapine	3	3						
		lamotrigine	4	4					lamotrigine	13 mcg/mL In Blood (unspecified) @ Autopsy
862a	48 y M				A/C	Ingst	Int-S	1		
		atorvistatin/amlodipine	1	1						
		beta blocker	2	2						
		angiotensin-converting enzyme inhibitor*	4	3						
		hydrochlorothiazide*	3	3						
		simvastatin	5	4						
[863h]	48 y F				A	Ingst	Int-S	1		
		diltiazem (extended release)	1	1						
		benzodiazepine	2	2						
864a	49 y F				A/C	Ingst	Int-S	1		
		verapamil	1	1					verapamil	1016 ng/mL In Blood (unspecified) @ Unknown
		duloxetine	2	2					duloxetine	12 ng/mL In Blood (unspecified) @ Unknown
		benzodiazepine	3	3					alprazolam	26.1 ng/mL In Blood (unspecified) @ Unknown
		cyclobenzaprine	4	4					cyclobenzaprine	64.3 ng/mL In Blood (unspecified) @ Unknown
		gabapentin	5	5					gabapentin	808 mcg/mL In Blood (unspecified) @ Unknown
865	49 y M				U	Ingst	Int-S	2		
		amlodipine	2	1						
		atenolol	1	2						
		lisinopril	3	3						
866ph	49 y F				U	Ingst	Int-S	2		
		carvedilol	1	1						
		duloxetine	2	2						
		acetaminophen/ hydrocodone	3	3						
		promethazine	4	4						
867a	49 y F				A	Ingst	Int-S	1		
		diltiazem	1	1					diltiazem	0.918 mcg/mL In Plasma @ 20 h (pe)
		amoxapine	2	2						
		hydrochlorothiazide	3	3						
		lorazepam	4	4					lorazepam	238 ng/mL In Plasma @ 20 h (pe)
		acetaminophen	5	5					acetaminophen	0 mcg/mL In Serum @ 20 h (pe)
		anticholinergic	6	6						
868	49 y F				A/C	Ingst+ Unk	Int-S	2		
		metoprolol	1	1						
		sertraline	2	2						
		ethanol	3	3						
		drug, unknown	4	4						
[869h]	49 y M				A/C	Ingst	Int-S	1		
		diltiazem	1	1					diltiazem	0.63 mcg/mL In Serum @ 9 h (pe)
870a	50 y M				A/C	Ingst+ Inhal	Int-S	1		

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Cardiovascular Drugs, continued										
		metoprolol	3	1					metoprolol	11000 ng/mL In Blood (unspecified) @ Autopsy
		verapamil	1	2					verapamil	1819 ng/mL In Whole Blood @ Autopsy
		cocaine	2	3					benzoylecognine	900 ng/mL In Blood (unspecified) @ Autopsy
		minoxidil	4	4						
871	50 y M				U	Ingst	Int-S	2		
		nifedipine	1	1						
		metoprolol	2	2						
872	50 y F				A	Ingst	Int-S	1		
		trandolapril/verapamil	1	1						
		acetaminophen/ hydrocodone	2	2						
		amitriptyline	3	3						
873	50 y F				A	Ingst	Int-S	2		
		atenolol	1	1						
		lisinopril	2	2						
		hydrochlorthiazide	3	3						
874	52 y M				A	Ingst	Int-S	1		
		verapamil	1	1						
		ethanol	2	2						
875h	52 y M				A	Ingst	Int-S	1		
		metoprolol	2	1					metoprolol	10.91 mg/L In Blood (unspecified) @ Autopsy
		salicylate	1	2					salicylate	396.55 mg/L In Blood (unspecified) @ Autopsy
		salicylate	1	2					salicylate	73.5 mg/dL In Blood (unspecified) @ Unknown
		paroxetine	3	3					paroxetine	0.44 mg/L In Blood (unspecified) @ Autopsy
		zolpidem	4	4					zolpidem	0.32 mg/L In Blood (unspecified) @ Autopsy
876a	52 y F				A/C	Ingst	Int-S	2		
		amlodipine	1	1						
877	53 y M				A	Ingst	Unt-T	1		
		cardiac glycoside	1	1						
878pa	53 y F				A	Ingst	Int-S	1		
		propranolol	1	1						
		venlafaxine (extended release)	2	2						
		quetiapine	3	3						
879p	53 y M				U	Ingst	Int-S	2		
		atenolol	1	1						
		morphine	2	2						
880	53 y M				A/C	Ingst	Int-S	1		
		cardiac glycoside	1	1						
		diltiazem (extended release)	2	2						
		ethanol	3	3						
881	54 y F				A	Ingst	Int-S	1		
		diltiazem (extended release)	1	1						
882p	55 y F				A/C	Ingst	Int-S	2		
		beta blocker	1	1						
		ethanol	2	2					ethanol	0.11 mg/dL In Serum @ 1 h (pe)
883	56 y F				A/C	Ingst	Int-S	1		
		metoprolol	3	1						
		quetiapine	1	2						
		duloxetine	5	3						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Cardiovascular Drugs, continued										
		escitalopram	6	4						
		metoclopramide	2	5						
		clonazepam	4	6						
[884a]	56 y M				A/C	Ingst	Int-S	1		
		nifedipine	1	1					nifedipine	9.8 mg/L In Blood (unspecified) @ Autopsy
885	57 y F				A/C	Ingst+ Unk	Int-S	2		
		verapamil	1	1						
		zolpidem	2	2						
		acetaminophen	3	3						
886	57 y M				A	Ingst	Int-S	2		
		valsartan	1	1						
		metformin	2	2						
887	58 y M				C	Ingst	Int-U	3		
		cardiac glycoside	1	1						
888	59 y M				C	Ingst	Int-S	1		
		atenolol	1	1						
		diltiazem	2	2						
889	59 y F				A	Ingst	Int-S	1		
		verapamil	1	1						
890h	59 y F				A/C	Ingst	Int-S	1		
		beta blocker	1	1						
		amlodipine/benazepril	2	2						
		diltiazem	3	3						
891	59 y M				A/C	Ingst	Int-S	2		
		diltiazem	1	1						
		amantadine	2	2						
		enalopril	3	3						
		zolpidem	4	4						
[892a]	59 y M				A/C	Ingst+ Unk	Int-S	1		
		metoprolol	1	1					metoprolol	1800 ng/mL In Blood (unspecified) @ Unknown
		cocaine	2	2					benzoylecognine	490 ng/mL In Blood (unspecified) @ Unknown
		ethanol	3	3					ethanol	0.102 g/dL In Blood (unspecified) @ Unknown
893h	59 y F				A/C	Ingst	Int-S	1		
		clonidine	1	1						
		trandalopril/verapamil	2	2						
		amlodipine	3	3						
		acetaminophen/ hydrocodone	4	4						
		sertraline	5	5						
		promethazine	6	6						
		ezetimibe/simvastatin	7	7						
		fenofibrate	8	8						
		lamotrigine	9	9						
		levothyroxine	10	10						
894	59 y F				A	Ingst	Int-S	1		
		amlodipine/benazepril	1	1						
		diazepam	2	2						
895	59 y F				A	Ingst	Int-S	1		
		diltiazem	1	1						
		clonidine	2	2						
		nitroglycerin	3	3						
		angiotensin receptor blockers	4	4						
896	60 y M				A/C	Ingst	Int-S	2		
		diltiazem	1	1						
		hydrochlorothiazide	2	2						
		doxazosin	3	3						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Cardiovascular Drugs, continued										
897pa	60 y F				A	Ingst	Int-S	2		
		amlodipine*	1	1					amlodipine	44 ng/mL In Blood (unspecified) @ Unknown
		amlodipine*	1	1					amlodipine	67 ng/mL In Blood (unspecified) @ Autopsy
		diltiazem (extended release)*	2	1					diltiazem	0 ng/mL In Blood (unspecified) @ Unknown
898h	60 y M				U	Ingst	Int-S	2		
		diltiazem	1	1						
		lithium	2	2						
899	61 y M				A	Ingst	Int-S	2		
		verapamil	1	1						
		escitalopram	2	2						
		cyclobenzaprine	3	3						
		doxepin	4	4						
		alprazolam	5	5						
900	62 y M				U	Ingst	Int-S	2		
		diltiazem	1	1						
		acetaminophen/ hydrocodone	2	2					acetaminophen	106.7 mcg/mL In Serum @ Unknown
		clonidine	3	3						
		ethanol	4	4					ethanol	100 mg/dL In Blood (unspecified) @ Unknown
901a	62 y F				A/C	Ingst	Int-S	1		
		verapamil	1	1					verapamil	0.94 mg/L In Blood (unspecified) @ Unknown
		tramadol	2	2					tramadol	4 mg/L In Blood (unspecified) @ Unknown
902	62 y M				A/C	Ingst	Int-S	2		
		amlodipine	1	1						
		labetolol	2	2						
		olanzapine	3	3						
		quetiapine	4	4						
		tramadol	5	5						
		trazodone	6	6						
903	62 y F				A/C	Ingst	Int-S	1		
		atorvistatin/amlodipine	1	1						
904	63 y M				A	Ingst	Int-S	2		
		atenolol	1	1						
		amlodipine	2	2						
		nitroglycerine	3	3						
905	63 y M				A	Ingst	Int-S	1		
		metoprolol	1	1						
		glipizide	2	2						
		metformin	3	3						
906	63 y F				A/C	Ingst	Int-S	1		
		propafenone	1	1						
		acetaminophen/ diphenhydramine	2	2					acetaminophen	50 mcg/mL In Blood (unspecified) @ 6 h (pe)
		naproxen	3	3						
907a	64 y M				U	Ingst	Int-S	1		
		verapamil	1	1					verapamil	3 mg/L In Blood (unspecified) @ Autopsy
		topiramate	2	2					topiramate	20 mg/L In Blood (unspecified) @ Autopsy
		diazepam	3	3					diazepam	4 mg/L In Blood (unspecified) @ Autopsy

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Cardiovascular Drugs, continued										
908	67 y M				A/C	Ingst	Int-S	2		
		verapamil	1	1						
909	67 y F				C	Ingst	AR-D	3		
		cardiac glycoside	1	1					digoxin	3.6 ng/mL In Whole Blood @ 5 h (pe)
910	68 y M				A/C	Ingst	Int-S	2		
		nifedipine	1	1						
		cocaine	2	2						
911	68 y F				C	Ingst	AR-D	3		
		cardiac glycoside	1	1					digoxin	2.9 ng/mL In Serum @ 1 h (pe)
		potassium chloride	2	2						
		furosemide	3	3						
912	69 y F				A/C	Ingst	Int-S	2		
		diltiazem (extended release)	1	1						
		cardiac glycoside	2	2					digoxin	17.1 ng/mL In Serum @ Unknown
		carvedilol	3	3						
		lisinopril	4	4						
		furosemide	5	5						
		alprazolam	6	6						
913ha	69 y F				C	Ingst	Int-S	2		
		amlodipine	1	1					amlodipine	1.5 mg/L In Blood (unspecified) @ Autopsy
		zolpidem	2	2					zolpidem	0.75 mg/L In Blood (unspecified) @ Autopsy
		zolpidem	2	2					zolpidem	2.5 mg/kg In Liver @ Autopsy
		chlorpheniramine	3	3					chlorpheniramine	1.2 mg/L In Blood (unspecified) @ Autopsy
		dextromethorphan	4	4					dextromethorphan	4.3 mg/L In Blood (unspecified) @ Autopsy
		dextromethorphan	4	4					dextromethorphan	7.7 mg/L In Urine (quantitative only) @ Autopsy
914h	69 y M				A	Ingst	Unt-G	3		
		cardiac glycoside	1	1						
915h	70 y F				A/C	Ingst	Int-S	2		
		verapamil	1	1						
		bupropion (extended release)	2	2						
		fluoxetine	3	3						
916	72 y M				C	Ingst	Unt-U	3		
		cardiac glycoside	1	1						
917	72 y F				C	Ingst	AR-D	3		
		cardiac glycoside	1	1					digoxin	2.4 ng/mL In Serum @ Unknown
918	73 y F				A/C	Ingst	Int-S	1		
		metoprolol	1	1						
		lorazepam	2	2						
		nortriptyline	3	3						
919a	73 y M				A	Ingst	Int-U	2		
		diltiazem	1	1						
		zolpidem	2	2						
920a	76 y F				A/C	Ingst+ Par	AR-D	3		
		diltiazem	2	1						
		metoprolol	3	2						
		cardiac glycoside	1	3						
921p	76 y F				A/C	Ingst	Int-S	2		
		isradipine	1	1						
		clonazepam	2	2						
		quetiapine	3	3						
		lotensin	4	4						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Cardiovascular Drugs, continued										
		valproic acid	5	5						
		metoprolol	6	6						
		colchicine	7	7						
922pha	77 y F				A/C	Ingst	Int-S	2		
		diltiazem	1	1						
		sulfonurea and related	2	2						
		doxazocin	3	3						
		venlafaxine	4	4					venlafaxine	1.4 mg/L In Blood (unspecified) @ Unknown
		simvastatin	5	5						
		benzodiazepine	6	6					nordiazepam	1.09 mg/L In Blood (unspecified) @ Autopsy
		hydrochlorothiazide	7	7						
		levothyroxine	8	8						
		chlordiazepoxide	9	9						
		lisinopril	10	10						
923	78 y F				U	Ingst	Unk	2		
		cardiac glycoside	1	1					digoxin	7.6 mcg/mL In Blood (unspecified) @ 1 h (pe)
924	78 y M				C	Ingst	AR-D	2		
		cardiac glycoside	1	1						
925	78 y M				U	Ingst	AR-D	3		
		cardiac glycoside	1	1						
926h	79 y M				A	Par	AR-D	3		
		nitroprusside	1	1						
927a	80 y F				A/C	Ingst	Int-S	1		
		amlodipine	1	1					amlodipine	180 ng/mL In Serum @ 1 h (pe)
928	80 y M				U	Ingst	Int-S	3		
		amlodipine	2	1						
		enalapril	3	2						
		paroxetine	4	3						
		alprazolam	1	4						
		lovastatin	5	5						
929	81 y M				A	Ingst	Int-S	2		
		sotalol	1	1						
930	81 y M				A/C	Ingst	Unt-G	2		
		digoxin	1	1					digoxin	5.7 ng/mL In Blood (unspecified) @ 15 m (pe)
		digoxin	1	1					digoxin	6.2 ng/mL In Blood (unspecified) @ 2 h (pe)
		digoxin	1	1					digoxin	6.7 ng/mL In Blood (unspecified) @ 7 h (pe)
931a	81 y M				A/C	Ingst	Int-S	1		
		sotalol	2	1						
		zolpidem	1	2					zolpidem	4 mg/L In Blood (unspecified) @ Autopsy
932	82 y F				C	Ingst	AR-D	3		
		digoxin	1	1					digoxin	3.2 ng/mL In Blood (unspecified) @ Unknown
933h	83 y F				A	Ingst	Unt-G	2		
		cardiac glycoside	1	1					digoxin	4 ng/mL In Serum @ Unknown
		glibenclamide	2	2						
934	85 y F				A	Ingst	Unt-U	1		
		diltiazem	1	1						
935	85 y F				A/C	Ingst	Unt-G	3		
		cardiac glycoside	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Cardiovascular Drugs, continued										
936a	85 y M				A	Ingst	Int-U	1		
		nifedipine (extemded release)	1	1					nifedipine	560 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen	2	2					acetaminophen	227 mg/L In Blood (unspecified) @ Unknown
937	85 y F				C	Ingst	AR-D	3		
		cardiac glycoside	1	1					digoxin	5 ng/mL In Plasma @ Unknown
938	86 y F				A	Ingst	Int-S	1		
		beta blocker	1	1						
		clonidine	2	2						
		diltiazem	3	3						
		glipizide	4	4						
		diuretic, unknown	5	5						
		metformin	6	6						
939	87 y F				C	Ingst	AR-D	3		
		cardiac glycoside	1	1						
940	87 y M				A/C	Ingst	Int-S	2		
		metoprolol	1	1						
		nitroglycerin	2	2						
		spironolactone	3	3						
		furosemide	4	4						
941	87 y F				A	Ingst	Unt-G	2		
		labetolol	1	1						
		nortriptyline	2	2					nortriptyline	199 mg/dL In Plasma @ Unknown
942	87 y F				C	Ingst	Unk	3		
		cardiac glycoside	1	1					digoxin	4.3 mcg/mL In Blood (unspecified) @ Unknown
943	89 y M				A	Ingst	Int-S	1		
		cardiac glycoside	1	1					digoxin	13.95 ng/mL In Serum @ 12 h (pe)
944	90 y F				C	Ingst	Unt-T	2		
		diltiazem (extended release)	1	1						
945a	90 y M				A	Ingst	Unt-T	2		
		metoprolol	1	1						
		hydrochlorothiazide/ lisinopril	2	2						
		digoxin	3	3						
		clopidogrel	4	4						
946	90 y F				C	Ingst	AR-D	3		
		cardiac glycoside	1	1					digoxin	2.4 ng/mL In Unknown @ Unknown
947	93 y F				C	Ingst	Unt-G	3		
		digoxin	1	1						
948p	Unknown adult (> = 20 yrs) M			A/C	Ingst	Int-S	1			
		diltiazem (extended release)	1	1						
		venlafaxine (extended release)	2	2						
		mirtazapine	3	3						
		alprazolam	4	4						
See Also case 44, 82, 86, 246, 366, 370, 376, 385, 400, 403, 417, 424, 484, 485, 522, 549, 580, 599, 609, 619, 641, 659, 662, 667, 670, 680, 705, 706, 707, 709, 724, 730, 731, 739, 743, 764, 765, 766, 772, 777, 778, 785, 788, 789, 792, 797, 798, 954, 975, 994, 1016, 1022, 1032, 1039, 1046, 1052, 1054, 1055, 1057, 1063, 1099, 1113, 1138										
Cold and Cough Preparations										
949pa	11 y F				A/C	Ingst	Unt-T	2		
		benzonatate	1	1						
950pa	21 y M				A/C	Ingst	Int-A	2		
		chlorpheniramine/ dextromethorphan	1	1						
		opioid	2	2						
951ph	25 y M				A	Ingst	Int-A	1		
		chlorpheniramine/ dextromethorphan	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Cold and Cough Preparations, continued										
952a	32 y F				A	Ingst	Int-M	2		
		acetaminophen	1	1					acetaminophen	89 mcg/mL In Serum @ Unknown
953pa	58 y M				U	Par+ Unk	Unk	3		
		pseudoephedrine	1	1						
		propoxyphene	2	2						
		morphine	3	3						
954a	61 y M				A	Ingst	Int-S	3		
		benzonatate	1	1						
		temazepam	2	2						
		risperidone	3	3						
		benztropine	4	4						
		lisinopril	5	5						
		lorazepam	6	6						
		doxazosin	7	7						
		mirtazapine	8	8						
See Also case 256, 311, 361, 408, 466, 513, 586, 614, 711, 810, 830, 913, 1048										
Electrolytes and Minerals										
955	61 y M				A	Ingst	Int-U	2		
		iron	1	1						
[956]	97 y M				A	Ingst	Unt-M	1		
		sodium bicarbonate	1	1						
See Also case 8, 376, 623, 641, 825										
Gastrointestinal Preparations										
957pa	9 y F				A/C	Ingst	Int-M	3		
		senna	1	1						
See Also case 274, 378, 393, 398, 538, 591, 623, 648, 662, 688, 704, 757, 797, 849, 883, 999, 1138										
Hormones and Hormone Antagonists										
[958a]	4 y F				A	Ingst	Unt-G	2		
		metformin	1	1						
959pa	26 y F				C	Ingst	AR-D	3		
		cral contraceptives	1	1						
960	27 y M				A/C	Par	Int-S	2		
		insulin	1	1						
961	27 y M				A/C	Ingst	Int-S	2		
		metformin	1	1						
		ethanol	2	2						
		naproxen	3	3						
962h	29 y M				A/C	Ingst	Int-S	3		
		metformin	1	1						
		citalopram	2	2						
		carbamazepine	3	3						
		thiazolidinedione	4	4						
963	34 y F				U	Ingst	Int-S	2		
		metformin	1	1						
		acetaminophen	2	2					acetaminophen	82 mcg/mL In Serum @ 1 h (pe)
[964]	34 y M				A	Par	Int-S	1		
		insulin	1	1						
965	39 y F				A	Ingst	Int-S	2		
		metformin	1	1						
		salicylate	3	2						
		thiazolidinedione	2	3						
		acetaminophen	4	4						
966	41 y F				A	Ingst	Int-S	2		
		metformin	1	1						
967p	42 y F				A	Ingst	Int-S	2		
		metformin	1	1						
		quetiapine	2	2						
		duloxetine	3	3						
		lorazepam	4	4						
		acetaminophen/ hydrocodone	5	5						
968a	43 y F				U	Ingst	Int-U	2		
		metformin	1	1						
		clonazepam	2	2						
		ibuprofen	3	3						
		quetiapine	4	4						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Hormones and Hormone Antagonists, continued										
969pa	45 y M				A/C	Unk	Int-U	2		
		insulin	1	1						
		alprazolam	2	2						
		promethazine	3	4					promethazine	0.46 mcg/mL In Blood (unspecified) @ Autopsy
		diphenhydramine	4	5					diphenhydramine	0.16 mcg/mL In Blood (unspecified) @ Autopsy
970ha	46 y F				C	Ingst	AR-D	3		
		metformin	1	1						
		ethanol	2	2						
971ha	46 y M				U	Ingst+ Unk	Int-S	1		
		metformin	1	1						
		acetaminophen/ diphenhydramine*	3	2						
		cocaine*	2	2					cocaine	17 ng/mL In Blood (unspecified) @ Unknown
		cocaine*	2	2					benzoylecognine	839 ng/mL In Blood (unspecified) @ Unknown
		ethanol	4	3						
		pyrethroids	5	4						
972p	51 y F				A	Ingst	Int-S	3		
		sulfonurea and related	1	1						
		gabapentin	2	2						
973	53 y F				A/C	Par	Int-U	3		
		insulin	1	1						
974	53 y M				A/C	Ingst	Int-S	1		
		metformin	1	1						
975	63 y M				A/C	Ingst	Int-S	1		
		metformin	1	1						
		metoprolol	2	2						
976h	73 y F				A/C	Ingst	Unt-T	3		
		glyburide	1	1						
977pa	78 y M				U	Ingst	Int-S	2		
		prednisone	1	1						
		caffeine	2	2					caffeine	0 Other (see abst) In Blood (unspecified) @ Unknown
		alprazolam	3	3					alprazolam	64 ng/mL In Blood (unspecified) @ Unknown
		codeine	4	4					codeine	40 ng/mL In Blood (unspecified) @ Unknown
		donepezil	5	5					donepezil	140 ng/mL In Blood (unspecified) @ Unknown
		venlafaxine	6	6						
		zolpidem	7	7					zolpidem	2500 ng/mL In Blood (unspecified) @ Unknown
978a	82 y M				A	Ingst	Int-S	2		
		metformin	1	1						
979h	94 y F				U	Par	Unk	3		
		insulin	1	1						
See Also case 4, 8, 89, 370, 393, 400, 442, 451, 462, 484, 549, 580, 662, 706, 730, 731, 732, 744, 745, 768, 777, 808, 815, 843, 846, 851, 853, 886, 893, 905, 922, 933, 938, 985, 1052, 1055, 1060, 1138										
Miscellaneous Drugs										
980h	50 y F				A	Ingst	AR-D	3		
		sumatriptan	1	1						
[981a]	53 y M				A	Ingst+ Inhal+ Par	AR-D	1		
		N-acetylcsysteine	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Miscellaneous Drugs, continued										
		acetaminophen/ hydrocodone	2	2					hydrocodone	0.12 mg/L In Blood (unspecified) @ Unknown
		acetaminophen/ hydrocodone	2	2					acetaminophen	59 mcg/mL In Blood (unspecified) @ Unknown
		skeletal muscle relaxant	3	3					meprobamate	16.65 mg/L In Blood (unspecified) @ Unknown
		skeletal muscle relaxant	3	3					carisoprodol	2.41 mg/L In Blood (unspecified) @ Unknown
		methamphetamine	4	4						
		codeine	5	5						
		marijuana	6	6					delta-9-carboxy-thc	12 ng/mL In Blood (unspecified) @ Unknown
See Also case 181, 308, 385, 408, 424, 453, 635, 684, 789, 832, 841, 849, 851, 977, 984, 999, 1040, 1113										
Muscle Relaxants										
982pa	28 y M				A	Ingst	Int-S	3		
		carisoprodol	1	1						
983ph	31 y M				A/C	Ingst	Int-S	1		
		carisoprodol	1	1						
		acetaminophen/ hydrocodone	2	2						
984h	32 y F				A	Ingst	Int-U	2		
		tizanidine	1	1						
		nortriptyline	2	2						
		phenothiazine	3	3						
		carisoprodol	4	4						
		promethazine	5	5						
		ondansetron	6	6						
		mirtazapine	7	7						
985	32 y M				A/C	Ingst	Int-U	2		
		cyclobenzaprine	1	1						
		escitalopram	2	2						
		zolpidem	3	3						
		alprazolam	4	4						
		ethinyl estradiol/ desogestrel	5	5						
986pa	39 y F				U	Ingst	Int-S	2		
		skeletal muscle relaxant	1	1					meprobamate	11 mcg/mL In Blood (unspecified) @ Unknown
		skeletal muscle relaxant	1	1					carisoprodol	5 mcg/mL In Blood (unspecified) @ Unknown
		oxycodone	2	2					oxycodone	0.17 mcg/mL In Blood (unspecified) @ Unknown
		diazepam	3	3						
987p	39 y M				A/C	Ingst	Int-U	2		
		cyclobenzaprine	1	1						
		acetaminophen/ oxycodone	2	2						
		benzodiazepine	3	3						
988i	42 y F				A	Ingst	Int-S	2		
		metaxalone	1	1						
		acetaminophen/ tramadol	2	2					acetaminophen	32 mcg/mL In Blood (unspecified) @ 6.5 h (pe)
989ph	45 y M				U	Ingst+ Par+ Unk	Int-A	2		
		carisoprodol	1	1						
		methamphetamine	2	2						
		alprazolam	3	3						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Muscle Relaxants, continued										
990h	46 y F				A	Ingst	Int-S	2		
		carisoprodol	1	1						
		acetaminophen/ hydrocodone	2	2						
991a	46 y M				U	Ingst	Int-S	1		
		carisoprodol	1	1					meprobamate	71 mcg/mL In Blood (unspecified) @ 1 h (pe)
		carisoprodol	1	1					carisoprodol	8.7 mcg/mL In Blood (unspecified) @ 1 h (pe)
992ha	49 y M				U	Ingst	Int-S	1		
		carisoprodol	1	1						
		ethanol	2	2					ethanol	239.9 mg/dL In Serum @ Unknown
993	49 y M				A	Ingst	Int-S	2		
		carisoprodol	1	1						
		acetaminophen/ oxycodone	2	2					acetaminophen	70 mcg/mL In Serum @ Unknown
		tramadol	3	3						
994	51 y F				A	Ingst	Int-S	1		
		cyclobenzaprine	1	1						
		acetaminophen/ butalbital/caffeine	2	2						
		oxycodone	3	3						
		propranolol	4	4						
		temazepam	5	5						
		furosemide	6	6						
995h	57 y F				A/C	Ingst	Int-S	1		
		cyclobenzaprine	2	1						
		acetaminophen/ oxycodone	1	2					acetaminophen	87 mcg/mL In Blood (unspecified) @ Unknown
996p	67 y F				A/C	Ingst	Int-A	2		
		carisoprodol	1	1						
		alprazolam	2	2						
		acetaminophen/ hydrocodone	3	3						
997	68 y M				U	Ingst	Unk	3		
		cyclobenzaprine	1	1						
		acetaminophen	2	2						
998p	77 y F				U	Ingst	Int-S	3		
		baclofen	1	1						
See Also case 272, 279, 283, 302, 316, 322, 324, 339, 342, 343, 351, 386, 394, 406, 412, 428, 442, 459, 462, 485, 490, 491, 495, 502, 524, 542, 545, 579, 586, 594, 597, 620, 632, 635, 641, 663, 689, 699, 710, 711, 749, 761, 770, 780, 837, 841, 864, 899, 981, 1001, 1005, 1016, 1024, 1029, 1031, 1072, 1094, 1111, 1113, 1120										
Sedative/Hypnotics/Antipsychotics										
999p	10 y M				A	Ingst	Oth-M	1		
		quetiapine	1	1						
		risperidone	2	2						
		clonazepam	3	3						
		lorazepam	4	4						
		alprazolam	5	5						
		valproic acid	6	6						
		atomexetine	7	7						
		methylphenidate	8	8						
		loratadine	9	9						
		omerprazole	10	10						
[1000a]	14 y M				A	Ingst	Int-S	2		
		quetiapine	1	1					bupropion	0.05 mg/L In Blood (unspecified) @ Autopsy
		quetiapine	1	1					quetiapine	18 mg/L In Blood (unspecified) @ Autopsy
1001pa	17 y M				A/C	Ingst	Int-S	1		
		rispridone	1	1					risperidone	10 mcg/mL In Blood (unspecified) @ Autopsy

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Sedative/Hypnotics/Antipsychotics, continued										
		rispridone	1	1					9-hydroxyrisperidone	4.3 mcg/mL In Blood (unspecified) @ Autopsy
		metaxalone	2	2						
		bupropion	3	3						
		tramadol	4	4						
1002pa	20 y M				A	Ingst	Int-S	2		
		lorazepam	3	1						
		methadone	1	2					methadone	120 mEq/L In Blood (unspecified) @ Autopsy
		fluoxetine	2	3					fluoxetine	110 mEq/L In Blood (unspecified) @ Autopsy
1003p	21 y F				A/C	Ingst	Int-S	3		
		alprazolam	1	1						
		ethanol	2	2						
		drug, unknown	3	3						
1004ph	22 y M				A	Ingst	Int-S	2		
		clonazepam	1	1						
1005pa	23 y F				U	Ingst	Int-U	2		
		zolpidem	1	1					zolpidem	0.19 mcg/mL In Blood (unspecified) @ Autopsy
		carisoprodol	2	2					carisoprodol	22 mcg/mL In Blood (unspecified) @ Autopsy
		hydrocodone	3	3					hydrocodone	0.032 mcg/mL In Blood (unspecified) @ Autopsy
		tramadol	4	4					tramadol	0.091 mcg/mL In Blood (unspecified) @ Autopsy
1006p	24 y M				U	Unk	Int-A	2		
		benzodiazepine	1	1						
		opioid	2	2						
		marijuana	3	3						
		heroin	4	4						
1007ph	26 y F				A	Ingst	Int-S	2		
		zolpidem	1	1						
1008	27 y M				A/C	Ingst	Int-S	2		
		clonazepam	1	1						
		quetiapine	2	2						
1009a	27 y M				A	Ingst+ Par	Int-S	3		
		quetiapine	2	1					quetiapine	0.1 mg/L In Blood (unspecified) @ Autopsy
		haloperidol	3	2						
		ethanol	1	3					ethanol	0 mg/dL In Blood (unspecified) @ Autopsy
		citalopram	4	4					citalopram	0.1 mg/L In Blood (unspecified) @ Autopsy
1010p	28 y M				U	Ingst	Unk	2		
		diazepam	1	1						
		ethanol	2	2						
		cocaine	3	3						
		marijuana	4	4						
		acetaminophen/opioid	5	5						
1011a	28 y F				A/C	Ingst	Int-S	1		
		quetiapine	1	1					quetiapine	13410 ng/mL In Blood (unspecified) @ Unknown
		ethanol	2	2					ethanol	298 mg/dL In Blood (unspecified) @ Unknown

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Sedative/Hypnotics/Antipsychotics, continued										
1012	29 y F				U	Ingst	Int-S	3		
		quetiapine	1	1						
		temazepam	2	2						
		alprazolam	3	3						
		ethanol	4	4					ethanol	93 mg/dL In Blood (unspecified) @ Unknown
1013pa	30 y F				A/C	Ingst	Int-S	2		
		quetiapine	1	1					quetiapine	0.78 mg/L In Whole Blood @ Autopsy
		venlafaxine	2	2					venlafaxine	1.9 mg/L In Whole Blood @ Autopsy
		carbamazepine	3	3					carbamazepine	18 mg/L In Whole Blood @ Autopsy
1014	32 y F				U	Ingst	Int-U	2		
		quetiapine	3	1						
		morphine	2	2						
		acetaminophen/ hydrocodone	1	3						
1015	32 y M				A	Ingst	Int-S	2		
		quetiapine	1	1						
1016	34 y F				A	Ingst	Int-S	2		
		quetiapine	1	1						
		muscle relaxant, unknown	2	2						
		angiotensin-converting enzyme inhibitor	3	3						
		anticonvulsant	4	4						
		lorazepam	5	5						
		duloxetine	6	6						
		lamotrigine	7	7						
		diuretic, unknown	8	8						
1017p	34 y F				U	Ingst	Int-S	2		
		alprazolam	1	1						
1018	34 y M				U	Ingst+ Inhal	Int-A	2		
		alprazolam	1	1						
		opioid	2	2						
		acetaminophen/opioid	3	3						
1019a	35 y F				A	Ingst	Unt-G	1		
		quetiapine	1	1						
		lamotrigine	2	2						
1020p	35 y M				A/C	Ingst	Int-S	2		
		quetiapine	1	1						
		clonazepam	4	3						
		temazepam	5	4						
		venlafaxine	3	5						
1021ph	36 y F				A	Ingst	Int-S	1		
		quetiapine	1	1						
		citalopram	2	2						
		acetaminophen	3	3					acetaminophen	34.7 mcg/mL In Serum @ Unknown
1022pa	37 y M				A	Unk	Int-S	1		
		pentobarbital	1	1						
		famciclovir	3	2						
		atenolol	2	4						
1023	37 y M				U	Ingst	Int-S	2		
		quetiapine	1	1						
		acetaminophen	2	2					acetaminophen	169 mcg/mL In Plasma @ Unknown
1024p	38 y M				A/C	Ingst	Int-M	2		
		benzodiazepine	1	1						
		acetaminophen/ hydrocodone	2	2						
		carisoprodol	3	3						
1025p	39 y F				A	Ingst	Int-S	3		
		diazepam	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Sedative/Hypnotics/Antipsychotics, continued										
1026h	40 y F				A	Ingst	Int-S	2		
		lorazepam	1	1						
		drug, unknown	2	2						
1027a	40 y F				A	Ingst	Int-S	1		
		quetiapine	1	1					quetiapine	2100.9 mg/kg In Gastric (stomach content) @ Autopsy
		quetiapine	1	1					quetiapine	24.3 mg/L In Blood (unspecified) @ Autopsy
		cocaine	2	2					cocaine	0.3 mg/L In Vitreous @ Autopsy
		cocaine	2	2					cocaine	0.52 mg/L In Blood (unspecified) @ Autopsy
		cocaine	2	2					cocaine	0.97 mg/kg In Gastric (stomach content) @ Autopsy
		cocaine	2	2					benzoylecognine	0.98 mg/L In Vitreous @ Autopsy
		cocaine	2	2					benzoylecognine	1.6 mg/kg In Gastric (stomach content) @ Autopsy
		cocaine	2	2					benzoylecognine	3 mg/L In Blood (unspecified) @ Autopsy
1028p	40 y F				A	Ingst	Int-S	1		
		buspirone	1	1						
		alprazolam	2	2						
1029p	41 y F				A/C	Ingst	Int-S	2		
		alprazolam	1	1						
		clonazepam	2	2						
		acetaminophen/ hydrocodone	3	3						
		carisoprodol	4	4						
		acetaminophen/ diphenhydramine	5	5						
1030p	43 y F				A/C	Ingst	Int-S	2		
		quetiapine	1	1						
		oxycodone	2	2						
		alprazolam	3	3						
		ephedrine	4	4						
1031ph	43 y F				U	Ingst	Unk	3		
		quetiapine	1	1						
		cyclobenzaprine	2	2						
1032p	43 y M				A/C	Ingst	Int-S	2		
		alprazolam	3	1						
		acetaminophen/ hydrocodone	2	2						
		nebivolol	1	3						
1033a	44 y M				U	Ingst	Int-S	2		
		quetiapine	1	1					quetiapine	3400 ng/mL In Whole Blood @ Autopsy
		cocaine	2	2						
1034pa	44 y F				U	Ingst	Unk	2		
		alprazolam	1	1					alprazolam	0.073 mcg/mL In Whole Blood @ Autopsy
		fluoxetine	2	2						
		acetaminophen*	4	3						
		ethanol*	3	3					ethanol	0.18 g/dL In Blood (unspecified) @ Autopsy
1035	45 y F				A	Ingst	Int-S	3		
		clonazepam	1	1						
		quetiapine	2	2						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Sedative/Hypnotics/Antipsychotics, continued										
1036	45 y F				A/C	Ingst	Int-S	2		
		alprazolam	1	1						
		oxycodone	2	2						
1037p	45 y F				A	Ingst	Int-S	2		
		diazepam	1	1						
		opioid	2	2						
1038a	46 y M				A/C	Ingst	Int-S	2		
		olanzapine	1	1					olanzapine	112 ng/mL In Serum @ Unknown
		lithium	2	2					lithium	1.2 mEq/L In Serum @ 16 h (pe)
		fluoxetine	3	3					fluoxetine	160 ng/mL In Blood (unspecified) @ Unknown
		fluoxetine	3	3					norfluoxetine	31.8 ng/mL In Serum @ Unknown
		fluoxetine	3	3					fluoxetine	64 ng/mL In Serum @ Unknown
		fluoxetine	3	3					norfluoxetine	75.4 ng/mL In Blood (unspecified) @ Unknown
1039	47 y F				A	Ingst	Int-S	3		
		alprazolam	1	1						
		venlafaxine (extended release)	2	2						
		trandalopril/verapamil	3	3						
		bupropion	4	4						
		angiotensin-converting enzyme inhibitor	5	5						
1040h	48 y F				A	Ingst	Int-S	3		
		aripiprazole	1	1						
		clonazepam	2	2						
		nortriptyline	3	3						
		modafinil	4	4						
		zolpidem	5	5						
1041a	48 y M				U	Ingst	Int-S	3		
		eszopiclone	1	1						
		bupropion	2	2						
1042p	48 y M				A/C	Ingst	Int-S	2		
		diazepam	1	1						
		oxycodone	2	2						
1043ph	50 y F				A	Ingst	Int-S	1		
		alprazolam	1	1						
		acetaminophen	2	2					acetaminophen	232 mcg/mL In Serum @ 4 h (pe)
1044pa	51 y F				A	Ingst	Int-S	1		
		alprazolam	1	1					alprazolam	0.15 mg/L In Blood (unspecified) @ Autopsy
		valproic acid	2	2						
		ethanol	4	4					ethanol	0.06 % (wt/Vol) In Vitreous @ Autopsy
1045a	52 y M				A	Ingst	Int-S	2		
		chlorpromazine	1	1						
		amitriptyline	2	2					amitriptyline	31 ng/mL In Blood (unspecified) @ Autopsy
		amitriptyline	2	2					nortriptyline	43 ng/mL In Blood (unspecified) @ Autopsy
1046ha	53 y F				A/C	Ingst	Int-S	1		
		zolpidem	4	1						
		paroxetine	5	2						
		amlodipine	1	3						
		lotensin	3	4						
		nitroglycerin	2	5						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Sedative/Hypnotics/Antipsychotics, continued										
1047p	55 y F				A	Par	Int-S	1		
		barbiturates	1	1						
1048p	56 y M				A	Ingst	Int-S	1		
		phenobarbital	1	1					phenobarbital	107.6 mcg/mL In Blood (unspecified) @ Unknown
		meclizine	2	2						
1049a	57 y M				A	Ingst	Int-S	2		
		quetiapine	1	1						
		ethanol*	4	2						
		olanzapine*	2	2						
		fluoxetine	3	3						
1050	58 y F				A	Ingst	Unk	2		
		clozapine	1	1						
		venlafaxine (extended release)	2	2						
		acetaminophen	3	3						
1051	59 y M				A/C	Ingst	Int-S	2		
		clozapine	1	1						
		methadone	2	2						
		acetaminophen/ oxycodone	3	3						
		cocaine	4	4						
1052	61 y F				A/C	Ingst	Int-S	3		
		quetiapine	1	1						
		salicylate	2	2					salicylate	63.8 mg/dL In Blood (unspecified) @ 1 h (pe)
		acetaminophen	3	3						
		lisinopril	4	4						
		proclorperazine	5	5						
		androgen	6	6						
		montelukast	7	7						
1053p	63 y M				C	Ingst	Unt-T	3		
		diazepam	1	1					diazepam	0.49 mcg/mL In Serum @ 1 w (pe)
		phentermine	2	2						
1054	64 y M				U	Ingst	Int-S	3		
		zolpidem	1	1						
		temazepam	2	2						
		citalopram	3	3						
		tenoretic	4	4						
		potassium chloride	5	5						
		hydroxyzine	6	6						
1055p	65 y M				A	Ingst	Int-S	3		
		lorazepam	1	1						
		trazodone	2	2						
		levothyroxine	3	3						
		hydroclorothiazide/ olmesartan	4	4						
		simvastatin	5	5						
		ranitidine	6	6						
1056h	68 y F				A/C	Ingst	Int-S	2		
		alprazolam	2	1					alprazolam	0.07 mg/L In Blood (unspecified) @ 19 h (pe)
		tramadol	1	2					tramadol	37.46 mg/L In Blood (unspecified) @ 19 h (pe)
		tramadol	1	2					tramadol	704 mg/L In Gastric (stomach content) @ Unknown
		ethanol	3	3					ethanol	207 mg/dL In Blood (unspecified) @ 21 m (pe)

