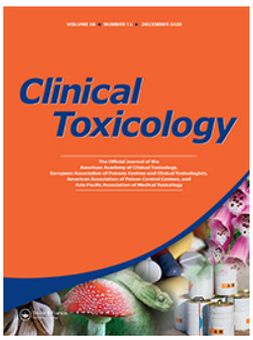

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2019 Annual Report of the American Association of Poison Control Centers' National Poison Data System (NPDS): 37th Annual Report

David D. Gummin, James B. Mowry, Michael C. Beuhler, Daniel A. Spyker, Daniel E. Brooks, Katherine W. Dibert, Laura J. Rivers, Nathaniel P. T. Pham & Mark L. Ryan

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NPDS REPORT 2019

2019 Annual Report of the American Association of Poison Control Centers' National Poison Data System (NPDS): 37th Annual Report

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ABSTRACT

Introduction: This is the 37th Annual Report of the American Association of Poison Control Centers' (AAPCC) National Poison Data System (NPDS). As of 1 January, 2019, all 55 of the nation's poison centers (PCs) uploaded case data automatically to NPDS. The upload interval was 6.52 [6.12, 8.68] (median [25%, 75%]) minutes, creating a near real-time national exposure and information database and surveillance system.

Methods: 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. Cases with medical outcomes of death were evaluated by a team of medical and clinical toxicologist reviewers using an ordinal scale of 1-6 to assess the Relative Contribution to Fatality (RCF) of the exposure.

Results: In 2019, 2,573,180 closed encounters were logged by NPDS: 2,148,141 human exposures, 68,711 animal exposures, 351,163 information requests, 5,078 human confirmed nonexposures. Total encounters showed a 1.70% increase from 2018, while health care facility (HCF) human exposure cases remained nearly steady with a slight decrease of 0.495%. All information requests decreased by 4.58%, medication identification (Drug ID) requests decreased by 29.7%, and human exposure cases increased by 2.30%. Human exposures with less serious outcomes have decreased 2.08% per year since 2008, while those with more serious outcomes (moderate, major or death) have increased 4.61% per year since 2000.

Consistent with the previous year, the top 5 substance classes most frequently involved in all human exposures were analgesics (11.0%), household cleaning substances (7.13%), cosmetics/personal care products (6.16%), antidepressants (5.32%), and sedatives/hypnotics/antipsychotics (5.21%). As a class, antidepressant exposures increased most rapidly, by 1,957 cases/year (3.90%/year) over the past 10 years for cases with more serious outcomes.

The top 5 most common exposures in children age 5 years or less were cosmetics/personal care products (11.4%), household cleaning substances (10.5%), analgesics (8.97%), foreign bodies/toys/miscellaneous (7.17%), and dietary supplements/herbals/homeopathic (5.06%). Drug identification requests comprised 13.4% of all information contacts. NPDS documented 2,619 human exposures resulting in death; 2,048 (78.2%) of these were judged as related (RCF of 1-Undoubtedly responsible, 2-Probably responsible, or 3-Contributory).

Conclusions: These data support the continued value of PC expertise and need for specialized medical toxicology information to manage more serious exposures. Unintentional and intentional exposures continue to be a significant cause of morbidity and mortality in the US. The near real-time status of NPDS represents a national public health resource to collect and monitor US exposure cases and information contacts. The continuing mission of NPDS is to provide a nationwide infrastructure for surveillance for all types of exposures (e.g., foreign body, infectious, venomous, chemical agent, or commercial product), and the identification and tracking of significant public health events. NPDS is a model system for the near real-time surveillance of national and global public health.

NOTE: 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). Death cases were 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 of included deaths to single-substance cases to improve precision and avoid misinterpretation.

Introduction

This is the 37th Annual Report of the American Association of Poison Control Centers' (AAPCC; http://www.aapcc.org) National Poison Data System (NPDS) [1]. Fifty-five 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 patient-specific exposure management and poison information for entire year of 2019.

NPDS is the data warehouse for the nation's PCs. Poison centers place emphasis on exposure management, accurate data collection and coding, and responding to the continuing need for poison-related public and professional education. The PC's healthcare professionals are available free of charge to users, 24 hours a day, every day of the year. Poison centers respond to questions from the public, health care professionals, and public health agencies. The continuous staff dedication at the PCs is manifest as the number of exposure and information encounters averaging close to 3.4 million annually since the year 2000. Poison center encounters involve either an exposed human or animal (EXPOSURE CASE) or a request for information with no person or animal exposed to any foreign body, viral, bacterial, venom, chemical agent or commercial product (INFORMATION REQUEST). A unique feature of PC case management is the use of follow-up calls to monitor case progress, provide ongoing treatment recommendations, and to determine the medical outcome of the case.

The NPDS Products Database

The NPDS products database contains over 449,000 products ranging from viral and bacterial agents to commercial chemical and drug products. The products database is maintained and continuously updated by data analysts at the Micromedex Poisindex® System (IBM Micromedex® Healthcare Series [Internet database], Greenwood Village, CO: IBM Watson Health). A robust generic coding system categorizes the product data into 1,114 active generic codes. These generic codes collapse into Pharmaceutical (552) and Non-Pharmaceutical (562) groups. These two groups are divided into Major (68) and Minor (188) categories. The generic coding schema undergoes continuous improvement through the work of the AAPCC – Micromedex Joint Coding Group. The group consists of AAPCC members and IBM Watson Health editorial and lexicon staff working to meet best terminology practices. The generic code system provides enhanced report granularity as reflected in Appendix B (Table 22). The following 14 new generic codes were introduced in 2019.

Generic Codes Added in 2019*.

1	Synthetic Phenethylamines, Analogs, and Precursors
2	Heat-Not-Burn Tobacco
3	Cannabidiol (CBD)
4	Other Sedating Antihistamines
5	Cetirizine
6	Loratadine
7	Other Less Sedating Antihistamines
8	*Palytoxin* Poisoning
9	*Karenia brevis* Exposure (Red Algae Tide)
10	Unknown Type of Algae Associated Exposure
11	Hydroxyzine
12	Levocetirizine
13	Fexofenadine
14	Non-Prescription Fentanyl

*Because the new codes were added during 2019, the numbers for these generic codes in Appendix B (Table 22) do not reflect the entire year. For completeness, certain categories require customized data retrieval until they have been in place for more than 1 calendar year.

What's New in This Year's Report?

- On January 1, 2019, to provide additional granularity and reflect current information, 45 new clinical effects and 45 new therapies were activated in NPDS. In addition, one therapy and 7 clinical effects were inactivated. Some of the inactivated codes were expanded to add granularity. These changes can be seen in Appendix F.
- On January 1, 2017, AAPCC launched an on-line virtual poison center called PoisonHelp.org (https://poisonhelp.org/help). Appendix D contains summaries of the experience of AAPCC with the on-line virtual poison center PoisonHelp.org for the first 3 years of operation.
- A section on methanol-containing hand sanitizers is included as a preview of emerging trends information for the 2020 annual report.

PoisonHelp.org

Since the advent of the smart phone in 2006, a consistent trend has emerged in which consumers increasingly turn to web-based resources to obtain poisoning and other health-related information. This raises concern among toxicologists and poison prevention specialists about the quality of information available to the average American, but also about the type and quality of web-based information available to healthcare providers. In response to the increasing demand, in 2015 the AAPCC devised an online tool for consumers to obtain simple individualized poisoning information as an alternative to directly contacting a poison center, but that would guide the consumer to a poison center when poison specialist input would be more appropriate. The platform launched during National Poison Week in 2016 with initial goals that included a system that would be credible, fast, easy to use, readily accessible from a variety of devices, and without financial charge to consumers. The first open contacts and data collection began in 2017.

PoisonHelp.org is an interactive website that provides critical triage and information on how to manage exposures to potentially toxic products, poisons, and medications. Users are prompted to answer a few questions regarding a human exposure to any of 1,114 generic substances that encompass now more than 449,000 unique products. Recommendations are vetted by specially trained physicians, pharmacists, and nurses from our nation's 55 poison control centers. The website can be accessed from any computer or mobile device and is free, confidential, and available 24/7.

Appendix D contains contact data obtained during the initial years of PoisonHelp.org activity. Tables in Appendix D show substances queried and demographics of those who queried the site. Activity continues to increase over time, as is evidenced in the cumulative contact count depicted in Figures D-1A and D-1B, Appendix D.

Methods

Characterization of Participating Poison Centers and Population Served

All 55 US PCs are accredited, and all submitted data to AAPCC through 31 December 2019. The entire population of

the 50 United States, American Samoa, the District of Columbia, Federated States of Micronesia, Guam, Marshall Islands, Northern Marianas, Puerto Rico, and the US Virgin Islands was served by the US PC network in 2019 [2].

The average number of human exposure cases managed per day by all US PCs was 5,885. Similar to other years, higher volumes were observed in the warmer months, with a mean of 6,211 cases per day in August compared with 5,523 per day in January. On average, US PCs experienced a new encounter involving an actual human exposure every 14.7 seconds.

Encounter Management – Specialized Poison Exposure Emergency Providers

Poison center Managing Directors are primarily responsible for patient care/information service operations, clinical education, and supervising staff instruction. Most are PharmDs or RNs with American Board of Applied Toxicology (ABAT) certification in clinical toxicology. Medical direction is provided by Medical Directors who are board-certified physician medical toxicologists. At some PCs, the Managing and Medical Director roles are held by the same individual.

Encounters with US PCs are managed by healthcare professionals who have received specialized training in toxicology to allow for assessment, triage, management and monitoring of toxic exposure emergencies. These providers include medical and clinical toxicologists, registered nurses (RNs), pharmacists (PharmD or BS), physicians and physician assistants. Most commonly, RNs and pharmacists make up the contingent of "Specialists in Poison Information" (SPIs) or "Certified Specialists in Poison Information" (CSPIs) in the US. These (C)SPIs triage lay public callers to the most appropriate level of care and provide health care professionals with the most up-to-date management recommendations to care for their poisoned/overdosed patients. For a SPI to become nationally certified as a CSPI, (s)he must log a minimum of 1,200 hours in a PC and handle 2,000 human exposure cases prior to being considered eligible to take the certification examination. RNs, pharmacists, physicians and physician assistants are the only individuals eligible to sit for the CSPI examination. Of note is the lack of an appropriate, core toxicology training within most graduate medical education curricula to allow these medical professionals to be prepared for PC patient management operations. These individuals must receive significant additional training beyond their degree programs to become (C)SPIs. Such training is only offered within the PCs. "Poison Information Providers" (PIPs) are allied healthcare professionals who are allowed to manage information-type and lower acuity cases while working under the supervision of a CSPI. Poison centers undergo a rigorous accreditation process administered by the AAPCC and must submit an annual accreditation report and an extensive reaccreditation application every 7 years.

NPDS – Near Real-time Data Capture

Extensively enhanced over its predecessor, the Toxic Exposure Surveillance System (TESS), which began collecting data in 1983 and near real-time data since 2003, NPDS was launched on 12 April 2006. NPDS is the data repository for all US PCs and includes all case information collected by its predecessor. In 2019, all 55 US PCs uploaded case data automatically to NPDS in near real-time, making NPDS one of the few operational systems of its kind. Poison center staff record cases contemporaneously in 1 of 4 electronic medical record systems. Each PC uploads case data automatically. The average time to upload data for all PCs is 6.51 [6.12, 8.68] (median [25%, 75%]) minutes creating a near real-time national exposure database and surveillance system.

The web-based NPDS software facilitates the detection, analysis, and reporting of surveillance anomalies. System software offers a myriad of surveillance uses allowing AAPCC, its member centers and public health agencies to utilize NPDS exposure data. Users can access regional data for their own areas and view national aggregate data. 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 ensure consistent, reproducible reports. Additional information including autopsy data on fatalities may be added after the lock date as an addendum to the fatality abstract. The 2019 database was locked on 13 August 2020 at 05:00 PM EDT.

Annual Report Case Inclusion Criteria

Note: NPDS entries are called human or animal "EXPOSURE CASEs," rather than "calls," because a single call may describe more than one case and because the management of an NPDS case often requires more than a single telephone call or contact. The information in this report reflects only individual case entries that are not duplicates, and only those cases that have been designated by the regional PC as being "CLOSED." A case is closed when the PC has determined that no further follow-up/recommendations are required or when no further information is available. Exposure cases are followed to obtain the most precise medical outcome possible, when appropriate to do so. Depending on the case specifics, most cases are "closed" within a few hours of the initial contact. Cases involving complex hospitalized patients or resulting in death may remain open for months while data continue to be collected. Follow-up contacts provide a proven mechanism for monitoring the appropriateness of management recommendations, enabling continual updates of case information, augmenting patient guidelines, providing poison prevention education, and obtaining final medical outcomes to make the data collected as accurate and complete as possible.

Statistical Methods

All tables except Tables 1A, 3B, 17B, and Tables D-1 and D-2A, D-2B, and D-2C were generated directly by the NPDS web-based application and can thus be reproduced by each PC. The analyses for Figures 1-4 were done using SAS JMP® version 12.0.1 (SAS Institute, Cary, NC) and summary counts were generated by the NPDS web-based application. The analyses for Figures 5-8, Table 17B, and Figures D-1A and D-1B were created

Table 1A. AAPCC Population Served and Reported Exposures (1983-2019).

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	308.5[b]	2,491,049	8.1
2009	60	310.9[b]	2,479,355	8.0
2010	60[a]	313.3[b]	2,384,825	7.6
2011	57[c]	315.7[b]	2,334,004	7.4
2012	57	318.0[b]	2,275,141	7.2
2013	57[d]	320.2[e]	2,188,013	6.8
2014	56[d]	322.9[f]	2,165,142	6.7
2015	55[g]	325.4[h]	2,168,371	6.7
2016	55	327.0[i]	2,159,032	6.6
2017	55	330.4[j]	2,115,186	6.4
2018	55	330.0[k]	2,099,751	6.3
2019	55	334.0[l]	2,148,141	6.4
Total			**72,972,991**	

[a]As of 1 July 2010 there were 60 Participating Centers.
[b]AAPCC Total as of 1 July Mid Year US Census (2012 data for 50 United States, District of Columbia and Puerto Rico; 2011 data for Guam; 2010 data for American Samoa, Federated States of Micronesia, and the US Virgin Islands).
[c]As of 1 July 2011 there were 57 Participating Centers.
[d]One Participating Center closed in September 2013. Its data is included in the 2013 totals but not in the 2014 data.
[e]AAPCC Total as of 1 July Mid Year US Census (2013 data for 50 United States, District of Columbia and Puerto Rico, Guam, American Samoa, Federated States of Micronesia, and the US Virgin Islands) [1,2].
[f]AAPCC Total as of 1 July Mid Year US Census (2014 data for 50 United States, District of Columbia and Puerto Rico, Guam, American Samoa, Federated States of Micronesia, and the US Virgin Islands) [1,2].
[g]One Participating Center closed in July 2014. Its data is included in the 2014 totals but not in the 2015 data.
[h]AAPCC Total as of 1 July Mid Year US Census (2015 data for 50 United States, District of Columbia and Puerto Rico, Guam, American Samoa, Federated States of Micronesia, and the US Virgin Islands) [1,2].
[i]AAPCC Total as of 1 July Mid Year US Census (2016 data for 50 United States, District of Columbia and Puerto Rico, Guam, American Samoa, Federated States of Micronesia, and the US Virgin Islands) [1,2].
[j]AAPCC Total as of 1 July Mid Year US Census (2017 data for 50 United States, District of Columbia and Puerto Rico, Guam, American Samoa, Federated States of Micronesia, and the US Virgin Islands) [1,2].
[k]AAPCC Total as of 1 July Mid Year US Census (2018 data for 50 United States, District of Columbia and Puerto Rico, Guam, American Samoa, Federated States of Micronesia, Marshall Islands, North Marianas Islands, and the US Virgin Islands) [1,2].
[l]AAPCC Total as of 1 July Mid Year US Census (2019 data for 50 United States, District of Columbia and Puerto Rico, Guam, American Samoa, Federated States of Micronesia, Marshall Islands, North Marianas Islands, and the US Virgin Islands) [1,2].

using Microsoft Excel 2016 (Microsoft, Redmond, WA) with the RegressItPC add-in (RegressIt$_{TM}$, version 2020.03.04).

NPDS Surveillance

As previously noted, all active US PCs upload case data automatically to NPDS. This unique near real-time upload is the foundation of the NPDS surveillance system, making both spatial and temporal case volume and case-based surveillance possible. NPDS 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, which use cases reported from a geographic location regardless of which PC managed the case. This functionality is available to every PC as well as the AAPCC surveillance team. Poison centers also have the ability to share NPDS near 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 drug or commercial products of public health interest such as contaminated food or product recalls. Thus, NPDS can provide near real-time adverse event monitoring, surveillance, response and situational awareness.

Surveillance definitions can be created to monitor a variety of parameters (i.e., volume or case based) on any desired substance or commercial product in the Micromedex® products database; and/or set of clinical effects or other parameters. The products database contains over 449,000 entries ranging from viral and bacterial agents to commercial chemical and drug products. Surveillance definitions may be constructed using volume or case-based definitions with a variety of mathematical options and historical baseline periods from 1 to 5 years. NPDS surveillance tools include:

- Volume Alert Surveillance Definitions
  - Total Encounter Volume
  - Human Exposure Case Volume
  - Animal Exposure Case Volume
  - Information Contact Volume
  - Clinical Effects Volume (signs and symptoms, or laboratory abnormalities)
  - Syndromic Surveillance Volume - allows Boolean based definitions utilizing various NPDS data fields to be run based on historical trends for user defined periods of interest
- Case Based Surveillance Definitions utilizing various NPDS data fields linked in Boolean expressions
  - Substance
  - Clinical Effects
  - Species
  - Medical Outcome and others

Incoming data are monitored continuously, and anomalous signals generate an automated email alert to the AAPCC's surveillance team, designated PC or public health agency staff. These anomaly alerts are reviewed daily by the

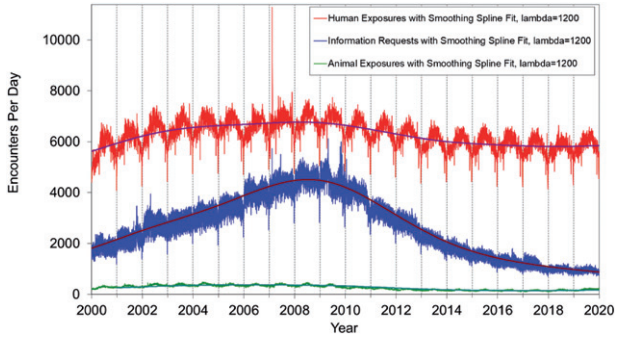

Figure 1. Human Exposure Cases, Information Requests and Animal Exposure Cases by Day since 1 January 2000. Smoothing spline fits using lambda = 1200 for human exposures had associated RSqr = 0.472, information requests RSqr = 0.925 and animal exposures RSqr = 0.887.

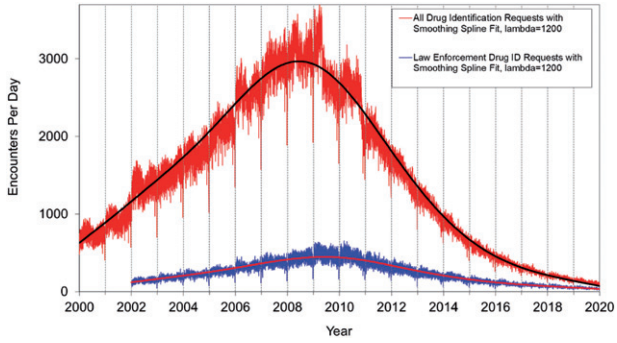

Figure 2. All Drug Identification and Law Enforcement Drug Identification Requests by Day since 1 January 2000. Smoothing spline fits used lambda = 1200, all drug identification requests had associated RSqr = 0.969 and law enforcement drug ID requests RSqr = 0.889.

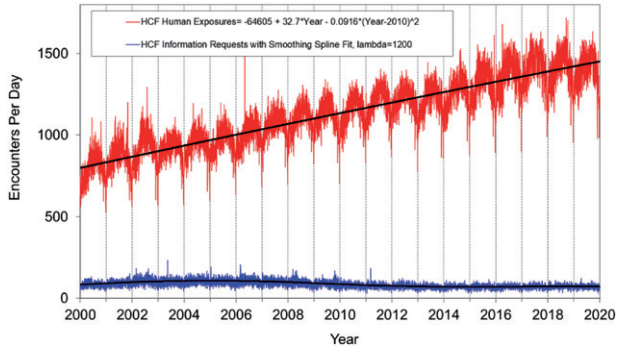

Figure 3. Health Care Facility (HCF) Exposure Cases and HCF Information Requests by Day since 1 January 2000. Both linear and second order (quadratic) terms were statistically significant ($p < 0.001$) for regression of HCF human exposure with associated RSqr = 0.786. The quadratic coefficient is positive meaning the case counts are increasing faster than linearly. Smoothing spline fit with lambda = 1200 for HCF information requests had associated RSqr = 0.378.

AAPCC surveillance team, the PC, or the public health agency that created the surveillance definition. When reports of potential public health significance are detected, additional information is obtained from reporting PCs via the NPDS surveillance correspondence system or phone. The PC then can alert respective local or state health department (if not already done). Public health issues are brought to the attention of the Health Studies Branch, National Center for Environmental Health, Centers for Disease Control and Prevention (HSB/NCEH/CDC). This near real-time tracking ability is a unique feature offered by NPDS and the PCs.

AAPCC surveillance team clinical and medical toxicologists review surveillance definitions on a regular basis to fine-tune the queries. The CDC, as well as state and local health departments with NPDS access granted by their respective PCs, also have the ability to create surveillance definitions for routine surveillance tasks or to respond to emerging public health events.

Emerging Trends

Since the 2007 annual report, the authors have further explored recent interesting and sometimes alarming trends in NPDS data. Past trends have compared NPDS findings to other datasets such as Google Trends and various CDC reports.

In 2019, a concerning nationwide trend involved an initially unexplained acute lung injury in adolescents and young adults. This outbreak of previously undescribed pulmonary illness was heralded by reports of a cluster of adolescents in Milwaukee, WI in July, 2019, who exhibited rather

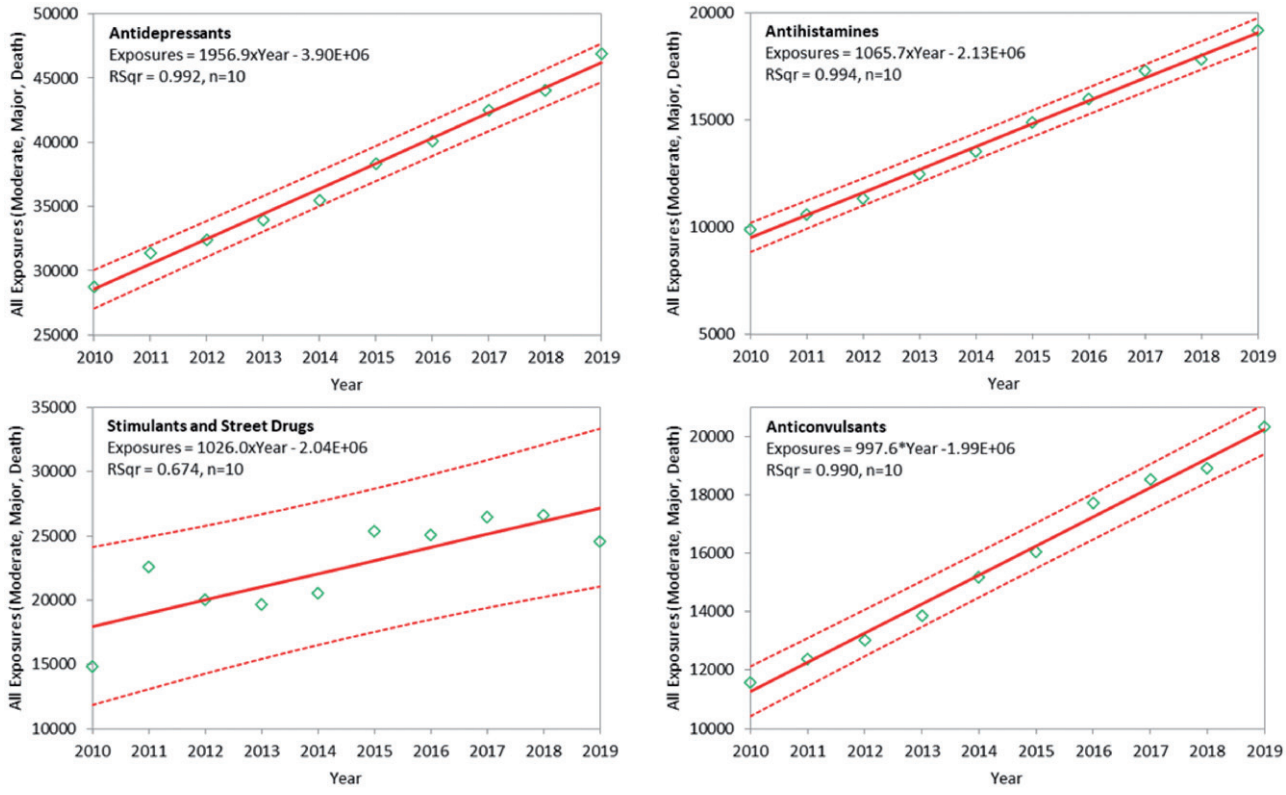

Figure 4. Substance Categories with the Greatest Rate of Exposure Increase since 1 January 2010 for More Severe Outcomes (Top 4). Solid lines show least-squares linear regressions for the human exposure cases per year for that category (□). Broken lines show 95% confidence interval on the regression.

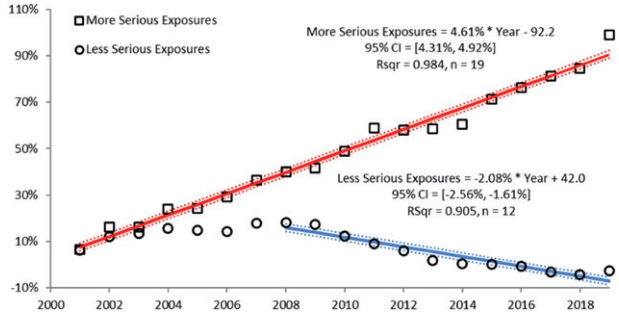

Figure 5. Change in Encounters by Outcome from Year 2000. The figure shows the percent change from baseline (year 2000) for human exposure cases divided among the 10 medical outcomes. The more serious exposures (major, moderate and death) increased. The less serious exposures (no effect, minor effect, not followed (non-toxic), not followed (minimal toxicity possible), unable to follow (potentially toxic) and unrelated effect) decreased after 2008. Solid lines show least-squares linear regressions for the change in more serious exposures per year (□) and less serious exposures (○). Broken lines show 95% confidence intervals on the regression.

unique clinical findings. Within days, the Wisconsin Department of Health Services and the Illinois Department of Public Health launched a joint epidemiologic investigation to identify a potential exogenous or environmental cause. This insidious new illness progressed over the next few weeks, disproportionally affecting adolescent children and young adults [3]. The CDC rapidly developed a case definition for purposes of characterizing and investigating the outbreak, and the syndrome was labeled "e-Cigarette or Vaping Product Use–Associated Lung Injury" (EVALI). Initially, the CDC case definition required: Using an e-cigarette ("vaping")

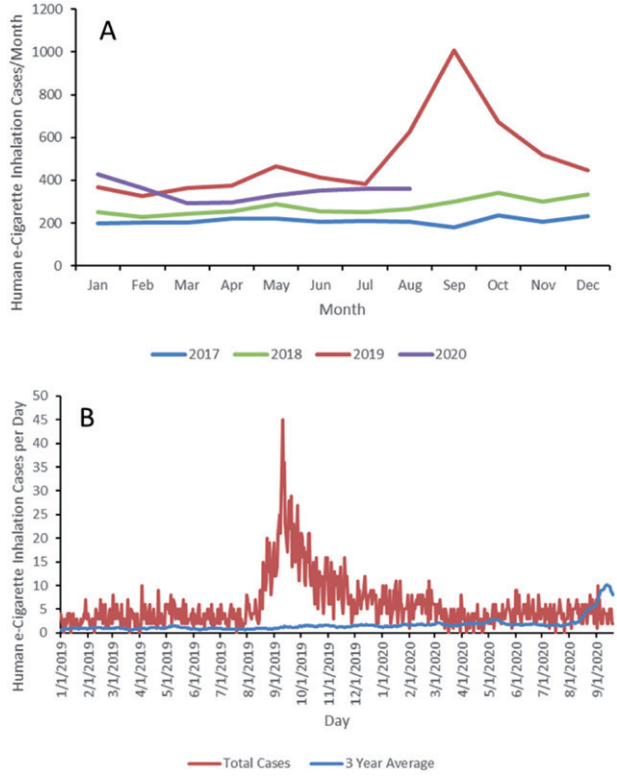

Figure 6. Human e-Cigarette Inhalation Cases Reported to NPDS. Figure 6A shows the total number of human e-cigarette inhalation cases reported to NPDS from Jan 1, 2017 to August 31, 2020. Figure 6B compares the number of human e-cigarette inhalation cases reported to NPDS from January 1, 2019 to September 19, 2020 to the average number of e-cigarette inhalation cases for the two-week period around each date for the years 2015 to 2018. The contribution of the spike in cases in September 2019 is reflected in the 3-year average starting around August 11, 2020.

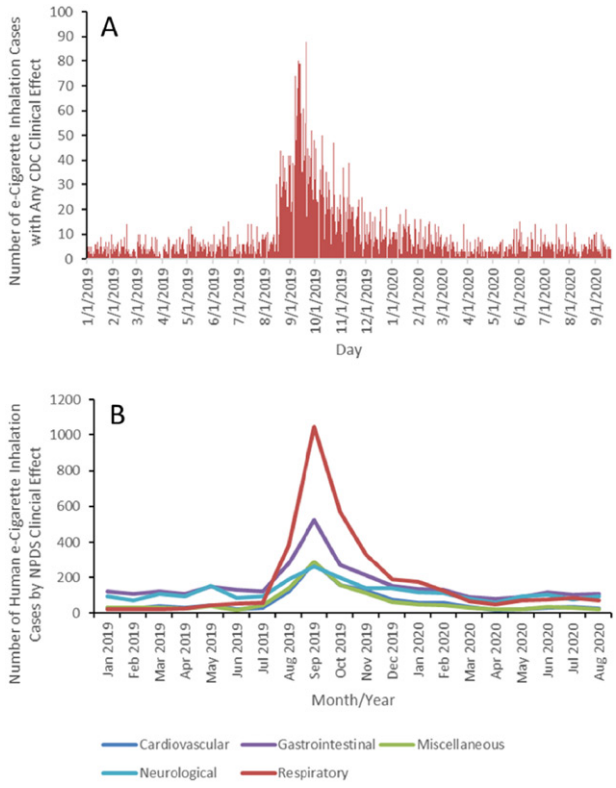

Figure 7. Human e-Cigarette Inhalation Cases Clinical Effects, January 1, 2019 to September 19, 2020. Figure 7A shows the number of human e-cigarette inhalation cases in NPDS with any of the CDC symptom criteria from the EVALI case definitions. NPDS Clinical Effects mapped to CDC symptoms include bronchospasm (SOB), chest pain, cough/choke, dyspnea (SOB), X-ray findings(+), fever/hyperthermia, abdominal pain, diarrhea, nausea, and vomiting. NPDS did not have corresponding Clinical Effects for fatigue, chills, and weight loss. Figure 7B shows the clinical effects by organ system for human e-cigarette inhalation cases.

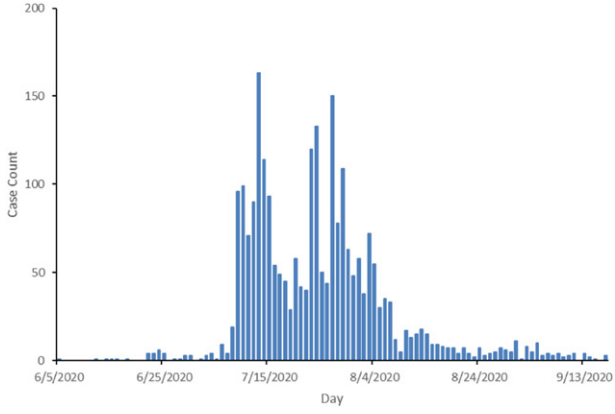

Figure 8. Exposures per Day – All methanol-containing hand sanitizer cases, June 1, 2020 through September 17, 2020. The figure shows the frequency of methanol-containing hand sanitizers human exposure cases by day.

or "dabbing" in the 90 days prior to symptom onset, and the presence of a pulmonary infiltrate (opacities on chest x-ray or "ground-glass" opacities on chest CT) and the absence of pulmonary infection on initial evaluation [4]. The definition was later expanded from respiratory findings (fever, fatigue and radiographic abnormalities) to include gastrointestinal symptoms (nausea/vomiting/diarrhea, abdominal pain) as well as chills and weight loss [5].

To facilitate tracking and trending new types of cases with NPDS, initial generic codes (GCs) for vaping and e-cigarette liquid were established in 2010 and codes were added in 2014. GCs used in our query were: 0310094, 0310031, 0200620, 0310095, 0310032, 0200622, 0310096, 0310034, 0310033, 0310097, 0310036, 0310035 (6 for nicotine e-cigarettes and 6 for marijuana e-cigarettes). Our query of NPDS included single and polysubstance exposures and encompassed all Clinical Effects, whether classified related/unrelated/unknown if related.

We queried the NPDS database for all closed human e-cigarette inhalation cases using these 12 GCs for December 25, 2015 to September 19, 2020. The frequency of cases from January 1, 2017 to August 31, 2020 was identified by month. The frequency of cases on each date from January 1, 2019 to September 19, 2020 was compared to the average frequency of cases for the two-week period around that day for the previous 3 years (2015 to 2018). Symptoms from CDC case definitions were mapped to NPDS Clinical Effects of bronchospasm (SOB), chest pain, cough/choke, dyspnea (SOB), fever/hyperthermia, abdominal pain, diarrhea, nausea, and vomiting. NPDS does not record separate Clinical Effects for fatigue, chills, and weight loss. Cases from January, 2019 through September, 2020 were evaluated for the frequency of exhibiting any CDC symptom (as the CDC case definition was broadly defined). The frequency of NPDS Clinical Effects by major organ system (Respiratory, Gastrointestinal, Cardiovascular, Neurological, Dermal, Heme/Hepatic, Ocular, Renal/GU and Miscellaneous) for e-cigarette inhalations cases were also examined. Findings are presented in the section on *Emerging Trends – E-cigarette Associated Vaping Lung Injury*.

Fatality Case Review and Abstract Selection

NPDS fatality cases are recorded as DEATH or DEATH (INDIRECT REPORT). Medical outcome of DEATH means that the PC was notified of the death of the case in which PC personnel were involved in some aspect of the management. DEATHS (INDIRECT REPORT) are deaths that the PC acquired, typically from medical examiners or media, but did not manage or answer any questions related specifically to that case.

Although PCs may report death as an outcome, the death might not necessarily result from 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 F and the methods to select abstracts for publications are described in Appendix C. The AAPCC fatality review process was first published in detail in the 2008 NPDS Annual Report [1].

Pediatric Fatality Case Review

A focused Pediatric Fatality Review team comprised of 6 toxicologists with pediatric expertise evaluated cases for patients under 19 years of age. The panel reviewed the

documentation of all such cases, with specific focus on the conditions behind the poisoning exposure and finding commonalities which might inform efforts at prevention. The reviewed pediatric fatality cases exhibited a bimodal age distribution. Exposures causing death in children $\leq$ 5 years of age were mostly coded as "Unintentional-General," while those in ages >13 years were mostly "Intentional." As has been true for several years, the circumstances of the case are often not captured in the reason code or the narrative. The pediatric fatality review team encourages that additional detail be obtained from law enforcement or child protective services, postmortem investigation, and regarding the means by which the child accessed the substances responsible for the fatality.

Results

Information Requests to Poison Centers

Data from 351,163 information requests to PCs in 2019 (Table 1C) was transmitted to NPDS, including requests in optional reporting categories such as prevention/safety/education (18,025), administrative (21,184), and caller referral (60,731).

Figure 2 shows that all Medication Identification (Drug ID) requests have decreased dramatically since mid-2008. Answering Drug ID requests is optional for PCs and some have stopped answering these requests due to staffing constraints. Law enforcement Drug ID requests also showed a decline. Drug ID requests fell to 4th most frequent information request for 2019, comprising 47,170 requests with PCs during the year. Of these, 23,555 (49.9%) were identified as drugs with known abuse potential. However, these cases were categorized based on the drug's abuse potential without knowledge of whether abuse was actually intended.

While the number of Drug information requests decreased 2.93% from 2018 (72,299 requests) to 2019 (70,179 requests), the percentage of these slightly increased to 20.0% of all information requests. The most common drug information requests were about drug-drug interactions, followed by other drug information, questions about dosage, inquiries of adverse effects (without a known exposure), and medication administration. Environmental inquiries comprised 3.62% of all information requests. Of these environmental inquiries, specific questions related to pesticides were most common, followed by cleanup of mercury (thermometers and other), and air quality.

Of all the information requests, poison information comprised 13.0% of the requests with inquiries involving general toxicity the most common followed by questions involving food preparation handling practices, safe use of household products, and food poisoning.

Exposure Cases Logged at Poison Centers

In 2019, participating PCs logged 2,573,180 total encounters including 2,148,141 closed human exposure cases (Table 1A), 68,711 animal exposures (Table 1B), 351,163 information contacts (Table 1C), 5,078 human confirmed non-exposures, and 87 animal confirmed non-exposures. An additional 100 cases were still open at the time the database was locked. The cumulative AAPCC database now contains close to 73 million human exposure case records (Table 1A). A total of 19,969,593 information requests have been logged into the AAPCC database since the year 2000.

Table 1B. Non-Human Exposures by Animal Type.

Animal	N	%
Dog	62,177	90.49
Cat	5,594	8.14
Rodent / lagomorph	152	0.22
Bird	148	0.22
Horse	127	0.18
Sheep / goat	86	0.13
Cow	70	0.10
Aquatic	28	0.04
Other	329	0.48
Total	**68,711**	**100.00**

Figure 1 shows the human exposures, information contacts and animal exposures by day since 1 January 2000. Smoothing spline fit of these data shows departure from linearity (declining rate of cases since mid-2007) for Human Exposure cases with some flattening over the last 3 years. information contacts are declining more rapidly and are also described by a smoothing spline fit, and Animal Exposure cases have likewise been declining since mid-2005. The 2 May 2006 exposure data spike on Figure 1 was the result of 602 children in a Midwest school reporting a noxious odor which caused anxiety but resolved without sequelae.

A hallmark of PC case management is the use of follow-up contacts to monitor case progress and medical outcome. US PCs made approximately 2,600,000 follow-up contacts in 2019. (Note: there exists some variation in the way that this number is determined between the 4 data entry systems presently used by AAPCC). Follow-up was performed in 45.0% of human exposure cases. One follow-up contact was made in 20.5% of human exposure cases and multiple follow-ups (range 2-119) were performed in 24.5% of cases. For human exposure cases in which follow-up contacts were documented, an average of 1.2 contacts per case were done.

Figure 3 shows a graphic summary and analyses of Health Care Facility (HCF) exposure and HCF information contacts. HCF exposure cases slightly departs from linearity but continues to increase at a steady rate, while the rate of HCF information contacts has declined since early 2005 but leveled off since late 2013. This increasing use of the PCs for the more serious exposures (HCF cases) is important in the face of the overall decline in exposure and information encounters.

Tables 22A (Nonpharmaceuticals) and 22B (Pharmaceuticals) found in Appendix B provide summary demographic data on patient age, reason for exposure, medical outcome, and use of an HCF for all 2,148,141 human exposure cases, presented by substance categories. The Pharmaceuticals category includes both licit and illicit drugs.

Column 1: Name of the major, minor generic categories and their associated generic substances. Note that for

Table 1C. Distribution of Information Requests.

Information request type	N	% of Info. requests
Drug identification		
Public inquiry: Drug sometimes involved in abuse	13,193	3.76
Public inquiry: Drug not known to be abused	10,044	2.86
Public inquiry: Unknown abuse potential	401	0.11
Public inquiry: Unable to identify	4,578	1.30
HCP inquiry: Drug sometimes involved in abuse	489	0.14
HCP inquiry: Drug not known to be abused	688	0.20
HCP inquiry: Unknown abuse potential	50	0.01
HCP inquiry: Unable to identify	345	0.10
Law Enf. Inquiry: Drug sometimes involved in abuse	9,873	2.81
Law Enf. Inquiry: Drug not known to be abused	5,172	1.47
Law Enf. Inquiry: Unknown abuse potential	281	0.08
Law Enf. Inquiry: Unable to identify	1,594	0.45
Other drug ID	462	0.13
Subtotal	**47,170**	**13.43**
Drug information		
Adverse effects (no known exposure)	6,308	1.80
Brand / generic name clarifications	450	0.13
Calculations	115	0.03
Compatibility of parenteral medications	192	0.05
Compounding	155	0.04
Contraindications	1,047	0.30
Dietary supplement, herbal, and homeopathic	601	0.17
Dosage	9,373	2.67
Dosage form / formulation	1,168	0.33
Drug use during breast-feeding	1,213	0.35
Drug-drug interactions	19,551	5.57
Drug-food interactions	1,457	0.41
Foreign drug	52	0.01
Generic substitution	137	0.04
Indications / therapeutic use	4,361	1.24
Medication administration	4,572	1.30
Medication availability	355	0.10
Medication disposal	1,044	0.30
Pharmacokinetics	1,061	0.30
Pharmacology	393	0.11
Regulatory	1,164	0.33
Stability / storage	1,530	0.44
Therapeutic drug monitoring	273	0.08
Other drug info	13,607	3.87
Subtotal	**70,179**	**19.98**
Environmental information		
Air quality	1,235	0.35
Carbon monoxide - no known patient(s)	553	0.16
Carbon monoxide alarm use	423	0.12
Chem / bioterrorism / weapons (suspected or confirmed)	9	0.00
Clarification of media reports of environmental contamination	23	0.01
Clarification of substances involved in a HAZMAT incident - no known victim(s)	66	0.02
General questions about contamination of air and / or soil	229	0.07
HAZMAT planning	61	0.02
Lead - no known patient(s)	438	0.12
Mercury thermometer cleanup	743	0.21
Mercury (excluding thermometers) cleanup	940	0.27
Notification of a HAZMAT incident - no known patient(s)	773	0.22
Pesticide application by a professional pest control operator	362	0.10
Pesticides (other)	1,827	0.52
Potential toxicity of chemicals in the environment	916	0.26
Radiation	41	0.01
Safe disposal of chemicals	1,035	0.29
Water purity / contamination	670	0.19
Other environmental	2,369	0.67
Subtotal	**12,713**	**3.62**
Medical information		
Dental questions	66	0.02
Diagnostic or treatment recommendations for diseases or conditions - non-toxicology	4,790	1.36
Disease prevention	397	0.11
Explanation of disease states	1,461	0.42
General first-aid	834	0.24
Interpretation of non-toxicology laboratory reports	139	0.04
Medical terminology questions	33	0.01
Rabies - no known patient(s)	245	0.07
Sunburn management	1,200	0.34
Other medical	13,340	3.80
Subtotal	**22,505**	**6.41**

(*continued*)

Table 1C. Distribution of Information Requests.