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Sedative/Hypnotics/Antipsychotics, continued										
1057a	69 y F				U	Ingst	Int-S	2		
		chlordiazepoxide	2	1						
		oxycodone	1	2						
		alprazolam*	3	3						
		clonidine*	4	3						
		acetaminophen/ hydrocodone	5	4						
1058	69 y M				A	Ingst	Int-S	3		
		alprazolam	1	1						
		oxycodone	2	2						
1059i	70 y F				A	Ingst	Int-S	3		
		lorazepam	1	1						
		alprazolam	2	2						
1060a	71 y M				A	Ingst	Int-S	1		
		diazepam	1	1					temazepam	520 ng/mL In Blood (unspecified) @ 1 h (pe)
		acetaminophen/ hydrocodone	2	2					hydrocodone	1.2 mcg/mL In Blood (unspecified) @ 1 h (pe)
		acetaminophen/ hydrocodone	2	2					dihydrocodeine/ hydrocodol (free)	14 ng/mL In Blood (unspecified) @ 1 h (pe)
		acetaminophen/ hydrocodone	2	2					acetaminophen	89 mcg/mL In Blood (unspecified) @ 1 s (pa)
		propoxyphene	3	3					norpropoxyphene	0.19 mcg/mL In Blood (unspecified) @ 1 h (pe)
		propoxyphene	3	3					propoxyphene	0.2 mcg/mL In Blood (unspecified) @ 1 h (pe)
		hydroxychloroquine	4	4						
		ibuprofen	5	5						
		prednisone	6	6						
[1061a]	72 y F				A/C	Ingst	Int-S	2		
		quetiapine	1	1					quetiapine	17 mcg/mL In Whole Blood @ Autopsy
1062h	72 y M				A	Ingst	Int-S	2		
		quetiapine	1	1						
		escitalopram	2	2						
		gabapentin	3	3						
		clonazepam	4	4						
1063	73 y M				A/C	Ingst	Int-S	2		
		alprazolam	1	1						
		clonazepam	2	2						
		tamsulosin	3	3						
		duloxetine	4	4						
1064h	73 y M				A	Ingst	Unt-T	3		
		midazolam	1	1						
1065a	73 y F				A/C	Ingst	Unk	3		
		quetiapine	1	1						
		zolpidem	2	2						
1066a	83 y F				A/C	Ingst	Int-S	2		
		temazepam	1	1					temazepam	1.42 mg/L In Blood (unspecified) @ Autopsy
1067h	84 y F				A	Ingst	Int-S	2		
		zolpidem	1	1						
1068a	85 y F				A	Ingst	Int-S	3		
		zolpidem	1	1						
		lorazepam	2	2						
		acetaminophen/ oxycodone	3	3					acetaminophen	74.1 mcg/mL In Serum @ Unknown
1069	85 y F				U	Ingst	Int-S	3		
		benzodiazepine	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Sedative/Hypnotics/Antipsychotics, continued										
1070	92 y M				A	Ingst	Int-S	3		
		zolpidem	1	1						
1071	96 y F				A	Ingst	Int-S	3		
		benzodiazepine	1	1						
		opioid	2	2						
1072pai	Unknown adult (> = 20 yrs) M			C	Ingst	Int-U	3			
		meprobamate	1	1					meprobamate	16 mg/L In Blood (unspecified) @ Autopsy
		carisoprodol	2	2					carisoprodol	2.4 mg/L In Blood (unspecified) @ Autopsy
		oxycodone	3	3					oxycodone	0.05 mg/L In Blood (unspecified) @ Autopsy
		hydroxyzine	4	4						
		valproic acid	5	5						
		acetaminophen	6	6						
See Also case 2, 10, 20, 22, 38, 44, 47, 51, 54, 71, 82, 83, 134, 184, 192, 219, 236, 237, 240, 244, 245, 248, 258, 263, 267, 268, 269, 271, 272, 274, 275, 283, 290, 293, 297, 299, 302, 307, 309, 312, 314, 320, 326, 330, 332, 334, 335, 341, 343, 344, 346, 349, 351, 352, 354, 362, 368, 370, 373, 376, 383, 391, 393, 395, 400, 401, 403, 406, 408, 409, 413, 417, 420, 421, 435, 437, 438, 440, 441, 442, 443, 445, 447, 449, 453, 454, 456, 464, 465, 472, 479, 485, 490, 492, 493, 503, 505, 509, 511, 514, 515, 519, 529, 539, 544, 545, 559, 562, 579, 585, 586, 591, 593, 594, 601, 615, 619, 622, 625, 639, 641, 650, 661, 662, 666, 670, 676, 679, 680, 685, 687, 688, 690, 691, 692, 694, 702, 705, 706, 709, 710, 711, 712, 720, 722, 728, 733, 734, 736, 739, 742, 745, 750, 753, 757, 759, 761, 764, 765, 768, 769, 774, 777, 782, 784, 785, 789, 797, 801, 815, 829, 831, 832, 833, 834, 835, 839, 841, 842, 843, 847, 848, 852, 853, 861, 863, 864, 867, 875, 878, 883, 885, 891, 894, 899, 902, 907, 912, 913, 918, 919, 921, 922, 928, 931, 948, 954, 967, 968, 969, 977, 984, 985, 986, 987, 989, 994, 996, 1079, 1080, 1083, 1085, 1086, 1096, 1097, 1104, 1107, 1109, 1111, 1113, 1116, 1124, 1146										
Stimulants and Street Drugs										
[1073ha]	16 y M				A	Ingst	Int-A	1		
		methylenedioxy methamphetamine (MDMA)	1	1						
		acetaminophen/ hydrocodone	2	2						
		amphetamine	3	3						
		methamphetamine	4	4						
		cocaine	5	5						
		marijuana	6	6						
1074p	17 y F				A/C	Inhal+ Unk	Int-A	2		
		heroin	1	1						
1075pha	17 y M				U	Unk	Int-A	1		
		heroin	1	1						
		cocaine	2	2					benzoylecognine	0.19 mcg/mL In Blood (unspecified) @ 6 h (pe)
		marijuana	3	3						
[1076pa]	19 y M				A	Ingst	Int-A	2		
		methylenedioxy methamphetamine (MDMA)	1	1						
[1077a]	20 y M				A	Ingst	Int-S	1		
		methylenedioxy methamphetamine (MDMA)	1	1						
1078p	21 y F				A	Inhal	Int-S	1		
		heroin	1	1						
		ethanol	2	2						
1079ph	21 y M				A	Unk	Unk	2		
		cocaine	1	1						
		benzodiazepine	2	2						
		opioid	3	3						
		acetaminophen	4	4						
		marijuana	5	5						
1080p	21 y M				A	Unk	Int-A	2		
		heroin	1	1						
		zolpidem	2	2						
1081p	22 y M				A/C	Par	Int-A	2		
		heroin	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Stimulants and Street Drugs, continued										
1082pa	22 y M				A	Par	Int-A	1		
		heroin	1	1					morphine	0.032 mcg/mL In Vitreous @ Autopsy
1083p	23 y M				A	Ingst	Int-M	2		
		methamphetamine	1	1						
		drug, unknown	2	2						
		alprazolam	3	3						
1084pa	24 y F				A	Unk	Int-A	1		
		heroin	1	1						
1085p	24 y M				U	Unk	Unk	2		
		heroin	1	1						
		cocaine	2	2						
		amphetamine	3	3						
		benzodiazepine	4	4						
1086p	24 y M				A	Ingst+ Unk	Int-S	2		
		methamphetamine	1	1						
		trazodone	2	2						
		paroxetine	3	3						
		alprazolam	4	4						
1087p	25 y M				U	Par	Int-A	2		
		heroin	1	1						
1088p	25 y M				A	Ingst	Int-A	1		
		cocaine	1	1						
1089p	25 y M				A	Ingst+ Oth+ Unk	Int-U	3		
		amphetamine/ dextroamphetamine	1	1						
		ethanol	2	2						
		drug, unknown	3	3						
1090p	26 y F				A/C	Unk	Unk	2		
		heroin	1	1						
1091p	26 y F				U	Unk	Unk	2		
		sodium oxybate	1	1						
1092p	26 y F				A	Par	Int-A	1		
		cocaine	1	1						
		amphetamine	2	2						
		opioid	3	3						
		marijuana	4	4						
1093p	26 y M				A	Par	Int-U	2		
		heroin	1	1						
1094pi	27 y F				A	Ingst	Int-S	2		
		caffeine	1	1						
		cyclobenzaprine	2	2						
		carisoprodol	3	3						
1095p	27 y M				A	Ingst	Int-A	1		
		methamphetamine	1	1						
1096pa	27 y M				A	Unk	Int-A	1		
		heroin	1	1					codeine	28.6 ng/mL In Blood (unspecified) @ Autopsy
		heroin	1	1					morphine	435 ng/mL In Blood (unspecified) @ Autopsy
		heroin	1	1					6-monoacetylmorphine	78 ng/mL In Urine (quantitative only) @ Autopsy
		acetaminophen/ diphenhydramine*	3	2						
		cocaine*	2	2					benzoylecognine	1720 ng/mL In Blood (unspecified) @ Autopsy
		diazepam	4	4					nordiazepam	361 ng/mL In Blood (unspecified) @ Autopsy
		diazepam	4	4					diazepam	437 ng/mL In Blood (unspecified) @ Autopsy

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Stimulants and Street Drugs, continued										
		diazepam	4	4					temazepam	61.7 ng/mL In Blood (unspecified) @ Autopsy
		alprazolam	5	5					alprazolam	32.4 ng/mL In Blood (unspecified) @ Autopsy
1097pa	28 y F				A	Ingst	Int-A	2		
		cocaine	1	1						
		alprazolam	2	2						
		ethanol	3	3						
1098ph	29 y M				U	Unk	Int-A	3		
		cocaine	1	1						
1099a	31 y M				A/C	Unk	Int-A	1		
		cocaine	1	1					cocaine	0.05 mg/L In Blood (unspecified) @ Autopsy
		cocaine	1	1					benzoylecognine	1.1 mg/L In Blood (unspecified) @ Autopsy
		diltiazem (extended release)	2	2					diltiazem	0.04 mg/L In Blood (unspecified) @ Autopsy
[1100h]	31 y M				A	Ingst	Int-A	1		
		methylenedioxy methamphetamine (MDMA)	1	1						
1101pa	31 y M				A	Par+ Unk	Int-S	1		
		heroin	1	1					morphine	2.6 mcg/mL In Blood (unspecified) @ Autopsy
		cocaine	2	2					benzoylecognine	0.095 mcg/mL In Blood (unspecified) @ Autopsy
		cocaine	2	2					cocaine	2 mcg/mL In Blood (unspecified) @ Autopsy
		oxycodone	3	3					oxycodone	0.095 mcg/mL In Blood (unspecified) @ Autopsy
1102	32 y M				A/C	Ingst	Int-A	3		
		methamphetamine	1	1						
1103	33 y M				A	Ingst	Int-M	1		
		cocaine	1	1						
1104pa	34 y M				A	Inhal	Int-M	1		
		heroin	1	1					morphine	0.65 mg/L In Brain @ Autopsy
		alprazolam	2	2						
1105h	34 y M				A/C	Inhal	Int-A	1		
		methamphetamine	1	1						
1106	34 y M				A	Ingst	Int-S	1		
		ephedrine	1	1						
1107pa	35 y M				U	Ingst+ Par	Int-A	2		
		heroin	1	1					morphine	153 ng/mL In Blood (unspecified) @ Autopsy
		heroin	1	1					6-monoacetylmorphine	7.8 ng/mL In Blood (unspecified) @ Autopsy
		diazepam	2	2						
		acetaminophen/ tramadol	3	3						
1108a	35 y M				U	Ingst+ Inhal	Int-A	1		
		cocaine	1	1						
		ethanol	2	2					ethanol	215 mg/dL In Blood (unspecified) @ Unknown

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Stimulants and Street Drugs, continued										
1109p	35 y F				A/C	Ingst+ Unk	Int-A	2		
		heroin	1	1						
		alprazolam	2	2						
1110a	37 y F				U	Unk	Unk	2		
		cocaine	1	1						
1111pha	38 y M				A	Unk	Unk	1		
		cocaine	1	1						
		skeletal muscle relaxant	2	2						
		opioid	3	3						
		acetaminophen	4	4						
		benzodiazepine	5	5						
[1112pa]	38 y M				A	Unk	Int-A	2		
		phencyclidine	1	1						
1113a	38 y M				A/C	Ingst	Int-S	1		
		caffeine	1	1					caffeine	67 mg/L In Whole Blood @ Autopsy
		salicylate	2	2						
		acetaminophen	3	3					acetaminophen	258.4 mg/L In Whole Blood @ Autopsy
		clonazepam	4	4					clonazepam	0 mg/L In Whole Blood @ Autopsy
		atorvistatin/amlodipine	5	5						
		lamotrigine	6	6					lamotrigine	2.2 mg/L In Whole Blood @ Autopsy
		allopurinol	7	7						
		metaxalone	8	8					metaxalone	17 mg/L In Whole Blood @ Autopsy
1114	39 y M				A	Unk	Int-S	2		
		cocaine	1	1						
		ethanol	2	2						
1115pi	40 y F				A	Inhal	Int-A	2		
		heroin	1	1						
1116p	41 y M				A	Ingst+ Inhal	Unt-G	1		
		cocaine	1	1						
		alprazolam	2	2						
		diazepam	3	3						
		phenobarbital	4	4						
		phenytoin	5	5						
		diphenhydramine	6	6						
1117pa	41 y M				A	Ingst+ Aspir	Int-M	1		
		cocaine	1	1						
		heroin	2	2						
[1118a]	42 y M				A	Ingst	Int-U	2		
		amphetamine	1	1						
[1119a]	43 y M				U	Ingst	Int-S	1		
		dextroamphetamine	1	1					amphetamine	338 ng/mL In Serum @ 1 h (pe)
1120pa	45 y M				U	Ingst	Int-U	2		
		cocaine	1	1						0.26 mcg/mL In Whole Blood @ Autopsy
		cocaine	1	1						4.2 mcg/mL In Urine (quantitative only) @ Autopsy
		ethanol	2	2					ethanol	0.26 g/dL In Vitreous @ Autopsy
		tizanidine	3	3						
		oxymorphone	4	4						
[1121pa]	46 y M				U	Unk	Int-A	1		
		methamphetamine	1	1					amphetamine	0.39 mg/L In Blood (unspecified) @ Autopsy
		methamphetamine	1	1					methamphetamine	10 mg/L In Blood (unspecified) @ Autopsy

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Stimulants and Street Drugs, continued										
		methamphetamine	1	1					amphetamine	13 mg/L In Urine (quantitative only) @ Autopsy
		methamphetamine	1	1					methamphetamine	66 mg/L In Urine (quantitative only) @ Autopsy
1122	47 y M				A/C	Ingst+ Par	Int-A	1		
		heroin	2	1						
		acetaminophen	1	2					acetaminophen	43 mcg/mL In Blood (unspecified) @ Unknown
		ethanol	3	3						
1123	47 y M				A	Unk	Int-A	2		
		methamphetamine	1	1						
		acetaminophen/ hydrocodone	2	2						
1124	47 y F				U	Ingst	Int-U	2		
		methamphetamine	1	1						
		lorazepam	2	2						
1125pha	48 y M				A	Unk	Int-A	3		
		methamphetamine	1	1						
1126pa	49 y M				A	Par	Int-A	2		
		heroin	1	1					morphine (free)	0.35 mg/L In Blood (unspecified) @ 1 h (pe)
		heroin	1	1					morphine (total)	0.77 mg/L In Blood (unspecified) @ 1 h (pe)
1127pha	51 y F				A	Par	Int-A	1		
		heroin	1	1					morphine	69.5 ng/mL In Serum @ Unknown
1128pa	52 y M				U	Ingst	Int-M	1		
		heroin	1	1						
		amphetamine	2	2						
1129ha	53 y F				A/C	Ingst	Int-A	2		
		heroin	1	1					6-monoacetylmorphine	0.013 mcg/mL In Vitreous @ Autopsy
		heroin	1	1					codeine	0.03 mcg/mL In Vitreous @ Autopsy
		heroin	1	1					morphine	0.14 mcg/mL In Vitreous @ Autopsy
		heroin	1	1					morphine	0.19 mcg/mL In Blood (unspecified) @ Autopsy
1130	54 y M				A/C	Ingst+ Par	Int-A	2		
		cocaine	1	1						
		oxycodone	2	2						
		acetaminophen/ hydrocodone	3	3						
1131a	54 y M				A/C	Ingst+ Inhal+ Unk	Int-A	2		
		heroin	1	1						
		ethanol	2	2						
		cocaine	3	3						
		marijuana	4	4						
1132h	57 y M				A	Ingst	Int-A	3		
		cocaine	1	1						
		opioid	2	2						
1133	59 y F				A	Ingst	Int-S	1		
		amphetamine	1	1						
		venlafaxine	2	2						
1134	60 y M				A/C	Ingst	Int-A	2		
		methamphetamine	1	1						
1135p	Unknown adult (> = 20 yrs) M			U	Ingst	Int-A	2			
		methamphetamine	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Stimulants and Street Drugs, continued										
1136p	Unknown adult (> = 20 yrs) M			U	Unk	Int-A	2			
		methamphetamine	1	1					methamphetamine	7340 ng/mL In Blood (unspecified) @ Unknown
		cleaner, household	2	2						
See Also case 5, 86, 123, 229, 236, 243, 248, 271, 288, 290, 292, 293, 298, 309, 314, 316, 320, 329, 341, 346, 358, 376, 409, 420, 421, 437, 442, 529, 586, 618, 662, 682, 685, 694, 709, 714, 725, 728, 731, 748, 769, 773, 810, 870, 892, 910, 971, 977, 981, 989, 999, 1006, 1010, 1027, 1030, 1033, 1051, 1053, 1141, 1149										
Unknown Drug										
1137p	5 y F				A	Inhal	AR-D	1		
		sevoflurane	1	1						
1138	14 y M				A/C	Ingst	Int-S	2		
		drug, unknown	1	1						
		hydroclorothiazide/ olmesartan	2	2						
		acetaminophen	3	3						
		diphenoxylate/atropine	4	4						
		prednisolone	5	5						
		fluoxetine	6	6						
1139p	15 y F				U	Unk	Int-S	2		
		drug, unknown	1	1						
1140h	21 y M				A	Unk	Int-S	1		
		drug, unknown	1	1						
1141ha	24 y F				U	Unk	Unk	1		
		drug, unknown	1	1					benzoylecognine	0.05 mcg/mL In Blood (unspecified) @ 6 d (pe)
		drug, unknown	1	1					morphine	0.071 mcg/mL In Blood (unspecified) @ 6 d (pe)
		heroin	2	2						
1142h	29 y M				U	Unk	Unk	3		
		drug, unknown	1	1						
1143phai	29 y F				A	Par	Int-U	2		
		drug, unknown	1	1						
1144h	32 y F				A	Unk	Unt-G	2		
		drug, unknown	1	1						
1145	39 y F				A	Unk	Int-S	3		
		drug, unknown	1	1						
1146	41 y M				A/C	Ingst	Unk	2		
		drug, unknown	1	1						
		methadone	2	2						
		benzodiazepine	3	3						
1147	44 y M				U	Unk	Unk	2		
		drug, unknown	1	1					acetaminophen	55 mcg/mL In Whole Blood @ 1 d (pe)
1148	45 y M				A	Inhal	AR-D	1		
		sevoflurane	1	1						
1149p	46 y F				U	Ingst	Int-U	1		
		drug, unknown	1	1						
		heroin	2	2						
		methamphetamine	3	3						
1150	46 y M				A	Par	AR-D	3		
		sevoflurane	1	1						
1151h	48 y F				A/C	Ingst	Int-S	2		
		drug, unknown	1	1						
1152	51 y F				U	Ingst	Int-U	2		
		drug, unknown	1	1						
1153p	52 y F				U	Ingst	Int-U	2		
		drug, unknown	1	1						
		acetaminophen	2	2						
1154h	58 y F				U	Unk	Unk	3		
		drug, unknown	1	1						
		methotrexate	2	2						
1155	58 y F				A	Ingst	Int-S	3		
		drug, unknown	1	1						
1156	71 y F				A/C	Ingst	Int-S	2		
		drug, unknown	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Annual report ID	Age/Sex	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	AAPCC RCF	Analyte	Blood Concentration @ Time
Unknown Drug, continued										
1157	75 y F				A	Ingst	Unt-G	3		
		drug, unknown	1	1						
1158pai	Unknown adult (> = 20 yrs) F				A	Ingst	Int-M	2		
		drug, unknown	1	1					sertraline	0.23 mcg/mL In Serum @ Autopsy
		drug, unknown	1	1					oxycodone	206 ng/mL In Serum @ Autopsy
		drug, unknown	1	1					7-aminoclonazepam	25 ng/mL In Serum @ Autopsy
		ethanol	2	2					ethanol	0.1 % (wt/Vol) In Blood (unspecified) @ Autopsy

See Also case 5, 12, 22, 23, 28, 46, 50, 57, 273, 316, 439, 450, 453, 474, 544, 552, 577, 593, 661, 668, 726, 751, 824, 868, 1003, 1026, 1083, 1089, 1121

(this table can be viewed separately online at www.informahealthcare.com/ctx Listing of 1,158 fatalities classified as Relative Contribution to Fatality category = 1-Undoubtedly responsible, 2-Probably responsible, or 3-Contributory).

Annual Report ID: Bracketed [case number] = Narrative provided for this case in Appendix C **i** = case was reported to poison center indirectly, **p** = prehospital cardiac and/or respiratory arrest, **h** = hospital records reviewed, **a** = autopsy report reviewed.

Age Gender: y = years, **m** = months, **d** = days, **F** = female, **M** = male, **F-Pregnant** = pregnant, **U** = unknown.

Chronicity: C = chronic exposure, **A** = acute exposure, **A/C** = acute on chronic, **U** = unknown.

Route: Aspir = Aspiration (with ingestion), **B-S** = Bite/sting, **Derm** = Dermal, **Ingst** = Ingestion, **Inhal** = Inhalation/nasal, **Oc** = Ocular, **Ot** = Otic, **Oth** = Other, **Par** = Parenteral, **Rec** = Rectal, **Unk** = Unknown, **Vag** = Vaginal.

Reason: AR-D = Adverse reaction – Drug, **AR-F** = AR – Food, **AR-O** = AR – Other, **Int-A** = Intentional – Abuse, **Int-M** = Int – Misuse, **Int-S** = Int – Suspected Suicide, **Int-U** = Int – Unknown, **Oth-C** = Other – Contamination/tampering, **Oth-M** = Oth – Malicious, **Oth-W** = Oth – Withdrawal, **Unk** = Unknown reason, **Unt-B** = Unintentional – Bite/sting, **Unt-E** = Unt – Environmental, **Unt-F** = Unt - Food poisoning, **Unt-G** = Unt – General, **Unt-M** = Unt – Misuse, **Unt-O** = Unt – Occupational, **Unt-T** = Unt - Therapeutic error, **Unt-U** = Unt – Unknown.

RCF (Relative Contribution to Fatality): 1 = Undoubtedly responsible, 2 = Probably responsible, 3 = Contributory, 4 = Probably not responsible.

Table 22A. Demographic profile of SINGLE-SUBSTANCE nonpharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< =5	6–12	13–19	> =20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Nonpharmaceuticals																			
Adhesives/Glues																			
Miscellaneous Adhesives/Glues																			
Cyanoacrylates (Superglues, etc)	7,955	7,884	3,562	695	594	2,351	27	598	57	7,572	193	49	50	1,681	981	1,457	235	3	0
Epoxy	596	549	240	11	12	226	1	54	5	520	16	2	10	157	107	106	35	2	0
Non-Toxic Adhesives/ Glues (White Glue, Paper Glue, etc)	1,751	1,628	1,144	283	71	95	9	22	4	1,553	63	3	4	65	220	51	7	0	0
Toluene/Xylene (Adhesives Only)	439	427	248	26	16	108	1	25	3	407	9	2	9	65	94	76	12	0	0
Unknown Types of Adhesive, Glue, Cement or Paste	3,909	3,731	1,848	278	203	1,094	9	271	28	3,521	105	35	63	688	761	580	138	4	0
Category Total	**14,650**	**14,219**	**7,042**	**1,293**	**896**	**3,874**	**47**	**970**	**97**	**13,573**	**386**	**91**	**136**	**2,656**	**2,163**	**2,270**	**427**	**9**	**0**
Alcohols																			
Miscellaneous Alcohols																			
Ethanol (Beverages)	51,909	9,937	1,590	166	1,945	5,195	19	845	177	2,640	6,729	206	220	4,060	1,124	1,570	1,074	202	8
Ethanol (Non-Beverage, Non-Rubbing)	22,153	20,725	15,917	1,777	742	1,864	30	366	29	19,571	829	246	53	1,142	5,166	1,509	121	11	1
Higher Alcohols (Butanol, Amyl Alcohol, Propanols, etc)	142	106	61	4	0	32	1	8	0	96	5	2	3	25	34	16	9	1	0
Isopropanol (Excluding Rubbing Alcohols and Cleaning Agents)	7,305	6,639	3,828	270	284	1,903	12	307	35	5,662	847	65	25	1,292	1,624	1,083	299	48	0
Methanol (Excluding Automotive Products and Cleaning Agents)	771	590	135	22	39	323	3	55	13	473	80	8	5	305	165	119	40	24	10
Other Types of Alcohol	489	462	357	19	15	58	0	12	1	445	15	0	2	31	140	38	3	0	0
Unknown Types of Alcohol	511	255	68	9	25	123	1	27	2	134	100	5	4	99	35	42	37	10	0
Rubbing Alcohols																			
Rubbing Alcohols: Ethanol with Methyl Salicylate	8	8	6	1	0	1	0	0	0	8	0	0	0	0	4	0	0	0	0
Rubbing Alcohols: Ethanol without Methyl Salicylate	207	205	151	3	3	42	0	6	0	193	9	1	1	22	74	33	4	1	0
Rubbing Alcohols: Isopropanol with Methyl Salicylate	351	336	254	7	10	58	0	6	1	304	27	5	0	84	124	51	9	3	0
Rubbing Alcohols: Isopropanol without Methyl Salicylate	7,436	6,926	4,241	204	297	1,884	13	265	22	6,122	714	53	15	1,101	1,601	993	201	25	1
Rubbing Alcohols: Unknown	82	73	40	0	7	18	0	6	2	62	10	0	1	18	13	14	3	1	0
Category Total:	**91,364**	**46,262**	**26,648**	**2,482**	**3,367**	**11,501**	**79**	**1,903**	**282**	**35,710**	**9,365**	**591**	**329**	**8,179**	**10,104**	**5,468**	**1,800**	**326**	**20**

(*Continued*)

Table 22A. Demographic profile of SINGLE-SUBSTANCE nonpharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< =5	6–12	13–19	> =20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Arts/Crafts/Office Supplies																			
Miscellaneous Arts/Crafts/Office Supplies																			
Artist Paints (Non-Water Color)	3,172	3,084	2,310	219	122	360	6	63	4	3,007	51	8	16	92	473	131	7	0	0
Artist Paints (Water Color)	1,209	1,194	1,040	82	18	47	2	4	1	1,173	15	3	3	19	162	19	1	0	0
Chalks	1,607	1,578	1,449	67	25	28	4	3	2	1,557	15	5	1	41	225	47	4	0	0
Clays	2,429	2,383	2,052	159	61	92	7	10	2	2,340	29	2	10	70	301	81	6	0	0
Crayons	2,392	2,332	2,009	160	68	75	4	13	3	2,301	23	3	2	40	258	44	3	0	0
Glazes	112	109	40	25	17	22	0	5	0	99	7	2	1	14	24	15	1	0	0
Office Supplies: Miscellaneous	179	173	81	9	8	59	0	15	1	161	9	1	2	33	29	23	4	0	0
Other Types of Arts/Crafts/Writing Products	5,993	5,713	4,404	498	179	494	13	112	13	5,566	106	21	16	200	877	244	15	1	0
Pencils	2,191	2,152	1,152	703	119	134	8	33	3	2,018	86	34	3	85	219	123	7	1	0
Pens or Inks	15,187	14,877	10,798	2,282	1,112	481	47	140	17	14,344	413	40	66	356	2,079	392	25	2	0
Typewriter Correction Fluids	1,559	1,536	1,149	167	104	90	4	21	1	1,438	83	11	2	98	402	103	8	0	0
Unknown Types of Arts/Crafts/Writing Products	120	114	79	21	4	8	2	0	0	112	1	1	0	2	20	6	0	0	0
Category Total:	**36,150**	**35,245**	**26,563**	**4,392**	**1,837**	**1,890**	**97**	**419**	**47**	**34,116**	**838**	**131**	**122**	**1,050**	**5,069**	**1,228**	**81**	**4**	**0**
Automotive/Aircraft/Boat Products																			
Automotive Products																			
Automotive Products: Brake Fluids	1,122	1,060	350	17	66	510	0	107	10	1,013	31	7	5	373	216	305	35	3	0
Automotive Products: Ethylene Glycol (Including Antifreeze)	5,282	4,852	485	109	424	3,230	7	546	51	4,018	697	81	18	1,860	890	773	376	134	10
Automotive Products: Glycol and Methanol Mixtures	188	178	54	12	16	79	0	16	1	171	4	3	0	60	56	36	1	2	0
Automotive Products: Hydrocarbons (Transmission Fluids, Power Steering Fluids, etc)	2,502	2,379	1,023	84	173	930	5	155	9	2,231	107	19	17	659	568	610	89	14	0
Automotive Products: Methanol (Dry Gas, Windshield Washing Solutions, etc)	1,187	1,115	251	54	81	616	2	105	6	1,001	91	10	7	454	317	265	54	9	0
Automotive Products: Other Glycols	260	246	98	10	12	91	0	16	19	227	6	11	2	43	77	38	6	0	0
Miscellaneous Automotive/Aircraft/Boat Products																			
Automotive/Aircraft/Boat Products: Non-Toxic	8	8	5	0	0	2	0	1	0	8	0	0	0	2	1	2	0	0	0
Automotive/Aircraft/Boat Products: Other	1,883	1,830	751	108	135	686	4	134	12	1,740	48	9	27	543	364	615	110	1	1
Automotive/Aircraft/Boat Products: Unknown	203	186	57	6	14	81	2	21	5	175	6	5	0	86	25	51	20	1	0
Category Total:	**12,635**	**11,854**	**3,074**	**400**	**921**	**6,225**	**20**	**1,101**	**113**	**10,584**	**990**	**145**	**76**	**4,080**	**2,514**	**2,695**	**691**	**164**	**11**

(*Continued*)

Table 22A. Demographic profile of SINGLE-SUBSTANCE nonpharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Batteries																			
Disc Batteries																			
Disc Batteries: Alkaline (MNO2)	282	274	195	33	10	27	2	6	1	264	8	0	1	192	141	34	9	0	0
Disc Batteries: Lithium	174	113	55	11	8	34	0	4	1	79	27	0	3	96	46	21	12	7	3
Disc Batteries: Mercuric Oxide	6	6	2	1	0	2	0	1	0	5	1	0	0	4	5	0	1	0	0
Disc Batteries: Nickel Cadmium	2	2	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0
Disc Batteries: Other	7	7	4	1	0	2	0	0	0	7	0	0	0	4	3	2	1	0	0
Disc Batteries: Silver Oxide	32	32	12	2	0	16	0	2	0	32	0	0	0	24	19	3	0	0	0
Disc Batteries: Unknown	3,049	3,015	2,141	487	61	263	12	43	8	2,931	69	6	1	2,220	1,421	150	58	6	1
Disc Batteries: Zinc-Air	74	72	34	4	0	29	0	4	1	72	0	0	0	55	48	5	0	0	0
Miscellaneous Batteries																			
Automotive/Aircraft/Boat Batteries	804	790	49	11	61	545	3	117	4	771	8	0	9	217	76	236	63	1	0
Other Types of Battery	163	154	51	13	21	47	0	21	1	138	11	1	4	37	37	17	8	0	0
Penlight/Flashlight/Dry Cell Batteries	5,032	4,945	2,840	561	306	966	14	249	9	4,568	308	36	16	863	1,250	609	117	2	0
Unknown Types of Battery	64	64	20	8	6	25	1	4	0	58	5	0	0	9	15	12	3	0	0
Category Total:	**9,689**	**9,474**	**5,403**	**1,132**	**473**	**1,958**	**32**	**451**	**25**	**8,927**	**437**	**43**	**34**	**3,721**	**3,061**	**1,089**	**272**	**16**	**4**
Bites and Envenomations																			
Aquatic																			
Fish Stings	982	979	31	59	113	678	3	83	12	974	1	0	4	331	12	256	126	0	0
Jellyfish and Other Coelenterate Stings	600	593	71	168	111	200	1	33	9	592	1	0	0	127	5	186	51	2	0
Other or Unknown Marine Animal Bites and/or Envenomations	395	378	194	27	24	93	3	28	9	351	20	4	2	51	41	39	14	2	0
Exotic Snakes																			
Exotic Snake: Unknown If Poisonous	7	7	1	2	0	1	0	3	0	6	1	0	0	4	3	1	0	0	0
Exotic Snakes: Non-Poisonous	63	62	6	11	15	26	0	4	0	62	0	0	0	28	1	23	6	0	0
Exotic Snakes: Poisonous	41	37	2	1	3	27	0	2	2	35	0	2	0	35	0	7	10	5	0
Insects																			
Ant or Fire Ant Bites	1,452	1,401	537	120	65	552	3	118	6	1,386	5	7	2	160	33	286	75	2	0
Bee, Wasp, or Hornet Stings	7,814	7,686	1,523	880	448	4,091	17	674	53	7,675	4	3	3	828	77	2,238	393	17	0
Caterpillars	1,422	1,411	345	229	128	614	3	84	8	1,377	16	1	17	150	25	412	59	0	0
Centipede or Millipede Bites	1,347	1,337	225	106	115	738	1	144	8	1,326	3	4	3	140	39	381	42	1	0
Mosquito Bites	159	149	53	16	12	50	2	15	1	149	0	0	0	22	1	40	9	0	0
Other Insect Bites and/or Stings	9,580	9,392	2,002	761	672	4,513	49	1,321	74	9,209	31	106	32	1,495	292	1,736	535	8	1
Scorpion Stings	17,154	17,139	1,699	1,684	1,595	10,735	12	1,316	98	17,124	4	3	5	1,625	105	2,462	859	50	0
Tick Bites	1,729	1,688	418	204	97	767	10	177	15	1,687	0	0	0	288	61	256	34	2	0

(*Continued*)

Table 22A. Demographic profile of SINGLE-SUBSTANCE nonpharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< =5	6–12	13–19	> =20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Mammals																			
Bat Bites	639	633	90	63	57	319	15	77	12	631	0	0	0	369	148	70	5	0	0
Cat Bites	875	867	56	91	50	536	4	120	10	864	0	0	3	528	10	214	44	0	0
Dog Bites	2,291	2,277	332	457	238	995	26	207	22	2,276	0	1	0	1,672	21	647	162	7	0
Fox Bites	33	33	0	5	3	14	7	4	0	33	0	0	0	19	1	6	0	0	0
Human Bites	40	37	7	4	5	11	0	9	1	30	0	6	0	17	5	6	1	0	0
Other Mammal Bites	839	831	97	140	90	383	4	85	32	822	2	0	1	438	80	181	25	0	0
Raccoon Bites	155	155	11	14	15	88	3	24	0	152	0	1	0	94	19	36	6	0	0
Rodent or Lagomorph Bites (Squirrels, Rats, Mice, Gerbils, Hamsters, Rabbits, etc)	1,255	1,227	261	237	110	451	9	140	19	1,204	2	12	3	339	42	260	14	0	0
Skunk Bites	15	15	0	2	1	11	0	1	0	15	0	0	0	5	0	2	1	0	0
Miscellaneous Bites and Envenomations																			
Other or Unknown Animal Bites	353	346	41	37	25	191	6	45	1	340	1	0	1	130	2	105	42	1	1
Other or Unknown Reptile Bites	667	655	229	160	38	173	2	46	7	623	20	2	7	116	22	172	23	1	0
Unknown Types of Insect or Spider Bite and/or Envenomation	3,424	3,368	519	242	297	2,042	10	234	24	3,352	2	11	1	455	31	442	94	0	0
Miscellaneous Snake Bites and Envenomations																			
Unknown or Known Non-Poisonous Snake Bites	1,325	1,311	113	230	195	679	1	88	5	1,303	3	4	0	533	54	570	64	0	0
Unknown Types of Snake Envenomation	1,652	1,638	110	224	230	977	3	81	13	1,636	1	0	0	1,190	38	663	366	30	0
Snakes																			
Copperhead Envenomations	1,428	1,408	64	113	157	1,038	0	31	5	1,405	3	0	0	1,328	9	395	797	34	0
Coral Envenomations	92	90	0	4	10	68	1	6	1	90	0	0	0	79	1	48	27	0	0
Cottonmouth Envenomations	193	188	4	9	21	148	0	6	0	185	1	0	1	158	6	49	89	6	0
Rattlesnake Envenomations	1,252	1,218	49	74	111	921	3	50	10	1,206	6	1	4	1,123	23	231	645	92	3
Unknown Crotalid Envenomations	576	567	34	54	85	382	0	9	3	565	1	0	0	517	10	156	298	20	0
Spiders																			
Black Widow Spider Bites and/or Envenomations	2,302	2,284	188	108	197	1,580	2	197	12	2,276	2	1	0	950	81	623	373	10	0
Brown Recluse Spider Bites and/or Envenomations	1,386	1,371	99	68	108	869	2	209	16	1,367	0	0	0	482	39	312	229	13	0
Other Necrotizing Spider Bites and/or Envenomations	171	168	30	11	15	91	1	17	3	168	0	0	0	39	5	43	14	0	0
Other Spider Bites and/or Envenomations	7,055	7,020	797	462	631	4,309	13	747	61	6,990	9	7	7	1,306	119	1,557	463	3	0
Tarantula Bites and/or Envenomations	74	73	11	6	10	29	1	16	0	71	0	0	1	20	1	23	4	1	0
Category Total:	**70,837**	**70,039**	**10,249**	**7,083**	**6,097**	**39,390**	**217**	**6,451**	**552**	**69,557**	**139**	**176**	**97**	**17,191**	**1,462**	**15,134**	**5,999**	**307**	**5**

(*Continued*)

Table 22A. Demographic profile of SINGLE-SUBSTANCE nonpharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Building and Construction Products																			
Insulation																			
Asbestos	376	324	49	17	9	180	3	59	7	318	1	2	1	57	52	26	7	2	0
Fiberglass	755	718	307	57	44	224	4	78	4	687	6	2	21	87	76	117	17	1	0
Other Types of Insulation	106	101	34	8	3	39	0	17	0	97	1	0	3	23	14	17	10	0	0
Unknown Types of Insulation	440	424	272	19	14	82	2	33	2	413	4	1	6	45	59	49	15	0	0
Urea or Formaldehyde Insulations	12	12	3	1	1	5	0	2	0	12	0	0	0	1	1	0	1	0	0
Miscellaneous Building and Construction Products																			
Caulking Compounds and Construction Putties	2,920	2,853	2,166	88	54	424	8	105	8	2,802	27	4	17	193	592	180	28	0	0
Cement or Concrete (Excluding Glues)	1,189	1,146	370	36	34	586	2	114	4	1,109	10	2	19	425	162	224	184	6	0
Other Types of Building or Construction Products	2,689	2,529	1,386	121	85	680	20	220	17	2,446	35	7	34	406	484	331	108	4	0
Soldering Flux	216	207	83	6	23	74	0	21	0	203	1	3	0	65	43	51	19	0	0
Unknown Types of Building or Construction Products	125	119	32	4	4	48	2	27	2	115	0	0	3	29	23	23	9	0	0
Category Total:	**8,828**	**8,433**	**4,702**	**357**	**271**	**2,342**	**41**	**676**	**44**	**8,202**	**85**	**21**	**104**	**1,331**	**1,506**	**1,018**	**398**	**13**	**0**
Chemicals																			
Acids																			
Hydrochloric Acid	2,405	1,837	127	46	249	1,183	9	209	14	1,749	39	16	23	675	144	607	225	11	1
Hydrofluoric Acid	659	587	28	10	41	451	0	54	3	561	12	3	8	483	53	204	171	11	2
Other Types of Acid	4,889	4,305	594	241	392	2,409	10	603	56	4,121	90	31	40	1,579	406	1,300	564	21	3
Unknown Types of Acid	186	165	19	1	16	91	0	36	2	154	1	7	2	80	9	59	23	1	0
Miscellaneous Chemicals																			
Acetone (Excluding Nail Polish Removers)	1,062	924	322	21	69	403	0	103	6	834	52	7	18	232	171	210	39	4	0
Alkalis (Excluding Cleaning Agents, Bleaches, Batteries, and Detergents)	3,712	3,238	602	129	352	1,787	8	313	47	3,070	81	33	34	1,542	344	939	542	41	3
Ammonia (Excluding Cleaning Agents)	3,465	2,570	638	155	175	1,236	3	327	36	2,397	79	41	30	945	353	766	258	11	3
Borates or Boric Acid (Excluding Topicals and Pesticides)	2,647	2,430	1,207	152	88	783	1	181	18	2,233	115	38	27	381	561	211	45	0	0
Chlorates (Excluding Matches and Fireworks)	31	26	12	1	4	6	0	3	0	23	1	0	2	5	6	3	2	0	0
Cyanides (Excluding Rodenticides)	195	154	7	1	8	99	0	38	1	115	14	18	2	114	37	27	16	3	4
Dioxins	6	5	0	0	0	4	0	0	1	4	0	0	0	2	0	0	2	0	0
Ethylene Glycol (Excluding Automotive, Aircraft, or Boat Products)	695	552	45	17	29	407	1	47	6	311	178	20	1	365	104	68	85	90	9

(*Continued*)

Table 22A. Demographic profile of SINGLE-SUBSTANCE nonpharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	<=5	6–12	13–19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Formaldehyde or Formalin	812	733	77	61	131	339	5	110	10	658	45	8	20	267	92	221	52	5	0
Ketones	415	351	126	9	11	169	1	34	1	339	6	1	3	140	59	118	30	0	0
Methylene Chloride (Excluding Paint Strippers)	203	183	48	9	11	97	0	17	1	180	2	0	1	64	29	53	15	1	0
Nitrates and Nitrites (Excluding Medications and Substances of Abuse)	1,411	1,313	404	277	149	338	14	125	6	1,148	125	25	8	287	295	197	40	6	1
Other Chemicals	11,788	10,284	4,202	880	643	3,529	31	909	90	9,436	376	120	303	2,201	1,772	1,784	450	27	7
Other Chemicals-Unknown If Toxic	52	51	49	0	1	1	0	0	0	51	0	0	0	0	5	1	0	0	0
Other Glycols (Excluding Automotive, Aircraft, or Boat Products)	830	661	312	35	28	227	0	54	5	602	29	8	16	192	155	116	36	8	0
Phenol or Creosotes (Excluding Disinfectants)	327	289	37	12	12	178	2	43	5	271	9	2	4	133	30	72	41	0	0
Strychnine (Excluding Rodenticides)	40	30	12	2	2	12	0	2	0	19	4	1	2	15	10	2	0	2	1
Toluene Diisocyanate	556	529	127	24	25	280	1	68	4	515	6	2	6	130	70	111	24	1	0
Unknown Chemicals	3,805	3,490	869	222	220	1,562	113	452	52	2,824	108	285	162	1,091	434	764	261	26	0
Category Total:	**40,191**	**34,707**	**9,864**	**2,305**	**2,656**	**15,591**	**199**	**3,728**	**364**	**31,615**	**1,372**	**666**	**712**	**10,923**	**5,139**	**7,833**	**2,921**	**269**	**34**
Cleaning Substances (Household)																			
Automatic Dishwasher Detergents																			
Automatic Dishwasher Detergents: Granules	3,567	3,524	2,992	44	39	365	7	72	5	3,489	15	15	4	114	902	347	22	0	0
Automatic Dishwasher Detergents: Liquids	3,341	3,306	2,869	51	23	317	0	42	4	3,260	15	18	12	144	877	363	40	1	0
Automatic Dishwasher Detergents: Tablets	1,765	1,754	1,654	14	11	58	1	15	1	1,749	3	2	0	62	418	182	5	0	0
Automatic Dishwasher Rinse Agents	935	901	803	7	3	73	0	12	3	894	6	1	0	84	191	125	12	0	0
Other or Unknown Types of Automatic Dishwasher Detergent	7,795	7,750	7,218	61	85	268	17	95	6	7,700	18	24	7	240	1,850	1,036	27	0	0
Bleaches																			
Bleaches: Borates	219	191	100	8	3	69	0	11	0	185	3	2	1	27	48	36	4	0	0
Bleaches: Hypochlorite (Liquid and Dry)	38,287	33,163	14,594	1,256	1,806	13,081	65	2,108	253	30,959	1,458	386	248	6,386	5,324	8,492	977	27	0
Bleaches: Non-Hypochlorite	494	429	187	15	18	173	1	33	2	393	14	10	8	64	69	89	17	1	0
Bleaches: Other or Unknown (Household)	472	377	182	6	22	141	0	24	2	342	22	7	1	113	53	103	16	0	0

(*Continued*)

Table 22A. Demographic profile of SINGLE-SUBSTANCE nonpharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Cleansers																			
Anionic or Nonionic Cleansers	2,340	2,148	1,671	52	58	296	2	59	10	2,100	31	7	7	157	496	243	18	2	0
Other or Unknown Types of Household Cleanser	1,548	1,370	770	51	69	380	5	87	8	1,278	56	14	20	310	273	289	61	1	0
Disinfectants																			
Disinfectants: Hypochlorite (Non-Bleach Products)	15,239	12,696	5,038	503	750	5,125	38	1,128	114	11,702	599	193	159	2,704	1,678	3,033	498	22	0
Disinfectants: Other or Unknown	7,800	7,380	4,851	439	268	1,445	37	294	46	7,008	215	66	64	650	1,652	1,268	116	1	0
Disinfectants: Phenol	1,773	1,721	1,105	200	75	265	3	54	19	1,612	57	32	12	151	450	225	25	2	0
Disinfectants: Pine Oil	3,704	3,362	2,056	104	128	918	5	130	21	3,135	152	40	18	601	944	685	56	5	2
Drain Cleaners																			
Drain Cleaners: Acids	46	38	6	0	1	25	1	4	1	35	2	0	1	17	4	9	10	0	0
Drain Cleaners: Alkalis	3,422	2,908	479	97	102	1,819	2	380	29	2,659	178	27	28	833	410	714	300	36	2
Drain Cleaners: Hydrochloric Acid	217	109	5	10	6	76	0	9	3	88	6	1	13	29	23	54	10	2	1
Drain Cleaners: Other or Unknown	772	595	89	18	28	349	1	99	11	546	30	7	6	154	64	130	53	3	0
Drain Cleaners: Sulfuric Acid	398	330	32	12	12	225	1	44	4	311	8	1	10	125	29	95	67	3	1
Fabric Softeners/Antistatic Agents																			
Fabric Softener/Antistatic Agent: Other or Unknown	17	14	11	1	1	0	0	1	0	13	0	0	1	3	4	3	0	0	0
Fabric Softeners/Antistatic Agents: Aerosol or Spray	159	157	125	5	7	19	0	1	0	150	3	1	3	7	41	16	0	0	0
Fabric Softeners/Antistatic Agents: Dry or Powder	1	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Fabric Softeners/Antistatic Agents: Liquid	980	926	749	20	14	111	2	27	3	893	18	2	13	71	199	104	3	0	0
Fabric Softeners/Antistatic Agents: Solid or Sheet	617	609	509	21	8	55	1	11	4	591	7	0	10	18	111	30	2	0	1
Glass Cleaners																			
Glass Cleaners: Ammonia Containing	3,899	3,576	3,008	107	119	274	8	53	7	3,454	92	21	4	248	895	408	16	0	0
Glass Cleaners: Anionics or Nonionics	151	139	110	1	9	12	0	6	1	133	4	0	1	15	33	11	2	0	0
Glass Cleaners: Isopropanol	2,959	2,716	2,131	103	103	315	4	53	7	2,603	84	18	6	220	609	274	16	0	0
Glass Cleaners: Other or Unknown Types of Household	1,843	1,712	1,316	70	59	219	4	39	5	1,627	60	16	6	139	381	191	15	0	0
Hand Dishwashing																			
Anionic or Nonionic Hand Dishwashing Detergents	5,873	5,389	3,496	216	163	1,272	13	220	9	5,153	93	83	52	312	696	898	51	0	2

(*Continued*)

Table 22A. Demographic profile of SINGLE-SUBSTANCE nonpharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Other or Unknown Types of Household Hand Dishwashing Detergent	2,833	2,622	1,667	116	89	634	5	100	11	2,519	35	50	15	117	304	382	11	0	0
Laundry Additives																			
Enzyme and/or Microbiological Laundry Additives	83	80	42	1	4	25	0	7	1	77	1	1	1	13	11	16	2	1	0
Laundry Bluing and/or Brightening Agents (without Detergent)	54	44	25	3	0	12	0	4	0	43	1	0	0	7	8	6	0	0	0
Laundry Detergent Boosters	70	61	41	0	1	10	0	1	8	54	1	1	5	4	9	16	1	0	0
Other or Unknown Laundry Additives or Miscellaneous Products	2,708	2,547	2,101	109	66	226	5	39	1	2,481	26	27	10	184	574	319	31	1	0
Water Softeners	40	40	25	2	0	11	0	1	1	37	0	2	0	5	9	4	1	0	0
Laundry Detergents																			
Laundry Detergents: Granules	3,963	3,799	3,089	82	92	444	8	78	6	3,694	69	10	25	448	691	729	64	0	1
Laundry Detergents: Liquids	4,749	4,536	3,358	119	118	806	3	126	6	4,374	112	22	23	522	813	877	78	1	0
Laundry Detergents: Other or Unknown Types of Household Laundry Detergent and/or Fabric Cleaner	203	191	122	4	1	57	1	6	0	152	32	1	5	26	27	33	7	0	0
Laundry Detergents: Soaps	86	84	55	5	2	17	1	4	0	79	1	2	0	6	12	16	1	0	0
Laundry Prewash/Stain Removers																			
Laundry Prewash/Stain Removers: Aerosol or Spray Solvent Based	338	321	284	9	6	16	0	6	0	319	1	0	0	62	67	70	8	1	0
Laundry Prewash/Stain Removers: Aerosol or Spray Surfactant Based	237	232	196	8	2	21	0	5	0	225	2	1	2	24	42	37	1	0	0
Laundry Prewash/Stain Removers: Dry Solvent Based	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0
Laundry Prewash/Stain Removers: Dry Surfactant Based	103	100	83	3	1	7	1	5	0	97	1	1	1	5	17	9	0	0	0
Laundry Prewash/Stain Removers: Liquid Solvent Based	1,069	1,036	798	27	17	160	0	31	3	1,015	10	5	5	164	338	155	18	2	0
Laundry Prewash/Stain Removers: Liquid Surfactant Based	2,580	2,480	2,223	33	25	162	5	28	4	2,442	17	7	11	327	495	386	64	1	0

(*Continued*)

Table 22A. Demographic profile of SINGLE-SUBSTANCE nonpharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Laundry Prewash/Stain Removers: Other or Unknown	2,697	2,582	2,073	65	36	339	6	58	5	2,529	23	14	16	247	525	498	31	0	0
Laundry Prewash/Stain Removers: Other or Unknown Solvent Based	97	95	78	0	1	11	0	5	0	94	0	0	1	11	18	17	2	0	0
Laundry Prewash/Stain Removers: Other or Unknown Surfactant Based	89	87	77	2	1	7	0	0	0	86	1	0	0	9	16	10	3	0	0
Miscellaneous Cleaners																			
Miscellaneous Cleaning Agents: Acids	1,819	1,593	961	27	55	457	5	85	3	1,533	29	14	14	288	418	331	48	2	0
Miscellaneous Cleaning Agents: Alkalis	8,560	7,746	5,094	216	244	1,868	11	287	26	7,411	191	58	73	1,389	1,701	1,226	258	15	0
Miscellaneous Cleaning Agents: Anionics or Nonionics	7,267	6,617	4,734	229	188	1,185	18	235	28	6,363	119	56	69	743	1,294	1,032	87	3	2
Miscellaneous Cleaning Agents: Cationics	2,485	2,331	1,234	117	123	699	7	142	9	2,185	107	18	13	455	481	435	80	1	1
Miscellaneous Cleaning Agents: Ethanol (Excluding Automotive Products)	982	932	725	48	22	123	1	12	1	905	13	2	12	58	186	103	9	1	0
Miscellaneous Cleaning Agents: Glycols (Excluding Automotive Products)	751	705	452	49	27	144	0	29	4	669	20	6	8	111	183	119	14	0	0
Miscellaneous Cleaning Agents: Isopropanol (Excluding Automotive Products and Glass)	2,125	2,041	1,377	260	106	248	6	42	2	1,929	71	27	10	189	490	234	25	0	0
Miscellaneous Cleaning Agents: Methanol (Excluding Automotive Products)	15	14	8	0	0	4	0	2	0	13	1	0	0	5	6	4	0	0	0
Miscellaneous Cleaning Agents: Other or Unknown Household Cleaning Agents	4,835	4,421	2,904	244	181	850	12	209	21	4,187	108	61	46	665	998	764	139	3	0
Miscellaneous Cleaning Agents: Phenol (Excluding Disinfectants)	6	4	0	0	0	4	0	0	0	3	1	0	0	2	2	0	1	0	0

(*Continued*)

Table 22A. Demographic profile of SINGLE-SUBSTANCE nonpharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Miscellaneous Cleaning Substances (Household)																			
Ammonia Cleaners (All Purpose)	1,399	990	338	50	57	474	0	69	2	926	46	8	9	194	161	209	50	1	0
Carpet, Upholstery, Leather, or Vinyl Cleaners	5,029	4,719	3,673	126	97	679	7	119	18	4,608	49	23	33	540	1,001	783	52	2	0
Hydrofluoric Acid or Bifluoride Wheel Cleaners	52	49	12	0	3	32	0	2	0	47	1	0	1	26	5	19	8	0	1
Starches, Fabric Finishes, or Sizing	490	479	405	13	8	44	3	6	0	471	5	2	1	23	99	45	4	0	0
Oven Cleaners																			
Oven Cleaners: Acids	11	10	5	0	1	4	0	0	0	10	0	0	0	5	2	5	0	0	0
Oven Cleaners: Alkalis	2,223	2,131	473	73	190	1,131	4	243	17	2,011	56	27	29	760	229	577	280	13	1
Oven Cleaners: Detergent Types	24	21	7	1	1	7	0	5	0	19	1	0	1	5	5	3	2	0	0
Oven Cleaners: Other or Unknown	370	342	55	16	20	193	2	51	5	322	7	8	4	108	49	82	44	2	0
Rust Removers																			
Rust Removers: Acids Other Than Hydrofluoric Acid Types	654	583	252	5	22	259	1	36	8	554	15	8	6	106	132	162	17	0	0
Rust Removers: Alkalis	6	4	1	0	0	3	0	0	0	4	0	0	0	2	1	1	0	0	0
Rust Removers: Anionics or Nonionics	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
Rust Removers: Hydrofluoric Acid	358	341	44	6	7	254	1	20	9	314	12	2	7	176	86	142	43	3	1
Rust Removers: Other or Unknown	215	194	30	1	9	128	1	24	1	183	4	1	6	41	23	62	19	0	0
Spot Removers/Dry Cleaning Agents																			
Spot Removers/Dry Cleaning Agents: Anionics or Nonionics	201	185	160	3	3	11	2	5	1	181	2	0	2	14	40	26	4	0	0
Spot Removers/Dry Cleaning Agents: Glycols	238	227	165	7	8	42	0	5	0	219	4	1	3	33	57	34	4	1	0
Spot Removers/Dry Cleaning Agents: Isopropanol	43	42	35	0	1	6	0	0	0	42	0	0	0	6	4	8	2	0	0
Spot Removers/Dry Cleaning Agents: Other Halogenated Hydrocarbon Containing Products	21	16	9	2	0	3	0	2	0	16	0	0	0	3	2	3	1	0	0
Spot Removers/Dry Cleaning Agents: Other Hydrocarbon and/or Non-Halogenated Containing	525	493	238	26	33	163	1	29	3	461	11	5	15	130	94	132	19	0	1

Table 22A. Demographic profile of SINGLE-SUBSTANCE nonpharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Spot Removers/Dry Cleaning Agents: Other or Unknown	176	161	120	6	6	22	3	4	0	151	5	2	3	26	40	30	6	0	0
Spot Removers/Dry Cleaning Agents: Perchloroethylene	18	17	12	1	0	3	0	1	0	17	0	0	0	6	3	6	1	0	0
Toilet Bowl Cleaners																			
Toilet Bowl Cleaners: Acids	5,815	4,092	1,760	145	222	1,718	12	206	29	3,886	147	11	34	745	944	1,252	178	14	2
Toilet Bowl Cleaners: Alkalis	3,167	2,797	1,905	58	66	616	6	134	12	2,727	55	2	9	379	800	522	72	4	0
Toilet Bowl Cleaners: Other or Unknown	4,213	3,942	3,396	62	43	348	11	73	9	3,880	36	9	13	304	1,081	291	29	1	0
Wall/Floor/Tile Cleaners																			
Wall/Floor/Tile/All-Purpose Cleaning Agents: Acids	2,402	2,091	1,401	61	53	479	0	96	1	2,019	41	9	21	341	531	454	49	3	0
Wall/Floor/Tile/All-Purpose Cleaning Agents: Alkalis	7,715	6,879	4,658	191	233	1,478	8	281	30	6,604	137	42	79	996	1,610	1,321	172	9	0
Wall/Floor/Tile/All-Purpose Cleaning Agents: Anionics or Nonionics	7,915	7,164	4,763	250	244	1,604	21	250	32	6,810	239	66	33	1,216	1,621	1,131	104	4	1
Wall/Floor/Tile/All-Purpose Cleaning Agents: Cationics	2,734	2,392	1,557	106	85	496	9	125	14	2,288	69	17	11	324	467	413	52	2	0
Wall/Floor/Tile/All-Purpose Cleaning Agents: Ethanol	731	683	568	18	10	66	2	17	2	665	7	5	4	30	181	61	0	0	0
Wall/Floor/Tile/All-Purpose Cleaning Agents: Glycols	1,911	1,701	1,321	41	39	240	0	52	8	1,640	36	4	19	167	457	243	21	2	0
Wall/Floor/Tile/All-Purpose Cleaning Agents: Isopropanol	601	565	447	13	11	79	0	12	3	546	11	3	4	30	144	63	3	1	0
Wall/Floor/Tile/All-Purpose Cleaning Agents: Methanol	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0
Wall/Floor/Tile/All-Purpose Cleaning Agents: Other or Unknown	1,526	1,396	979	45	52	273	4	30	13	1,326	34	15	18	180	354	218	31	0	0
Category Total:	**212,263**	**191,341**	**120,772**	**6,596**	**6,923**	**47,149**	**411**	**8,555**	**935**	**182,528**	**5,272**	**1,650**	**1,445**	**27,000**	**38,682**	**35,581**	**4,690**	**200**	**20**

(*Continued*)

Table 22A. Demographic profile of SINGLE-SUBSTANCE nonpharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Cosmetics/Personal Care Products																			
Dental Care Products																			
False Teeth Cleaning Agents	1,890	1,864	296	35	30	1,337	3	159	4	1,800	36	7	17	94	333	136	6	0	0
Other Dental Care Products (Excluding Fluoride Supplements)	5,818	5,684	3,016	618	283	1,483	5	262	17	5,407	100	6	163	255	940	414	35	1	0
Toothpastes (with Fluoride)	24,547	23,969	21,755	629	360	995	27	191	12	23,364	239	42	310	378	4,781	1,146	42	2	0
Toothpastes (without Fluoride)	2,100	2,009	1,821	44	25	94	4	18	3	1,948	11	3	46	22	341	88	2	0	0
Hair Care Products																			
Curl Activators	48	47	37	0	3	6	0	1	0	46	0	0	1	7	9	11	1	0	0
Hair Coloring Agents (Excluding Peroxides)	2,627	2,526	1,131	57	162	980	8	176	12	2,137	37	4	346	495	382	560	128	1	0
Hair Oils	369	355	315	9	4	23	0	4	0	351	4	0	0	63	79	49	11	0	0
Hair Relaxers (with Other Alkalines)	586	571	455	10	11	81	0	13	1	552	5	1	13	250	148	160	71	1	0
Hair Relaxers (with Other Non-Alkalines)	67	65	51	2	1	9	1	1	0	62	0	0	2	15	9	21	2	0	0
Hair Relaxers (with Sodium Hydroxide)	787	779	563	16	27	142	0	28	3	740	1	0	38	346	178	237	97	2	0
Hair Rinses, Conditioners, Relaxers	2,364	2,230	1,886	69	51	169	4	47	4	2,167	29	4	29	168	486	229	34	1	0
Hair Sprays	1,928	1,757	1,229	79	114	280	0	51	4	1,539	191	10	16	256	412	243	37	1	0
Other Hair Care Products (Excluding Peroxides)	3,177	3,007	2,283	64	107	457	6	85	5	2,869	44	0	90	403	572	435	70	1	0
Permanent Wave Solutions	299	286	163	12	11	84	0	15	1	263	1	2	20	93	50	81	32	0	0
Shampoos	6,563	6,227	4,876	282	194	741	12	113	9	5,989	159	15	56	400	931	885	61	1	0
Miscellaneous Cosmetics/Personal Care Products																			
Baby Oils	2,148	2,088	1,918	34	27	82	3	23	1	2,062	18	3	5	157	479	172	18	0	0
Bath Oils and/or Bubble Baths	3,466	3,394	3,082	137	30	118	8	18	1	3,352	17	3	21	134	630	308	22	0	0
Creams, Lotions, and Make-Up	28,682	27,712	24,204	638	432	1,965	55	385	33	27,123	218	38	320	793	4,380	1,150	100	4	0
Deodorants	24,353	24,059	21,952	491	569	851	38	139	19	23,498	284	57	210	619	3,689	1,409	80	1	0
Depilatories	1,117	1,087	359	59	127	417	2	116	7	774	60	5	245	219	137	260	111	1	0
Douches	156	151	128	4	1	13	0	5	0	149	1	0	1	8	47	6	0	0	0
Eye Products	1,571	1,492	1,322	24	28	93	3	21	1	1,462	10	2	18	65	265	84	8	0	0
Lipsticks and Lip Balms (with Camphor)	1,111	1,086	997	35	19	24	4	7	0	1,071	5	1	9	27	239	68	3	0	0
Lipsticks and Lip Balms (without Camphor)	4,320	4,185	3,913	116	44	73	12	21	6	4,119	20	3	42	72	604	144	9	1	0
Perfumes, Colognes, and Aftershaves	13,794	13,428	11,390	665	398	812	27	129	7	12,950	330	97	37	998	3,003	2,524	99	3	1
Peroxides	9,560	9,198	3,757	388	427	3,797	19	766	44	8,653	215	49	273	804	1,284	1,504	160	6	0
Powders Made of Material Other Than Talc	1,958	1,904	1,756	48	21	56	9	14	0	1,883	9	9	2	102	328	337	14	1	0

(*Continued*)

Table 22A. Demographic profile of SINGLE-SUBSTANCE nonpharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Powders Made of Talc	2,596	2,516	2,163	81	69	166	6	27	4	2,420	34	48	12	262	516	479	36	2	0
Soaps (Bar, Hand or Complexion)	18,706	17,991	13,778	1,033	480	2,218	32	418	32	17,250	379	138	204	786	2,649	1,988	96	1	0
Suntan and/or Sunscreen Products	13,233	13,033	11,795	507	176	451	10	88	6	12,805	29	25	169	444	1,924	1,558	61	0	0
Mouthwashes																			
Mouthwashes: Ethanol Containing	9,666	9,099	3,174	895	688	3,661	15	628	38	7,898	1,104	25	40	1,058	1,600	859	215	23	3
Mouthwashes: Fluoride Containing	6,490	6,420	4,617	1,279	109	357	3	52	3	6,347	53	3	16	83	1,208	158	11	0	0
Mouthwashes: Non Ethanol Containing	1,086	1,031	551	100	42	286	1	49	2	982	39	2	5	44	203	57	6	0	0
Mouthwashes: Unknown	221	208	95	23	12	63	0	15	0	186	18	2	1	19	39	21	7	0	0
Nail Products																			
Acrylic Nail Adhesives	1,280	1,270	549	248	112	285	2	65	9	1,234	28	2	5	450	149	333	88	2	0
Acrylic Nail Primers	238	236	192	5	4	22	0	11	2	230	2	1	3	92	69	48	19	2	1
Acrylic Nail Removers	28	26	17	1	0	6	1	1	0	26	0	0	0	7	7	4	0	0	0
Miscellaneous Nail Products	1,070	1,047	751	27	28	209	2	27	3	1,017	16	4	10	190	232	194	29	0	0
Nail Polish Removers (Acetone Containing)	2,464	2,406	1,830	72	88	348	4	62	2	2,331	56	12	3	273	644	376	23	1	0
Nail Polishes	10,451	10,207	9,342	293	129	358	21	57	7	10,100	79	12	8	507	1,937	1,147	38	3	0
Other Nail Polish Removers	1,313	1,270	970	57	69	151	3	20	0	1,213	33	10	13	127	345	213	11	0	0
Unknown Nail Polish Removers	8,143	7,868	5,779	377	369	1,087	16	225	15	7,613	169	55	22	826	1,802	1,072	44	0	0
Category Total:	**222,391**	**215,788**	**170,258**	**9,563**	**5,881**	**24,850**	**366**	**4,553**	**317**	**207,982**	**4,083**	**700**	**2,841**	**12,411**	**38,060**	**21,168**	**1,937**	**62**	**5**
Deodorizers																			
Air Freshener																			
Air Fresheners: Aerosols	2,659	2,577	1,938	224	104	241	10	57	3	2,446	92	29	8	250	493	503	24	5	1
Air Fresheners: Liquids	11,139	11,014	10,100	243	110	444	12	95	10	10,897	55	43	18	802	2,683	1,664	74	3	0
Air Fresheners: Solids	4,985	4,947	4,478	143	47	223	4	49	3	4,898	26	14	3	240	1,091	490	22	2	0
Air Fresheners: Unknown Form	2,538	2,510	2,161	103	38	172	6	25	5	2,448	34	19	8	211	698	332	13	0	0
Miscellaneous Deodorizers																			
Diaper Pail Deodorizers (Excluding Moth Repellants)	16	16	12	0	1	2	0	1	0	14	0	0	2	1	3	2	0	0	0
Other Types of Deodorizer (Not For Personal Use)	4,602	4,450	3,422	152	82	666	4	116	8	4,331	66	23	29	424	1,071	648	60	3	0
Toilet Bowl Deodorizers	527	515	437	17	9	43	0	9	0	508	4	1	1	55	171	31	5	1	0
Unknown Types of Deodorizer (Not for Personal Use)	76	71	52	1	1	14	0	2	1	67	2	1	1	21	12	12	2	1	0
Category Total:	**26,542**	**26,100**	**22,600**	**883**	**392**	**1,805**	**36**	**354**	**30**	**25,609**	**279**	**130**	**70**	**2,004**	**6,222**	**3,682**	**200**	**15**	**1**

(*Continued*)

Table 22A. Demographic profile of SINGLE-SUBSTANCE nonpharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Dyes																			
Miscellaneous Dyes																			
Dyes: Chlorate Containing	1	1	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0
Dyes: Fabrics	418	412	287	49	20	41	1	14	0	390	8	1	13	30	96	19	1	0	0
Dyes: Foods (Including Easter Egg)	1,037	993	852	57	23	51	2	5	3	959	20	2	12	28	165	26	0	1	0
Dyes: Leathers	92	88	74	0	0	12	0	2	0	84	2	0	2	8	23	4	2	0	0
Dyes: Other	561	532	250	91	103	55	15	17	1	498	18	0	16	45	81	34	7	2	0
Dyes: Unknown	54	47	30	4	0	8	0	5	0	42	2	0	2	5	13	4	0	0	0
Category Total:	**2,163**	**2,073**	**1,494**	**201**	**146**	**167**	**18**	**43**	**4**	**1,974**	**50**	**3**	**45**	**116**	**379**	**87**	**10**	**3**	**0**
Essential Oils																			
Miscellaneous Essential Oil																			
Cinnamon Oil	576	540	332	48	68	69	4	18	1	428	82	3	24	60	52	193	15	0	0
Clove Oil	462	441	285	14	11	103	2	23	3	404	14	1	22	83	88	105	5	0	0
Eucalyptus Oil	527	491	311	12	13	121	1	30	3	466	16	0	8	107	142	83	16	0	0
Miscellaneous Essential Oils	7,098	6,903	6,008	164	85	498	17	122	9	6,794	51	12	44	622	1,689	1,140	70	5	0
Pennyroyal Oil	20	20	6	0	1	11	0	2	0	13	6	0	1	8	8	1	1	0	0
Tea Tree Oil	1,207	1,148	731	54	33	271	3	53	3	1,082	36	3	25	163	323	168	29	3	0
Category Total:	**9,890**	**9,543**	**7,673**	**292**	**211**	**1,073**	**27**	**248**	**19**	**9,187**	**205**	**19**	**124**	**1,043**	**2,302**	**1,690**	**136**	**8**	**0**
Fertilizers																			
Miscellaneous Fertilizers																			
Household Plant Foods (Generally for Indoor Plants)	2,128	2,047	1,263	186	67	447	3	74	7	2,017	21	7	2	60	383	55	3	0	0
Other Types of Fertilizer	1,706	1,550	1,012	123	46	298	1	63	7	1,507	16	8	15	98	343	90	16	1	0
Outdoor Fertilizers	2,907	2,780	1,884	192	70	526	4	93	11	2,711	19	14	34	141	631	153	24	0	0
Plant Hormones	48	43	19	0	1	16	0	7	0	41	1	0	1	4	7	1	2	0	0
Unknown Types of Fertilizer	143	134	65	18	2	41	0	4	4	127	5	0	2	21	29	10	3	1	0
Category Total:	**6,932**	**6,554**	**4,243**	**519**	**186**	**1,328**	**8**	**241**	**29**	**6,403**	**62**	**29**	**54**	**324**	**1,393**	**309**	**48**	**2**	**0**
Fire Extinguishers																			
Miscellaneous Fire Extinguisher																			
Miscellaneous Fire Extinguishers	3,126	3,038	438	395	443	1,276	19	342	125	2,762	85	148	26	612	510	773	121	1	1
Category Total:	**3,126**	**3,038**	**438**	**395**	**443**	**1,276**	**19**	**342**	**125**	**2,762**	**85**	**148**	**26**	**612**	**510**	**773**	**121**	**1**	**1**
Food Products/Food Poisoning																			
Bacterial Food Poisoning (Documented)																			
Botulism	129	124	16	0	6	77	2	23	0	101	7	1	9	29	24	3	9	9	0
Other Types of Bacterial Food Poisoning (Salmonella, Shigella, Vibrio, Staphylococcus, Streptococcus, etc)	972	660	164	75	45	313	1	60	2	631	1	7	17	102	74	100	38	2	0
Unknown Types of Bacterial Food Poisoning	8,310	8,161	1,225	666	567	4,466	71	1,056	110	7,641	19	86	403	772	571	1,629	354	5	0

(*Continued*)

Table 22A. Demographic profile of SINGLE-SUBSTANCE nonpharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Ichthyosarcotoxins																			
Ciguatera Poisoning	198	189	7	6	12	148	0	13	3	159	0	0	29	109	3	37	49	3	0
Clupeotoxic Fish Poisoning	23	23	1	0	0	16	0	6	0	16	0	1	6	1	3	2	0	0	0
Other Types of Seafood Poisoning	92	87	3	8	6	56	0	13	1	56	2	0	29	31	4	21	9	1	0
Paralytic Shellfish Poisoning	140	136	8	7	9	96	0	15	1	114	1	0	20	24	11	17	15	0	0
Scombroid Fish Poisoning	167	161	8	6	10	118	0	16	3	119	0	0	41	42	7	36	27	1	0
Tetrodon Poisoning	120	116	16	24	11	53	2	8	2	105	6	1	2	25	8	26	7	0	0
Miscellaneous Food Products/Food Poisoning																			
Capsicum Peppers (Exclude Non-Food)	4,905	4,816	881	431	437	2,376	16	639	36	3,860	132	47	772	264	61	1,908	141	0	0
Monosodium Glutamate (MSG)	76	70	10	3	5	46	0	4	2	23	1	0	46	14	6	16	12	1	0
Other Adverse Reactions to Food	2,376	2,240	583	208	142	931	12	345	19	796	49	115	1,262	435	116	551	155	8	0
Unknown Types of Suspected Food Poisoning	8,987	8,744	1,077	605	635	5,313	58	902	154	8,419	12	98	187	843	232	1,601	579	8	1
Category Total:	**26,495**	**25,527**	**3,999**	**2,039**	**1,885**	**14,009**	**162**	**3,100**	**333**	**22,040**	**230**	**356**	**2,823**	**2,691**	**1,120**	**5,947**	**1,395**	**38**	**1**
Foreign Bodies/Toys/Miscellaneous																			
Miscellaneous Foreign Bodies/Toys/Miscellaneous																			
Ashes	402	376	302	12	10	40	0	12	0	368	2	4	2	21	58	25	1	0	0
Bubble Blowing Solutions	5,077	5,026	4,698	170	42	84	13	18	1	5,001	19	4	2	140	668	720	23	0	0
Charcoals	561	512	390	19	8	61	2	25	7	494	12	1	3	21	87	27	6	0	0
Christmas ornaments	543	535	454	18	7	44	4	8	0	529	5	0	1	42	128	28	0	0	0
Coins	3,904	3,821	3,177	477	46	87	11	19	4	3,733	67	12	0	1,249	1,025	366	34	2	0
Desiccants	38,421	38,200	34,299	1,679	485	1,150	188	351	48	37,805	293	77	12	1,388	5,477	207	13	1	0
Feces/Urine	6,386	5,658	4,679	182	124	498	20	147	8	5,480	45	122	6	149	832	111	11	1	0
Glass	5,906	5,794	1,422	505	332	2,273	73	1,097	92	5,639	31	93	24	344	879	249	19	0	0
Glow Products	20,832	20,802	14,682	4,821	775	318	69	118	19	20,531	234	15	15	719	2,575	3,742	71	3	0
Incense (Punk)	296	289	249	8	9	15	0	8	0	278	11	0	0	25	64	18	8	0	0
Other Types of Foreign Body, Toy, or Miscellaneous Substance	24,680	23,517	16,041	2,675	887	2,829	95	895	95	22,635	478	216	132	2,056	4,064	1,061	106	3	0
Soil	2,298	2,008	1,615	100	25	159	45	62	2	1,913	12	69	13	72	299	88	8	0	0
Toys	9,108	9,048	7,111	1,457	205	178	33	57	7	8,915	91	10	27	529	1,414	563	27	2	0
Unknown Types of Foreign Body, Toy, or Miscellaneous Substance	802	787	568	93	29	62	4	28	3	741	20	19	3	66	117	40	6	0	0
Thermometers																			
Thermometers: Mercury	3,610	3,603	981	828	278	906	30	543	37	3,555	35	6	5	232	822	34	7	0	0
Thermometers: Other	1,505	1,492	572	335	77	293	12	183	20	1,441	21	22	6	76	285	64	2	0	0
Thermometers: Unknown	690	688	199	154	42	197	7	83	6	687	0	1	0	39	50	3	0	0	0
Category Total:	**125,021**	**122,156**	**91,439**	**13,533**	**3,381**	**9,194**	**606**	**3,654**	**349**	**119,745**	**1,376**	**671**	**251**	**7,168**	**18,844**	**7,346**	**342**	**12**	**0**

(*Continued*)

Table 22A. Demographic profile of SINGLE-SUBSTANCE nonpharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< =5	6–12	13–19	> =20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Fumes/Gases/Vapors																			
Miscellaneous Fumes/Gases/Vapors																			
Carbon Dioxide	352	330	34	66	48	127	0	52	3	289	26	5	7	59	55	73	17	1	1
Carbon Monoxide	13,771	12,456	1,674	1,069	916	6,286	181	2,167	163	12,024	295	11	62	4,925	2,687	3,224	1,087	145	37
Chloramine Gas	792	752	22	14	67	567	3	68	11	718	31	1	2	170	60	252	101	2	0
Chlorine Gas	4,679	4,424	378	397	288	2,807	16	509	29	4,219	140	10	49	1,316	251	1,676	722	11	0
Chlorine Gas (When Household Acid is Mixed with Hypochlorite)	1,266	1,222	56	49	78	876	11	141	11	1,182	40	0	0	339	104	473	201	2	0
Hydrogen Sulfide (Sewer Gas)	891	765	71	35	43	447	4	149	16	741	12	2	6	252	119	173	72	10	11
Methane and Natural Gas	4,745	4,378	844	417	269	1,870	52	858	68	4,315	19	7	21	710	1,355	655	110	2	0
Other Types of Fume, Gas or Vapor	1,587	1,432	156	75	146	722	16	299	18	1,323	49	10	37	376	175	319	111	4	3
Polymer Fume Fever	17	12	2	0	0	7	0	3	0	12	0	0	0	4	1	4	5	0	0
Simple Asphyxiants	2,640	2,367	279	246	264	1,201	15	311	51	2,124	215	6	12	789	343	546	209	15	5
Unknown Types of Fume, Gas or Vapor	2,033	1,961	114	82	105	944	36	593	87	1,837	28	32	16	538	193	481	131	4	0
Category Total:	**32,773**	**30,099**	**3,630**	**2,450**	**2,224**	**15,854**	**334**	**5,150**	**457**	**28,784**	**855**	**84**	**212**	**9,478**	**5,343**	**7,876**	**2,766**	**196**	**57**
Heavy Metals																			
Miscellaneous Heavy Metals																			
Aluminum	1,020	943	534	42	35	267	2	61	2	897	14	13	9	88	140	40	11	0	0
Arsenic (Excluding Pesticides)	955	852	163	47	30	476	2	116	18	562	11	119	7	442	127	58	41	9	1
Barium, Soluble Salts	32	20	0	0	7	11	0	2	0	14	1	1	4	5	3	4	1	0	1
Cadmium	74	51	0	1	4	41	0	4	1	34	2	3	0	30	4	4	2	1	0
Copper	767	650	96	46	169	259	5	66	9	588	31	5	18	177	72	192	30	0	1
Fireplace Flame Colors	20	20	12	4	2	1	0	0	1	20	0	0	0	1	4	1	0	0	0
Gold	4	4	1	0	0	3	0	0	0	4	0	0	0	1	4	0	0	0	0
Lead	2,368	2,206	1,158	168	114	566	26	160	14	2,037	49	40	20	903	544	123	57	5	0
Manganese	81	46	5	2	2	32	1	4	0	33	0	0	5	23	2	8	6	0	0
Mercury (Other)	149	131	22	4	3	62	0	39	1	118	3	7	2	41	37	7	4	0	0
Mercury, Elemental (Excluding Thermometer)	2,439	2,354	310	191	525	802	123	351	52	2,126	75	38	60	423	677	57	32	2	0
Metal Fume Fever	554	502	25	30	56	345	1	42	3	457	28	4	10	139	24	122	61	1	0
Other Types of Heavy Metal	2,598	1,853	753	105	112	693	9	165	16	1,581	111	19	126	387	292	163	62	7	1
Selenium	1	1	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0
Thallium	21	19	1	0	0	15	0	2	1	7	1	1	5	10	1	1	2	0	0
Unknown Types of Heavy Metal	57	48	9	2	3	30	0	4	0	36	0	1	5	17	10	5	2	0	1
Category Total:	**11,140**	**9,700**	**3,090**	**642**	**1,062**	**3,603**	**169**	**1,016**	**118**	**8,515**	**326**	**251**	**271**	**2,687**	**1,942**	**785**	**311**	**25**	**5**

(*Continued*)

Table 22A. Demographic profile of SINGLE-SUBSTANCE nonpharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Hydrocarbons																			
Miscellaneous Hydrocarbons																			
Benzene	84	61	9	4	4	37	0	6	1	54	1	2	3	41	20	12	7	0	0
Carbon Tetrachloride	30	28	1	0	0	16	0	11	0	25	2	0	1	4	3	9	0	1	0
Diesel Fuels	1,065	1,005	192	32	57	583	6	127	8	956	42	1	3	227	137	293	37	0	0
Freon and Other Propellants	7,084	6,795	719	486	1,037	3,570	38	853	92	5,237	1,387	103	44	2,148	1,096	1,558	571	54	2
Gasolines	15,219	14,830	3,439	845	1,470	7,563	28	1,376	109	13,678	979	75	54	2,483	1,980	5,012	427	11	0
Kerosenes	1,268	1,131	554	62	53	366	2	91	3	1,064	41	16	4	345	220	278	65	4	3
Lamp Oils	2,193	2,156	1,601	68	57	354	10	60	6	2,114	28	8	2	702	563	537	177	19	1
Lighter Fluids and/or Naphtha	2,691	2,561	1,373	92	179	725	5	163	24	2,380	101	55	13	829	547	665	178	10	0
Lubricating Oils and/or Motor Oils	4,511	4,268	2,786	133	164	943	9	217	16	4,099	74	77	11	653	1,336	664	74	5	0
Mineral Seal Oil	23	21	14	1	2	4	0	0	0	19	1	1	0	5	5	1	4	0	0
Mineral Spirits	2,094	1,911	664	89	117	860	9	159	13	1,755	84	38	22	622	323	517	127	8	0
Other Types of Halogenated Hydrocarbon	387	331	91	9	24	161	2	41	3	305	13	4	8	129	53	108	22	1	0
Other Types of Hydrocarbon	4,881	4,561	2,442	181	206	1,312	18	362	40	4,308	132	54	56	1,127	1,062	961	225	7	2
Toluene and/or Xylene (Excluding Adhesives)	827	668	113	21	44	404	1	80	5	616	39	3	6	254	87	208	59	11	0
Turpentine	472	422	132	22	35	188	0	40	5	366	45	5	4	133	86	103	21	1	1
Unknown Types of Hydrocarbon	581	534	235	28	38	198	2	31	2	467	53	6	4	170	119	125	33	3	0
Category Total:	**43,410**	**41,283**	**14,365**	**2,073**	**3,487**	**17,284**	**130**	**3,617**	**327**	**37,443**	**3,022**	**448**	**235**	**9,872**	**7,637**	**11,051**	**2,027**	**135**	**9**
Industrial Cleaners																			
Miscellaneous Industrial Cleaners																			
Industrial Cleaner: Disinfectants	2,693	2,550	278	79	191	1,620	3	359	20	2,345	156	23	20	784	267	804	246	7	0
Industrial Cleaner: Other or Unknown	1,365	1,273	329	42	95	669	3	116	19	1,186	37	20	23	537	171	371	152	12	0
Industrial Cleaners: Acids	1,389	1,215	353	44	52	635	2	123	6	1,151	36	9	16	364	211	310	108	6	0
Industrial Cleaners: Alkalis	2,685	2,493	740	64	183	1,259	2	225	20	2,326	92	35	31	1,138	354	814	376	18	0
Industrial Cleaners: Anionics or Nonionics	822	727	369	24	44	242	1	45	2	689	17	9	10	156	123	137	20	1	0
Industrial Cleaners: Cationics	871	838	164	30	90	437	4	104	9	725	63	30	17	350	127	263	53	2	0
Category Total:	**9,825**	**9,096**	**2,233**	**283**	**655**	**4,862**	**15**	**972**	**76**	**8,422**	**401**	**126**	**117**	**3,329**	**1,253**	**2,699**	**955**	**46**	**0**
Information Calls																			
Food Information Calls																			
Information Calls About Food Products, Additives or Supplements	12,555	11,183	6,835	879	536	2,218	50	588	77	9,507	513	222	891	932	1,486	1,134	188	5	1
Information Calls About Possibly Spoiled Foods	18,614	18,125	5,286	1,804	1,198	7,571	133	1,978	155	16,970	42	462	601	839	2,191	1,143	201	3	0

(*Continued*)

Table 22A. Demographic profile of SINGLE-SUBSTANCE nonpharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Miscellaneous Information Calls																			
Administrative Information	4	4	1	0	0	0	1	2	0	3	0	0	1	3	1	0	0	0	0
Medical Information	341	337	15	8	7	304	0	3	0	265	1	1	11	77	11	22	8	1	0
Poison Information	15	13	6	0	1	4	0	2	0	10	0	0	0	4	5	1	2	0	0
Category Total:	**31,529**	**29,662**	**12,143**	**2,691**	**1,742**	**10,097**	**184**	**2,573**	**232**	**26,755**	**556**	**685**	**1,504**	**1,855**	**3,694**	**2,300**	**399**	**9**	**1**
Lacrimators																			
Miscellaneous Lacrimators																			
Lacrimators: Capsicum Defense Sprays	3,643	3,607	678	601	676	1,179	25	406	42	2,736	189	529	54	582	75	1,586	181	2	0
Lacrimators: CN (Chloroacetophenone)	1,077	1,069	175	134	200	386	12	126	36	755	43	209	20	206	21	473	57	1	0
Lacrimators: CS (O-Chlorobenzylidene Malonitrile)	20	19	1	5	4	6	0	1	2	15	1	3	0	6	0	10	2	0	0
Lacrimators: Other	28	23	2	1	0	16	0	4	0	22	0	0	1	3	7	6	1	0	0
Lacrimators: Unknown	303	286	37	44	23	122	0	31	29	238	8	27	5	55	13	108	11	0	0
Category Total:	**5,071**	**5,004**	**893**	**785**	**903**	**1,709**	**37**	**568**	**109**	**3,766**	**241**	**768**	**80**	**852**	**116**	**2,183**	**252**	**3**	**0**
Matches/Fireworks/Explosives																			
Miscellaneous Matches/Fireworks/Explosives																			
Explosives	263	256	125	33	17	72	2	6	1	236	13	4	1	52	53	65	10	0	0
Fireworks	766	758	641	50	17	33	7	8	2	733	19	4	1	69	256	54	8	1	0
Matches	703	693	642	15	8	21	1	4	2	682	8	3	0	26	169	6	1	0	0
Other Types of Match, Firework, or Explosive	67	65	34	7	4	4	2	14	0	60	0	5	0	24	13	12	3	0	0
Unknown Types of Match, Firework, or Explosive	12	12	9	1	0	2	0	0	0	12	0	0	0	3	5	0	1	0	0
Category Total:	**1,811**	**1,784**	**1,451**	**106**	**46**	**132**	**12**	**32**	**5**	**1,723**	**40**	**16**	**2**	**174**	**496**	**137**	**23**	**1**	**0**
Mushrooms																			
Miscellaneous Mushrooms																			
Group 1 Mushrooms: Cyclopeptides	35	32	3	1	0	25	0	2	1	17	10	0	4	24	5	5	1	10	1
Group 1A Mushrooms: Cyclopeptides Orellanine	3	2	2	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0
Group 2 Mushrooms: Muscimol (Ibotenic Acid)	61	52	5	2	13	28	0	4	0	17	31	0	2	37	5	9	19	4	0
Group 3 Mushrooms: Monomethylhydrazine (MMH)	42	39	3	0	1	29	0	6	0	24	10	0	5	18	15	8	4	0	0
Group 4 Mushrooms: Muscarine and Histamine	22	22	1	0	3	12	0	6	0	18	4	0	0	14	0	14	3	0	0
Group 5 Mushrooms: Coprine	9	8	3	1	2	2	0	0	0	4	1	0	3	1	2	1	0	0	0
Group 6 Mushrooms: Hallucinogenics (Psilocybin and Psilocin)	727	565	27	6	258	229	2	30	13	59	495	6	5	411	33	111	243	11	0

(*Continued*)

Table 22A. Demographic profile of SINGLE-SUBSTANCE nonpharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< =5	6–12	13–19	> =20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Group 7 Mushrooms: Gastrointestinal Irritants	224	214	101	18	18	72	0	4	1	170	38	0	6	95	52	73	24	0	0
Mushrooms: Miscellaneous, Non-Toxic	91	76	35	6	4	23	0	7	1	62	8	0	6	19	23	7	4	0	0
Mushrooms: Other Potentially Toxic	149	138	49	15	5	53	0	15	1	108	5	1	24	36	32	34	12	0	1
Mushrooms: Unknown	4,539	4,375	2,783	374	344	757	13	86	18	3,653	621	8	81	1,566	1,938	545	212	16	1
Category Total:	**5,902**	**5,523**	**3,012**	**423**	**648**	**1,230**	**15**	**160**	**35**	**4,134**	**1,223**	**15**	**136**	**2,221**	**2,107**	**807**	**522**	**41**	**3**
Other/Unknown Nondrug Substances																			
Miscellaneous Other/Unknown Nondrug Substances																			
Other Non-Drug Substances	25,848	24,495	13,197	2,611	1,139	5,666	129	1,459	294	21,609	735	619	1,287	3,114	4,660	3,527	595	28	4
Unknown Substances Unlikely to be Drug Products	5,888	5,580	1,607	393	339	2,372	37	712	120	3,855	202	781	297	1,819	577	733	304	50	16
Category Total:	**31,736**	**30,075**	**14,804**	**3,004**	**1,478**	**8,038**	**166**	**2,171**	**414**	**25,464**	**937**	**1,400**	**1,584**	**4,933**	**5,237**	**4,260**	**899**	**78**	**20**
Paints and Stripping Agents																			
Miscellaneous Paints and Stripping Agents																			
Other Types of Paint, Varnish or Lacquer	428	392	162	19	21	143	4	40	3	381	3	1	6	74	65	72	23	0	0
Unknown Types of Paint, Varnish or Lacquer	6,557	6,201	4,229	282	190	1,143	28	312	17	6,021	89	19	60	630	1,048	475	77	4	0
Varnishes and Lacquers	1,172	1,080	340	49	47	506	3	129	6	1,035	17	5	18	211	162	229	46	1	0
Paints																			
Anti-Algae Paints	32	29	6	0	0	15	0	7	1	25	0	0	4	5	3	6	3	0	0
Anti-Corrosion Paints	40	38	10	1	4	17	0	4	2	33	2	1	1	9	4	6	4	0	0
Oil-Base Paints	2,481	2,322	685	276	191	909	11	230	20	2,129	134	18	34	463	291	529	108	7	0
Water Base Paints (Acrylic, Latex, etc)	3,949	3,863	3,011	149	113	468	11	105	6	3,769	36	12	44	266	732	253	23	0	0
Wood stains	731	668	304	27	26	243	9	55	4	638	7	2	21	91	135	104	13	1	0
Stripping Agents																			
Methylene Chloride Stripping Agents	421	406	63	14	37	234	1	53	4	386	14	0	6	143	32	148	48	3	0
Other Types of Stripping Agent	538	511	121	13	24	297	0	54	2	483	18	0	9	181	63	146	71	4	0
Unknown Types of Stripping Agent	81	75	13	1	2	45	0	14	0	68	5	0	1	36	4	24	7	1	0
Category Total:	**16,430**	**15,585**	**8,944**	**831**	**655**	**4,020**	**67**	**1,003**	**65**	**14,968**	**325**	**58**	**204**	**2,109**	**2,539**	**1,992**	**423**	**21**	**0**
Pesticides																			
Fumigants																			
Aluminum Phosphide	55	42	0	6	1	33	0	2	0	41	1	0	0	24	13	9	6	1	0
Methyl Bromide	1	1	0	0	1	0	0	0	0	1	0	0	0	1	1	0	0	0	0
Other Fumigants	39	32	5	0	1	24	0	1	1	32	0	0	0	12	2	6	2	1	1
Sulfuryl Fluoride	149	141	20	11	9	79	6	13	3	137	0	3	1	20	11	21	3	0	0
Unknown Fumigants	86	75	7	6	8	48	0	6	0	62	1	3	3	18	8	24	7	0	0
Fungicides (Non-medicinal)																			
Carbamate Fungicides	119	92	28	6	6	45	0	7	0	86	1	1	4	17	24	11	4	1	0

(*Continued*)