Information request type	N	% of Info. requests
Occupational information		
Occupational treatment / first-aid guidelines - no known patient(s)	31	0.01
Information on chemicals in the workplace	98	0.03
MSDS interpretation	32	0.01
Occupational MSDS requests	283	0.08
Routine toxicity monitoring	21	0.01
Safe handling of workplace chemicals	65	0.02
Other occupational	147	0.04
Subtotal	**677**	**0.19**
Poison information		
Analytical toxicology	613	0.17
Carcinogenicity	115	0.03
Food poisoning - no known patient(s)	1,774	0.51
Food preparation / handling practices	4,767	1.36
General toxicity	22,416	6.38
Mutagenicity	34	0.01
Plant toxicity	1,241	0.35
Recalls of non-drug products (including food)	307	0.09
Safe use of household products	3,712	1.06
Toxicology information for legal use / litigation	134	0.04
Other poison	10,673	3.04
Subtotal	**45,786**	**13.04**
Prevention / Safety / Education		
Confirmation of poison center number	11,303	3.22
General (non-poison) injury prevention requests	360	0.10
Media requests	582	0.17
Poison prevention material requests	4,711	1.34
Poison prevention week date inquiries	60	0.02
Professional education presentation requests	151	0.04
Public education presentation requests	225	0.06
Other prevention	633	0.18
Subtotal	**18,025**	**5.13**
Teratogenicity information		
Teratogenicity	582	0.17
Subtotal	**582**	**0.17**
Other information		
Other	49,411	14.07
Subtotal	**49,411**	**14.07**
Substance Abuse		
Drug screen information	1,458	0.42
Effects of illicit substances - no known patient(s)	105	0.03
New trend information	105	0.03
Withdrawal from illicit substances - no known patient(s)	83	0.02
Other substance abuse	449	0.13
Subtotal	**2,200**	**0.63**
Administrative		
Expert witness requests	28	0.01
Faculty activities	36	0.01
Funding	10	0.00
Personnel issues	128	0.04
Poison center record request	175	0.05
Product replacement / malfunction (issues intended for the manufacturer)	681	0.19
Scheduling of poison center rotations	62	0.02
Other administration	20,064	5.71
Subtotal	**21,184**	**6.03**
Caller Referred		
Immediate referral - animal poison center or veterinarian	30,607	8.72
Immediate referral - drug identification	448	0.13
Immediate referral - drug information	171	0.05
Immediate referral - health department	8,792	2.50
Immediate referral - medical advice line	465	0.13
Immediate referral - pediatric triage service	108	0.03
Immediate referral - pesticide hotline	260	0.07
Immediate referral - pharmacy	418	0.12
Immediate referral - poison center	5,379	1.53
Immediate referral - private physician	1,582	0.45
Immediate referral - psychiatric crisis line	113	0.03
Immediate referral - teratology information program	224	0.06
Other call referral	12,164	3.46
Subtotal	**60,731**	**17.29**
Total	**351,163**	**100.00**

pharmaceuticals, the generic category or generic substance listed is for the initial FDA approved indication and may not reflect current indications or uses for the pharmaceutical.

Column 2: Number of Case Mentions (all exposures) in grey shading, displays the number of times the specific generic code was reported in any human exposure case. If a human exposure case has multiple instances of a specific generic code it is only counted once.

Column 3: Number of Single Exposures displays the number of human exposure cases that identified only 1 substance (1 case, 1 substance).

The succeeding columns (Age, Reason, Treatment Site, and Outcome) show selected detail from these single-substance exposure cases. Death cases include both cases that have the outcome of Death or Death (indirect report). These death cases are not limited by the RCF.

Tables 22A and 22B (Appendix B) restrict the breakdown columns to single-substance cases. Prior to 2007, when multi-substance exposures were included, a relatively innocuous substance could be mentioned in a death column when, for example, the death was attributed to an antidepressant, opioid, or cyanide. 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 (88.1%) of all exposures. In contrast, only 46.1% of fatalities are single substance exposures (Table 5).

Tables 22A and 22B (Appendix B) tabulate 2,574,815 substance-exposures, of which 1,891,817 were single-substance exposures, including 969,604 (51.3%) nonpharmaceuticals and 922,213 (48.7%) pharmaceuticals. In 23.4% of single-substance exposures that involved pharmaceutical substances, the reason for exposure was intentional, compared to only 4.19% when the exposure involved a nonpharmaceutical substance. Correspondingly, treatment in an HCF was provided in a higher percentage of exposures that involved pharmaceutical substances (33.9%) compared with nonpharmaceutical substances (17.2%). Exposures to pharmaceuticals also had more severe outcomes. Of single-substance exposure-related fatal cases, 1,096 (77.5%) were pharmaceuticals compared with 319 (22.5%) nonpharmaceuticals.

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

	Site of caller		Site of exposure	
Site	N	%	N	%
Residence				
Own	1,428,587	66.50	1,934,470	90.05
Other	27,795	1.29	43,866	2.04
Workplace	25,214	1.17	43,460	2.02
Health care facility	511,186	23.80	7,145	0.33
School	11,567	0.54	33,281	1.55
Restaurant / food service	516	0.02	5,072	0.24
Public area	8,759	0.41	25,342	1.18
Other	126,506	5.89	29,224	1.36
Unknown	8,011	0.37	26,281	1.22

Age and Gender Distributions

The age and gender distribution of human exposures is outlined in Table 3A. Children younger than 3 years of age were involved in 31.3% of exposures and children ≤5 years accounted for 42.8% of human exposures. A male predominance was found among cases involving children ≤12 years, but this gender distribution was reversed in teenagers and adults, with females comprising the majority of reported exposures. The overall rate of poison exposures reported to PCs is 643/100,000 population (Table 3B). The highest rates

Table 3A. 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	55,711	52.20	50,596	47.41	423	0.40	106,730	4.97	106,730	4.97
1	150,984	51.94	139,224	47.89	509	0.18	290,717	13.53	397,447	18.50
2	143,634	52.32	130,266	47.45	609	0.22	274,509	12.78	671,956	31.28
3	75,163	55.39	60,171	44.34	373	0.27	135,707	6.32	807,663	37.60
4	38,839	56.54	29,578	43.06	276	0.40	68,693	3.20	876,356	40.80
5	23,678	57.53	17,188	41.76	290	0.70	41,156	1.92	917,512	42.71
Unknown ≤5	1,217	46.17	1,093	41.46	326	12.37	2,636	0.12	920,148	42.83
Child 6-12	75,978	56.49	57,133	42.48	1,381	1.03	134,492	6.26	1,054,640	49.10
Teen 13-19	67,987	38.40	108,152	61.08	929	0.52	177,068	8.24	1,231,708	57.34
Unknown Child	1,682	37.22	1,674	37.04	1,163	25.74	4,519	0.21	1,236,227	57.55
Subtotal	**634,873**	**51.36**	**595,075**	**48.14**	**6,279**	**0.51**	**1,236,227**	**57.55**	**1,236,227**	**57.55**
Adults (≥20)										
20-29	91,173	45.54	108,776	54.33	255	0.13	200,204	9.32	1,436,431	66.87
30-39	74,955	44.92	91,747	54.98	170	0.10	166,872	7.77	1,603,303	74.64
40-49	50,727	42.00	69,956	57.91	109	0.09	120,792	5.62	1,724,095	80.26
50-59	47,405	40.80	68,694	59.12	96	0.08	116,195	5.41	1,840,290	85.67
60-69	36,346	38.96	56,876	60.97	70	0.08	93,292	4.34	1,933,582	90.01
70-79	22,650	36.87	38,753	63.08	35	0.06	61,438	2.86	1,995,020	92.87
80-89	10,614	35.24	19,494	64.71	15	0.05	30,123	1.40	2,025,143	94.27
≥90	2,337	31.30	5,112	68.47	17	0.23	7,466	0.35	2,032,609	94.62
Unknown adult	38,129	38.65	58,250	59.04	2,278	2.31	98,657	4.59	2,131,266	99.21
Subtotal	**374,336**	**41.82**	**517,658**	**57.84**	**3,045**	**0.34**	**895,039**	**41.67**	**2,131,266**	**99.21**
Other										
Unknown age	5,799	34.36	7,689	45.56	3,387	20.07	16,875	0.79	2,148,141	100.00
Total	**1,015,008**	**47.25**	**1,120,422**	**52.16**	**12,711**	**0.59**	**2,148,141**	**100.00**	**2,148,141**	**100.00**

of poison exposures are in 1-year-old children (7,047/100,000 population) and 2-year-old children (6,667/100,000 population). Rates declined with age from 465/100,000 population in children 6–12 to 357/100,000 population in adults ≥20 years.

Caller Site and Exposure Site

As shown in Table 2, of the 2,148,141 human exposure cases reported, 67.8% of contacts originated from a residence (own or other) while 92.1% of exposures occurred at a residence (own or other). Another 23.8% of contacts were made from an HCF. Beyond residences, exposures occurred in the workplace (2.02% of cases), schools (1.55%), HCF (0.333%), and restaurants or food services (0.236%).

Exposures in Pregnancy

Exposure during pregnancy occurred in 6,937 women (0.323% of all human exposures). Of those with known pregnancy duration (n = 6,562), 46.4% occurred in the first trimester, 29.6% in the second trimester, and 24.1% beyond the second trimester. Most (72.6%) were unintentional exposures and 19.6% were intentional exposures. There were 3 deaths in pregnant females in 2019.

Chronicity

Most human exposures, 1,835,479 (85.4%), were acute cases (single, repeated or continuous exposure occurring over 8 hours or less) compared to 1,096 (41.9%) acute cases among the 2,619 fatalities. Chronic exposures (continuous or repeated exposures occurring over more than 8 hours) com-

Table 3B. Population-Adjusted Exposures by Age Group.

Age Group	Exposures/ 100k population	Number of Exposures[a]	Population[b]
Children (<20)			
<1	2,584	106,730	4,131,136
1	7,047	290,717	4,125,317
2	6,667	274,509	4,117,725
3	3,356	135,707	4,043,220
4	1,689	68,693	4,067,515
5	1,013	41,156	4,063,090
Child 6-12	465	134,492	28,939,001
Teen 13-19	594	177,068	29,793,465
Subgroup	**1,484**	**1,236,227**	**83,280,469**
Adults (≥20)			
20-29	414	190,567	46,077,867
30-39	351	156,932	44,772,925
40-49	288	117,884	40,970,731
50-59	264	113,686	43,058,332
60-69	228	88,375	38,708,679
70-79	233	56,183	24,098,197
80-89	290	30,123	10,372,145
90+	274	7,466	2,726,255
Subgroup	**357**	**895,039**	**250,785,131**
Overall Total	**643**	**2,148,141**	**334,065,600**

[a]Number of Exposures excludes unknown ages from the individual age categories, but includes them in the Subtotals and Overall Total (see Table 3A).
[b]AAPCC Total as of 1 July 2019, 334,065,600 (see Table 1A) [2].

Table 5. Number of Substances Involved in Human Exposure Cases.

	Human exposures		Fatal exposures[a]	
No. of Substances	N	%	N	%
1	1,891,817	88.07	650	46.07
2	160,683	7.48	347	24.59
3	53,152	2.47	185	13.11
4	21,653	1.01	96	6.80
5	9,832	0.46	61	4.32
6	4,709	0.22	28	1.98
7	2,570	0.12	18	1.28
8	1,500	0.07	10	0.71
>=9	2,225	0.10	16	1.13
Total	**2,148,141**	**100.00**	**1,411**	**100.00**

[a]Includes cases with RCF of 1-Undoubtedly responsible, 2-Probably responsible, or 3-Contributory. This excludes reports with outcome of Death INDIRECT.

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 (0.1%)	2 (0.1%)
1 year	2	3	0	5 (0.4%)	7 (0.5%)
2 years	0	4	0	4 (0.3%)	11 (0.8%)
3 years	1	1	0	2 (0.1%)	13 (0.9%)
4 years	0	0	0	0 (0.0%)	13 (0.9%)
5 years	0	0	0	0 (0.0%)	13 (0.9%)
Unknown <=5 years	0	0	0	0 (0.0%)	13 (0.9%)
Child 6-12 years	8	5	0	13 (0.9%)	26 (1.8%)
Teen 13-19 years	21	52	0	73 (5.2%)	99 (7.0%)
Unknown Child	0	0	1	1 (0.1%)	100 (7.1%)
20-29 years	101	84	0	185 (13.1%)	285 (20.2%)
30-39 years	131	101	0	232 (16.4%)	517 (36.6%)
40-49 years	107	109	1	217 (15.4%)	734 (52.0%)
50-59 years	115	129	0	244 (17.3%)	978 (69.3%)
60-69 years	97	98	0	195 (13.8%)	1,173 (83.1%)
70-79 years	49	80	0	129 (9.1%)	1,302 (92.3%)
80-89 years	31	44	0	75 (5.3%)	1,377 (97.6%)
>= 90 years	9	15	0	24 (1.7%)	1,401 (99.3%)
Unknown adult	4	1	1	6 (0.4%)	1,407 (99.7%)
Unknown age	2	1	1	4 (0.3%)	1,411 (100.0%)
Total	**680**	**727**	**4**	**1,411 (100.0%)**	**1,411 (100.0%)**

[a]Age includes cases with both actual and estimated ages as shown in Table 21.
[b]Includes cases with RCF of 1-Undoubtedly responsible, 2-Probably responsible, or 3-Contributory. This excludes reports with outcome of Death INDIRECT.

prised 2.40% (51,627) 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 8 hours) numbered 224,464 (10.5%).

Reason for Exposure

The reason category for most human exposures was unintentional (76.6%), including: unintentional general (48.4%), therapeutic error (13.7%), and unintentional misuse (7.40%) (Table 6A).

Table 6A. Reason for Human Exposure Cases.

Reason	N	% Human exposures
Unintentional		
Unintentional - General	1,039,244	48.4
Unintentional - Therapeutic error	294,317	13.7
Unintentional - Misuse	159,065	7.4
Unintentional - Environmental	55,692	2.6
Unintentional - Bite / sting	36,891	1.7
Unintentional - Occupational	33,356	1.6
Unintentional - Food poisoning	21,893	1.0
Unintentional - Unknown	4,573	0.2
Subtotal	**1,645,031**	**76.6**
Intentional		
Intentional - Suspected suicide	280,823	13.1
Intentional - Misuse	59,450	2.8
Intentional - Abuse	47,623	2.2
Intentional - Unknown	18,420	0.9
Subtotal	**406,316**	**18.9**
Adverse Reaction		
Adverse reaction - Drug	37,935	1.8
Adverse reaction - Other	12,394	0.6
Adverse reaction - Food	6,478	0.3
Subtotal	**56,807**	**2.6**
Unknown		
Unknown reason	21,128	1.0
Subtotal	**21,128**	**1.0**
Other		
Other - Contamination / tampering	9,039	0.4
Other - Malicious	7,662	0.4
Other - Withdrawal	2,158	0.1
Subtotal	**18,859**	**0.9**
Total	**2,148,141**	**100.0**

Scenarios

Of the total 294,317 therapeutic errors, the most common scenarios for all ages included: inadvertent double-dosing (31.8%), wrong medication taken or given (16.1%), other incorrect dose (16.0%), doses given/taken too close together (10.8%), and inadvertent exposure to someone else's medication (8.81%). The types of therapeutic errors observed are different for each age group and are summarized in Table 6B.

Reason by Age

Intentional exposures accounted for 18.9% of human exposures. Suicidal intent was suspected in 13.1% of cases, intentional misuse in 2.77%, and intentional abuse in 2.22%. Unintentional exposures outnumbered intentional exposures in all age groups with the exception of ages 13-19 years (Table 7). In contrast, of the 1,411 reported fatalities with RCF 1-3, the major 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 83.1% of cases (Table 9), followed in frequency by dermal (7.15%), inhalation/nasal (6.76%), and ocular routes (4.39%). For the 1,411 exposure-related fatalities, ingestion (80.1%), unknown (12.4%), inhalation/nasal (8.15%), and parenteral (5.24%) were the predominant exposure routes. Each exposure case may have more than one route.

Clinical Effects

The NPDS database allows for the coding of up to 169 individual clinical effects (signs, symptoms, or laboratory abnormalities) for each case. In 2019, 45 new clinical effects codes were added, 7 codes were retired, and 10 codes were renamed. Details can be found in Appendix F. Each clinical effect can be further defined as related, not related, or unknown if related. Clinical effects were coded in 827,876 (38.5%) cases (17.5% had

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

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	93,555	16.02	11.16	5.78	60.67	0.09	5.87	0.41
Wrong medication taken/given	47,251	15.95	10.38	5.90	61.89	0.06	5.48	0.34
Other incorrect dose	46,964	30.43	10.81	6.79	47.34	0.10	4.12	0.41
Medication doses given/taken too close together	31,897	17.14	9.32	6.38	60.43	0.08	6.23	0.41
Inadvertently took/given someone else's medication	25,917	14.84	18.18	6.76	55.35	0.07	4.47	0.34
Other/unknown therapeutic error	19,308	19.27	9.87	7.14	56.08	0.13	6.95	0.56
Incorrect dosing route	11,345	9.19	4.41	4.76	69.90	0.13	10.69	0.92
Confused units of measure	6,853	57.11	15.18	4.07	21.45	0.03	2.03	0.13
Health professional/iatrogenic error (pharmacist/nurse/physician)	5,913	22.14	10.59	6.93	55.81	0.24	3.52	0.78
Incorrect formulation or concentration given	5,551	49.54	15.73	4.97	26.55	0.13	2.77	0.31
More than 1 product containing same ingredient	5,050	9.84	14.26	12.79	55.74	0.12	6.75	0.50
Dispensing cup error	3,744	67.82	15.84	3.29	11.73	0.11	1.12	0.11
Drug interaction	3,247	6.25	6.56	6.96	66.55	0.09	12.66	0.92
Incorrect formulation or concentration dispensed	1,619	47.56	15.38	5.31	28.78	0.19	2.16	0.62
10-fold dosing error	1,302	56.45	9.29	3.15	29.11	0.00	1.54	0.46
Exposure through breast milk	173	89.60	0.00	0.58	5.78	2.31	1.73	0.00

[a]All cases with a scenario category of therapeutic error regardless of reason.
[b]Of the human exposure cases reported to U.S. Poison Centers in 2019, 450,490 (21.0%) were coded to 1 or more of 54 scenarios.

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	913,170	58.48	112,563	7.21	59,792	3.83	464,724	29.76	3,880	0.25	79,621	5.10	11,281	0.72	1,645,031	76.58
Intentional	36	0.01	16,610	4.18	109,117	27.44	268,527	67.53	287	0.07	8,409	2.11	3,330	0.84	406,316	18.91
Adverse reaction	3,502	7.03	2,637	5.29	4,020	8.06	38,755	77.75	142	0.28	6,817	13.68	934	1.87	56,807	2.64
Unknown	2,087	10.51	1,113	5.60	2,393	12.05	13,353	67.23	74	0.37	1,191	6.00	917	4.62	21,128	0.98
Other	1,353	8.40	1,569	9.74	1,746	10.84	11,023	68.45	136	0.84	2,619	16.26	413	2.56	18,859	0.88
Total	**920,148**	**45.00**	**134,492**	**6.58**	**177,068**	**8.66**	**796,382**	**38.94**	**4,519**	**0.22**	**98,657**	**4.82**	**16,875**	**0.83**	**2,148,141**	**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	8	0	1	18	0	0	0	27
Unintentional - Environmental	3	9	4	20	1	1	0	38
Unintentional - Occupational	0	0	0	8	0	0	0	8
Unintentional - Therapeutic error	1	1	0	38	0	0	0	40
Unintentional - Misuse	0	0	0	21	0	0	0	21
Unintentional - Bite / sting	0	0	0	2	0	0	0	2
Unintentional – Food poisoning	0	0	0	1	0	0	0	1
Unintentional - Unknown	0	0	0	6	0	0	0	6
Subtotal	**12**	**10**	**5**	**114**	**1**	**1**	**0**	**143**
Intentional								
Intentional - Suspected suicide	0	1	53	671	0	2	1	728
Intentional - Misuse	0	0	0	57	0	0	0	57
Intentional - Abuse	0	0	5	179	0	2	0	186
Intentional - Unknown	0	0	5	72	0	0	0	77
Subtotal	**0**	**1**	**63**	**979**	**0**	**4**	**1**	**1,048**
Other								
Other - Contamination / tampering	0	0	0	1	0	0	0	1
Other - Malicious	0	0	0	1	0	0	2	3
Other - Withdrawal	0	0	0	2	0	0	0	2
Subtotal	**0**	**0**	**0**	**4**	**0**	**0**	**2**	**6**
Adverse reaction								
Adverse reaction - Drug	0	1	1	44	0	0	0	46
Adverse reaction - Other	0	0	0	4	0	0	0	4
Subtotal	**0**	**1**	**1**	**48**	**0**	**0**	**0**	**50**
Unknown								
Unknown reason	1	1	4	156	0	1	1	164
Subtotal	**1**	**1**	**4**	**156**	**0**	**1**	**1**	**164**
Total	**13**	**13**	**73**	**1,301**	**1**	**6**	**4**	**1,411**

[a]Includes cases with RCF of 1-Undoubtedly responsible, 2-Probably responsible, or 3-Contributory. This excludes reports with outcome of Death INDIRECT.

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	1,784,291	78.90	83.06	1,130	73.81	80.09
Dermal	153,666	6.80	7.15	12	0.78	0.85
Inhalation/nasal	145,294	6.42	6.76	115	7.51	8.15
Ocular	94,243	4.17	4.39	0	0.0	0.0
Bite/sting	36,918	1.63	1.72	2	0.13	0.14
Parenteral	20,877	0.92	0.97	74	4.83	5.24
Unknown	18,494	0.82	0.86	175	11.43	12.40
Other	3,036	0.13	0.14	4	0.26	0.28
Otic	1,559	0.07	0.07	0	0.0	0.0
Vaginal	1,087	0.05	0.05	0	0.0	0.0
Aspiration (with ingestion)	1,036	0.05	0.05	18	1.18	1.28
Rectal	932	0.04	0.04	1	0.07	0.07
Total Number of Routes	**2,261,433**	**100.00**	**105.27**	**1,531**	**100.00**	**108.50[b]**

[a]Includes cases with RCF of 1-Undoubtedly responsible, 2-Probably responsible, or 3-Contributory. This excludes reports with outcome of Death INDIRECT.
[b]Each exposure case may have more than one route.

1 effect, 9.85% had 2 effects, 5.29% had 3 effects, 2.63% had 4 effects, 1.32% had 5 effects, and 1.89% had >5 effects coded). Of clinical effects coded, 76.9% were deemed related to the exposure, 9.80% were considered not related, and 13.3% were coded as unknown if related.

Case Management Site

The majority of cases reported to PCs were managed outside of a HCF (66.3%), usually at the site of exposure, primarily the patient's own residence (Table 10). Treatment in a HCF

was rendered in 30.6% of cases. Only 1.28% of cases were referred to a HCF but refused referral.

Of the 658,242 cases managed in a HCF, 308,893 (46.9%) were treated and released, 96,483 (14.6%) were admitted to a critical care unit, 79,379 (12.1%) were admitted to a non-critical unit, and 92,130 (14.0%) were admitted directly to a psychiatric facility.

The percentage of patients treated in a HCF varied considerably with age. Only 12.3% of children ≤5 years and 18.5% of children between 6 and 12 years were managed in a HCF compared to 64.6% of teenagers (13-19 years) and 48.6% of adults (age ≥20 years).

Table 10. Management Site of Human Exposures.

Site of management	N	%
Managed on site, nonhealth care facility	1,424,756	66.3
Managed in healthcare facility		
Treated/evaluated and released	308,893	14.4
Admitted to critical care unit	96,483	4.5
Admitted to psychiatric facility	92,130	4.3
Patient lost to follow-up / left AMA	81,357	3.8
Admitted to noncritical care unit	79,379	3.7
Subtotal (managed in HCF)	**658,242**	**30.6**
Other	20,126	0.9
Refused referral	27,542	1.3
Unknown	17,475	0.8
Total	**2,148,141**	**100.0**

Medical Outcome

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

The duration of effect is required for all cases which report at least 1 clinical effect and have a medical outcome of minor, moderate or major effect (n = 536,421; 25.0% of exposures). Table 13 demonstrates an increasing duration of the clinical effects observed with more severe outcomes.

Decontamination Procedures and Specific Antidotes

Tables 14 and 15 outline the use of 112 decontamination procedures, specific physiological antagonists (antidotes), and measures to enhance elimination in the treatment of patients reported in the NPDS database. These should be interpreted as minimum frequencies because of the limitations of telephone data gathering. In 2019, 45 new therapies were added, 1 therapy was retired, and 3 therapies were renamed. Details of these changes can be seen in Appendix F.

Ipecac-induced emesis for poisoning continues to decline as shown in Tables 16A and 16B. Ipecac was administered in

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	212,468	23.09	24,917	18.53	34,296	19.37	105,514	13.25	672	14.87	10,778	10.92	2,291	13.6	390,936	18.20
Minor effect	71,535	7.77	18,797	13.98	47,467	26.81	170,619	21.42	374	8.28	12,517	12.69	1,909	11.3	323,218	15.05
Moderate effect	9,524	1.04	4,882	3.63	30,380	17.16	125,387	15.74	63	1.39	2,448	2.48	461	2.7	173,145	8.06
Major effect	1,128	0.12	414	0.31	4,428	2.50	33,782	4.24	3	0.07	238	0.24	65	0.4	40,058	1.86
Death	22	0.00	18	0.01	90	0.05	1,768	0.22	1	0.02	15	0.02	9	0.1	1,923	0.09
No follow-up, nontoxic	132,666	14.42	16,418	12.21	6,726	3.80	37,599	4.72	672	14.87	10,892	11.04	1,211	7.2	206,184	9.60
No follow-up, minimal toxicity	463,622	50.39	63,084	46.91	39,156	22.11	248,998	31.27	2,136	47.27	47,240	47.88	5,883	34.9	870,119	40.51
No follow-up, potentially toxic	17,003	1.85	3,136	2.33	10,254	5.79	40,585	5.10	498	11.02	10,640	10.78	4,537	26.9	86,653	4.03
Unrelated effect	12,171	1.32	2,822	2.10	4,252	2.40	31,490	3.95	100	2.21	3,869	3.92	505	3.0	55,209	2.57
Death, indirect report	9	0.00	4	0.00	19	0.01	640	0.08	0	0.00	20	0.02	4	0.0	696	0.03
Total	**920,148**	**100.00**	**134,492**	**100.0**	**177,068**	**100.00**	**796,382**	**100.00**	**4,519**	**100.00**	**98,657**	**100.00**	**16,875**	**100.00**	**2,148,141**	**100.00**

[a]Total number of cases where Death was an outcome (1,923 + 696) is greater than the number of fatalities (1,411) judged to be exposure-related (RCF of 1-Undoubtedly responsible, 2-Probably responsible, or 3-Contributory).

Table 12. Medical Outcome by Reason for Exposure in Human Exposures[a].

	Unintentional		Intentional		Other		Adverse reaction		Unknown		Total	
Outcome	N	%	N	%	N	%	N	%	N	%	N	%
No effect	311,940	18.96	71,878	17.69	2,279	12.08	2,143	3.77	2,696	12.76	390,936	18.20
Minor effect	195,111	11.86	108,323	26.66	3,252	17.24	13,842	24.37	2,690	12.73	323,218	15.05
Moderate effect	45,888	2.79	113,007	27.81	1,467	7.78	8,205	14.44	4,578	21.67	173,145	8.06
Major effect	3,986	0.24	32,086	7.90	246	1.30	1,219	2.15	2,521	11.93	40,058	1.86
Death	196	0.01	1,274	0.31	15	0.08	98	0.17	340	1.61	1,923	0.09
No follow-up, nontoxic	198,992	12.10	4,197	1.03	1,319	6.99	1,351	2.38	325	1.54	206,184	9.60
No follow-up, minimal toxicity	809,690	49.22	32,686	8.04	6,722	35.64	18,399	32.39	2,622	12.41	870,119	40.51
No follow-up, potentially toxic	44,592	2.71	33,202	8.17	2,036	10.80	3,360	5.91	3,463	16.39	86,653	4.03
Unrelated effect	34,536	2.10	9,134	2.25	1,518	8.05	8,184	14.41	1,837	8.69	55,209	2.57
Death, indirect report	100	0.01	529	0.13	5	0.03	6	0.01	56	0.27	696	0.03
Total	**1,645,031**	**100.00**	**406,316**	**100.00**	**18,859**	**100.00**	**56,807**	**100.00**	**21,128**	**100.00**	**2,148,141**	**100.00**

[a]Total number of cases where Death was an outcome (1,923 + 696) is greater than the number of fatalities (1,411) judged to be exposure-related (RCF 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	94,613	29.27	6,641	3.84	1,535	3.83
>2 hours, <=8 hours	95,153	29.44	37,505	21.66	4,399	10.98
>8 hours, <=24 hours	60,626	18.76	65,228	37.67	9,540	23.82
>24 hours, <=3 days	17,631	5.45	33,010	19.06	12,957	32.35
>3 days, <=1 week	4,131	1.28	7,789	4.50	6,380	15.93
>1 week, <=1 month	1,255	0.39	1,731	1.00	1,827	4.56
>1 month	369	0.11	391	0.23	174	0.43
Anticipated permanent	205	0.06	111	0.06	437	1.09
Unknown	49,235	15.23	20,739	11.98	2,809	7.01
Total	**323,218**	**100.00**	**173,145**	**100.00**	**40,058**	**100.00**

Table 14. Decontamination and Therapeutic Interventions.

Therapy	N	%
Decontamination Only	1,006,192	46.8
Therapeutic Intervention Only	270,811	12.6
Decontamination and Therapeutic Intervention	101,792	4.7
Not Coded	769,346	35.8
Total	**2,148,141**	**100.0**

only 12 (0.00130%) pediatric exposures in 2019. A progressive decrease in ipecac syrup use and availability over the last 2 decades likely reflects ipecac use guidelines issued in 1997 by the American Academy of Clinical Toxicology and the European Association of Poisons Centres and Clinical Toxicologists, updated in 2004 [6,7]. 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 home ipecac stocks [8]. A decline was also observed since the early 1990s for reported use of activated charcoal. While not as dramatic as the decline in use of ipecac, reported use of activated charcoal decreased from 3.66% of pediatric cases in 1993 to just 0.504% in 2019.

Top Substances in Human Exposures

Table 17A presents the 25 most common substance categories, listed by frequency of human exposure. This ranking provides an indication where prevention efforts might be focused, as well as the types of more serious exposures PCs regularly manage (resulting in death, major effect or moderate effect). It is relevant to know whether exposures to these substances are increasing or decreasing.

To better understand these relationships, we examined exposures with more serious outcomes per year over the last 10 years for the change over time for each of the 68 major generic categories via least squares linear regression. The serious outcome exposure cases per year over this period were increasing for 38, static for 6, and decreasing for 24 of the 68 categories with data for the entire time period. The change over time for the 10 yearly values was statistically significant ($p < 0.05$) for 39 of the 68 categories with data for the entire time period. Table 17B shows the 25 categories which were increasing the most rapidly over the past 10 years. Statistical significance of the linear regressions can be verified by noting the 95% confidence interval on the rate of increase excludes zero for all but 1 of the 25 categories. Figure 4 shows the change over time and linear regressions for the top 4 increasing categories in Table 17B for the 10-year period.

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 reports the 16 categories of substances most frequently involved in pediatric ($\leq$ 5 years) fatalities in 2019.

Table 17F reports the 25 Drug ID categories most frequently queried in 2019, highlighting the value of Drug ID information to the AAPCC, public health, public safety, and regulatory agencies. Internet based resources do not afford the caller the option to speak with a health care professional, if needed. Proper resources to continue this vital public service are essential, especially since the top 10 substance categories include antibiotics, drugs with widespread use and abuse potential, such as opioids and benzodiazepines, and drugs with the potential for serious toxicity.

Table 17G reports the 25 substance categories most frequently reported in exposures involving pregnant patients.

Changes Over Time

Total encounters peaked in 2008 at 4,333,012 including 2,491,049 human exposure cases and 1,703,762 information contacts. Total encounters increased 1.70% from 2,530,238 in 2018 to 2,573,180 in 2019. Information requests decreased by 4.58% from 368,025 in 2018 to 351,163 in 2019, with a 29.7% decrease in drug identification requests and a 2.18% decrease in HCF information requests. Human exposures increased by 2.30% from 2,099,751 to 2,148,141 cases over the same time period.

Figure 5 shows the year-to-year change through 2019 as a percentage of year 2000 for human exposure cases broken down into cases with more serious outcomes (death, major effect, and moderate effect) and less serious outcomes (minor effect, no effect, not followed (non-toxic), not followed (minimal toxicity possible), unable to follow (potentially toxic), and unrelated effect). Since 2000, cases with more serious outcomes have increased by 4.61% (95% CI [4.31%, 4.92%]) per year from 108,148 cases in 2000 to 215,126 cases in 2019. However, cases with less serious outcomes have decreased since 2008 by 2.08% [−2.56%, −1.61%] per year from 2,339,460 in 2008 to 1,932,319 cases

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	202	91	784	1,634	1	17	2	2,731
Charcoal, multiple doses	83	33	401	847	0	8	0	1,372
Charcoal, single dose	4,550	897	10,240	18,354	5	103	20	34,169
Dilute/irrigate/wash	420,533	49,090	28,793	186,604	1,385	32,760	3,415	722,580
Food/snack	114,908	11,613	6,388	31,886	491	6,161	491	171,938
Fresh air	6,168	3,761	4,484	41,885	558	12,071	1,373	70,300
Ipecac	12	4	12	30	0	3	0	61
Lavage	14	7	128	439	0	1	1	590
Other emetic	6,731	689	1,475	6,377	10	491	63	15,836
Whole bowel irrigation	85	30	240	1,156	0	5	1	1,517
Other Therapies								
2-PAM	3	0	2	39	0	2	0	46
Alkalinization - Systemic	54	65	1,157	6,649	0	20	3	7,948
Alkalinization - Urinary	38	44	773	1,942	0	3	1	2,801
Amifostine	0	0	0	1	0	0	0	1
Amyl nitrite	0	1	0	3	0	0	0	4
Anthrax vaccine	0	0	0	1	0	0	0	1
Antiarrhythmic	11	7	95	903	0	2	1	1,019
Antibiotics	1,576	690	1,424	14,850	6	414	52	19,012
Anticonvulsants[a]	94	29	286	1,698	0	6	3	2,116
Antiemetics	1,369	864	9,046	18,505	0	102	25	29,911
Antifungals	4	2	8	78	0	0	0	92
Antihistamines	1,677	1,100	1,794	9,350	17	714	58	14,710
Antihypertensives	19	14	175	3,071	0	10	1	3,290
Antipsychotics	12	47	739	4,899	0	19	5	5,721
Antivenom (Immune Fab fragment) – Not Specified	142	195	172	1,802	1	6	1	2,319
Antivenom (Immune Fab) - Centruroides (Scorpion)	123	47	10	96	0	0	0	276
Antivenom (Immune Fab) - Latrodectus	2	4	2	17	0	0	0	25
Antivenom - Elapidae	2	6	8	56	0	1	0	73
Antivenom - Latrodectus	2	1	2	34	0	1	0	40
Antivenom/antitoxin (Non-Fab) – Not Specified	8	17	6	143	0	1	2	177
Antivirals	10	4	10	96	0	1	0	121
Atropine	131	43	183	1,570	0	10	1	1,938
BAL	8	1	0	10	0	0	0	19
Benzodiazepines	1,055	720	8,004	35,248	2	155	31	45,215
Blood Products	31	14	48	852	0	3	2	950
Botulinum antitoxim	4	0	2	19	0	0	0	25
Bronchodilators	296	185	408	4,870	0	159	21	5,939
Calcium	5,484	439	513	4,468	3	100	8	11,015
Cardioversion	2	2	25	309	0	1	1	340
Colony Stimulating Factors	0	0	0	9	0	0	0	9
Continuous Renal Replacement Therapy (CRRT)	5	1	34	584	0	1	0	625
CPR	69	24	174	1,837	0	14	2	2,120
Deferiprone	0	0	0	2	0	0	0	2
Deferoxamine	4	1	40	35	0	0	0	80
Digoxin Immune Fab	3	2	1	416	0	2	0	424
Direct-acting Oral Anticoagulant Reversal Agents	0	0	0	11	0	0	0	11
DMPS	0	0	0	2	0	0	0	2
DTPA - Calcium	0	0	0	1	0	0	0	1
ECMO	12	1	25	103	0	0	0	141
EDTA	36	2	1	7	0	0	1	47
Ethanol	3	0	5	53	0	3	0	64
Extracorp. procedure (other)	3	0	5	43	0	0	0	51
Fluids, IV	5,364	2,992	33,252	120,949	8	365	111	163,041
Flumazenil	77	16	149	993	0	3	0	1,238
Folate	6	1	64	2,537	0	6	1	2,615
Fomepizole	109	14	126	1,872	0	12	1	2,134
Glucagon	28	9	135	2,298	1	3	1	2,475
Glucose, > 5%	424	67	429	4,780	0	14	5	5,719
Granulocyte Stimulating Growth Factors	0	0	0	4	0	0	0	4
Hemodialysis	12	4	98	2,511	1	14	0	2,640
Hemoperfusion	0	0	0	21	0	0	0	21
High Dose Insulin/Glucose	0	2	32	544	0	1	0	579
Hydroxocobalamin	10	7	10	97	0	3	0	127
Hyperbaric oxygen	24	27	42	395	0	8	1	497
Hypothermia Protocol	1	0	16	229	0	0	0	246
Insulin	11	8	137	2,143	0	4	5	2,308
Intubation	453	145	1,871	19,194	0	96	28	21,787
L-Carnitine	2	14	89	624	0	0	1	730
Leucovorin	9	0	10	126	0	0	0	145
Lipid Emulsion Therapy	6	5	58	372	0	3	0	444
Magnesium	19	85	1,435	9,185	0	24	2	10,750

(*continued*)

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
Methylene blue	18	2	25	217	0	0	0	262
Molecular Adsorbant Recirculating System (MARS)	0	0	4	14	0	0	0	18
NAC, IV	218	415	6,604	16,834	3	43	6	24,123
NAC, PO	16	36	675	1,615	0	3	1	2,346
Nalmefene	0	0	0	16	0	0	0	16
Naloxone	1,210	237	2,087	22,541	2	176	39	26,292
Neuromuscular blocker	68	22	248	1,944	0	8	3	2,293
Octreotide	128	14	48	450	0	1	0	641
Opioid analgesia	279	213	494	5,935	1	28	3	6,953
Other	19,524	5,301	8,865	54,295	66	2,720	737	91,508
Oxygen	1,498	698	3,645	42,746	2	293	77	48,959
Pacemaker	1	1	13	261	0	0	0	276
Penicillamine	0	0	0	4	0	0	0	4
Physostigmine	11	25	175	280	0	1	0	492
Phytonadione	21	7	110	661	0	0	1	800
Plasmapheresis	3	2	3	20	0	0	0	28
Potassium	221	234	3,552	16,169	1	27	4	20,208
Potassium iodide	2	1	15	71	0	0	0	89
Propofol	83	29	835	9,528	0	36	6	10,517
Prussian blue	0	0	0	2	0	0	0	2
Pyridoxine	7	5	38	516	0	1	0	567
Rabies immune globulin	36	37	31	225	0	22	4	355
Rabies vaccine	46	55	40	305	1	27	3	477
Raxibacumab	0	0	0	5	0	0	0	5
Sedation (other)	396	142	1,735	14,372	0	65	18	16,728
Silibinin	0	0	0	11	0	0	0	11
Smallpox vaccine	0	0	0	2	0	0	0	2
Sodium bicarbonate - metabolic acidosis	27	13	220	1,834	0	5	1	2,100
Sodium bicarbonate - nebulized	2	3	19	131	0	3	1	159
Sodium nitrite	1	0	0	10	0	0	0	11
Sodium thiosulfate	1	2	3	19	0	1	0	26
Steroids	551	341	657	5,215	3	290	35	7,092
Succimer	161	18	8	65	0	1	0	253
Surgical intervention	116	46	58	360	0	2	0	582
Thiamine	4	3	93	3,967	0	13	2	4,082
Transplantation	1	0	4	12	0	0	0	17
Vasopressors	90	59	576	8,117	0	31	6	8,879
Ventilation, Non-invasive (CPAP, BiPAP)	44	20	126	2,739	0	8	3	2,940
Ventilator	454	141	1,888	19,042	0	100	27	21,652

[a]Excludes benzodiazepines.

in 2019. This decrease in less serious exposures has driven the overall decrease in human exposures since 2008, although a 1.77% increase was noted from 2018 to 2019 after 10 years of decline. This one-year increase needs confirmation in subsequent years to determine if it is a trend. Thus, we see a consistent increase in exposure cases from HCFs (Figure 3), as well as for the most severe exposures (Figure 5), while there is a continued trend toward decreasing cases involving less severe exposures.

Emerging Trends – E-Cigarette Vaping Associated Lung Injury

CDC early recognized an association of EVALI with inhaling or "vaping" of THC-containing products in September, 2019. A subsequent, weaker association was made with the use of vitamin E acetate (VEA) in those products [5,9,10]. By mid-October, 2019, 49 states, the District of Columbia, and one U.S. territory reported 1,299 cases of lung injury associated with these products. Twenty-six associated deaths had occurred in 21 states [5]. By January 7, 2020, 2,558 individuals had been hospitalized, and 60 fatalities attributed to EVALI had been reported to the Centers for Disease Control and Prevention (CDC) [10]. A number of entities were tracking clinical cases throughout this outbreak, including NPDS.

Figure 6A shows inhalational human e-cigarette cases reported to NPDS from Jan 1, 2017 to August 31, 2020, and Figure 6B compares the number of human e-cigarette inhalation cases reported to NPDS from January 1, 2019 to September 19, 2020 to the average number of e-cigarette inhalation cases for the two-week period around each date for the years 2015 to 2018. Human inhalational e-cigarette cases documented in NPDS had reached an anomalous case volume during the 3rd week of August, 2019 and peaked in the third week of September, 2019. Cases decreased to near baseline numbers by March 2020, although still at a higher frequency. A small spike in e-cigarette inhalation cases in April 2019 was noted that returned to baseline until the increase in August.

Figure 7A demonstrates the number of inhalational e-cigarette human cases with any CDC symptom criteria from the EVALI case definitions. Figure 7B shows clinical effects by organ system for inhalational e-cigarette human exposures. E-cigarette inhalation cases exhibiting any CDC EVALI symptom began to rise in mid-August and peaked in the 3rd week of September and returned to baseline in April 2020 (Figure 7A). Respiratory symptoms predominated in EVALI. However, as can be seen in Figure 7B, gastrointestinal and

Table 16A. Decontamination Trends (1985-2019).

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)
2010	2,384,825	360 (0.0200)	74,431 (3.1)	1,207,575 (50.6)	163 (0.0100)	16,581 (1.37)
2011	2,334,004	262 (0.0100)	66,770 (2.9)	1,144,729 (49.1)	98 (0.0100)	13,930 (1.22)
2012	2,275,141	193 (0.0100)	57,888 (2.5)	1,102,307 (48.5)	83 (0.0100)	11,284 (1.02)
2013	2,188,013	134 (0.0100)	50,459 (2.3)	1,049,475 (48.0)	42 (0.0000)	9,334 (0.89)
2014	2,165,142	132 (0.0061)	46,030 (2.1)	1,031,927 (47.7)	41 (0.0040)	7,977 (0.77)
2015	2,168,371	105 (0.0048)	42,712 (2.0)	1,017,369 (46.9)	29 (0.0029)	6,965 (0.68)
2016	2,159,032	88 (0.0041)	40,633 (1.9)	1,002,344 (46.4)	22 (0.0022)	6,333 (0.63)
2017	2,115,186	64 (0.0030)	39,985 (1.9)	956,871 (45.2)	12 (0.0013)	5,743 (0.60)
2018	2,099,751	63 (0.0030)	36,807 (1.8)	927,487 (44.2)	21 (0.0023)	5,006 (0.54)
2019	2,148,141	61 (0.0028)	35,541 (1.7)	920,148 (42.8)	12 (0.0013)	4,633 (0.50)

Table 16B. Decontamination Trends: Total Human and Pediatric Exposures < =5 Years[a].

	Human exposures		Exposures children < =5 y	
Therapy	N	%	N	%
Activated charcoal administered	35,541	1.65	4,633	0.50
Cathartic	2,731	0.13	202	0.02
Ipecac administered	61	0.00	12	0.00
Lavage	590	0.03	14	0.00
Other Emetic	15,836	0.74	6,731	0.73
Whole Bowel Irrigation	1,517	0.07	85	0.01
Total	**56,276**	**2.62**	**11,677**	**1.27**

[a]Human exposures = 2,148,141; Pediatric exposures = 920,148.

other clinical effects also contribute to the clinical picture and showed similar patterns over time.

An apparent limitation in monitoring EVALI activity late in this trend was the concurrent onslaught of COVID-19-related illness in the United States during this timeframe. The first known non-travel case of COVID-19 in the United States fell ill on February 13, 2020 [11]. This first wave of coronavirus illness swept the US just as the number of EVALI cases in NPDS and other databases was waning. Because of the similarity in clinical symptoms between these 2 entities, overlap in defining clinical cases is likely. Further, use of e-cigarettes/vaping may impact the risk of developing COVID-19 symptoms and of leading to a diagnosis of coronavirus infection, further confounding the identification of these particular cases [12].

The increases in e-cigarette inhalation cases reported to NPDS parallels the data collected by the CDC, demonstrating that with appropriately designed surveillance definitions, NPDS data could be used to detect and monitor these public health outbreaks.

2020 Preview – Methanol Containing Hand Sanitizers

Each year as we prepare the annual report for publication, one or more public health issues arise within the next year's data which, until now, AAPCC had excluded from the annual report. This year we initiate this new section to highlight these concerns for our readers and emphasize the real time nature of NPDS. This section compliments the Emerging Trends section which generally reflects issues through the end of the publication year and compares data from other reporting entities. This year we examine the methanol exposures and poisonings associated with (presumably COVID-related) hand sanitizers.

The Food and Drug Administration's Center for Drug Evaluation and Research (FDA CDER) initiated contact with the AAPCC, NPDS emergency codes were generated on June 23, 2020 and a Special Report (available under NPDS Enterprise Reports) was developed to provide case

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

Substance (Major Generic Category)	All substances	%[a]	Single substance exposures	%[b]
Analgesics	285,361	11.02	182,900	9.67
Cleaning Substances (Household)	184,677	7.13	166,093	8.78
Cosmetics/Personal Care Products	159,530	6.16	153,374	8.11
Antidepressants	137,881	5.32	60,144	3.18
Sedative/Hypnotics/Antipsychotics	135,091	5.21	50,037	2.64
Cardiovascular Drugs	118,287	4.57	50,029	2.64
Antihistamines	112,819	4.36	76,309	4.03
Foreign Bodies/Toys/Miscellaneous	96,964	3.74	94,051	4.97
Pesticides	83,121	3.21	77,707	4.11
Alcohols	74,008	2.86	22,324	1.18
Dietary Supplements/Herbals/Homeopathic	69,618	2.69	59,613	3.15
Anticonvulsants	67,117	2.59	26,702	1.41
Stimulants and Street Drugs	66,822	2.58	37,755	2.00
Topical Preparations	63,145	2.44	61,517	3.25
Hormones and Hormone Antagonists	59,039	2.28	38,654	2.04
Vitamins	56,361	2.18	46,280	2.45
Cold and Cough Preparations	55,192	2.13	37,258	1.97
Antimicrobials	51,833	2.00	41,606	2.20
Gastrointestinal Preparations	47,774	1.84	33,879	1.79
Chemicals	47,067	1.82	40,816	2.16
Plants	45,612	1.76	43,479	2.30
Bites and Envenomations	41,341	1.60	40,810	2.16
Fumes/Gases/Vapors	37,833	1.46	34,910	1.85
Other/Unknown Nondrug Substances	35,403	1.37	33,207	1.76
Hydrocarbons	30,969	1.20	29,151	1.54

[a]Percentages are based on the total number of substances reported in all exposures (N = 2,590,499).
[b]Percentages are based on the total number of single substance exposures (N = 1,891,817).

Table 17B. Substance Categories with the Greatest Rate of Exposure Increase Over the Past 10 Years (Top 25).

	Increase in serious exposures per year[a]		
Substance (Major Generic Category)	Mean	95% CI[b]	All substances in 2019
Antidepressants	1957	[1814, 2100]	46,885
Antihistamines	1066	[1000, 1131]	19,166
Stimulants and Street Drugs	1026	[444, 1608]	24,566
Anticonvulsants	998	[917, 1079]	20,342
Cardiovascular Drugs	948	[866, 1031]	25,209
Alcohols	935	[749, 1122]	28,452
Analgesics	879	[392, 1365]	56,252
Unknown Drug	692	[611, 774]	10,796
Sedative/Hypnotics/Antipsychotics	378	[162, 594]	52,475
Hormones and Hormone Antagonists	255	[233, 277]	7295
Gastrointestinal Preparations	185	[158, 213]	3680
Muscle Relaxants	169	[97, 242]	11,027
Cold and Cough Preparations	100	[-11, 212]	8386
Dietary Supplements/Herbals/Homeopathic	95	[48, 142]	2827
Fumes/Gases/Vapors	67	[31, 103]	4305
Tobacco/Nicotine/eCigarette Products	67	[14, 120]	1169
Weapons of Mass Destruction	56	[44, 67]	477
Diuretics	44	[30, 59]	1666
Electrolytes and Minerals	42	[33, 51]	1290
Anticoagulants	35	[28, 42]	1278
Narcotic Antagonists	34	[23, 44]	452
Asthma Therapies	27	[1, 52]	1089
Vitamins	23	[11, 34]	1186
Miscellaneous Drugs	21	[5, 37]	2420
Miscellaneous Foods	21	[8, 34]	493

[a]Serious exposures have outcomes of Moderate, Major or Death.
[b]Increase and confidence intervals are based on least squares linear regression of the number of cases per year for 2010-2019.

epidemiology (Figure 8). To provide the earliest and strongest signal, the epidemiology curve includes exposure and non-exposure contacts, open and closed cases, and single and multiple substance reports. Of the 2,467 cases received, beginning on May 7 (start date of first report) through September 6, 2020: 87.7% were exposures, 39.0% were chronic, 15.9% were unknown age ≥20 years, 49.8% were female, 74.7% were dermal exposures, 30.0% were not followed with minimal clinical effects possible 72% were managed on site (non-health care facility). The COVID-19 product code was reported along with the sanitizer in 10.0% of the cases. During this period, FDA released 25 Recalls, Market Withdrawals, & Safety Alerts (https://www.fda.gov/safety/recalls-market-withdrawals-safety-alerts) concerning methanol contaminated hand sanitizers.

Poison Centers in Arizona and New Mexico collaborated with the CDC and published a report of 15 severe poisonings including 4 deaths [13].

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

Substance (Major Generic Category)	All substances	%[b]	Single substance exposures	%[c]
Cosmetics/Personal Care Products	109,465	11.42	107,279	12.00
Cleaning Substances (Household)	100,830	10.52	97,147	10.87
Analgesics	85,978	8.97	78,489	8.78
Foreign Bodies/Toys/Miscellaneous	68,707	7.17	67,186	7.52
Dietary Supplements/Herbals/Homeopathic	48,537	5.06	46,024	5.15
Antihistamines	43,944	4.58	39,823	4.46
Topical Preparations	42,746	4.46	41,934	4.69
Vitamins	39,122	4.08	34,892	3.90
Pesticides	34,356	3.58	33,363	3.73
Plants	26,417	2.76	25,582	2.86
Gastrointestinal Preparations	24,900	2.60	22,497	2.52
Antimicrobials	21,295	2.22	20,020	2.24
Cardiovascular Drugs	20,341	2.12	13,025	1.46
Arts/Crafts/Office Supplies	19,773	2.06	19,217	2.15
Cold and Cough Preparations	18,877	1.97	17,199	1.92
Essential Oils	17,394	1.81	16,502	1.85
Electrolytes and Minerals	16,923	1.77	15,356	1.72
Hormones and Hormone Antagonists	16,719	1.74	13,157	1.47
Deodorizers	16,170	1.69	15,984	1.79
Other/Unknown Nondrug Substances	13,013	1.36	12,597	1.41
Antidepressants	11,771	1.23	8,605	0.96
Tobacco/Nicotine/eCigarette Products	10,945	1.14	10,853	1.21
Chemicals	10,471	1.09	9,769	1.09
Stimulants and Street Drugs	10,295	1.07	9,145	1.02
Alcohols	8,843	0.92	8,603	0.96

[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 = 958,628).
[c]Percentages are based on the total number of single substance pediatric exposures (N = 893,745).

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

Substance (Major Generic Category)	All substances	%[b]	Single substance exposures	%[c]
Analgesics	138,627	11.33	67,968	9.54
Sedative/Hypnotics/Antipsychotics	105,915	8.65	34,301	4.81
Antidepressants	90,187	7.37	33,091	4.64
Cardiovascular Drugs	83,320	6.81	29,379	4.12
Cleaning Substances (Household)	66,665	5.45	53,974	7.57
Alcohols	57,766	4.72	10,701	1.50
Anticonvulsants	50,591	4.13	17,550	2.46
Antihistamines	42,395	3.46	20,081	2.82
Pesticides	40,935	3.34	37,131	5.21
Hormones and Hormone Antagonists	36,189	2.96	21,554	3.02
Stimulants and Street Drugs	35,835	2.93	16,045	2.25
Cosmetics/Personal Care Products	32,617	2.66	29,801	4.18
Chemicals	29,438	2.41	24,747	3.47
Fumes/Gases/Vapors	28,007	2.29	25,797	3.62
Bites and Envenomations	27,472	2.24	27,116	3.81
Antimicrobials	22,193	1.81	15,900	2.23
Cold and Cough Preparations	21,895	1.79	11,699	1.64
Muscle Relaxants	20,071	1.64	7,491	1.05
Hydrocarbons	19,123	1.56	17,776	2.49
Gastrointestinal Preparations	17,643	1.44	8,260	1.16
Other/Unknown Nondrug Substances	16,766	1.37	15,385	2.16
Topical Preparations	15,991	1.31	15,401	2.16
Unknown Drug	15,758	1.29	9,859	1.38
Miscellaneous Drugs	13,530	1.11	6,976	0.98
Foreign Bodies/Toys/Miscellaneous	13,205	1.08	12,223	1.72

[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 = 1,224,001).
[c]Percentages are based on the total number of single substance adult exposures (N = 712,616).

The cooperation between the FDA, CDC and the AAPCC to manage with this hazard is an excellent example of public health best practices.

Distribution of Suicides

Table 19A shows modest variation in the distribution of suicides and pediatric deaths over the past 2 decades as reported to the NPDS national database. Within the last decade, the percent of exposures determined to be suspected suicides ranged from 29.7 to 45.8% and the percent of pediatric cases has ranged from 0.779 to 3.18%. The relatively large changes seen for 2011, 2012, 2017 and 2018 reflect the large increase in indirect death reports in those years (peaking at 1,376 in year 2017). Analyses of suicides and pediatric deaths for Direct and Indirect reports are shown in Table 19B. For a more detailed review of trends in adolescent suicides, the reader is referred to the 2018 NPDS Annual Report [1].

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

Substance (Major Generic Category)	All substances	%[b]	Single substance exposures	%[c]
Fumes/Gases/Vapors	11	28.21	2	8.33
Unknown Drug	4	10.26	3	12.50
Analgesics	3	7.69	3	12.50
Batteries	3	7.69	3	12.50
Anesthetics	2	5.13	1	4.17
Antihistamines	2	5.13	1	4.17
Chemicals	2	5.13	1	4.17
Cold and Cough Preparations	2	5.13	1	4.17
Hydrocarbons	2	5.13	2	8.33
Tobacco/Nicotine/eCigarette Products	2	5.13	2	8.33
Alcohols	1	2.56	1	4.17
Gastrointestinal Preparations	1	2.56	1	4.17
Heavy Metals	1	2.56	1	4.17
Other/Unknown Nondrug Substances	1	2.56	1	4.17
Sedative/Hypnotics/Antipsychotics	1	2.56	0	0.00
Stimulants and Street Drugs	1	2.56	1	4.17
Total	**39**	**100.00**	**24**	**100.00**

[a]Includes all children with actual or estimated ages ≤ 5 years old. Results do not include "Unknown Child" or "Unknown Age". Includes death and death, indirect regardless of RCF.
[b]Percentages are based on the total number of substances reported in pediatric fatalities (N = 39).
[c]Percentages are based on the total number of single substance pediatric fatalities (N = 24).

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

Substance (Major Generic Category)	All substances	%[a]
Analgesics	16,333	29.51
Sedative/Hypnotics/Antipsychotics	9,163	16.55
Unknown Drug	5,214	9.42
Cardiovascular Drugs	4,007	7.24
Anticonvulsants	2,710	4.90
Antidepressants	2,658	4.80
Muscle Relaxants	2,212	4.00
Stimulants and Street Drugs	2,189	3.95
Antihistamines	2,082	3.76
Information Requests	2,071	3.74
Antimicrobials	1,869	3.38
Hormones and Hormone Antagonists	1,204	2.18
Gastrointestinal Preparations	1,146	2.07
Miscellaneous Drugs	612	1.11
Diuretics	605	1.09
Cold and Cough Preparations	273	0.49
Anticoagulants	161	0.29
Electrolytes and Minerals	140	0.25
Asthma Therapies	122	0.22
Vitamins	117	0.21
Anticholinergic Drugs	108	0.20
Other/Unknown Nondrug Substances	75	0.14
Weapons of Mass Destruction	57	0.10
Dietary Supplements/Herbals/Homeopathic	45	0.08
Narcotic Antagonists	25	0.05

[a]Percentages are based on the total number of substances reported in all drug identification requests (N = 55,349).

Plant Exposures

Table 20 provides the number of times a specific plant was reported to NPDS (N= 45,612). The 25 most commonly involved plant species and categories account for 40.1% of all reported plant exposures. Three of the top 5 categories in the table are essentially synonymous for unknown plant and comprise 11.6% (5,283) of all plant exposures. For a variety of reasons, it was not possible to make a precise identification in these 3 groups. The most frequent plant exposures where positive plant identification was made were (descending order): Pokeweed (*Phytolacca americana*), Cherry Pit, *Oxalates,* Poison Ivy *(Toxicodendron radicans*), *Spathiphyllum* species, and cyanogenic glycosides.

Deaths and Exposure-related Fatalities

A listing of cases (Table 21, Appendix A) and summary of cases (Tables 4, 5, 8, 9, and 18) are provided for fatal cases with reasonable confidence that the death was a result of the exposure (exposure-related fatalities). Tables 11, 12, 17E, 19 and 22 consider all deaths, irrespective of the RCF. Beginning in 2010, deaths recorded as Indirect Report were no longer reviewed by the AAPCC fatality review team and the RCF was determined by the reporting PC. Table 19C indicates which cases are included in 12 tables reporting fatalities.

There were 696 deaths, indirect and 1,923 deaths. Of these 2,619 cases, 2,048 were judged exposure-related fatalities (RCF = 1 - Undoubtedly responsible, 2 - Probably responsible, or 3 - Contributory). The remaining 571 cases were judged as follows: 128 as RCF= 4 - Probably not responsible, 78 as RCF= 5 - Clearly not responsible, and 365 as RCF= 6-Unknown.

Deaths are sorted in Table 21 (Appendix A) according to the category, then substance deemed most likely responsible for the death (Cause Rank), and then by patient age. The Cause Rank permits the PC to judge 2 or more substances as indistinguishable in terms of cause, for example, 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 in the death 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 88.1% of reported human exposures, and 11.9% of patients were exposed to ≥2 drugs or products. The exposure-related fatalities involved a single substance in 650 cases (46.1%), 2 substances in 347 cases (24.6%), 3 in 185 cases (13.1%), and 4 or more in the balance of cases.

In Table 21 (Appendix A), the Annual Report ID number [bracketed] indicates that the abstract for that case is

Table 17G. Substance Categories Most Frequently Involved in Pregnant Exposures[a] (Top 25).

Substance (Major Generic Category)	All substances	%[b]	Single substance exposures	%[c]
Analgesics	887	11.16	523	8.41
Cleaning Substances (Household)	665	8.36	539	8.67
Fumes/Gases/Vapors	567	7.13	532	8.55
Pesticides	462	5.81	428	6.88
Antidepressants	331	4.16	188	3.02
Vitamins	319	4.01	236	3.79
Antihistamines	318	4.00	191	3.07
Bites and Envenomations	309	3.89	304	4.89
Sedative/Hypnotics/Antipsychotics	248	3.12	109	1.75
Cosmetics/Personal Care Products	211	2.65	196	3.15
Infectious and Toxin-Mediated Diseases	194	2.44	192	3.09
Chemicals	190	2.39	168	2.70
Antimicrobials	182	2.29	137	2.20
Foreign Bodies/Toys/Miscellaneous	179	2.25	174	2.80
Other/Unknown Nondrug Substances	169	2.13	158	2.54
Hydrocarbons	167	2.10	150	2.41
Hormones and Hormone Antagonists	161	2.03	145	2.33
Gastrointestinal Preparations	161	2.03	114	1.83
Electrolytes and Minerals	158	1.99	125	2.01
Alcohols	151	1.90	58	0.93
Plants	145	1.82	141	2.27
Stimulants and Street Drugs	133	1.67	80	1.29
Cold and Cough Preparations	120	1.51	70	1.13
Cardiovascular Drugs	115	1.45	76	1.22
Anticonvulsants	110	1.38	51	0.82

[a]Includes all patients classified as pregnant and all female patients with a 'duration of pregnancy' greater than 0.
[b]Percentages are based on the total number of substances reported in pregnant exposures (N = 7,950).
[c]Percentages are based on the total number of single substance pregnant exposures (N = 6,219).

included in Appendix C. The letters following the Annual Report ID number indicate: i = Death, Indirect report (occurred in 637, 31.1% of cases), p = prehospital cardiac and/or respiratory arrest (occurred in 575, 28.1% of cases), h = hospital records reviewed (occurred in 1,089, or 53.2% of cases), a = autopsy report reviewed (occurred in 939, or 45.9% of cases). The distribution of NPDS RCF was: 1 = Undoubtedly responsible in 855 cases (41.8%), 2 = Probably responsible in 949 cases (46.3%), 3 = Contributory in 244 cases (11.9%). The denominator for these Table 21 percentages is 2,048.

All Fatalities – All Ages

Table 4 presents the age and gender distribution for the 1,411 exposure-related fatalities (excluding death, indirect). The age distribution of reported fatalities showed an increase in deaths among children (<20 years old) compared to 2018, with 100 cases representing 7.09% of fatalities. This was an absolute increase of 14 fatalities (16.3% increase) in that age group. The age distribution of reported fatalities in adults (≥20 years) was similar to prior years with 1,307 of 1,411 (92.6%) fatal cases occurring in that age group and 4 (0.283%) occurring in Unknown Age patients. While children ≤5 years old were involved in the majority of exposures, the deaths in this group comprised just 0.921% of the exposure-related fatalities. The number of deaths in this age group decreased by 1 from 2018. Most (68.7%) of the fatalities occurred in 20 to 59-year-old individuals, in line with prior years, although 30.0% occurred in older individuals (>60 years old).

Table 21 (Appendix A) lists each of the 2,048 human fatalities (including death, indirect) along with all the substances involved for each case. The substance listed in column 3 of Table 21 (alternate name) was chosen to be the most specific generic name based upon the Poisindex® product name and generic code selected for that substance. Alternate names are maintained in the NPDS for each substance involved in a fatality. The cross-references at the end of each major category section in Table 21 list all cases that identify the substance as other than the primary substance. This alternate name may not agree with the AAPCC generic categories used in the summary tables (including Appendix B (Table 22)).

Table 18 lists the top 25 minor generic substance categories associated with reported fatalities and the number of single substance exposure fatalities for that category. Miscellaneous sedative/hypnotics/antipsychotics, pharmaceutical and illegal opioid preparations, miscellaneous alcohols, miscellaneous stimulants and street drugs, and acetaminophen alone lead this list, followed by calcium antagonists, beta blockers, miscellaneous antidepressants, selective serotonin reuptake inhibitors (SSRIs), and acetaminophen combinations. Note that Table 18 is sorted by 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) and shows single substance exposures in the right-hand column.

The first ranked substance (Appendix A, Table 21) was a pharmaceutical in 1,668 (81.4%) of the 2,048 fatalities. These 1,668 first ranked pharmaceuticals included:

751 analgesics (166 fentanyl, 164 acetaminophen, 150 heroin, 79 narcotic, N.O.S., 32 salicylate, 26 oxycodone, 18 acetaminophen/oxycodone, 16 acetaminophen/hydrocodone,

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

Substance (Minor Generic Category)	All substances	%[b]	Single substance exposures	%[c]
Miscellaneous Sedative/Hypnotics/Antipsychotics	305	9.71	13	2.00
Pharmaceutical and Illegal Opioid Preparations	289	9.20	57	8.77
Miscellaneous Alcohols	232	7.38	32	4.92
Miscellaneous Stimulants and Street Drugs	205	6.52	48	7.38
Acetaminophen Alone	198	6.30	91	14.00
Calcium Antagonist	152	4.84	30	4.62
Beta Blockers	104	3.31	13	2.00
Miscellaneous Antidepressants	103	3.28	14	2.15
Selective Serotonin Reuptake Inhibitors (SSRI)	100	3.18	2	0.31
Acetaminophen Combinations	99	3.15	22	3.38
Hypoglycemic, Single Agent	90	2.86	29	4.46
Sedating Antihistamines	82	2.61	14	2.15
Miscellaneous Unknown Drug	78	2.48	22	3.38
Miscellaneous Cardiovascular Drugs	71	2.26	24	3.69
Anticonvulsants: Gamma Aminobutyric Acid and Analogs	65	2.07	5	0.77
Nonsteroidal Antiinflammatory Drugs	59	1.88	4	0.62
Miscellaneous Muscle Relaxants	58	1.85	5	0.77
Miscellaneous Chemicals	57	1.81	25	3.85
Miscellaneous Fumes/Gases/Vapors	57	1.81	36	5.54
Tricyclic Antidepressants (TCA)	55	1.75	10	1.54
Acetylsalicylic Acid Alone	52	1.65	15	2.31
Serotonin Norepinephrine Reuptake Inhibitors (SNRI)	45	1.43	5	0.77
Miscellaneous Anticonvulsants	44	1.40	4	0.62
Angiotensin Converting Enzyme Inhibitor	32	1.02	0	0.00
Cannabinoids and Analogs	25	0.80	1	0.15

[a]Numbers represent total exposures associated with 1,411 fatalities (with RCF 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 = 3,142).
[c]Percentages are based on the total number of single substance fatal exposures (N = 650).

Table 19A. Comparisons of Death Data (1985-2019)[a].

	Total fatalities		Suicides		Pediatric deaths[b]	
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
2010	1,730	0.072	779	45.0	55	3.2
2011	2,765	0.118	865	31.3	42	1.5
2012	2,937	0.129	890	30.3	46	1.6
2013	2,477	0.113	785	31.7	51	2.1
2014	1,835	0.085	790	43.1	34	1.9
2015	1,831	0.084	814	44.5	42	2.3
2016	1,977	0.091	906	45.8	44	2.2
2017	3,208	0.151	954	29.7	25	0.8
2018	3,111	0.148	953	30.6	51	1.6
2019	2,619	0.122	909	34.7	31	1.2

[a]Human exposures with medical outcome of death or death, indirect regardless of RCF.
[b]Includes all children with actual or estimated ages ≤ 5 years old. Results do not include "Unknown Child" or "Unknown Age". Includes death and death, indirect regardless of RCF.

16 methadone, 14 acetaminophen/diphenhydramine, 13 morphine, 12 tramadol)
225 cardiovascular drugs (66 amlodipine, 23 diltiazem, 23 metoprolol, 20 verapamil, 19 digoxin, 13 propranolol, 8 flecainide)
187 stimulants/street drugs (102 methamphetamine, 43 cocaine, 8 stimulant/street drug, N.O.S, 6 methylenedioxymethamphetamine (MDMA), 5 Mitragyna speciosa korthals)
116 antidepressants (47 bupropion, 19 amitriptyline, 13 venlafaxine, 8 trazodone, 5 nortriptyline, 4 doxepin, 4 duloxetine)
60 sedative/hypnotic/antipsychotics (16 quetiapine, 13 alprazolam, 4 clonazepam, 4 zolpidem)

The exposure was acute (A) in 840 (41.0%), acute on chronic (A/C) in 416 (20.3%), chronic (C) in 142 (6.93%), and unknown (U) in 650 (31.7%) of fatalities.

A total of 1,345 tissue concentrations for 1 or more related analytes were reported in 725 cases. Most of these (1,218) involved fatalities with RCF of 1-3 and are listed in Appendix A (Table 21). Of note, all tissue concentrations are available to the PCs through the NPDS Enterprise Reports. These 136 analytes included: 266 acetaminophen (APAP), 120 ethanol, 71 salicylate, 68 fentanyl, 36 carboxyhemoglobin, 33 diphenhydramine, 28 methamphetamine, 24 ethylene glycol, 22 amphetamine, 21 benzoylecgonine, 21 methanol, 20 digoxin.

Route of exposure was: Ingestion only in 1,082 cases (52,8%), Inhalation/nasal in 217 cases (10.6%), and Parenteral in 115 cases (5.62%). Parenteral only cases increased by 161.4% from 2018. Most other exposures recorded a combination of routes or an unknown route.

The Intentional exposure reason was: Suspected suicide in 773 cases (37.7%), Abuse in 627 cases (30.6%), Misuse in 62

Table 19B. Comparisons of Direct and Indirect Death Data (2000-2019)[a].

	All deaths			Suspected Suicides					Pediatric deaths				
Year	Total	Direct	Indirect	Total	% of deaths	Direct	% of direct	Indirect	Total	% of deaths	Direct	% of direct	Indirect
2000	864	845	19	448	51.85	443	52.43	5	18	2.08	18	2.13	0
2001	1,066	952	114	542	50.84	503	52.84	39	26	2.44	24	2.52	2
2002	850	739	111	455	53.53	436	59.00	19	24	2.82	15	2.03	9
2003	867	826	41	464	53.52	454	54.96	10	29	3.34	22	2.66	7
2004	955	898	57	516	54.03	501	55.79	15	25	2.62	21	2.34	4
2005	1,423	1,332	91	666	46.80	656	49.25	10	32	2.25	26	1.95	6
2006	1,515	1,415	100	705	46.53	687	48.55	18	39	2.57	32	2.26	7
2007	1,597	1,502	95	737	46.15	712	47.40	25	47	2.94	41	2.73	6
2008	1,756	1,535	221	797	45.39	750	48.86	47	39	2.22	32	2.08	7
2009	1,544	1,452	92	779	50.45	748	51.52	31	37	2.40	31	2.13	6
2010	1,730	1,455	275	779	45.03	732	50.31	47	55	3.18	47	3.23	8
2011	2,765	1,503	1,262	865	31.28	758	50.43	107	42	1.52	31	2.06	11
2012	2,937	1,507	1,430	890	30.30	759	50.36	131	46	1.57	30	1.99	16
2013	2,477	1,552	925	785	31.69	698	44.97	87	51	2.06	43	2.77	8
2014	1,835	1,559	276	790	43.05	757	48.56	33	34	1.85	23	1.48	11
2015	1,831	1,670	161	814	44.46	784	46.95	30	42	2.29	34	2.04	8
2016	1,977	1,852	125	906	45.83	885	47.79	21	44	2.23	37	2.00	7
2017	3,208	1,832	1,376	954	29.74	821	44.81	133	25	0.78	19	1.04	6
2018	3,111	1,821	1,290	953	30.63	823	45.19	130	51	1.64	32	1.76	19
2019	2,619	1,923	696	909	34.71	855	44.46	54	31	1.18	22	1.14	9

[a]Human exposures with medical outcome of death or death, indirect regardless of RCF.

Table 19C. Detail of Cases Included in Fatality Tables.

Table	Fatalities Included	RCF	N
4	Death only	1,2,3	1,411
5	Death only	1,2,3	1,411
8	Death only	1,2,3	1,411
9	Death only	1,2,3	1,411
11	Death and Death (indirect report)	All	2,619
12	Death and Death (indirect report)	All	2,619
17E	Pediatric Death and Death (indirect report)	All	39
18	Death only	1,2,3	1,411
19A	Death and Death (indirect report)	All	2,619
19B	Death and Death (indirect report)	All	2,619
21	Death and Death (indirect report)	1,2,3	2,048
22	Death and Death (indirect report) - Single substance deaths only	All	1,096

cases (3.03%), and Unknown in 86 cases (4.20%). Unintentional exposure reasons were: Environmental in 116 cases (5.66%), Therapeutic error in 41 cases (2.00%), General in 33 cases (1.61%), Misuse in 25 cases (1.22%), Occupational in 8 cases (0.391%), Unknown in 7 cases (0.342%), Bite/Sting in 2 cases (0.0977%) and Food Poisoning in 1 case (0.0488%). Adverse drug reaction was the reason in 49 cases (2.39%).

Pediatric fatalities – age ≤ 5 years

Although children younger than 6 years were involved in the majority of exposures, they comprised only 31 (1.18%) of the 2,619 fatalities. These numbers are similar to those reported since 1985 (Table 19A, all RCFs and includes indirect deaths). Table 8 (RCF 1, 2 or 3, excludes indirect deaths) shows the percentage of fatalities in children ≤ 5 years related to total pediatric exposures was 13/920,148 (0.00141%). By comparison, 1,307/895,039 (0.146%) of all adult exposures involved a fatality. Of the 13 pediatric fatalities in Table 8, 12 (92.3%) were reported as unintentional, and 1 was coded as unknown (7.69%) (Table 8).

The 19 fatalities in children ≤5 years detailed in Appendix A (Table 21) (includes death, indirect reports and RCF 1-3) included 14 nonpharmaceuticals and 5 pharmaceuticals. The first ranked substances associated with these fatalities included: fumes/gases/vapors (7), batteries (3), hydrocarbons (2), analgesics (2), heavy metals (1), tobacco/nicotine/eCigarette (1), antihistamines (1), gastrointestional preparations (1), and unknown drug (1).

Pediatric fatalities – ages 6-12 years

In the age range 6 to 12 years, 16 fatalities are listed in Appendix A (Table 21) (includes death, indirect reports and RCF 1-3) included: fumes/gases/vapors (10), analgesics (2), chemicals (1), cosmetics/personal care (1), miscellaneous drugs (1), and muscle relaxants (1). In the 13 deaths with RCF 1-3, the exposure reasons were: 9 unintentional - environmental, 1 unintentional – therapeutic error, 1 intentional – suspected suicide, 1 adverse reaction – drug, and 1 unknown. (Table 8).

Adolescent fatalities – ages 13-19 years

In the age range 13 to 19 years, there were 73 reported fatalities with with RCF 1-3, an increase of 8 (12.3%) from 2018. Reasons included 63 intentional, 5 unintentional, 4 unknown reason, and 1 adverse reaction (Table 8). The 86 fatalities listed in Appendix A (Table 21) (includes death, indirect reports and RCF 1-3) included 71 pharmaceuticals and 15 nonpharmaceuticals. The first ranked pharmaceuticals associated with these fatalities included: analgesics (21), antihistamines (12), antidepressants (11), cardiovascular drugs (11), stimulants and street drugs (4), anticonvulsants (3), unknown drug (3), cold and cough preparations (2), sedative/hypnotics/antipsychotics (2), antimicrobials (1), and hormones and hormone antagonists (1). The first ranked nonpharmaceutical associated with these fatalities included: fumes/gases/vapors (8), chemicals (5), other/unknown non-drug substances (1), and weapons of mass destruction (1).

Table 20. Frequency of Plant Exposures (Top 25)[a].

	Botanical name or Category	AAPCC Generic Code Name	N
1	Unknown Botanical Name	Unknown Toxic Types or Unknown if Toxic	2,535
2	*Phytolacca americana* (L.)	Gastrointestinal Irritants (Excluding Oxalate Containing Plants)	2,244
3	Cherry Pit	Amygdalin and/or Cyanogenic Glycosides	1,537
4	Berry (not otherwise specified)	Unknown Toxic Types or Unknown if Toxic	1,498
5	Plants-general-unknown	Unknown Toxic Types or Unknown if Toxic	1,250
6	Plants-oxalates	Oxalates	1,177
7	*Toxicodendron radicans* (L.)	Skin Irritants (Excluding Oxalate Containing Plants)	876
8	*Spathiphyllum* spp.	Oxalates	769
9	Plants-cyanogenic glycosides	Amygdalin and/or Cyanogenic Glycosides	713
10	Unknown Botanical Name	Non-Toxic	649
11	Cherry (Species unspecified)	Amygdalin and/or Cyanogenic Glycosides	648
12	*Euphorbia tirucalli* (L.)	Skin Irritants (Excluding Oxalate Containing Plants)	509
13	Plants-solanine	Solanine	441
14	*Nerium oleander* (L.)	Cardiac Glycosides (Excluding Drugs)	429
15	*Epipremnum areum* (L.)	Oxalates	388
16	Unknown Botanical Name	Skin Irritants (Excluding Oxalate Containing Plants)	380
17	Unknown Botanical Name	Gastrointestinal Irritants (Excluding Oxalate Containing Plants)	354
18	*Colocasia esculenta* (L.)	Oxalates	335
19	Unknown Botanical Name	Other Toxic Types	291
21	*Nandina domestica Thunb* spp.	Amygdalin and/or Cyanogenic Glycosides	265
22	Plants-toxicodendrol	Skin Irritants (Excluding Oxalate Containing Plants)	265
23	Apple Seed	Plants: Amygdalin and/or Cyanogenic Glycosides	247
24	*Solanum dulcamara* (L.)	Plants: Solanine	246
25	Apple (Fruit)	Plants: Amygdalin and/or Cyanogenic Glycosides	245

[a]Number of substances related to a human exposure with a Major Generic Category of Plant. Unknown Botanical Name represents substances with a Major Generic Category of Plant and a NULL substance code. Total = 45,612.

Pregnancy and Fatalities

There were 3 deaths in pregnant women reported to NPDS in 2019. A total of 51 deaths of pregnant women have been reported between 2000 and 2019. The majority (43 of 51, 84.3%) were intentional exposures (misuse, abuse or suspected suicide).

AAPCC Surveillance Results

Key components of the NPDS surveillance system include the automated monitoring tools available to the NPDS user community. Since Surveillance Anomaly 1, generated at 2:00 pm EDT on 17 September 2006, over 407,000 anomalies have been detected and reported. Over 2,600 were confirmed as representing public health significance with PCs working collaboratively with local health departments and, in some instances the CDC, on the identified issues.

At the time of this report, 1,745 surveillance definitions run continuously, monitoring case and clinical effects volumes and a variety of case-based definitions from food poisoning to nerve agents. These definitions represent the surveillance work by many PCs, health departments, the AAPCC, the Health Studies Branch (Division of Environmental Hazards and Health Effects, National Center for Environmental Health), and CDC. NPDS has also been used for surveillance during mass gathering events, such as the Super Bowl.

The methodology for automating surveillance continues to be improved in efforts to detect the index case of any relevant public health event. Algorithms for identifying the index case vary greatly regarding the substance to be identified. No individual algorithm works for every application. The magnitude and penetrance of NPDS are critical to epidemiologic surveillance and to the ability to substantiate situational awareness for clinicians, policymakers, and public health officials nationwide. Typically, NPDS surveillance detects the response to an event, rather than predicting an event. This fosters situational awareness that is undoubtedly beneficial to public health activities.

Discussion

The exposure cases and information requests reported by PCs in 2019 do not reflect the full extent of PC efforts, which also include poison prevention activities, partnership with public health entities, and public and health care professional education programs.

NPDS exposure data may be considered "numerator data" in the absence of 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 that are reported to PCs since most poison exposures and poisoning deaths are not universally reportable events.

NPDS 2000-2019 encounter volume data clearly demonstrate an overall trend toward decreasing exposure cases, though an increase was seen this year. This decline has been apparent since mid-2007 and reflects the decreasing use of the PC for less serious exposures. However, during this same period, exposures with a more serious outcome (death, major, moderate) and HCF cases have continued to increase. Possible contributors to the declining PC utilization include declining US birth rate (especially since exposure rates are much higher in children $\leq$ 5 years of age), increasing use of text rather than voice communication, and increasing use of and reliance on internet resources. To meet our public health goals, PCs will need to understand and provide access via the public's 21st century communication preferences. We are concerned that failure to respond to these changes may

result in a regression in the pattern of seeking care, with more people seeking medical care at HCFs for exposures that could have been managed on-site by a PC. Likewise, minor exposures may progress to more serious morbidity and mortality because of incorrect internet information or the absence of PC management. The net effect could be more serious poisoning outcomes because fewer people took advantage of PC services, with a resultant increased burden on the national healthcare infrastructure as may be reflected in the increased number of cases managed in a HCF this year. PoisonHelp.org was created to provide appropriate management and triage of poisoning cases by members of the public who do not initially contact a poison center.

Unlike other data sources, NPDS offers the ability to provide a near 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 fatality analyses. One of the issues leading to this concern 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 NPDS to allow data sharing, for example, between hospital emergency departments and other medical record systems, including medical examiner offices, nationwide. Enhancements to NPDS could promote interoperability between NPDS and electronic medical records systems to better trend poison-related morbidity and mortality in the US and internationally.

Summary

Unintentional and intentional exposures continue to be a significant cause of morbidity and mortality in the US. The near real-time status of NPDS represents a national public health resource to collect and monitor US exposure cases and information contacts.

Changes in 2019 encounters from 2018 are shown in Figures 1, 3, and 4, and include:

- Total encounters (all exposure and information contacts) increased by 1.70%.
- All information contacts decreased 4.82%, Drug ID contacts decreased 29.7%, and human exposures increased 2.31%.
- HCF information requests decreased 2.19%. Managed exposure cases reported from an HCF decreased 0.495%, attenuating the steady increase since 2000.
- Human exposures with less serious outcomes increased 1.77% as well as those with more serious outcomes (moderate, major or death) increasing 7.38% compared to an overall 4.61% yearly increase since 2000. The most rapidly increasing substance categories resulting in more serious outcomes over the past decade are antidepressants, antihistamines, stimulants and street drugs, and anticonvulsants.

These data support the continued value of PC expertise and need for specialized medical toxicology information to manage the more severe exposures, despite the slight decrease in cases involving HCF exposures. In addition to telephonic services, PCs must consider newer communication approaches that match current, and future, public preferences. 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.

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, the US territories of Guam, American Samoa, the Federated States of Micronesia, the US Virgin Islands, and the District of Columbia. Case records in this database are from self-reported encounters: 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 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).

Disclosure statement

The authors report no declarations of interest.