Table 22A. Demographic profile of SINGLE-SUBSTANCE nonpharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	<=5	6–12	13–19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Copper Compound Fungicides	74	73	7	2	0	51	0	13	0	69	1	0	3	10	13	18	2	0	0
Non-Mercurial Fungicide	2	1	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0
Other Types of Non-Medicinal Fungicide	718	598	126	23	12	367	3	60	7	572	9	0	16	101	129	121	17	0	0
Phthalimide Fungicides	56	32	19	1	3	8	0	0	1	31	1	0	0	2	8	2	1	0	0
Unknown Types of Non-Medicinal Fungicide	40	30	11	3	2	13	0	1	0	28	2	0	0	7	10	3	1	0	0
Wood Preservatives	174	168	30	9	9	106	0	14	0	164	1	0	3	32	24	22	6	0	0
Herbicides (Including Algaecides, Defoliants, Desiccants, Plant Growth Regulators)																			
2,4-D or 2,4,5-T	29	24	5	1	1	15	0	2	0	24	0	0	0	6	8	5	0	0	0
Carbamate Herbicides (Excluding Metam Sodium)	12	11	2	0	0	7	0	2	0	10	0	0	0	8	0	3	3	1	0
Chlorophenoxy Herbicides	2,120	1,817	471	134	47	974	10	170	11	1,709	27	10	65	312	370	348	85	2	0
Diquat	126	101	26	3	5	62	0	5	0	97	0	0	4	24	18	18	4	1	0
Glyphosate	4,380	4,002	1,035	225	107	2,255	6	353	21	3,747	60	19	164	666	923	1,016	69	4	2
Other Types of Herbicide	1,404	1,071	280	49	32	583	2	117	8	1,023	11	5	30	177	204	211	36	1	0
Paraquat	111	51	3	0	3	43	0	2	0	42	9	0	0	38	9	8	6	1	2
Paraquat and Diquat Combinations	1	1	0	0	0	1	0	0	0	1	0	0	0	1	0	1	0	0	0
Triazine Herbicides	371	270	83	12	9	139	2	23	2	260	2	2	6	59	66	56	8	0	0
Unknown Types of Herbicide	438	360	98	36	17	174	5	30	0	328	4	7	13	87	49	58	17	0	0
Urea Herbicides	78	65	29	6	4	22	0	4	0	60	2	0	3	8	24	7	1	0	0
Insecticides (Including Insect Growth Regulators, Molluscicides, Nematicides)																			
Carbamate Insecticides Alone	2,277	2,096	785	106	77	899	9	159	61	1,897	86	63	44	475	439	334	82	12	3
Carbamate Insecticides in Combination with Other Insecticides	334	322	77	9	14	171	0	49	2	295	14	3	7	36	39	56	7	1	0
Chlorinated Hydrocarbon Insecticides Alone	360	330	124	22	17	122	2	39	4	287	14	6	21	103	82	48	18	1	1
Chlorinated Hydrocarbon Insecticides in Combination with Other Insecticides	354	344	127	20	18	131	2	44	2	330	7	1	6	56	48	67	10	0	0
Insect Growth Regulators	115	70	39	1	0	22	1	7	0	68	1	0	1	9	15	5	1	0	0
Metaldehyde	182	175	48	2	5	102	1	16	1	170	2	2	1	19	37	14	2	0	0
Nicotine (Excluding Tobacco Products)	6	6	1	0	0	4	0	1	0	6	0	0	0	0	0	0	0	0	0
Organophosphate Insecticides Alone	3,173	2,870	918	167	110	1,373	10	252	40	2,666	92	20	77	651	661	555	121	16	2
Organophosphate Insecticides in Combination with Carbamate Insecticides	67	64	16	7	4	32	0	5	0	59	2	0	3	17	15	12	3	1	0
Organophosphate Insecticides in Combination with Non-Carbamate Insecticides	983	935	153	41	53	586	1	93	8	873	20	12	27	171	127	214	46	0	1

(*Continued*)

Table 22A. Demographic profile of SINGLE-SUBSTANCE nonpharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Organophosphate/ Carbamate/Chlorinated Hydrocarbon (Fixed-Combo)	5	5	1	0	1	2	0	1	0	4	1	0	0	2	1	0	0	1	0
Other Types of Insecticide	9,192	8,724	4,414	382	232	2,961	28	632	75	8,442	83	25	162	767	1,732	1,035	99	4	0
Piperonyl Butoxide & Pyrethrins (without Carbamate or O.P.)	246	229	98	30	14	72	1	13	1	211	7	0	9	46	37	43	16	0	0
Piperonyl Butoxide Only (Alone)	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Pyrethrins	5,383	5,056	1,943	394	211	2,037	18	427	26	4,668	140	31	208	775	808	975	156	6	0
Pyrethrins Only (Alone)	10	9	1	0	2	5	0	1	0	9	0	0	0	0	4	3	0	0	0
Pyrethroids	23,060	21,945	5,768	1,228	938	11,770	81	1,916	244	20,356	575	165	795	3,646	3,395	5,506	743	25	4
Rotenone	83	78	18	8	7	39	0	6	0	74	2	1	1	9	19	13	1	0	0
Unknown Types of Insecticide	4,115	3,795	988	206	166	1,851	44	491	49	3,384	113	105	161	956	502	683	171	7	0
Veterinary Insecticide/ Pesticide Product (For Pets-Flea Collars, Etc.)	153	149	58	10	3	57	0	21	0	143	1	0	5	17	26	22	3	0	0
Miscellaneous Pesticides																			
Arsenic Pesticides	173	170	115	8	2	38	0	7	0	167	3	0	0	15	46	2	2	0	0
Borates and/or Boric Acid Pesticides (Excluding Other Uses)	4,821	4,754	4,033	115	43	428	12	109	14	4,690	39	12	12	290	1,273	151	10	1	1
Metam Sodium	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
Repellents																			
Animal Repellents	381	372	128	37	13	152	4	34	4	352	0	9	10	48	31	107	8	1	0
Insect Repellants (Exclude Lacrimators)	5	5	5	0	0	0	0	0	0	5	0	0	0	2	4	0	0	0	0
Insect Repellents with DEET	5,870	5,769	3,663	725	220	937	12	197	15	5,407	63	49	242	564	928	1,723	113	4	0
Insect Repellents without DEET	1,469	1,430	1,039	125	47	178	1	37	3	1,380	17	4	28	84	263	246	19	1	0
Naphthalene Moth Repellants (Excluding Deodorizing Products)	1,443	1,386	936	62	30	271	9	74	4	1,320	40	6	18	265	442	84	21	0	0
Other Types of Moth Repellant	5	5	4	0	0	1	0	0	0	5	0	0	0	0	2	0	0	0	0
Paradichlorobenzene Moth Repellants (Excluding Deodorizing Products)	112	107	66	4	5	27	0	5	0	104	2	1	0	15	30	8	0	0	0
Unknown Types of Moth Repellant	2,267	2,222	1,284	102	44	557	21	195	19	2,088	79	21	24	389	588	191	32	0	0
Rodenticides																			
ANTU (1-naphthalenylthiourea)	6	6	0	1	3	1	0	1	0	4	0	0	2	1	0	0	0	0	0

(*Continued*)

Table 22A. Demographic profile of SINGLE-SUBSTANCE nonpharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Bromethalin Rodenticides	584	563	434	16	9	70	2	24	8	520	28	7	1	166	179	13	3	1	1
Cholecalciferol Rodenticides	7	7	7	0	0	0	0	0	0	7	0	0	0	4	2	1	0	0	0
Cyanide Rodenticides	3	3	0	0	0	2	0	0	1	3	0	0	0	1	0	1	1	0	0
Long-Acting Anticoagulant Rodenticides	11,091	10,822	9,470	218	136	790	29	144	35	10,353	337	79	15	2,821	3,285	131	31	11	1
Other Types of Rodenticide	694	677	491	37	16	100	8	24	1	644	24	4	3	72	198	32	9	4	0
PNU (n-3-pyridylmethyl-n1-p-nitrophenyl urea)	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Sodium Monofluoroacetate	7	7	2	0	1	3	0	1	0	7	0	0	0	5	2	4	0	0	0
Strychnine Rodenticides	84	71	11	5	3	37	0	13	2	44	12	10	0	35	13	5	6	1	0
Unknown Types of Rodenticide	1,448	1,347	919	34	27	263	8	77	19	1,177	95	51	5	531	386	41	14	4	2
Warfarin Type Anticoagulant Rodenticides	345	338	290	8	2	26	4	6	2	321	11	6	0	137	138	2	5	1	0
Zinc Phosphide Rodenticides	89	80	24	0	1	37	0	17	1	72	7	0	1	27	30	6	5	0	0
Category Total:	**91,588**	**86,404**	**40,786**	**4,663**	**2,751**	**31,204**	**342**	**5,963**	**695**	**81,140**	**2,049**	**743**	**2,204**	**14,857**	**17,742**	**14,301**	**2,036**	**116**	**21**
Photographic Products																			
Miscellaneous Photographic Products																			
Developers, Fixing Baths, Stop Baths	164	134	17	3	50	47	2	13	2	122	2	0	10	41	16	42	4	0	0
Other Types of Photographic Product	331	300	210	10	15	59	0	5	1	291	5	2	1	35	58	51	2	1	0
Photographic Coating Fluids	5	4	1	0	2	1	0	0	0	4	0	0	0	0	0	1	0	0	0
Unknown Types of Photographic Product	7	6	0	0	3	2	0	1	0	6	0	0	0	3	1	3	0	0	0
Category Total:	**507**	**444**	**228**	**13**	**70**	**109**	**2**	**19**	**3**	**423**	**7**	**2**	**11**	**79**	**75**	**97**	**6**	**1**	**0**
Plants																			
Miscellaneous Plants																			
Plants: Amygdalin and/or Cyanogenic Glycosides	3,001	2,907	1,842	369	92	469	15	112	8	2,730	75	12	84	168	620	114	18	2	0
Plants: Anticholinergics	958	877	412	36	231	169	2	21	6	538	308	9	16	371	198	74	223	30	0
Plants: Cardiac Glycosides (Excluding Drugs)	1,457	1,364	785	184	64	271	3	53	4	1,263	87	3	9	200	381	80	24	3	1
Plants: Colchicine	20	18	13	1	1	3	0	0	0	17	1	0	0	5	4	2	0	0	0
Plants: Depressants	236	192	124	18	9	23	2	14	2	159	23	1	9	22	45	14	4	1	0
Plants: Gastrointestinal Irritants (Excluding Oxalate Containing Plants)	8,800	8,405	6,053	740	209	1,113	39	237	14	7,905	316	12	158	658	1,713	783	134	3	0
Plants: Hallucinogenics (Code as Street Drug Unless Plant Part Involved)	406	344	112	21	96	84	2	21	8	177	146	6	11	133	53	43	57	0	0

(*Continued*)

Table 22A. Demographic profile of SINGLE-SUBSTANCE nonpharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Plants: Nicotine (Excluding Tobacco Products)	155	139	45	20	10	48	0	16	0	130	6	0	2	46	24	41	11	1	0
Plants: Non-Toxic	9,419	8,601	6,290	827	201	954	31	259	39	7,991	201	15	378	425	1,171	496	87	1	0
Plants: Other Toxic Types	4,844	4,547	3,181	580	137	509	21	107	12	4,189	248	5	98	486	1,083	321	96	9	0
Plants: Oxalates	6,915	6,803	5,474	614	165	432	10	99	9	6,524	221	3	48	315	1,442	1,098	65	2	0
Plants: Skin Irritants (Excluding Oxalate Containing Plants)	6,576	6,142	3,154	583	284	1,593	52	444	32	5,650	155	28	292	576	756	686	176	2	0
Plants: Solanine	1,440	1,406	945	102	24	260	5	66	4	1,319	32	2	52	131	433	93	19	0	0
Plants: Stimulants	174	154	38	28	13	62	0	11	2	131	16	1	4	45	35	24	10	2	0
Plants: Toxalbumins	212	199	96	22	10	55	0	15	1	166	25	3	0	84	74	30	8	0	0
Plants: Unknown Toxic Types or Unknown if Toxic	14,074	13,544	9,780	1,430	407	1,489	81	321	36	12,778	462	25	246	1,295	3,373	1,036	171	6	2
Category Total:	**58,687**	**55,642**	**38,344**	**5,575**	**1,953**	**7,534**	**263**	**1,796**	**177**	**51,667**	**2,322**	**125**	**1,407**	**4,960**	**11,405**	**4,935**	**1,103**	**62**	**3**
Polishes and Waxes																			
Miscellaneous Polishes and Waxes																			
Floor Waxes, Polishes, or Sealers	585	546	335	12	15	148	0	34	2	528	11	1	6	81	128	91	11	1	0
Furniture Polishes	2,365	2,278	1,985	72	39	151	5	26	0	2,217	46	10	4	243	790	296	31	2	0
Miscellaneous Polishes and Waxes (Excluding Mineral Seal Oils)	2,912	2,795	2,174	82	72	371	4	88	4	2,723	44	9	16	307	716	320	38	2	0
Category Total:	**5,862**	**5,619**	**4,494**	**166**	**126**	**670**	**9**	**148**	**6**	**5,468**	**101**	**20**	**26**	**631**	**1,634**	**707**	**80**	**5**	**0**
Radioisotopes																			
Miscellaneous Radioisotopes																			
Miscellaneous Non-Radiopharmaceutical Isotopes	330	305	25	18	10	185	3	48	16	210	2	8	81	114	60	26	51	3	0
Category Total:	**330**	**305**	**25**	**18**	**10**	**185**	**3**	**48**	**16**	**210**	**2**	**8**	**81**	**114**	**60**	**26**	**51**	**3**	**0**
Sporting Equipment																			
Miscellaneous Sporting Equipment																			
Fishing Baits	53	50	42	4	1	1	0	2	0	47	1	1	1	2	12	2	0	0	0
Fishing Products, Miscellaneous	12	12	9	1	1	1	0	0	0	11	0	0	1	3	3	2	1	0	0
Golf Balls (Including Liquid Center of Golf Balls)	17	17	3	4	3	6	0	1	0	15	1	1	0	1	4	6	0	0	0
Golf Products, Miscellaneous	1	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Gun Bluing Compounds	37	29	13	0	1	14	0	1	0	26	2	1	0	17	8	8	5	1	0
Hunting Products, Miscellaneous	342	333	181	33	28	72	3	14	2	295	22	7	5	100	118	34	5	0	0
Other Types of Sporting Equipment	18	17	12	3	1	1	0	0	0	16	0	1	0	3	4	3	0	0	0

(*Continued*)

Table 22A. Demographic profile of SINGLE-SUBSTANCE nonpharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Unknown Types of Sporting Equipment	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Category Total:	**481**	**460**	**261**	**46**	**35**	**95**	**3**	**18**	**2**	**412**	**26**	**11**	**7**	**126**	**149**	**55**	**11**	**1**	**0**
Swimming Pool/Aquarium																			
Miscellaneous Swimming Pool/Aquarium																			
Algicides	1,858	1,771	543	197	99	815	6	102	9	1,717	24	3	24	357	202	508	153	5	0
Aquarium Products, Miscellaneous	1,830	1,773	1,461	77	31	166	3	33	2	1,748	11	8	3	154	474	117	7	0	0
Bromine Shock Treatments	124	118	32	14	7	44	0	8	13	94	2	0	20	20	14	32	10	0	0
Chlorine Shock Treatments	3,189	3,040	541	414	224	1,619	10	220	12	2,934	37	3	63	791	194	1,179	383	10	0
Other Types of Swimming Pool or Aquarium Product	1,775	1,640	470	220	98	744	7	82	19	1,557	19	5	57	359	211	514	132	1	0
Swimming Pool and Aquarium Test Kits	213	187	134	11	7	26	1	7	1	185	2	0	0	19	48	18	2	0	0
Category Total:	**8,989**	**8,529**	**3,181**	**933**	**466**	**3,414**	**27**	**452**	**56**	**8,235**	**95**	**19**	**167**	**1,700**	**1,143**	**2,368**	**687**	**16**	**0**
Tobacco/Nicotine Products																			
Miscellaneous Tobacco Products																			
Chewing Tobacco	930	912	782	20	44	53	4	8	1	873	22	8	7	261	254	265	28	1	0
Cigarettes	6,008	5,818	5,400	52	58	245	12	46	5	5,679	86	23	24	963	1,974	1,018	62	2	0
Cigars	109	101	81	1	7	10	0	2	0	93	2	2	4	22	42	18	1	0	0
Filter Tips Only (i.e. Butts)	135	131	124	0	1	4	0	2	0	130	1	0	0	18	44	22	1	0	0
Other Types of Tobacco Product	112	99	54	1	9	27	0	7	1	77	9	4	9	27	27	17	6	0	0
Snuff	539	509	421	16	23	40	0	9	0	490	12	3	4	120	172	151	11	0	0
Unknown Types of Tobacco Product	941	887	631	16	23	165	1	44	7	772	53	6	51	191	215	167	33	1	0
Category Total:	**8,774**	**8,457**	**7,493**	**106**	**165**	**544**	**17**	**118**	**14**	**8,114**	**185**	**46**	**99**	**1,602**	**2,728**	**1,658**	**142**	**4**	**0**

(*Continued*)

Table 22A. Demographic profile of SINGLE-SUBSTANCE nonpharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Waterproofers/Sealants																			
Miscellaneous Waterproofers/Sealants																			
Waterproofers/sealants: aerosols	77	74	29	3	6	31	0	5	0	65	5	0	4	22	10	28	5	0	0
Waterproofers/sealants: liquids	25	23	12	1	0	9	0	1	0	22	0	1	0	6	4	6	2	0	0
Waterproofers/sealants: unknown form	8	8	3	1	1	2	0	1	0	8	0	0	0	0	2	2	0	0	0
Category Total:	**110**	**105**	**44**	**5**	**7**	**42**	**0**	**7**	**0**	**95**	**5**	**1**	**4**	**28**	**16**	**36**	**7**	**0**	**0**
Weapons of Mass Destruction																			
Miscellaneous Weapons of Mass Destruction																			
Anthrax	11	11	2	0	0	3	0	5	1	7	0	3	0	2	2	0	0	0	0
Nerve Gases	1	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
Other Biological Weapons	46	44	7	1	0	32	0	3	1	39	1	1	3	17	4	2	0	1	0
Other Chemical Weapons	84	70	2	2	3	49	0	13	1	67	3	0	0	46	16	16	10	1	0
Other Suspicious Powders	10	10	0	0	1	3	0	6	0	6	0	3	0	5	2	1	2	0	0
Suspicious Powders in Envelope or Package	39	39	0	0	0	8	0	30	1	7	0	32	0	4	27	1	0	0	0
Category Total:	**191**	**175**	**11**	**3**	**4**	**95**	**0**	**58**	**4**	**126**	**4**	**40**	**3**	**74**	**51**	**20**	**12**	**2**	**0**
Nonpharmaceuticals Total:	**1,284,313**	**1,176,304**	**675,893**	**78,281**	**54,453**	**294,343**	**4,180**	**62,678**	**6,476**	**1,106,378**	**37,976**	**10,436**	**17,643**	**164,181**	**203,897**	**171,611**	**34,180**	**2,214**	**221**

(this table can be viewed separately online at www.informahealthcare.com/ctx)

Table 22B. Demographic profile of Single-Substance pharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Pharmaceuticals																			
Analgesics																			
Acetaminophen Alone																			
Acetaminophen Alone, Adult	41,756	28,210	8,667	1,499	5,780	10,902	19	1,147	196	16,252	11,235	50	400	14,026	7,453	2,869	1,585	517	51
Acetaminophen Alone, Pediatric	34,034	31,330	28,982	1,969	138	163	41	27	10	30,846	235	86	131	4,036	7,168	283	35	14	0
Acetaminophen Alone, Unknown if Adult or Pediatric	6,827	4,164	1,395	206	767	1,589	8	154	45	2,317	1,697	8	48	2,281	1,167	396	345	108	12
Acetaminophen Combinations																			
Acetaminophen in Combination with Other Drugs, Adult Formulations	22,313	13,356	3,014	326	2,689	6,651	15	548	113	5,088	7,805	12	311	8,252	2,966	2,661	1,828	239	23
Acetaminophen in Combination with Other Drugs, Pediatric Formulations	462	400	369	25	5	0	1	0	0	393	2	0	4	56	120	30	0	0	0
Acetaminophen with Codeine	4,652	2,551	759	180	415	1,041	2	142	12	1,382	893	2	248	1,162	641	497	140	21	1
Acetaminophen with Hydrocodone	27,605	12,447	2,426	369	1,513	7,114	21	872	132	5,663	5,704	62	811	6,203	2,794	2,205	845	173	31
Acetaminophen with Other Narcotics or Narcotic Analogs	884	412	71	14	48	258	0	20	1	173	218	3	12	224	91	77	35	11	2
Acetaminophen with Oxycodone	10,283	4,892	1,045	147	456	2,815	4	369	56	2,343	2,043	25	392	2,365	1,081	797	352	91	16
Acetaminophen with Propoxyphene	4,627	2,108	403	48	226	1,274	1	140	16	991	976	4	111	1,168	529	404	209	39	8
Acetylsalicylic Acid Alone																			
Acetylsalicylic Acid Alone, Adult Formulations	7,300	4,239	1,905	192	764	1,252	4	97	25	2,508	1,617	2	88	1,966	1,182	470	438	59	2
Acetylsalicylic Acid Alone, Pediatric Formulations	863	560	439	58	26	33	0	4	0	507	44	0	8	142	180	25	10	2	0
Acetylsalicylic Acid Alone, Unknown if Adult or Pediatric Formulations	10,047	5,416	1,765	197	1,144	2,104	6	146	54	2,578	2,602	3	122	3,178	1,182	855	949	122	18
Acetylsalicylic Acid Combinations																			
Acetylsalicylic Acid in Combination with Other Drugs, Adult Formulations	1,604	941	337	41	96	426	2	30	9	606	262	1	57	347	191	122	82	18	0

(*Continued*)

Table 22B. Demographic profile of Single-Substance pharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Acetylsalicylic Acid in Combination with Other Drugs, Pediatric Formulations	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Acetylsalicylic Acid with Carisoprodol	37	22	0	0	2	17	0	2	1	2	19	0	1	17	2	10	1	0	0
Acetylsalicylic Acid with Codeine	104	70	11	0	4	55	0	0	0	24	42	0	3	48	10	18	11	4	0
Acetylsalicylic Acid with Other Narcotics or Narcotic Analogs	25	9	0	0	3	6	0	0	0	3	6	0	0	6	1	3	3	0	0
Acetylsalicylic Acid with Oxycodone	48	26	8	0	3	14	0	1	0	14	9	0	2	18	5	3	3	2	1
Acetylsalicylic Acid with Propoxyphene	11	4	1	0	0	3	0	0	0	2	2	0	0	3	1	0	0	0	1
Miscellaneous Analgesics																			
Non-Aspirin Salicylates (Excluding Topicals and/or Gastrointestinal Drugs)	413	319	221	12	16	61	1	7	1	266	34	2	16	81	108	31	9	1	0
Other Analgesics	784	702	396	15	39	211	0	40	1	618	28	0	55	101	130	115	31	1	0
Phenacetin	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phenazopyridine	1,416	1,193	887	40	36	202	1	24	3	1,080	50	1	60	232	429	104	33	3	0
Salicylamide	3	3	1	0	0	1	0	1	0	2	0	0	1	0	0	1	0	0	0
Unknown Analgesics	192	75	17	4	22	20	0	11	1	33	35	0	4	42	12	14	4	0	0
Nonsteroidal Antiinflammatory Drugs																			
Colchicine	389	231	59	12	4	143	0	12	1	167	30	0	31	111	55	42	30	7	2
Cyclooxygenase-2 Inhibitors	1,227	680	305	31	29	272	0	40	3	598	54	0	26	106	175	28	6	1	0
Ibuprofen	88,850	71,827	52,901	3,679	5,834	8,057	77	1,076	203	61,814	9,134	18	710	11,350	16,790	2,966	607	48	1
Ibuprofen with Hydrocodone	148	112	27	13	22	39	1	10	0	66	36	0	8	27	20	21	1	0	0
Indomethacin	565	338	105	11	12	178	0	31	1	212	79	1	43	103	70	47	10	1	0
Ketoprofen	98	47	25	2	5	12	0	3	0	38	7	0	1	12	12	4	1	0	0
Naproxen	12,349	7,576	2,703	252	1,400	2,855	3	311	52	4,819	2,272	5	428	2,354	1,852	817	142	9	0
Other Types of Nonsteroidal Antiinflammatory Drug	6,614	3,936	1,669	167	223	1,614	3	224	36	3,191	516	3	201	848	1,043	324	81	8	2
Unknown Types of Nonsteroidal Antiinflammatory Drug	13	5	1	0	1	2	0	1	0	1	3	0	1	3	0	3	1	0	0
Opioids																			
Codeine	2,056	1,550	715	251	130	382	1	56	15	1,307	163	1	70	295	413	176	27	5	0
Meperidine	386	189	33	8	20	108	0	17	3	102	66	2	17	92	32	36	12	7	0
Methadone	4,960	2,131	287	38	185	1,414	3	173	31	793	1,066	70	124	1,425	259	354	453	192	23
Morphine	3,785	2,003	302	51	155	1,248	4	202	41	1,037	749	23	154	1,066	365	336	242	74	4
Other or Unknown Narcotics	10,310	5,838	1,792	132	391	2,976	6	474	67	3,003	1,983	172	548	3,577	906	1,326	916	212	11

(*Continued*)

Table 22B. Demographic profile of Single-Substance pharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Oxycodone Alone or in Combination (Excluding Combination Products with Acetaminophen or Acetylsalicylic Acid)	8,065	3,803	697	124	336	2,234	4	338	70	1,945	1,463	65	243	1,926	621	714	368	91	8
Pentazocine	76	51	6	0	2	37	1	5	0	19	15	1	16	17	4	6	8	0	0
Propoxyphene	329	137	17	5	13	92	1	9	0	56	67	1	8	78	22	18	19	4	1
Tramadol	10,255	5,373	1,059	106	622	3,212	4	317	53	2,205	2,677	45	369	3,353	1,230	1,058	886	154	4
Other Acetaminophen and Acetylsalicylic Acid Combinations																			
Acetaminophen and Acetylsalicylic Acid with Other Ingredients	8,444	5,934	3,045	98	1,040	1,565	3	169	14	3,957	1,750	3	201	2,281	1,554	859	318	8	1
Acetaminophen and Acetylsalicylic Acid without Other Ingredients	327	221	104	7	23	84	0	3	0	146	65	0	7	81	36	26	22	4	0
Category Total:	**335,538**	**225,431**	**118,971**	**10,329**	**24,639**	**62,736**	**237**	**7,253**	**1,266**	**159,167**	**57,753**	**671**	**6,091**	**75,059**	**52,902**	**21,151**	**11,098**	**2,250**	**223**
Anesthetics																			
Inhalation Anesthetics																			
Nitrous Oxide	161	128	24	17	26	50	1	10	0	63	45	0	19	61	12	19	17	5	0
Other Types of Inhalation Anesthetic	107	77	4	0	6	47	0	18	2	60	8	3	4	34	7	22	6	0	0
Unknown Types of Inhalation Anesthetic	2	2	0	0	1	1	0	0	0	1	0	0	1	0	1	0	0	0	0
Local and/or Topical Anesthetics																			
Dibucaine	32	31	23	2	0	5	0	1	0	31	0	0	0	0	10	2	0	0	0
Lidocaine	1,645	1,472	643	85	114	522	2	96	10	1,218	93	5	144	340	377	196	64	7	1
Other or Unknown Local and/or Topical Anesthetic	6,152	5,870	4,247	214	184	996	10	215	4	5,439	119	16	289	758	2,027	579	91	17	0
Miscellaneous Anesthetics																			
Ketamine and Analogs	158	83	12	3	3	48	0	14	3	29	39	6	4	65	10	19	22	2	0
Other Types of Anesthetic	32	25	10	0	3	10	0	2	0	18	3	0	4	8	5	2	5	1	0
Unknown Types of Anesthetic	8	7	2	1	0	2	0	2	0	5	0	0	1	1	1	1	1	0	0
Category Total:	**8,297**	**7,695**	**4,965**	**322**	**337**	**1,681**	**13**	**358**	**19**	**6,864**	**307**	**30**	**466**	**1,267**	**2,450**	**840**	**206**	**32**	**1**
Anticholinergic Drugs																			
Miscellaneous Anticholinergic Drugs																			
Anticholinergic Drugs (Excluding Cough and Cold Preparations, and Plants)	11,011	8,759	404	89	121	7,010	4	1,073	58	8,279	315	6	132	737	1,448	247	198	16	0
Category Total:	**11,011**	**8,759**	**404**	**89**	**121**	**7,010**	**4**	**1,073**	**58**	**8,279**	**315**	**6**	**132**	**737**	**1,448**	**247**	**198**	**16**	**0**
Anticoagulants																			
Miscellaneous Anticoagulants																			
Glycoprotein IIIa/IIb Inhibitors	16	14	0	0	1	9	0	3	1	8	0	0	6	13	3	2	1	1	1

(*Continued*)

Table 22B. Demographic profile of Single-Substance pharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< =5	6–12	13–19	> =20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Heparins	305	246	36	6	2	170	0	26	6	173	17	0	55	113	37	18	45	8	3
Other Antiplatelets	2,683	1,028	331	10	6	601	1	77	2	963	31	1	31	161	232	23	9	1	0
Other Types of Anticoagulant	48	44	20	1	1	15	0	5	2	36	3	0	4	29	13	5	3	3	1
Unknown Types of Anticoagulant	25	24	15	1	0	7	0	0	1	17	4	2	1	11	6	0	0	0	0
Warfarin (Excluding Rodenticides)	4,167	2,500	1,087	47	27	1,172	7	141	19	2,202	189	8	77	775	643	55	117	17	0
Category Total:	**7,244**	**3,856**	**1,489**	**65**	**37**	**1,974**	**8**	**252**	**31**	**3,399**	**244**	**11**	**174**	**1,102**	**934**	**103**	**175**	**30**	**5**
Anticonvulsants																			
Miscellaneous Anticonvulsants																			
Carbamazepine	4,431	2,377	568	122	231	1,342	0	98	16	1,286	817	1	207	1,554	425	596	495	82	1
Other Types of Anticonvulsant (Excluding Barbiturates)	28,367	13,002	3,713	867	1,616	6,124	16	590	76	8,325	3,869	39	662	5,972	3,438	2,420	1,052	103	5
Phenytoin	3,612	2,246	235	29	69	1,790	0	106	17	1,011	602	3	494	1,682	385	552	537	48	1
Primidone	274	111	19	5	2	80	0	4	1	84	14	0	12	45	20	29	4	3	0
Succinimides	109	70	42	19	6	2	0	1	0	67	2	0	1	16	24	8	2	0	0
Unknown Types of Anticonvulsant (Excluding Barbiturates)	10	3	0	0	0	1	1	1	0	3	0	0	0	1	1	0	0	0	0
Valproic Acid	8,456	3,369	536	240	477	1,897	0	182	37	1,734	1,235	7	299	1,919	863	644	351	62	1
Category Total:	**45,259**	**21,178**	**5,113**	**1,282**	**2,401**	**11,236**	**17**	**982**	**147**	**12,510**	**6,539**	**50**	**1,675**	**11,189**	**5,156**	**4,249**	**2,441**	**298**	**8**
Antidepressants																			
Cyclic Antidepressants																			
Amitriptyline	6,003	2,704	531	107	312	1,634	5	101	14	1,119	1,451	4	61	1,944	493	545	616	233	7
Amoxapine	32	14	2	0	3	7	0	1	1	5	6	0	2	11	2	3	2	1	0
Cyclic Antidepressants Formulated with a Benzodiazepine	32	12	5	0	0	6	0	1	0	5	6	0	1	9	3	4	3	1	0
Cyclic Antidepressants Formulated with a Phenothiazine	76	34	6	0	0	24	1	3	0	13	20	0	0	25	11	8	3	3	0
Desipramine	92	40	8	4	1	26	0	1	0	27	9	0	4	25	12	8	7	0	2
Doxepin	1,112	458	52	15	25	340	1	22	3	157	275	0	17	343	75	102	107	46	2
Imipramine	444	208	71	29	21	80	0	6	1	131	68	0	7	110	61	41	24	6	1
Maprotiline	6	5	0	0	1	4	0	0	0	4	1	0	0	2	0	3	0	0	0
Nortriptyline	982	410	72	16	42	259	0	16	5	207	179	3	20	239	85	69	61	22	2
Other Types of Cyclic Antidepressant	3,061	1,337	353	48	111	737	4	75	9	736	477	8	89	738	312	241	181	62	3
Protriptyline	15	4	2	0	2	0	0	0	0	3	1	0	0	4	1	1	1	0	0
Unknown Types of Cyclic Antidepressant	18	8	0	0	0	7	0	0	1	0	6	0	0	8	0	2	3	3	0
Miscellaneous Antidepressants																			
Lithium	6,396	3,223	189	88	403	2,367	3	149	24	1,003	1,197	9	843	2,584	580	609	1,002	134	3
Monoamine Oxidase Inhibitors	234	97	11	1	5	76	0	4	0	49	23	0	21	47	26	12	20	3	1

(*Continued*)

Table 22B. Demographic profile of Single-Substance pharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	<=5	6–12	13–19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Other Types of Antidepressant	23,060	10,290	2,716	387	1,217	5,303	3	591	73	6,148	3,593	49	426	5,644	2,948	1,599	1,238	275	6
Selective Serotonin Reuptake Inhibitors	45,238	20,356	6,034	1,064	4,016	8,158	12	923	149	11,224	8,186	48	753	10,013	6,486	3,192	1,315	102	7
Trazodone	14,251	5,421	568	184	905	3,376	3	328	57	1,736	3,519	7	107	3,744	1,128	1,636	675	51	1
Unknown Types of Antidepressant	90	29	2	0	6	14	0	4	3	3	23	0	2	23	5	4	2	2	0
Category Total:	**101,142**	**44,650**	**10,622**	**1,943**	**7,070**	**22,418**	**32**	**2,225**	**340**	**22,570**	**19,040**	**128**	**2,353**	**25,513**	**12,228**	**8,079**	**5,260**	**944**	**35**
Antihistamines																			
Miscellaneous Antihistamines																			
Cimetidine and Other Histamine-2 Blockers	9,470	7,403	6,052	230	154	788	11	157	11	7,055	235	2	101	690	1,949	238	27	0	0
Diphenhydramine Alone (Over the Counter)	6,241	5,091	3,849	339	187	627	3	79	7	4,393	617	3	69	1,261	1,347	727	197	24	2
Diphenhydramine Alone (Prescription)	19	13	5	1	0	5	1	1	0	10	3	0	0	5	0	2	2	0	0
Diphenhydramine Alone (Unknown if Over the Counter or Prescription)	32,776	23,533	13,463	1,623	2,139	5,655	30	528	95	17,330	5,629	23	440	7,977	5,266	3,380	2,057	228	4
Other Antihistamines Alone (Excluding Cough and Cold Preparations)	45,579	32,968	19,608	4,596	2,432	5,495	28	714	95	29,228	3,060	18	535	5,462	8,732	2,282	791	44	0
Category Total:	**94,085**	**69,008**	**42,977**	**6,789**	**4,912**	**12,570**	**73**	**1,479**	**208**	**58,016**	**9,544**	**46**	**1,145**	**15,395**	**17,294**	**6,629**	**3,074**	**296**	**6**
Antimicrobials																			
Anthelmintics																			
Diethylcarbamazine	69	66	22	3	1	33	2	4	1	62	2	0	1	2	10	1	0	0	0
Other Types of Anthelmintic	1,831	1,684	1,043	101	33	427	9	68	3	1,603	33	2	41	148	437	94	7	1	0
Piperazine	389	375	296	15	9	48	1	6	0	351	19	3	0	57	122	19	4	0	0
Unknown Types of Anthelmintic	9	9	6	0	0	3	0	0	0	8	1	0	0	2	1	1	0	0	0
Antibiotics																			
Systemic Antibiotic Preparations (Oral, Intravenous, Intramuscular)	39,675	32,873	17,420	3,006	1,802	8,849	81	1,567	148	27,725	1,297	15	3,753	3,974	5,606	2,327	574	55	6
Topical Antibiotic Preparations (Dermal, Otic, Ophthalmic, Nasal)	7,631	7,340	5,427	306	151	1,111	25	294	26	7,081	77	12	165	205	1,219	304	32	0	0
Unknown Types of Antibiotic Preparation	459	337	153	21	27	108	2	22	4	256	22	0	58	45	38	39	5	0	0
Antifungals																			
Systemic Antifungal Preparations (Oral, Intravenous, Intramuscular)	1,726	1,451	827	84	52	402	5	73	8	1,269	38	1	141	219	330	103	16	5	0

(*Continued*)

Table 22B. Demographic profile of Single-Substance pharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Topical Antifungal Preparations (Dermal, Otic, Ophthalmic, Nasal)	9,761	9,375	7,113	248	123	1,550	24	302	15	9,120	51	6	187	621	1,721	587	52	0	0
Unknown Types of Antifungal Preparation	19	16	5	1	1	7	0	2	0	15	1	0	0	6	4	5	0	0	0
Antiparasitics																			
Antimalarials	778	509	132	34	49	253	0	39	2	416	38	2	51	177	139	42	38	2	0
Metronidazole	1,445	921	305	29	60	438	0	84	5	726	60	1	130	133	149	85	13	1	0
Other Types of Antiparasitic	30	27	10	6	1	10	0	0	0	21	2	0	4	5	4	5	1	0	0
Antituberculars																			
Isoniazid	292	207	46	12	65	69	0	15	0	109	75	0	18	136	44	13	20	51	2
Other Types of Antitubercular	25	11	3	0	0	7	0	1	0	9	1	1	0	3	1	0	1	0	0
Rifampin	102	60	23	2	2	31	0	2	0	47	7	0	6	20	7	10	5	0	0
Unknown Types of Antitubercular	1	1	0	0	0	1	0	0	0	0	1	0	0	1	0	0	1	0	0
Antivirals																			
Amantadine	268	119	47	9	8	46	0	6	3	87	22	0	9	37	39	13	4	2	0
Antiretrovirals	635	390	117	35	11	188	3	34	2	320	45	0	23	104	89	39	8	2	0
Other Anti-Influenza Agents	1,074	962	333	250	128	214	4	31	2	836	9	0	115	99	169	71	23	0	0
Systemic Antiviral Preparations (Oral, Intravenous, Intramuscular)	2,401	2,052	1,185	319	63	408	9	64	4	1,880	63	0	104	235	462	133	23	3	0
Topical Antiviral Preparations (Dermal, Otic, Ophthalmic, Nasal)	245	236	124	7	9	76	0	20	0	222	1	0	13	9	42	25	1	0	0
Unknown Types of Antiviral Preparations	368	251	95	11	11	119	0	11	4	207	19	0	25	40	54	16	3	2	0
Miscellaneous Antimicrobials																			
Other Types of Antimicrobial	129	117	77	7	4	26	0	3	0	107	4	0	6	19	39	9	0	1	0
Unknown Types of Antimicrobial	22	17	4	2	0	8	0	3	0	13	1	0	3	6	2	3	1	0	0
Category Total:	**69,384**	**59,406**	**34,813**	**4,508**	**2,610**	**14,432**	**165**	**2,651**	**227**	**52,490**	**1,889**	**43**	**4,853**	**6,303**	**10,728**	**3,944**	**832**	**125**	**8**
Antineoplastics																			
Miscellaneous Antineoplastics																			
Antineoplastic Drugs	1,760	1,345	293	28	29	830	1	142	22	1,147	33	3	159	379	294	117	69	17	2
Category Total:	**1,760**	**1,345**	**293**	**28**	**29**	**830**	**1**	**142**	**22**	**1,147**	**33**	**3**	**159**	**379**	**294**	**117**	**69**	**17**	**2**

(*Continued*)

Table 22B. Demographic profile of Single-Substance pharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Asthma Therapies																			
Miscellaneous Asthma Therapies																			
Albuterol	6,534	5,842	4,424	666	188	466	11	83	4	5,392	261	12	166	678	1,439	576	218	2	0
Aminophylline or Theophylline	332	213	31	5	13	154	0	10	0	147	31	0	27	108	39	27	48	5	2
Leukotriene Antagonist or Inhibitor	11,361	9,587	7,626	1,416	159	310	14	58	4	9,394	150	9	27	799	2,252	127	5	0	0
Non-Selective Beta Agonists	1,213	1,178	238	299	108	477	2	52	2	1,123	36	4	14	390	75	538	156	3	0
Other Asthma Therapeutic Agents	382	292	105	16	9	141	0	16	5	233	25	1	28	102	112	16	26	6	2
Terbutaline and Other Beta-2 Agonists	2,773	2,444	918	303	65	982	6	160	10	2,262	108	3	67	201	488	164	65	1	0
Unknown Asthma Therapeutic Agents	15	10	5	1	1	0	0	3	0	6	2	0	2	4	1	2	0	0	0
Category Total:	**22,610**	**19,566**	**13,347**	**2,706**	**543**	**2,530**	**33**	**382**	**25**	**18,557**	**613**	**29**	**331**	**2,282**	**4,406**	**1,450**	**518**	**17**	**4**
Cardiovascular Drugs																			
Miscellaneous Cardiovascular Drugs																			
Alpha Blockers	2,336	1,016	273	16	18	625	1	78	5	862	89	0	61	319	327	79	57	1	0
Angiotensin Converting Enzyme Inhibitors	16,849	7,971	3,654	424	200	3,328	2	342	21	7,152	625	0	174	2,190	2,977	275	199	13	0
Angiotensin Receptor Blockers	6,412	3,230	975	99	92	1,837	3	214	10	3,003	162	1	56	704	1,118	138	67	3	0
Antiarrhythmics	1,457	883	155	11	14	634	0	66	3	804	38	0	38	326	350	56	55	19	1
Antihyperlipidemics	12,978	6,048	2,887	226	104	2,437	9	364	21	5,695	146	1	193	538	1,204	109	31	4	0
Antihypertensives (Excluding Diuretics)	3,384	1,935	758	337	144	642	1	52	1	1,689	186	2	48	853	745	219	191	19	1
Beta Blockers (Including All Propranolol Cases)	22,135	10,217	3,258	377	352	5,733	8	447	42	8,810	1,127	9	212	4,058	4,083	452	695	61	5
Calcium Antagonists	10,868	5,027	1,519	131	143	2,974	3	238	19	4,399	445	4	159	2,389	2,117	268	397	62	16
Cardiac Glycosides	2,550	1,577	245	20	20	1,248	0	37	7	914	66	0	533	1,078	271	111	518	131	23
Clonidine	7,259	4,032	1,632	992	401	900	5	87	15	3,122	786	13	77	2,550	886	858	984	106	0
Hydralazine	599	275	92	10	13	148	1	10	1	241	18	0	15	116	102	23	27	3	0
Long-Acting Nitrates	903	298	79	2	6	193	0	17	1	272	17	0	9	87	103	22	17	0	0
Nitroglycerin	1,576	1,176	788	27	18	302	1	35	5	1,041	100	1	31	402	560	63	25	3	0
Nitroprusside	40	38	2	0	0	33	0	2	1	6	0	0	31	37	4	4	7	3	1
Other Types of Cardiovascular Drug	534	278	132	6	3	128	0	7	2	251	13	1	13	53	82	7	6	1	0
Other Types of Vasodilator	1,283	884	329	27	50	394	2	70	12	672	99	10	98	284	247	76	42	4	0
Unknown Types of Cardiovascular Drug	71	33	10	0	3	15	0	4	1	23	10	0	0	15	3	0	1	0	0
Unknown Types of Vasodilator	16	11	4	0	0	5	0	2	0	9	1	0	1	5	3	0	1	0	0
Vasopressors	3,277	2,849	597	585	303	1,142	10	202	10	2,738	76	2	26	1,154	247	1,070	383	1	0
Category Total:	**94,527**	**47,778**	**17,389**	**3,290**	**1,884**	**22,718**	**46**	**2,274**	**177**	**41,703**	**4,004**	**44**	**1,775**	**17,158**	**15,429**	**3,830**	**3,703**	**434**	**47**

(*Continued*)

Table 22B. Demographic profile of Single-Substance pharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Cold and Cough Preparations																			
Acetaminophen and Acetylsalicylic Acid Combinations with Decongestant and/or Antihistamine without Phenylpropanolamine																			
Acetaminophen and Acetylsalicylic Acid with Decongestant and/or Antihistamine Combinations without Phenylpropanolamine or Opioids	76	55	41	5	4	4	0	1	0	48	6	0	1	9	11	6	0	0	0
Acetaminophen, Acetylsalicylic Acid, and Dextromethorphan Combinations with Decongestant and/or Antihistamine without Phenylpropanolamine	162	128	94	10	10	14	0	0	0	111	13	1	3	28	34	12	4	0	0
Acetaminophen, Acetylsalicylic Acid, and Opioid Combinations with Decongestant and/or Antihistamine without Phenylpropanolamine	11	10	6	2	1	1	0	0	0	9	1	0	0	1	1	0	0	0	0
Acetaminophen and Phenylpropanolamine Combinations with Decongestant and/or Antihistamine																			
Acetaminophen and Phenylpropanolamine Combinations with Decongestant and/or Antihistamine without Opioid	220	149	87	10	27	21	1	2	1	107	41	0	1	49	32	18	16	0	1
Acetaminophen, Phenylpropanolamine, and Codeine Combinations with Decongestant and/or Antihistamine	10	7	4	1	1	1	0	0	0	6	1	0	0	1	2	0	0	0	0
Acetaminophen, Phenylpropanolamine, and Dextromethorphan Combinations with Decongestant and/or Antihistamine	393	288	199	20	23	42	0	3	1	243	35	2	6	60	84	24	8	0	0
Acetaminophen, Phenylpropanolamine, and Other Opioid Combinations with Decongestant and/or Antihistamine	3	3	2	0	0	1	0	0	0	2	1	0	0	2	0	2	0	0	0