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APPENDIX A

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
Non-Pharmaceutical Exposures										
Alcohols										
1ph	20 y M				A	Ingst	Unk	2		
		ethanol	1	1						
2pai	20 y M				A	Ingst	Int-A	3		
		ethanol	1	1						
3	21 y M				A	Ingst	Int-A	1		
		ethanol	1	1					ethanol	808 mg/dL In Blood (unspecified) @ 1 m (pe)
4h	23 y M				A	Ingst	Int-A	1		
		methanol	1	1					methanol	126 mg/dL In Blood (unspecified) @ 10 h (pe)
		methanol	1	1					methanol	400 mg/dL In Blood (unspecified) @ 10 m (pe)
		methanol	1	1					methanol	46 mg/dL In Blood (unspecified) @ 21 h (pe)
		cleaner (irritant)	2	2						
5p	25 y M				A	Ingst	Int-A	2		
		ethanol	1	1						
		cocaine	2	2						
		benzodiazepine	3	3						
6pha	26 y M				U	Ingst	Int-U	2		
		ethanol	1	1					ethanol	139 mg/dL In Blood (unspecified) @ Unknown
7ai	27 y F				U	Unk	Int-A	1		
		ethanol	1	1						
8ai	27 y M				U	Ingst+ Unk	Int-A	1		
		ethanol	1	1						
		methanol	2	2						
9p	29 y F				U	Ingst	Int-U	3		
		ethanol	1	1					ethanol	130 mg/dL In Blood (unspecified) @ 1 m (pe)
		drug, N.O.S.	2	2						
10h	29 y F				A	Ingst	Int-S	1		
		methanol	1	1					methanol	135 mg/dL In Blood (unspecified) @ Unknown
		Mitragyna speciosa korthals	2	2						
11ha	30 y M				A/C	Ingst	Int-U	1		
		methanol	1	1					methanol	0.196 % In Serum @ Autopsy
12h	31 y M				C	Ingst	Int-A	3		
		alcohol, N.O.S.	1	1						
13h	31 y F				A/C	Ingst	Int-S	1		
		methanol	1	1					methanol	82 mg/dL In Blood (unspecified) @ Unknown
14h	32 y M				A	Ingst	Unk	2		
		ethanol	1	1						
		methamphetamine	2	2						
15ha	32 y F				A/C	Ingst+ Inhal	Int-A	3		
		ethanol	1	1					ethanol	448 mg/dL In Blood (unspecified) @ Unknown
		hydrocarbon, fluorinated	2	2						
16h	32 y M				A	Ingst	Int-S	1		
		methanol	1	1					methanol	109 mg/dL In Blood (unspecified) @ Unknown
		methanol	1	1					methanol	139 mg/dL In Blood (unspecified) @ Unknown
		methanol	1	1					methanol	25 mg/dL In Blood (unspecified) @ Unknown
17pai	33 y M				A	Ingst	Int-A	3		
		ethanol	1	1						
18ha	34 y M				A	Ingst+ Inhal	Int-S	2		
		ethanol	1	1						
		amphetamine	2	2						
		cocaine	3	3						
19h	36 y M				A	Ingst+ Inhal+ Unk	Int-A	1		
		methanol	1	1					methanol	92 mg/dL In Blood (unspecified) @ Unknown
		methamphetamine	2	2						
		marijuana	3	3						
20	36 y F				A	Ingst	Unk	3		
		ethanol	1	1					ethanol	13 mg/dL In Serum @ 5 h (pe)
21h	37 y F				U	Unk	Unk	3		
		ethanol (non-beverage)	1	1						
		acetaminophen	2	2						
22ph	37 y M				C	Ingst	Int-A	3		
		ethanol	1	1					ethanol	30 mg/dL In Plasma @ 5 m (pe)
		ethanol	2	2						
23h	37 y F				C	Ingst	Int-A	3		
		ethanol	1	1						
24ai	37 y M				U	Unk	Int-A	2		
		ethanol	1	1						
25ha	38 y F				C	Ingst	Int-M	1		
		ethanol	1	1					salicylate	3.9 mg/dL In Blood (unspecified) @ 1 h (pe)
		ethanol	1	1					acetaminophen (apap)	6.2 mcg/mL In Blood (unspecified) @ 1 h (pe)
		acetaminophen	2	2						
		salicylate	3	3						
26ha	39 y F				A	Ingst	Unk	1		

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		ethanol	1	1					ethanol	0.225 g/dL In Blood (unspecified) @ Unknown
		ethanol	1	1					isopropanol	5 mg/dL In Blood (unspecified) @ Unknown
		isopropanol	2	2						
27ha	39 y M				A/C	Ingst	Int-A	2		
		ethanol	1	1					ethanol	160 mg/dL In Serum @ Unknown
28h	39 y M				C	Ingst	Oth-W	2		
		ethanol	1	1						
		ethanol	2	2						
29ai	40 y M				U	Unk	Int-A	1		
		ethanol	1	1						
		cocaine	2	2						
30ai	40 y F				C	Unk	Int-A	1		
		ethanol	1	1						
31h	41 y M				A	Ingst	Int-A	2		
		ethanol	1	1						
32ha	44 y M				C	Ingst	Int-A	2		
		ethanol	1	1						
33h	44 y M				A	Ingst	Int-S	2		
		ethanol	2	1						
		metformin	1	1						
34ai	44 y F				U	Unk	Int-A	3		
		ethanol	1	1						
35ai	44 y M				C	Ingst	Int-A	3		
		ethanol	1	1						
36pha	45 y M				A	Ingst	Int-S	3		
		ethanol	1	1					ethanol	20 mg/dL In Vitreous @ Unknown
		ethanol	1	1					ethanol	30 mg/dL In Blood (unspecified) @ Autopsy
		ethanol	1	1					ethanol	79 mg/dL In Urine (quantitative only) @ Unknown
		gabapentin	2	2					gabapentin	6.4 mg/L In Blood (unspecified) @ Autopsy
		sertraline	3	3					sertraline	0.02 mg/L In Blood (unspecified) @ Autopsy
37pha	46 y F				A	Ingst	Int-S	3		
		ethanol	1	1					ethanol	282 mg/dL In Serum @ Unknown
		acetaminophen	2	2					acetaminophen (apap)	20.2 mcg/mL In Serum @ Unknown
		salicylate	3	3					salicylate	20.2 mg/dL In Serum @ Unknown
		cough and cold preparation, N.O.S.	4	4						
38ha	46 y M				U	Unk	Int-S	1		
		methanol	1	1					methanol	452 mg/dL In Urine (quantitative only) @ 0 h (pe)
39ha	47 y F				U	Ingst	Int-S	1		
		methanol	1	1					methanol	5126 mg/L In Blood (unspecified) @ Unknown
40ai	47 y M				C	Ingst	Int-A	3		
		ethanol	1	1						
41h	48 y M				A/C	Ingst	Unk	2		
		ethanol	1	1					ethanol	212 mg/dL In Blood (unspecified) @ Unknown
42ha	48 y M				C	Ingst	Int-S	1		
		methanol	1	1					methanol	145.6 mg/dL In Blood (unspecified) @ Unknown
43h	49 y M				C	Ingst	Int-A	2		
		ethanol	1	1						
44ph	49 y M				A	Ingst+ Par	Int-A	2		
		ethanol	1	1					ethanol	597 mg/dL In Blood (unspecified) @ Unknown
		sodium bicarbonate	2	2						
45h	50 y F				A	Ingst	Int-U	2		
		methanol	1	1					ethanol	244 mg/dL In Serum @ 15 m (pe)
46ai	50 y M				U	Unk	Int-A	1		
		ethanol	1	1						
47h	51 y F				U	Ingst	Int-A	3		
		ethanol	1	1					ethanol	241 mg/dL In Blood (unspecified) @ Unknown
48a	51 y M				A	Ingst+ Unk	Unk	3		
		ethanol	2	1					ethanol	457 mg/dL In Blood (unspecified) @ Unknown
		drug, N.O.S.	1	2						
49ai	51 y F				U	Unk	Int-A	3		
		ethanol	1	1						
50ha	52 y F				U	Ingst+ Unk	Unk	1		
		ethanol	1	1					ethanol	0.126 g/dL In Blood (unspecified) @ 1 h (pe)
		methamphetamine	2	2					amphetamine	0.06 mg/dL In Blood (unspecified) @ 1 h (pe)
		methamphetamine	2	2					methamphetamine	0.6 mg/L In Blood (unspecified) @ 1 h (pe)
		cocaine	3	3					benzoylecognine	0.04 mg/dL In Blood (unspecified) @ 1 h (pe)
		methadone	4	4					methadone	0.12 mg/L In Blood (unspecified) @ 1 h (pe)
		diazepam	5	5					diazepam	21 ng/mL In Blood (unspecified) @ 1 h (pe)
		diazepam	5	5					nordiazepam	59 ng/mL In Blood (unspecified) @ 1 h (pe)

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		fentanyl	6	6					fentanyl	38.2 % In Liver @ Autopsy
51h	52 y F				U	Ingst	Int-A	3		
		methanol	1	1						
		ethylene glycol	2	2						
52ai	52 y M				C	Unk	Int-A	1		
		ethanol	1	1						
53ai	53 y M				U	Unk	Int-A	2		
		ethanol	1	1						
54h	54 y M				C	Ingst	Int-A	2		
		ethanol	1	1						
55ha	54 y M				A	Ingst	Oth-M	1		
		methanol	1	1					methanol	332 mg/dL In Blood (unspecified) @ Unknown
56h	54 y M				A/C	Ingst	Int-S	2		
		ethanol	1	1						
		sertraline	2	2						
		drug, N.O.S.	3	3						
57ai	54 y M				U	Unk	Int-A	3		
		ethanol	1	1						
58h	55 y M				U	Ingst	Int-U	2		
		methanol	1	1					methanol	492 mg/dL In Serum @ 30 m (pe)
59pha	57 y M				U	Ingst	Int-S	1		
		methanol	1	1					methanol	270 mg/dL In Blood (unspecified) @ Autopsy
		ethanol	2	2					ethanol	133 mg/dL In Blood (unspecified) @ Autopsy
60ha	57 y M				A	Ingst	Int-S	3		
		ethanol	1	1					ethanol	7 mg/dL In Blood (unspecified) @ Unknown
		hydrocodone	2	2					acetaminophen (apap)	10.9 mcg/mL In Blood (unspecified) @ Unknown
		hydrocodone	2	2					hydrocodone (free)	18 ng/mL In Blood (unspecified) @ Unknown
61ha	58 y M				C	Ingst	Int-A	2		
		ethanol	1	1						
		amlodipine	2	2						
		lisinopril	3	3						
		alpha-adrenergic blocker	5	4						
		metformin	4	4						
		finasteride	6	5						
62h	59 y M				A/C	Ingst	Int-U	3		
		ethanol	1	1					ethanol	289 mg/dL In Blood (unspecified) @ Unknown
63p	59 y F				A	Ingst	Int-S	3		
		ethanol	1	1					ethanol	259 mg/dL In Unknown @ Unknown
64pai	59 y M				A/C	Ingst	Int-A	3		
		ethanol	1	1					ethanol	112 mg/dL In Blood (unspecified) @ Autopsy
65h	59 y M				A	Ingst	Unk	2		
		ethanol	1	1					ethanol	12 % In Blood (unspecified) @ Unknown
66h	60 y F				U	Ingst+ Par	Unk	3		
		ethanol	1	1					ethanol	280 mg/dL In Serum @ 0 h (pe)
		insulin	2	2						
[67pha]	61 y F				A	Ingst	Int-S	1		
		isopropanol	1	1					isopropanol	480 mg/dL In Blood (unspecified) @ Unknown
68h	62 y F				A	Ingst	Unk	3		
		ethanol	1	1					ethanol	288 mg/dL In Blood (unspecified) @ Unknown
69ai	63 y F				C	Ingst	Int-A	3		
		ethanol	1	1						
70hi	65 y F				A/C	Ingst	Int-A	3		
		ethanol	1	1					ethanol	68 mg/dL In Blood (unspecified) @ Unknown
71ai	65 y M				U	Unk	Int-A	3		
		ethanol	1	1						
72	66 y M				C	Ingst+ Unk	Int-A	3		
		ethanol	1	1						
73ai	66 y M				U	Unk	Int-A	3		
		ethanol	1	1						
74ph	67 y F				A	Ingst	Int-A	3		
		ethanol	1	1						
75h	67 y F				C	Ingst	Int-U	3		
		ethanol	1	1					ethanol	176.5 mg/dL In Blood (unspecified) @ 1 h (pe)
76ai	68 y M				U	Unk	Int-A	3		
		ethanol	1	1						
77ph	68 y M				U	Ingst	Int-U	2		
		ethanol	1	1						
		isopropanol	2	2						
78ai	69 y F				C	Ingst	Int-A	3		
		ethanol	1	1						
79ha	69 y M				C	Ingst	Unk	3		
		ethanol	1	1					ethanol	71 mg/dL In Blood (unspecified) @ Unknown
80ai	73 y M				U	Unk	Int-A	3		
		ethanol	1	1						
81ai	74 y M				U	Unk	Int-A	3		
		ethanol	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
82h	80 y F				U	Ingst	Int-S	1		
		methanol	1	1					methanol	99 mg/dL In Serum @ 1 h (pe)
See Also case 120, 127, 129, 139, 144, 162, 203, 209, 215, 325, 337, 338, 351, 382, 387, 400, 405, 409, 414, 424, 428, 442, 446, 455, 457, 458, 497, 510, 517, 529, 534, 546, 550, 565, 573, 574, 601, 607, 617, 622, 624, 636, 643, 646, 647, 651, 654, 657, 665, 670, 683, 685, 686, 688, 715, 721, 722, 732, 734, 740, 743, 748, 752, 757, 759, 760, 764, 775, 779, 786, 790, 800, 814, 822, 836, 842, 844, 845, 849, 856, 857, 865, 876, 879, 885, 894, 899, 901, 904, 905, 908, 918, 929, 953, 957, 962, 965, 981, 1004, 1012, 1019, 1027, 1028, 1029, 1035, 1067, 1078, 1101, 1132, 1135, 1140, 1141, 1150, 1154, 1159, 1161, 1186, 1190, 1193, 1195, 1199, 1217, 1223, 1225, 1228, 1239, 1240, 1258, 1259, 1260, 1276, 1278, 1309, 1310, 1312, 1317, 1319, 1320, 1321, 1322, 1326, 1347, 1348, 1351, 1353, 1363, 1364, 1365, 1366, 1368, 1384, 1385, 1389, 1394, 1397, 1402, 1420, 1421, 1423, 1427, 1429, 1432, 1434, 1437, 1440, 1441, 1447, 1451, 1478, 1487, 1488, 1539, 1574, 1575, 1578, 1580, 1581, 1584, 1599, 1609, 1620, 1627, 1628, 1633, 1639, 1667, 1669, 1680, 1685, 1690, 1713, 1717, 1718, 1723, 1730, 1743, 1747, 1778, 1785, 1797, 1808, 1810, 1813, 1815, 1816, 1820, 1828, 1830, 1843, 1844, 1851, 1855, 1857, 1875, 1877, 1884, 1892, 1895, 1896, 1918, 1919, 1922, 1926, 1937, 1949, 1952, 1957, 2021, 2031, 2033, 2037									
Automotive/Aircraft/Boat Products										
83h	22 y M				A	Ingst	Int-S	2		
		ethylene glycol (antifreeze)	1	1						
84	24 y M				A	Ingst	Int-S	2		
		ethylene glycol (antifreeze)	1	1						
85h	27 y F				A	Ingst	Int-S	2		
		ethylene glycol (antifreeze)	1	1						
86ph	28 y F				A	Ingst	Int-S	1		
		methanol	1	1						
87a	36 y M				U	Unk	Int-S	3		
		ethylene glycol (antifreeze)	1	1					ethylene glycol	190 mg/dL In Blood (unspecified) @ Autopsy
88ph	48 y M				A	Ingst	Int-S	2		
		methanol	1	1						
89ph	55 y M				A	Ingst+ Aspir	Int-S	1		
		ethylene glycol (antifreeze)	1	1					ethylene glycol	515 mg/dL In Blood (unspecified) @ Unknown
90h	56 y M				A	Ingst	Int-S	1		
		ethylene glycol (antifreeze)	1	1					ethylene glycol	121 mg/mL In Serum @ 12 h (pe)
		ethylene glycol (antifreeze)	1	1					ethylene glycol	133 mg/dL In Serum @ 7 h (pe)
		ethylene glycol (antifreeze)	1	1					ethylene glycol	237 mg/dL In Serum @ 3 h (pe)
91h	56 y M				U	Ingst	Int-A	1		
		methanol	1	1					methanol	261 mg/dL In Blood (unspecified) @ 10 m (pe)
92ha	56 y M				A	Ingst	Int-S	1		
		ethylene glycol (antifreeze)	1	1					ethylene glycol	632 mg/dL In Blood (unspecified) @ Unknown
93h	59 y M				C	Ingst	Int-S	1		
		methanol	1	1					methanol	173 mg/dL In Blood (unspecified) @ Unknown
		methanol	1	1					methanol	35 mg/dL In Blood (unspecified) @ Unknown
94h	60 y M				A	Ingst	Unk	1		
		ethylene glycol (antifreeze)	1	1					ethylene glycol	528 mg/dL In Blood (unspecified) @ Unknown
95a	64 y M				A	Ingst	Int-U	1		
		ethylene glycol (antifreeze)	1	1					ethylene glycol	386 mg/dL In Blood (unspecified) @ Unknown
96ph	66 y M				A	Ingst	Int-S	1		
		ethylene glycol (antifreeze)	1	1					ethylene glycol	1092 mg/dL In Serum @ Unknown
97h	66 y M				A	Ingst+ Aspir	Int-S	1		
		hydrocarbon	1	1						
98a	67 y F				A	Ingst	Int-M	1		
		ethylene glycol/methanol	1	1					methanol	260 mg/dL In Blood (unspecified) @ Unknown
99	77 y M				A	Ingst	Unk	2		
		ethylene glycol (antifreeze)	1	1						
100h	79 y M				A	Ingst	Int-S	1		
		ethylene glycol (antifreeze)	1	1					ethylene glycol	1400 mg/dL In Blood (unspecified) @ 1 h (pe)
See Also case 2037										
Batteries										
101hi	1 y U				A	Ingst	Unt-G	1		
		battery, disc (lithium)	1	1						
[102]	2 y F				U	Ingst	Unt-G	2		
		battery, disc	1	1						
103hai	9 d M				A	Ingst	Unt-G	1		
		battery, disc	1	1						
Bites and Envenomations										
[104h]	52 y M				A	B-S	Unt-B	2		
		envenomation (agkistrodon)	1	1						
[105ph]	73 y M				A	B-S	Unt-B	2		
		sting (hymenoptera)	1	1						
Chemicals										
106ha	7 y M				A	Inhal	Unt-E	1		
		cyanide	1	1						
		carbon monoxide	2	2						
[107pha]	15 y F				A	Ingst	Int-S	1		
		sodium nitirite	1	1					methemoglobin	88.8 % In Blood (unspecified) @ Unknown
[108pha]	16 y F				A	Ingst	Int-S	1		
		nitrites	1	1					methemoglobin	30 % In Serum @ 1 h (pe)
109	17 y F				A	Ingst	Int-S	1		
		sodium nitrate	1	1					methemoglobin	84 % In Blood (unspecified) @ Unknown
110h	18 y F				A	Ingst	Int-S	2		
		sodium nitirite	1	1						
[111ha]	19 y M				A	Ingst	Int-S	1		
		sodium azide	1	1						
112pha	20 y F				A	Ingst	Int-S	1		
		sodium nitirite	1	1					methemoglobin	39 % In Blood (unspecified) @ Unknown

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		sodium nitirite	1	1					methemoglobin	75 % In Blood (unspecified) @ Autopsy
113	23 y F				A	Ingst	Int-U	1		
		sodium nitrate	1	1						
114	24 y M				A	Ingst	Int-S	2		
		chemical, N.O.S.	1	1						
115pha	24 y M				U	Ingst+ Unk	Int-S	2		
		sodium nitirite	1	1						
		metoclopramide	2	2						
116h	25 y M				A	Ingst	Int-S	2		
		dinitrophenol	1	1						
117h	25 y M				A	Ingst	Int-S	2		
		dinitrophenol	1	1						
118ha	25 y M				A	Ingst	Int-S	1		
		nitrates	1	1						
		lorazepam	2	2					lorazepam	6 ng/mL In Blood (unspecified) @ Unknown
		metoclopramide	3	3						
119ph	27 y M				A	Ingst	Int-S	2		
		sodium nitirite	1	1						
120ha	30 y M				U	Ingst	Int-S	1		
		ethylene glycol	1	1					ethylene glycol	11 mg/dL In Serum @ 1.3 d (pe)
		ethylene glycol	1	1					ethylene glycol	220 mg/dL In Blood (unspecified) @ 0.4 d (pe)
		isopropanol	2	2						
		amitriptyline	3	3						
121h	31 y M				A	Ingst	Unk	2		
		ethylene glycol	1	1					ethylene glycol	19 mg/dL In Blood (unspecified)
122ha	31 y M				A	Ingst	Int-S	1		
		sulfuric acid	1	1						
[123ha]	35 y M				U	Oth	Int-U	1		
		silicone	1	1						
124p	35 y M				A	Unk	Unk	2		
		nitrates	1	1						
125ha	36 y M				A	Ingst	Int-S	1		
		ethylene glycol	1	1					ethylene glycol	281 mg/dL In Serum @ Unknown
126	36 y M				A	Ingst	Int-S	1		
		ethylene glycol	1	1					ethylene glycol	163 mg/dL In Blood (unspecified) @ Unknown
127	39 y F				A	Ingst	Unk	2		
		ethylene glycol	1	1						
		propylene glycol	2	2						
		methanol	3	3						
128a	42 y M				A	Ingst	Unk	1		
		ethylene glycol	1	1					ethylene glycol	62 mg/dL In Blood (unspecified) @ Autopsy
129pa	44 y F				A	Ingst	Int-S	1		
		sodium azide	1	1						
		ethanol	2	2						
130ha	44 y F				A	Ingst	Int-S	1		
		ethylene glycol (antifreeze)	1	1					ethylene glycol	43 mg/dL In Blood (unspecified) @ Unknown
131	45 y M				A	Ingst	Int-S	1		
		ethylene glycol	1	1					ethylene glycol	191.4 mg/dL In Blood (unspecified) @ Unknown
132h	46 y M				U	Ingst	Int-S	1		
		ethylene glycol	1	1					ethylene glycol	145 mg/dL In Serum @ Unknown
		ethylene glycol	1	1					ethylene glycol	40 mg/dL In Serum @ Unknown
133h	46 y M				A	Ingst	Int-S	2		
		ethylene glycol (antifreeze)	1	1					ethylene glycol	10 mg/dL In Blood (unspecified) @ Unknown
		ethylene glycol (antifreeze)	1	1					ethylene glycol	27 mg/dL In Blood (unspecified) @ Unknown
		amlodipine	2	2						
		alprazolam	3	3						
134	47 y M				A	Ingst	Int-S	2		
		sodium nitrate	1	1						
135ai	49 y M				U	Unk	Unt-U	1		
		ethyl chloride	1	1						
136ai	52 y M				U	Unk	Int-S	1		
		cyanide	1	1						
137ha	54 y M				A	Derm	Unt-O	1		
		sulfuric acid	1	1						
138ai	55 y F				U	Unk	Int-S	1		
		ethylene glycol	1	1						
139ph	58 y M				A	Ingst	Unk	2		
		ethylene glycol	1	1						
		ethanol	2	2						
140h	60 y M				A	Ingst	Unt-M	2		
		hydrofluoric acid	1	1						
141h	63 y M				A	Unk	Int-S	1		
		ethylene glycol	1	1					ethylene glycol	12 mg/mL In Serum @ Unknown
142h	63 y M				A	Ingst+ Derm	Int-S	1		
		sulfuric acid	1	1						
143ph	64 y M				A	Ingst	Int-S	1		
		corrosive (alkali)	1	1						
144ha	68 y M				A	Ingst	Int-S	1		
		hydrochloric acid	1	1						
		lithium	2	2						
		trazodone	3	3					trazodone	2.4 mg/L In Serum @ 2 h (pe)

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		ethanol	4	4					ethanol	0.07 g/dL In Blood (unspecified) @ Autopsy
		ethanol	4	4					ethanol	0.11 g/dL In Vitreous @ Autopsy
		isosorbide dinitrate	5	5						
145pha	68 y M				U	Ingst	Int-S	1		
		cyanide	1	1					cyanide	6 mcg/mL In Blood (unspecified) @ Autopsy
		tizanidine	2	2					eszopiclone	6.3 ng/mL In Blood (unspecified) @ Autopsy
		morphine	3	3					morphine (free)	40 ng/mL In Blood (unspecified) @ Autopsy
146	72 y F				A	Ingst	Int-S	2		
		hydrochloric acid	1	1						
147	77 y M				A	Ingst+ Inhal+ Aspir+ Derm	Int-M	2		
		chemical, N.O.S.	1	1						
[148h]	80 y M				A	Ingst	Int-S	1		
		acid, N.O.S.	1	1						
[149pa]	83 y M				A	Unk	Unk	1		
		cyanide	1	1					cyanide	13 mcg/mL In Blood (unspecified) @ Autopsy
150ha	93 y M				A	Ingst	Unt-G	1		
		sulfuric acid	1	1						
151pa	Unknown adult (>=20 yrs) M				A	Ingst	Int-S	2		
		sodium azide	1	1					cyanide	0.15 mcg/mL In Blood (unspecified) @ Autopsy
		sodium azide	1	1					olanzapine	140 ng/mL In Blood (unspecified) @ Autopsy
		sodium azide	1	1					norfluoxetine	150 ng/mL In Blood (unspecified) @ Autopsy
		sodium azide	1	1					fluoxetine	240 ng/mL In Blood (unspecified) @ Autopsy
		olanzapine	2	2						
		fluoxetine	3	3						
See Also case 51, 173, 183, 189, 196, 203, 227, 236, 257, 268, 269, 278, 280, 286, 292, 367, 871, 1034, 1137, 1195, 1293, 1328, 1923										
Cleaning Substances (Household)										
152h	28 y M				A	Ingst	Int-U	2		
		cleaner (alkali)	1	1						
153pa	32 y M				A	Ingst	Int-S	1		
		drain cleaner (alkali)	1	1						
154ph	32 y M				U	Inhal	Unt-O	2		
		hypochlorite	1	1						
155ph	41 y F				A	Ingst	Int-S	2		
		hypochlorite	1	1						
156	51 y M				A	Ingst	Unt-G	1		
		hydrofluoric acid	1	1						
157h	68 y M				A	Ingst	Unt-G	2		
		oven cleaner, N.O.S.	1	1						
158	68 y M				A	Ingst+ Aspir	Unt-M	3		
		cleaner (anionic/nonionic)	1	1						
159h	70 y M				A	Ingst	Unt-G	1		
		cleaner (alkali)	1	1						
160h	70 y F				A	Ingst+ Derm	Int-S	2		
		drain cleaner (alkali)	1	1						
161	70 y F				A	Ingst	Int-S	1		
		cleaner (alkali/anionic/nonionic)	1	1						
162	77 y F				A	Ingst	Int-S	1		
		cleaner (alkali)	1	1						
		ethanol	2	2						
163h	80 y M				A	Ingst	Unt-T	2		
		drain cleaner (alkali)	1	1						
164h	82 y F				A	Ingst	Int-S	1		
		cleaner (acid)	1	1						
165h	84 y F				A	Ingst+ Aspir	Unt-M	3		
		cleaner (anionic/nonionic)	1	1						
166ha	85 y M				A	Ingst	Int-S	2		
		cleaner (alkali)	1	1						
[167h]	85 y M				A	Derm	AR-O	2		
		cleaner (cationic)	1	1						
168h	86 y F				A	Ingst+ Aspir	Unt-M	2		
		laundry detergent (liquid)	1	1						
169h	87 y F				A	Ingst	Unt-G	1		
		drain cleaner (sulfuric acid)	1	1						
170ha	92 y F				A	Ingst	Unt-G	3		
		disinfectant (isopropanol/pine oil)	1	1						
[171ha]	97 y M				A	Ingst	Unt-G	1		
		cleaner (alkali)	1	1						
See Also case 4, 592, 1522, 1659, 1787, 1796										
Cosmetics/Personal Care Products										
172ph	9 y M				A	Ingst+ Inhal+ Derm	Unk	3		
		isopropanol	1	1						
173h	36 y F				U	Ingst+ Inhal	Int-S	1		
		ethanol	1	1						
		butane	2	2						
		diethylene glycol	3	3						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
174a	54 y F				A	Ingst	Int-A	1		
		ethanol (non-beverage)	1	1					ethanol	0 mg/dL In Blood (unspecified) @ Unknown
		acetaminophen	2	2					acetaminophen (apap)	107 mcg/mL In Blood (unspecified) @ Unknown
175h	55 y F				A	Ingst+ Aspir	Int-S	2		
		soap	1	1						
176h	88 y M				A	Ingst	Unt-G	1		
		shampoo (anionic/nonionic)	1	1						
Fumes/Gases/Vapors										
[177pha]	2 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxyhemoglobin	6.8 % In Whole Blood @ 3 h (pe)
178pi	2 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
179ph	6 y F				A	Inhal+ Derm	Unt-E	2		
		carbon monoxide	1	1					carboxyhemoglobin	2.7 % In Blood (unspecified) @ 1 m (pe)
180ph	6 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
181pa	8 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxyhemoglobin	29 mg/dL In Blood (unspecified) @ Autopsy
182ph	8 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxyhemoglobin	8.1 % In Blood (unspecified) @ 4 h (pe)
183p	8 y F				A	Inhal	Unt-E	1		
		carbon monoxide	2	1						
		cyanide	1	1						
184pi	9 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
185ph	10 y M				A	Inhal+ Derm	Unt-E	3		
		carbon monoxide	2	1					carboxyhemoglobin	0.2 % In Blood (unspecified) @ Unknown
		carbon monoxide	2	1					carboxyhemoglobin	1.5 % In Blood (unspecified) @ Unknown
		carbon monoxide	2	1					carboxyhemoglobin	10.7 % In Blood (unspecified) @ Unknown
		carbon monoxide	2	1					carboxyhemoglobin	4.1 % In Blood (unspecified) @ Unknown
		hyperthermia	1	2						
186ph	11 y M				A	Inhal	Unt-E	1		
		nitrogen oxides	1	1						
187ph	11 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
188pi	12 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
189ph	14 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxyhemoglobin	30 % In Blood (unspecified) @ Unknown
		cyanide	2	2						
190p	17 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxyhemoglobin	7.2 % In Blood (unspecified) @ Unknown
191pi	17 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
192	18 y M				A	Inhal	Unt-E	2		
		carbon monoxide	1	1						
193pi	18 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
194pi	19 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
195pa	19 y M				A	Inhal	Int-S	1		
		carbon monoxide	1	1					carboxyhemoglobin	60 % In Blood (unspecified) @ Autopsy
196ph	19 y M				A	Inhal	Unt-E	3		
		carbon monoxide	1	1						
		cyanide	2	2						
197pi	22 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
198pai	23 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
199h	25 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxyhemoglobin	17.8 % In Serum @ Unknown
200pi	25 y F				A	Inhal	Unt-E	2		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
201pi	29 y F				A	Inhal	Unt-E	3		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
202pi	30 y M				A	Inhal	Unt-E	3		
		carbon monoxide	1	1						
		carbon monoxide	2	2						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
203pha	31 y F				A	Ingst+ Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxyhemoglobin	16.4 % In Blood (unspecified) @ 2 h (pe)
		cyanide	2	2						
		ethanol	3	2					ethanol	131 mg/dL In Blood (unspecified) @ 2 h (pe)
204pai	32 y M				A	Inhal+ Derm	Oth-M	3		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
205pi	33 y F				A	Inhal	Unt-E	2		
		fume-gas-vapor, N.O.S.	1	1						
		carbon monoxide	2	2						
206pi	34 y M				A	Inhal	Int-S	1		
		helium	1	1						
207pi	34 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
208pi	36 y M				A	Inhal	Unt-E	2		
		carbon monoxide	1	1						
209pha	36 y M				A	Inhal	Unk	1		
		carbon monoxide	1	1					carboxyhemoglobin	33.7 % In Blood (unspecified) @ 1 h (pe)
		ethanol	2	2						
210ai	37 y M				A	Inhal	Int-S	1		
		carbon monoxide	1	1						
211ai	39 y M				A	Inhal+ Unk	Int-S	1		
		carbon monoxide	1	1						
		methamphetamine	2	2						
212pi	39 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
213ph	40 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxyhemoglobin	40 % In Blood (unspecified) @ 10 m (pe)
214pi	40 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
215pai	41 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxyhemoglobin	79.1 % In Blood (unspecified) @ Autopsy
		carbon monoxide	2	2					ethanol	250 mg/dL In Blood (unspecified) @ Autopsy
		ethanol	3	3						
216p	42 y M				A	Inhal	Unt-M	1		
		carbon monoxide	1	1					carboxyhemoglobin	1.5 % In Blood (unspecified) @ 1 d (pe)
		carbon monoxide	1	1					carboxyhemoglobin	36.3 % In Blood (unspecified) @ 1 h (pe)
217a	42 y M				A	Inhal	Int-A	3		
		propane	1	1						
218a	43 y M				A	Inhal	Int-S	1		
		carbon monoxide	1	1						
219pi	44 y M				A	Inhal	Int-S	1		
		carbon monoxide	1	1					carboxyhemoglobin	70 % In Blood (unspecified) @ Autopsy
220i	44 y M				A	Inhal	Int-S	3		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
		carbon monoxide	3	3						
		lubricating oil	4	4						
221pha	45 y F				A	Inhal	Int-S	1		
		carbon monoxide	1	1					carboxyhemoglobin	16 % In Blood (unspecified) @ Unknown
		carbon monoxide	1	1					carboxyhemoglobin	48 % In Blood (unspecified) @ Unknown
		trazodone	2	2					trazodone	6357 ng/mL In Blood (unspecified) @ Unknown
		oxycodone	3	3					oxycodone	100 ng/mL In Blood (unspecified) @ Unknown
222pi	45 y M				A	Inhal	Oth-M	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
223pi	46 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
[224pha]	47 y M				A	Inhal	Unt-O	1		
		nitrogen oxides	1	1						
225pi	47 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
226pi	48 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
227ha	48 y M				A	Inhal	Unt-O	2		
		hydrogen sulfide	1	1					thiosulfate	5.2 mcg/mL In Plasma @ 1 h (pe)
228pi	48 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
229pi	48 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		carbon monoxide	2	2						
230pi	49 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
231pa	49 y M				A	Inhal	Unt-E	1		
		nitrogen oxides	1	1						
232pi	50 y M				A	Inhal	Unt-M	2		
		carbon monoxide	1	1						
233pi	51 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
234pi	53 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
235pi	54 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
236pha	54 y F				A	Inhal	Int-S	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
		cyanide	3	3						
237pa	54 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
238pa	55 y M				A	Inhal	Int-S	1		
		carbon monoxide	1	1						
239pi	55 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
240pi	55 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
241pi	55 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
242pa	56 y F				A	Unk	Unk	1		
		carbon monoxide	1	1					carboxyhemoglobin	25.7 % In Blood (unspecified) @ Unknown
243pi	56 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
244pha	56 y M				A	Inhal+ Unk	Unt-E	1		
		carbon monoxide	1	1						
		marijuana	2	2					thc (tetrahydrocannabinol)	0.002 mg/L In Blood (unspecified) @ Autopsy
		marijuana	2	2					11-oh-thc (11-hydroxy-delta-9-tetrahydrocannabinol)	0.008 mg/L In Blood (unspecified) @ Autopsy
		marijuana	2	2					11-oh-thc (11-hydroxy-delta-9-tetrahydrocannabinol)	0.02 mg/L In Blood (unspecified) @ Unknown
		diazepam	3	3					nordiazepam	1.4 mg/L In Blood (unspecified) @ Autopsy
		diazepam	3	3					diazepam	1.41 mg/L In Blood (unspecified) @ Autopsy
		diazepam	3	3					nordiazepam	2.16 mg/L In Blood (unspecified) @ Unknown
		diazepam	3	3					diazepam	2.25 mg/L In Blood (unspecified) @ Unknown
		diphenhydramine	4	4						
		temazepam	5	5					temazepam	0.37 mg/L In Blood (unspecified) @ Autopsy
		temazepam	5	5					temazepam	0.64 mg/L In Blood (unspecified) @ Unknown
245ph	57 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxyhemoglobin	44 % In Whole Blood @ 30 m (pe)
246pi	57 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
247pi	58 y M				A	Inhal	Unt-E	2		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
248pi	58 y M				A	Inhal	Int-S	2		
		carbon monoxide	1	1						
249pi	58 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
250ai	58 y M				A	Inhal	Int-S	1		
		carbon monoxide	1	1						
251pi	59 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
252pi	59 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
253pi	60 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
254pi	60 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
255pi	60 y M				A	Inhal	Unt-E	1		

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		carbon monoxide	1	1						
		carbon monoxide	2	2						
256pi	60 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
257ph	60 y F				A	Inhal	Int-S	2		
		carbon monoxide	1	1						
		cyanide	2	1						
258pi	62 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
259pi	62 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
260pi	62 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
261pi	63 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
262pi	63 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
[263ha]	64 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxyhemoglobin	42.8 % In Blood (unspecified) @ Unknown
264pi	64 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
265pi	64 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
266pi	64 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
267pi	65 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
268ha	65 y M				C	Inhal	Unt-E	3		
		carbon monoxide	1	1					carboxyhemoglobin	17 % In Blood (unspecified) @ Unknown
		cyanide	2	2						
269ph	66 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxyhemoglobin	47 % In Blood (unspecified) @ 1 h (pe)
		cyanide	2	2						
270pi	67 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
271h	68 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxyhemoglobin	47.4 % In Blood (unspecified) @ Unknown
272pai	68 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxyhemoglobin	19 % In Blood (unspecified) @ Autopsy
273pi	69 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2					carboxyhemoglobin	42 % In Blood (unspecified) @ Autopsy
274pi	69 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
275pi	70 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
276pi	71 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
277pi	71 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
278pha	71 y F				A	Inhal	Unt-E	3		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
		cyanide	3	3						
279ph	71 y M				A	Inhal	Int-S	2		
		carbon monoxide	1	1						
280p	71 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxyhemoglobin	6.8 % In Blood (unspecified) @ 1 h (pe)
		cyanide	2	2						
281pi	71 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
282pi	76 y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
283ph	77 y M				C	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxyhemoglobin	25 % In Blood (unspecified) @ Unknown
284pi	78 y F				A	Inhal	Unt-E	1		

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		carbon monoxide	1	1						
		carbon monoxide	2	2						
285pi	79 y F				A	Inhal	Unt-E	1		
		fume-gas-vapor, N.O.S.	1	1						
		carbon monoxide	2	2						
286pha	81 y F				A	Inhal	Unt-E	1		
		carbon monoxide	2	1					carboxyhemoglobin	55 % In Blood (unspecified) @ Unknown
		cyanide	1	2						
287ph	82 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxyhemoglobin	33.7 % In Blood (unspecified) @ Unknown
288pi	84 y M				A	Inhal	Unt-E	1		
		fume-gas-vapor, N.O.S.	1	1						
		carbon monoxide	2	2						
289ha	87 y F				C	Inhal	Unt-E	2		
		carbon monoxide	1	1						
290pi	88 y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
291pi	88 y M				A	Inhal	Unt-E	2		
		carbon monoxide	1	1						
292pha	3 m M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		cyanide	2	2						
293pi	8 m M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
294ph	15 m F				A	Inhal	Unt-E	2		
		carbon monoxide	1	1						
295pi	18 m F				A	Inhal	Unt-E	3		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
296pi	18 m F				A	Inhal	Unt-E	3		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
297pi	20+ y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
298ph	40+ y M				A	Inhal	Unt-E	2		
		carbon monoxide	1	1					carboxyhemoglobin	33 % In Blood (unspecified) @ Unknown
299ph	50+ y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1					carboxyhemoglobin	50 % In Blood (unspecified) @ Unknown
300pi	60+ y F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
301pi	60+ y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
302p	60+ y M				A	Inhal	Unt-E	3		
		carbon monoxide	1	1					carboxyhemoglobin	23 % In Blood (unspecified) @ Unknown
303pi	70+ y M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
304p	Unknown child (<=19 yrs) U				A	Inhal	Unt-E	3		
		carbon monoxide	1	1						
305i	Unknown adult (>=20 yrs) M				A	Inhal	Int-S	1		
		carbon monoxide	1	1						
306pi	Unknown adult (>=20 yrs) M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
307	Unknown adult (>=20 yrs) U				A	Inhal	Unt-E	3		
		carbon monoxide	1	1						
308pi	Unknown adult (>=20 yrs) F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
309pi	Unknown adult (>=20 yrs) M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
310pi	Unknown adult (>=20 yrs) F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
311pi	Unknown				A	Inhal	Unt-E	1		

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
	adult (>=20 yrs) M									
		carbon monoxide	1	1						
		carbon monoxide	2	2						
312pi	Unknown adult (>=20 yrs) F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
313pi	Unknown adult (>=20 yrs) M				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
314pi	Unknown adult (>=20 yrs) F				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
315pi	Unknown age U				A	Inhal	Unt-E	1		
		carbon monoxide	1	1						
		carbon monoxide	2	2						
316p	Unknown age U				A	Inhal	Oth-M	1		
		carbon monoxide	1	1						
317p	Unknown age F				A	Inhal	Oth-M	2		
		carbon monoxide	1	1						
See Also case 106, 173, 1064										
Heavy Metals										
[318h]	3 y M				A	Ingst	Unt-G	1		
		arsenic	1	1					arsenic	4200 mg/L In Serum @ 2 h (pe)
See Also case 1983										
Hydrocarbons										
319h	2 y F				A	Ingst+ Aspir	Unt-G	2		
		hydrocarbon	1	1						
320ph	21 y F				A	Inhal	Int-A	2		
		hydrocarbon, fluorinated	1	1						
		nicotine (liquid)	2	2						
		marijuana (concentrate)	3	3						
321pha	24 y M				U	Inhal+ Unk	Int-A	1		
		hydrocarbon, fluorinated	1	1						
		cocaine	2	2					benzoylecognine	0.093 mg/L In Whole Blood @ 5 m (pe)
		methamphetamine	3	3						
		fentanyl, N.O.S.	4	4					fentanyl	22 ng/mL In Blood (unspecified) @ 5 m (pe)
322ai	24 y F				U	Inhal	Int-A	1		
		hydrocarbon, fluorinated	1	1						
323pha	30 y F				U	Inhal	Int-A	1		
		hydrocarbon, fluorinated	1	1						
324h	32 y M				A	Inhal	Int-A	2		
		hydrocarbon	1	1						
325ph	32 y M				A	Inhal	Int-A	2		
		hydrocarbon, fluorinated	1	1						
		ethanol	2	2					ethanol	125.9 mg/dL In Blood (unspecified) @ Unknown
326p	35 y F				A	Inhal	Int-S	2		
		hydrocarbon, fluorinated	1	1						
327ph	37 y F				A	Ingst+ Inhal	Int-A	2		
		hydrocarbon, fluorinated	1	1						
		aripiprazole	2	2						
328ha	37 y M				A	Inhal	Int-A	1		
		hydrocarbon, fluorinated	1	1						
329ph	40 y M				A	Inhal	Int-M	1		
		hydrocarbon, fluorinated	1	1						
330h	42 y F				A	Ingst+ Derm	Int-S	1		
		gasoline	1	1						
[331ha]	45 y M				A	Inhal	Int-A	1		
		hydrocarbon, fluorinated	1	1						
332	45 y M				A	Inhal	Int-A	2		
		hydrocarbon, fluorinated/isopropanol	1	1						
333ai	45 y F				U	Unk	Int-A	1		
		hydrocarbon, fluorinated	1	1						
334ai	49 y M				U	Unk	Int-A	1		
		hydrocarbon, fluorinated	1	1						
		olanzapine	2	2						
335h	54 y M				A	Inhal	Int-A	2		
		hydrocarbon, fluorinated	1	1						
336ph	58 y M				A	Ingst+ Inhal	Int-S	2		
		hydrocarbon	1	1						
		benzodiazepine	2	2						
		antidepressant, unknown	3	3						
337ai	60 y M				U	Inhal+ Unk	Int-A	1		
		hydrocarbon, fluorinated	1	1						
		alprazolam	2	2						
		ethanol	3	3						
338pai	65 y M				A	Inhal	Int-A	1		

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		hydrocarbon, fluorinated	1	1						
		ethanol	2	2						
[339]	13 m M				A	Ingst	Unt-G	1		
		lamp oil	1	1						
See Also case 15, 220										
Industrial Cleaners										
340	51 y M				A	Ingst	Int-S	1		
		cleaner (acid)	1	1						
Infectious and Toxin-Mediated Diseases										
[341h]	80 y F				A	Ingst	Unt-F	1		
		botulism	1	1						
Information Calls										
342i	77 y M				A	Ingst	Unt-G	1		
		sodium bicarbonate	1	1						
Mushrooms										
343pa	36 y M				A	Ingst+ Unk	Unt-G	3		
		mushroom (unknown)	1	1						
		marijuana, N.O.S.	2	2					delta-9-carboxy-thc	14 ng/mL In Blood (unspecified) @ Autopsy
		marijuana, N.O.S.	2	2					11-oh-thc (11-hydroxy-delta-9-tetrahydrocannabinol)	2.9 ng/mL In Blood (unspecified) @ Autopsy
		marijuana, N.O.S.	2	2					delta-9-thc	3.7 ng/mL In Blood (unspecified) @ Autopsy
Other/Unknown Nondrug Substances										
[344ha]	14 y F				A	Ingst	Unt-G	1		
		water	1	1						
345h	20 y M				C	Inhal	AR-D	2		
		nicotine (liquid)	1	1						
		marijuana (liquid)	2	2						
		nicotine (liquid)	3	3						
346pa	27 y M				A	Ingst	Int-A	1		
		bong water	2	1						
		methamphetamine	1	1					methamphetamine	1.7 mg/L In Blood (unspecified) @ Autopsy
347h	36 y F				C	Inhal	Int-A	2		
		nicotine (liquid)	1	1						
		nicotine (liquid)	2	2						
348ph	51 y F				U	Ingst	Int-S	2		
		substance (non-drug), N.O.S.	1	1						
349ai	62 y M				C	Unk	Oth-M	2		
		substance (non-drug), N.O.S.	1	1						
350ph	Unknown age M				A	Ingst	Int-S	1		
		formaldehyde/methanol/ethanol	1	1						
		substance (non-powder), N.O.S.	2	2						
See Also case 185, 371, 483, 1397										
Pesticides										
351h	20 y M				A	Ingst	Int-S	2		
		glyphosate	1	1						
		ethanol	2	2						
352h	22 y M				C	Ingst	Int-M	2		
		dinitrophenol	1	1						
[353ha]	30 y M				A/C	Ingst	Int-M	1		
		dinitrophenol	1	1						
[354p]	32 y M				A	Inhal	Unt-O	2		
		aluminum phosphide	1	1						
		esfenvalerate	2	2						
355h	41 y M				A	Ingst	Int-S	2		
		herbicide, N.O.S.	1	1						
356phai	54 y M				A	Inhal+ Derm	Unt-M	3		
		pyrethroids	1	1						
357h	58 y M				A	Ingst	Int-S	1		
		2, 4-Dichlorophenoxyacetic acid (2,4-D)	1	1						
		esfenvalerate	2	2						
358	58 y M				A	Ingst	Int-S	1		
		glyphosate	1	1						
359h	60 y M				A	Ingst	Int-S	1		
		diquat	1	1						
360h	63 y M				A	Ingst	Unt-M	1		
		paraquat	1	1						
361hi	63 y M				A	Ingst	Unt-M	1		
		paraquat	1	1						
362h	63 y M				C	Inhal	Unt-O	3		
		herbicide, N.O.S.	1	1						
[363h]	65 y M				A	Derm	Unt-O	1		
		paraquat	1	1						
364p	72 y M				A	Ingst	Int-S	2		
		chlorothalonil	1	1						
365h	82 y M				A	Ingst	Int-S	1		
		herbicide, N.O.S.	1	1						
366	82 y F				A	Derm	Unt-M	3		
		phenothrin	1	1						
367h	87 y M				A	Ingst	Int-S	2		
		bromethalin	1	1						
		trazodone	2	2						
		boric acid	3	3						
368	88 y F				A	Ingst	Int-S	2		

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		organophosphate	1	1						
See Also case 1034, 1141, 1922										
Plants										
[369ha]	41 y F				A	Ingst	Int-S	1		
		plant (Taxus species)	1	1						
370ph	64 y M				A	Ingst	Unt-M	2		
		plants,unknown	1	1						
		Nicotiana glauca	2	2						
See Also case 526, 1782										
Tobacco/Nicotine/eCigarette Products										
371h	34 y M				C	Inhal	AR-O	3		
		nicotine (liquid)	1	1						
		nicotine (liquid)	2	2						
372h	34 y M				A	Inhal	Int-A	2		
		nicotine (liquid)	1	1						
373ph	34 y M				U	Ingst	Int-S	1		
		nicotine (liquid)	1	1						
374h	35 y F				U	Inhal	Int-A	2		
		nicotine (liquid)	1	1						
375h	54 y F				C	Inhal	Oth-C	2		
		nicotine (liquid)	1	1						
[376pha]	17 m M				A	Ingst+ Derm	Unt-G	1		
		nicotine (liquid)	1	1					caffeine	222 ng/mL In Whole Blood @ Autopsy
		nicotine (liquid)	1	1					nicotine	300 ng/mL In Whole Blood @ Autopsy
See Also case 320, 345, 347, 1759, 1822										
Weapons of Mass Destruction										
377	18 y F				A	Ingst+ Inhal+ Unk	Int-A	1		
		substance (non-powder), N.O.S.	1	1						
378	76 y F				U	Ingst+ Unk	Unk	3		
		substance (non-powder), N.O.S.	1	1						
		metformin	2	2						
		warfarin	3	3						
See Also case 350										
Pharmaceutical Exposures										
Analgesics										
379phai	9 y F				A	Ingst	Int-S	1		
		oxycodone	1	1					oxymorphone	0.086 mg/L In Blood (unspecified) @ Unknown
		oxycodone	1	1					oxycodone	0.32 mg/L In Blood (unspecified) @ Unknown
[380pha]	10 y F				A	Ingst	Unt-T	1		
		methadone	1	1					methadone	0.24 mg/L In Blood (unspecified) @ Autopsy
[381ha]	14 y F				A	Ingst	Int-S	1		
		colchicine	1	1					colchicine	44 ng/mL In Serum @ 26 h (pe)
		amlodipine	2	2						
		drug, N.O.S.	3	3						
		fenofibrate	4	4						
382p	15 y M				A	Ingst	Int-S	2		
		acetaminophen/caffeine/salicyl ate	1	1					salicylate	51.2 mg/dL In Blood (unspecified) @ Unknown
		acetaminophen/oxycodone	2	2					acetaminophen (apap)	294 mcg/mL In Serum @ Unknown
		oxycodone	3	3						
		ethanol	4	4					ethanol	89 mg/dL In Blood (unspecified) @ Unknown
383pha	16 y M				A/C	Oth+ Unk	Int-U	1		
		fentanyl analog (acetyl fentanyl)	1	1						
		quinine	2	2						
384ph	16 y F				U	Inhal	Int-A	1		
		fentanyl, N.O.S.	1	1						
385ai	16 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		amphetamine	2	2						
		bupropion	3	3						
[386h]	17 y F				U	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	30 mcg/mL In Serum @ 3 d (pe)
387ph	17 y M				U	Ingst+ Unk	Int-A	1		
		fentanyl	1	1						
		cocaine	2	2						
		alcohol, N.O.S.	3	3					ethanol	249.4 mg/dL In Blood (unspecified) @ Unknown
		marijuana, N.O.S.	4	4						
388pha	17 y F				U	Ingst	Int-S	1		
		acetaminophen/oxycodone	1	1					oxycodone (total)	0.677 mg/L In Blood (unspecified) @ Unknown
[389ha]	17 y F				A/C	Ingst	Int-U	1		
		colchicine	1	1					colchicine	43 ng/mL In Blood (unspecified) @ Unknown
390p	17 y F				U	Unk	Unk	2		
		heroin	1	1						
		fentanyl	2	2						
391ha	17 y F				A	Par+ Unk	Int-A	1		
		fentanyl	1	1					fentanyl	16 ng/mL In Blood (unspecified) @ Autopsy
		heroin	2	2					morphine	0.12 mg/L In Blood (unspecified) @ Autopsy

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		etizolam	3	3					etizolam	0.093 mg/L In Blood (unspecified) @ Autopsy
		alprazolam	4	4					alprazolam	0.026 mg/L In Blood (unspecified) @ Autopsy
		cocaine	5	5					benzoylecognine	0.41 mg/L In Blood (unspecified) @ Autopsy
392ai	17 y F				A	Par	Int-A	2		
		heroin	1	1						
393ai	18 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
394h	18 y F				A	Ingst	Int-S	1		
		salicylate	1	1					salicylate	130 mg/dL In Blood (unspecified) @ Unknown
		foreign body	2	2						
395ai	18 y F				U	Unk	Int-A	1		
		fentanyl	1	1						
396ai	18 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
397ai	18 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
398pha	19 y M				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	930 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	2	2					diphenhydramine	5250 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen	2	2					acetaminophen (apap)	930 mcg/mL In Blood (unspecified) @ Unknown
399ai	19 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		methamphetamine	2	2						
400ai	19 y F				U	Unk	Int-A	1		
		fentanyl	1	1						
		ethanol	2	2						
401ai	19 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		gabapentin	2	2						
402ph	20 y M				C	Inhal	Int-A	1		
		fentanyl	1	1						
403h	20 y M				A	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen (apap)	378 mcg/mL In Serum @ Unknown
404ai	20 y M				U	Unk	Int-A	2		
		heroin	1	1						
405pha	20 y M				U	Ingst+ Inhal+ Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
		ethanol	2	2						
		marijuana	3	3						
406ph	20 y F				A	Ingst	Int-U	2		
		fentanyl, N.O.S.	1	1						
		drug, N.O.S.	2	2						
407hai	20 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		alprazolam	2	2						
408ai	20 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		cocaine	2	2						
409ai	20 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		alprazolam	2	2						
		ethanol	3	3						
410ai	20 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
411h	20 y M				A	Inhal	Int-A	2		
		oxycodone	1	1						
412ai	20 y M				U	Unk	Int-A	1		
		heroin	1	1						
		methamphetamine	2	2						
413ai	20 y F				U	Unk	Int-A	1		
		heroin	1	1						
414pa	21 y M				A	Unk	Int-A	1		
		fentanyl	1	1					fentanyl	0.021 mg/L In Blood (unspecified) @ Autopsy
		fentanyl	1	1					acetyl fentanyl	18 mg/L In Blood (unspecified) @ Autopsy
		ethanol	2	2					ethanol	0.02 % In Vitreous @ Autopsy
415ai	21 y F				A	Par	Int-A	2		
		heroin	1	1						
416ai	21 y F				U	Par	Unk	2		
		narcotic, N.O.S.	1	1						
417pha	21 y M				A	Par	Int-A	1		
		fentanyl	1	1					fentanyl	5.9 ng/mL In Blood (unspecified) @ 30 m (pe)
418ai	21 y M				A	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
419pa	21 y F				A	Unk	Int-S	1		
		oxycodone	1	1					oxycodone	1.3 mg/L In Blood (unspecified) @ Autopsy
		diphenhydramine	2	2					diphenhydramine	0.8 mg/L In Blood (unspecified) @ Autopsy
420ai	21 y M				U	Unk	Int-A	1		

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		fentanyl	1	1						
421ai	21 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		diazepam	2	2						
422ai	21 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		cocaine	2	2						
423ai	21 y F				U	Unk	Int-A	1		
		heroin	1	1						
		methamphetamine	2	2						
424ai	21 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		ethanol	2	2						
		marijuana	3	3						
425ai	21 y M				A	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
426ai	21 y F				U	Unk	Int-A	2		
		methadone	1	1						
		methamphetamine	2	2						
427ai	21 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
428ai	21 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		ethanol	2	2						
429pha	22 y F				U	Par+ Unk	Unk	1		
		heroin	1	1					morphine	0.037 mg/L In Serum @ Unknown
		synthetic opiate, N.O.S.	2	1						
430pa	22 y M				A	Unk	Int-A	1		
		fentanyl	1	1					fentanyl	0.008 mg/L In Blood (unspecified) @ Autopsy
431ai	22 y M				A	Unk	Unt-G	2		
		heroin	1	1						
432pa	22 y F				A/C	Ingst	Int-S	2		
		oxycodone	1	1					oxycodone (total)	18 ng/mL In Blood (unspecified) @ Autopsy
		propranolol	2	1						
		paroxetine	3	2						
		nitrofurantoin	4	3						
433ai	22 y F				U	Unk	Int-A	2		
		heroin	1	1						
434ai	22 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
435ai	22 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		alprazolam	2	2						
		marijuana	3	3						
436ha	23 y F				A	Ingst	Int-S	1		
		salicylate (EC)	1	1					salicylate	550 mcg/mL In Blood (unspecified) @ Unknown
		salicylate (EC)	1	1					salicylate	85 mg/dL In Blood (unspecified) @ Unknown
		diphenhydramine	2	2					diphenhydramine	5800 ng/mL In Blood (unspecified) @ Unknown
437ai	23 y M				U	Par	Int-A	2		
		heroin	1	1						
438h	23 y M				A	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen (apap)	23.9 mcg/mL In Blood (unspecified) @ 1 h (pe)
439h	23 y F				C	Ingst	Int-S	2		
		acetaminophen	1	1						
440pha	23 y F				U	Inhal+ Unk	Int-A	1		
		fentanyl	1	1					norfentanyl	0.21 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl	1	1					fentanyl	0.98 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl analog (despropionyl fentanyl)	2	2					acetyl fentanyl	0.36 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl analog (despropionyl fentanyl)	2	2					carfentanil	0.51 ng/mL In Blood (unspecified) @ Autopsy
		cocaine	3	3					benzoylecognine	358 ng/mL In Blood (unspecified) @ Autopsy
		methamphetamine	4	4					methamphetamine	150 ng/mL In Blood (unspecified) @ Autopsy
		methamphetamine	4	4					amphetamine	49 ng/mL In Blood (unspecified) @ Autopsy
		gabapentin	5	5					gabapentin	27 mg/L In Blood (unspecified) @ Autopsy
441ai	23 y M				U	Unk	Unk	2		
		narcotic, N.O.S.	1	1						
		drug, N.O.S.	2	2						
442pai	23 y M				A/C	Unk	Int-A	1		
		fentanyl	1	1						
		fentanyl analog (valerylfentanyl)	2	2						
		ethanol	3	3						
443ph	23 y F				A	Unk	Unk	1		
		fentanyl	1	1						
444ai	23 y M				U	Unk	Int-M	2		
		narcotic, N.O.S.	1	1						
445ai	23 y F				U	Unk	Int-A	1		

(continued)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		fentanyl	1	1						
446ai	23 y M				U	Ingst+ Unk	Int-A	1		
		fentanyl	1	1						
		alprazolam	2	2						
		ethanol	3	3						
447ph	24 y F				A	Par	Int-A	2		
		heroin	1	1						
		alprazolam	2	2						
448h	24 y F				A	Ingst+ Unk	Int-A	2		
		acetaminophen	1	1						
		fentanyl	2	2						
		cocaine	3	3						
449pa	24 y F				A	Unk	Int-A	1		
		fentanyl	1	1					fentanyl	0.08 mg/L In Blood (unspecified) @ Autopsy
450a	24 y F				A	Ingst	Int-S	2		
		salicylate	1	1					salicylate	90 mg/dL In Blood (unspecified) @ Unknown
451ai	24 y F				U	Inhal	Unk	2		
		heroin	1	1						
452pa	24 y M				A	Ingst+ Unk	Unk	2		
		fentanyl	1	1						
453h	24 y M				A/C	Ingst	Int-U	1		
		acetaminophen	1	1						
		ibuprofen	2	2						
454pha	24 y M				U	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
		amphetamine	2	2						
455h	24 y F				A	Ingst	Int-S	2		
		salicylate	1	1					salicylate	97.5 mg/dL In Serum @ Unknown
		ethanol	2	2						
456ai	24 y F				A	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
		methadone	2	2						
457ai	24 y M				U	Ingst+ Unk	Int-A	1		
		fentanyl	1	1						
		methamphetamine	2	2						
		methadone	3	3						
		ethanol	4	4						
458ph	24 y M				U	Unk	Int-A	2		
		oxycodone	1	1						
		ethanol	2	2					ethanol	0.15 g/dL In Serum @ 5 m (pe)
		fentanyl	3	3						
459ai	24 y F				U	Unk	Int-A	1		
		fentanyl	1	1						
460pha	24 y M				A/C	Ingst	Int-S	1		
		fentanyl	1	1					fentanyl	9.2 ng/mL In Blood (unspecified) @ 10 m (pe)
		fentanyl	1	1					norfentanyl	9.5 ng/mL In Blood (unspecified) @ 10 m (pe)
		propranolol	2	1						
		trazodone	3	2					trazodone	0.22 mcg/mL In Blood (unspecified) @ 10 m (pe)
		escitalopram	4	3						
		acetaminophen	5	4						
		fluoxetine	6	5					norfluoxetine	48 ng/mL In Blood (unspecified) @ 10 m (pe)
		clonazepam	7	6					7-aminoclonazepam	11 ng/mL In Blood (unspecified) @ 10 m (pe)
		clonazepam	7	6					clonazepam	2.5 ng/mL In Blood (unspecified) @ 10 m (pe)
461hi	24 y F				C	Ingst	Int-M	1		
		acetaminophen	1	1					acetaminophen (apap)	66 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/dextromethorphan/guaifenesin/phenylephrine	2	2						
462ai	24 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		alprazolam	2	2						
463ai	24 y F				U	Unk	Int-A	1		
		heroin	1	1						
		methamphetamine	2	2						
464ai	24 y F				U	Unk	Int-A	1		
		fentanyl	1	1						
		cocaine	2	2						
465h	24 y M				A	Ingst	Int-S	1		
		acetaminophen/caffeine/salicylate	1	1						
466ai	24 y M				U	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
467pa	25 y F				U	Unk	Unk	1		
		morphine	1	1					morphine	259.6 ng/mL In Blood (unspecified) @ Unknown
		codeine	2	2					codeine	99.5 ng/mL In Blood (unspecified) @ Unknown
		hydrocodone	3	3					hydrocodone	12.2 ng/mL In Blood (unspecified) @ Unknown
		dihydrocodeine	4	4					dihydrocodeine	8.5 ng/mL In Blood (unspecified) @ Unknown

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		oxycodone	5	5					oxycodone	127.1 ng/mL In Blood (unspecified) @ Unknown
		alprazolam	6	6					alprazolam	10.2 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen	7	7					acetaminophen (apap)	10.8 mcg/mL In Blood (unspecified) @ Unknown
		lamotrigine	8	8					lamotrigine	2.5 mcg/mL In Blood (unspecified) @ Unknown
468pha	25 y M				U	Unk	Int-A	1		
		fentanyl	1	1					fentanyl	22 ng/mL In Blood (unspecified) @ Unknown
		fentanyl	1	1					norfentanyl	7.5 ng/mL In Blood (unspecified) @ Unknown
		Mitragyna speciosa korthals	2	2					mitragynine	72 ng/mL In Blood (unspecified) @ Unknown
469pha	25 y M				A	Ingst	Int-M	1		
		fentanyl	1	1					fentanyl	0.003 mg/L In Blood (unspecified) @ Autopsy
470ai	25 y M				U	Par	Int-A	2		
		narcotic, N.O.S.	1	1						
471ph	25 y F				A/C	Ingst	Int-A	3		
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	4.2 mcg/mL In Blood (unspecified) @ Unknown
472pha	25 y M				A	Par	Int-A	2		
		fentanyl analog (despropionyl fentanyl)	1	1					norfentanyl	1.4 ng/mL In Blood (unspecified) @ Unknown
		fentanyl analog (despropionyl fentanyl)	1	1					fentanyl	3.4 ng/mL In Blood (unspecified) @ Unknown
473ai	25 y F				A	Par	Int-A	2		
		heroin	1	1						
		cocaine	2	2						
474ai	25 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
475ai	25 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		methamphetamine	2	2						
476ai	25 y M				U	Unk	Int-A	2		
		heroin	1	1						
477ai	25 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
478ai	25 y F				U	Unk	Int-A	1		
		heroin	1	1						
479pha	26 y M				U	Unk	Int-A	1		
		heroin	1	1						
		cocaine	2	2					benzoylecognine	1900 ng/mL In Blood (unspecified) @ Autopsy
		cocaine	2	2					cocaine	55 ng/mL In Blood (unspecified) @ Autopsy
		methamphetamine	3	3					methamphetamine	180 ng/mL In Blood (unspecified) @ Autopsy
480pa	26 y F				A	Unk	Int-A	1		
		fentanyl	1	1					acetyl fentanyl	0.006 mg/L In Blood (unspecified) @ Autopsy
		fentanyl	1	1					fentanyl	0.058 mg/L In Blood (unspecified) @ Autopsy
481pa	26 y M				A	Par	Int-A	1		
		fentanyl	1	1					acetyl fentanyl	0.017 mg/L In Blood (unspecified) @ Autopsy
		fentanyl	1	1					fentanyl	0.03 mg/L In Blood (unspecified) @ Autopsy
482ai	26 y M				U	Par	Int-A	2		
		heroin	1	1						
483ph	26 y M				A/C	Unk	Unk	2		
		heroin	1	1						
		substance (non-drug), N.O.S.	2	2						
484pha	26 y M				U	Unk	Int-A	1		
		fentanyl	1	1					norfentanyl	0.29 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl	1	1					fentanyl	6.9 ng/mL In Blood (unspecified) @ Autopsy
		phencyclidine	2	2					phencyclidine	36 ng/mL In Blood (unspecified) @ Autopsy
485p	26 y F				A	Par	Int-A	2		
		fentanyl	1	1						
486ai	26 y M				U	Unk	Int-A	1		
		heroin	1	1						
487pa	26 y F				A	Par	Int-A	1		
		fentanyl analog (acetylfentanyl)	1	1						
		fentanyl	2	2					fentanyl	12 ng/mL In Blood (unspecified) @ Autopsy
		amitriptyline	3	3						
488ai	26 y M				A	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
489ai	26 y M				U	Unk	Int-A	2		
		oxycodone	1	1						
490	27 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	18 mcg/mL In Blood (unspecified) @ 3 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	267 mcg/mL In Blood (unspecified) @ 14 h (pe)

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		acetaminophen	1	1					salicylate	3.4 mg/dL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	36 mcg/mL In Blood (unspecified) @ 2 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	447 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	65 mcg/mL In Blood (unspecified) @ 1 d (pe)
		diphenhydramine	2	2						
		ibuprofen	3	3						
491pa	27 y M				A	Par	Int-A	1		
		narcotic, N.O.S.	1	1					amphetamine	32 ng/mL In Blood (unspecified) @ Unknown
		narcotic, N.O.S.	1	1					methamphetamine	410 ng/mL In Blood (unspecified) @ Unknown
492ph	27 y F				U	Ingst	Unk	2		
		oxycodone	1	1						
		drug, N.O.S.	2	2						
493ai	27 y F				U	Unk	Int-A	2		
		heroin	1	1						
494ph	27 y M				C	Unk	Unt-M	1		
		heroin	1	1						
495pha	27 y F				U	Unk	Int-A	1		
		fentanyl	1	1					norfentanyl	1.4 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl	1	1					fentanyl	10 ng/mL In Blood (unspecified) @ Autopsy
		heroin	2	2					6-mam (6-monoacetylmorphine)	14 ng/mL In Blood (unspecified) @ Autopsy
		cocaine	3	3					benzoylecognine	320 ng/mL In Blood (unspecified) @ Autopsy
496h	27 y F				A	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen (apap)	400 mcg/mL In Blood (unspecified) @ Unknown
		marijuana	2	2						
		heroin	3	3						
497ai	27 y M				U	Ingst+ Unk	Int-A	1		
		fentanyl	1	1						
		oxycodone	2	2						
		ethanol	3	3						
498ai	27 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
499ph	27 y F				A	Ingst	Int-A	2		
		fentanyl analog (carfentanil)	1	1						
500ai	28 y M				U	Par	Int-A	2		
		heroin	1	1						
501pa	28 y M				A	Unk	Int-S	1		
		fentanyl	1	1					fentanyl	0.01 mg/L In Blood (unspecified) @ Autopsy
502h	28 y M				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	76.4 mcg/mL In Blood (unspecified) @ 64 h (pe)
503	28 y F				A	Ingst	Unk	2		
		acetaminophen	1	1					acetaminophen (apap)	105 mcg/mL In Serum @ Unknown
504pa	28 y M				A	Unk	Int-A	2		
		heroin	1	1						
505ai	28 y M				U	Unk	Int-A	2		
		heroin	1	1						
506ai	28 y F				A/C	Inhal	Int-A	2		
		narcotic, N.O.S.	1	1						
507ai	28 y M				A	Par	Int-A	2		
		heroin	1	1						
508ai	28 y M				A/C	Inhal	Int-A	2		
		heroin	1	1						
509pha	28 y F				U	Par	Int-A	1		
		fentanyl	1	1					fentanyl	17 ng/mL In Blood (unspecified) @ Autopsy
		clonazepam	2	2					7-aminoclonazepam	23 ng/mL In Blood (unspecified) @ Autopsy
		clonazepam	2	2					clonazepam	4.8 ng/mL In Blood (unspecified) @ Autopsy
510ai	28 y M				U	Ingst+ Unk	Int-A	1		
		heroin	1	1						
		ethanol	2	2						
511ai	28 y M				U	Unk	Int-A	1		
		hydromorphone	1	1						
		ketamine	2	2						
		diazepam	3	3						
512ai	28 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		methamphetamine	2	2						
513pha	28 y F				A	Par	Int-A	1		
		fentanyl	1	1					fentanyl	3.9 ng/mL In Blood (unspecified) @ Autopsy
		methadone	2	2					methadone	50 ng/mL In Blood (unspecified) @ Autopsy
514ai	28 y M				U	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
515ai	28 y F				U	Unk	Int-A	1		
		fentanyl	1	1						

(continued)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		marijuana	2	2						
516ai	28 y M				U	Unk	Int-A	1		
		methadone	1	1						
		olanzapine	2	2						
		fluoxetine	3	3						
517ai	28 y M				U	Unk	Int-A	1		
		heroin	1	1						
		ethanol	2	2						
518pha	29 y F				A/C	Ingst+ Unk	Int-S	1		
		oxycodone	1	1						
		barbiturate (short acting)	2	2						
		benzodiazepine	3	3						
		nortriptyline	4	4					nortriptyline	0.3 mg/L In Blood (unspecified) @ Autopsy
		bupropion (ER)	5	5						
		trazodone	6	6						
		duloxetine (ER)	7	7						
		gabapentin	8	8						
		escitaopram	9	9						
		cyclobenzaprine	10	10						
		acetaminophen/hydrocodone	11	11						
		meperidine	12	12					normeperidine	0.1 mg/L In Blood (unspecified) @ Autopsy
		levetiracetam	13	13					levetiracetam	15 mg/L In Blood (unspecified) @ Autopsy
		citalopram	14	14					citalopram	0.2 mg/L In Blood (unspecified) @ Autopsy
		morphine	15	15						
519p	29 y M				A	Ingst	Int-U	2		
		narcotic, N.O.S.	1	1						
520	29 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	120 mcg/mL In Serum @ Unknown
521ai	29 y M				A/C	Par	Int-S	2		
		heroin	1	1						
522ai	29 y M				A/C	Par	Int-A	2		
		heroin	1	1						
523ha	29 y M				A	Unk	Int-A	1		
		methadone	1	1					methadone	1.2 mg/L In Blood (unspecified) @ Autopsy
524ai	29 y F				U	Par	Int-A	2		
		heroin	1	1						
525ha	29 y M				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	47.1 mg/L In Blood (unspecified) @ Unknown
526pha	29 y M				A	Ingst	Int-U	1		
		oxycodone	1	1					oxycodone	606 ng/mL In Blood (unspecified) @ Autopsy
		alprazolam	2	2						
		flualprazolam	3	3						
		plant, mitragyna	4	4						
		yohimbine	5	5						
		buprenorphine	6	6					norbuprenorphine	15 ng/mL In Blood (unspecified) @ Autopsy
527ai	29 y F				A	Ingst	Int-A	2		
		narcotic, N.O.S.	1	1						
528ai	29 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
529pa	29 y F				A	Par	Int-A	1		
		fentanyl analog (acetylfentanyl)	1	1					acetyl fentanyl	0.24 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl analog (acetylfentanyl)	1	1					fentanyl	29 ng/mL In Blood (unspecified) @ Autopsy
		ethanol	2	2						
530ai	29 y F				U	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
531ai	29 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		methadone	2	2						
		Mitragyna speciosa korthals	3	3						
532ai	29 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		diphenhydramine	2	2						
533ai	29 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		alprazolam	2	2						
		bupropion	3	3						
534ai	29 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		diphenhydramine	2	2						
		ethanol	3	3						
535ai	29 y M				U	Unk	Int-A	1		
		heroin	1	1						
		methamphetamine	2	2						
		codeine	3	3						
536ai	29 y M				A/C	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
537ai	29 y M				U	Par	Int-A	2		
		heroin	1	1						
538ph	30 y M				A/C	Ingst+ Unk	Int-A	2		
		synthetic opiate, N.O.S.	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
539h	30 y M				A/C	Ingst	Int-S	2		
		acetaminophen/oxycodone	1	1						
		diazepam	2	2						
		hydroxyzine	3	3						
540h	30 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	257 mcg/mL In Blood (unspecified) @ 14 h (pe)
541p	30 y M				A	Ingst+ Unk	Int-S	1		
		heroin	1	1						
542ph	30 y F				A	Par	Int-A	1		
		fentanyl	1	1						
543pa	30 y M				A	Unk	Int-A	1		
		fentanyl	1	1					fentanyl	0.028 mg/L In Blood (unspecified) @ Autopsy
		tramadol	2	2					tramadol	0.1 mg/L In Blood (unspecified) @ Autopsy
		oxycodone	3	3					oxycodone	0.5 mg/L In Blood (unspecified) @ Autopsy
		alprazolam	4	4					alprazolam	0.5 mg/L In Blood (unspecified) @ Autopsy
		methadone	5	5					methadone	0.07 mg/L In Blood (unspecified) @ Autopsy
		amphetamine	6	6					amphetamine	0.2 mg/L In Blood (unspecified) @ Autopsy
544ai	30 y M				A	Oth	Int-A	1		
		fentanyl	1	1						
		cocaine	2	2						
545ha	30 y M				A	Ingst	Int-S	1		
		acetaminophen/caffeine/salicylate	1	1					salicylate	29.3 mg/dL In Blood (unspecified) @ 10 m (pe)
		acetaminophen/caffeine/salicylate	1	1					acetaminophen (apap)	549 mcg/mL In Blood (unspecified) @ 10 m (pe)
		drug, N.O.S.	2	2						
546h	30 y M				U	Ingst	Int-S	2		
		methadone	1	1						
		trazodone	2	2						
		drug, N.O.S.	3	3						
		ethanol	4	4					ethanol	190 mg/dL In Blood (unspecified) @ Unknown
547ai	30 y M				A	Inhal	Int-A	2		
		heroin	1	1						
548ph	30 y M				A	Par	Int-A	1		
		heroin	1	1						
		fentanyl	2	2						
549ai	30 y M				U	Inhal	Int-A	2		
		fentanyl	1	1						
550ai	30 y M				U	Unk	Int-A	1		
		heroin	1	1						
		codeine	2	2						
		ethanol	3	3						
551ai	30 y F				U	Unk	Int-A	1		
		heroin	1	1						
		methamphetamine	2	2						
552ai	30 y M				A/C	Par	Int-A	2		
		heroin	1	1						
553ai	30 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		Mitragyna speciosa korthals	2	2						
554ai	30 y F				U	Unk	Int-A	1		
		morphine	1	1						
		hydromorphone	2	2						
		lamotrigine	3	3						
555h	31 y F				U	Ingst	Int-U	1		
		acetaminophen/diphenhydramine	1	1					acetaminophen (apap)	24 mcg/mL In Blood (unspecified) @ Unknown
556pa	31 y F				A	Ingst+ Unk	Unk	2		
		fentanyl	1	1					norfentanyl	0.36 ng/mL In Whole Blood @ Autopsy
		fentanyl	1	1					fentanyl	9.5 ng/mL In Whole Blood @ Autopsy
		fentanyl analog (acetyl fentanyl)	2	2					acetyl fentanyl	2.9 ng/mL In Blood (unspecified) @ Autopsy
		cocaine	3	3					cocaine	32 ng/mL In Whole Blood @ Autopsy
		cocaine	3	3					benzoylecognine	490 ng/mL In Whole Blood @ Autopsy
		amitriptyline	4	4					nortriptyline	240 ng/mL In Whole Blood @ Autopsy
		amitriptyline	4	4					amitriptyline	350 ng/mL In Whole Blood @ Autopsy
557ph	31 y F				A	Ingst	Int-S	2		
		oxycodone	1	1					acetaminophen (apap)	80 mcg/mL In Blood (unspecified) @ Unknown
		muscle relaxant, N.O.S.	2	2						
558pha	31 y M				A	Par+ Unk	Int-A	1		
		fentanyl	1	1						
		methamphetamine	2	2						
559ai	31 y M				U	Par	Int-A	2		
		heroin	1	1						
		fentanyl	2	2						
560ha	31 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1						

(continued)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
561ai	31 y M				U	Par	Int-A	2		
		heroin	1	1						
562ai	31 y F				A	Par	Int-A	2		
		heroin	1	1						
563ai	31 y M				A/C	Inhal	Int-A	2		
		heroin	1	1						
564ai	31 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
565ai	31 y M				U	Ingst+ Unk	Int-A	1		
		heroin	1	1						
		Mitragyna speciosa korthals	2	2						
		ethanol	3	3						
566pa	31 y M				A	Par	Int-A	1		
		fentanyl	1	1					fentanyl	15 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl	1	1					norfentanyl	2.8 ng/mL In Blood (unspecified) @ Autopsy
		oxycodone	2	2						
567hi	31 y F				A/C	Ingst	Unt-T	3		
		acetaminophen	1	1						
		carbamazepine	2	2						
		levetiracetam	3	3						
		barbiturate (long acting)	4	4						
568ai	31 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
569ai	31 y M				U	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
570ai	31 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		methamphetamine	2	2						
571pha	31 y M				A	Unk	Int-A	1		
		fentanyl	1	1						
572	32 y F				A	Ingst	Int-S	1		
		salicylate	1	1						
573pa	32 y M				A	Ingst	Int-A	1		
		fentanyl	1	1					fentanyl	2.6 mcg/L In Blood (unspecified) @ Autopsy
		fentanyl analog (acetyl fentanyl)	2	2					acetyl fentanyl	2.2 mcg/L In Blood (unspecified) @ Autopsy
		ethanol	3	3					ethanol	0.154 % In Blood (unspecified) @ Autopsy
		benzodiazepine	4	4					alprazolam	0.028 mg/L In Blood (unspecified) @ Autopsy
574ha	32 y F				U	Ingst	Int-S	2		
		acetaminophen/oxycodone	1	1						
		ethanol	2	2						
		salicylate	3	3						
575ai	32 y M				U	Par	Int-A	2		
		heroin	1	1						
576ai	32 y F				U	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
577h	32 y F				A/C	Ingst	Unt-M	1		
		acetaminophen	1	1						
578pa	32 y M				A	Inhal	Int-A	1		
		fentanyl	1	1					acetyl fentanyl	0.55 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl	1	1					norfentanyl	0.58 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl	1	1					fentanyl	6.3 ng/mL In Blood (unspecified) @ Autopsy
		heroin	2	1					morphine (free)	11 ng/mL In Blood (unspecified) @ Autopsy
		heroin	2	1					morphine (free)	11 ng/mL In Plasma @ 1 m (pe)
579ai	32 y M				A	Ingst	Int-A	1		
		acetaminophen/oxycodone	1	1						
		benzodiazepine	2	2						
580ai	32 y M				U	Par	Int-A	2		
		heroin	1	1						
581ha	32 y F				C	Ingst	Int-M	2		
		acetaminophen	1	1					acetaminophen (apap)	1.6 mcg/mL In Blood (unspecified) @ Autopsy
		acetaminophen	1	1					acetaminophen (apap)	36 mcg/mL In Blood (unspecified) @ Unknown
582p	32 y M				A	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen (apap)	106 mcg/mL In Serum @ Unknown
		narcotic, N.O.S.	2	2						
583ai	32 y M				A	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
584pa	32 y M				A	Unk	Int-A	1		
		heroin	1	1					morphine (free)	200 mcg/L In Blood (unspecified) @ Autopsy
		fentanyl	2	2					fentanyl	0.012 mg/L In Blood (unspecified) @ Autopsy
		cocaine	3	3					cocaine	1.3 mg/L In Blood (unspecified) @ Autopsy
585pha	32 y M				A	Unk	Int-A	1		
		fentanyl	1	1					fentanyl	0.001 mg/L In Blood (unspecified) @ Autopsy
586ai	32 y M				A	Unk	Int-S	2		
		narcotic, N.O.S.	1	1						

(continued)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
587ai	32 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		methadone	2	2						
588ph	32 y F				A	Unk	Unk	2		
		cocaine	2	1						
		narcotic, N.O.S.	1	1						
589ai	32 y F				U	Unk	Unk	2		
		narcotic, N.O.S.	1	1						
590ai	32 y F				U	Inhal	Int-A	2		
		fentanyl	1	1						
591ai	33 y M				C	Par	Int-A	2		
		heroin	1	1						
592ha	33 y M				A	Unk	Unk	1		
		fentanyl	1	1					fentanyl	0.002 mg/L In Blood (unspecified) @ Unknown
		hypochlorite	2	2						
593pa	33 y M				A	Unk	Int-A	1		
		fentanyl	1	1					norfentanyl	1 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl	1	1					fentanyl	3.1 ng/mL In Blood (unspecified) @ Autopsy
		cocaine	2	2					benzoylecognine	2200 ng/mL In Blood (unspecified) @ Autopsy
		marijuana	3	3					thc (tetrahydrocannabinol)	31 ng/mL In Blood (unspecified) @ Autopsy
594pa	33 y F-Pregnant				C	Unk	Int-A	1		
		fentanyl analog (despropionyl fentanyl)	1	1						
		tramadol	2	2						
		alprazolam	3	3					alprazolam	20 ng/mL In Whole Blood @ 17 h (pe)
595ai	33 y F				A	Par	Int-A	2		
		heroin	1	1						
596ai	33 y F				A/C	Par	Int-A	2		
		fentanyl	1	1						
597ai	33 y M				A/C	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
598ai	33 y M				U	Inhal	Int-A	2		
		heroin	1	1						
599ai	33 y M				U	Inhal	Int-A	2		
		heroin	1	1						
600ai	33 y F				A/C	Unk	Int-A	1		
		fentanyl analog (carfentanil)	1	1						
		tramadol	2	2						
		amphetamine	3	3						
601pai	33 y M				A/C	Unk	Int-A	1		
		fentanyl	1	1						
		ethanol	2	2						
602h	33 y M				A	Ingst	Int-S	2		
		salicylate	1	1						
603h	33 y F				U	Ingst	Unk	1		
		acetaminophen	1	1					acetaminophen (apap)	16 mcg/mL In Serum @ 1 d (pe)
		doxylamine	2	1						
604ai	33 y M				U	Unk	Int-A	1		
		heroin	1	1						
		codeine	2	2						
605ph	33 y M				U	Ingst+ Unk	Unk	2		
		narcotic, N.O.S.	1	1						
		cough and cold preparation, N.O.S.	2	2						
606ai	33 y F				U	Unk	Int-A	2		
		heroin	1	1						
607ai	33 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		ethanol	2	2						
608pha	33 y M				A	Par+ Unk	Int-A	1		
		fentanyl	1	1					fentanyl	3.8 ng/mL In Blood (unspecified) @ Autopsy
		cocaine	2	2					benzoylecognine	250 ng/mL In Blood (unspecified) @ Autopsy
		phencyclidine	3	3					phencyclidine	30 ng/mL In Blood (unspecified) @ Autopsy
		tramadol	4	4					tramadol	40 ng/mL In Blood (unspecified) @ Autopsy
609h	34 y M				A/C	Ingst	Int-M	1		
		acetaminophen	1	1					acetaminophen (apap)	13.3 mcg/mL In Blood (unspecified) @ Unknown
		marijuana/phencyclidine	2	2						
610ai	34 y M				A/C	Par	Int-M	2		
		narcotic, N.O.S.	1	1						
611ai	34 y M				A	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
612h	34 y F				A	Ingst	Int-S	3		
		acetaminophen	1	1						
613ai	34 y M				A/C	Unk	Int-A	2		
		heroin	1	1						
614p	34 y M				U	Unk	Int-A	2		
		heroin	1	1						
615ai	34 y M				U	Par	Int-A	2		
		narcotic, N.O.S.	1	1						

(continued)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
616ai	34 y M				U	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
617ph	34 y F				A	Ingst	Int-A	2		
		fentanyl	1	1						
		acetaminophen/oxycodone	2	2						
		marijuana	3	3						
		ethanol	4	4						
618ai	34 y M				U	Unk	Int-A	2		
		heroin	1	1						
619ai	34 y F				A/C	Ingst	Int-A	2		
		methadone	1	1						
620ai	34 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
621ai	34 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		heroin	2	2						
		methamphetamine	3	3						
		gabapentin	4	4						
		clonazepam	5	5						
622ai	34 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		methamphetamine	2	2						
		ethanol	3	3						
623ai	34 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
624ph	34 y M				A	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
		cocaine	2	2						
		ethanol	3	3						
625	35 y F				A	Ingst	Int-S	1		
		acetaminophen (ER)	1	1					acetaminophen (apap)	89 mcg/mL In Serum @ Unknown
626ph	35 y F				A/C	Ingst	Int-S	2		
		morphine	1	1						
		valproic acid (ER)	2	2					valproic acid	62.3 mg/mL In Blood (unspecified) @ 30 m (pe)
		benzodiazepine	3	3						
627ai	35 y M				A/C	Inhal	Int-A	2		
		heroin	1	1						
628ph	35 y M				U	Unk	Int-U	2		
		fentanyl	1	1						
		heroin	2	2						
629ai	35 y F				U	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
630ai	35 y M				U	Unk	Int-A	2		
		heroin	1	1						
631ai	35 y M				U	Unk	Int-A	2		
		heroin	1	1						
632ai	35 y M				U	Inhal	Int-A	2		
		fentanyl	1	1						
633ai	35 y M				U	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
634ai	35 y M				U	Par	Int-A	2		
		narcotic, N.O.S.	1	1						
635pha	35 y F				A	Par	Int-A	1		
		fentanyl	1	1					fentanyl	12 ng/mL In Blood (unspecified) @ 5 m (pe)
		cocaine	2	2					benzoylecognine	1 mg/L In Blood (unspecified) @ 2 m (pe)
636ph	35 y M				U	Ingst	Int-S	2		
		acetaminophen/oxycodone	1	1						
		hydrocodone	2	2						
		trazodone	3	3						
		ethanol	4	4						
		duloxetine (ER)	5	5						
		propranolol	6	6						
637ai	35 y F				A	Unk	Unk	2		
		narcotic, N.O.S.	1	1						
638ai	35 y F				U	Unk	Int-A	1		
		heroin	1	1						
		oxycodone	2	2						
		cocaine	3	3						
		pseudoephedrine	4	4						
639	35 y F				A/C	Ingst	Int-S	2		
		hydromorphone	1	1						
		oxycodone	2	2						
		benzodiazepine	3	3						
640ai	35 y M				A	Par	Unt-G	2		
		heroin	1	1						
641ai	35 y M				A/C	Unk	Int-A	2		
		heroin	1	1						
		drug, N.O.S.	2	2						
642ai	35 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		methamphetamine	2	2						
643ai	35 y M				U	Unk	Int-A	2		
		fentanyl	1	1						
		methamphetamine	2	2						
		ethanol	3	3						
644ai	35 y M				U	Unk	Int-A	1		
		heroin	1	1						