(*Continued*)

Table 22B. Demographic profile of Single-Substance pharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Acetaminophen Combinations with Decongestant and/or Antihistamine without Phenylpropanolamine																			
Acetaminophen and Codeine Combinations with Decongestant and/or Antihistamine without Phenylpropanolamine	31	24	14	2	2	6	0	0	0	20	4	0	0	7	6	1	1	0	0
Acetaminophen and Dextromethorphan Combinations with Decongestant and/or Antihistamine without Phenylpropanolamine	17,609	11,430	7,164	916	1,236	1,818	12	253	31	9,350	1,688	24	316	2,793	2,972	1,260	293	22	1
Acetaminophen and Other Opioid Combinations with Decongestant and/or Antihistamine without Phenylpropanolamine	46	30	21	2	3	4	0	0	0	27	3	0	0	7	7	5	0	0	0
Acetaminophen with Decongestant and/or Antihistamine Combinations without Phenylpropanolamine or Opioids	6,036	4,166	2,563	298	542	666	2	78	17	3,305	677	9	155	1,061	983	398	197	10	1
Acetaminophen, Acetylsalicylic Acid, and Phenylpropanolamine Combinations with Decongestant and/or Antihistamine																			
Acetaminophen, Acetylsalicylic Acid, and Phenylpropanolamine Combinations with Decongestant and/or Antihistamine without Opioid	28	24	14	1	5	4	0	0	0	19	3	0	0	8	9	2	1	0	0
Acetaminophen, Acetylsalicylic Acid, Phenylpropanolamine, and Dextromethorphan Combinations with Decongestant and/or Antihistamine	121	90	61	6	10	11	0	2	0	75	10	0	3	19	22	13	1	0	0
Acetaminophen, Acetylsalicylic Acid, Phenylpropanolamine, and Opioid Combinations with Decongestant and/or Antihistamine	5	1	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0

(*Continued*)

Table 22B. Demographic profile of Single-Substance pharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Acetylsalicylic Acid and Phenylpropanolamine Combinations with Decongestant and/or Antihistamine																			
Acetylsalicylic Acid and Phenylpropanolamine Combinations with Decongestant and/or Antihistamine without Opioid	26	15	4	1	3	6	0	1	0	7	4	0	4	5	4	2	2	0	0
Acetylsalicylic Acid, Phenylpropanolamine, and Dextromethorphan Combinations with Decongestant and/or Antihistamine	30	22	15	1	2	3	0	1	0	18	2	0	2	7	6	1	0	0	0
Acetylsalicylic Acid Combinations with Decongestant and/or Antihistamine without Phenylpropanolamine																			
Acetylsalicylic Acid and Codeine Combinations with Decongestant and/or Antihistamine without Phenylpropanolamine	2	1	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0
Acetylsalicylic Acid and Dextromethorphan Combinations with Decongestant and/or Antihistamine without Phenylpropanolamine	46	36	22	2	3	9	0	0	0	29	3	0	4	7	5	4	1	0	0
Acetylsalicylic Acid and Other Opioid Combinations with Decongestant and/or Antihistamine without Phenylpropanolamine	6	5	3	0	1	1	0	0	0	5	0	0	0	0	0	0	0	0	0
Acetylsalicylic Acid with Decongestant and/or Antihistamine Combinations without Phenylpropanolamine or Opioids	89	60	23	6	12	14	0	3	2	37	20	0	3	22	10	11	4	0	0
Antihistamine and/or Decongestant with Phenylpropanolamine																			
Antihistamine and/or Decongestant with Phenylpropanolamine and Codeine	40	29	20	1	3	3	0	2	0	26	2	0	1	11	12	2	3	0	0
Antihistamine and/or Decongestant with Phenylpropanolamine and Dextromethorphan	722	597	424	75	42	52	0	4	0	536	47	0	14	118	187	63	31	0	0

(*Continued*)

Table 22B. Demographic profile of Single-Substance pharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Antihistamine and/or Decongestant with Phenylpropanolamine and Other Opioid	27	26	17	4	2	3	0	0	0	22	2	0	2	5	12	4	1	0	0
Antihistamine and/or Decongestant with Phenylpropanolamine without Opioid	1,112	883	727	79	37	32	3	5	0	850	25	0	8	164	281	63	11	0	0
Antihistamine and/or Decongestant without Phenylpropanolamine																			
Antihistamine and/or Decongestant with Codeine without Phenylpropanolamine	1,643	1,370	659	239	140	292	0	38	2	1,184	136	2	40	276	394	182	32	0	0
Antihistamine and/or Decongestant with Dextromethorphan without Phenylpropanolamine	15,172	12,687	7,757	1,236	2,267	1,289	12	101	25	9,626	2,831	8	183	3,852	2,971	1,748	1,213	46	1
Antihistamine and/or Decongestant with Other Opioid without Phenylpropanolamine	1,638	1,394	590	187	124	436	1	52	4	1,136	162	1	80	381	343	290	72	5	0
Antihistamine and/or Decongestant without Phenylpropanolamine and Opioid	19,692	15,244	10,628	1,350	913	2,101	14	219	19	14,114	786	11	301	2,403	4,353	1,224	320	21	1
Miscellaneous Cold and Cough Preparations																			
Acetaminophen in Combination with Dextromethorphan (Without Decongestants or Antihistamines)	402	317	265	20	15	15	0	2	0	297	14	0	6	53	111	17	6	0	0
Acetylsalicylic Acid in Combination with Dextromethorphan	3	2	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
Expectorants or Antitussives (Without Narcotics or Narcotic Analogs)	3,405	2,430	1,350	163	153	656	2	99	7	2,161	174	3	88	408	553	131	52	3	2
Non-Acetylsalicylic Acid Salicylates in Combination with Dextromethorphan	14	10	9	0	1	0	0	0	0	9	1	0	0	4	5	1	0	0	0
Other Dextromethorphan Preparations	15,885	12,634	6,185	1,895	1,983	2,307	13	233	18	10,028	2,271	13	277	2,982	2,371	1,558	879	25	0
Other Phenylpropanolamine Preparations (Excluding Street Drugs and Diet Aids)	265	243	123	5	5	98	0	11	1	237	4	0	2	15	69	4	0	0	0

(*Continued*)

Table 22B. Demographic profile of Single-Substance pharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Other Types of Cough and Cold Preparation (Excluding Phenylpropanolamine, Dextromethorphan, Acetaminophen, and Acetylsalicylic Acid)	2,100	1,732	1,310	137	76	180	2	23	4	1,594	87	2	47	212	447	108	29	0	0
Unknown Types of Cough and Cold Preparation	1,260	675	283	35	188	136	2	22	9	348	288	1	24	382	113	105	98	5	0
Non-Acetylsalicylic Acid Salicylates and Phenylpropanolamine Combinations with Decongestant and/or Antihistamine																			
Non-Acetylsalicylic Acid Salicylates and Phenylpropanolamine Combinations with Decongestant and/or Antihistamine without Opioid	3	3	1	1	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0
Non-Acetylsalicylic Acid Salicylates, Phenylpropanolamine, and Dextromethorphan Combinations with Decongestant and/or Antihistamine	7	6	3	0	3	0	0	0	0	4	2	0	0	2	1	1	1	0	0
Non-Acetylsalicylic Acid Salicylates, Phenylpropanolamine, and Opioid Combinations with Decongestant and/or Antihistamine	1	1	0	1	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0
Non-Acetylsalicylic Acid Salicylates with Decongestant and/or Antihistamine without Phenylpropanolamine																			
Non-Acetylsalicylic Acid Salicylates and Dextromethorphan Combinations with Decongestant and/or Antihistamine without Phenylpropanolamine	9	6	5	0	0	1	0	0	0	6	0	0	0	1	2	0	0	0	0
Non-Acetylsalicylic Acid Salicylates and Opioid Combinations with Decongestant and/or Antihistamine without Phenylpropanolamine	3	2	1	0	1	0	0	0	0	1	1	0	0	2	1	0	0	0	0

(*Continued*)

Table 22B. Demographic profile of Single-Substance pharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Non-Acetylsalicylic Acid Salicylates with Decongestant and/or Antihistamine without Phenylpropanolamine and Opioid	2	1	0	0	0	1	0	0	0	0	1	0	0	1	1	0	0	0	0
Category Total:	**88,355**	**66,836**	**40,698**	**6,711**	**7,838**	**10,229**	**64**	**1,155**	**141**	**55,605**	**9,346**	**77**	**1,571**	**15,359**	**16,417**	**7,260**	**3,277**	**137**	**7**
Diagnostic Agents																			
Miscellaneous Diagnostic Agents																			
Other Types of Diagnostic Agent	606	553	144	20	8	256	2	104	19	473	7	0	70	219	104	85	31	5	0
Unknown Types of Diagnostic Agent	13	13	5	0	1	5	0	1	1	9	0	1	3	7	2	2	1	0	0
Category Total:	**619**	**566**	**149**	**20**	**9**	**261**	**2**	**105**	**20**	**482**	**7**	**1**	**73**	**226**	**106**	**87**	**32**	**5**	**0**
Dietary Supplements/Herbals/Homeopathic																			
Amino Acids																			
Creatine	215	144	73	5	25	35	0	6	0	95	11	0	36	41	30	15	11	2	0
Other Amino Acid Dietary Supplements	555	400	218	26	26	112	1	14	3	304	25	1	67	95	74	34	19	1	0
Botanical Products																			
Citrus Aurantium (Single Ingredient)	9	7	4	0	0	2	0	1	0	4	0	0	3	1	1	2	0	0	0
Echinacea	367	301	235	39	3	21	0	3	0	278	8	0	14	14	52	13	2	0	0
Ginkgo Biloba	148	89	52	2	7	19	0	9	0	74	7	0	8	16	24	7	3	0	0
Ginseng	141	92	53	6	5	24	0	3	1	70	6	0	16	20	22	8	6	0	0
Kava Kava	61	38	7	0	4	23	0	2	2	14	7	0	17	16	4	5	4	1	0
Ma Huang/Ephedra (Single Ingredient)	84	61	19	0	3	35	0	4	0	28	17	0	15	31	14	7	12	0	0
Multi-Botanicals with Citrus Aurantium	125	100	61	0	9	28	0	2	0	69	21	0	10	42	27	13	10	0	0
Multi-Botanicals with Ma Huang	392	308	176	3	41	78	0	7	3	211	62	0	34	125	91	54	27	0	0
Multi-Botanicals without Ma Huang or Citrus Aurantium	2,463	1,989	1,146	87	175	514	2	59	6	1,445	266	5	267	552	403	246	147	4	0
Other Single Ingredient Botanicals	2,499	1,889	1,211	69	69	444	6	85	5	1,607	100	5	173	222	380	165	27	0	0
St. John's Wort	180	102	60	0	13	27	0	2	0	74	16	0	10	18	27	11	1	0	0
Valerian	242	128	43	2	15	55	0	9	4	63	43	0	21	56	22	19	7	2	0
Yohimbe	199	155	46	1	9	85	0	13	1	77	32	0	45	84	32	17	33	0	0
Cultural Medicines																			
Asian Medicines	141	118	64	4	10	34	0	6	0	87	6	0	25	47	28	16	7	1	0
Ayurvedic Medicines	7	7	6	0	0	1	0	0	0	6	0	0	1	1	2	0	0	0	0
Hispanic Medicines	14	14	6	1	0	7	0	0	0	8	0	0	6	9	3	0	0	0	0
Other Cultural Medicines	49	42	18	1	3	17	1	2	0	26	8	0	8	21	9	7	6	1	0
Hormonal Products																			
Androgen or Androgen Precursor Dietary Supplements	134	99	60	3	6	27	0	3	0	74	8	0	16	24	19	8	8	0	0

(*Continued*)

Table 22B. Demographic profile of Single-Substance pharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< =5	6–12	13–19	> =20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Glandular Dietary Supplements	52	40	34	0	0	4	0	2	0	38	1	0	1	4	13	1	1	0	0
Melatonin	4,987	4,026	2,810	500	296	345	5	58	12	3,476	480	4	45	579	929	387	14	0	0
Phytoestrogen Dietary Supplements	57	40	21	3	2	13	0	1	0	34	2	0	2	4	8	2	0	0	0
Miscellaneous Dietary Supplements/Herbals/Homeopathic																			
Homeopathic Agents	11,717	11,181	10,381	165	94	430	21	82	8	10,867	117	16	168	533	2,434	239	35	5	0
Unknown Dietary Supplements or Homeopathic Agents	2,718	2,300	1,572	88	108	458	6	62	6	1,876	143	8	265	490	477	181	97	7	1
Other Dietary Supplements																			
Blue-Green Algae	135	122	26	15	10	57	1	13	0	112	0	0	8	26	14	23	4	0	0
Glucosamine (with or without Chondroitin)	791	568	409	22	6	103	2	22	4	534	6	1	25	32	110	14	3	0	0
Other Single Ingredient Non-Botanical Dietary Supplements	935	643	474	40	24	83	1	21	0	576	23	2	41	75	138	29	8	0	0
Category Total:	**29,417**	**25,003**	**19,285**	**1,082**	**963**	**3,081**	**46**	**491**	**55**	**22,127**	**1,415**	**42**	**1,347**	**3,178**	**5,387**	**1,523**	**492**	**24**	**1**
Diuretics																			
Miscellaneous Diuretics																			
Furosemide	3,385	1,289	615	39	32	539	3	58	3	1,189	74	3	22	324	317	142	49	2	0
Other Types of Diuretic	1,943	874	427	37	36	328	3	40	3	783	44	0	42	167	254	48	20	1	0
Thiazide	4,962	2,023	929	112	58	834	0	79	11	1,793	173	3	51	453	558	100	45	1	0
Unknown Types of Diuretic	464	190	94	12	3	72	0	9	0	166	13	0	10	35	41	11	7	0	0
Category Total:	**10,754**	**4,376**	**2,065**	**200**	**129**	**1,773**	**6**	**186**	**17**	**3,931**	**304**	**6**	**125**	**979**	**1,170**	**301**	**121**	**4**	**0**
Electrolytes and Minerals																			
Miscellaneous Electrolytes and Minerals																			
Calcium and Calcium Salts	16,780	15,031	13,802	494	150	462	19	89	15	14,796	166	3	59	339	2,568	200	34	2	0
Chromium, Trivalent	364	295	140	19	12	95	1	26	2	280	12	0	3	44	39	19	6	1	0
Colloidal Silver	85	72	23	4	5	33	1	6	0	52	8	1	11	28	16	9	3	0	0
Fluoride (Excluding Vitamins, Hydrofluoric Acid & Mouthwashes)	3,026	2,864	2,484	227	29	102	3	17	2	2,772	30	4	54	107	607	168	5	0	0
Iron and Iron Salts (Excluding Vitamins with Iron)	4,721	3,578	2,113	91	245	963	7	147	12	2,993	369	7	194	1,010	951	328	117	8	1
Magnesium and Magnesium Salts	1,129	910	373	44	52	383	3	52	3	738	95	8	65	142	172	108	19	1	0
Multi-Mineral and Multi-Herbal Dietary Supplement	1,253	1,027	592	25	114	260	0	29	7	724	189	2	108	361	300	149	61	3	0
Multi-Mineral Dietary Supplements	248	193	144	4	4	37	1	2	1	169	2	1	21	27	39	12	6	0	0
Other Types of Electrolyte or Mineral	56	50	18	0	1	23	0	7	1	41	1	0	8	11	7	10	1	1	0
Potassium and Potassium Salts	1,740	760	294	22	20	367	5	49	3	657	72	1	28	152	188	33	16	1	0

(*Continued*)

Table 22B. Demographic profile of Single-Substance pharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Selenium and Selenium Salts	129	96	35	7	3	41	0	10	0	79	6	0	7	21	20	14	1	1	0
Sodium and Sodium Salts	3,410	2,869	1,698	335	120	599	5	98	14	2,540	216	22	78	394	554	402	44	0	1
Unknown Types of Electrolyte or Mineral	9	8	0	0	0	7	0	0	1	6	1	0	1	3	3	2	0	0	0
Vanadium and Vanadium Salts	2	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0
Zinc and Zinc Salts	1,131	966	569	30	43	268	7	42	7	847	45	3	64	106	149	104	19	0	0
Category Total:	**34,083**	**28,720**	**22,285**	**1,302**	**798**	**3,641**	**52**	**574**	**68**	**26,694**	**1,213**	**52**	**701**	**2,745**	**5,613**	**1,558**	**332**	**18**	**2**
Eye/Ear/Nose/Throat Preparations																			
Miscellaneous Eye/Ear/Nose/Throat Preparations																			
Topical Steroids For Eye/Nose/Throat	2,405	1,916	1,118	301	50	360	5	75	7	1,798	40	1	74	85	321	147	14	0	0
Nasal Preparations																			
Other Nasal Decongestants or Sympathomimetics (Excluding Tetrahydrazoline)	2,586	2,443	1,153	126	155	831	4	166	8	2,238	45	16	141	277	689	270	45	1	0
Other Types of Nasal Preparation	757	728	510	20	16	137	4	38	3	697	12	3	15	36	126	61	6	0	0
Tetrahydrozoline, Nasal Preparations	46	46	27	2	4	7	0	6	0	39	2	5	0	12	19	3	1	0	0
Unknown Types of Nasal Preparation	14	10	3	1	0	5	0	1	0	10	0	0	0	3	3	1	0	0	0
Ophthalmic Preparations																			
Contact Lens Products	3,637	3,529	1,929	51	207	1,129	6	188	19	3,460	31	9	28	565	422	652	156	0	0
Glaucoma Medications	296	255	86	7	2	137	1	22	0	235	4	0	16	36	65	22	5	0	0
Other Ophthalmic Sympathomimetics	1,037	990	575	31	94	223	5	54	8	802	55	79	50	227	363	90	17	0	0
Other Types of Ophthalmic Preparation	1,828	1,716	923	92	60	508	5	122	6	1,580	29	10	93	136	281	122	36	0	0
Tetrahydrozoline, Ophthalmic Preparations	2,157	2,076	1,429	47	156	349	5	80	10	1,781	80	183	24	480	912	102	33	1	0
Unknown Types of Ophthalmic Preparation	67	56	17	5	8	17	1	8	0	35	5	9	6	22	7	10	1	0	0
Otic Preparations																			
Combination Products	2,458	2,418	1,182	239	79	747	10	146	15	2,392	5	3	17	211	451	614	40	1	0
Other Types of Otic Preparation	2,207	2,178	999	127	64	838	4	139	7	2,157	4	0	17	192	293	539	35	0	0
Unknown Types of Otic Preparation	59	59	20	4	6	26	0	2	1	58	0	0	1	9	6	15	2	0	0
Throat Preparations																			
Other Types of Throat Preparation	562	531	196	80	59	164	0	32	0	477	39	1	14	63	125	46	7	0	0
Throat Lozenges with Local Anesthetics	423	374	195	42	35	78	1	22	1	333	20	0	20	27	92	14	2	0	0

(*Continued*)

Table 22B. Demographic profile of Single-Substance pharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< =5	6–12	13–19	> =20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Throat Lozenges without Local Anesthetics	1,577	1,483	1,305	79	32	53	1	12	1	1,436	30	2	15	30	284	44	1	0	0
Unknown Types of Throat Preparation	4	4	0	1	0	2	0	0	1	3	0	0	0	0	0	1	0	0	0
Category Total:	**22,120**	**20,812**	**11,667**	**1,255**	**1,027**	**5,611**	**52**	**1,113**	**87**	**19,531**	**401**	**321**	**531**	**2,411**	**4,459**	**2,753**	**401**	**3**	**0**
Gastrointestinal Preparations																			
Antacids																			
Antacids: Other Types	9,795	9,331	8,629	284	45	302	14	46	11	9,161	112	1	56	178	1,473	82	6	0	0
Antacids: Proton Pump Inhibitors	10,971	6,357	3,870	225	173	1,778	5	289	17	5,925	204	6	211	515	1,365	190	28	0	0
Antacids: Salicylate-Containing	2,846	2,581	2,157	159	41	198	3	21	2	2,423	72	1	80	227	694	86	12	0	0
Antidiarrheals																			
Antidiarrheals: Diphenoxylate and Atropine Containing	379	222	115	12	9	73	0	11	2	171	32	1	14	144	74	42	16	0	0
Antidiarrheals: Loperamide	1,519	1,202	759	53	30	323	0	36	1	1,026	109	0	61	328	448	94	25	4	0
Antidiarrheals: Non-Narcotic Containing (Excluding Salicyl Containing)	38	29	15	1	4	6	0	2	1	23	4	0	2	6	2	2	0	0	0
Antidiarrheals: Paregoric Containing	14	12	6	1	0	5	0	0	0	12	0	0	0	1	1	0	0	0	0
Antispasmodics																			
Antispasmodics: Anticholinergic Containing	3,301	1,818	938	96	99	602	2	68	13	1,504	207	3	91	615	587	227	96	4	0
Antispasmodics: Other Types	61	36	16	3	2	14	0	1	0	23	9	0	2	15	13	6	3	0	0
Miscellaneous Gastrointestinal Preparations																			
Laxatives	16,659	14,919	11,111	629	452	2,258	21	405	43	13,942	513	77	366	1,241	2,330	1,394	134	5	1
Other Types of Gastrointestinal Preparation	10,662	9,292	7,937	239	138	790	16	155	17	8,827	200	8	241	663	1,686	260	102	10	0
Unknown Types of Gastrointestinal Preparation	27	15	11	0	0	2	0	2	0	12	1	0	2	2	2	1	0	0	0
Category Total:	**56,272**	**45,814**	**35,564**	**1,702**	**993**	**6,351**	**61**	**1,036**	**107**	**43,049**	**1,463**	**97**	**1,126**	**3,935**	**8,675**	**2,384**	**422**	**23**	**1**
Hormones and Hormone Antagonists																			
Miscellaneous Hormones and Hormone Antagonists																			
Androgens	406	319	90	12	26	148	0	34	9	226	44	5	41	94	39	37	18	2	0
Corticosteroids	10,818	8,905	4,798	741	290	2,548	19	473	36	8,163	160	13	552	651	1,354	352	81	2	0
Estrogens	1,906	1,298	741	35	53	355	2	80	32	981	36	1	273	207	213	201	30	7	3
Insulin	5,507	4,824	148	87	111	3,981	0	458	39	4,419	334	11	45	1,680	1,947	207	645	36	4

(*Continued*)

Table 22B. Demographic profile of Single-Substance pharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< =5	6–12	13–19	> =20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
oral Contraceptives	8,889	7,614	6,261	227	459	497	13	138	19	7,041	467	6	91	516	1,313	203	13	0	1
Other Hormone Antagonists	552	422	155	26	11	194	0	34	2	381	22	1	17	77	103	22	4	1	1
Other Hormones	813	640	232	84	41	230	3	41	9	579	15	1	37	149	187	59	14	1	0
Progestins	2,047	1,818	919	45	177	511	2	106	58	1,271	23	3	515	442	277	357	62	4	0
Selective Estrogen Receptor Modulators	387	227	90	14	7	97	0	17	2	216	6	0	5	30	72	12	1	0	0
Thyroid Preparations (Including Synthetics and Extracts)	13,467	9,311	5,081	429	206	3,124	12	442	17	8,967	238	2	94	1,137	1,948	147	50	1	0
Unknown Hormones or Hormone Antagonists	24	12	4	2	3	3	0	0	0	8	3	0	1	3	2	1	0	1	0
Oral Hypoglycemic																			
Oral Hypoglycemics: Biguanides	7,128	3,386	961	104	201	1,910	2	192	16	2,872	410	3	83	850	971	196	115	35	7
Oral Hypoglycemics: Other or Unknown	1,117	524	222	15	12	236	0	37	2	477	26	0	20	208	207	23	42	3	0
Oral Hypoglycemics: Sulfonylureas	4,109	1,769	922	56	45	668	4	67	7	1,515	164	2	66	1,279	773	69	386	38	1
Oral Hypoglycemics: Thiazolidinediones	1,313	465	248	13	13	167	0	24	0	425	25	0	14	154	233	12	15	0	0
Category Total:	**58,483**	**41,534**	**20,872**	**1,890**	**1,655**	**14,669**	**57**	**2,143**	**248**	**37,541**	**1,973**	**48**	**1,854**	**7,477**	**9,639**	**1,898**	**1,476**	**131**	**17**
Miscellaneous Drugs																			
Other Miscellaneous Drugs																			
Allopurinol	761	297	161	14	7	94	1	19	1	273	13	1	8	36	85	10	2	0	1
Disulfiram	260	76	7	2	1	51	0	15	0	35	24	2	15	35	10	17	9	0	0
Ergot Alkaloids	225	163	95	3	13	43	0	8	1	138	9	1	15	93	65	26	4	1	0
Levo-Dopa and Related Drugs	974	513	165	4	4	316	0	24	0	456	36	1	15	145	150	82	32	0	0
Neuromuscular Blocking Agents (Succinylcholine, Curare, etc)	38	26	2	1	1	20	0	2	0	16	5	1	3	18	8	2	4	4	1
Nicotine Pharmaceuticals	1,307	1,186	677	78	41	331	3	50	6	956	75	5	146	315	373	197	46	2	0
Other Types of Miscellaneous Prescription or Over the Counter Drug	20,197	13,794	6,203	856	740	5,150	18	759	68	11,891	830	41	974	3,027	3,402	1,604	488	24	7
Category Total:	**23,762**	**16,055**	**7,310**	**958**	**807**	**6,005**	**22**	**877**	**76**	**13,765**	**992**	**52**	**1,176**	**3,669**	**4,093**	**1,938**	**585**	**31**	**9**
Muscle Relaxants																			
Miscellaneous Muscle Relaxants																			
Carisoprodol (Formulated Alone)	8,976	3,685	258	35	340	2,837	1	178	36	707	2,827	7	65	2,966	411	1,227	822	137	2
Cyclobenzaprine	10,184	4,546	1,621	212	430	2,054	2	187	40	2,559	1,826	4	82	2,617	1,265	961	570	85	0
Methocarbamol	1,526	741	148	37	97	399	1	57	2	398	312	1	22	325	164	116	57	2	0
Other Types of Skeletal Muscle Relaxant	7,286	3,344	779	79	298	1,974	2	187	25	1,630	1,514	9	132	2,078	724	661	627	148	1

(*Continued*)

Table 22B. Demographic profile of Single-Substance pharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Unknown Types of Muscle Relaxant	203	44	9	0	9	15	0	9	2	14	29	0	1	27	6	6	5	1	0
Category Total:	**28,175**	**12,360**	**2,815**	**363**	**1,174**	**7,279**	**6**	**618**	**105**	**5,308**	**6,508**	**21**	**302**	**8,013**	**2,570**	**2,971**	**2,081**	**373**	**3**
Narcotic Antagonists																			
Miscellaneous Narcotic Antagonists																			
Miscellaneous Narcotic Antagonist	327	150	7	5	12	99	0	26	1	45	46	13	44	88	12	27	21	8	0
Category Total:	**327**	**150**	**7**	**5**	**12**	**99**	**0**	**26**	**1**	**45**	**46**	**13**	**44**	**88**	**12**	**27**	**21**	**8**	**0**
Radiopharmaceuticals																			
Miscellaneous Radiopharmaceutical																			
Miscellaneous Radiopharmaceuticals	38	28	6	0	0	18	0	4	0	18	0	0	10	10	3	4	1	1	0
Category Total:	**38**	**28**	**6**	**0**	**0**	**18**	**0**	**4**	**0**	**18**	**0**	**0**	**10**	**10**	**3**	**4**	**1**	**1**	**0**
Sedative/Hypnotics/Antipsychotics																			
Barbiturates																			
Long Acting Barbiturates	2,209	1,336	321	34	62	838	3	69	9	948	325	4	36	522	278	214	128	41	0
Short or Intermediate Acting Barbiturates	269	120	13	2	7	83	0	11	4	73	40	1	0	66	13	27	20	5	2
Unknown Types of Barbiturate	38	12	0	2	1	7	0	1	1	2	8	1	0	8	1	0	2	1	0
Miscellaneous Sedative/Hypnotics/Antipsychotics																			
Atypical Antipsychotics	43,112	18,719	3,112	1,262	3,445	9,899	13	843	145	7,563	10,021	49	837	13,272	3,540	5,029	3,641	486	8
Benzodiazepines	80,322	31,188	6,984	833	3,134	17,855	34	1,960	388	11,662	18,195	295	570	20,642	6,327	9,438	3,030	290	8
Buspirone	2,657	931	173	45	133	512	0	64	4	433	437	1	46	472	263	182	50	2	0
Chloral Hydrate	168	97	27	5	5	56	0	2	2	44	40	2	8	68	9	36	21	5	0
Ethchlorvynol	2	2	1	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0
Meprobamate	42	22	2	0	3	16	0	1	0	10	10	0	2	12	3	4	5	2	0
Methaqualone	4	3	0	0	0	3	0	0	0	1	2	0	0	2	1	0	0	0	0
Other Types of Sedative/ Hypnotic/Anti-Anxiety or Anti-Psychotic Drug	25,835	12,472	1,708	649	1,311	7,903	10	760	131	5,213	6,643	26	398	7,481	1,914	3,942	1,392	101	5
Phenothiazines	4,702	2,026	291	64	214	1,315	1	127	14	936	816	10	241	1,328	394	413	464	37	0
Sleep Aids, Over the Counter Only (Excluding Diphenhydramine)	1,373	782	147	7	93	476	0	47	12	232	525	4	13	531	159	151	175	16	0
Unknown Types of Sedative/Hypnotic/ Anti-Anxiety or Anti-Psychotic Drug	277	118	4	1	12	66	1	28	6	10	90	9	4	84	9	21	12	0	0
Category Total:	**161,010**	**67,828**	**12,783**	**2,904**	**8,420**	**39,030**	**62**	**3,913**	**716**	**27,129**	**37,152**	**402**	**2,155**	**44,488**	**12,911**	**19,457**	**8,940**	**986**	**23**
Serums, Toxoids, Vaccines																			
Miscellaneous Serums, Toxoids, Vaccines																			
Miscellaneous Serums, Toxoids and Vaccines	2,581	2,310	523	232	191	1,040	26	248	50	1,713	7	2	576	623	221	407	100	6	0
Category Total:	**2,581**	**2,310**	**523**	**232**	**191**	**1,040**	**26**	**248**	**50**	**1,713**	**7**	**2**	**576**	**623**	**221**	**407**	**100**	**6**	**0**

(*Continued*)

Table 22B. Demographic profile of Single-Substance pharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Stimulants and Street Drugs																			
Cannabinoids and Analogs																			
Marijuana	3,799	937	132	21	336	359	2	66	21	272	570	34	39	562	110	174	146	10	0
Diet Aids																			
Diet Aids: Phenylpropanolamine and Caffeine Combinations	16	10	3	0	1	4	0	2	0	6	2	0	2	3	0	2	1	0	0
Diet Aids: Phenylpropanolamine Only	30	19	5	1	3	9	0	1	0	14	4	0	1	6	5	1	1	0	0
Other Types of Diet Aid, Over the Counter Only	223	183	105	6	19	48	0	4	1	124	32	3	24	65	50	26	13	2	1
Other Types of Diet Aid, Prescription Only	99	75	36	2	8	26	0	3	0	55	10	0	9	40	16	10	11	0	0
Unknown Types of Diet Aid	89	65	28	1	9	23	0	4	0	37	12	0	16	29	17	8	13	0	0
Miscellaneous Stimulants and Street Drugs																			
Amphetamines and Related Compounds	13,339	9,212	3,392	1,833	1,671	2,008	15	235	58	6,546	2,126	33	399	4,337	2,472	1,479	1,219	75	3
Amyl or Butyl Nitrites (Street Drugs)	57	47	5	0	0	37	0	4	1	16	29	0	0	29	5	9	9	0	1
Caffeine	4,535	3,343	1,249	154	788	985	10	147	10	1,890	1,021	22	393	1,096	570	629	393	7	0
Cocaine	5,293	1,707	54	13	144	1,322	2	137	35	184	1,448	34	11	1,461	349	264	431	88	6
Ephedrine	325	268	140	9	13	85	1	18	2	201	48	2	11	77	52	21	24	1	1
gamma-Hydroxybutyric Acid including Analogs or Precursors	541	348	9	0	32	265	2	29	11	62	191	65	8	276	15	66	102	46	1
Hallucinogenic Amphetamines	2,057	1,192	36	4	512	511	3	84	42	104	995	60	7	919	83	224	331	43	3
Heroin	2,384	1,249	18	3	126	943	2	131	26	97	1,062	49	19	1,087	126	173	330	187	15
Lysergic acid diethylamide (LSD)	249	128	3	0	57	52	0	11	5	19	96	9	3	97	7	18	50	2	0
Mescaline/Peyote	91	81	11	8	9	42	2	9	0	54	24	1	1	31	5	19	12	1	0
Methamphetamines	2,183	1,307	154	68	96	795	5	153	36	458	767	40	11	1,027	240	178	336	48	7
Methylphenidate	9,215	6,592	1,604	2,544	1,285	1,031	6	110	12	5,209	1,118	9	210	2,180	1,668	953	583	17	0
Other Hallucinogens	50	33	0	0	15	17	0	1	0	2	28	0	1	28	1	4	12	4	0
Other Stimulants (Excluding Amphetamines)	104	57	9	2	12	30	0	4	0	26	15	0	14	31	9	10	13	0	0
Other Street Drugs	24	19	5	0	5	8	0	0	1	6	12	0	1	12	3	5	6	0	0
Phenylcyclo hexylpiperidine (PCP)	713	319	17	5	45	216	0	29	7	59	231	10	5	265	21	54	111	25	1
Unknown Hallucinogens	6	5	0	0	3	2	0	0	0	1	4	0	0	3	0	1	2	0	0
Unknown Stimulants or Street Drugs	140	96	2	0	32	52	0	9	1	9	66	9	5	78	6	19	31	5	0
Category Total:	**45,562**	**27,292**	**7,017**	**4,674**	**5,221**	**8,870**	**50**	**1,191**	**269**	**15,451**	**9,911**	**380**	**1,190**	**13,739**	**5,830**	**4,347**	**4,180**	**561**	**39**

(*Continued*)

Table 22B. Demographic profile of Single-Substance pharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Topical Preparations																			
Miscellaneous Topical Preparations																			
Acne Preparations	3,532	3,380	2,092	175	383	582	5	133	10	3,195	56	7	121	188	642	330	39	0	0
Boric Acid or Borates (As Antiseptics, Excluding Insecticides)	83	77	38	2	3	30	0	4	0	75	2	0	0	14	25	2	1	0	0
Calamine (Including All Caladryl Type Products)	3,602	3,494	2,682	85	36	601	7	77	6	3,470	13	2	8	171	554	186	8	0	1
Camphor	10,908	10,714	8,807	276	247	1,162	23	184	15	10,463	151	14	77	1,017	3,133	1,265	68	9	0
Camphor and Methyl Salicylate Combinations	2,287	2,260	1,985	58	17	165	3	30	2	2,222	17	0	21	208	722	292	6	0	0
Diaper Care and Rash Products	45,524	44,964	43,205	374	252	850	115	148	20	44,892	39	6	23	599	6,545	773	19	1	0
Hexachlorophene Containing Antiseptics	28	28	11	1	0	12	0	4	0	25	0	1	1	7	5	3	0	0	0
Hydrogen Peroxide 3%	13,483	13,177	5,225	548	565	5,742	23	1,029	45	12,802	263	40	62	633	1,728	1,736	59	0	0
Iodine or Iodide Containing Antiseptics	1,066	968	326	58	96	401	2	75	10	801	94	8	56	213	203	188	31	2	0
Mercury Containing Antiseptics	97	94	58	4	0	27	0	5	0	83	3	0	7	16	26	7	2	0	0
Methyl Salicylate	9,077	8,993	7,046	360	184	1,146	17	223	17	8,754	71	20	144	761	1,962	1,342	50	0	0
Minoxidil, Topical	172	166	82	4	1	59	0	19	1	150	5	0	11	41	44	17	7	0	0
Other Types of Rubefacient or Liniment (Excluding Camphor and Methyl Salicylate)	3,509	3,424	2,268	91	67	821	3	166	8	3,066	27	2	325	190	528	583	46	2	0
Other Types of Topical Antiseptic	8,329	8,183	6,148	738	294	818	17	159	9	7,697	300	132	40	475	2,155	683	40	3	0
Podophyllin	51	48	7	3	2	27	0	9	0	28	8	0	12	17	8	10	3	0	0
Silver Nitrate	150	135	25	6	43	44	0	15	2	109	9	1	13	34	15	33	6	0	0
Topical Steroids (Including Otic, Ophthalmic, and Dermal Preparations)	11,216	10,887	7,844	467	163	1,973	19	403	18	10,754	36	3	90	218	1,585	346	21	2	0
Topical Steroids in Combination with Antibiotics (Including Otic, Ophthalmic, and Dermal Preparations)	1,382	1,347	710	105	50	389	3	84	6	1,300	12	2	31	85	196	205	12	1	0
Wart Preparations and Other Keratolytics	1,712	1,688	1,144	118	72	276	9	65	4	1,593	26	2	64	241	382	278	38	2	0
Category Total:	**116,208**	**114,027**	**89,703**	**3,473**	**2,475**	**15,125**	**246**	**2,832**	**173**	**111,479**	**1,132**	**240**	**1,106**	**5,128**	**20,458**	**8,279**	**456**	**22**	**1**
Unknown Drug																			
Miscellaneous Unknown Drug																			
Miscellaneous Unknown Drugs	20,175	15,284	5,385	780	2,001	5,479	158	1,103	378	7,890	4,341	742	946	9,021	2,856	1,944	1,796	579	55
Category Total:	**20,175**	**15,284**	**5,385**	**780**	**2,001**	**5,479**	**158**	**1,103**	**378**	**7,890**	**4,341**	**742**	**946**	**9,021**	**2,856**	**1,944**	**1,796**	**579**	**55**

(*Continued*)

Table 22B. Demographic profile of Single-Substance pharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< = 5	6–12	13–19	> = 20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Veterinary Drugs																			
Miscellaneous Veterinary Drugs																			
Miscellaneous Veterinary Drugs without Human Equivalent	3,207	3,033	963	129	104	1,573	3	234	27	2,882	59	12	75	327	664	432	58	7	0
Category Total:	**3,207**	**3,033**	**963**	**129**	**104**	**1,573**	**3**	**234**	**27**	**2,882**	**59**	**12**	**75**	**327**	**664**	**432**	**58**	**7**	**0**
Vitamins																			
Miscellaneous Vitamins																			
Other Types of Vitamin	831	630	453	42	14	94	3	21	3	564	28	0	37	75	168	35	10	0	0
Unknown Types of Vitamin	783	569	394	69	26	56	3	18	3	506	34	1	26	61	144	31	2	1	0
Multiple Vitamin Liquids: Adult Formulations																			
Multiple Vitamin Liquids: Adult Formulations with Fluoride (No Iron)	2	2	2	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0
Multiple Vitamin Liquids: Adult Formulations with Iron (No Fluoride)	129	100	55	7	1	30	1	6	0	89	6	0	5	9	15	4	0	0	0
Multiple Vitamin Liquids: Adult Formulations with Iron and Fluoride	4	3	3	0	0	0	0	0	0	3	0	0	0	0	2	0	0	0	0
Multiple Vitamin Liquids: Adult Formulations without Iron or Fluoride	277	191	107	15	12	46	0	11	0	162	17	0	12	29	43	14	5	1	0
Multiple Vitamin Liquids: Pediatric Formulations																			
Multiple Vitamin Liquids: Pediatric Formulations with Fluoride (No Iron)	316	294	284	7	1	2	0	0	0	291	1	0	2	17	52	8	0	0	0
Multiple Vitamin Liquids: Pediatric Formulations with Iron (No Fluoride)	620	586	570	8	4	2	1	1	0	578	1	1	6	35	128	19	1	0	0
Multiple Vitamin Liquids: Pediatric Formulations with Iron and Fluoride	37	37	36	1	0	0	0	0	0	37	0	0	0	0	6	0	0	0	0
Multiple Vitamin Liquids: Pediatric Formulations without Iron or Fluoride	504	475	434	33	5	2	1	0	0	460	9	0	5	24	79	22	0	0	0
Multiple Vitamin Tablets: Adult Formulations																			
Multiple Vitamin Tablets: Adult Formulations with Fluoride (No Iron)	43	34	33	1	0	0	0	0	0	34	0	0	0	2	7	1	0	0	0
Multiple Vitamin Tablets: Adult Formulations with Iron (No Fluoride)	7,125	5,787	4,368	112	218	933	11	138	7	5,478	201	6	96	518	1,409	194	15	1	0
Multiple Vitamin Tablets: Adult Formulations with Iron and Fluoride	60	50	33	1	2	14	0	0	0	45	5	0	0	9	14	1	0	0	0
Multiple Vitamin Tablets: Adult Formulations with Iron Carbonyl (No Fluoride)	108	95	72	2	3	16	0	2	0	88	5	0	2	9	32	1	0	1	0

(*Continued*)

Table 22B. Demographic profile of Single-Substance pharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	<=5	6–12	13–19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Multiple Vitamin Tablets: Adult Formulations without Iron or Fluoride	4,165	3,128	2,200	215	128	502	4	73	6	2,801	172	5	146	312	681	160	29	1	0
Multiple Vitamin Tablets: Pediatric Formulations																			
Multiple Vitamin Tablets: Pediatric Formulations with Fluoride (No Iron)	857	801	756	44	0	1	0	0	0	789	9	0	3	20	213	9	2	0	0
Multiple Vitamin Tablets: Pediatric Formulations with Iron (No Fluoride)	11,875	11,318	10,127	956	100	104	21	9	1	11,093	184	11	27	731	2,638	362	8	0	0
Multiple Vitamin Tablets: Pediatric Formulations with Iron and Fluoride	66	59	53	5	0	1	0	0	0	58	0	0	0	1	10	0	0	0	0
Multiple Vitamin Tablets: Pediatric Formulations with Iron Carbonyl (No Fluoride)	20	17	17	0	0	0	0	0	0	17	0	0	0	2	5	1	0	0	0
Multiple Vitamin Tablets: Pediatric Formulations without Iron or Fluoride	27,127	26,350	20,383	5,036	635	195	58	29	14	25,234	1,055	11	28	842	5,053	391	8	0	0
Multiple Vitamins, Unspecified Adult Formulations																			
Multiple Vitamins, Unspecified Adult Formulations with Fluoride (No Iron)	6	5	4	0	0	1	0	0	0	5	0	0	0	1	1	0	0	0	0
Multiple Vitamins, Unspecified Adult Formulations with Iron (No Fluoride)	2,184	1,587	1,144	64	61	239	5	70	4	1,493	68	0	24	162	363	51	8	0	0
Multiple Vitamins, Unspecified Adult Formulations with Iron and Fluoride	15	7	6	0	0	1	0	0	0	7	0	0	0	1	3	0	0	0	0
Multiple Vitamins, Unspecified Adult Formulations without Iron or Fluoride	75	53	39	3	2	7	0	2	0	49	3	0	1	3	10	4	0	0	0
Multiple Vitamins, Unspecified Pediatric Formulations																			
Multiple Vitamins, Unspecified Pediatric Formulations with Fluoride (No Iron)	37	36	35	1	0	0	0	0	0	35	1	0	0	1	9	0	0	0	0

(*Continued*)

Table 22B. Demographic profile of Single-Substance pharmaceuticals exposure cases by generic category

			Age							Reason					Outcome				
	All Exposures	Single Substance Exposure	< =5	6–12	13–19	> =20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn	Treated in Health Care Facility	None	Minor	Moderate	Major	Death
Multiple Vitamins, Unspecified Pediatric Formulations with Iron (No Fluoride)	110	104	97	6	1	0	0	0	0	102	1	0	1	11	18	4	2	0	0
Multiple Vitamins, Unspecified Pediatric Formulations with Iron and Fluoride	13	13	11	2	0	0	0	0	0	13	0	0	0	2	5	0	0	0	0
Multiple Vitamins, Unspecified Pediatric Formulations without Iron or Fluoride	550	532	424	92	13	2	1	0	0	515	16	0	1	21	115	6	0	0	0
Other Vitamins																			
Other B Complex Vitamins	4,559	3,325	2,751	84	49	342	5	85	9	3,132	84	3	102	189	642	81	11	1	0
Vitamin A	696	567	413	31	20	72	0	30	1	509	25	1	32	44	111	19	4	0	0
Vitamin B3 (Niacin)	3,011	2,501	719	24	291	1,247	2	202	16	1,220	373	2	893	477	168	738	121	7	0
Vitamin B6 (Pyridoxine)	390	229	161	7	9	39	1	9	3	206	12	1	8	26	49	8	2	1	0
Vitamin C	2,235	1,642	1,293	135	42	135	1	33	3	1,540	69	1	31	69	250	72	4	1	0
Vitamin D	2,940	2,353	954	113	43	1,062	3	168	10	2,175	48	1	125	274	416	84	25	2	0
Vitamin E	998	707	580	28	14	69	0	15	1	670	22	0	15	36	149	25	2	0	0
Category Total:	**72,768**	**64,187**	**49,011**	**7,144**	**1,694**	**5,214**	**121**	**922**	**81**	**60,000**	**2,449**	**44**	**1,628**	**4,014**	**13,008**	**2,345**	**259**	**17**	**0**
Pharmaceuticals Total:	**1,564,773**	**1,064,887**	**578,491**	**66,175**	**80,094**	**295,483**	**1,663**	**37,842**	**5,139**	**839,342**	**179,000**	**3,613**	**35,690**	**281,814**	**237,361**	**110,554**	**52,604**	**7,395**	**497**
Total (Nonpharmaceuticals + Pharmaceuticals):	**2,849,086**	**2,241,191**	**1,254,384**	**144,456**	**134,547**	**589,826**	**5,843**	**100,520**	**11,615**	**1,945,720**	**216,976**	**14,049**	**53,333**	**445,995**	**441,258**	**282,165**	**86,784**	**9,609**	**718**

(this table can be viewed separately online at www.informahealthcare.com/ctx)

Appendix A – Acknowledgments

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Poison Centers (PCs)

We gratefully acknowledge the extensive contributions of each participating PC and the assistance of the many health care providers who provided comprehensive data to the PCs for inclusion in this database. We especially acknowledge the dedicated efforts of the Specialists in Poison Information (SPIs) who meticulously coded 4,280,391 calls made to US PCs in 2009.