(continued)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		methamphetamine	2	2						
645ai	35 y M				A/C	Par	Int-M	2		
		heroin	1	1						
646ai	35 y F				U	Unk	Int-A	1		
		fentanyl	1	1						
		ethanol	2	2						
647h	35 y F				U	Ingst+ Par	Unk	2		
		heroin	1	1						
		ethanol	2	2					ethanol	173 mg/dL In Serum @ Unknown
648pha	36 y F				U	Par	Int-A	1		
		fentanyl analog (despropionyl fentanyl)	1	1					fentanyl	3.9 ng/mL In Blood (unspecified) @ 5 m (pe)
		methamphetamine	2	2					methamphetamine	0.056 mg/L In Blood (unspecified) @ 5 m (pe)
649pha	36 y M				A	Par	Int-A	1		
		fentanyl	1	1					fentanyl	0.003 mg/L In Blood (unspecified) @ Autopsy
		fentanyl	1	1					fentanyl	0.007 mg/L In Blood (unspecified) @ Autopsy
650ai	36 y F				A/C	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
651h	36 y F				C	Ingst	Unt-M	2		
		acetaminophen/diphenhydramine	1	1					acetaminophen (apap)	78 mcg/mL In Blood (unspecified) @ Unknown
		ethanol	2	2						
652ai	36 y F				U	Inhal	Int-U	2		
		heroin	1	1						
653ai	36 y M				U	Unk	Int-A	2		
		heroin	1	1						
654pa	36 y M				A	Ingst	Int-A	1		
		oxycodone	1	1					oxycodone (free)	6.6 ng/mL In Plasma @ Autopsy
		cocaine	3	2					benzoylecognine	750 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl	2	2					fentanyl	3.9 ng/mL In Blood (unspecified) @ Autopsy
		ethanol	4	3						
		methylenedioxymethamphetamine (MDMA)	5	4					mdma (3,4-methylenedioxymethamphetamine)	1200 ng/mL In Blood (unspecified) @ Autopsy
655ha	36 y F				A	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen (apap)	120 mcg/mL In Blood (unspecified) @ Autopsy
		acetaminophen	1	1					acetaminophen (apap)	122 mcg/mL In Serum @ Unknown
		drug, N.O.S.	2	2						
656ai	36 y F				U	Unk	Unk	2		
		heroin	1	1						
657h	36 y F				U	Ingst+ Par	Int-A	3		
		fentanyl	1	1						
		ethanol	2	2					ethanol	108 mg/dL In Whole Blood @ Unknown
658pi	36 y M				U	Ingst+ Inhal+ Par+ Unk	Int-A	2		
		heroin	1	1						
		fentanyl	2	2						
		marijuana	3	3						
		methylenedioxymethamphetamine (MDMA)	4	4						
659ai	36 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		cocaine	2	2						
660pha	36 y F				U	Unk	Int-A	1		
		fentanyl	1	1					norfentanyl	0.84 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl	1	1					fentanyl	6.7 ng/mL In Blood (unspecified) @ Autopsy
		cocaine	2	2					benzoylecognine	1100 ng/mL In Blood (unspecified) @ Autopsy
661ai	36 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
662p	36 y F				A/C	Ingst	Int-S	2		
		oxycodone	1	1						
663ai	37 y F				U	Inhal+ Par	Int-A	2		
		heroin	1	1						
664h	37 y M				U	Ingst	Int-S	1		
		acetaminophen/diphenhydramine	1	1						
665pha	37 y M				U	Ingst+ Unk	Unt-U	1		
		methadone	1	1					methadone	1300 ng/mL In Blood (unspecified) @ 8 h (pe)
		methadone	1	1					eddp (2-ethylidene-1,5-dimethyl-3,3-diphenylpyrrolidine)	33 ng/mL In Blood (unspecified) @ 8 h (pe)
		ethanol	2	2					ethanol	20 mg/dL In Blood (unspecified) @ 8 h (pe)
666ai	37 y M				C	Par	Int-A	2		
		heroin	1	1						
667ai	37 y F				U	Unk	Int-U	2		
		narcotic, N.O.S.	1	1						
668p	37 y M				A	Unk	Int-A	2		
		heroin	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
669ai	37 y M				U	Unk	Int-A	2		
		heroin	1	1						
670h	37 y F				A/C	Ingst	Int-S	1		
		acetaminophen	1	1						
		clonazepam	2	2						
		citalopram	3	3						
		aripiprazole	4	4						
		ethanol	5	5						
671	37 y M				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	159 mcg/mL In Serum @ Unknown
672ha	37 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	170 mcg/mL In Blood (unspecified) @ Autopsy
673p	37 y M				A/C	Ingst	Int-S	2		
		acetaminophen/hydrocodone	1	1						
674ai	37 y M				U	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
675ai	37 y F				U	Inhal	Int-A	2		
		oxycodone	1	1						
676ai	37 y M				U	Par	Int-A	2		
		narcotic, N.O.S.	1	1						
677ai	37 y M				A/C	Inhal	Int-A	2		
		heroin	1	1						
678pai	37 y M				A/C	Unk	Int-A	1		
		fentanyl	1	1						
		fentanyl analog (carfentanil)	2	2						
679pai	37 y M				A/C	Unk	Int-A	1		
		fentanyl	1	1						
		cocaine	2	2						
680ha	37 y M				A/C	Ingst	Int-M	1		
		acetaminophen/diphenhydramine	1	1					diphenhydramine	1.133 mg/L In Serum @ Unknown
		acetaminophen/diphenhydramine	1	1					acetaminophen (apap)	79.1 mg/L In Serum @ Unknown
681ai	37 y F				U	Unk	Int-A	1		
		heroin	1	1						
		methamphetamine	2	2						
		diphenhydramine	3	3						
682ai	37 y M				A/C	Par	Int-A	2		
		heroin	1	1						
683ai	37 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		ethanol	2	2						
684ai	37 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		alprazolam	2	2						
		trazodone	3	3						
685ai	37 y F				U	Ingst+ Par	Int-U	2		
		narcotic, N.O.S.	1	1						
		ethanol	2	2						
686pa	37 y M				A	Unk	Int-A	1		
		methadone	1	1					methadone	0.4 mg/L In Blood (unspecified) @ Autopsy
		ethanol	2	2					ethanol	0.19 mg/dL In Vitreous @ Autopsy
687pha	38 y F				A	Ingst	Int-S	1		
		fentanyl	1	1					acetyl fentanyl	0.008 mg/L In Blood (unspecified) @ Autopsy
		fentanyl	1	1					fentanyl	0.009 mg/L In Blood (unspecified) @ Autopsy
		dextromethorphan	2	2						
688h	38 y F				A	Ingst	Unt-T	2		
		acetaminophen	1	1					acetaminophen (apap)	31.3 mcg/mL In Blood (unspecified) @ 19 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	525 mcg/mL In Blood (unspecified) @ 30 m (pe)
		acetaminophen	1	1					acetaminophen (apap)	78.7 mcg/mL In Blood (unspecified) @ 26 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	98.3 mcg/mL In Blood (unspecified) @ 37 h (pe)
		diphenhydramine	2	2						
		citalopram	3	3						
		ethanol	4	4					ethanol	229 mg/dL In Blood (unspecified) @ 30 m (pe)
		alprazolam	5	5						
689ai	38 y M				U	Unk	Int-A	2		
		heroin	1	1						
690ai	38 y M				A	Unk	Int-A	2		
		fentanyl	1	1						
691ai	38 y M				U	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
692hi	38 y M				U	Ingst	Unk	1		
		acetaminophen	1	1						
693ai	38 y F				U	Ingst	Int-A	2		
		oxycodone	1	1						
694ai	38 y F				A	Par	Int-A	2		
		narcotic, N.O.S.	1	1						
695h	38 y F				A	Ingst	Int-S	1		
		salicylate	1	1					salicylate	103.3 mg/dL In Serum @ Unknown
		trazodone	2	2						
696ai	38 y F				U	Unk	Int-A	1		

(continued)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		fentanyl	1	1						
		methamphetamine	2	2						
697ai	38 y F				U	Unk	Int-A	1		
		fentanyl	1	1						
		cocaine	2	2						
		amitriptyline	3	3						
698p	38 y F				A	Ingst	Int-U	2		
		oxycodone (ER)	1	1						
699h	38 y M				U	Ingst	Unk	3		
		salicylate	1	1					salicylate	42 mg/dL In Blood (unspecified) @ Unknown
700h	39 y F				A	Ingst	Int-U	1		
		acetaminophen	1	1					acetaminophen (apap)	119 mcg/mL In Serum @ 0.25 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	24 mcg/mL In Serum @ 1 d (pe)
		acetaminophen/hydrocodone	2	2						
		methadone	3	2						
		alprazolam	4	4						
701h	39 y M				A	Ingst	Int-A	3		
		acetaminophen	1	1					acetaminophen (apap)	85 mcg/mL In Blood (unspecified) @ Unknown
702pha	39 y M				U	Unk	Unk	2		
		methadone	1	1					methadone	380 ng/mL In Blood (unspecified) @ Unknown
		methadone	1	1					eddp (2-ethylidene-1,5-dimethyl-3,3-diphenyl pyrrolidine)	67 ng/mL In Blood (unspecified) @ Unknown
		diphenhydramine	2	2					diphenhydramine	120 ng/mL In Blood (unspecified) @ Unknown
		diazepam	3	3					diazepam	170 ng/mL In Blood (unspecified) @ Unknown
		diazepam	3	3					nordiazepam	82 ng/mL In Blood (unspecified) @ Unknown
703ai	39 y M				U	Par	Int-A	2		
		heroin	1	1						
704ai	39 y M				U	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
705ai	39 y M				U	Unk	Int-A	1		
		heroin	1	1						
		methamphetamine	2	2						
706ai	39 y M				U	Par	Int-A	2		
		narcotic, N.O.S.	1	1						
707h	39 y F				C	Ingst	Unt-T	3		
		acetaminophen	1	1						
		metformin	2	2						
708h	39 y F				A/C	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen (apap)	762 mcg/mL In Blood (unspecified) @ 5 m (pe)
		ibuprofen	2	2					ibuprofen	4.3 mcg/mL In Blood (unspecified) @ 36 h (pe)
		citalopram	3	3						
		gabapentin	4	4						
		hydroxyzine	5	5						
709ai	39 y M				A	Par	Int-A	2		
		heroin	1	1						
710h	40 y F				A/C	Ingst	Int-S	3		
		acetaminophen/oxycodone	1	1						
		morphine (ER)	2	2						
711ha	40 y M				U	Ingst	Unk	1		
		salicylate	1	1					salicylate	1100 mcg/mL In Blood (unspecified) @ Unknown
		salicylate	1	1					salicylate	123 mg/dL In Blood (unspecified) @ Unknown
712h	40 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1						
713ai	40 y M				A/C	Par	Int-A	2		
		heroin	1	1						
714pha	40 y M				C	Par	Int-A	2		
		narcotic, N.O.S.	1	1						
715	40 y M				A/C	Ingst	Int-M	2		
		colchicine	1	1						
		ethanol	2	2						
716ai	40 y M				A/C	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
717pai	40 y M				A/C	Unk	Int-A	1		
		fentanyl	1	1					fentanyl	34 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl analog (acetyl fentanyl)	2	2						
		fentanyl analog (valerylfentanyl)	3	3						
		methamphetamine	4	4						
718ai	40 y M				A	Derm	Int-U	2		
		heroin	1	1						
		cocaine	2	2						
719	40 y M				A	Par	Int-A	3		
		fentanyl	1	1						
720ai	40 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		cocaine	2	2						
		alprazolam	3	3						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
721pha	40 y M				A	Unk	Unk	1		
		fentanyl	1	1					fentanyl	243 ng/mL In Blood (unspecified) @ Unknown
		venlafaxine	2	2					venlafaxine	716 ng/mL In Blood (unspecified) @ Unknown
		gabapentin	3	3					gabapentin	1650 ng/mL In Blood (unspecified) @ Unknown
		ethanol	4	4					ethanol	130 mg/dL In Blood (unspecified) @ Unknown
		diphenhydramine	5	5					diphenhydramine	58 ng/mL In Blood (unspecified) @ Unknown
722ai	40 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		ethanol	2	2						
723h	41 y M				A/C	Par	Int-U	1		
		heroin	1	1						
724pa	41 y M				A	Unk	Int-A	1		
		fentanyl	1	1					fentanyl	0.017 mg/L In Blood (unspecified) @ Autopsy
		cocaine	2	2					cocaine	0.1 mg/L In Blood (unspecified) @ Autopsy
725h	41 y M				A	Ingst	Int-S	2		
		salicylate	1	1						
726p	41 y M				A	Inhal	Int-S	2		
		heroin	1	1						
		alprazolam	2	2						
727pa	41 y F				A	Unk	Int-A	1		
		fentanyl	1	1					acetyl fentanyl	0.024 mg/L In Blood (unspecified) @ Autopsy
		fentanyl	1	1					fentanyl	0.028 mg/L In Blood (unspecified) @ Autopsy
		cocaine	2	2					cocaine	0.6 mg/L In Blood (unspecified) @ Autopsy
728pi	42 y M				A/C	Ingst+ Inhal+ Par	Int-A	2		
		morphine	1	1						
		hydromorphone	2	2						
		codeine	3	3						
		methamphetamine	4	4						
		marijuana	5	5						
729ai	42 y F				U	Inhal	Int-A	2		
		heroin	1	1						
730ha	42 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	128.9 mcg/mL In Serum @ 1 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	56.5 mcg/mL In Serum @ 2 d (pe)
		cocaine	2	2						
731pha	42 y M				A	Unk	Unk	1		
		fentanyl	1	1					fentanyl	3.6 mcg/L In Blood (unspecified) @ Autopsy
732h	42 y M				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	40.6 mcg/mL In Blood (unspecified) @ 1 h (pe)
		nonsteroidal antiinflammatory drug, N.O.S.	2	2						
		acetaminophen/oxycodone	3	3						
		ethanol	4	4						
733ai	42 y M				U	Unk	Int-A	2		
		heroin	1	1						
734pi	42 y M				A/C	Unk	Unk	2		
		methadone	1	1						
		heroin	2	2						
		ethanol	3	3						
735pha	42 y M				U	Par+ Unk	Int-A	1		
		fentanyl	1	1						
		xylazine	2	2						
		tramadol	3	3						
736ai	42 y M				U	Unk	Int-U	2		
		heroin	1	1						
737ai	42 y F				U	Unk	Int-A	1		
		fentanyl	1	1						
		bupropion	2	2						
738pa	42 y F				A	Unk	Int-A	1		
		fentanyl	1	1					fentanyl	0.011 mg/L In Blood (unspecified) @ Autopsy
		heroin	2	2					morphine	230 mcg/L In Blood (unspecified) @ Autopsy
		oxycodone	3	3					oxycodone	0.1 mg/L In Blood (unspecified) @ Autopsy
		cyclobenzaprine	4	4					cyclobenzaprine	0.1 mg/L In Blood (unspecified) @ Autopsy
739ha	42 y M				A	Ingst	Int-S	3		
		acetaminophen	1	1					acetaminophen (apap)	66 mcg/mL In Blood (unspecified) @ Unknown
		drug, N.O.S.	2	2						
740h	42 y F				A	Ingst	Int-U	1		
		acetaminophen	1	1					acetaminophen (apap)	107 mcg/mL In Serum @ Unknown
		ethanol	2	2						
741ai	42 y M				A	Par	Int-A	2		
		heroin	1	1						
742h	43 y M				C	Ingst	Int-A	2		

(continued)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		acetaminophen	1	1					acetaminophen (apap)	77 mcg/mL In Blood (unspecified) @ Unknown
743ha	43 y M				C	Ingst	Unt-T	2		
		acetaminophen	1	1						
		ethanol	2	2					ethanol	317 mg/dL In Blood (unspecified) @ Unknown
744ph	43 y M				A	Inhal	Int-A	2		
		heroin	1	1						
745ai	43 y F				A/C	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
746ai	43 y M				U	Inhal	Unk	2		
		heroin	1	1						
747ai	43 y M				A/C	Inhal	Int-A	2		
		heroin	1	1						
748pai	43 y M				A	Par	Int-A	1		
		fentanyl	1	1					fentanyl	0.14 mg/L In Blood (unspecified) @ Autopsy
		ethanol	2	2					ethanol	0.23 % (wt/Vol) In Vitreous @ Autopsy
749ai	43 y M				U	Unk	Int-A	1		
		heroin	1	1						
		methamphetamine	2	2						
750ai	43 y F				U	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
751ai	43 y M				U	Inhal	Int-A	2		
		heroin	1	1						
		cocaine	2	2						
752i	44 y F				U	Ingst+ Unk	Int-S	2		
		acetaminophen	1	1						
		drug, N.O.S.	2	1					acetaminophen (apap)	52 mcg/mL In Serum @ Unknown
		drug, N.O.S.	2	1					ethanol	60 mg/dL In Serum @ Unknown
		ethanol	3	3						
753h	44 y F				U	Unk	Unk	2		
		acetaminophen	1	1					acetaminophen (apap)	90 mcg/mL In Blood (unspecified) @ Unknown
754h	44 y M				U	Ingst	Int-U	2		
		heroin	1	1						
755h	44 y M				U	Ingst	Unk	2		
		acetaminophen	1	1					acetaminophen (apap)	61 mg/mL In Plasma @ Unknown
756pha	44 y M				A	Par	Int-A	1		
		fentanyl	1	1					fentanyl	5.8 ng/mL In Blood (unspecified) @ Autopsy
757h	44 y M				A	Ingst	Int-S	2		
		acetaminophen/diphenhydramine	1	1					acetaminophen (apap)	116 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/diphenhydramine	1	1					acetaminophen (apap)	9 mcg/mL In Blood (unspecified) @ Unknown
		gabapentin	2	2						
		ethanol	3	3					ethanol	91 mg/dL In Blood (unspecified) @ Unknown
758ai	44 y M				U	Inhal	Int-A	2		
		heroin	1	1						
		cocaine	2	2						
		narcotic, N.O.S.	3	3						
759ha	44 y M				A	Ingst+ Unk	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	667 mg/L In Serum @ Unknown
		naproxen	2	2					naproxen	150 mg/L In Serum @ Unknown
		ethanol	3	3						
		ibuprofen	4	4						
		amphetamine	5	5						
		paroxetine	6	6						
		quetiapine	7	7						
760pa	44 y F				A	Ingst	Int-S	1		
		acetaminophen/oxycodone	1	1						
		lorazepam	2	2						
		topiramate	3	3					topiramate	3100 ng/mL In Blood (unspecified) @ Autopsy
		tizanidine	4	4						
		ethanol	5	5					ethanol	102 mg/dL In Serum @ Unknown
		fluoxetine	6	6					norfluoxetine	280 ng/mL In Blood (unspecified) @ Autopsy
		fluoxetine	6	6					fluoxetine	82 ng/mL In Blood (unspecified) @ Autopsy
		cyclobenzaprine	7	7					cyclobenzaprine	28 ng/mL In Blood (unspecified) @ Autopsy
761ph	44 y M				U	Par+ Unk	Int-A	2		
		heroin	1	1						
762	44 y F				A	Ingst	Int-S	1		
		salicylate	1	1					salicylate	90.8 mg/dL In Blood (unspecified) @ Unknown
763ha	45 y F				A	Ingst	Int-S	1		
		acetaminophen/diphenhydramine	1	1					diphenhydramine	2300 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen/diphenhydramine	1	1					acetaminophen (apap)	330 mcg/mL In Blood (unspecified) @ Unknown
764pa	45 y M				U	Ingst+ Unk	Unk	1		
		fentanyl	1	1					fentanyl	5.1 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl analog (acetyl fentanyl)	2	2					acetyl fentanyl	0.27 ng/mL In Blood (unspecified) @ Autopsy

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		heroin	3	3					6-mam (6-monoacetylmorphine)	4.4 ng/mL In Blood (unspecified) @ Autopsy
		ethanol	4	4					ethanol	198 mg/dL In Serum @ 1 h (pe)
		diazepam	5	5					diazepam	20 ng/mL In Blood (unspecified) @ Autopsy
765ph	45 y M				U	Ingst	Int-A	2		
		oxycodone	1	1						
766p	45 y F				A	Ingst	Int-S	2		
		acetaminophen/oxycodone	1	1						
		alprazolam	2	2						
767pha	45 y M				A	Ingst	Int-S	1		
		morphine	1	1						
		aripiprazole	2	2						
		valproic acid (ER)	3	3						
		topiramate	4	4						
768ai	45 y M				A	Oth	Int-A	1		
		heroin	1	1						
769	45 y F				A	Ingst	Int-S	2		
		acetaminophen/salicylate	1	1					acetaminophen (apap)	600 mcg/mL In Serum @ Unknown
		acetaminophen/salicylate	1	1					salicylate	96.2 mg/dL In Serum @ Unknown
770pai	45 y F				A/C	Unk	Int-A	1		
		fentanyl	1	1						
771h	45 y M				A/C	Ingst	Int-M	2		
		acetaminophen	1	1					acetaminophen (apap)	31.2 mg/L In Serum @ 1 h (pe)
		acetaminophen/oxycodone	2	2						
772ai	45 y F				U	Unk	Int-S	1		
		hydromorphone	1	1						
		quetiapine	2	2						
		cyclobenzaprine	3	3						
773ai	45 y M				U	Unk	Int-A	1		
		methadone	1	1						
		quetiapine	2	2						
		zolpidem	3	3						
774pa	45 y M				A/C	Inhal+ Par	Int-A	1		
		fentanyl	1	1					fentanyl	32 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl	1	1					norfentanyl	5 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl analog (acetylfentanyl)	2	2					acetyl fentanyl	0.1 ng/mL In Blood (unspecified) @ Autopsy
		loperamide	3	3					loperamide	10 ng/mL In Blood (unspecified) @ Autopsy
		loperamide	3	3					desmethylloperamide	50 ng/mL In Blood (unspecified) @ Autopsy
		gabapentin	4	4						
		clonazepam	5	5						
775ai	45 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		cocaine	2	2						
		ethanol	3	3						
776p	46 y M				A/C	Unk	Int-A	2		
		heroin	1	1						
777ha	46 y F				A	Ingst	Int-S	1		
		acetaminophen/diphenhydramine	1	1					acetaminophen (apap)	28.8 mcg/mL In Blood (unspecified) @ 3 d (pe)
		acetaminophen/diphenhydramine	1	1					acetaminophen (apap)	3.4 mcg/mL In Blood (unspecified) @ 5 d (pe)
		acetaminophen/diphenhydramine	1	1					acetaminophen (apap)	8 mcg/mL In Blood (unspecified) @ 4 d (pe)
778ai	46 y M				A/C	Par	Int-A	2		
		narcotic, N.O.S.	1	1						
779ph	46 y M				U	Ingst	Int-S	2		
		heroin	1	1						
		isopropanol	2	2						
780h	46 y F				C	Ingst	Unk	2		
		acetaminophen	1	1					acetaminophen (apap)	113 mcg/mL In Serum @ 1 h (pe)
781pa	47 y F				A	Unk	Int-A	1		
		fentanyl	1	1					fentanyl	0.012 mg/L In Blood (unspecified) @ Autopsy
		amphetamine	2	2					amphetamine	0.4 mg/L In Blood (unspecified) @ Autopsy
782pha	47 y M				A	Unk	Int-U	1		
		fentanyl	1	1					fentanyl	0.004 mg/L In Blood (unspecified) @ Autopsy
		heroin	2	2						
		cocaine	3	3						
783ha	47 y M				A	Ingst	Int-S	1		
		acetaminophen/oxycodone	1	1					oxycodone	370 ng/mL In Serum @ 1 h (pe)
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	38.3 mcg/mL In Serum @ 1 h (pe)
		quetiapine	2	2					quetiapine	713 ng/mL In Serum @ 1 h (pe)
		zolpidem	3	3						
784ai	47 y M				A/C	Unk	Int-A	1		
		fentanyl	1	1						
		cocaine	2	2						
785h	47 y F				U	Unk	Unk	3		
		acetaminophen	1	1					acetaminophen (apap)	62 mcg/mL In Serum @ Unknown
786ai	47 y M				U	Ingst+ Unk	Unk	1		
		hydromorphone	1	1						
		ethanol	2	2						
787h	47 y F				A	Ingst	Int-S	3		

(continued)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		acetaminophen	1	1						
		drug, N.O.S.	2	1					acetaminophen (apap)	12.8 mcg/mL In Serum @ Unknown
788pa	47 y M				A	Par	Int-A	1		
		fentanyl analog (acetylfentanyl)	1	1					acetyl fentanyl	0.14 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl analog (acetylfentanyl)	1	1					norfentanyl	7.9 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl analog (acetylfentanyl)	1	1					fentanyl	71 ng/mL In Blood (unspecified) @ Autopsy
		cocaine	2	2					benzoylecognine	3400 ng/mL In Blood (unspecified) @ Autopsy
		cocaine	2	2					cocaine	440 ng/mL In Blood (unspecified) @ Autopsy
		buprenorphine	3	3						
789ai	47 y F				U	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
790h	47 y M				C	Ingst	Unt-T	1		
		acetaminophen	1	1					acetaminophen (apap)	41.8 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/antihistamine/ decongestant/salicylate	2	2					salicylate	16 mg/dL In Blood (unspecified) @ Unknown
		ethanol	3	3					ethanol	31 mg/dL In Blood (unspecified) @ Unknown
791pa	47 y M				A	Inhal	Int-A	1		
		fentanyl	1	1						
		amphetamine	2	2						
		cocaine	3	2						
792ai	48 y F				A	Unk	Int-A	2		
		heroin	1	1						
793pha	48 y M				A	Unk	Unk	1		
		fentanyl	1	1					fentanyl	0.004 mg/L In Blood (unspecified) @ Autopsy
794h	48 y F				U	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen (apap)	106.4 mcg/mL In Serum @ Unknown
795pha	48 y F				A/C	Ingst+ Inhal	Int-S	2		
		hydromorphone	1	1						
		cocaine	2	2						
796ai	48 y F				A/C	Par	Int-A	2		
		narcotic, N.O.S.	1	1						
797	48 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1						
		zolpidem	2	2						
		alprazolam	3	3						
		paroxetine	4	4						
798ph	48 y F				A/C	Ingst	Int-S	2		
		oxycodone	1	1						
		methadone	2	2						
		metoprolol	3	3						
		ibuprofen	4	4						
		acetaminophen	5	5						
799ai	48 y M				A/C	Par	Int-A	2		
		heroin	1	1						
800ai	48 y M				U	Unk	Int-A	1		
		heroin	1	1						
		ethanol	2	2						
801ai	48 y M				A	Inhal	Int-A	2		
		narcotic, N.O.S.	1	1						
		cocaine	2	2						
802h	49 y F				U	Ingst	Int-S	1		
		acetaminophen	1	1						
		caffeine/salicylamide/salicylate	2	2						
803ha	49 y F				C	Unk	Int-A	1		
		narcotic, N.O.S.	1	1						
		methamphetamine	2	2						
		dextromethorphan	3	3					dextromethorphan	0.18 mg/L In Blood (unspecified) @ 1.5 h (pe)
804h	49 y M				A	Ingst	Int-S	1		
		salicylate	1	1					salicylate	99.7 mg/dL In Serum @ Unknown
805pha	49 y F				A	Par+ Unk	Int-U	2		
		fentanyl	1	1						
		quetiapine	2	2						
806hi	49 y F				A/C	Ingst	Int-M	2		
		acetaminophen	1	1						
807h	49 y F				A	Ingst	Unk	1		
		acetaminophen	1	1					acetaminophen (apap)	39 mcg/mL In Serum @ Unknown
808	49 y F				C	Ingst	Int-M	2		
		acetaminophen	1	1					acetaminophen (apap)	168 mcg/mL In Blood (unspecified) @ Unknown
809ph	49 y F				U	Ingst	Unk	2		
		acetaminophen	1	1						
810pha	49 y F				U	Inhal+ Unk	Int-A	1		
		fentanyl	1	1					fentanyl	2.4 ng/mL In Blood (unspecified) @ Autopsy
		cocaine	2	2					benzoylecognine	2100 ng/mL In Blood (unspecified) @ Autopsy
811	49 y M				U	Ingst	Int-S	1		
		salicylate	1	1						
812ai	49 y M				U	Unk	Int-A	1		
		heroin	1	1						
		hydrocodone	2	2						

(continued)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		methamphetamine	3	3						
813ai	49 y M				U	Unk	Int-A	2		
		heroin	1	1						
814ai	49 y F				U	Unk	Int-A	1		
		methadone	1	1						
		olanzapine	2	2						
		ethanol	3	3						
815h	50 y M				C	Ingst	Unt-T	2		
		acetaminophen	1	1						
816ai	50 y F				U	Inhal	Int-A	2		
		narcotic, N.O.S.	1	1						
817ai	50 y F				U	Derm	Int-U	2		
		fentanyl (TD)	1	1						
818h	50 y F				C	Ingst	Unt-T	3		
		acetaminophen	1	1					acetaminophen (apap)	28 mcg/mL In Blood (unspecified) @ 10 m (pe)
819ai	50 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		morphine	2	2						
		methamphetamine	3	3						
820ai	50 y F				A	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
821pha	50 y M				A	Inhal	Int-A	1		
		fentanyl	1	1					norfentanyl	3.6 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl	1	1					fentanyl	4.1 ng/mL In Blood (unspecified) @ Autopsy
822ai	50 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		cocaine	2	2						
		ethanol	3	3						
823ai	50 y M				U	Unk	Int-A	1		
		methadone	1	1						
		marijuana	2	2						
824ha	50 y M				U	Par	Int-A	1		
		fentanyl	1	1					fentanyl	1.4 ng/mL In Blood (unspecified) @ Autopsy
825ai	50 y M				U	Par	Int-A	2		
		heroin	1	1						
826	51 y M				A/C	Par	AR-D	3		
		hydromorphone	1	1						
827h	51 y F				A	Ingst	Int-S	3		
		acetaminophen	1	1						
828ai	51 y M				U	Inhal+ Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
829ai	51 y M				A	Ingst	Int-A	2		
		heroin	1	1						
830h	51 y F				C	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen (apap)	0 mcg/mL In Blood (unspecified) @ Unknown
		diphenhydramine	2	2						
831	51 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	2378 mcg/mL In Serum @ Unknown
		losartan	2	2						
		quetiapine	3	3						
832ai	51 y F				A/C	Par	Int-A	2		
		heroin	1	1						
833ai	51 y M				U	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
834h	51 y M				C	Ingst	AR-D	3		
		acetaminophen	1	1					acetaminophen (apap)	64.1 mcg/mL In Blood (unspecified) @ Unknown
835ai	51 y M				U	Unk	Int-A	2		
		fentanyl	1	1						
		diphenhydramine	2	2						
		dextromethorphan	3	3						
836ai	51 y F				U	Unk	Int-A	1		
		fentanyl	1	1						
		ethanol	2	2						
		alprazolam	3	3						
837ai	51 y M				U	Unk	Unk	2		
		narcotic, N.O.S.	1	1						
[838ha]	52 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	300 mg/L In Blood (unspecified) @ Autopsy
		acetaminophen	1	1					acetaminophen (apap)	759 mcg/mL In Blood (unspecified) @ Unknown
839ph	52 y M				A	Ingst	Int-U	1		
		hydromorphone	1	1					hydromorphone	100 ng/mL In Serum @ 5 h (pe)
		amlodipine	2	2						
		metformin	3	3						
840ai	52 y F				U	Inhal+ Unk	Int-A	2		
		heroin	1	1						
841pha	52 y M				A	Unk	Int-A	1		
		fentanyl	1	1					fentanyl	0.001 mg/L In Blood (unspecified) @ Autopsy
		heroin	2	2					morphine (free)	110 mcg/L In Blood (unspecified) @ Autopsy
842ph	52 y F				A/C	Ingst	Int-S	1		
		acetaminophen/diphenhydram	1	1					acetaminophen (apap)	393 mg/mL In Serum @ Unknown

(continued)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		ine								
		paroxetine	2	2						
		ethanol	3	3					ethanol	178 mg/dL In Serum @ Unknown
843a	52 y M				A	Ingst	Int-S	1		
		acetaminophen/diphenhydramine	1	1					diphenhydramine	100 ng/mL In Plasma @ 1 h (pe)
		acetaminophen/diphenhydramine	1	1					acetaminophen (apap)	114 mcg/mL In Plasma @ 1 d (pe)
		acetaminophen/diphenhydramine	1	1					acetaminophen (apap)	31 mcg/mL In Plasma @ 1 d (pe)
		acetaminophen/diphenhydramine	1	1					acetaminophen (apap)	89 mcg/mL In Plasma @ 1 h (pe)
844pai	52 y F				A	Ingst	Int-A	1		
		fentanyl	1	1						
		ethanol	2	2						
845h	52 y F				U	Ingst	Int-S	2		
		colchicine	1	1						
		trazodone	2	2						
		diazepam	3	3						
		salicylate	4	4						
		ethanol	5	5						
846ai	52 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		methamphetamine	2	2						
847ai	52 y F				U	Unk	Int-A	1		
		fentanyl	1	1						
		oxycodone	2	2						
		alprazolam	3	3						
848ai	52 y M				U	Unk	Int-A	2		
		fentanyl	1	1						
		hydromorphone	2	2						
		alprazolam	3	3						
849	52 y M				A	Ingst	Int-U	1		
		acetaminophen	1	1					acetaminophen (apap)	29 mcg/mL In Blood (unspecified) @ Unknown
		ethanol	2	2						
850pha	53 y F				A	Unk	Unk	1		
		heroin	1	1					morphine	0.014 mg/L In Blood (unspecified) @ Autopsy
		amphetamine	2	2						
851h	53 y F				A	Ingst	Int-S	1		
		salicylate	1	1					salicylate	132.2 mg/dL In Serum @ 7 h (pe)
		salicylate	1	1					salicylate	70.7 mg/dL In Serum @ 1 h (pe)
852ai	53 y F				U	Par	Int-A	2		
		heroin	1	1						
853a	53 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	224.5 mcg/mL In Plasma @ Unknown
		carbamazepine	2	2					carbamazepine	3.9 mcg/mL In Blood (unspecified) @ Autopsy
		topiramate	3	3					topiramate	2100 ng/mL In Blood (unspecified) @ Autopsy
		paroxetine	4	4					paroxetine	33 ng/mL In Blood (unspecified) @ Autopsy
		trazodone	5	5					trazodone	0.95 mcg/mL In Blood (unspecified) @ Autopsy
		naproxen	6	6					naproxen	57 mcg/mL In Blood (unspecified) @ Autopsy
854pa	53 y F				A	Unk	Int-A	1		
		fentanyl	1	1					fentanyl	0.007 mg/L In Blood (unspecified) @ Autopsy
		methadone	2	2					methadone	0.1 mg/L In Blood (unspecified) @ Autopsy
		cocaine	3	3					cocaine	0.1 mg/L In Blood (unspecified) @ Autopsy
		heroin	4	4						
855ai	53 y M				A/C	Ingst	AR-D	2		
		morphine	1	1						
		alprazolam	2	2						
		gabapentin	3	3						
856h	53 y M				A	Ingst	Int-S	1		
		acetaminophen/diphenhydramine	1	1					acetaminophen (apap)	19 mcg/mL In Blood (unspecified) @ 20 h (pe)
		ethanol	2	2						
857p	53 y M				A	Ingst+ Inhal	Int-A	2		
		heroin	1	1						
		ethanol	2	2					ethanol	129 mg/dL In Blood (unspecified) @ Unknown
858h	53 y M				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	600 mcg/mL In Blood (unspecified) @ Unknown
859ai	53 y M				U	Inhal	Int-A	2		
		heroin	1	1						
860ai	53 y M				A/C	Par	Int-A	2		
		heroin	1	1						
861ph	53 y M				A	Ingst+ Unk	Int-S	1		
		acetaminophen	1	1					diphenhydramine	0.838 mg/L In Serum @ 0 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	1000 mcg/mL In Serum @ 0 h (pe)
		acetaminophen	1	1					naproxen	78 mcg/mL In Serum @ 0 h (pe)
		naproxen	2	2						
		diphenhydramine	3	3						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
862ai	53 y F				U	Unk	Unk	1		
		morphine	1	1						
		oxycodone	2	2						
		quinidine	3	3						
863	53 y F				A	Ingst	Int-S	3		
		acetaminophen	1	1						
864ai	53 y M				A/C	Inhal	Int-A	2		
		narcotic, N.O.S.	1	1						
865ai	53 y M				U	Unk	Int-A	1		
		heroin	1	1						
		oxycodone	2	2						
		ethanol	3	3						
866ha	54 y M				A	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen (apap)	220 mg/dL In Serum @ 1 h (pe)
		metoprolol	2	2						
		salicylate	3	3					salicylate	22.5 mg/dL In Blood (unspecified) @ 1 h (pe)
		quetiapine (ER)	4	4					quetiapine	397 ng/mL In Blood (unspecified) @ Autopsy
		diphenhydramine	5	5					diphenhydramine	194 ng/mL In Blood (unspecified) @ 1 h (pe)
		amphetamine	6	6					amphetamine	375 ng/mL In Blood (unspecified) @ 1 h (pe)
867p	54 y F				A	Ingst	Unk	3		
		tramadol	1	1						
		acetaminophen/hydrocodone	2	2						
868ha	54 y M				A	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen (apap)	100 mcg/mL In Whole Blood @ Unknown
		diphenhydramine	2	2					diphenhydramine	1300 ng/mL In Whole Blood @ Unknown
869h	54 y M				A/C	Ingst	AR-D	3		
		ibuprofen	1	1						
870p	54 y F				A/C	Unk	Int-A	2		
		fentanyl	1	1						
871pha	54 y M				U	Ingst	Unk	1		
		acetaminophen	1	1					acetaminophen (apap)	1500 mg/L In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	726 mcg/mL In Serum @ 1 m (pe)
872	54 y F				A/C	Ingst	Int-S	1		
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	260 mcg/mL In Serum @ Unknown
873h	54 y F				C	Ingst	Int-M	3		
		acetaminophen	1	1					acetaminophen (apap)	61 mcg/mL In Serum @ 3 h (pe)
874h	54 y M				A/C	Ingst	Unt-T	2		
		acetaminophen	1	1						
		salicylate	2	2						
875ai	54 y M				U	Unk	Int-A	2		
		heroin	1	1						
876h	54 y F				C	Ingst	Int-M	2		
		acetaminophen	1	1					acetaminophen (apap)	24 mcg/mL In Blood (unspecified) @ 1 h (pe)
		ethanol	2	2						
877ai	54 y M				A/C	Unk	Int-A	1		
		fentanyl	1	1					fentanyl	3.6 ng/mL In Blood (unspecified) @ Autopsy
		cocaine	2	2					cocaine	2000 ng/mL In Blood (unspecified) @ Autopsy
		cocaine	2	2					cocaine	935 ng/mL In Blood (unspecified) @ Autopsy
878ph	54 y M				A	Ingst	Int-S	1		
		salicylate (EC)	1	1					salicylate	96.7 mg/dL In Serum @ Unknown
879pha	54 y M				A	Ingst+ Unk	Int-S	1		
		fentanyl	1	1					fentanyl	0.019 mg/L In Blood (unspecified) @ Autopsy
		heroin	2	1						
		ethanol	3	3					ethanol	0.07 mg/dL In Vitreous @ Autopsy
880h	54 y F				U	Ingst	Unk	2		
		acetaminophen	1	1					acetaminophen (apap)	48 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	63.9 mcg/mL In Blood (unspecified) @ Unknown
881h	54 y F				C	Ingst	Int-S	1		
		acetaminophen/caffeine/salicylate	1	1					salicylate	104 mg/dL In Blood (unspecified) @ 30 m (pe)
		acetaminophen/caffeine/salicylate	1	1					acetaminophen (apap)	67 mcg/mL In Blood (unspecified) @ 30 m (pe)
		energy drink (caffeine)	2	2						
882h	54 y F				A/C	Ingst	Int-S	2		
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	260 mg/L In Serum @ 2 h (pe)
		eszopiclone	2	2						
883pha	55 y F				U	Ingst	Unk	1		
		tramadol	1	1					o-demethyl tramadol	830 ng/mL In Blood (unspecified) @ 5 m (pe)
		tramadol	1	1					tramadol	9000 ng/mL In Blood (unspecified) @ 5 m (pe)
		clonazepam	2	2					7-aminoclonazepam	56 ng/mL In Blood (unspecified) @ 5 m (pe)
		clonazepam	2	2					clonazepam	7.7 ng/mL In Blood (unspecified) @ 5 m (pe)
		zolpidem	3	3					zolpidem	130 ng/mL In Blood (unspecified) @ 5