As in previous years, the initial review of reported fatalities and development of the abstracts was the responsibility of the staff of the participating PCs. These PCs and individuals are listed at the beginning of this report.

Many individuals at each center participate in the review of their centers fatality cases. The following toxicology professionals summarized and prepared their center's fatality data for NPDS:

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The Lead and Peer review of the 2009 fatalities was carried out by the 29 individuals listed here. The authors and the AAPCC wish to express our appreciation for their volunteerism, dedication, hard work and good will in completing this task in a limited time.

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**These reviewers further volunteered to read the top ranked 200 abstracts and judged to publish or omit.*
***Ms. Lynn F. Durback-Morris passed away in October 2010. The Fatality Review Team and the AAPCC recognize Ms. Durback-Morris for her years of selfless service to the fatality review process and to poison centers and clinical toxicology.*

AAPCC Surveillance Team

NPDS surveillance anomalies are analyzed daily by a team of 10 medical and clinical toxicologists working across the country in a distributed system. These dedicated professionals interface with the National Center for Environmental Health – Health Studies Branch at the Centers for Disease Control and Prevention (CDC) and the PCs on a regular basis to identify anomalies of public health significance and improve NPDS surveillance systems:

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Regional Poison Center (PC) Fatality Awards

Each year the AAPCC and the Fatality Review team recognized several regional PCs for their extra effort in their preparation of fatality reports and prompt responses to reviewer queries during the review process. The awards were presented at the October 2010, North American Congress of Clinical Toxicology meeting in Denver, CO

First Center to Complete all Cases, 1-Dec-2009 South Texas Poison Center (San Antonio)
Highest Percentage with Autopsy Reports, 100% of 2 cases Western New York Poison Center (Buffalo),
Largest Number Autopsy Reports, 31 autopsies of 43 fatalities Kentucky Regional Poison Center (Louisville)
Highest Overall Quality of Reports, 11.0 of possible 14 for their 2 fatalities Western New York Poison Center (Buffalo)
Most Abstracts Published in 2008 Annual report – a tie with 9 each California Poison Control System (San Francisco) Carolinas Poison Center (Charlotte)
Outstanding Case Preparation New York City Poison Control Center (New York)
Most Helpful Regional Poison Center Staff – a tie Hennepin Regional Poison Center (Minneapolis) Children's Hospital of Michigan Regional Poison Control Center (Detroit)

APPENDIX B – Data Definitions

Reason for Exposure

NPDS classifies all calls as either EXPOSURE (concern about an exposure to a substance) or INFORMATION (no exposed human or animal). A call may provide information about one or more exposed person or animal (receptors).

Specialists in Poison Information (SPIs) coded the reasons for exposure reported by callers to PCs according to the following definitions:

Unintentional general: All unintentional exposures not otherwise defined below.

Environmental: Any passive, non-occupational exposure that results from contamination of air, water, or soil. Environmental exposures are usually caused by manmade 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 used as 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.

Medical Outcome

No effect: The patient did not develop any 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 mucus membranes (e.g., 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 systemic in nature than minor symptoms. Usually, some form of treatment is indicated. Symptoms were not life-threatening, and the patient had no residual disability or disfigurement (e.g., 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 (e.g., 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.

Not followed, judged as nontoxic exposure: No follow-up calls were made to determine the outcome of the exposure because the substance implicated was nontoxic, the amount implicated was insignificant, or the route of exposure was unlikely to result in a clinical effect.

Not followed, minimal clinical effects possible: No follow-up calls were made to determine the patient's outcome because the exposure was likely to result in only minimal toxicity of a trivial nature. (The patient was expected to experience no more than a minor effect.).

Unable to follow, judged as a potentially toxic exposure: The patient was lost to follow-up, refused follow-up, or was not followed, but the exposure was significant and may have resulted in a moderate, major, or fatal outcome. Unrelated effect: The exposure was probably not responsible for the effect.

Confirmed nonexposure: This outcome option was coded to designate cases where there was reliable and objective evidence that an exposure initially believed to have occurred actually never occurred (e.g., all missing pills are later located). All cases coded as confirmed nonexposure are excluded from this report.

Death, indirect report: Death, indirect report are deaths that the poison center acquired from medical examiner or media, but did not manage nor answer any questions about the death.

Relative Contribution to Fatality (RCF)

The definitions used for the Relative Contribution to Fatality (RCF) classification were as follows:

Undoubtedly responsible - In the opinion of the CRT the Clinical Case Evidence establishes beyond a reasonable doubt that the SUBSTANCES actually caused the death.

Probably responsible - In the opinion of the CRT the Clinical Case Evidence suggests that the SUBSTANCES caused the death, but some reasonable doubt remained.

Contributory – In the opinion of the CRT the Clinical Case Evidence establishes that the SUBSTANCES contributed to the death, but did not solely cause the death. That is, the SUBSTANCES alone would not have caused the death, but combined with other factors, were partially responsible for the death.

Probably not responsible - In the opinion of the CRT the Clinical Case Evidence establishes to a reasonable probability, but not conclusively, that the SUBSTANCES associated with the death did not cause the death

Clearly not responsible - In the opinion of the CRT the Clinical Case Evidence establishes beyond a reasonable doubt that the SUBSTANCES did not cause this death.

Unknown - In the opinion of the CRT the Clinical Case Evidence is insufficient to impute or refute a causative relationship for the SUBSTANCES in this death.

Appendix C – Abstracts of Selected Cases

Selection of Abstracts for Publication

The abstracts included in Appendix C were selected for publication in a 3-stage process consisting of qualifying, ranking and reading. Qualifying was based on the RCF – only RCF = 1-Undoubtedly Responsible, 2-Probably Responsible or 3-Contributory were eligible for publication. Fatalities by Indirect report were excluded beginning with the 2008 annual report. Ranking was based on the number of substances (1/N) and weighted case score. The case weighting factors were the averages chosen based on review team recommendations in 2006. Each case score was multiplied by the respective factors to obtain a weighted publication score: Hospital records *4.4 + Postmortem *7.6 + Blood levels *6.9 + Quality/Completeness *6.4 + Novelty/Educational value * 6.0. Scores were normalized (z-score) within each reviewer before the final weighting: 33% for 1/N and 67% for weighted case scores.

The top ranked abstracts (200 + ties) were each read by individual reviewers (See Appendix A) and the 2 managers (Cantilena and Spyker). Each reader judged each abstract as ''publish'' or ''omit'' and all abstracts receiving 4 or more publish votes were selected, further edited and cross-reviewed by the 2 managers.

Abstracts

Abstracts of the cases were selected (see Selection of Abstracts for Publication, above) from the human fatalities judged related to be an exposure as reported to US PCs in 2009. A structured format for abstracts was required in the PC preparation of the abstracts and was used in the abstracts presented. Abbreviations, units and normal ranges omitted from the abstracts are given at the end of this appendix

Case 13. Acute methanol ingestion: undoubtedly responsible.
Scenario/Substances: A 44 y/o female drank windshield wiper fluid containing methanol, told her parents she was not feeling well, and had a witnessed seizure and cardiac arrest, and presented to the ED
Past Medical History: depression, ethanol abuse including non-beverage alcohol, pancreatitis.
Physical Exam: Unresponsive, pupils fixed and dilated, BP 92/45, HR 93, RR 26, T 32.6°C.
Laboratory Data: ABG-pH 6.78/pCO_2 41/pO_2 308/$HCO_3$6

Na 144	Cl 112	BUN 22	Glu 125
K 6.3	HCO_3 7	Cr 1.7	

WBC 16.2, Hgb 11.1, Platelets 231, AST 200, ALT 116, Alk phos 128 IU/L, bilirubin: 0.2, INR 1.1, PTT 70.4, fibrinogen 250, lactate 14.8 mmol/L, troponin 0.37, UDS positive for hydroxyzine and cetirizine. Methanol 269 mg/dl; ethanol, ethylene glycol, propylene glycol, acetaminophen and salicylate were not detected.
Clinical Course: The patient was initially in asystole, but was resuscitated after ~20 min of CPR. IV fomepizole was administered. She was given sodium bicarbonate and started on a dopamine drip. The patient was then transferred to a tertiary facility for hemodialysis. On arrival her methanol level was 269 mg/dL, she was started on dialysis and her methanol level gradually decreased to 14 mg/dL over 24 hr. IV fomepizole was administered every 4 hr while on dialysis. She received therapeutic hypothermia. After rewarming, she was determined to be brain dead. Comfort measures were instituted and she expired 48 hr post-admission.
Autopsy Findings: No autopsy performed.

Case 17. Chronic methanol ingestion: undoubtedly responsible.
Scenario/Substances: A 47 y/o male drank methanol that he obtained from work, became ataxic and confused before going to sleep. He was found comatose and transported to the ED
Past Medical History: Alcoholism
Physical Exam: Altered mental status, intubated patient.
Laboratory Data: ABG-pH 6.72/pCO_2 165/pO_2 58.

Na 150	Cl 111	BUN 19	Glu 133
K 5.2	HCO_3 7	Cr 1.9	

3 ½ hr later: ABG-pH 7.13/pCO_2 68/p O_2 56. SGOT 89, SGPT 72, lactic acid 10.6 mg/dL, ammonia 501 mcg/dL. Methanol > 200 mg/dL (initial); then 66 mg/dL post dialysis.
Clinical Course: The patient arrived intubated, was given fomepizole and leucovorin. Dialysis initiated within a few hours of arrival; lactulose was given for hyperammonemia. Pressors administered for hypotension. Day 2 pupils were fixed and dilated; fomepizole, leucovorin and lactulose continued. Day 3 CT scan showed cerebellar and cerebral edema with global hypoxia. He expired on Day 4.
Autopsy Findings: Not available.

Case 53. Acute ethylene glycol ingestion: undoubtedly responsible.
Scenario/Substances: A 53 y/o male found unresponsive in a hotel room with a suicide note and a ¾ full bottle of antifreeze beside him. EMS found the patient unresponsive with cold and mottled extremities. Intubation performed in the field.

Past Medical History: Not provided.
Physical Exam: In ED, BP 224/101, HR 101, 35.1°C, pupils were normal.
Laboratory Data: Ethylene glycol 37.4 mg/dL, anion gap 37,

Na 147	Cl 107	BUN 22	Glu 219
K 6.4	HCO_3 3	Cr 2.2	

osmolar gap 73, UDS negative, WBC 38.5; ethanol and acetaminophen not detected.
Clinical Course: Fomepizole 15 mg/kg, thiamine and sodium bicarbonate were given and hemodialysis initiated within 2.5 hr of ED arrival; post hemodialysis pH 7.28, HCO_3 15. Norepinephrine was given for hypotension. Fomepizole and hemodialysis continued for 2 days. An ethylene glycol level at the end of the 3rd 4-hr hemodialysis run was 18 mg/dL. Day 4, he remained unresponsive, a head CT done at the time revealed extensive injury to the brainstem, basal ganglia, and left occipital lobe. Comfort measures were instituted and he expired on Day 6.
Autopsy Findings: Not available.

Case 54. Ethylene glycol, methadone, and alprazolam ingestion: undoubtedly responsible
Scenario/Substances: A 55 y/o female was heard making sonorous respirations while sleeping the night before being discovered in cardiopulmonary arrest.
Past Medical History: Diabetes mellitus, drug abuse (methamphetamine and methadone).
Physical Exam: Cardiopulmonary arrest; Post-resuscitation: Anisocoria, unresponsive, BP 113/60, HR 108.
Laboratory Data: ABG-pH 6.8/pCO_2 66/p O_2 517, Ca 9,

Na 137	–	BUN 18	Glu 430
K 3.5	HCO_3 16	Cr 1.5	

lactic acid 10.6 mmol/L, ethylene glycol 50 mg/dL; methanol, acetaminophen and salicylate not detected. UDS positive for methadone and benzodiazepines.
Clinical Course: The patient received fomepizole for suspected toxic alcohol ingestion which was discontinued on Day 2 when ethylene glycol was no longer detected. On Day 3, no neurological improvement was seen, brain death was determined and the patient was taken to the operating room for organ harvesting.
Autopsy Findings: Death was attributed to complication of a polysubstance overdose with ethylene glycol, methadone and alprazolam as the major contributors. Postmortem analysis of serum obtained at hospital admission showed methadone 134 ng/mL and alprazolam 40.8 ng/mL.

Case 60. Acute disc battery ingestion: undoubtedly responsible.
Scenario/Substances: A 2 ½ y/o male ingested a watch battery and had a week of daily, nonbloody, nonbilious emesis after eating solid food but tolerating liquids. The last day the emesis was bloody with clots and the child's father found the battery in the emesis.
Physical Exam: No acute distress, GCS 15, BP 111/50, P 135, R 29, T 36°C. Physical exam was unremarkable.
Laboratory Data: Hgb 9.6, coagulation panel normal, abdominal and CxR were normal.
Clinical Course: No further episodes of emesis noted in the ED and patient transferred to a tertiary hospital for GI endoscopy. 90 min after transfer, he had a possible seizure episode with bradycardia (HR 50s) which resolved with oxygen. His level of responsiveness declined; he passed a large melenotic stool; Hgb 7.9. Packed RBCs were given. 2 hours later, he deteriorated, was intubated and given more packed RBCs for profound hypotension. Hgb was 3l; platelets 4,000. Approximately 500 ml of bright red blood returned from an NG tube. He developed bradycardia with hypotension for which ACLS was instituted. Treatment with epinephrine, NaCO3, calcium, transfusion, FFP and glucose-insulin for hyperkalemia were given. An upper GI endoscopy was unsuccessful due to blood obscuring the visualization of a possible source. A Sengstaken-Blakemore tube was inserted orally and the upper balloon inflated, but this failed to stabilize the patient. The resuscitation was unsuccessful and the patient expired.
Autopsy Findings: Anatomic findings on autopsy were foreign body aspiration, anamnestic (watch battery) and esophageal 2 cm ulceration with erosion into an anomalous right subclavian artery. The surrounding tissue was fibrotic and exhibited diffuse insinuating hemorrhage. Cause of death was acute hemorrhage due to esophageal ulceration. Manner of death was accidental.

Case 69. Acute lithium dermal exposure: undoubtedly responsible.
Scenario/Substances: A 23 y/o female working in a university chemistry laboratory sustained burns to 45% of her body because of an explosion involving t-butyl lithium.
Physical Exam: 45% body surface area burns.
Clinical Course: The patient was aggressively debrided, admitted to a burn unit, and given burn and aggressive supportive care for 18 days. Day 13 she produced 8,000 ml of urine and was diagnosed with diabetes insipidus. Day 13 blood lithium was 0.3 mEq/L. She died of sepsis and respiratory failure on Day 19.
Autopsy Findings: 43% BSA burns, mostly third degree.

Case 74. Acute ammonia exposure (inhalation, ocular, dermal): undoubtedly responsible.
Scenario/Substances: A 31 y/o male was exposed to anhydrous ammonia while transporting it under pressure. The patient was pronounced dead at the scene.
Past Medical History: Cardiomegaly, hepatic steatosis, morbid obesity (BMI 48.8)
Physical Exam: 43% body-surface area superficial and partial-thickness burns, tongue burns noted

Laboratory Data: UDS negative, urine ethanol 30 mg/dL, blood drug screen negative; blood acetone, isopropanol, and methanol not detected
Autopsy Findings: Pulmonary congestion and hemorrhage, mild cerebral edema, skin and airway burns due to anhydrous ammonia exposure (~43% total body surface area burns, airway mucosal damage)

Case 79. Acute cyanide inhalation: undoubtedly responsible.
Scenario/Substances: A 45 y/o male jeweler was found down after mixing an electroplating solution with a second chemical. EMS administered CPR until the cyanide hazard was appreciated. He was pronounced dead at the scene.
Laboratory Data: Not available.
Autopsy Findings: Spotty cherry red discoloration, moderate atherosclerotic coronary vascular disease, serum cyanide 18 mcg/mL.

Case 80. Acute methyl bromide inhalation: undoubtedly responsible.
Scenario/Substances: A 45 y/o female set off a fogger containing methyl bromide in her home, reentered without airing out the home and went to sleep. She was found outside her home drooling, with diarrhea, with a nose bleed. EMS found her O_2 sat 80%, administered atropine and oxygen.
Past Medical History: Diabetes mellitus.
Physical Exam: Awake, oriented but lethargic. BP 124/51, HR 124, RR ''rapid and shallow'', no muscle fasciculations noted.
Laboratory Data: ABG-pH 7.22, Hct 48, K 3.3, BUN 14, Cr 2.1, glucose 382, AST 426, ALT 183.
Clinical Course: In the ED 6 hr after exposure, she became agitated and confused, exhibited myoclonic jerking with a picking behavior. IV fluids and norepinephrine were administered for hypotension. Decontamination was performed prior to intubation and transfer to another hospital for intensive care. She became unresponsive and hypothermic requiring a warming blanket. Pralidoxime was administered without improvement. Pupils became fixed and dilated; pH 7.08, O_2 sat 86% on O_2. BP declined despite pressors and a fatal cardiopulmonary arrest occurred on Day 2.
Autopsy Findings: No significant external findings. Lungs were dark red and mottled with anthracotic pigment, congestion and edema. Microscopic examination showed congestion of the lungs, with a few extravasated blood cells in the alveoli and focal atelectais. The liver showed congestion and mild lobular inflammation of the liver. Kidney showed congestion. Femoral blood bromide level 9.2 mg/dL (normal <0.5 mg/dL, toxic after methyl bromide exposure >15 mg/dL). The medical examiner concluded that the patient died an accidental death from complications of methyl bromide toxicity.

Case 85. Acute ammonia exposure (inhalation, ocular, dermal): undoubtedly responsible.
Scenario/Substances: A 53 y/o male, transporting anhydrous ammonia under pressure at work, was exposed when the chemical vessel leaked. Rescuers at the factory doused the patient with water and EMS placed a King Airway. The patient's HR ranged from 20 to 40 throughout transport to a local level 1 trauma center with a burn unit.
Physical Exam: Intubated and unresponsive, partial thickness burns to the face that involved the nares and oral mucosa, diffuse chemosis of the eyes with corneal and conjunctival burns, anterior and lateral partial thickness burns to the neck, and superficial burns of the chest.
Laboratory Data: WBC 26.2, Hgb 15.7, platelets 281, INR 1.3, PTT 39.3, ABG-pH 7.26/pCO_2 37/p O_2 65/HCO_3 17

Na 139	Cl 100	BUN 22	Glu 322
K 4.6	HCO_3 24	Cr 1.5	

CK 229, troponin <0.030, ethanol not detected, UDS negative.
Clinical Course: In the ED the King Airway was replaced with an endotracheal tube. An orogastric tube returned gross blood. Chest x-ray showed bilateral perihilar infiltrates. A central line was placed and vasopressors were started. The patient's eyes were kept moist with saline and antibiotics. Pro-Kera amniotic rings were placed in the eyes to attempt to re-grow the conjunctivae. The patient progressed to acute renal failure and intermittent hemodialysis was initiated, and progressed to continuous renal replacement therapy. The patient's acute lung injury progressed to ARDS. The initial head CT was concerning for neurologic injury and an EEG confirmed global encephalopathy. The grafts sloughed shortly after placement secondary to the patient's multiorgan failure. Given the patient's anoxic brain injury, severe chemical eye burns, respiratory failure, renal failure and need for dialysis, the patient's family elected institution of comfort measures and he expired 14 days after admission.
Autopsy Findings: Not performed.

Case 95. Acute sodium hydroxide ingestion: undoubtedly responsible.
Scenario/Substances: A 75 y/o male ingested an unknown amount of a drain cleaner containing sodium hydroxide in a suicide attempt.
Past Medical History: depression, chronic obstructive pulmonary disease, diabetes mellitus, hypertension, arthritis, and hyperlipidemia.
Physical Exam: Awake, alert and oriented, responding appropriately to questions. Erythema of the oral cavity and coffee ground emesis noted. BP 190/88, HR 100, RR 12, O_2 sat 100% on room air.
Laboratory Data: ABG-pH 7.30/pCO_2 57/pO_2 187. WBC 20.2, Hgb 14.3, Hct 44, INR 0.88. Acetaminophen and salicylates were not detected.

Clinical Course: After several attempts, he was intubated and placed on a ventilator. NG tube was placed and returned bloody drainage. IV fluids and antibiotics were given. BP declined to 80/50. Emergent bronchoscopy was done to evaluate blood in the endotracheal tube. Because of the severity of the burn and the poor prognosis, the decision for comfort measures was made and the patient expired 8 hours after ingestion.

Autopsy Findings: Internal examination showed a scant amount of bloody liquid in the stomach. The lower 1/3 of the esophagus and the gastroesophageal junction was a red-black to gray-black, eroded and thin. Ninety percent of the gastric mucosa was markedly congested with superficial mucosal ulceration. The duodenum and jejunum had marked mucosal congestion. The liver was noted to have macrovesicular steatosis, focal hepatocellular necrosis and mild chronic triaditis. The esophagus showed coagulative necrosis with transmural mixed inflammatory infiltrate. The stomach showed focal transmural necrosis with submucosal edema, fibrin and mixed inflammatory infiltrate.

Case 101. Acute drain cleaner (acid) ingestion: undoubtedly responsible.

Scenario/Substances: A 34 y/o female drank 16 ounces of a drain cleaner containing 93% sulfuric acid, was found vomiting with burns of her mouth and lips. EMS noted burns of the epiglottis, intubated, and transported her to the ED.

Past Medical History: Medications: lithium and trazodone for an unspecified psychiatric disorder.

Laboratory Data: 10–12 hr post ingestion: WBC 43.5, INR 1.39, ABG-pH 6.8/pCO_2 44

Na 139	Cl 111	BUN 20	Glu
K 6.5	HCO_3 8	Cr 1.6	

CK, 628, AST 56, ALT 17, lactate 0.9 mmol/L

Clinical Course: In the ED, lethargic, BP 135/90, HR 80. She developed hypoventilation (O2 sat 67%) with evidence of pulmonary edema, hypotension (BP 71/40) with maximum doses of norepinephrine and IV fluids, T 38.9° C, pupils 8 mm and nonreactive. Her stomach became distended and she died on Day 2.

Autopsy Findings: Chemical burns on lips, oral mucosa, and tongue; esophageal burns with perforation of the proximal esophagus; chemical burns of the stomach with multiple perforations; caustic fluid in the pleural cavity and abdomen; chemical burns in the lung, spleen, liver, and intestines.

Case 105. Acute ammonia based cleaner and bleach ingestion: undoubtedly responsible.

Scenario/Substances: A 60 y/o female drank unknown quantities of ammonia based cleaner and bleach. The patient reported vomiting and diarrhea.

Past Medical History: Depression and diabetes.

Clinical Course: About 1 hr after arriving at the hospital

Na 173	Cl –	BUN 14	Glu 323
K 4.0	HCO_3 11	Cr 1.5	

Acetaminophen and salicylate not detected, AST 11, ALT 37, Alk phos 76. At 3 hr after arrival in the ED, the patient had a seizure, was intubated, ventilated, and given oxygen. Fomepizole was administered empirically. She received vasopressors and IV fluids for hypotension. An arterial line and dialysis catheter were placed. The patient's BP was 130/70 on vasopressors and dialysis was performed. Day 2 methanol and ethylene glycol were not detected (sampled 15 hr after admission), Hgb 2, Na 147, ALT 6, AST 86, CK 251, troponin 0.06 ng/mL, INR 4.6. The patient began bleeding from all orifices and lines. She received FFP, packed RBCs, and cryoprecipitate. The patient was dialyzed again on Day 2; urine output was 30–60 mL/hr. Vasopressors were discontinued, systolic BP was 160–170 and HR 71. On Day 3, the patient had a massive GI bleed, developed cerebral edema and a herniated brain stem and expired.

Autopsy Findings: Gastrointestinal erosions, cause of death due to adverse effects of bleach and window cleaner ingestion. Post mortem midazolam 0.07 mg/L and lidocaine detected.

Case 106. Acute drain cleaner ingestion: undoubtedly responsible.

Scenario/Substances: A 62 y/o male intentionally ingested 4–6 ounces of drain cleaner. EMS found a HR 140. He complained of abdominal pain and was transported to the ED.

Past Medical History: Atrial fibrillation.

Clinical Course: From the ED he was immediately taken to surgery which showed burns to the esophagus and the stomach and evidence of a perforated bowel. He was hypotensive with a BP 90/60 on phenylephrine. He was intubated, sedated, and ventilated. About 9 hr later, he was taken back to surgery and his entire stomach was removed because of extensive necrosis. They were unable to assess the esophagus because of intubation. The patient remained sedated with propofol, but when sedation was lightened, the patient responded appropriately to questions. On Day 3, the patient was transferred to an advanced care facility. He was hemodynamically unstable requiring high doses of vasopressors and developed multi-system organ failure. Further surgery was not possible because the patient was too unstable and he expired.

Autopsy Findings: No autopsy performed.

Case 108. Acute hydrofluoric acid ingestion: undoubtedly responsible.

Scenario/Substance: A 70 y/o female told her husband she ingested 8 ounces of rust remover 4 hours earlier. She

complained to EMS personnel of chest tightness while enroute to the ED.
Past Medical History: diabetes, anxiety, and depression with multiple prior suicide attempts.
Physical Exam: Awake, alert and oriented; appeared depressed and was acting inappropriately. Chest pain subsided to 0/10.
Clinical Course: During ED triage, she stated ''I don't feel good'';11 min after ED arrival, she became unresponsive, and had a ventricular fibrillation arrest. Resuscitation was unsuccessful and she expired 27 minutes after arrival to the ED.
Autopsy Findings: Gross internal and external findings were unremarkable except for arteriosclerotic heart disease. Hypocalcemia (0.8 mg/dL) and hypomagnesemia (0.4meq/L) were noted on a metabolic panel. Uncertain if the blood sample was pre or post mortem. UDS positive for citalopram. The pathologist concluded that death was caused by ventricular fibrillation due to the effects of hydrofluoric acid poisoning and the manner of death was suicide.

Case 109. Acute household cleaner ingestion: probably responsible.
Scenario/Substances: A 70 y/o female nursing home resident drank an unknown amount of a household all purpose cleaner. She began to vomit and developed wheezing. She was transported to the ED by EMS.
Past Medical History: Dementia.
Physical Exam: Respirations very shallow with wheezing.
Clinical Course: She had a ''not to be resuscitated advanced directive'' and was pronounced dead shortly after arriving in the ED. The tracheobronchial tree contained a slight amount of frothy fluid, and the stomach contained 720 cc of yellowish/tan liquid mixed with food contents that smelled like oranges.
Autopsy Findings: Final necropsy diagnosis included: 1) h/o dementia 2) h/o drinking some ''all-purpose'' cleaner 3) nodular fibrosis of mitral valve leaflets 4) toxicology results included therapeutic levels of diphenhydramine 0.05 mg/L, chlordiazepoxide 0.37 mg/L, nordiazepam 0.32 mg/L, oxazepam 0.04 mg/L, citalopram 0.52 mg/L, and norcitalopram 0.18 mg/L 5). Gastric samples were not tested quantitatively but qualitatively results listed as compounds detected consistent with those found in the all purpose cleaning product. Cause of death listed as metabolic abnormalities due to ingestion of commercial cleaning fluids. Blood and ocular fluid samples measured with GC/MS for ethanol, methanol, acetone, and isopropanol levels were negative. ELISA and FPIA testing was positive for benzodiazepines.

Case 115. Acute alkaline degreaser ingestion: undoubtedly responsible.
Scenario/substance: An 88 y/o female nursing home resident accidentally ingested a ''taste'' of a grease cutter that was on a cart in a food preparation area. Within 1 hour of exposure, she complained of oral irritation, throat and chest discomfort and was taken to a nearby hospital.
Past Medical History: Dementia.
Physical Exam: Remarkable for lip and tongue swelling and erythema.
Laboratories: Chest CT revealed esophageal perforation extending into trachea.
Clinical Course: The patient underwent endotracheal intubation and was transferred to a tertiary care hospital. Clinical evidence of esophageal perforation with subsequent mediastinitis developed; Antibiotics were administered. After consultation with the family comfort care only was provided and she died on Day 7.
Autopsy Findings: Medical examiner's cause of death: complications from liquid alkaline degreaser ingestion with contribution from dementia.

Case 122. Acute dry fire extinguisher ingestion: undoubtedly responsible.
Scenario/Substances: A 34 y/o male ingested the contents of a powdered fire extinguisher.
Past Medical History: Schizophrenia, retardation, and inappropriate ingestions. In the week before this ingestion he was seen twice in an ED for attempting to inhale the same powdered fire extinguisher.
Physical Exam: Unconscious, powder about his nose and mouth, and in respiratory distress.
Clinical Course: During EMS transport he was suctioned and intubation attempted. He expired shortly after ED arrival.
Autopsy Findings: Absence of powder in the airway or of signs of airway obstruction. A large amount of powder was found in the stomach. Toxicology screening was negative. Coroner ascribed death to: ''airway compromise with chemical exposure''.

Case 132. Acute hydrogen sulfide, inhalation: undoubtedly responsible.
Scenario/Substances: An 18 y/o male researched hydrogen sulfide online before purchasing an unknown animal fungicide and a lye-based drain cleaner in order to make hydrogen sulfide. He was heard to scream and was found unresponsive supine on floor with blankets and towels around his head in his bedroom. A large cooking pot containing an unknown fluid was on the floor and an unknown odor was in the air. His mother called 911. EMS found the patient in cardiac and respiratory arrest, he was intubated, given epinephrine and atropine. The fire department later reported that patient's clothing tested positive for hydrogen sulfide.
Past Medical History: Apparent depression, but not formally diagnosed. No prior suicidal threats or attempts.
Physical Exam: He arrived in ED intubated and was placed on a propofol drip. BP 140/55, HR 152, RR 23, O_2 sat 99% on 100% fiO2, T 36.4°C. Pupils fixed and dilated. No gag or corneal reflexes. Spontaneous upper and lower extremity muscle activity present. Skin on face, left hand and both feet was red.

Laboratory Data: COHgb 2.2, UDS negative

Na 144	Cl 101	BUN 15	Glu 150
K 3.0	HCO_3 10	Cr 1.3	

ABG (6 hr after admission) pH 7.31/pCO_2 35/pO_2 379.
Clinical Course: Chest x-ray showed opaque area in right upper lung. Head CT showed severe cerebral edema with possible tonsillar herniation. Day 2 neurological exam showed no change in corneals/gag reflex and no spontaneous respirations. Comfort measures were instituted and he expired on Day 2.
Autopsy Findings: Upper and lower airways contained abundant yellow mucoid fluid. Cut surfaces of pulmonary parenchyma exuded profound amounts of blood and frothy edema fluid. Multiple lung sections showed profound alveolar edema, extravasated RBC and a diffuse acute inflammatory infiltrate. Cerebral hemispheres were profoundly edematous with prominent cerebellar notching and necrosis, consistent with herniation. Sections of hippocampus showed marked diffuse acute neuronal injury. Urine Cr 243 mg/L. Cause of death: complications of cerebral edema due to anoxic brain injury due to inhalation of hydrogen sulfide gas.

Case 134. Acute carbon monoxide inhalation. undoubtedly responsible.
Scenario/Substances: A 20 y/o female was asleep in her house when it was set aflame in an arson fire. She was asleep for ~30 min before she was removed and brought to the ED.
Past Medical History: Asthma and anxiety.
Physical Exam: BP 113/69, HR 119, RR 24, able to breathe on her own, and would slightly move her extremities; Pupils 2 to 3 mm and responsive to light, extensive carbonaceous material on her tongue and the roof of the mouth, secretions thick in the back of her throat and had gurgling respirations. Soot was caked in her nostrils; coarse rhonchorous breath sounds. No burns to the skin
Laboratory Data: COHb 41.1%, O_2 sat 74% on 100% O_2.

Na 145	Cl 105	BUN 11
K 4.1	HCO_3 10	Cr 1.1

ABG-pH 6.92/pCO_2 57/pO_2 386; acetaminophen and salicylate were not detected, UDS positive for benzodiazepines and cannabinoids.
Clinical Course: She was intubated on arrival to the ED, treated with hyperbaric oxygen. In the burn ICU, she was found to have PVCs and a mild troponin elevation. Echocardiogram was unremarkable. Head CT and EEGs showed no neurological recovery. The patient's family elected the institution of comfort measures and she expired on Day 4.
Autopsy Findings: Lungs showed pneumonia and some remaining soot particles. Post-mortem toxicology screen negative.

Case 141. Acute aluminum phosphide ingestion: undoubtedly responsible.
Scenario/Substances: A 29 y/o male intentionally ingested 4 tablets of aluminum phosphide pesticide he had purchased in India.
Past Medical History: Not provided.
Physical Exam: His O_2 sat was 83% on room air. He had one episode of urinary incontinence.
Laboratory Data: pH 6.99, bicarbonate 8 mEq/L.
Clinical Course: In the ED, the patient complained of abdominal pain and drowsiness. Over the next hour he became hypotensive, hypoxic, and acidotic. Within 3 HR of presenting to the ED, the patient died.
Autopsy Findings: Cause of death was the adverse effects of phosphine.

Case 147. Carbon monoxide inhalation: undoubtedly responsible.
Scenario/Substances: A 41 y/o male was found unconscious in a camper which was being heated by a generator along with another male who was pronounced dead at the scene. Ambient CO level was 12 ppm 30 minutes after the doors to camper were opened.
Past Medical History: Heroin abuse.
Physical Exam: BP 81/53, HR 102, RR 20. Pupils were 2 mm bilaterally and unreactive. Coarse breath sounds were heard on both lung fields. GCS 4 on no sedation with minimal withdrawal to pain.
Laboratory Data: ABG-pH 7.39/CO230/pO_2 342

Na 142	Cl 99	BUN 31	Glu 212
K 4.2	HCO_3 22	Cr 1.6	

Lactate 5.3 mmol/L, COHb > 70% by transcutaneous co-oximeter.
Clinical Course: Hypotension (60 systolic) was treated with dopamine. Hyperbaric oxygen (HBO) was started but discontinued after 60 minutes due to BP 240/120 that persisted despite stopping dopamine. COHb was 9% after HBO therapy. ICU care included intermittent norepinephrine for continuing hypotension. Day 2: Echocardiogram revealed severely reduced global left ventricular systolic function (EF 20%). Day 3: MRI of the brain with and without contrast showed extensive bilaterally symmetrical T2 signal hyperintensities in the basal ganglia and in the periventricular white matter typical for severe carbon monoxide poisoning. Septic shock occurred requiring antibiotics. On Day 5 he was transferred to hospice where he died on Day 8.
Autopsy Findings: No autopsy was done. Cause of death was carbon monoxide poisoning. Manner of death was accidental.

Case 155. Acute carbon monoxide inhalation: undoubtedly responsible.
Scenario/Substances: A 42 y/o female was found in full cardiopulmonary arrest in her bedroom. Her parents were found deceased in the garage, next to the generator being used by the family during an ice storm/power outage.
Past Medical History: Down syndrome.
Physical Exam: The patient had been deceased for an unknown duration,
Clinical Course: No resuscitation was attempted and the patient was declared dead at the scene.
Autopsy Findings: Death was attributed to carbon monoxide intoxication, secondary to generator exhaust fumes. Post mortem COHb42%.

Case 157. Acute hydrogen sulfide inhalation: undoubtedly responsible.
Scenario/Substances: A 23 y/o male worker lost his footing and fell into an 18 foot deep by 3 foot wide cesspool while trying to unstop the drain with a long pipe plunger. The father, a 49 y/o male, went down the hole to rescue his son. When the 2 failed to respond to cries from their employees, a third employee, a 52 y/o male went into the hole also.
Physical Exam: All 3 patients expired at the scene
Overcome by fumes. When first responders arrived at the scene, they retrieved the bodies of all 3 men. They were found face down at the bottom of the ladder. The hydrogen sulfide gas level at the bottom of the cesspool was 200 parts per million.
Autopsy Findings: none

Case 158. Acute inhalation: undoubtedly responsible.
Scenario/Substances: A 23 y/o male worker lost his footing and fell into an 18 foot deep by 3 foot wide cesspool while trying to unstop the drain with a long pipe plunger. The father, a 49 y/o male, went down the hole to rescue his son. When the 2 failed to respond to cries from their employees, a third employee, a 52 y/o male went into the hole also and was overcome by fumes.
Clinical Course: When first responders found all 3 face down at the bottom of the ladder. All 3 patients expired at the scene. Hydrogen sulfide gas concentration at the bottom of the cesspool was 200 ppm.
Autopsy Findings: No autopsy was performed.

Case 160. Acute carbon monoxide inhalation: undoubtedly responsible.
Scenario/Substances: A 54 y/o female found in the garage next to a generator used by the family during an ice storm/power outage and on top of the body of her deceased husband. Her body was found wedged between that of her husband and the generator. Her clothing had caught on fire.
Past Medical History: Permanent tracheostomy, s/p lapband procedure.
Physical Exam: The patient had been deceased for an unknown duration and had 45% body surface area burns.
Clinical Course: No resuscitation was attempted and the patient was declared dead at the scene.
Autopsy Findings: Death was attributed to carbon monoxide intoxication, secondary to generator exhaust fumes. Postmortem blood analyses (site unspecified) revealed COHb50.4% and oxycodone 41.7 ng/mL.

Case 167. Acute carbon monoxide inhalation: undoubtedly responsible.
Scenario/Substances: A 63 y/o male was found in full cardiopulmonary arrest of unknown duration in the garage next to the generator used by the family during an ice storm/power outage and beneath the body of his deceased wife. A flashlight was found underneath the decedent and the coroner believed the descendent had been working on the generator in the dark and was overcome by the fumes.
Past Medical History: Not available.
Physical Exam: The patient had been deceased for an unknown duration,
Clinical Course: No resuscitation was attempted and the patient was declared dead at the scene.
Autopsy Findings: Death was attributed to carbon monoxide intoxication, secondary to generator exhaust fumes. Postmortem COHb73.3%, pseudoephedrine 870 ng/mL and codeine 33.2 ng/mL.

Case 192. Acute elemental mercury ingestion/aspiration: undoubtedly responsible.**Scenario/Substance:** A 23 y/o male intentionally drank an unknown quantity of elemental mercury which he had obtained by ''recycling computers'' at his home. He vomited after the ingestion. There was no evidence that the mercury was heated in his home.
Past Medical History: Depression, anxiety, h/o appendectomy.
Physical Examination: ED VS: BP 116/65, HR 145, RR 14, T 37.7°C, O_2 Sat 96% on room air.
Laboratory Data: Serum and urine toxicological screens were positive for opiates; acetaminophen and ethanol were not detected. K 3.4, Cr 1.32, random urine mercury 9,980 mcg/L.

Hours after Ingestion	Serum Mercury	On Succimer
17	838 mcg/L	No
53	840 mcg/L	Yes
79	546 mcg/L	Yes
100	495 mcg/L	Yes

Clinical Course: He presented to the ED with nausea, vomiting, abdominal pain, headache, body aches and a cough ~3 hr after ingesting the mercury. He was admitted and started on succimer chelation therapy. He developed respiratory distress with RR in the 40s. He was started on bilevel positive airway pressure, developed O2 Sat in the 80s, and was intubated. Serial chest and abdominal X-rays

showed radio opaque substance in the bilateral lung bases and throughout the small intestine. Whole bowel irrigation with polyethylene O_2glycol solution was unable to clear the mercury from his bowel. He developed worsening ARDS and could not tolerate bronchoscopy with attempted lavage of the mercury. On Day 12, despite being in a rotor-bed and being on FiO2 of 100%, the patient's O_2 sat dropped into the 40s%. He required multiple vasopressors, he was unable to maintain a viable BP and expired from acute respiratory failure.

Autopsy Findings: Immediate cause of death: Mercury intoxication and complications (external viewing only).

Post-mortem toxicology: negative screen for ethanol, acetone, isopropanol, and methanol. Negative prescription drug panel screen.

Case 193. Acute thallium, ethanol ingestion: undoubtedly responsible.

Scenario/Substance: A 36 y/o male ingested grains of thallium sulphate from an old bottle of rodent and ant poison in an apparent suicide attempt.

Past Medical History: Depression.

Physician Exam: Extremely agitated and confused. BP 141/60, HR 146, RR 20, O_2 sat 96% on room air. The remainder of the examination was unremarkable.

Laboratory Data: Bun 32, Cr 3.7, 5 hr post ingestion serum thallium >1000 mcg/L (reference range <5); urine spot thallium >2000 mcg/L (reference range 0.4 mcg/g Cr), 24 hour urine thallium for the first 48 hr post exposure (2 separate 24 hr urine collections): >2000 mcg/L (reference range less than 2 mcg/L).

Clinical Course: Chemical and physical restraints were employed with lorazepam infusion; IV fluids and multi-dose activated charcoal were given; Prussian blue (200 mg/kg/day) was given via NG tube 18 hours after presentation when it became available. Activated charcoal was discontinued when Prussian blue was started. Day 2 the patient was intubated for airway protection; Tachycardia and hypertension continued for 48 hours with renal insufficiency. Day 3 pressors were required for hypotension and he was transferred to a tertiary care center for CRRT. The patient expired shortly after transfer to the second hospital.

Autopsy Results: Not provided.

Case 194. Acute copper sulfate pentahydrate ingestion: undoubtedly responsible.

Scenario/Substances: A 41 y/o female ingested 21 ounces of a 99% crystalline copper sulfate pentahydrate solution used as a root killer.

Past Medical History: Not obtainable

Physical Exam: Agitated and following commands on arrival but rapidly became obtunded. VS: BP 131/106, HR 110, T 37.1°C, RR 30. She had oropharyngeal erythema and edema with blue stained lips and vomitus, Pupils 5 mm and reactive. Extremities were cool and blue; circumoral and acral cyanosis noted.

Laboratory Data: Glucose 159, Ca 8.8, ionized Ca 3.9, albumin 6.1, AST 1753, ALT 480, alk phos 138, total bilirubin 1.5, lipase 1382, WBC 18.1, Hgb 17.8, Hct 54.7, platelets 326.

UDS negative; acetaminophen, salicylate, and ethanol were not detected. Urine 2+ ketones, comprehensive toxicology showed diphenhydramine. ECG: sinus HR 95 with unusual P axis, tall peaked T waves in all leads, PR 158 msec, QRS 108 msec, QTc 434 msec. Chest X-ray showed no infiltrate.

Clinical Course: Immediately after arrival in the ED ($\sim$5 hr after ingestion) an NG tube was placed and drained a large amount of blue liquid. 50 gm of activated charcoal was instilled. She rapidly became unresponsive and was intubated. O_2 sat 80%, HR 180, QRS widened with tall peaked T waves. Hyperkalemia (K 7.8) treated with IV calcium chloride + sodium bicarbonate + insulin + glucose. She received BAL IM and IV N-acetylcysteine. She developed an anion gap metabolic acidosis, hepatorenal insufficiency and pancreatitis. She was noted to be blue and cold. Upon transfer to the ICU, she became hypotensive, initially responded to IV fluids. BP remained labile requiring norepinephrine, phenylephrine, and vasopressin. O_2 sat 80s on 100% FiO2 + 5 PEEP. At 5 hr after arrival her pH 6.79, metHgb level of 20%, platelets 107, Hgb 13.2, Hct 46 with metamyelocytes and nucleated RBCs and evidence of hemolysis. Hemodialysis was precluded by hemodynamic instability. Her K has corrected to 5, but HCO_3 dropped to 14, Cr 2.41, glu 68, total Ca 5.8, albumin 1.3, CK 786, troponin I 0.35. She showed evidence of bleeding. A 2-D echocardiogram showed decreased LV chamber size with moderate LV concentric hypertrophy, and severely decreased left ventricular systolic function. She remained blue. At 10 hr post-arrival, she had no palpable BP and a sinus rhythm between 80–90. Her skin and lips were slate-blue colored and her nailbeds were grey. She was 34°C axillary on a warming blanket. She was flaccid with no reflexes, pupils were 6–8 mm and unresponsive to light. She became bradycardic, CPR was started and atropine and methylene blue were given IV. She could not be revived and was pronounced dead 11 hr after arrival.

Autopsy Findings: Autopsy showed green discoloration of the lips and nail of hands, feet, brain, and internal organs; pericentral necrosis and micro-vesicular steatosis of the liver; mild intra-alveolar edema, and ascites. Toxicology analysis detected no drugs.

Case 200. Acute kerosene ingestion/aspiration: undoubtedly responsible.

Scenario/Substances: A 62 y/o male ingested an unknown amount of kerosene and spilled kerosene onto his skin. He had access to 1 quart of kerosene. He was found within minutes by a caretaker who noted him to be hallucinating and coughing. He was transported to the ED.

Past Medical History: dementia secondary to tertiary syphilis, seizure disorder, hypertension, depression, anemia, thrombocytopenia. Medications included phenytoin and lisinopril.

Physical Exam: The smell of kerosene was noted on the patient, BP 109/76, HR 104, RR 17 (ventilator) and O_2 sat 99% (FiO2 not provided).
Laboratory Data: ABG-pH 7.28–7.4/pCO_2 30–36/pO_2 72–92, HCO_3 11, Na 138, K 3.8. UDS positive for barbiturates and benzodiazepines.
Clinical Course: He was decontaminated, sedated with propofol, intubated, placed on a ventilator, and given IV fluids and antibiotics in the ICU. He was noted to have loose, oily stools and developed bilateral pulmonary infiltrates with metabolic acidosis. Sodium bicarbonate infusion was initiated. Hypotension required treatment with pressors; he exhibited skin sloughing and rising Cr. His respiratory status declined and he remained unresponsive off sedation. He exuded the smell of kerosene throughout the hospitalization. He expired on Day 7.
Autopsy Findings: External examination and medical records were reviewed. The pathologist concluded that the patient died of complications of an accidental kerosene ingestion.

Case 203. Acute kerosene ingestion/aspiration: undoubtedly responsible.
Scenario/Substances: A 14-month-old male ingested a ''gulp'' of kerosene, coughed and choked. Respiratory symptoms persisted, and he was transported by EMS to the ED. En route, his mental status deteriorated.
Physical Exam: In the ED he was unresponsive, in respiratory distress, systolic BP 30–40, HR 150, pupils 6 mm and sluggish bilaterally, O_2 sat 50% with bag-valve mask.
Laboratory Data: Chest x-ray showed diffuse interstitial infiltrates.
Clinical Course: He was intubated the ED and was transferred to a tertiary care hospital for pediatric intensive care. He remained hypotensive during flight and was given several IV crystalloid boluses. On arrival to the pediatric ICU, his endotracheal tube was changed from an uncuffed to a cuffed endotracheal tube because of high airway pressure and persistent air leak. He was started on norepinephrine and dopamine infusions, was switched to bag ventilation, but had persistent anion-gap negative metabolic acidosis and progressive pulmonary dysfunction. He was changed over to a respiratory oscillator, started on an epinephrine infusion and was then flown to another center for extracorporeal membrane oxygenation (ECMO). Perfusion pressure, oxygenation, and acid-base status improved with ECMO, but he developed an intra-abdominal compartment syndrome and laparotomy demonstrated diffusely ischemic bowel. His grave prognosis was discussed with his family, they elected the institution of comfort measures, and he expired 23 hr after the ingestion/aspiration.
Autopsy Findings: Final cause of death was ''metabolic acidosis due to hypoxia, and shock, due to ingestion and inhalation of kerosene. Laparotomy ''showed ischemic bowel.''

Case 204. Acute Amanita phalloides ingestion: undoubtedly responsible.
Substances/Scenario: A 31 y/o female ingested sautéed wild mushrooms with her husband and cousin after picking them at an unknown location. The mushrooms were yellowish in color and looked similar to mushrooms that patient's family grew on their farm. She awoke 9 hr after ingestion with acute abdominal pain, nausea, and vomiting every 15 – 20 min followed by watery diarrhea.
Physical Exam: Awake, alert. BP 106/75, HR 124, RR 22, T 36.3 C, O_2 sat 99% on room air. No asterixis. Chest was clear to auscultation. Normal heart sounds, regular rate and rhythm. Abdomen was soft, mildly tender, no ascites, with active bowel sounds. Skin was nonicteric.
Laboratory Data: ABG-pH 7.22/pCO_2 30/pO_2 103

Na 138	Cl 107	BUN 41	Glu 153
K 4.6	HCO_3 11	Cr 3.0	

Ca 8.8, WBC 18.6, Hgb 16.1, Hct 48.0, platelets 443; albumin 5.0, total protein 9.0, total bilirubin 0.7, INR 1.07, AST 115, ALT 86
Nine hr later: Albumin 3.9, amylase 168, lipase 748
AST 751, ALT 816, total protein 7.5, total bilirubin 2.1, alk phos 88, WBC 16.9, Hgb 17.2, platelets 434
Day 3: AST 3995, ALT 4166, total bilirubin 3.6, PT 37.4, INR 3.4
Clinical Course: Multiple dose activated charcoal 25 gm every 4 hrs, IV N-acetylcysteine, vitamin K 10 mg, and penicillin G every 6 hours were started. A mycologist identified the mushroom specimen as Amanita phalloides. She was given vitamin K 10 mg subcutaneously and a sodium bicarbonate drip was started prior to transfer to a tertiary care center for possible liver transplantation. IV carnitine and silybinin were administered. IV Pen G was discontinued due to severe thrombocytopenia. Coagulopathy with low measured factor V, gastrointestinal bleeding, massive diarrhea with bloody output developed; blood products and FFP continuous infusion were given during entire hospitalization. Mental status deteriorated, elevated ammonia levels and eventual coma with nonconjugate gaze were seen. Seizure activity began late in the hospitalization and worsened cardiovascular status despite multiple pressors and aggressive blood product support. Renal failure was identified on Day 4; the patient expired on Day 13 from fulminant hepatic failure secondary to Amanita toxicity.
Autopsy findings: Not available.

Case 205. Acute cyclopeptide mushroom ingestion: undoubtedly responsible.
Scenario/Substances: A 52 y/o male picked mushrooms in Maryland, froze them then later defrosted one and ate it in his soup. He noticed the first GI symptoms ~8 hr later. He continued to have nausea, vomiting, diarrhea and abdominal pain and presented to the ED 2 days after ingestion with hematochezia.
Past Medical History: Hypertension

Physical Exam: BP 62/42, HR 113, T 33.4°C, tachypnea, respiratory distress, but still able to speak with difficulty.
Laboratory Data: ABG-pH 6.87/pCO_2 19.4/pO_2 152 /, HCO_3 4.1, O_2 sat 98 % on room air, Cr 3.8, HCO_3 7.5, AST <10, ALT <5, Alp phos 132, bilirubin (total) 4.3, amylase 642 IU/dL, lipase 416 IU/L, INR 12.5, PTT 76.
Clinical Course: He was transferred to a tertiary center based on his renal failure and coagulopathy. He was intubated the next day, received a sodium bicarbonate drip, vasopressors, FFP, CVVHD, IV N-acetylcysteine, IV penicillin G, and antibiotics for sepsis. He was not felt to be a transplant candidate due to his multisystem organ failure. Three days after ingestion troponin was 2.29, ALT 2,203, AST 2,165. He showed some improvement in mental status and vasopressors were discontinued as hypotension resolved but his extremities became ischemic and gangrenous 12 days after ingestion; pupils became fixed and dilated. The patient's family elected the institution of comfort measures and he expired 13 days after the ingestion. The assessment was fatal cyclopeptide mushroom toxicity.
Autopsy Findings: ME agreed that the death was from acute mushroom toxicity.

Case 215. Acute endosulfan ingestion: undoubtedly responsible.
Scenario/Substances: A 2 y/o 15 kg female ingested an unknown amount of what was thought to be a pesticide and was given milk to drink by a parent shortly afterwards. She was found by EMS in status epilepticus. Diazepam (1.25 mg) and midazolam (4 mg) were given in the field.
Physical Exam: HR 190 – 200; L pupil 2 mm, R pupil 3 mm. Lung exam described as ''wet''. The patient did not have a chemical odor.
Laboratory Data: ABG-pH 6.7/pCO_2 113/pO_2 49/HCO_3 14.
Clinical Course: Seizures continued despite additional doses of benzodiazepines and multiple 1 mg doses of atropine and IV sodium bicarbonate. Pralidoxime was considered, but was not available. The ingested chemical was brought to the ED in an unlabeled water bottle and reportedly smelled like paint remover. The product was identified as endosulfan 4 hr post ingestion when a family member retrieved the product label. The patient was sedated with pentobarbital and given cholestyramine (80 mg per kilogram 3 times a day) and started on N-acetylcysteine. On Day 3, hemodynamic instability developed requiring pressor support. Pupils were reported as dilated. Day 5 head CT revealed cerebral edema; hemodynamic instability continued through Day 8 when an EEG and brain flow studies revealed absence of higher brain function. Comfort measures were instituted and she expired on Day 9.
Autopsy Findings: not available

Case 216. Acute pesticide, ethanol, xylene ingestion: probably responsible.
Scenario/Substances: A 23 y/o male was found unresponsive on the floor of his residence. EMS noted emesis, coma, pinpoint pupils, shallow respirations, ronchi on lung exam, and urinary/fecal incontinence. He was intubated and transported to the ED.
Past Medical History: Chronic ethanol abuse.
Physical Exam: BP 70/50, HR 62, RR 12, T 88 F. Pupils pinpoint, nonreactive. Abdomen flat and without bowel sounds.
Laboratory Data:
ABG-pH 6.9/pCO_2 54/pO_2 555 (on high flow oxygen)

Na 151	Cl 109	BUN 10	–
K 3.7	HCO_3 14	Cr 1.9	

WBC 19,800, Hct 34.2; INR 1.2, Ca 7.3, Mg 2.5, CPK 3,946, CKMB 86.7, AST 77, ALT 25, amylase 201, lactic acid 15.2 mmol/L. ECG: ST depression in inferior and lateral leads. UDS negative.
Clinical Course: A central line was placed for IV fluids administration. BP 90 systolic with dopamine and norepinephrine infusion. Bradycardia to HR 40 then 20s prior to an asystolic arrest. Despite full resuscitation attempts, he expired.
Autopsy Findings: During the postmortem exam a strong chemical odor was noted forcing the pathologist to leave the room and call a hazmat team, who tested liquid material found in the stomach and advised it was a volatile organic compound. Premortem blood was analyzed for solvents and found to contain: ethanol 66 mg/dL, ethyl acetate (not quantified). o-xylene 2.8 mcg/mL, m-xylene 6.8 mcg/mL, p-xylene 2.8 mcg/mL. Subsequent laboratory testing of gastric contents and postmortem blood found thiabendazole (not quantified).

Case 220. Acute strychnine ingestion: undoubtedly responsible.
Scenario/Substances: A 43 y/o male was observed by a co-worker to ingest 3 handfuls of gopher getter pellets (1.8% strychnine). He rapidly collapsed and EMS was called.
Past Medical History: depression with prior suicide attempts. Medications included: zolpidem 10 mg, duloxetine 60 mg, trazodone 50 mg, alprazolam, and methylin.
Physical Exam: Comatose, apneic patient in cardiac arrest; cyanotic, CPR in progress.
Laboratory Data: Cardiac monitor revealed asystole.
Clinical Course: Resuscitation efforts were unsuccessful and he was pronounced dead in the ED.
Autopsy Findings: Cause of death: Acute strychnine poisoning. Pulmonary edema and congestion; diffuse cerebral extracellular edema; dilated cardiomyopathy. Femoral blood strychnine 22.6 mg/L, trazodone 0.25 mg/L (therapeutic).

Case 225. Acute methyl bromide dermal/inhalation: undoubtedly responsible.

Scenario/Substances: A 56 y/o pesticide applicator was working with a canister of soil fumigant when it exploded. The fumigant contained 67% methyl bromide, and 33% chloropicrin.
Past Medical History: Diabetes mellitus, hypertension, coronary artery disease (s/p CABG x 4 vessels).
Physical Exam: Awake, alert complaining of burning in his lungs. BP 110/64, HR 80, RR 14–16. Superficial burns noted on his lower extremities and back.
Clinical Course: The patient was intubated and ventilated. BP was supported with IV fluids and pressors. Rapidly progressive multi-organ system (pulmonary and cardiovascular) failure occurred – intractable hypotension preceded terminal cardiac arrest 14 hours after exposure.
Autopsy Findings: Trachea showed areas of denuded mucosa. Both lungs were congested and weighed 970 grams (left) and 1130 grams (right). Death was attributed to ''sequelae of inhalation of methyl bromide''.

Case 231. Chronic brodifacoum exposure: undoubtedly responsible.
Scenario/Substances: A 35 y/o female who ultimately succumbed to coagulopathy associated with brodifacoum exposure from an unclear source.
Past Medical History: The patient developed pulmonary embolus 15 months PTA and was treated initially with heparin and then warfarin for 6 months. She reported anemia 7 months PTA, easy bruising 3 months PTA and current persistent dizziness and malaise. Colonoscopy and esophageal-gastric endoscopy showed hemorrhagic gastritis treated with esomeprazole. Her hematologist followed her severe intermittent iron deficiency anemia (Hgb 3 – 4), INR 6–7, persistently low protein C and S and low vitamin K-dependent factors. One month PTA she received FFP and vitamin K (10 mg daily 3 times a week) which did not reverse the coagulopathy. A blood test was positive for brodifacoum. Neither the patient nor her family could offer any explanation for the brodifacoum in her blood. She received factor VII concentrate as an outpatient. But she became dizzy, developed a swollen leg and was taken to the ED.
Clinical Course: At the time of her initial (and subsequent) ED admissions she exhibited bruising, and ecchymoses. She was found to have a severe anemia and a severe bleed into her legs. She received high dose vitamin K and therapeutic levels were confirmed by blood vitamin K concentrations. She presented to the ED 8 months later with a brain stem hemorrhage and was declared brain dead the following day. The family donated her organs.
Autopsy Findings: No autopsy was performed.

Case 246. Acute multiple drug ingestion: undoubtedly responsible.
Scenario/Substances: A 17 y/o male ingested an unknown quantity of his methadone, propranolol, gabapentin, fexofenadine, and lovastatin. He was found unresponsive and apneic. EMS found him in PEA and transported him to the ED.
Clinical Course: He was successfully resuscitated in the ED and admitted to the pediatric ICU. On arrival to the PICU, he suffered a cardiac arrest from which he could not be resuscitated.
Autopsy Findings: Postmortem serum: methadone 267 ng/mL, EDDP 35.5 ng/mL, gabapentin 31.1 ng/mL, venlafaxine 118 ng/mL, and propranolol 140 ng/mL. Cause of death was multiple drug toxicity.

Case 260. Acute morphine ingestion: undoubtedly responsible.
Scenario/Substances: A 20 y/o male ingested 10 tablets of 100 mg sustained release morphine in an attempt to harm himself. He received naloxone by EMS although at that time he did not have respiratory depression. He was transported to the ED.
Past Medical History: Asthma, previous drug addiction
Physical Exam: On arrival to the ED, ~1 hr after ingestion, the patient was awake and alert, physical exam was unremarkable. Approximately 12 hr later, he was unresponsive in respiratory and cardiac arrest. At that time, pupils were 1–2 mm and minimally reactive, hypoactive bowel sounds, VS: (after resuscitation by ACLS protocol), HR 112, systolic BP 80–90.
Laboratory Data: Pre-arrest: acetaminophen, salicylate, and ethanol were not detected, AST 21, ALT 32,

Na 141	Cl 104	BUN 14	Glu 103
K 4.1	HCO_3 26	Cr 1.1	

Clinical Course: While in the ED, he had a normal mental status, did not have respiratory depression and remained hemodynamically stable. He was transferred to the inpatient psychiatry ward ~5 hr after exposure where he was noted to be lethargic but had good vital signs and RR. Nearly 12 hr after exposure, the patient was found to have snoring respirations and shortly thereafter, had apnea and asystole. He was intubated and received multiple doses of atropine, epinephrine and bicarbonate. He remained asystolic for ~15 min and was successfully resuscitated. After resuscitation

Na 142	Cl 102	BUN 29	Glu 26
K 5.7	HCO_3 14	Cr 2.8	

Gluc rose to 98 mg/dL after 50 g of D50), anion gap 26, ABG-pH 7.22/pCO_2 31/ pO_2 451, WBC 19.7, Hgb 13.3, Hct 38.5, platelets 53, CK 18,659, CKMB 105. He required vasopressor support for hypotension (dopamine, norepinephrine, and dobutamine). Approximately 2.5 hr after the initial cardiac arrest, he arrested again with PEA. After successful resuscitation (duration ~7 min), he had a prolonged ICU course including hemodynamic instability,

renal failure requiring CVVHD and hemodialysis and seizure activity. He never regained consciousness and head CT Hand EEG was consistent with severe anoxic brain injury. He was made comfort care only on Day 14 and he expired on Day 15.
Autopsy Findings: Preliminary autopsy report: cause of death was terminal bronchopneumonia, manner of death was suicide.

Case 272. Acute oxycontin ingestion: undoubtedly responsible.
Scenario/Substances: A 21 y/o male with chronic pain and depression was found lethargic by family members after he texted one of them that he no longer wanted to live and was taking pills.
Past Medical History: Depression, chronic pain. Medications included oxycodone, alprazolam, and carisoprodol.
Laboratory Data: UDS positive for opiates, benzodiazepines, and tricyclic antidepressants. Serum acetaminophen and salicylate were not detected; ethanol was 10 mg/dL; ECG showed normal QRS and QT intervals.
Clinical Course: He arrived at the ED lethargic with miotic pupils and responded to naloxone. A naloxone drip 0.4 mg/hr was begun and he was admitted. He was discharged the following day. He appeared depressed to family members but he ate a regular dinner before going to bed. The next morning he was found dead.
Autopsy Findings: Pills and pill particles were found in the stomach. There was dried yellow/orange substance inside and outside the mouth. Evidence of pulmonary aspiration of gastric contents was found. The cause of death was determined to be multidrug toxicity and respiratory arrest. Premortem blood: ethanol 0.01 g%, alprazolam 0.018 mg/L, carisoprodol 13 mg/L, meprobamate 7.8 mg/L, diazepam 0.02 mg/L, oxycodone 0.13 mg/L, quetiapine 0.004 mg/L, cannabinoids positive by immunoassay. Postmortem subclavian blood: ethanol blood 0.03 g% (vitreous not detected), alprazolam 0.007 mg/L, carisoprodol 20.2 mg/L, meprobamate 5.4 mg/L, paroxetine 0.11 mg/L, oxycodone 6.33 mg/L, cannabinoids positive by immunoassay.

Case 304. Acute parenteral methadone exposure: undoubtedly responsible.
Scenario/Substances: A 26 y/o male was found unresponsive by a roommate. A syringe containing pink tinged fluid was found at the scene and later confirmed to contain methadone. CPR was initiated. When EMS arrived, the patient was endotracheally intubated and defibrillated for a wide complex tachycardia. Atropine, epinephrine, vasopressin, and amiodarone were administered. The patient developed a perfusing rhythm and was transported to the ED.
Past Medical History: Depression, anxiety and drug abuse. Sertraline and alprazolam were recently prescribed.
Physical Exam: Unresponsive, dilated and non-reactive pupils, pale and clammy skin. Systolic BP 60, HR 70–80, T 32.6° C.
Laboratory Data: ECG: HR 81, QRS 146 msec, QTc 569 msec. Glucose 25, electrolytes unremarkable except HCO_3 19, CK 367, troponin 0.19, AST 1489, ALT 3075, INR 1.3, UDS positive for methadone and benzodiazepines ethanol 79.8 mg/dL.
Clinical Course: On arrival to the ED, the patient became pulseless and resuscitation continued with atropine, epinephrine, sodium bicarbonate, and high dose naloxone. He developed a perfusing rhythm but remained hypotensive. He received IV crystalloid and multiple vasopressors for persistent hypotension. D50 IV bolus was given for the hypoglycemia. Head CT was consistent with diffuse cerebral edema. Multiple blood products were given to treat the DIC that developed. On Day 2, the clinical exam and cerebral perfusion study were consistent with brain death and medical support was withdrawn. Death was judged due to prolonged cardiac arrest with severe anoxic injury.
Autopsy Findings: Cerebral edema, pulmonary edema, hepatic parenchymal damage, and an ulceration of the cecum all presumed to be due to an anoxic episode. Toxicology: vitreous ethanol not detected, UDS positive for benzodiazepine and methadone. Blood methadone 0.08 mg/L. Contents of the syringe found at the prehospital scene identified as methadone.

Case 385. Acute-on-chronic citalopram, amlodipine, lisinopril, colchicine, allopurinol, and acetaminophen ingestion: undoubtedly responsible.
Scenario/Substances: A 35 y/o male was found sitting in his car with empty bottles of his medications on his lap (citalopram, amlodipine, lisinopril, colchicine, allopurinol, and acetaminophen) and transported to the ED.
Past Medical History: Hypertension, depression with suicidal ideation, obesity, obstructive sleep apnea, gout, and back pain. He was changing from fluoxetine to citalopram.
Clinical Course: In the ED complaining of recent onset severe back pain, BP 66/43, HR 104, afebrile, O_2 sat 90% on 100% oxygen. He had episodes of apnea O_2 sat 80%. Glucose 199, Cr 2, BUN 17, acetaminophen 122 mcg/mL (2 hr post ingestion), salicylate not detected. AST was 34 initially and peaked at 742, ALT was 33 and peaked at 218. He received glucagon and calcium chloride with minimal effect then given pressors to maintain his BP and admitted to the ICU. The patient was put on a fentanyl patch for pain management. He remained hypotensive, developed bradycardia, went into shock with hypoxemia. The patient required an intra-aortic balloon pump, insulin for hyperglycemia, dialysis for renal failure and continued with IV infusion of n-acetylcycsteine. The patient became unresponsive, hyperkalemic (initially 4.8 peaking at 7.2) with heart block and wide complex QRS. He developed rhabdomyolysis, remained unconscious, with a poor prognosis. The family elected to give comfort measures only and he expired on Day 13.

Autopsy Findings: Cause of death was citalopram, acetaminophen and poly-prescription medication overdose. Manner of death was suicide. Hospital first blood: acetaminophen 1,207 mg/L, citalopram 24.3 mg/L, fentanyl 80 ng/mL, hydromorphone 28.6 ng/mL and unquantitated norfluoxetine and norcitalopram.

Case 424. Acute-on-chronic colchicine ingestion: undoubtedly responsible.
Scenario/Substances: A 39 y/o male was found by his landlord with superficial slits to his wrists. Upon arrival to ED, he reported that he took 100 tablets of his medications the morning of his presentation. It was initially unclear which of his medications he had taken.
Past Medical History: Gout and hypertension. Mediations: colchicine, amlodipine/benazepril, aspirin, and allopurinol.
Physical Exam: Mild abdominal pain, normal vital signs, and superficial wrist lacerations.
Laboratory Data: Salicylate 21 mg/dL WBC 25, lactate 9.3 mmol/L, bicarbonate 16.3.
Clinical Course: Shortly after arrival to the ED he developed vomiting and profuse diarrhea but remained hemodynamically stable. Supportive care was instituted and ~24 hr after arrival, he had a sudden cardiovascular collapse and was unable to be resuscitated.
Autopsy Findings: The postmortem colchicine level was 68 ng/mL. The medical examiner concluded that the death was acute suicidal overdose secondary to colchicine intoxication.

Case 433. Acute acetaminophen and diphenhydramine ingestion: undoubtedly responsible.
Scenario/Substances: A 40 y/o male took an overdose of diphenhydramine and acetaminophen.
Past Medical History: Bipolar affective disorder; previous suicide attempts.
Physical Exam: Combative with dry mucous membranes and an altered sensorium. BP 97/50, HR 120, RR 42 - 48.
Laboratory Data:

Na140	Cl 93	BUN 2.5	–
K 3.9	HCO_3 5	Cr 6	

Lactate > 12 mg/dL, INR 6.89; PTT 52, ALT 6,692, AST > 9,000, lipase 1,662 U/mL, ammonia 273 mcg/dL, total bilirubin 8.4, direct 6.7, PO4 10.0 mg/dL, salicylates 2 mg/dL, acetaminophen 198 mg/dL, diphenhydramine 0.11 mg/L; Li, valproic acid, methanol, and ethylene glycol not detected. Head CT was unremarkable.
Clinical Course: The patient was treated as a late presenting acetaminophen overdose, with diphendyramine and possibly other co-ingestants. Fomepizole was started until toxic alcohols were ruled out. After sedation with benzodiazepines and fentanyl, IV N-acetylcysteine was given along with 3 units of FFP and CVVHD was started. He was resuscitated from a cardiopulmonary arrest shortly after arrival, but later became hypotensive, requiring multiple pressors and sodium bicarbonate for progressive metabolic acidosis. On Day 2 the family requested that comfort care only be given and the patient expired.
Autopsy Findings: Centrilobular necrosis of the liver with hepatomegaly was noted. The cause of death was attributed to acetaminophen and diphenhydramine toxicity.

Case 454. Acute acetaminophen and diphenhydramine ingestion: undoubtedly responsible.
Scenario/Substances: A 42 y/o female was found unresponsive at home by family members with 2 empty bottles of over-the-counter acetaminophen with diphenhydramine at her bedside and evidence of vomiting. EMS transported the patient to the ED; Naloxone 4 mg, was given enroute with unknown effect.
Past Medical History: Lupus erythematosis, fibromyalgia.
Physical Exam: Unresponsive, with fixed and dilated pupils. BP 65, HR 111, O_2 sat 100% (FiO2 unknown), T 32.7°C. Bilateral Babinski sign noted, absent corneal reflexes. ECG: HR 95 with slight QT/QTc prolongation at 450/565.
Laboratory Data: ABG-pH 7.238/pC02 18.9/p02 286. WBC 7.1, Hgb13.9, Hct 42.5, platelets 204.

Na 130	Cl 93	BUN 16	Glu 339
K 2.6	HCO_3 12	CR 1.3	

Ca 8.0, AST 40, ALT 39, INR 1.16, PTT 29. APAP 761 mcg/mL, salicylate 6.5 mg/dL, alcohol not detected. UDS positive for benzodiazepines and tricyclics antidepressants.
Clinical Course: The patient was intubated, placed on a ventilator, and given IV fluids and IV N-acetylcysteine. CxR and CT of the head were normal. In ICU she remained unresponsive with decerebrate posturing. She was alkalinized and given pressors to maintain BP. Antibiotics, vitamin K, valproic acid and supplemental Mg and Ca were given. She was placed on warming blanket initially for hypothermia, then cooling blankets for increased T (39.6°C). Hypotension continued with acidosis (pH 7.11) despite HCO_3 infusions. Oxygenation decreased to 80% O_2 sat on 100% FIO2. Hepatic function increased: AST 4,429, ALT 1,934 U/L: Cr rose to 2.8, INR 9.7. Troponin 29.71. The family changed the patient's status to comfort measures and she expired on Day 3.
Autopsy Findings: Gross exam noted bilateral pleural effusions. Microscopic findings included congestion of the lungs, and hepatic necrosis with loss of normal hepatic architecture and necrosis of hepatocytes and portal triad. Acetaminophen 780 mcg/mL, diphenhydramine 6,600 ng/mL. Cause of death was complications of multidrug overdose and the manner of death was suicide.

Case 576. Acetaminophen ingestion: undoubtedly responsible.

Scenario/Substances: A 54 y/o male called EMS who found him vomiting, lethargic and then unresponsive. Naloxone was administered with no response
Past Medical History: Hypertension and depression.
Laboratory Data: Initial acetaminophen 1,134 mcg/mL, salicylate and ethanol not detected, ammonia,31umol/L, AST 17, ALT 15, bilirubin 0.3, lactate 4.2 mmol/L, ABG-pH 7.36/pCO_2 38/pO_2 92/HCO_3 21, INR 1.2, ECG unremarkable. Toxicology screens for cocaine, tricyclic antidepressants, opiates, and phencycladine were negative.
Clinical Course: ED VS: HR 90, BP 93/47, RR 28, afebrile. Acetaminophen concentrations were 633 mcg/mL @ 11.7 HR 120 mcg/mL @ 11.7 HR and 13 mcg/mL @ ~55 hr after the initial sample. He was intubated due to worsening altered mental status, 21 hr IV N-acetylcysteine was initiated and the patient was admitted to the ICU. Maximum hepatic enzymes were reported on Day 4 were AST 3641, ALT 7783. On Day 6, bilirubin was 4.0, his hepatic enzymes began to decrease, he was extubated and placed on bilevel positive airway pressure. On Day 7 he developed respiratory failure and was reintubated, but he developed intractable metabolic acidosis and hypotension and expired.
Autopsy Findings: Microscopic hepatic necrosis. Cause of death: acetaminophen ingestion, sepsis, DIC, and pneumonia.

Case 596. Chronic acetaminophen ingestion: undoubtedly responsible.
Scenario/Substances: A 56 y/o female ingested 8 g of acetaminophen daily (2 g every 6 hrs) for 3 days because she could no longer get narcotic pain medications from her physicians.
Past Medical History: Pancreatitis, congestive heart failure, recurrent urinary tract infections, opiate abuse, previous methadone and dilaudid use for chronic pain. Medications included montelukast, methadone, esomeprazole, gemfibrozil, carisoprodol, diazepam and pyridium.
Physical Exam: Lethargic female.
Laboratory Data: AST 1843, ALT 698, acetaminophen 8.3 mg/L. Day 2: AST 3766, ALT 1515, acetaminophen 12.1 mg/L, INR 7.0. Day 3: AST 3645, ALT 2122, INR 12.0, bilirubin 5.8, alk phos 131.

Na 134	Cl 95	BUN 5
K 3.0	HCO_3 22	Cr 0.7

Bilirubin peaked at 17.8. Day 7: AST 109 and ALT 606.
Clinical Course: Oral N-acetylcysteine was started. The patient transferred to a tertiary care HCF for potential liver transplant. Enroute to the second HCF, she became obtunded and was intubated during transfer and placed on a ventilator at accepting HCF. Metabolic acidosis (pH 6.9) was treated with IV fluids and bicarbonate; vasopressin, CVVHD, FFP and Factor VII were also given. She became less responsive and mannitol was administered. Head CT showed no cerebral edema or bleeding. She was not considered a viable liver transplant candidate due to her deteriorating mental status and history of narcotic drug abuse. N-acetylcysteine was changed to continuous IV dosing. Day 10 she became septic was given antibiotics and pressors to support BP. Comfort measures were instituted and she expired on Day 10.
Autopsy Findings: Not performed.

Case 643. Acetaminophen, ethanol ingestion: undoubtedly responsible.
Scenario/Substances: A 70 y/o male visited a funeral home, planned his own service, and purchased multiple bottles of acetaminophen. He was found by his family confused and wandering in his back yard and brought to the ED. The acetaminophen bottles were later found by family members.
Past Medical History: Depression, bipolar disorder, hyperthyroidism and dyslipidemia. Medications included perphenazine, levothyroxine, quetiapine, fluoxetine, pravastatin, and aspirin.
Physical Exam: The patient was confused and lethargic.
Laboratory Data: Acetaminophen 347 mg/L; AST 128, ALT 156, INR 1.5. Urine drug screen was negative, salicylate was not detected.
Clinical Course: He was intubated, started on N-acetylcysteine and transferred on Day 2 to a tertiary healthcare facility. Day 2 BP 70/60 despite vasopressors, HR 120's, acetaminophen 558 mg/L, AST 4851, ALT 6310, INR 4.4; later that day acetaminophen 598 mg/L; pH 6.5, HCO_3 11, lactate 14.5, Cr 5, K 5. Fomepizole was initiated; norepinephrine and bicarbonate infusion continued. The patient became anuric with fixed and dilated pupils, absent gag reflex, and was not breathing over the ventilator. FFP was given; Repeat AST 11,312, ALT 12,482, alk phos 157, ammonia 345 mmol/L, INR 4.3. Ethylene glycol, methanol, and isopropyl levels were not detected. Due to multisystem organ failure, comfort measures were instituted and he expired on Day 3.
Autopsy Findings: No autopsy or post mortem toxicology was performed. Cause of death was determined to be acetaminophen toxicity due to ingestion.

Case 697. Acute-on-chronic valproic acid and gabapentin ingestion: undoubtedly responsible.
Scenario/Substances: A 41 y/o male intentionally ingested an estimated 180 tablets of valproic acid and 10 gabapentin doses about 3.5 hr prior to ED arrival.
Past Medical History: Hepatitis C, bipolar disorder, seizure disorder
Physical Exam: In the ED he was alert and oriented, HR 122, BP unremarkable, normal O_2 sat.
Laboratory Data: Valproic acid 867 mg/L, Hepatic panel normal, ammonia 55 mcg/dL, WBC 2400, platelets 119; acetaminophen and salicylate not detected.
Clinical Course: He had a steady decline in mental status within the first 2 hr and required intubation. A repeat valproic acid level before dialysis was 1060 mg/L.

Following dialysis on Day 1, the patient's repeat vital signs were reported as stable and a repeat valproic acid level was 301 mg/L. On Day 2 the valproic acid level was 517 mg/L then 541 mg/L. L-carnitine was administered via NGT along with a 50 gram repeat dose of activated charcoal. A repeat valproic acid was 585 mg/L. On Day 3 the valproic acid was 300 mg/L and the ammonia 115 mcg/dL. The patient was not dialyzed again but did continue to receive L-carnitine and lactulose while remaining intubated and sedated. Further valproic acid levels were 146 mg/L then 94.1 mg/L. On Day 5, the patient developed a wide QRS complex rhythm (QRS reported 150 ms) with hr in the 72–100 range and BPs in the systolic 90–100 range and expired later that day.

Autopsy Findings: Valproic acid overdose with mild myocarditis and marked bilateral pulmonary edema and congestion. The cause of death was cardiac arrhythmia induced by valproic acid overdose. Manner of death listed as suicide. The report also mentions ''rising troponin levels and no significant atherosclerotic changes. The report concludes noting that cardiac arrhythmias, although not the most frequent complication, are documented in medical literature in association with valproic acid intoxication (of note, the arrhythmia occurred on Day 5 after the valproic acid level was down to 94.1 mg/L).

Case 700. Acute valproic acid (extended release) ingestion: undoubtedly responsible.

Scenario/Substances: A 53 y/o male ingested an unknown amount of valproic acid in a suicide attempt and was brought to the ED.

Laboratory Data: Upon arrival at the ED, acetaminophen and salicylate were not detected, valproic acid was 615 mcg/mL.

Clinical Course: The patient was lethargic, non-verbal, arousable to painful stimuli only with a systolic BP 98. The patient was admitted to the ICU. Naloxone was administered, multiple dose activated charcoal was begun, and a head CT scan was performed. The patient was intubated and ventilated and lorazepam 2 mg was given for sedation. On Day 2 BP 218/88, QTc 480 msec; dialysis was performed and the patient received L-carnitine. Several hr later, dialysis was repeated. The patient received neosynephrine for hypotension. On Day 3, BP 94/38 and HR 96 on neosynephrine, RR 12 (ventilated), O_2 sat 93%. The patient developed a fever to 39.2° C. Valproic acid 665 mcg/mL, ammonia 1249 mcg/mL, AST 22, ALT 23, Alk phos 111, BUN 20, Cr, 2.7, 8 hr later valproic acid 676 mcg/mL, ammonia 1626 mcg/mL. A seizure occurred; corneal reflexes were absent. Lactulose was administered. Ammonia 1697 mcg/mL, valproic acid 521 mcg/mL. After dialysis valproic acid in the 300s mcg/mL, ammonia 1700 mcg/mL. About 12 hr later, valproic acid 399 mcg/mL, ammonia 2200 mcg/mL; the patient's pupils were fixed and dilated. The patient remained profoundly hypotensive despite intensive vasopressors. Antibiotics were initiated for hyperthermia. The patient could not tolerate CVVHD, comfort measures were instituted, and he expired.

Autopsy Findings: Not performed.

Case 703. Acute-on-chronic valproic acid (extended release), ethanol ingestion: undoubtedly responsible.

Scenario/Substances: A 55 y/o female ingested 100 of her 500 mg valproic acid tablets in an apparent suicide attempt. EMS transported her to the ED ~1 hr after ingestion.

Past Medical History: Bi-polar disorder, depression, hypertension, alcoholism and multiple arrests for drug violations.

Physical Exam: Agitated. BP 96/50, HR 100, RR 20s, T 34°C.

Laboratory Data: ABG-pH 7.04/pCO_2 52/pO_2 56, O_2 sat 73%. HCO_3 13. Valproic acid levels (1 hr post ingestion) 667 mg/L, 7 hr post ingestion 1336 mg/L and 12 hr post ingestion 1457 mg/L. Ammonia 246 mcg/dL.

Clinical Course: She was intubated for airway protection, received 25 g charcoal and started on whole bowel irrigation. BP dropped to 60/30. She was given 4 boluses of bicarbonate and IV norepinephrine, dopamine and phenylephrine. CRRT was considered, but not started as the patient had fixed and dilated pupils, continued hypotension. Comfort measures were instituted and she expired on Day 2.

Autopsy Findings: Copious liquid charcoal in mouth, esophagus, and in the airways extending into the right lung Aspiration pneumonia of charcoal in posterior right upper lobe of lung and right lower lobe of lung; s/p bilateral chest tube placement with hemothorax of both lungs; anasarca; pulmonary and cerebral edema; atheromatous changes to mitral valve, arterionephrosclerosis. Ethanol 0.29 grams%, valproic acid 415 mg/L. Cause of death: Valproic acid overdose with acute alcohol intoxication.

Case 762. Acute-on-chronic desipramine ingestion: undoubtedly responsible.

Scenario/Substances: A 50 y/o female emailed a suicide note to her friend and was found unresponsive in her house with myoclonic movements and 2 nearby empty bottles of a recently filled desipramine prescription.

Past Medical History: Depression. Medications: lamictal, risperdal, and clonazepam.

Physical Exam: Unresponsive patient. BP 89/72, HR 91. Pupils reactive at 4 mm, dry mucous members, myoclonic movements.

Laboratory Data: ABG-pH 7.46/pCO_2 38/pO_2 480 (intubated); WBC 6.4, Hgb 9, Hct 27.5, platelets 339,

Na 138	Cl 105	BUN 11	Glu 92
K 4.2	HCO_3 21	Cr 0.8	

lactate 1.8, ALT 12, AST 22, CPK 89, UDS negative except for benzodiazepines which were likely hospital administered.

Clinical Course: The patient was intubated in ED and sedated with propofol. ECG: QRS 160 msec with prominent R wave in lead aVR; 2 boluses of sodium bicarbonate given, BP increased to 126/87 and QRS decreased to 130 msec. Within a few hours, hypotension and myclonis returned, treated with sodium bicarbonate infusion, norepinephrine then propofol and midazolam with increase in BP noted. On Day 3 she became febrile and aspiration pneumonia was considered. On Day 4 the sodium bicarbonate was discontinued with QRS at 120 msec. On Day 5 he developed a wide complex tachycardia with hypotension on pressors. Intralipid were administered without effect. Aystole ensued and the patient expired shortly thereafter. An ECG performed after the sodium bicarbonate was discontinued showed QRS >160 msec. Day 5 desipramine level taken pre-intralipid: 1949 mcg/L; post-intralipid 2343 mcg/L.
Autopsy Findings: No autopsy performed.

Case 776. Acute-on-chronic paroxetine (extended release) ingestion: undoubtedly responsible.
Scenario/Substances: A 56 y/o male told his wife he took 180 25 mg paroxetine tablets over the preceding 12 hrs.
Past Medical History: Depression and attention-deficit/hyperactivity disorder. Medications: paroxetine, atomoxetine and bupropion.
Physical Exam: Drowsy but responsive, with tremors and diaphoresis. BP 160/95; P 92; RR 30; 36.7°C; ECG: sinus rhythm, first degree AV block.
Laboratory Data: Na 131, glucose 152; APAP, salicylate and ethanol not detected;.
Clinical Course: VS (9 hr after hospital arrival): BP 151/71, P 81, T 37.1°F. Clonus, lower extremity hyperreflexia, muscle rigidity and altered mental status developed at 13 hrs. Lorazepam (2 mg) and IV fluids were administered. ECG showed QTc 520 msec. Serotonin syndrome was diagnosed and cyproheptadine 4 mg every 8 hours was started. Day 2, BP 143/92, P 75, RR, 20, T 36.1°C. Tremors, confusion and skin flushing continued. Laboratory Na 140, K 3.6, Cl 110, HCO_3 24, BUN 15, Cr 0.8, Ca 8.9, glucose 91, alk phos 74, AST 21, ALT 18, CPK reported as normal; QTc 515 msec. Lorazepam and cyproheptadine were continued. Day 4 agitation and diaphoresis increased, restraints were applied and lorazepam dosage increased. CK peaked at 4000; Urine output was normal. Day 7: the patient was intubated, sedated and ventilated; Cyproheptadine was discontinued. Day 8: clinical improvement, patient extubated but agitation persisted. Day 9: Respiration became agonal and the patient expired.
Autopsy Findings: Medical examiner's stated probable cause of death was serotonin syndrome due to paroxetine overdose. Post-mortem blood paroxetine 5.6 mg/L.

Case 800. Acute bupropion (extended release) ingestion: undoubtedly responsible.
Scenario/Substances: A 12 m/o female ingested up to 12 tablets of bupropion 300 mg extended release from her mother's purse. Mother brought child to ED immediately.
Physical Exam: Playful. No vitals signs available.
Clinical Course: She received 1 dose of activated charcoal before the first seizure (4 hours post ingestion) treated with midazolam. She was transferred to a tertiary care center pediatric ICU where she experienced 2 more seizures at 6 hours post ingestion then status epilepticus at 12 hr post ingestion. She received benzodiazepines, barbiturates and propofol which did not terminate the seizures. Continuous EEG monitoring was started and intralipid 1.5 mL/kg IV bolus then 0.25 mL/kg/min with the intent of 1 hr administration. Seizures stopped 5 minutes after the bolus of intralipid. Severe hypotension occurred every time the infusion of intralipid was stopped. Intralipid 0.25 mL/kg/min was given intermittently over 5 hrs. in an off and on manner for the next 5 hours. Her CBC and serum electrolytes were un-measurable because of hyperlipidemia from the intralipid infusion. She developed massive cerebral edema and expired 24 hr after presentation.
Autopsy Findings: Ten partially dissolved tablets were recovered from the large intestine. The cerebral cortex and cerebellum were pink, the brainstem was intact. The heart was intact. Acute lung injury with hyaline membrane perforation, pulmonary edema and multifocal bronchopneumonia and intravascular lipid droplets were reported. Post-mortem liver bupropion concentration was 4.0 mg/kg. The cause of death was bupropion overdose and the manner of death was accidental.