(continued)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
										m (pe)
884ai	55 y M				A	Par	Int-A	2		
		heroin	1	1						
885h	55 y F				U	Ingst	Unk	3		
		acetaminophen	1	1					acetaminophen (apap)	17 mcg/mL In Blood (unspecified) @ Unknown
		ethanol	2	2					ethanol	57 mg/dL In Blood (unspecified) @ Unknown
886h	55 y F				A	Ingst	Int-S	1		
		acetaminophen/diphenhydramine	1	1					acetaminophen (apap)	145 mg/L In Blood (unspecified) @ 36 h (pe)
		acetaminophen/diphenhydramine	1	1					acetaminophen (apap)	35.1 mg/L In Blood (unspecified) @ 60 h (pe)
		acetaminophen/diphenhydramine	1	1					acetaminophen (apap)	350 mg/L In Blood (unspecified) @ 1 h (pe)
887ai	55 y F				U	Unk	Int-A	2		
		fentanyl	1	1						
888ai	55 y F				U	Par	Int-A	2		
		heroin	1	1						
889pi	55 y M				A/C	Par	Int-A	1		
		fentanyl	1	1						
		heroin	2	2						
890h	55 y F				A	Ingst	Int-S	2		
		acetaminophen	1	1					salicylate	1.1 mg/dL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	96 mcg/mL In Blood (unspecified) @ Unknown
891ai	55 y F				A	Inhal	Int-A	2		
		heroin	1	1						
892h	55 y F				A/C	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	326 mcg/mL In Blood (unspecified) @ 1 h (pe)
		amitriptyline	2	2						
		gabapentin	3	3						
		venlafaxine (ER)	4	4						
893h	56 y M				U	Unk	Unk	2		
		heroin	1	1						
		drug, N.O.S.	2	2						
894pha	56 y M				A	Ingst+ Par	Int-S	2		
		narcotic, N.O.S.	1	1						
		ethanol	2	2						
895ai	56 y M				U	Inhal	Int-A	2		
		heroin	1	1						
896h	56 y M				A/C	Ingst	Int-S	3		
		diclofenac	1	1						
		lisinopril	2	2						
		meloxicam	3	3						
897ph	56 y F				A/C	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen (apap)	54.5 mcg/mL In Serum @ Unknown
		clonazepam	2	2						
898h	56 y M				C	Ingst	Int-U	1		
		acetaminophen	1	1						
899h	56 y F				U	Ingst	Int-S	1		
		acetaminophen	1	1						
		ethanol	2	2						
		zolpidem	3	3						
900h	56 y M				A/C	Ingst	Int-S	3		
		tramadol	1	1						
		quetiapine	2	2						
901h	56 y F				A	Ingst	Int-U	3		
		acetaminophen	1	1					acetaminophen (apap)	361 mcg/mL In Blood (unspecified) @ 1 h (pe)
		ethanol	2	2					ethanol	0.04 g/dL In Blood (unspecified) @ 1 h (pe)
		salicylate	3	3					salicylate	8 mg/dL In Blood (unspecified) @ 1 h (pe)
902h	56 y M				A	Ingst	Int-S	2		
		acetaminophen	1	1						
903h	56 y F				A	Ingst	Int-S	2		
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	60 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/oxycodone	2	2						
904pa	56 y M				A/C	Ingst+ Par	Int-A	1		
		heroin	1	1					morphine	0.04 mg/L In Blood (unspecified) @ Autopsy
		fentanyl, N.O.S.	2	2					fentanyl	7.2 ng/mL In Blood (unspecified) @ Autopsy
		ethanol	3	3					ethanol	40 mg/dL In Blood (unspecified) @ Autopsy
905h	56 y M				C	Ingst	Int-M	1		
		acetaminophen	1	1					acetaminophen (apap)	137.7 mcg/mL In Blood (unspecified) @ Unknown
		ethanol	2	2						
906ai	56 y F				U	Inhal	Int-A	2		
		heroin	1	1						
907h	56 y F				C	Ingst	Int-M	1		
		acetaminophen	1	1					acetaminophen (apap)	82.4 mcg/mL In Serum @ 1 h (pe)
908ai	56 y M				U	Ingst+ Unk	Int-A	1		
		fentanyl	1	1						
		lorazepam	2	2						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		ethanol	3	3						
909ai	56 y F				U	Unk	Int-A	1		
		heroin	1	1						
		methamphetamine	2	2						
910ph	57 y M				A	Ingst	Int-S	2		
		tramadol	1	1						
911h	57 y M				C	Ingst	Unt-T	2		
		acetaminophen	1	1					acetaminophen (apap)	78.7 mcg/mL In Blood (unspecified) @ Unknown
912ha	57 y F				A	Ingst	Int-S	1		
		salicylate	1	1					salicylate	560 mcg/mL In Blood (unspecified) @ Unknown
		olanzapine	2	2					olanzapine	300 ng/mL In Blood (unspecified) @ Unknown
		benzodiazepine	3	3					lorazepam	34 ng/mL In Blood (unspecified) @ Unknown
		benztropine	4	4						
913ph	57 y M				A/C	Ingst	Int-S	1		
		methadone	1	1						
914p	57 y F				U	Ingst	Int-S	1		
		tramadol	1	1						
		propranolol	2	2						
		haloperidol	3	3						
		mirtazapine	4	4						
		naproxen	5	5						
		meloxicam	6	6						
		budesonide/fomoterol	7	7						
		vitamin D	8	8						
915ai	57 y M				A	Par	Int-A	2		
		heroin	1	1						
916ai	57 y M				U	Inhal	Int-A	2		
		narcotic, N.O.S.	1	1						
917a	57 y F				U	Ingst	Int-S	2		
		oxycodone	1	1						
		lorazepam	2	2						
		lamotrigine	3	3						
		atropine/diphenoxylate	4	4						
		methocarbamol	5	5						
		dicyclomine	6	6						
		meclizine	7	7						
		escitalopram	8	8						
		gabapentin	9	9						
918ai	57 y M				U	Unk	Int-S	1		
		acetaminophen/diphenhydramine	1	1						
		ethanol	2	2						
		codeine	3	3						
919h	57 y M				C	Ingst	Int-M	1		
		acetaminophen	1	1					acetaminophen (apap)	21 mcg/mL In Blood (unspecified) @ Unknown
920i	57 y M				A	Ingst	Int-S	3		
		acetaminophen	1	1						
921ai	57 y F				U	Unk	Int-A	1		
		fentanyl	1	1						
		morphine	2	2						
		alprazolam	3	3						
922h	57 y F				U	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	722 mg/L In Serum @ 1 h (pe)
923ha	58 y M				U	Ingst	Int-S	3		
		acetaminophen	1	1					acetaminophen (apap)	128 mcg/mL In Serum @ 1 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	93 mg/L In Blood (unspecified) @ Autopsy
924ha	58 y F				C	Ingst	Int-M	3		
		acetaminophen	1	1					acetaminophen (apap)	22.1 ng/mL In Blood (unspecified) @ Autopsy
925h	58 y M				U	Ingst	Unk	3		
		acetaminophen	1	1					acetaminophen (apap)	136.3 mg/L In Serum @ 30 m (pe)
926ai	58 y F				A	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
927ai	58 y M				U	Unk	Unk	2		
		narcotic, N.O.S.	1	1						
928ai	58 y M				U	Par	Int-A	2		
		heroin	1	1						
929pha	58 y M				U	Ingst	Unk	1		
		acetaminophen	1	1					acetaminophen (apap)	259 mcg/mL In Serum @ 1 h (pe)
		ethanol	2	2					ethanol	29 mg/dL In Serum @ 1 h (pe)
		diphenhydramine	3	3						
930h	58 y F				C	Ingst	Unt-M	1		
		acetaminophen	1	1					acetaminophen (apap)	13 mg/dL In Whole Blood @ 4 d (pe)
931ai	58 y F				A	Ingst	AR-D	2		
		tramadol	1	1						
932h	58 y M				A	Ingst	Int-S	1		
		salicylate	1	1					salicylate	24 mg/dL In Blood (unspecified) @ 10 h (pe)
		salicylate	1	1					salicylate	32 mg/dL In Blood (unspecified) @ 12 h (pe)
		salicylate	1	1					salicylate	39 mg/dL In Blood (unspecified) @ 13 h (pe)
		salicylate	1	1					salicylate	69.7 mg/dL In Blood (unspecified) @ 14 h (pe)

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		salicylate	1	1					salicylate	81 mg/dL In Blood (unspecified) @ 15 h (pe)
		ibuprofen	2	2						
933h	58 y F				C	Ingst	Int-M	2		
		acetaminophen	1	1					acetaminophen (apap)	122 mcg/mL In Blood (unspecified) @ Unknown
934ha	58 y F				A	Ingst	Int-S	1		
		acetaminophen/hydrocodone	1	1					hydrocodone	1.7 mcg/mL In Serum @ Unknown
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	124 mcg/mL In Blood (unspecified) @ Unknown
		zolpidem	2	2					zolpidem	0.5 mcg/mL In Serum @ Unknown
935ai	58 y M				A	Inhal	Int-A	2		
		heroin	1	1						
936ai	58 y F				U	Unk	Unt-M	1		
		narcotic, N.O.S.	1	1						
		benzodiazepine	2	2						
937ai	58 y M				U	Unk	Int-A	1		
		heroin	1	1						
		methamphetamine	2	2						
		codeine	3	3						
938ai	58 y M				U	Unk	Int-A	1		
		methadone	1	1						
		methamphetamine	2	2						
939ai	58 y F				U	Unk	Int-A	2		
		heroin	1	1						
		hydromorphone	2	2						
		codeine	3	3						
940ai	58 y M				A	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
941ai	58 y F				U	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
942ai	58 y M				A	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
943	59 y M				A/C	Ingst	Int-A	2		
		morphine	1	1						
		methamphetamine	2	2						
944pai	59 y F				A	Inhal	Int-A	1		
		fentanyl	1	1					acetyl fentanyl	0.005 mg/L In Blood (unspecified) @ Autopsy
		fentanyl	1	1					fentanyl	0.034 mg/L In Blood (unspecified) @ Autopsy
945	59 y F				C	Ingst	Int-A	2		
		acetaminophen	1	1					acetaminophen (apap)	146 mcg/mL In Blood (unspecified) @ Unknown
946	59 y M				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	769 mcg/mL In Serum @ Unknown
947ai	59 y M				U	Unk	Int-A	2		
		heroin	1	1						
948h	59 y M				A	Ingst	Int-S	3		
		ibuprofen	1	1						
		melatonin	2	2						
949h	59 y F				C	Ingst	Unk	2		
		acetaminophen	1	1					acetaminophen (apap)	8 mg/mL In Serum @ Unknown
950ai	59 y M				A/C	Par	Int-A	2		
		heroin	1	1						
951	59 y F				A/C	Ingst	Unt-G	2		
		acetaminophen	1	1					acetaminophen (apap)	67.5 mcg/mL In Serum @ Unknown
952ai	59 y M				A/C	Par	Int-A	2		
		heroin	1	1						
953h	59 y M				C	Ingst	Unt-M	1		
		acetaminophen	1	1					acetaminophen (apap)	104.6 mcg/mL In Serum @ 1 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	108 mcg/mL In Serum @ 1 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	5.9 mcg/mL In Serum @ 4 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	51.6 mcg/mL In Serum @ 2 d (pe)
		acetaminophen	1	1					salicylate	6.3 mg/dL In Serum @ 1 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	72 mcg/mL In Serum @ 2 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	88 mcg/mL In Serum @ 4 h (pe)
		ethanol	2	2						
954pa	59 y F				A	Unk	Int-A	1		
		fentanyl	1	1					fentanyl	0.009 mg/L In Blood (unspecified) @ Autopsy
		heroin	2	2					morphine	64 mcg/L In Blood (unspecified) @ Autopsy
955h	59 y M				U	Ingst	Unk	2		
		acetaminophen	1	1					acetaminophen (apap)	68 mg/dL In Blood (unspecified) @ Unknown
956pai	59 y M				A/C	Unk	Int-A	1		
		fentanyl analog (acetyl fentanyl)	1	1						
		fentanyl	2	2						
		cocaine	3	3						
957ai	59 y M				U	Ingst+ Unk	Int-A	1		
		oxycodone	1	1						
		duloxetine (ER)	2	2						
		ethanol	3	3						
958h	59 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1						
959ai	59 y F				U	Unk	Int-A	1		
		fentanyl	1	1						
		methamphetamine	2	2						

(continued)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		hydromorphone	3	3						
960h	60 y F				U	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen (apap)	29 mcg/mL In Serum @ Unknown
961a	60 y M				A	Ingst	Int-S	2		
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	15.9 mcg/mL In Blood (unspecified) @ Unknown
		drug, N.O.S.	2	2						
962ha	60 y F				A	Ingst	Int-U	1		
		salicylate	1	1					salicylate	100 mg/dL In Blood (unspecified) @ 0.5 h (pe)
		salicylate	1	1					salicylate	113 mg/dL In Serum @ 1 m (pe)
		salicylate	1	1					salicylate	69.3 mg/dL In Serum @ 210 m (pe)
		ethanol	2	2					ethanol	93 mg/dL In Serum @ 1 m (pe)
963ai	60 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		oxycodone	2	2						
		alprazolam	3	3						
964h	61 y F				A/C	Ingst+ Par	Int-S	2		
		acetaminophen	1	1					acetaminophen (apap)	41 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	90 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/hydrocodone	2	2						
		buspirone	3	3						
		insulin	4	4						
965ha	61 y M				A/C	Ingst	Int-S	1		
		colchicine	1	1					colchicine	54 ng/mL In Plasma @ Unknown
		amitriptyline	2	2					amitriptyline	440 ng/mL In Blood (unspecified) @ Unknown
		ethanol	3	3					ethanol	261 mg/dL In Blood (unspecified) @ Unknown
		clonidine	4	4						
966ai	61 y M				U	Par	Int-A	2		
		heroin	1	1						
967h	61 y M				A	Ingst	Int-M	3		
		codeine	1	1						
968ph	61 y M				U	Unk	Unk	2		
		acetaminophen	1	1						
969ai	61 y F				U	Unk	Int-A	2		
		heroin	1	1						
970ai	61 y M				U	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
971ai	61 y M				U	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
972pai	61 y M				A/C	Unk	Int-A	1		
		fentanyl	1	1						
		cocaine	2	2						
973ai	61 y M				A	Unk	Int-A	2		
		heroin	1	1						
974ai	61 y M				A/C	Unk	Int-A	2		
		heroin	1	1						
975ai	61 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		morphine	2	2						
		methamphetamine	3	3						
976ai	62 y M				U	Par	Int-A	2		
		heroin	1	1						
977h	62 y F				A	Ingst	Int-A	1		
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	68 mcg/mL In Blood (unspecified) @ Unknown
978ha	62 y F				C	Ingst	Int-M	1		
		acetaminophen	1	1					acetaminophen (apap)	127.8 mcg/mL In Serum @ 90 m (pe)
		acetaminophen	1	1					acetaminophen (apap)	76 mg/L In Serum @ Autopsy
		salicylate	2	2					salicylate	10.5 mg/dL In Serum @ 90 m (pe)
979h	62 y F				U	Ingst	Int-S	2		
		salicylate	1	1					salicylate	59.3 mg/dL In Blood (unspecified) @ Unknown
		salicylate	1	1					salicylate	60.8 mg/dL In Blood (unspecified) @ Unknown
		salicylate	1	1					salicylate	62.9 mg/dL In Blood (unspecified) @ Unknown
		acetaminophen	2	2					acetaminophen (apap)	7.2 mcg/mL In Blood (unspecified) @ Unknown
980h	62 y M				A/C	Ingst	Unt-M	1		
		acetaminophen	1	1					acetaminophen (apap)	59 mcg/mL In Blood (unspecified) @ Unknown
981h	63 y M				A/C	Ingst	Int-U	2		
		morphine (ER)	1	1						
		diazepam	2	2						
		ethanol	3	3						
		vasopressin	4	4						
		norepinephrine	5	5						
982h	63 y M				C	Ingst	AR-D	2		
		colchicine	1	1						
983pha	63 y M				A	Unk	Int-A	1		
		fentanyl	1	1					fentanyl	0.004 mg/L In Blood (unspecified) @ Autopsy
984h	63 y F				C	Ingst	Int-U	3		
		acetaminophen	1	1					acetaminophen (apap)	10.1 mcg/mL In Serum @ 3 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	25.1 mcg/mL In Serum @ 2 d (pe)

(continued)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		acetaminophen	1	1					acetaminophen (apap)	47.6 mcg/mL In Serum @ 1 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	99 mcg/mL In Serum @ 60 m (pe)
985p	63 y F				A	Ingst	Unk	3		
		acetaminophen/hydrocodone	1	1						
986ai	63 y M				U	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
987ai	63 y M				U	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
988a	63 y F				A/C	Ingst+ Aspir	Int-S	1		
		acetaminophen/oxycodone	1	1					oxycodone (free)	120 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	16 mcg/mL In Blood (unspecified) @ Unknown
		zolpidem	2	2					zolpidem	530 ng/mL In Blood (unspecified) @ Unknown
		bupropion	3	3					bupropion	15 ng/mL In Blood (unspecified) @ Unknown
		bupropion	3	3					hydroxybupropion	610 ng/mL In Blood (unspecified) @ Unknown
		duloxetine (ER)	4	4					duloxetine	84 ng/mL In Blood (unspecified) @ Unknown
989ph	63 y M				A	Ingst	Int-S	2		
		acetaminophen/hydrocodone	1	1						
		lorazepam	2	2						
990h	63 y M				A/C	Ingst	Unt-T	3		
		salicylate	1	1					salicylate	32.9 mg/dL In Blood (unspecified) @ Unknown
		acetaminophen	2	2					acetaminophen (apap)	31.1 mcg/mL In Blood (unspecified) @ Unknown
991h	63 y M				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	121 mcg/mL In Serum @ 24 h (pe)
992ai	63 y F				C	Ingst	Int-A	2		
		hydromorphone	1	1						
		methadone	2	2						
993ha	63 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	12 mcg/mL In Blood (unspecified) @ 32 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	42.4 mcg/mL In Blood (unspecified) @ 23 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	82.7 mcg/mL In Blood (unspecified) @ 10 m (pe)
		benzonatate	3	2						
		diphenhydramine	2	2					diphenhydramine	540 mcg/mL In Blood (unspecified) @ Unknown
		linagliptin/metformin	4	3						
994ha	64 y F				A	Ingst	Unk	2		
		acetaminophen	1	1					acetaminophen (apap)	17 mcg/mL In Serum @ Unknown
		acetaminophen/oxycodone	2	2					oxycodone	0.14 mcg/mL In Blood (unspecified) @ Unknown
995h	64 y F				C	Ingst	Int-M	2		
		acetaminophen	1	1						
		narcotic, N.O.S.	2	2						
996h	64 y M				A/C	Ingst	Int-M	3		
		hydromorphone	1	1						
		oxycodone (ER)	2	2						
		diazepam	3	3						
997pha	64 y M				U	Ingst	Int-S	3		
		fentanyl	1	1						
		methadone	2	2						
		methamphetamine	3	3						
998pai	64 y F				A/C	Unk	Int-A	1		
		fentanyl	1	1						
999ph	64 y M				A/C	Ingst	Unk	2		
		oxycodone	1	1						
		diazepam	2	2						
1000	64 y F				A	Ingst	Int-S	1		
		acetaminophen/hydrocodone	1	1					hydrocodone	128 ng/mL In Whole Blood @ 0.5 h (pe)
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	360 mcg/mL In Blood (unspecified) @ 1 h (pe)
		acetaminophen/hydrocodone	1	1					morphine	45 ng/mL In Whole Blood @ 0.5 h (pe)
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	490 mcg/mL In Whole Blood @ 13 h (pe)
		acetaminophen/hydrocodone	1	1					dihydrocodeine/hydrocodol (free)	6.3 ng/mL In Whole Blood @ 0.5 h (pe)
		acetaminophen/codeine	2	2						
1001a	65 y F				A/C	Ingst	Int-S	2		
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	65 mcg/mL In Blood (unspecified) @ Unknown
		doxylamine	2	2					doxylamine	110 ng/mL In Blood (unspecified) @ Autopsy
1002ha	65 y M				C	Ingst	Unt-T	3		
		acetaminophen	1	1					acetaminophen (apap)	79.2 mcg/mL In Blood (unspecified) @ Unknown
1003ai	65 y M				U	Unk	Int-A	2		
		narcotic, N.O.S.	1	1						
1004h	65 y M				A	Ingst	Unk	2		
		acetaminophen	1	1					acetaminophen (apap)	360 mcg/mL In Blood (unspecified) @ Unknown

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		ethanol	2	2					ethanol	41 mg/dL In Blood (unspecified) @ Unknown
1005ha	66 y F				A/C	Ingst	Int-S	1		
		tramadol	1	1					tramadol	1.24 mg/L In Serum @ 1 h (pe)
		tramadol	1	1					tramadol	2.25 mg/L In Whole Blood @ Autopsy
		cyclobenzaprine	2	2					cyclobenzaprine	8 mg/mL In Whole Blood @ Autopsy
		amlodipine	3	3						
		lisinopril	4	4						
1006ha	66 y F				A	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen (apap)	87.8 mcg/mL In Blood (unspecified) @ Unknown
		drug, N.O.S.	2	2						
1007h	66 y F				C	Ingst	Unt-T	3		
		acetaminophen/oxycodone	1	1						
		acetaminophen	2	2					acetaminophen (apap)	32.8 mcg/mL In Blood (unspecified) @ Unknown
1008ai	66 y F				U	Unk	Int-A	2		
		heroin	1	1						
1009ph	66 y F				A	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen (apap)	746.3 mcg/mL In Blood (unspecified) @ 30 m (pe)
1010ha	66 y F				A	Unk	Unk	2		
		acetaminophen	1	1					acetaminophen (apap)	131 mcg/mL In Blood (unspecified) @ 15 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	269.4 mcg/mL In Blood (unspecified) @ 5 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	399 mcg/mL In Blood (unspecified) @ 10 m (pe)
		acetaminophen/diphenhydramine	2	2						
1011h	66 y M				U	Ingst	Int-U	1		
		acetaminophen	1	1					acetaminophen (apap)	508 mcg/mL In Blood (unspecified) @ Unknown
1012h	66 y F				C	Ingst	Int-M	2		
		acetaminophen	1	1					acetaminophen (apap)	117.5 mcg/mL In Serum @ 1 h (pe)
		salicylate	2	2					salicylate	34.7 mg/dL In Serum @ 1 h (pe)
		ethanol	3	3					ethanol	46.5 mg/dL In Serum @ 1 h (pe)
1013h	66 y F				U	Ingst	Unk	2		
		acetaminophen	1	1					acetaminophen (apap)	29.4 mg/L In Serum @ 1 h (pe)
1014h	66 y F				A/C	Ingst	Unk	2		
		acetaminophen	1	1					acetaminophen (apap)	58 mcg/mL In Blood (unspecified) @ Unknown
		oxycodone	2	2						
1015h	67 y M				A	Ingst	Unt-G	2		
		heroin	1	1						
1016h	67 y F				U	Ingst	Int-S	2		
		acetaminophen	1	1						
		acetaminophen/oxycodone	2	2						
1017h	67 y F				A/C	Ingst	Int-M	2		
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	29 mcg/mL In Blood (unspecified) @ Unknown
1018h	67 y F				A	Ingst+ Inhal	Int-S	2		
		acetaminophen	1	1					acetaminophen (apap)	145 mcg/mL In Serum @ 12 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	175.3 mcg/mL In Serum @ 1 m (pe)
		cocaine	2	2						
1019h	68 y M				C	Ingst	Unk	2		
		acetaminophen	1	1					acetaminophen (apap)	44 mg/L In Serum @ Unknown
1020h	68 y F				A	Ingst	Int-S	1		
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	114 mcg/mL In Blood (unspecified) @ 1 d (pe)
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	188 mcg/mL In Blood (unspecified) @ 34 h (pe)
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	539.4 mcg/mL In Blood (unspecified) @ 10 h (pe)
1021ph	68 y F				A	Ingst	Int-S	3		
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	185 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	44.6 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	71.7 mcg/mL In Blood (unspecified) @ Unknown
		baclofen	2	2						
		bupropion	3	3						
1022a	68 y F				A/C	Ingst	Unt-T	1		
		acetaminophen	1	1					acetaminophen (apap)	66 mcg/mL In Blood (unspecified) @ Unknown
1023h	68 y M				A	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen (apap)	85 mcg/mL In Blood (unspecified) @ Unknown
		warfarin	2	2						
		metformin	3	3						
1024h	68 y F				U	Ingst	Int-S	2		
		acetaminophen	1	1						
		diphenhydramine	2	2						
1025ai	68 y M				U	Unk	Int-A	1		
		fentanyl	1	1						
		morphine	2	2						
		oxycodone	3	3						
1026	68 y F				A/C	Ingst	Int-S	1		
		tramadol	1	1						

(continued)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		duloxetine (ER)	2	2						
		oxycodone	3	3					acetaminophen (apap)	160 mcg/mL In Blood (unspecified) @ 6 h (pe)
		oxycodone	3	3					acetaminophen (apap)	227 mcg/mL In Blood (unspecified) @ 5 m (pe)
		zolpidem	4	4						
1027h	69 y F				U	Ingst	Int-A	2		
		acetaminophen/oxycodone	1	1						
		ethanol	2	1					ethanol	131 mg/dL In Blood (unspecified) @ Unknown
1028h	69 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	222.2 mcg/mL In Blood (unspecified) @ 0 s (pa)
		ethanol	2	2					ethanol	30 mg/dL In Blood (unspecified) @ 0 s (pa)
1029h	69 y F				A	Ingst	Int-S	2		
		acetaminophen/hydrocodone	1	1						
		zolpidem	2	2						
		alprazolam	3	3						
		ethanol	4	4						
1030pha	69 y M				A	Unk	Unk	1		
		fentanyl	1	1					fentanyl	0.002 mg/L In Blood (unspecified) @ Autopsy
1031a	69 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	475 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	88 mcg/mL In Blood (unspecified) @ 2 d (pe)
1032	69 y F				A/C	Ingst	Int-S	2		
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	50 mcg/mL In Serum @ Unknown
		hydralazine	2	2						
		lisinopril	3	3						
		ibuprofen	4	4						
1033	69 y F				A	Ingst	Int-S	1		
		salicylate	1	1					salicylate	125 mg/dL In Blood (unspecified) @ Unknown
1034h	69 y F				C	Inhal	AR-O	2		
		acetaminophen	1	1					acetaminophen (apap)	12.5 mcg/mL In Blood (unspecified) @ Unknown
		boric acid	2	2						
		pesticide, N.O.S.	3	3						
1035ai	69 y F				U	Unk	Int-A	1		
		acetaminophen	1	1						
		narcotic, N.O.S.	2	2						
		ethanol	3	3						
1036	69 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	807 mcg/mL In Blood (unspecified) @ Unknown
1037ai	69 y M				U	Par	Int-A	2		
		heroin	1	1						
1038	69 y F				A	Ingst	Int-M	1		
		acetaminophen/diphenhydramine	1	1					acetaminophen (apap)	66.7 mcg/mL In Blood (unspecified) @ Unknown
1039	69 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	210.2 mcg/mL In Serum @ Unknown
1040i	70 y F				U	Ingst	Unk	3		
		salicylate	1	1					salicylate	54.7 mg/dL In Serum @ Unknown
1041h	70 y F				C	Ingst	Int-M	1		
		acetaminophen	1	1					acetaminophen (apap)	24.6 mg/mL In Blood (unspecified) @ 12 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	42.6 mcg/mL In Blood (unspecified) @ 10 m (pe)
		alprazolam	2	2					alpha-oh-alprazolam	1100 ng/mL In Urine (quantitative only) @ Unknown
		alprazolam	2	2					alprazolam	202 ng/mL In Urine (quantitative only) @ Unknown
		gabapentin	3	3						
		diphenhydramine	4	4						
		acetaminophen/hydrocodone	5	5					hydrocodone	1770 ng/mL In Urine (quantitative only) @ Unknown
1042	70 y M				A	Ingst	Int-S	1		
		acetaminophen/diphenhydramine	1	1						
		acetaminophen	2	2					acetaminophen (apap)	761 mcg/mL In Blood (unspecified) @ Unknown
1043h	70 y F				A/C	Ingst	Int-S	1		
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	109.5 mcg/mL In Blood (unspecified) @ Unknown
1044ai	70 y M				U	Unk	Int-A	2		
		heroin	1	1						
1045h	70 y M				A	Ingst	Int-S	2		
		colchicine	1	1						
1046h	70 y F				A/C	Ingst	Int-S	2		
		tramadol	1	1						
		buspirone	2	2						
		alprazolam	3	3						
1047h	71 y F				A	Ingst	Int-S	2		
		salicylates in combination, N.O.S.	1	1					salicylate	62 mg/dL In Blood (unspecified) @ Unknown
		acetaminophen	2	2					acetaminophen (apap)	198 mcg/mL In Blood (unspecified) @

(continued)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
										Unknown
1048h	71 y F				C	Ingst	Int-M	1		
		acetaminophen	1	1					acetaminophen (apap)	167.7 mcg/mL In Serum @ 15 m (pe)
		acetaminophen	1	1					acetaminophen (apap)	51.7 mcg/mL In Serum @ 1 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	80.4 mcg/mL In Serum @ 5.5 h (pe)
1049h	71 y F				A/C	Ingst	Int-S	3		
		meloxicam	1	1						
		lorazepam	2	2						
		zolpidem	3	3						
1050	71 y M				A/C	Ingst	Int-M	3		
		acetaminophen	1	1						
1051h	71 y F				A/C	Ingst	Unk	1		
		tramadol	1	1						
1052h	71 y F				U	Unk	Unk	1		
		acetaminophen	1	1					acetaminophen (apap)	25.2 mcg/mL In Serum @ 2 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	42.8 mcg/mL In Serum @ 1 d (pe)
		acetaminophen	1	1					acetaminophen (apap)	59.7 mcg/mL In Serum @ 9 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	72.6 mcg/mL In Serum @ 7 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	90 mcg/mL In Serum @ 1 h (pe)
1053	72 y M				U	Ingst	Unk	1		
		salicylate	1	1					salicylate	89.8 mg/dL In Blood (unspecified) @ Unknown
		acetaminophen	2	2					acetaminophen (apap)	279.5 mcg/mL In Blood (unspecified) @ Unknown
1054h	72 y F				U	Unk	Unk	3		
		salicylate	1	1					salicylate	19.6 mg/dL In Serum @ 31 h (pe)
		salicylate	1	1					salicylate	19.7 mg/dL In Serum @ 27 h (pe)
		salicylate	1	1					salicylate	26.5 mg/dL In Serum @ 22 h (pe)
		salicylate	1	1					salicylate	27.1 mg/dL In Serum @ 17.5 h (pe)
		salicylate	1	1					salicylate	28.9 mg/dL In Serum @ 9 h (pe)
		salicylate	1	1					salicylate	30.4 mg/dL In Serum @ 11.5 h (pe)
		salicylate	1	1					salicylate	34 mg/dL In Serum @ 3 h (pe)
		salicylate	1	1					salicylate	8.1 mg/dL In Serum @ 50 h (pe)
		acetaminophen	2	2					acetaminophen (apap)	46 mcg/mL In Serum @ 3 h (pe)
1055pha	72 y M				A/C	Ingst	Int-S	2		
		tramadol	1	1						
		mirtazapine	2	2						
1056ha	72 y F				U	Ingst	Int-S	2		
		acetaminophen	1	1						
1057	72 y F				A	Ingst	Int-S	1		
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	64 mcg/mL In Serum @ Unknown
1058	72 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1						
1059ha	72 y F				U	Ingst	Int-M	1		
		acetaminophen	1	1					acetaminophen (apap)	40.8 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	61 mcg/mL In Blood (unspecified) @ Unknown
1060ha	73 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	510 mcg/mL In Serum @ 15 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	561 mcg/mL In Serum @ 6 h (pe)
		acetaminophen	1	1					acetaminophen (apap)	562 mcg/mL In Serum @ 1 h (pe)
1061ph	73 y F				A/C	Ingst	Int-S	1		
		morphine	1	1						
		benzodiazepine	2	2						
1062h	73 y F				U	Ingst	Int-S	1		
		acetaminophen	1	1						
		loperamide	2	2						
1063h	74 y M				A/C	Ingst	Int-S	2		
		oxycodone	1	1						
		rivaroxaban	2	2						
1064h	74 y M				U	Ingst+ Inhal+ Par	Unk	2		
		acetaminophen	1	1					acetaminophen (apap)	140 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	1	1					acetaminophen (apap)	180.3 mcg/mL In Blood (unspecified) @ Unknown
		heroin	2	2						
		carbon monoxide	3	3						
		narcotic, N.O.S.	4	4						
1065	74 y F				A	Ingst	Unk	3		
		acetaminophen	1	1						
1066h	75 y F				A/C	Ingst	Unt-T	1		
		acetaminophen	1	1					acetaminophen (apap)	240 mcg/mL In Blood (unspecified) @ Unknown
1067	75 y F				C	Ingst	Int-U	1		
		acetaminophen	1	1					acetaminophen (apap)	256 mcg/mL In Blood (unspecified) @ Unknown
		ethanol	2	2						
1068h	75 y F				A	Ingst	Unk	2		
		acetaminophen	1	1					acetaminophen (apap)	31 mcg/mL In Blood (unspecified) @ 1 h (pe)
		digoxin	2	2					digoxin	2.7 ng/mL In Blood (unspecified) @ 1 h (pe)
1069	76 y F				C	Ingst	AR-D	2		
		acetaminophen	1	1					acetaminophen (apap)	499 mcg/mL In Serum @ Unknown
1070	76 y M				U	Ingst	Unk	3		
		salicylate	1	1					salicylate	64 mg/dL In Serum @ Unknown
		sodium bicarbonate	2	2						
1071h	76 y M				U	Ingst	Int-U	2		

(continued)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		morphine	1	1						
		acetaminophen/oxycodone	2	2					acetaminophen (apap)	19.9 mcg/mL In Blood (unspecified) @ 4 m (pe)
		alprazolam	3	3						
1072h	76 y M				A/C	Ingst	Int-M	2		
		salicylate (EC)	1	1					salicylate	29 mg/dL In Serum @ 11 h (pe)
		salicylate (EC)	1	1					salicylate	31 mg/dL In Serum @ 3 h (pe)
		acetaminophen	2	2					acetaminophen (apap)	30 mcg/mL In Serum @ 7 h (pe)
		acetaminophen	2	2					acetaminophen (apap)	57 mcg/mL In Serum @ 3 h (pe)
		acetaminophen	2	2					acetaminophen (apap)	69 mcg/mL In Serum @ 1 h (pe)
		naproxen	3	3						
1073ai	76 y F				U	Unk	Unk	2		
		fentanyl	1	1						
		methadone	2	2						
1074h	76 y F				C	Ingst	Int-M	3		
		acetaminophen	1	1						
1075h	77 y F				U	Ingst	Unk	2		
		acetaminophen	1	1					acetaminophen (apap)	263.5 mg/L In Serum @ Unknown
1076h	77 y F				C	Ingst	Int-M	3		
		salicylate	1	1						
1077ha	77 y F				C	Ingst	Unt-T	3		
		acetaminophen (ER)	1	1					acetaminophen (apap)	69.5 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen (ER)	1	1					acetaminophen (apap)	80 mcg/mL In Blood (unspecified) @ Unknown
1078h	77 y F				A	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen (apap)	109 mcg/mL In Blood (unspecified) @ 15 m (pe)
		ethanol	2	2					ethanol	12 mg/dL In Blood (unspecified) @ 15 m (pe)
1079a	78 y M				A	Ingst	Int-S	2		
		acetaminophen/codeine	1	1					acetaminophen (apap)	193 mg/L In Blood (unspecified) @ Autopsy
1080h	78 y F				U	Ingst	Int-S	3		
		salicylate	1	1					salicylate	36.2 mg/dL In Serum @ 0.5 h (pe)
1081ai	78 y M				U	Ingst	AR-D	2		
		oxycodone	1	1						
		sedative/hypnotic (OTC)	2	2						
1082h	78 y M				C	Ingst	Unt-G	2		
		acetaminophen	1	1					acetaminophen (apap)	370.8 mcg/mL In Serum @ Unknown
1083ai	78 y F				U	Unk	Int-S	1		
		oxycodone	1	1						
		lorazepam	2	2						
		methocarbamol	3	3						
1084h	79 y F				U	Ingst	Int-S	2		
		acetaminophen	1	1						
		acetaminophen/oxycodone	2	2						
		benzodiazepine	3	3						
1085ai	79 y F				U	Unk	Int-S	1		
		hydrocodone	1	1						
		alprazolam	2	2						
1086h	80 y F				A/C	Ingst	Int-S	2		
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	31.4 mcg/mL In Blood (unspecified) @ Unknown
		hydromorphone	2	2						
		alprazolam	3	3						
		gabapentin	4	4						
		spironolactone	5	5						
		ranitidine	6	6						
		hydrochlorothiazide	7	7						
		sucralfate	8	8						
		omeprazole	9	9						
1087	80 y F				U	Ingst	Int-M	3		
		acetaminophen	1	1					acetaminophen (apap)	28.9 mcg/mL In Serum @ Unknown
1088h	80 y F				U	Ingst	Unk	1		
		acetaminophen	1	1					acetaminophen (apap)	501 mcg/mL In Blood (unspecified) @ 16 h (pe)
1089ha	80 y F				U	Ingst	Unk	1		
		salicylate	1	1					salicylate	130.2 mg/dL In Blood (unspecified) @ 11 h (pe)
1090h	80 y M				A	Ingst	Int-S	2		
		oxycodone	1	1						
		zolpidem	2	2						
		gabapentin	3	3						
1091	81 y M				A	Ingst	Int-S	3		
		methadone	1	1						
		acetaminophen/hydrocodone	2	2						
		clonazepam	3	3						
1092h	81 y F				A	Ingst	Int-S	1		
		acetaminophen (ER)	1	1						
1093ha	82 y M				A/C	Ingst+ Unk	Int-S	2		
		acetaminophen/oxycodone	1	1					acetaminophen (apap)	140 mcg/mL In Blood (unspecified) @ 10 m (pe)
		acetaminophen/oxycodone	1	1					oxycodone	2000 mcg/L In Blood (unspecified) @ 10 m (pe)
		acetaminophen/oxycodone	1	1					oxymorphone	78 mcg/L In Blood (unspecified) @ 10 m (pe)
		gabapentin	2	2					gabapentin	3200 mcg/L In Blood (unspecified) @ 10 m (pe)
1094ha	83 y M				A	Ingst	Unk	1		

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		salicylate	1	1					salicylate	97.7 mg/dL In Blood (unspecified) @ Unknown
		acetaminophen	2	2					acetaminophen (apap)	150 mg/L In Blood (unspecified) @ Unknown
1095	84 y M				A	Ingst	Int-M	2		
		oxycodone	1	1						
		gabapentin	2	2						
		zaleplon	3	3						
		mirtazapine	4	4						
		diphenhydramine	5	5						
1096ai	84 y M				A	Ingst	Int-S	2		
		morphine	1	1						
1097pa	86 y F				A	Ingst	Int-S	3		
		acetaminophen/hydrocodone	1	1					acetaminophen (apap)	82 mcg/mL In Blood (unspecified) @ Unknown
1098ai	86 y F				A	Ingst	Unt-G	2		
		oxycodone	1	1						
1099h	86 y F				A/C	Ingst+ Par	Int-S	2		
		salicylate	1	1						
		sodium bicarbonate	2	2						
1100h	87 y M				U	Ingst	Int-U	2		
		salicylate	1	1						
		ibuprofen	2	2						
		prednisone	3	3						
1101p	88 y F				A	Ingst	Int-S	3		
		tramadol	1	1						
		ethanol	2	2						
		trazodone	3	3						
1102h	88 y F				A/C	Ingst	Unt-T	3		
		acetaminophen	1	1					acetaminophen (apap)	66 mcg/mL In Serum @ Unknown
1103h	88 y F				U	Ingst	Unk	3		
		acetaminophen/codeine	1	1					acetaminophen (apap)	10 mcg/mL In Blood (unspecified) @ Unknown
1104h	88 y F				A	Ingst	Int-S	2		
		acetaminophen	1	1					acetaminophen (apap)	80 mcg/mL In Serum @ 3 d (pe)
1105ha	89 y F				A	Ingst	Int-S	1		
		acetaminophen/codeine	1	1					acetaminophen (apap)	390 mcg/mL In Blood (unspecified) @ Autopsy
		acetaminophen/codeine	1	1					codeine (free)	42009 ng/mL In Blood (unspecified) @ Autopsy
		acetaminophen/codeine	1	1					morphine (free)	74 ng/mL In Blood (unspecified) @ Autopsy
		diazepam	2	2					nordiazepam	420 ng/mL In Blood (unspecified) @ Autopsy
		chlordiazepoxide	3	3					chlordiazepoxide	570 ng/mL In Blood (unspecified) @ Autopsy
		paroxetine	4	4					paroxetine	77 ng/mL In Blood (unspecified) @ Autopsy
		Fosamax	5	5						
		warfarin	6	6						
		amlodipine	7	7						
		atorvastain	8	8						
		bethanechol	9	9						
		fenofibrate	10	10						
		lactulose	11	11						
		omeprazole	12	12						
1106ha	90 y F				A/C	Ingst	Int-S	1		
		acetaminophen/codeine	1	1					acetaminophen (apap)	167.5 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/codeine	1	1					morphine (free)	400 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen/codeine	1	1					codeine (free)	6900 ng/mL In Blood (unspecified) @ Unknown
1107ha	90 y F				U	Ingst	Unt-G	3		
		acetaminophen	1	1					acetaminophen (apap)	99 mcg/mL In Blood (unspecified) @ Unknown
1108h	91 y F				C	Ingst	Unt-M	2		
		acetaminophen	1	1					acetaminophen (apap)	78.8 mcg/mL In Blood (unspecified) @ 15 s (pa)
1109	91 y F				A	Ingst	Int-S	1		
		acetaminophen	1	1					acetaminophen (apap)	340 mcg/mL In Blood (unspecified) @ Unknown
		quetiapine	2	2						
1110h	91 y F				A	Par	Unt-T	3		
		morphine	1	1						
1111h	91 y M				A	Ingst	Unk	3		
		acetaminophen/hydrocodone	1	1						
		ibuprofen	2	2						
1112	92 y F				U	Ingst	Unk	1		
		acetaminophen	1	1					acetaminophen (apap)	250 mcg/mL In Blood (unspecified) @ Unknown
1113p	8 m M				A	Unk	Unt-G	1		
		fentanyl	1	1						
1114p	15 m F				A	Ingst	Unt-G	2		
		fentanyl	1	1						
1115ai	20+ y M				U	Inhal	Int-A	2		
		heroin	1	1						
1116ai	20+ y M				U	Unk	Int-A	2		
		heroin	1	1						
1117ai	20+ y M				U	Par	Int-A	2		

(continued)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		narcotic, N.O.S.	1	1						
1118ai	30+ y M				U	Par	Int-A	2		
		heroin	1	1						
1119ai	30+ y F				U	Inhal	Int-A	2		
		heroin	1	1						
1120ai	30+ y M				U	Inhal	Int-A	2		
		narcotic, N.O.S.	1	1						
		cocaine	2	2						
1121ai	40+ y M				U	Par	Int-A	2		
		narcotic, N.O.S.	1	1						
1122ai	40+ y M				U	Par	Int-A	2		
		heroin	1	1						
1123ai	40+ y M				U	Par	Int-A	2		
		heroin	1	1						
1124ai	40+ y M				U	Unk	Unk	2		
		narcotic, N.O.S.	1	1						
1125ai	60+ y M				A	Par	Int-A	2		
		narcotic, N.O.S.	1	1						
1126pai	Unknown adult (>=20 yrs) M				A	Unk	Int-S	1		
		heroin	1	1					6-mam (6-monoacetylmorphine)	1.7 ng/mL In Blood (unspecified) @ Autopsy
		heroin	1	1					codeine (free)	50 ng/mL In Blood (unspecified) @ Autopsy
		heroin	1	1					morphine (free)	650 ng/mL In Blood (unspecified) @ Autopsy
		methamphetamine	2	2					methamphetamine	510 ng/mL In Blood (unspecified) @ Autopsy
		methamphetamine	2	2					amphetamine	60 ng/mL In Blood (unspecified) @ Autopsy
		clonazepam	3	3					7-aminoclonazepam	110 ng/mL In Blood (unspecified) @ Autopsy
		citalopram	4	4					citralopram	90 ng/mL In Blood (unspecified) @ Autopsy
1127p	Unknown adult (>=20 yrs) F				A	Inhal	Int-A	2		
		fentanyl	1	1						
		cocaine	2	2						
1128ai	Unknown adult (>=20 yrs) M				A/C	Unk	Int-A	2		
		heroin	1	1						
1129ai	Unknown adult (>=20 yrs) M				U	Par	Int-A	2		
		narcotic, N.O.S.	1	1						
1130ai	Unknown adult (>=20 yrs) M				U	Par	Int-A	2		
		narcotic, N.O.S.	1	1						
1131p	Unknown adult (>=20 yrs) M				A	Ingst	Unk	2		
		narcotic, N.O.S.	1	1						