Case 802. Acute-on-chronic amitriptyline ingestion: undoubtedly responsible.
Scenario/Substances: A 80 y/o female took an intentional overdose of amitriptyline, called 911, was found minimally responsive by EMS, she was endotracheally intubated and fluid resuscitation was begun enroute to the ED.
Past Medical History: Her medications included amitriptyline 5mg, $\sim$90 tablets were missing from the bottle.
Physical Exam: Vital signs on admission: HR 80, BP 60/P, T 36.2° C, RR 12–14 (ventilated), O_2 Sat 99% with FiO2 100%. She was unresponsive and noted to have intermittent 10 sec tonic-clonic seizures.
Laboratory Data: ABG-pH 7.56/pCO_2 48/pO_2 315/HCO_3 23; acetaminophen, salicylate, and ethanol not detected; electrolytes and hepatic enzymes were unremarkable, ECG: HR 80, QRS 200 ms.
Clinical Course: On arrival, the patient was placed on a ventilator, a nasogastric tube was placed, and activated charcoal given. Sodium bicarbonate (6–7 amps) was given IV and fluid resuscitation was continued. Norepinephrine was given for BP support, lorazepam for seizure activity and the patient was admitted to the ICU. Her hemodynamic status continued to worsen, $\sim$5 hr after admission she sustained a cardiopulmonary arrest and resuscitation was unsuccessful.
Autopsy Findings: Atherosclerotic cardiovascular disease without acute infarction and multifocal consolidations of both lungs. Post-mortem amitriptyline 14.5 mg/L, nortriptyline 4.77 mg/L, fluoxetine 1.21 mg/L, norfluoxetine 2.27

mg/L (all in cardiac blood), codeine: 0.03 mg/L (vitreous). While the tricyclic antidepressant measurements are well above those known to be associated with fatalities, the fluoxetine, ratio of fluoxetine/norfluoxetine, and codeine concentrations were consistent with therapeutic exposure.

Case 817. Acute vincristine infusion: undoubtedly responsible.
Scenario/Substances: A 52 y/o female with a CNS lymphoma presented for outpatient infusions of IV vincristine and intracerebroventricular methotrexate via an Ommaya reservoir. The vincristine (2 mg), which was intended for IV administration, was also infused into the Ommaya reservoir.
Past Medical History: CNS lymphoma.
Physical Exam: Her initial vitals signs and physical examination findings were unremarkable.
Clinical Course: Approximately 15 min after the injection of vincristine into the Ommaya reservoir the error was realized and 30 mL of CSF was aspirated from the reservoir. The patient was transferred to the neurosurgical ICU for CSF exchange and ventriculolumbar lavage. FFP was added to the perfusate and dexamethasone, glutamic acid, pyridoxine and folinic acid were administered intravenously. The patient was unable to tolerate ventriculolumbar lavage reporting a severe headache when the rate was increased and the intracranial pressure increased resulted in bradycardia. The patient had no complaints or neurological deficits until Day 3, when she developed hearing loss, headache, and left lower extremity weakness. Her symptoms progressed rapidly with ascending paralysis, autonomic dysfunction, respiratory failure, and coma. Electroencephalography on Day 6 was consistent with brain death and she expired on Day 12. Death was attributed to progressive ascending myeloencephalopathy, autonomic dysfunction and hypotension.
Autopsy Findings: No autopsy was performed.

Case 818. Acute vincristine CNS infusion: undoubtedly responsible.
Scenario/Substances: A 63 y/o male seen in an oncology clinic for 6th cycle of methotrexate for HIV-related Burkett's lymphoma to be administered via his Ommaya reservoir. The patient inadvertently was given approximately 15ml (2mg) of vincristine instead of methotrexate via the reservoir. The infusion was stopped immediately and $\sim$14 ml of fluid aspirated, the Ommaya reservoir was flushed with normal saline multiple times. The patient was asymptomatic during the reservoir irrigation but later developed nausea and vomiting prior to transfer to the ED.
Past Medical History: HIV, Burkett's lymphoma, R hip Herpes Zoster. Medications: antiretroviral therapies for HIV.
Physical Exam: Awake, alert and oriented ill appearing patient complaining of generalized weakness and nausea without pain or other complaints. Afebrile, HEENT, abdomen, Neuro exam intact cranial nerves, motor normal except 4/5 lower extremity strength; absent clonus, Babinski and tremor.
Laboratory Data: WBC 2.6, electrolytes normal. CxR increased bronchovascular markings, CT head normal except for catheter in place.
Clinical Course: Interventional radiology placed drain in lumbar-sacral spine and irrigated via a butterfly needle in the Ommaya reservoir at 10 ml/hr for approximately 10 hrs. The drain clogged 24 hours post exposure and the left upper extremity was weaker. Day 2 noted decreased mental status with inconsistent responses to verbal cues with anisocoria and worsened upper and lower extremity weakness. Day 4 the patient did not follow verbal commands and appeared quadriplegic. Palliative care was instituted on Day 7; the patient expired on Day 10.
Autopsy Findings: Not available.

Case 826. Acute propafenone ingestion: undoubtedly responsible.
Scenario/Substances: An 18 y/o female ingested 50 of her grandmother's 150 mg propafenone tablets.
Past Medical History: Previous suicide attempts, schizophrenia, substance abuse.
Physical Exam: Unresponsive with multiple prior self inflicted injuries noted on her arms.
Laboratory Data: pH 7.4 after resuscitation.
Clinical Course: She developed a widened QRS upon arrival to the ED and had a brady/asystolic arrest $\sim$3.5 hr after ingestion. After multiple cardiac arrests she developed a wide complex tachycardia. Norepinephrine and bicarbonate infusions were administered along with intermittent bicarbonate boluses. She expired 7 hours after ingestion after the wide QRS no longer responded to bicarbonate boluses.
Autopsy Findings: Pulmonary congestion and edema. Post mortem aortic blood: acetone 7 mg/dL, clozapine 0.15 mg/L, diazepam 0.025 mg/L, norsertraline 2.1 mg/L, propafenone 11 mg/L, and sertraline 0.72 mg/L; Iliac vein blood: norsertraline 0.99 mg/L, sertraline 0.61 mg/L: Liver tissue: norsertraline 61 mg/kg, sertraline 6.9 mg/kg. Medical examiner cause of death: propafenone overdose.

Case 829. Acute metoprolol, amlodipine/benazepril, citalopram ingestion: undoubtedly responsible.
Scenario/Substances: A 21 y/o male ingested citalopram, metoprolol and amlodipine/benazepril. EMS found a HR 34 with an initial irregular rhythm, but enroute he became asystolic and they started CPR.
Clinical Course: In the ED he was unresponsive with a HR 51 and a prolonged PR interval. He received calcium chloride sodium bicarbonate, and glucagon with a brief return of pulse. Resuscitation continued with maximum doses of norepinephrine and then dopamine, calcium chloride + glucagon + insulin infusions with BP 60/30, HR 44, O_2 sat 94% on ventilator. He was transferred to the ICU on dopamine and vasopressin infusions, placed on a bicarbonate drip for a pH of 6.9 and continued on glucagon + calcium chloride infusions. Insulin infusion was stopped for a glucose of 64. HR 78 and BP 79/44 by

arterial line. Intraplipid was started. About 7 hr later, the patient was receiving maximum dose epinephrine, norepinephrine and levophed infusions, insulin and 10% dextrose infusions and midazolam. He developed ARDS and shock liver with hepatic enzymes in the 3000's. Urine output declined, he had evidence of poor peripheral perfusion, and he died.

Autopsy Findings: Cause of death: intoxication with metoprolol, manner of death: suicide by ingestion of prescription medication. Autopsy: coronaries free of atherosclerosis; concentric hypertrophy of left ventricle without dilation; trachea filled with serosanguinous fluid; symmetrical moderately swollen cerebral hemispheres, flattened gyri and narrowed sulci, uncal lobes were notched but without definite herniation, cerebellar tonsils were not herniated, compression of the lateral ventricles. Post-mortem toxicology: ethanol, 38 mg/dL, acetaminophen 8.7 mcg/mL, clonazepam 4.8 ng/mL, 7-aminoclonazepam 46 ng/mL, diazepam 60 ng/mL, metoprolol 7500 ng/mL, atropine 8.6 ng/mL, citalopram/escitalopram 120 ng/mL, caffeine + in blood. Urine positive for benzodiazepines and cannabinoids.

Case 845. Acute propafenone ingestion: undoubtedly responsible.

Scenario/Substances: A 40 y/o male took an overdose of lisinopril and propafenone in a suicide attempt and EMS transported him to the ED.

Physical Exam: BP 116/65, HR 145, RR 14, O_2 sat 96% on room air, slurred speech, able to answer questions, exam otherwise unremarkable.

Laboratory Data: ECG: HR 71, left axis deviation, PR 238 ms, QRS 170 ms, QTc 545 ms.

Na 142	Cl 103	BUN 9	Glu 83
K 3.2	HCO_3 22	Cr 1.1	

CBC unremarkable, calcium 9.0, CK 20, troponin I < 0.04 ng/mL, ethanol 284 mg/dL, acetaminophen not detected, salicylate 4.4 mg/dL, UDS negative.

Clinical Course: Gastric lavage was performed in the ED with return of orange pill fragments. Charcoal was given through the orogastric tube. Chest and abdominal x-rays and chest CT showed radiopaque substance dispersed in bilateral lung bases and throughout small intestine. Patient became unresponsive and was intubated. He became hypotensive with systolic BP in the 50s, received normal saline boluses, sodium bicarbonate, calcium, atropine, and a norepinephrine infusion was started. Several seizures were noted. Repeat ECG showed further QRS widening and sodium bicarbonate were given. The patient became pulseless and CPR was initiated. The patient died before planned lipid emulsion could be given.

Autopsy Findings: Mild narrowing (0–25%) of the left anterior descending and right coronary arteries, pulmonary congestion, and congestion of abdominal viscera. Blood ethanol level 260 mg/dL. Amphetamines, phencyclidine, methadone, cannabinoids, propoxyphene, barbiturates, cocaine metabolites, benzodiazepines, and opiates not detected. No lisinopril level is reported. Propafenone (cardiac blood) 8.3 mcg/mL, with reference trough propafenone levels listed as 0.2–1.5 mcg/mL.

Case 847. Acute-on-chronic verapamil, quetiapine, and ethanol ingestion: probably responsible.

Scenario/Substances: A 42 y/o female ingested 20 quetiapine, 30 verapamil and unknown quantity of ethanol ~3 hr prior to arrival at the ED.

Past Medical History: Bipolar disorder, parenteral drug abuse, hepatitis C positive, chronic pain, headaches and seizures associated with a brain tumor diagnosed 6 years earlier for which she was receiving chemotherapy. Other medications included clonazepam, quetiapine, verapamil, amitriptyline, dihydromorphinone, and butalbital.

Physical Exam: In the ED BP 94/51, HR 133, pupils 1–2 mm, drowsy, but arousable.

Laboratory Data: Ethanol 131 mg/dL, UDS positive for opiates; acetaminophen and salicylate not detected.

Clinical Course: Whole bowel irrigation was initiated without an NG tube, but she became obtunded and ~4 hr later an NG tube was placed and whole bowel irrigation restarted. At ~11 hr after ED admission she had a cardiorespiratory arrest, ACLS resuscitation was initiated, a temporary pacer was placed, but resuscitation was unsuccessful and she expired.

Autopsy Findings: Antemortem blood: quetiapine 0.55 mg/L, verapamil 0.02 mg/L, morphone 0.008 mg/L. Post mortem blood: ethanol 93 mg/dL, morphine 0.0101 mg/L, quetiapine 2.2 mg/L (therapeutic 0.04–0.4 mg/L), verapamil 2.9 mg/L (therapeutic 0.07–0.35 mg/L)

Case 853. Acute metoprolol, metformin, amlodipine, hydrochlorothiazide, zolpidem ingestion: undoubtedly responsible.

Scenario/ Substances: A 45 y/o female found somnolent and incontinent of stool with slurred speech and a suicide note approximately 9 hr after taking a large overdose of multiple medications belonging to a friend. Based on pill counts, the exposure was estimated as 10 metoprolol 25 mg tablets, 9 metformin 1000 mg tablets, up to 30 amlodipine 10 mg tablets, and unknown amounts of hydrochlorothiazide, irbesartan, sitagliptin, fenofibric acid and zolpidem.

Past Medical History: Diabetes and hepatitis C.

Physical Exam: Lethargic, but able to follow commands. BP 60/20, HR 50, RR 20–30 and T 33.1°C with O_2 sat 100% on room air.

Laboratory Data: ABG-pH 6.91 pCO_2 32 pO_2 66.

Na 147	Cl 116	BUN 15	Glu 101
K 5	HCO_3 6	Cr 1.3	

Lactate 18.1 mmol/L; acetaminophen and salicylate not detected; ethanol 80 mg/dL. ECG: SR at 50, narrow complex, 1st degree AV block.

Clinical Course: The patient was intubated and given IV fluids and multiple doses of glucagon and a glucagon drip, IV calcium, and multiple vasopressors, ultimately requiring maximum doses of dopamine, norepinephrine, phenylephrine, epinephrine and vasopressin without improvement of hemodynamic status. Day 1. Na 143; K 3.6; Cl 104; HCO_3 6; Glu 293; BUN 10; Cr 1.2; Anion gap 33; lactate 24.5 mmol/L; WBC 34.2; Hgb 7.1; Ethanol 53 mg/dL; AST 541; ALT 134. She was hemodialyzed on Day 1 and Day 2 for lactic acidosis. Day 3 ABG pH 7.17/pCO_2 60/pO_2 41; Na 118, K 5.1, BUN 22, Cr 1.9; Lactate 10.2 mmol/L. The patient remained unresponsive with fixed and dilated pupils, and continued hypotension and difficulty oxygenating. The patient's family elected the institution of comfort measures and she expired on Day 4.
Autopsy Findings: No autopsy was performed. Postmortem peripheral blood: amlodipine 360 ng/mL, metformin 59 mcg/mL, hydrochlorothiazide 0.34 mcg/mL, metoprolol 150 ng/mL, midazolam 40 ng/mL, zolpidem 19 ng/mL, ethanol 35mg/dL. Urine analysis (time unknown): nicotine 12 ng/mL, cotinine 12 ng/mL and eszopiclone/zopiclone 29 ng/mL.

Case 856. Acute diltiazem (extended release) ingestion: undoubtedly responsible.
Scenario/Substances: A 46 y/o female found unresponsive 5–6 hours after taking 120 of a friend's 60 mg sustained release diltiazem tablets.
Physical Exam: Unresponsive, BP 41/25, HR 59.
Laboratory Data: ECG: 3rd degree heart block.
Clinical Course: The patient was intubated, received 2 liters IV fluids, 2 amps calcium gluconate, 4 mg glucagon, 2 amps atropine, and norepinephrine infusion. 90 minutes after arrival insulin infusion (75 units) was started while pacemaker placement initiated. The patient expired before the pacemaker was placed.
Autopsy Findings: A thick gray liquid was noted in the stomach, admixed with a soft mass of material that included small granules consistent with the medication. Diltiazem in postmortem blood 10.1 mg/L; gastric contents 4.2 g; and liver 58.4 mg/kg. Death was determined to be the result of an acute large ingestion of diltiazem.

Case 863. Acute diltiazem, benzodiazepine ingestion: undoubtedly responsible.
Scenario/Substances: A 38 y/o female ingested 240 mg sustained release diltiazem tablets and possibly benzodiazepines in an apparent suicide attempt.
Past Medical History: Depression, anxiety, bipolar disorder, seizure disorder, asthma, peptic ulcer disease and prior suicide attempts.
Physical Exam: Intubated and sedated; bradycardic and hypotensive; lower extremity edema. Pupils 6 mm and nonreactive, facial grimace with pain only but no withdrawal to pain.
Laboratory Data: Ca 7.1, Mg 1.3.

Na 143	Cl 116	BUN 7	Glu 79
K 3.8	HCO_3 14	CR 1.8	

Clinical Course: Asystole occurred requiring calcium chloride IV, atropine, dopamine, norepinephrine, epinephrine, sodium bicarbonate and a temporary pacemaker. Due to hypotension, she was given glucagon 5 mg/hr, CaCl, atropine, insulin (35 U/hr) and glucose, norepinephrine 60 mcg/min, dopamine 50 mcg/min, vasopressin 0.4 mcg/min and IV lipid emulsion after which she stabilized. She later developed ARDS and multisystem organ failure. The family decided to withdraw support and she expired on Day 3.
Autopsy Findings: No autopsy was performed. Cause of death was listed as multiple drug intoxication. Manner of death was suicide.

Case 869. Acute-on-chronic diltiazem extended release ingestion: undoubtedly responsible.
Scenario/Substances: A 49 y/o male ingested several handfuls of his extended release diltiazem in a suicide attempt at about midnight. The empty bottle had contained 90 240 mg tablets. He was transported to the ED.
Past Medical History: Hypertension, atrial fibrillation, pacemaker.
Laboratory Data: A volatile alcohol screen was negative.
Clinical Course: In the ED he was alert with BP 71/51, ECG showed a paced rhythm at 60 with underlying atrial fibrillation and frequent premature ventricular beats. He received IV crystalloid, an oral dose of activated charcoal, 3 amps of calcium gluconate, and was admitted to the ICU. A central line was placed and a norepinephrine drip maintained his systolic BP in the range of 80. At 10 hr post-ingestion: he became diaphoretic, his mental status deteriorated, he required intubation, was placed on a ventilator; dopamine was added with no response in BP. He was started on high dose insulin and vasopressin infusions, and 3 grams of IV calcium chloride were administered. Continued deterioration prompted epinephrine and phenylephrine infusions. An intra-aortic balloon pump was placed but he developed progressive metabolic acidosis, refractory hypotension and oliguric renal failure. IV fat emulsion was administered without improvement. He was started on continuous renal replacement therapy, but acidosis and hypotension progressed. Comfort measures were instituted and he expired 33 hr after ingestion.
Autopsy Findings: Autopsy was not performed. Cause of death was diltiazem overdose. Ante mortem blood diltiazem 9 hr post-ingestion was 0.63 mcg/mL.

Case 884. Acute-on-chronic nifedipine ingestion: undoubtedly responsible.
Scenario/Substances: A 56 y/o male ingested 2.7 grams of nifedipine.

Past Medical History: End-stage renal disease.
Physical Exam: Systolic BP 65–80, HR 120.
Laboratory Data: Glucose 55, Ca 8.8 while on a calcium drip.
Clinical Course: Calcium gluconate, D50W, and glucagon were administered intravenously. The patient was admitted to the ICU and whole bowel irrigation was instituted as well as vasopressor therapy. 9 hr later, the patient decompensated and expired.
Autopsy Findings: Femoral blood nifedipine 9.8 mg/L. Cause of death: intoxication due to effect of nifedipine.

Case 892. Acute-on-chronic metoprolol, cocaine, ethanol ingestion: undoubtedly responsible.
Scenario/Substance: A 59 y/o male took a bottle of his BP medication in a suicide attempt. EMS found him intoxicated and transported him to the ED.
Past Medical History: Atrial fibrillation, stroke, hypertension, and coronary artery disease. Family reported he had stopped taking his prescribed warfarin.
Physical Exam: After arrival he became unresponsive, P 20, hypotensive. Pupils poorly responsive, lungs with bilateral crackles noted.
Laboratory Data: ABG-pH 7.1/pC02 28/p02 102, O_2 sat

Na 136	Cl 103	Glu 122
K 6.0	HCO_3 18	

94%; WBC 11.5, Hgb15, Hct 45, platelets 281,
Ca 4.1, AST 125, ALT 134, INR 1.11, PTT 20.0, troponin <0.05 ng/mL, myoglobin 416 ng/mL; acetaminophen and salicylates not detected, blood alcohol 119, UDS positive for cocaine. ECG: atrial fibrillation with slow ventricular rate and diffuse ST-T changes.
Clinical Course: Despite glucagon, bicarbonate, norepinephrine, and dopamine infusions at maximum doses followed by neosynephrine, his condition worsened and asystole occurred. Resuscitation efforts were unsuccessful and the patient died on Day 1.
Autopsy Findings: No significant external or internal findings; antemortem blood metoprolol 1800 ng/mL, benzoylecgonine 490 ng/mL, and ethanol at 0.102 g/dL. Cause of Death was Metroprolol Overdose Manner of Death: Suicide.

Case 956. Acute sodium bicarbonate ingestion: undoubtedly responsible.
Scenario/Substances: A 97 y/o male was found unresponsive surrounded by remains of an empty box of baking soda. He was transported to the ED.
Past Medical History: Implanted pacemaker/defribillator
Clinical Course: Soon after arrival in the ED he experienced a generalized seizure. His initial BP 141/70, HR 108, O_2 sat 100%. He had a normal paced rhythm. The seizure responded to lorazepam and he was intubated and placed on a ventilator. His initial electrolytes: Na 158, HCO_3 40, BUN 25, Cr 1.5. Repeat Na 180 lactate 4.5 ionized Ca 1.04. His vital signs deteriorated to BP 88/50, HR 100. Head CT scan and CxR were unremarkable. He was started on phenytoin. His implanted defibrillator had cycled multiple times and the patient had a cardiac arrest and was resuscitated. Na 178, $HCO_3 > 45$. Hemodialysis was started, but he did not regain consciousness and a brain blood flow study revealed no perfusion. Comfort measures were instituted and he expired on Day 4.
Autopsy Findings: No autopsy was performed.

Case 958. Acute metformin ingestion: probably responsible.
Scenario/Substances: A 4 y/o female went to bed at and awoke and vomited 4 hr later, complained of thirst and was given milk to drink. She awoke twice more complaining of thirst and was given something to drink. She was then found unresponsive 13 hr after going to bed. EMS found low glucose, gave IV glucose prior to transport. It was later discovered that the child's grandfather who visited 2 wks earlier, was taking metformin.
Past Medical History: Normal healthy child
Physical Exam: Responsive only to painful stimuli. BP 98/60, HR 157, O_2 sat 98%.
Laboratory Data: ABG-pH 6.84/pO_2 54/pCO_2 21, lactate $>$ 20 mmol/L; glucose 47, then $>$ 150 on dextrose infusion. UDS negative.
Clinical Course: She was started on D5W, then a 12.5 gram bolus of dextrose, and then D10W. Acidosis was treated with sodium bicarbonate IV. Repeat glucose 435 mg/dL. Disconjugate gaze developed with a normal head CT scan. She experienced hypotension, anuria, acidosis, bloody emesis and rising troponin measurements. Day 3, shortly after intubation, she developed bradycardia unresponsive to resuscitation efforts and she expired. A urine sample came back positive for metformin confirmed by GC/MS. Serum tox screen was negative.
Autopsy Findings: Autopsy results showed generalized visceral congestion and secondary ischemic necrosis. The coroner found that blood (sample timing unknown) contained a ''small amount'' of metformin. Postmortem toxicology showed acetaminophen 12.8 mg/L and was negative for other prescription drugs including metformin, ethanol, and illicit drugs. The cause of death was reported as hypoglycemic shock due to metformin toxicity.

Case 964. Acute insulin injection: undoubtedly responsible.
Scenario/Substances: A 34 y/o medical assistant lived and worked at a substance abuse rehabilitation facility where he had previously been a patient. He told his mother he was going to steal insulin from the medication room because it could kill him. Two weeks later he was found down in his room surrounded by vomitus; his glucose was <20. A fellow employee later reported seeing empty insulin glargine vials in his room along with a bag of what was presumed to be heroin.

Past Medical History: Heroin and cocaine abuse, Hepatitis C, depression with a prior suicide attempt.
Physical Exam: Comatose with decorticate posturing, coarse breath sounds; T 34.5°C. Hands mildly edematous with multiple injection sites noted.
Laboratory Data: In ED, electrolytes normal, glucose <20. Acetaminophen, ethanol, and salicylate not detected; UDS positive for benzodiazepines and tramadol; Electrolytes normal; lactate 1.8, AST 38, ALT 64.
Clinical Course: The patient was intubated, given dextrose 50% by bolus and as a 10% infusion, dexamethasone and 100 mcg of octreotide. CT scan showed diffuse cerebral edema. He was started on antibiotics for possible aspiration pneumonia; glucose was continually low for 24 hours; his dextrose infusion was increased to 40% and his glucose stabilized. The gag and corneal reflexes were absent and a repeat CT showed no change in cerebral edema. Day 2 insulin level was 70.9 uIU/mL (normal 0.0 – 29.1); and a C-peptide level was 0.3 ng/mL (normal 1.1 – 5). Comfort measures were instituted and he expired on Day 4.
Autopsy Findings: No autopsy was performed. Medical examiner ruled the cause of death to be anoxic injury secondary to profound hypoglycemia due to an insulin overdose.

Case 981. Acute hydrocodone, carisoprodol, meprobamate, methamphetamine, marijuana, acetaminophen, and N-acetylcysteine exposure: undoubtedly responsible.
Scenario/Substances: A 53 y/o male arrived at the ED an unknown time after apparently taking a number of drugs.
Past Medical History: Chronic obstructive pulmonary disease, cardiomegaly, polysubstance abuse, chronic alcoholism.
Physical Exam: Systolic BP 110.
Laboratory Data: Acetaminophen 48 mcg/mL, UDS positive for opioids, methamphetamine and THC, ABG-pH 7.19/ pCO_2 47, troponin 658, hepatic enzymes unremarkable.
Clinical Course: He was admitted to the hospital and IV N-acetylcysteine was started. The initial bag of IV contained 126 grams instead of 12.6 grams. After receiving $\sim$100 grams of N-acetylcysteine, he developed a rash, angioedema, hypotension and bradycardia. He was intubated and placed on a ventilator and CPR was started. He was placed on norepinephrine and phenylephrine drips and a dose of diphenhydramine. He was resuscitated, but died later that day.
Autopsy Findings: Cause of death: multiorgan system failure due to acute acetaminophen poisoning. Other significant conditions include: acute myocardial infarct, probably allergic reaction to acetylcysteine, chronic hepatitis B, chronic hepatitis C, History of polysubstance abuse, chronic alcoholism, chronic obstructive pulmonary disease, cardiomegaly, recent marijuana use. Hospital blood: lidocaine 1.02 mg/L, hydrocodone 0.12 mg/L, carisoprodol 2.41 mg/L, meprobamate 16.7 mg/L, delta 9 thc-cooh 12 ng/mL, acetaminophen 59 mcg/mL; positive for diphenhydramine, cannabinoids, methamphetamine, morphine, and codeine.

Case 1000. Acute quetiapine ingestion: undoubtedly responsible.
Scenario/Substances: A 14 y/o male ingested quetiapine, dose and time of ingestion unknown.
Physical Exam: Patient had a tonic-clonic seizure. Post seizure BP 100/40, HR 160.
Laboratory Data: HCO_3 21, pH 7.3; UDS pos for tricyclic antidepressants; ECG QRS duration 100 msec, QT 513 msec.
Clinical Course: The patient was intubated placed on a ventilator. VS declined to BP 70/20, HR 15. IV fluids and dopamine were administered. QRS 110 msec, QT 513 msec. Sodium bicarbonate given by bolus. Hypotension persisted, norepinephrine was started; BP responded to 80/40. Sodium bicarbonate at 150 mEq/hr, then increased to 300 mEq/hr. The patient remained unresponsive and developed a wide complex ventricular rhythm prior to a fatal ventricular fibrillation cardiac arrest.
Autopsy Findings: Pulmonary edema and congestion; quetiapine blood concentration 18 mg/L. Conclusion: Cause of death: acute quetiapine toxicity.

Case 1061. Acute-on-chronic quetiapine ingestion: probably responsible.
Scenario/Substances: A 72 y/o female was found unresponsive in her home after ingesting 180 tablets of 200 mg quetiapine. EMS found her unresponsive with respiratory depression and systolic BP in the 60's. She had a complex generalized seizure lasting 25–30 sec. She was intubated, received IV fluids, started on dopamine, and transported to the ED.
Past Medical History: Prior suicide attempts.
Physical Exam: Unresponsive, hypotensive.
Laboratory Data: Toxicology screen showed salicylate, acetaminophen, and ethanol were not detected.
Clinical Course: The patient was admitted to the ICU and remained hypotensive despite IV fluids and pressor support. An IV drip of sodium bicarbonate was initiated for severe acidosis. The patient was initially tachycardic but subsequently developed heart block which deteriorated to PEA. ACLS resuscitative measures were unsuccessful and she died 4 hr after admission.
Autopsy Findings: Occlusive coronary artery disease with 80–90% occlusion of the left anterior descending artery. Cause of Death: Drug Intoxication-quetiapine. Stomach contained gray sludge-like material. Postmortem blood quetiapine 17μg/mL.

Case 1073. Acute MDMA, amphetamine, methamphetamine, cocaine, acetaminophen and hydrocodone ingestion: undoubtedly responsible.
Scenario/Substances: A 16 y/o male was seen taking 5 methylenedioxymethamphetamine (MDMA) pills and 30 min later was found down with a large bottle of acetaminophen and hydrocodone at his side. EMS was called, the patient was given midazolam, succinylcholine, intubated, and transported to the ED.

Past Medical History: Marijuana use.
Physical Exam: In the ED the patient was tremulous with rigid extremities, pupils were 6 mm and nonreactive bilaterally, BP 60/38, HR 151, T 41.7°C, RR 17, O_2 sat 84%.
Laboratory Data: Urine was positive for amphetamines, methamphetamines, cocaine, opiates, and THC. Acetaminophen, salicylates and ethanol were not detected.
Clinical Course: In the ED he was placed on dantrolene. Renal insufficiency developed with K 8.9, Cr 2.3, and required hemodialysis. Rhabdomyolysis ensued with CPK 290,430, he developed profound shock and DIC. AST 12,134, ALT 7,298, and liver function continued to worsen, he received 22 units of FFP and 8 units of packed RBC, multiple platelet units and cryoprecipitate, but the coagulopathy could not be controlled. Hypotension was treated with pressors and epinephrine. The patient remained unresponsive, an EEG showed extensive high voltage delta waves consistent with encephalopathy. The patient's family elected the institution of comfort measures and he expired on Day 2. Final diagnosis was multidrug overdose including MDMA, profound shock with multiple organ system failure, malignant hyperthermia, serotonin syndrome, rhabdomyolysis, acute hepatorenal failure, DIC, and hypoglycemia with hypoxic ischemic encephalopathy.
Autopsy Findings: Manner of death accidental. Toxicology: MDMA 1.3 mg/L, diazepam 0.11 mg/L, midazolam 0.01 mg/L, unquantitated cocaine, opiates, amphetamines and cannabinoids..

Case 1076. Acute hallucinogenic amphetamine ingestion: probably responsible.
Scenario/Substances: A 19 y/o male ingested 10 mg of Bromo DragonFly with his older brother and a female friend at his home. He developed seizures and then a cardiac arrest. The companions were agitated, ''out of it,'' with tachycardia but recovered and were discharged.
Past Medical History: Suicide attempt with acetaminophen one year prior.
Physical Exam: Arrived in asystole. No other information available.
Laboratory Data: Not available.
Clinical Course: Resuscitation efforts were not successful.
Autopsy Findings: Postmortem peripheral blood was negative for 2C-B-Fly, but did contain a related drug, Bromo Dragon Fly (1-(8-bromobenzo[1,2-b;4,5-b']difuran-4-yl) −2-aminopropane) at a concentration of 22 ng/mL as well as phentermine 160 ng/mL, nicotine, cotinine, and THC. The cause of death was reported as Bromo DragonFly intoxication. A detailed description of the incident was posted on Erowid: http://www.erowid.org/chemicals/bromo_dragonfly/bromo_dragonfly.shtml

Case 1077. Acute MDMA ingestion: undoubtedly responsible.
Scenario/Substances: A 20 y/o male ingested 29 tabs of ecstasy in a suicide attempt. He complained of calf cramping and was transported to the ED.
Past Medical History: Depression with suicidal ideation. Recreational use of marijuana and ecstasy.
Physical Exam: Awake, agitated, diaphoretic, with mydriasis and a clenched jaw. BP 128/78, HR 160, RR 44.
Clinical Course: Severe tremor and agitation persisted in the ED. The patient was paralyzed, intubated and ventilated; he underwent gastric lavage, which yielded many pill fragments. Aggressive supportive care was given. T increased to 42.2°C prior to death which occurred within 10 hours of presentation.
Autopsy Findings: Post-mortem heart blood: methylenedioxymethamphetamine (MDMA) 15 mcg/mL, MDA 0.37 mcg/mL and methamphetamine 0.40 mcg/mL. Femoral blood: MDMA 4.3 mcg/mL, MDA 0.09 mcg/mL and methamphetamine 0.12 mcg/mL.

Case 1100. Acute MDMA ingestion: undoubtedly responsible.
Scenario/Substance: A 31 y/o male ingested 2 yellow ''street'' pills about 6 hr prior to presentation; his level of consciousness rapidly deteriorated, he experienced apnea, hyperthermia (T 42.8 C), was intubated and ventilated.
Physical Exam: Agitated, diaphoretic, flushed appearing patient with tremors. BP 151/110, HR 105–112, T 35°C.

Na 142	Cl 105	BUN 23	Glu 17
K 3.7	HCO_3 20	Cr 1.6	

Laboratory Data: ABG-pH 7.14/pCO_2 68
Cr kinase1368, bilirubin total 0.8 mg/dL, AST 89, ALT 85, Alk phos 81, CK 281. UDS positive for amine group and THC; PCP not detected. Fibrin split products 320 mcg/mL, lactate 5.4 mg/dL, WBC 25.8.
Clinical Course: HR 131, T 105 F. Dantrolene 1mg/kg and IV fluids were administered. Renal function declined; urine was milky in appearance. Epistaxis was noted. Approximately 20 hr after presentation, the patient expired due to multiple organ system failure.
Autopsy Findings: Probable Cause of Death: methylenedioxymethamphetamine (MDMA), Manner of Death: Accidental.

Case 1112. Acute phencyclidine exposure: probably responsible.
Scenario/Substances: A 38 y/o male was observed to be running through traffic, ''jousting with vehicles and presenting a combative demeanor''. He suffered a fall, struck his head on the curb, and did not get up. EMS described altered mental status. He had a cardiac arrest, was intubated, resuscitated and transported to the ED.
Past Medical History: Hypertension.
Physical Exam: During transport he was unresponsive, BP 70/30, HR 115–120,

Laboratory Data: UDS positive for phencyclidine and THC.
Clinical Course: He remained intubated and required pressors to maintain BP support. He had another cardiac arrest ~4 hr after admission and could not be resuscitated.
Autopsy Findings: No evidence of traumatic brain injury or other trauma. Myocardial contraction band necrosis. Heart blood: carboxy-THC 15 ng/mL, THC not detected. Femoral blood: phencyclidine 647 ng/mL. Coroner ascribed death to ''sequelae of phencyclidine-associated agitated delirium.''

Case 1118. Acute amphetamine/dextroamphetamine ingestion: contributory.
Scenario/Substance: A 42 y/o male took up to 104 amphetamine/dextroamphetamine 20 mg tablets, not his prescribed medication.
Physical Exam: Disoriented, diaphoretic, BP 151/110, HR 105–112, T 35°C.
Clinical Course: A few minutes after arriving in the ED the patient screamed with head pain, developed bradycardia and respiratory arrest. He was intubated and ventilated, BP 95/78, HR 106, and transported to a tertiary care center ICU. His neurological status remained unchanged, and he continued to require ventilation. An IV nicardipine drip was ordered, but it could not be confirmed if it was given, BP 120/60, HR 110. On Day 2, imaging showed a broad-based dissected aneurysm at the base of the skull. The patient's family was informed of the grim prognosis, elected the institution of comfort measures, and he expired on Day 5.
Autopsy Findings: Not available.

Case 1119. Acute dextroamphetamine ingestion: undoubtedly related.
Scenario/Substances: A 43 y/o male, after a domestic dispute, ingested 15 to 20 of his son's 10 mg dextroamphetamine tablets, called EMS and stated he had taken an overdose. Upon arrival of EMS the patient was alert and ambulatory, but deteriorated with loss of consciousness during transport.
Past Medical History: previous suicide attempts.
Physical Exam: Diaphoretic, unresponsive with posturing, no gag reflex. BP 210/110, HR 70, RR 6.
Laboratory Data: UDS positive for amphetamines; acetaminophen and salicylate were not detected.
Clinical Course: The patient was intubated and placed on mechanical ventilation. A CT scan showed large left frontal parietal bleed. The patient was transported to a tertiary healthcare facility where he did not show any neurological response for 48 hours. With the family's consent, an apnea test was performed and brain death was declared. The patient was taken to the OR for organ donation.
Autopsy Findings: No autopsy was performed. Blood drawn on arrival in the ED, (analyzed postmortem), showed amphetamine level of 338 ng/mL.

Case 1121. Methamphetamine exposure: undoubtedly responsible.
Scenario/Substances: A 46 y/o male reportedly had seizures 45 min prior to collapsing. EMS gave epinephrine and atropine and was brought to the ED in cardiac arrest.
Physical Exam: Pulseless, T 41.7° C, no muscle rigidity.
Clinical Course: Cardiac monitor in ED revealed PEA. He was pronounced dead.
Autopsy Findings: Pulmonary edema. Cause of Death: Acute methamphetamine toxicity. Blood methamphetamine 10 mg/L, amphetamine 0.39 mg/L. Urine methamphetamine 66 mg/L, amphetamine 13 mg/L.

Abbreviations & Normal ranges for Abstracts

Disclaimer – all laboratories are different and provide their own normal ranges. Units and normal ranges are provided here for general guidance only. These values were taken from Harrison's[15], Goldfrank[16] or Dart.[17]

Serum electrolyte summary table

Sodium [136–146]	Chloride [102–109]	BUN [7–20] mg/dL	Glucose [75–110] mg/dL
Potassium [3.5–5]	Bicarbonate [22–26]	Creatinine [0.5–1.2] mg/dL	

Na	Cl	BUN	Glu
K	HCO_3	Cr	

serum electrolytes have units of mEq/L = mmol/L
~ = approximately

ABG-pH/pCO_2/pO_2/HCO_3/BE

ABG	= arterial blood gases
ABG-pCO_2	= partial pressure of carbon dioxide [38-42] mmHg
ABG-pH	= hydrogen ion concentration [7.38-7.42] mmHg
ABG-pO_2	= partial pressure of oxygen [90-100] mmHg
ACLS	= advanced cardiac life support, protocol for the provision of cardiac resuscitation
Alk phos	= alkaline phosphatase [13-100] U/L
ALT	= Alanine aminotransferase [7-41] U/L = (SGPT)
AMA	= against medical advice
Ammonia	= [25-80] mcg/dL = [15-47] mcmol/L
ARDS	= acute respiratory distress syndrome
AST	= Aspartate aminotransferase [12-38] U/L = (SGOT)
AVblock	= atrio-ventricular block
BAL	= British anti-Lewisite
BE	= base excess, mmol/L

Bicarbonate	= [22-26] mEq/L
Bilirubin	= total [0.3-1.3] mg/dL, direct [0.1, 0.4] mg/dL, indirect [0.2, 0.9] mg/dL
BLQ	= below the limit of quantitation
BMI	= body mass index
BP	= Blood Pressure, systolic/diastolic, mmHg (Torr)
BUN	= see Urea nitrogen
C	= degrees Centigrade
Ca	= calcium, [8.7–10.2] mg/dL
CABG	= coronary artery bypass graft
CAD	= coronary artery disease
CK	= creatinine kinase (CPK), total: [39-238] U/L females, [51-294] U/L males
CKMB	= MB fraction of CK [0.0–5.5 mcg/L = 0.0–5.5 ng/mL] Fraction of total CK activity [0–0.04 = 0–4.0%]
Cl	= chloride [102-109] mEq/L
CNS	= central nervous system
COHb	= COHb
COPD	= chronic obstructive pulmonary disease
CPR	= cardio pulmonary resuscitation
Cr	= creatinine [0.5-0.9] mg/dL females, [0.6-1.2] males,
CRRT	= continuous renal replacement therapy
CSF	= cerebrospinal fluid
CT	= computed tomography (CAT scan)
CVA	= cerebrovascular accident
CVVHD	= continuous venovenous hemodiafiltration
CxR	= chest radiograph, chest x-ray
D10W	= 10% dextrose in water
D5W	= 5% dextrose in water
Day	= when capitalized , Day = hospital day, i.e., days since admission
DIC	= disseminated Intravascular coagulation
Dx	= diagnosis
ECG	= electrocardiogram (EKG), leads = I, II, III, aVR, aVL, aVF, V1, V2, V3, V4, V5, V6
ED	= emergency department, in these abstracts refers to the initial health care facility
EDDP	= principal methadone metabolite, 2-ethylidene-1,5-dimethyl-3,3-diphenylpyrrolidine
EEG	= electroencephalogram
ELISA	= enzyme-linked immunosorbent assay
EMS	= emergency medical services, paramedics, the first responders
ER	= extended release (sustained release)
FFP	= fresh frozen plasma
FiO_2	= fraction of inspired oxygen
g/dL	= grams per deciliter
GCS	= Glasgow Coma Score, ranges from 3 to 15
GI	= gastrointestinal
Glu	= glucose, fasting [75-110] mg/dL
HCF	= health care facility
HCG	= human chorionic gonadotropin test for pregnancy
HCO_3	= bicarbonate
HCP	= health care provider
Hct	= hematocrit [35.4-44.4] females, [38.8-46.4]% males
Hgb	= hemoglobin [12.0-15.8] g/dL females, [13.3-16.2] g/dL males
HIV	= human immunodeficiency virus
HIV	= human immunodeficiency virus
HR	= heart rate, beats per min
Hr	= hour(s)
ICU	= intensive care unit
IgE	= immunoglobulin E
IM	= intramuscular
INR	= international normalized ratio (PT to control) [0.8-1-2]
IU/L	= international units per Liter
IV	= intravenous
K	= potassium, [3.5-5] mEq/L
Kg	= kilogram
L	= Liter
Lactate	= lactic acid [4.5-14.4] mg/dL arterial, [4.5-19.8] mg/dL venous
Leukocyte count	= white blood count [3.54-9.06] $10^3/mm^3$
m/o	= months old
mcg/dL	= micrograms per deciliter
mcg/L	= micrograms per Liter
mcg/min	= micrograms per minute
mcg/mL	= micrograms per milliliter
mcmol/L	= micromoles per liter
MDA	= 3,4-methylenedioxyamphetamine
MDMA	= methylenedioxymethamphetamine (ecstasy)
ME	= medical examiner
mEq	= milliequivalents
mEq/L	= milliequivalents per Liter
Mg	= magnesium [1.5-2.3] mg/dL
mg	= milligrams
mg/dL	= milligrams per deciliter
mg/kg	= milligrams per kilogram
mg/L	= milligrams per Liter
min	= minutes
mmol/L	= millmoles per Liter
mosm/kg	= milliosmoles per kilogram
mosm/L	= milliosmoles per Liter
MRI	= Magnetic Resonance Imaging
ms	= milliseconds
NG	= nasogastric
ng/mL	= nanograms per milliliter
not detected	= analyte below the level of quantitation, negative
NS	= normal saline
O_2 sat	= oxygen percent saturation [94-100]% at sea level

Narrative Headers:
Scenario/Substances: concise narrative of EMS & pre-HCF events
Past Medical History: available relevant past medical history
Physical Exam: initial physical exam if available
Clinical Course: concise narrative of HCF & beyond with outcome
Laboratory Data: initial results, give units except for units given in abbreviations
Autopsy Findings: = medical examiner and/or autopsy results

OR	= operating room
Osm	= osmole
PALS	= pediatric advanced life support
PC	= poison center (= PCC, or Poison Control Center)
PCP	= primary care provider
PEA	= pulseless electrical activity
PEEP	= positive end expiratory pressure
Platelets	= platelet count [150-400] $x10^9$/L
PO	= per os (''by mouth'' in Latin)
Potassium	= [3.5-5] mEq/L
Ppm	= parts per million
PR	= P-R interval [120-200] msec on the ECG
PT	= prothrombin time, INR is preferred, but PT may be used if INR is not available
PTA	= Prior to admission
PTT	= partial thromboplastin time [26.3-39.4] sec
QRS	= ECG QRS complex duration [60-100] msec
QT	= Q to T interval on the ECG waveform, varies with heart rate
QTc	= QT interval corrected for heart rate, usually QTcB = QT / $RR^{½}$ (Bazett correction) 1-15 y-o [<440] msec, adult male [<430] msec, adult female [<450] msec
RBC	= red blood cell(s)
RR	= respiratory rate, breaths per minute
s/p	= status post
sec	= seconds
SVT	= supraventricular tachycardia
T (oral)	= Temperature (oral) [36.4, 37.2]°C or
T (rectal)	= Temperature (rectal) [36.4, 37.2]°C or
T (tympanic)	= Temperature (tympanic) [36.4, 37.2]°C
THC	= tetrahydrocannabinol
Tprot	= total protein
Troponin I	= normal range [0-0.08] ng/mL, Cut-off for MI > 0.04 ng/mL
U/dL	= units per deciliter
U/L	= units per liter
U/mL	= units per milliliter
UA	= urinalysis
UDS	= urine drug screen
Urea nitrogen (BUN)	= [6-17] mg/dL
VF	= Ventricular fibrillation
VT	= Ventricular tachycardia
WBC	= white blood count, see leukocyte count
WNL	= within normal limits
y/o	= years old