See Also case 21, 25, 37, 50, 60, 145, 174, 221, 321, 1139, 1141, 1142, 1157, 1158, 1168, 1169, 1172, 1174, 1197, 1198, 1212, 1221, 1224, 1225, 1231, 1233, 1237, 1240, 1244, 1245, 1249, 1250, 1253, 1275, 1281, 1293, 1296, 1301, 1304, 1307, 1308, 1310, 1312, 1326, 1327, 1330, 1331, 1345, 1346, 1348, 1349, 1355, 1358, 1363, 1375, 1383, 1389, 1396, 1397, 1413, 1417, 1438, 1439, 1442, 1449, 1457, 1464, 1470, 1481, 1488, 1492, 1496, 1500, 1504, 1508, 1514, 1519, 1522, 1524, 1533, 1534, 1544, 1549, 1578, 1585, 1594, 1604, 1618, 1620, 1625, 1632, 1640, 1653, 1657, 1659, 1660, 1667, 1668, 1670, 1671, 1676, 1683, 1684, 1694, 1695, 1696, 1697, 1702, 1704, 1707, 1711, 1712, 1718, 1721, 1728, 1731, 1735, 1737, 1770, 1771, 1772, 1779, 1788, 1791, 1795, 1797, 1798, 1805, 1808, 1812, 1814, 1817, 1818, 1830, 1840, 1841, 1842, 1843, 1844, 1852, 1854, 1856, 1858, 1867, 1872, 1876, 1883, 1884, 1886, 1892, 1897, 1898, 1902, 1907, 1908, 1909, 1917, 1927, 1937, 1944, 1949, 1957, 1968, 1972, 1979, 2018, 2023, 2027, 2034

Anesthetics

[1132ha]	25 y M				A	Ingst	Unk	1		
		ketamine	1	1					ketamine	1400 ng/mL In Blood (unspecified) @ Autopsy
		ketamine	1	1					norketamine	240 ng/mL In Blood (unspecified) @ Autopsy
		etizolam	2	2					etizolam	42 ng/mL In Blood (unspecified) @ Autopsy
		dextromethorphan	3	3					dextromethorphan	370 ng/mL In Blood (unspecified) @ Autopsy
		Mitragyna speciosa korthals	4	4					mitragynine	170 ng/mL In Blood (unspecified) @ Autopsy
		lysergic acid diethylamide (LSD)	5	5						
		ethanol	6	6						
1133ph	43 y F				U	Par	Int-S	2		
		ketamine	1	1						
1134pha	45 y F				A	Inhal	Int-A	2		
		isoflurane	1	1						
1135ha	51 y M				U	Ingst+ Par	Unt-T	2		
		ketamine	1	1					norketamine	240 ng/mL In Plasma @ 1 h (pe)
		ketamine	1	1					ketamine	730 ng/mL In Plasma @ 1 h (pe)
		ethanol	2	2					ethanol	180 mg/dL In Plasma @ 1 h (pe)
		metformin	3	3						
1136h	63 y M				A	Inhal+ Par	AR-D	3		
		sevoflurane	1	1						
1137h	64 y M				A	Par	AR-D	2		
		bupivacaine	1	1						
		methylene blue	2	2						
		lipid emulsion	3	3						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
[1138h]	68 y M				A	Par	Unt-T	2		
		lidocaine	1	1						
See Also case 511										
Anticholinergic Drugs										
1139ph	23 y F				A/C	Ingst	Int-S	2		
		benztropine	1	1						
		buprenorphine/naloxone (sublingual film)	2	2						
		gabapentin	3	3						
		fluoxetine	4	4						
		risperidone	5	5						
		heroin	6	6						
		methylenedioxymethamphetamine (MDMA)	7	7						
		alprazolam	8	8						
See Also case 912, 1153, 1247, 1681										
Anticoagulants										
1140ph	36 y F				A	Ingst	Int-S	2		
		apixiban	1	1						
		ethanol	2	2						
		omeprazole	3	3						
		tamsulosin	4	4						
1141ph	49 y M				U	Ingst+ Unk	Unk	2		
		warfarin	1	1						
		salicylate	2	2						
		isopropanol	3	3						
		permethrin	4	4						
		alcohol, N.O.S.	5	5						
1142h	70 y F				A/C	Ingst	Unt-T	2		
		apixiban	1	1						
		ibuprofen	2	2						
		diuretic, N.O.S.	3	3						
1143	73 y M				A	Ingst	Unt-T	2		
		rivaroxaban	1	1						
		metoprolol (ER)	2	2						
1144h	80 y M				A	Par	AR-D	1		
		eptifibatide	1	1						
See Also case 378, 1023, 1063, 1105, 1172, 1378, 1425, 1429, 1438, 1462, 1479, 1481, 1487, 1505, 1512, 1540, 1565										
Anticonvulsants										
1145h	18 y M				A	Ingst+ Unk	Int-S	2		
		gabapentin	1	1						
		amphetamine	2	2						
1146ha	19 y F				A/C	Ingst	Int-S	1		
		lacosamide	1	1						
		fluoxetine	2	2						
1147ph	19 y F				A/C	Ingst	Int-U	2		
		lamotrigine	1	1						
1148	21 y M				A	Ingst	Int-S	2		
		lamotrigine	1	1						
1149p	28 y F				A	Ingst	Int-S	1		
		lacosamide	1	1						
1150a	28 y F				A	Ingst	Int-S	2		
		gabapentin	1	1					gabapentin	17.8 mg/L In Blood (unspecified) @ Autopsy
		duloxetine (ER)	2	2					duloxetine	0.118 mg/L In Blood (unspecified) @ Autopsy
		ethanol	3	3						
1151ph	30 y M				A	Ingst	Unk	3		
		gabapentin	1	1						
1152	32 y F				A/C	Ingst	Int-S	3		
		gabapentin	1	1						
1153h	32 y M				A/C	Ingst+ Aspir	Int-S	1		
		carbamazepine	1	1					carbamazepine	51 mcg/mL In Blood (unspecified) @ 1 h (pe)
		quetiapine	2	2						
		benztropine	3	3						
		risperidone	4	4						
1154a	33 y F				A/C	Ingst	Int-S	3		
		topiramate	1	1						
		quetiapine	2	2						
		gabapentin	3	3						
		allopurinol	4	4						
		ethanol	5	5					ethanol	166 mg/dL In Blood (unspecified) @ Unknown
		cocaine	6	6						
		venlafaxine	7	7						
1155pa	33 y F				A/C	Ingst	Unk	3		
		gabapentin	1	1					gabapentin	22 mg/L In Blood (unspecified) @ Autopsy
1156ph	39 y M				A	Ingst	Int-S	3		
		gabapentin	1	1						
1157pha	39 y F				A/C	Ingst	Int-S	1		
		gabapentin	1	1					gabapentin	130 mcg/mL In Blood (unspecified) @ Autopsy
		amitriptyline	2	2					nortriptyline	190 ng/mL In Blood (unspecified) @ Autopsy
		amitriptyline	2	2					amitriptyline	400 ng/mL In Blood (unspecified) @ Autopsy
		buprenorphine	3	3					buprenorphine	20 ng/mL In Blood (unspecified) @ Autopsy

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		buprenorphine	3	3					norbuprenorphine	28 ng/mL In Blood (unspecified) @ Autopsy
1158ha	42 y M				A/C	Ingst+ Inhal	Int-S	1		
		topiramate	1	1						
		quetiapine	2	2						
		fentanyl	3	3						
		methamphetamine	4	4						
		cocaine	5	5						
		morphine	6	6						
		ziprasidone	7	7						
1159ai	42 y M				U	Ingst+ Unk	Int-A	1		
		gabapentin	1	1						
		trazodone	2	2						
		ethanol	3	3						
1160pha	43 y F				C	Ingst	Int-S	1		
		valproic acid (ER)	1	1					valproic acid	450 mcg/mL In Blood (unspecified) @ Unknown
1161pha	45 y F				A/C	Ingst	Int-S	1		
		lamotrigine	1	1					lamotrigine	41000 mcg/L In Blood (unspecified) @ 15 m (pe)
		ethanol	2	2					ethanol	245 mg/dL In Blood (unspecified) @ 15 m (pe)
1162pha	47 y F				A/C	Ingst	Int-S	2		
		lamotrigine	1	1						
		aripiprazole	2	2						
		sertraline	3	3						
1163h	48 y F				A/C	Ingst	Int-S	1		
		valproic acid (ER)	1	1					valproic acid	208 mcg/mL In Serum @ 2 d (pe)
		valproic acid (ER)	1	1					valproic acid	230 mcg/mL In Serum @ 2 d (pe)
		valproic acid (ER)	1	1					valproic acid	301 mcg/mL In Serum @ 1 d (pe)
		valproic acid (ER)	1	1					valproic acid	315 mcg/mL In Serum @ 3 h (pe)
		quetiapine	2	2						
		trazodone	3	3						
		topiramate	4	4						
		levothyroxine	5	5						
		sertraline	6	6						
		losartan	7	7						
1164	51 y F				A	Ingst	Int-S	3		
		gabapentin	1	1						
1165ha	52 y F				A/C	Ingst	Int-S	1		
		gabapentin	1	1						
		metoprolol (ER)	2	2						
		lorazepam	6	3					lorazepam	270 ng/mL In Blood (unspecified) @ 1 h (pe)
		amitriptyline	3	4						
		hydroxyzine	4	5						
		citalopram	5	6						
		zolpidem	7	7						
		irbesartan	8	8						
1166h	53 y M				A	Ingst	Int-S	2		
		carbamazepine	1	1					carbamazepine	25.4 mcg/mL In Blood (unspecified) @ Unknown
1167h	56 y M				A	Ingst	Int-S	1		
		valproic acid	1	1					valproic acid	464 mg/dL In Blood (unspecified) @ 30 h (pe)
		valproic acid	1	1					valproic acid	51 mg/dL In Blood (unspecified) @ 20 h (pe)
		quetiapine	2	2						
1168h	56 y M				A/C	Ingst	Int-S	2		
		primidone	1	1					phenobarbital	13 mcg/mL In Blood (unspecified) @ 1 h (pe)
		lithium	2	2					lithium	0.8 mEq/L In Blood (unspecified) @ 1 h (pe)
		insulin (aspart)	3	3						
		naproxen	4	4						
		atorvastain	5	5						
1169h	57 y M				A/C	Ingst	Int-S	2		
		valproic acid	1	1						
		lisinopril	2	2						
		hydrochlorothiazide	3	3						
		hydroxyzine	4	4						
		duloxetine (ER)	5	5						
		clonidine	6	6						
		clindamycin	7	7						
		pravastatin	8	8						
		bisprolol/hydrochlorothiazide	9	9						
		alprazolam	10	10						
		mirtazapine	11	11						
		tramadol	12	12						
1170h	57 y M				A/C	Ingst	Int-S	1		
		valproic acid (ER)	2	1					valproic acid	11.2 mcg/mL In Blood (unspecified) @ 7 d (pe)
		valproic acid (ER)	2	1					valproic acid	151 mcg/mL In Blood (unspecified) @ 1 d (pe)
		valproic acid (ER)	2	1					valproic acid	151 mcg/mL In Blood (unspecified) @ 2 d (pe)
		valproic acid (ER)	2	1					valproic acid	151 mcg/mL In Blood (unspecified) @ 2 h (pe)
		valproic acid (ER)	2	1					valproic acid	151 mcg/mL In Blood (unspecified) @ 3 d (pe)

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		valproic acid (ER)	2	1					valproic acid	151 mcg/mL In Blood (unspecified) @ 4 d (pe)
		valproic acid (ER)	2	1					valproic acid	2.3 mcg/mL In Blood (unspecified) @ 9 d (pe)
		valproic acid (ER)	2	1					valproic acid (free)	238.5 mcg/mL In Blood (unspecified) @ 3 d (pe)
		valproic acid (ER)	2	1					valproic acid	30.5 mcg/mL In Blood (unspecified) @ 6 d (pe)
		valproic acid (ER)	2	1					valproic acid (free)	451 mcg/mL In Blood (unspecified) @ 4 d (pe)
		valproic acid (ER)	2	1					valproic acid	51.7 mcg/mL In Blood (unspecified) @ 5 d (pe)
		valproic acid (ER)	2	1					valproic acid	6 mcg/mL In Blood (unspecified) @ 8 d (pe)
		bupropion (ER)	1	2						
		sertraline	3	3						
1171	66 y F				A/C	Ingst	Int-U	3		
		phenytoin	1	1					phenytoin	39.3 mcg/mL In Serum @ Unknown
1172h	70 y F				A/C	Ingst	Int-S	1		
		gabapentin	2	1					digoxin	4.5 mg/L In Serum @ 4 h (pe)
		digoxin	1	2						
		amiodarone	3	3						
		apixiban	4	4						
		meloxicam	5	5						
		omeprazole (ER)	6	6						
1173h	75 y M				C	Ingst	AR-D	3		
		phenytoin	1	1						
See Also case 36, 401, 440, 467, 518, 554, 567, 621, 626, 708, 721, 757, 760, 767, 774, 853, 855, 892, 917, 1041, 1086, 1090, 1093, 1095, 1139, 1186, 1198, 1200, 1206, 1207, 1211, 1214, 1217, 1219, 1221, 1224, 1225, 1227, 1230, 1231, 1232, 1239, 1245, 1247, 1249, 1253, 1259, 1277, 1280, 1287, 1348, 1349, 1359, 1374, 1383, 1413, 1438, 1439, 1456, 1464, 1476, 1479, 1522, 1529, 1533, 1536, 1564, 1576, 1595, 1604, 1624, 1640, 1653, 1662, 1671, 1680, 1688, 1699, 1713, 1715, 1719, 1729, 1736, 1749, 1784, 1851, 1905										
Antidepressants										
1174h	13 y F				A	Ingst	Int-S	2		
		sertraline	1	1						
		metformin	2	2						
		acetaminophen/oxycodone	3	3						
		aripiprazole	4	4						
		methylphenidate	5	5						
		metronidazole	6	6						
1175pha	13 y F				A/C	Ingst	Int-S	1		
		bupropion (ER)	1	1					bupropion	1100 ng/mL In Blood (unspecified) @ Autopsy
		bupropion (ER)	1	1					hydroxybupropion	2300 ng/mL In Blood (unspecified) @ Autopsy
		fluoxetine	2	2					norfluoxetine	290 ng/mL In Blood (unspecified) @ Autopsy
		fluoxetine	2	2					fluoxetine	780 ng/mL In Blood (unspecified) @ Autopsy
		hydroxyzine	3	3					hydroxyzine	160 mg/mL In Blood (unspecified) @ Autopsy
		mirtazapine	4	4					mirtazapine	110 ng/mL In Blood (unspecified) @ Autopsy
1176ph	15 y F				U	Ingst+ Unk	Int-S	2		
		bupropion	1	1						
		sertraline	2	2						
		diphenhydramine	3	3						
1177ph	15 y F				A	Ingst	Int-S	2		
		escitalopram	1	1						
1178h	15 y F				U	Ingst	Int-U	2		
		escitalopram	1	1						
1179h	17 y M				A/C	Ingst	Int-S	1		
		bupropion (ER)	1	1						
1180pha	17 y F				U	Ingst	Int-S	1		
		bupropion	1	1					bupropion	14.5 mcg/mL In Blood (unspecified) @ Autopsy
		citalopram	2	2					citralopram	1.6 mcg/mL In Blood (unspecified) @ Autopsy
1181ha	17 y F				A/C	Ingst	Int-S	1		
		bupropion (ER)	1	1					bupropion	2.1 mcg/mL In Blood (unspecified) @ Autopsy
		clonidine	2	2						
1182pha	19 y M				A	Ingst	Int-S	1		
		bupropion	1	1					bupropion	2200 ng/mL In Blood (unspecified) @ Unknown
		bupropion	1	1					hydroxybupropion	3200 ng/mL In Blood (unspecified) @ Unknown
		venlafaxine	2	2					o-desmethyl-venlafaxine	1000 ng/mL In Blood (unspecified) @ Unknown
		venlafaxine	2	2					venlafaxine	8800 ng/mL In Blood (unspecified) @ Unknown
1183h	19 y F				A	Ingst	Int-S	2		
		bupropion (ER)	1	1						
1184ha	19 y F				A/C	Ingst	Int-S	1		
		venlafaxine (ER)	1	1					venlafaxine	37417 ng/mL In Blood (unspecified) @ 1 h (pe)
		cariprazine	2	2						
1185p	20 y M				A	Ingst	Int-U	2		
		bupropion	1	1						
1186ph	20 y F				U	Ingst	Int-S	2		
		trazodone	1	1						
		lamotrigine	2	2						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		gabapentin	3	3						
		cyclobenzaprine	4	4						
		fluoxetine	5	5						
		ethanol	6	6						
1187ha	21 y F				U	Ingst	Int-S	1		
		bupropion	1	1					bupropion	1.9 mg/L In Blood (unspecified) @ Unknown
		bupropion	1	1					hydroxybupropion	5.1 mg/L In Blood (unspecified) @ Unknown
1188ph	21 y F				A	Ingst	Int-S	2		
		amitriptyline	1	1						
		prazosin	2	2						
		cyproheptadine	3	3						
		methamphetamine	4	4						
1189	21 y M				A	Ingst	Int-S	2		
		venlafaxine	1	1						
1190h	22 y M				A/C	Ingst	Unk	2		
		bupropion	1	1						
		alcohol, N.O.S.	2	2					ethanol	82 mg/dL In Blood (unspecified) @ Unknown
1191p	22 y M				A	Ingst	Int-S	2		
		amitriptyline	1	1						
1192ph	22 y F				U	Ingst	Int-S	2		
		bupropion	1	1						
		zolpidem	2	2						
		quetiapine	3	3						
		prazosin	4	4						
1193ha	23 y M				A/C	Ingst	Int-S	1		
		bupropion (ER)	1	1						
		ethanol	2	2						
1194h	23 y F				A	Ingst	Int-S	1		
		bupropion	1	1						
1195h	24 y F				A/C	Ingst	Int-S	1		
		bupropion	1	1						
		amphetamine/dextroamphetamine	2	2					amphetamine	331 ng/mL In Blood (unspecified) @ 1 d (pe)
		escitalopram	3	3						
		ethanol	4	4						
		sodium bicarbonate	5	5						
1196h	24 y F				A/C	Ingst	Int-S	1		
		bupropion (ER)	1	1						
1197ha	27 y F				A/C	Ingst	Int-S	1		
		bupropion	1	1					hydroxybupropion	1.1 mcg/mL In Blood (unspecified) @ 4 h (pe)
		bupropion	1	1					bupropion	1.9 mcg/mL In Blood (unspecified) @ 4 h (pe)
		hydrocodone	2	2					hydrocodone (free)	13 ng/mL In Blood (unspecified) @ 4 h (pe)
1198	27 y F				A/C	Ingst	Int-S	1		
		amitriptyline	1	1						
		tizanidine	2	2						
		fluoxetine	3	3						
		acetaminophen/pamabron	4	4						
		lamotrigine	5	5						
1199ai	27 y M				U	Unk	Int-A	1		
		trazodone	1	1						
		ethanol	2	2						
1200h	28 y F				U	Ingst	Int-S	2		
		bupropion	1	1						
		buspirone	2	2						
		gabapentin	3	3						
		fluoxetine	4	4						
1201ha	28 y M				A/C	Ingst	Int-S	1		
		venlafaxine (ER)	1	1						
		trazodone	2	2						
1202pha	29 y F				A	Ingst	Int-S	1		
		amitriptyline	1	1					amitriptyline	1.04 mg/L In Blood (unspecified) @ Autopsy
		buspirone	2	2						
1203ph	29 y F				A/C	Ingst	Int-S	2		
		venlafaxine	1	1						
		quetiapine	2	2						
		sertraline	3	3						
1204h	30 y F				U	Ingst	Int-S	1		
		duloxetine (ER)	1	1						
		drug, N.O.S.	2	2						
1205h	31 y F				A	Ingst	Unk	2		
		bupropion	1	1						
		hydroxyzine	2	2						
		lithium	3	3						
1206h	32 y F				U	Ingst+ Aspir	Int-S	2		
		bupropion (ER)	1	1						
		lamotrigine (ER)	2	2						
1207pha	33 y F				A	Ingst	Int-U	1		
		bupropion	1	1						
		gabapentin	2	2						
		methamphetamine	3	3						
1208a	33 y F				U	Ingst	Unk	1		
		bupropion	1	1					benzoylecognine	1.2 mg/L In Blood (unspecified) @ Autopsy

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		bupropion	1	1					bupropion	2 mg/L In Blood (unspecified) @ Autopsy
		cocaine	2	2						
[1209ha]	33 y M				U	Ingst	Int-S	1		
		venlafaxine	1	1					venlafaxine	26.27 mg/L In Blood (unspecified) @ Unknown
1210h	33 y F				A/C	Ingst	Unt-G	2		
		bupropion	1	1						
		benzodiazepine	2	2						
		thyroid preparation	3	3						
		lurasidone	4	4						
1211h	33 y F				U	Ingst	Int-S	2		
		bupropion	1	1						
		gabapentin	2	2						
1212ha	34 y F				A/C	Ingst	Int-S	2		
		bupropion	1	1					bupropion	130 ng/mL In Whole Blood @ Unknown
		bupropion	1	1					hydroxybupropion	3000 ng/mL In Whole Blood @ Unknown
		diphenhydramine	2	2					diphenhydramine	250 ng/mL In Whole Blood @ Unknown
		clonidine	3	3						
		acetaminophen/hydrocodone	4	4						
		sedative-hypnotic-antianxiety-antipsychotic drug, N.O.S.	5	5						
		lorazepam	6	6					lorazepam	6.8 ng/mL In Whole Blood @ Unknown
1213ph	34 y M				A/C	Inhal+ Unk	Unk	1		
		bupropion	1	1					hydroxybupropion	0.79 mg/L In Blood (unspecified) @ Unknown
		alprazolam	2	2					alprazolam	0.08 mg/L In Blood (unspecified) @ Unknown
		alprazolam	2	2					alprazolam	2.2 mg/L In Urine (quantitative only) @ Unknown
		alprazolam	2	2					alpha-oh-alprazolam	2.33 mg/L In Urine (quantitative only) @ Unknown
1214p	34 y F				U	Ingst	Int-S	2		
		doxepin	1	1						
		hydroxzine	2	2						
		topiramate	3	3						
		pantoprazole (ER)	4	4						
		escitaopram	5	5						
1215h	35 y M				U	Ingst	Int-S	2		
		amitriptyline	1	1						
1216	35 y M				A	Ingst	Int-S	2		
		sertraline	1	1						
		bupropion	2	2						
1217ha	35 y M				A/C	Ingst	Int-S	2		
		venlafaxine (ER)	1	1						
		pregabalin (ER)	2	2						
		sertraline	3	3						
		dextromethorphan	4	4						
		ethanol	5	5						
		bupropion (ER)	6	6						
1218h	36 y F				U	Ingst	Int-S	2		
		doxepin	1	1						
		alprazolam	2	2						
1219ha	37 y F				A	Ingst+ Par	Int-S	1		
		bupropion	1	1					bupropion	110 ng/mL In Blood (unspecified) @ Autopsy
		bupropion	1	1					hydroxybupropion	2400 ng/mL In Blood (unspecified) @ Autopsy
		gabapentin	2	2					gabapentin	75 mcg/mL In Blood (unspecified) @ Autopsy
		hydroxyzine	3	3						
		naltrexone (ER)	4	4						
1220h	38 y F				A	Ingst	Int-S	2		
		amitriptyline	1	1						
		quetiapine	2	2						
1221	38 y M				A/C	Ingst	Int-S	2		
		venlafaxine	1	1						
		methadone	2	2						
		alpha-adrenergic blocker	3	3						
		gabapentin	4	4						
		olanzapine	5	5						
		zyrtec	6	6						
1222h	40 y F				A/C	Ingst	Int-S	3		
		venlafaxine (ER)	1	1						
		clonazepam	2	2						
		fluoxetine	3	3						
		olanzapine	4	4						
1223h	40 y F				A/C	Ingst	Int-U	2		
		trazodone	1	1						
		diazepam	2	2						
		ethanol	3	3						
1224p	40 y F				A/C	Ingst	Int-S	2		
		doxepin	1	1						
		oxcarbazepine	2	2						
		oxcarbazepine	3	3						
		ranitidine	4	4						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		gabapentin	5	5						
		olanzapine	6	6						
		diphenhydramine	7	7						
		acetaminophen/codeine	8	8						
		ibuprofen	9	9						
		zolpidem	10	10						
		escitalopram	11	11						
1225	40 y M				A	Ingst	Int-S	2		
		amitriptyline	1	1						
		gabapentin	2	2						
		diclofenac	3	3						
		carbamazepine	4	4						
		angiotensin converting enzyme inhibitor	5	5						
		antivert	6	6						
		tizanidine	7	7						
		ethanol	8	8						
1226ph	40 y F				A	Ingst	Int-S	2		
		duloxetine (ER)	1	1						
		cyclobenzaprine	2	2						
		trazodone	3	3						
		omeprazole	4	4						
1227	41 y F				A/C	Ingst	Int-S	3		
		bupropion	1	1						
		venlafaxine	2	2						
		gabapentin	3	3						
		hydroxyzine	4	4						
		trazodone	5	5						
1228h	42 y F				A	Ingst	Int-S	2		
		amitriptyline	1	1						
		ethanol	2	2						
1229ha	42 y F				A	Ingst	Int-S	1		
		bupropion	1	1					bupropion	4.7 mg/L In Blood (unspecified) @ Autopsy
		amlodipine	2	2						
		sertraline	3	3						
1230h	42 y M				A/C	Ingst	Int-M	3		
		duloxetine (ER)	1	1						
		trazodone	2	2						
		quetiapine	3	3						
		hydroxyzine	4	4						
		lamotrigine	5	5						
		alprazolam	6	6						
1231ha	43 y F				A/C	Ingst	Int-S	1		
		bupropion	1	1					bupropion	28 ng/mL In Blood (unspecified) @ 30 m (pe)
		bupropion	1	1					hydroxybupropion	670 ng/mL In Blood (unspecified) @ 30 m (pe)
		venlafaxine	2	2					venlafaxine	140 ng/mL In Blood (unspecified) @ 30 m (pe)
		quetiapine	3	3					quetiapine	280 ng/mL In Blood (unspecified) @ 30 m (pe)
		acetaminophen/hydrocodone	4	4						
		lorazepam	5	5						
		lamotrigine	6	6					lamotrigine	4.7 mcg/mL In Blood (unspecified) @ 30 m (pe)
1232pa	44 y F				U	Ingst	Int-S	1		
		nortriptyline	1	1					nortriptyline	1190 ng/mL In Blood (unspecified) @ Unknown
		gabapentin	2	2					gabapentin	45.8 mcg/mL In Blood (unspecified) @ Unknown
		promethazine	3	3					promethazine	43 ng/mL In Blood (unspecified) @ Unknown
1233	44 y M				A	Ingst	Int-S	2		
		bupropion (ER)	1	1						
		escitalopram	2	2						
		angiotensin converting enzyme inhibitor	3	3						
		antipsychotic (atypical)	4	4						
		celecoxib	5	5						
		estradiol	6	6						
		alprazolam	7	7						
1234ph	44 y F				A	Ingst	Int-S	1		
		bupropion	1	1						
1235ph	45 y M				U	Ingst	Int-S	1		
		bupropion	1	1						
1236p	45 y F				A	Ingst	Int-S	2		
		bupropion (ER)	1	1						
		zolpidem	2	2						
1237ph	46 y F				A	Ingst	Int-S	2		
		doxepin	1	1						
		acetaminophen/diphenhydramine/pseudoephedrine	2	2						
		buprenorphine/naloxone (sublingual film)	3	3						
		hydroxyzine	4	4						
1238pha	46 y F				U	Ingst	Unk	1		
		amitriptyline	2	1						
		propranolol	1	1					propranolol	3600 ng/mL In Blood (unspecified) @ 2.5 h (pe)

(continued)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1239p	46 y F				U	Ingst	Unk	2		
		amitriptyline	1	1						
		doxepin	2	2						
		citalopram	3	3						
		aripiprazole	4	4						
		zolpidem	5	5						
		lamotrigine	6	6						
		clonazepam	7	7						
		ethanol	8	8						
1240ph	47 y F				A	Ingst	Int-S	2		
		bupropion (ER)	1	1						
		fluoxetine	2	2						
		Tramadol	3	3						
		cyclobenzaprine	4	4						
		acetaminophen	5	5					acetaminophen (apap)	17 mcg/mL In Blood (unspecified) @ 1 h (pe)
		ethanol	6	6						
1241ha	50 y F				A/C	Ingst	Int-S	1		
		bupropion	1	1						
		quetiapine	2	2					quetiapine	2560 ng/mL In Blood (unspecified) @ 1 h (pe)
1242ha	50 y F				A/C	Ingst	Int-S	1		
		venlafaxine	1	1					o-desmethyl-venlafaxine	1757 ng/mL In Serum @ Unknown
		venlafaxine	1	1					venlafaxine	5349 ng/mL In Serum @ Unknown
1243i	50 y M				U	Ingst	Int-S	1		
		bupropion	1	1						
1244h	50 y F				A	Ingst	Int-S	3		
		sertraline	1	1						
		terazosin	2	2						
		naproxen	3	3						
		meloxicam	4	4						
		hydrochlorothiazide/triamterene	5	5						
1245h	52 y F				A/C	Ingst	Int-S	1		
		bupropion (ER)	1	1						
		nortriptyline	2	2						
		clomipramine	3	3						
		quetiapine	4	4						
		olanzapine	5	5						
		escitalopram	6	6						
		trazodone	7	7						
		hyoscyamine	8	8						
		pregabalin	9	9						
		clonazepam	10	10						
		indomethacin	11	11						
		doxycycline	12	12						
		lorazepam	13	13						
		ciprofloxacin	14	14						
		leflunomide	15	15						
		nitrofurantoin	16	16						
		lithium	17	17						
		diazepam	18	18						
1246	52 y F				A/C	Ingst	Int-S	1		
		amitriptyline	1	1						
		bupropion	2	2						
		clonazepam	3	3						
1247ph	52 y M				A/C	Ingst	Int-U	2		
		bupropion (ER)	1	1						
		trihexyphenidyl	2	2						
		brexpiprazole	3	3						
		venlafaxine (ER)	4	4						
		valproic acid (ER)	5	5						
		lisinopril	6	6						
1248	53 y M				A/C	Ingst	Int-S	2		
		trazodone	1	1						
1249ha	53 y F				U	Ingst	Int-S	2		
		bupropion	1	1					bupropion	102 ng/mL In Blood (unspecified) @ 17 h (pe)
		quetiapine	2	2						
		lorazepam	3	3					lorazepam	79 ng/mL In Blood (unspecified) @ 5 h (pe)
		cyclobenzaprine	4	4					cyclobenzaprine	23 ng/mL In Blood (unspecified) @ 5 h (pe)
		gabapentin	5	5						
		sumatriptan	6	6						
		lisinopril	7	7						
		pioglitazone	8	8						
		insulin	9	9						
		atorvastain	10	10						
1250a	53 y F				A/C	Ingst	Int-S	2		
		venlafaxine	1	1						
		acetaminophen/oxycodone	2	2						
		trazodone	3	3						
1251ph	53 y M				A	Ingst	Int-S	3		
		bupropion (ER)	1	1						
1252h	54 y M				A	Ingst	Int-S	2		
		bupropion (ER)	1	1						
1253h	55 y F				A/C	Ingst	Int-S	1		
		lithium	1	1					lithium	12.7 mEq/L In Blood (unspecified) @ Unknown

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		diazepam	2	2						
		narcotic, N.O.S.	3	3						
		lamotrigine	4	4						
		citalopram	5	5					citralopram	140 ng/mL In Blood (unspecified) @ Unknown
1254h	55 y F				A/C	Ingst+ Unk	Int-S	1		
		bupropion	1	1						
		risperidone	2	2						
		levothyroxine	3	3						
		amphetamine	4	4						
1255h	55 y F				A/C	Ingst	Int-S	2		
		amitriptyline	1	1					tca (totall tricyclic concentration)	1000 ng/mL In Serum @ Unknown
1256ph	56 y F				A/C	Ingst	Int-S	2		
		amitriptyline	1	1						
1257h	57 y F				A	Ingst	Int-U	2		
		nortriptyline	1	1						
		drug, N.O.S.	2	2						
1258pha	57 y F				A/C	Ingst	Int-S	1		
		bupropion (ER)	1	1						
		ethanol	2	2						
1259ph	58 y F				A/C	Ingst	Int-S	2		
		trazodone	1	1						
		ethanol	2	2					ethanol	380 mg/dL In Serum @ 5 m (pe)
		pregabalin	3	3						
		duloxetine (ER)	4	4						
1260p	58 y F				A/C	Ingst	Int-S	2		
		bupropion	1	1						
		ethanol	2	2						
1261ph	58 y F				A/C	Ingst	Int-S	2		
		amitriptyline	1	1						
1262pha	59 y M				A	Ingst	Unk	1		
		bupropion (ER)	1	1					bupropion	3 mg/L In Blood (unspecified) @ Autopsy
1263ha	59 y F				U	Ingst	Int-S	1		
		nortriptyline	1	1					nortriptyline	72 ng/mL In Blood (unspecified) @ Unknown
		amitriptyline	2	2						
		trazodone	3	3					trazodone	0.094 mcg/mL In Blood (unspecified) @ Unknown
		diphenhydramine	4	4						
		sertraline	5	5						
		tizanidine	6	6						
		mirtazapine	7	7						
1264h	59 y F				A/C	Ingst	Int-S	2		
		trazodone	1	1						
		lorazepam	2	2						
		eszopiclone	3	3						
		olanzapine	4	4						
		vilazodone	5	5						
		guanfacine	6	6						
		vitamin, N.O.S.	7	7						
1265h	61 y M				A/C	Ingst	Int-S	3		
		amitriptyline	1	1						
		cocaine	2	2						
1266h	63 y F				A/C	Ingst+ Aspir	Int-S	2		
		lithium	1	1					lithium	2 mEq/L In Serum @ 9.5 h (pe)
		lithium	1	1					lithium	8.7 mEq/L In Serum @ 30 m (pe)
		clonidine	2	2						
1267	64 y F				U	Ingst	Int-S	2		
		mirtazapine	1	1						
		clonazepam	2	2						
		citalopram	3	3						
1268h	64 y M				A/C	Ingst	Int-S	1		
		desipramine	1	1					desipramine	12 mg/L In Blood (unspecified) @ Autopsy
		desipramine	1	1					desipramine	23 mg/L In Blood (unspecified) @ Autopsy
1269ha	64 y M				A/C	Ingst	Int-S	3		
		nortriptyline	1	1						
1270p	65 y F				A/C	Ingst	Int-S	2		
		cyclic antidepressant, N.O.S.	1	1						
1271h	66 y M				A/C	Ingst	Int-S	2		
		bupropion (ER)	1	1						
1272	67 y M				A	Ingst	Int-S	2		
		trazadone	1	1						
		clonazepam	2	2						
1273h	68 y F				A/C	Ingst	Int-S	2		
		amitriptyline	1	1						
1274h	68 y M				A/C	Ingst	Int-S	2		
		trazodone	1	1						
1275ha	71 y F				U	Ingst	Int-S	1		
		nortriptyline	1	1					nortriptyline	1100 ng/mL In Blood (unspecified) @ Unknown
		morphine (ER)	2	2					hydromorphone	3.8 ng/mL In Blood (unspecified) @ Unknown
		morphine (ER)	2	2					morphine (free)	810 ng/mL In Blood (unspecified) @ Unknown
		drug, N.O.S.	3	3						
1276hai	72 y F				A/C	Ingst+ Unk	Int-S	1		

(continued)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		fluoxetine	1	1					norfluoxetine	131 ng/mL In Blood (unspecified) @ Autopsy
		fluoxetine	1	1					fluoxetine	2769 ng/mL In Blood (unspecified) @ Autopsy
		bupropion	2	2					bupropion	78.2 ng/mL In Blood (unspecified) @ Autopsy
		ethanol	3	3						
		marijuana	4	4					thc (tetrahydrocannabinol)	3.3 ng/mL In Blood (unspecified) @ Autopsy
1277h	72 y F				A	Ingst	Int-S	3		
		amitriptyline	1	1						
		oxcarbazepine	2	2						
		gabapentin	3	3						
		fluoxetine	4	4						
		pioglitazone	5	5						
		glimepiride	6	6						
		furosemide	7	7						
		aldactone	8	8						
		angiotensin receptor blocker	9	9						
		atorvastatin	10	10						
1278ai	73 y F				U	Unk	Int-S	1		
		venlafaxine	1	1						
		ethanol	2	2						
1279pi	74 y M				A	Ingst	Int-S	2		
		amitriptyline	1	1						
1280	76 y F				A/C	Ingst	Int-S	3		
		trazodone	1	1						
		levetiracetam	3	2						
		simvastatin	4	3						
		valproic acid (ER)	2	4					valproic acid	150 mcg/mL In Blood (unspecified) @ Unknown
		duloxetine (ER)	5	5						
		olanzapine	6	6						
1281h	77 y M				A	Ingst	Int-S	2		
		amitriptyline	1	1						
		levothyroxine	2	2						
		ibuprofen	3	3						
1282	77 y F				A	Ingst	Int-S	2		
		duloxetine (ER)	1	1						
1283pai	77 y F				A/C	Ingst	Int-S	1		
		venlafaxine (ER)	1	1						
1284h	85 y M				A/C	Ingst	Int-S	1		
		paroxetine	1	1						
		hydroxyzine	2	2						
1285h	86 y F				A/C	Ingst	Int-S	2		
		venlafaxine (ER)	1	1						
1286	87 y M				C	Ingst	Unt-T	2		
		lithium	1	1						
1287pha	87 y M				A/C	Ingst	Int-S	1		
		desipramine	1	1						
		alprazolam	2	2						
		lamotrigine	3	3					desipramine	1800 ng/mL In Blood (unspecified) @ Autopsy
		lamotrigine	3	3					lamotrigine	19 mcg/mL In Blood (unspecified) @ Autopsy
		lamotrigine	3	3					quetiapine	6200 ng/mL In Blood (unspecified) @ Autopsy
		lamotrigine	3	3					alprazolam	790 ng/mL In Blood (unspecified) @ Autopsy
		glimepiride	4	4						
		quetiapine	5	5						
1288hi	90 y M				A/C	Ingst	Int-S	3		
		bupropion	1	1						
		allopurinol	2	2						
1289h	30+ y F				U	Ingst	Int-S	2		
		cyclic antidepressant, N.O.S.	1	1						
See Also case 36, 56, 120, 144, 151, 221, 336, 367, 385, 432, 460, 487, 516, 518, 533, 546, 556, 636, 670, 684, 688, 695, 697, 708, 721, 737, 759, 760, 797, 842, 845, 853, 892, 914, 917, 957, 965, 988, 1021, 1026, 1055, 1095, 1101, 1105, 1126, 1139, 1146, 1150, 1154, 1157, 1159, 1162, 1163, 1165, 1168, 1169, 1170, 1292, 1296, 1306, 1318, 1325, 1329, 1331, 1342, 1348, 1351, 1355, 1356, 1364, 1365, 1373, 1383, 1386, 1391, 1396, 1402, 1405, 1407, 1408, 1410, 1413, 1415, 1416, 1417, 1421, 1423, 1425, 1427, 1431, 1438, 1453, 1455, 1456, 1457, 1461, 1464, 1470, 1472, 1481, 1487, 1488, 1491, 1492, 1502, 1508, 1515, 1517, 1522, 1533, 1534, 1539, 1540, 1567, 1585, 1593, 1594, 1614, 1624, 1632, 1640, 1653, 1659, 1673, 1678, 1685, 1690, 1692, 1698, 1702, 1713, 1717, 1719, 1721, 1726, 1735, 1736, 1737, 1739, 1749, 1765, 1775, 1791, 1817, 1870, 1881, 1902, 1940, 2002, 2044										
Antihistamines										
[1290pha]	3 y F				A	Ingst	Unk	1		
		diphenhydramine	1	1					diphenhydramine	2733 ng/mL In Blood (unspecified) @ Autopsy
1291ph	14 y F				A	Ingst	Int-S	1		
		diphenhydramine	1	1					diphenhydramine	63000 ng/mL In Blood (unspecified) @ Autopsy
1292ph	15 y F				U	Ingst	Int-S	2		
		diphenhydramine	1	1						
		bupropion	2	2						
1293pa	15 y M				A	Ingst	Int-U	2		
		diphenhydramine	1	1					diphenhydramine	7100 ng/mL In Blood (unspecified) @ Autopsy
		acetone	2	2						
		acetaminophen	3	3					acetaminophen (apap)	68 ng/mL In Blood (unspecified) @ Autopsy
1294p	15 y F				A	Ingst	Int-S	2		
		diphenhydramine	1	1						
1295p	16 y F				A	Ingst	Int-S	1		
		diphenhydramine	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1296pha	16 y F				U	Ingst	Int-S	1		
		diphenhydramine	1	1					diphenhydramine	13000 ng/mL In Blood (unspecified) @ Autopsy
		fluoxetine	2	2					norfluoxetine	400 ng/mL In Blood (unspecified) @ Autopsy
		fluoxetine	2	2					fluoxetine	520 ng/mL In Blood (unspecified) @ Autopsy
		acetaminophen	3	3						
1297a	17 y F				A	Ingst	Int-S	1		
		diphenhydramine	1	1						
1298ha	18 y M				A	Ingst	Int-S	1		
		diphenhydramine	1	1					diphenhydramine	40 mg/L In Blood (unspecified) @ Autopsy
		diphenhydramine	1	1					diphenhydramine	8.3 mg/L In Blood (unspecified) @ Unknown
1299h	18 y M				A	Ingst	Int-S	2		
		diphenhydramine	1	1						
1300h	18 y F				A	Ingst	Int-S	2		
		diphenhydramine	1	1						
1301ha	19 y F				A	Ingst	Int-S	1		
		diphenhydramine	1	1					diphenhydramine	6833 ng/mL In Blood (unspecified) @ Unknown
		ibuprofen	2	2						
1302ph	19 y F				A	Ingst	Int-S	1		
		diphenhydramine	1	1						
1303pa	20 y M				A	Ingst	Int-S	1		
		diphenhydramine	1	1					diphenhydramine	12000 ng/mL In Blood (unspecified) @ Autopsy
1304pha	20 y F				A	Ingst	Int-S	1		
		diphenhydramine	1	1					diphenhydramine	9100 ng/mL In Blood (unspecified) @ Autopsy
		tramadol	2	2					tramadol	2300 ng/mL In Blood (unspecified) @ Autopsy
1305p	23 y F				U	Ingst	Int-S	2		
		promethazine	1	1						
1306pha	23 y F				A/C	Ingst	Int-S	1		
		diphenhydramine	1	1					diphenhydramine	22800 ng/mL In Blood (unspecified) @ Unknown
		paroxetine	2	2					paroxetine	544 ng/mL In Blood (unspecified) @ Unknown
		cocaine	3	3						
		lithium	4	4						
		aripiprazole	5	5						
1307pha	23 y M				A	Ingst+ Unk	Unk	2		
		promethazine	1	1						
		alprazolam	2	2						
		narcotic, N.O.S.	3	3						
		cocaine	4	4						
		marijuana, N.O.S.	5	5						
1308ha	30 y F-Pregnant				A	Ingst+ Aspir	Int-S	1		
		diphenhydramine	1	1					diphenhydramine	2400 ng/mL In Blood (unspecified) @ Autopsy
		loperamide	2	2					loperamide	24 ng/mL In Blood (unspecified) @ Autopsy
		acetaminophen	3	3					acetaminophen (apap)	77 mcg/mL In Blood (unspecified) @ Unknown
		muscle relaxant, N.O.S.	4	4						
		esomeprazole (ER)	5	5						
1309ha	31 y M				U	Ingst+ Unk	Int-S	1		
		diphenhydramine	1	1					diphenhydramine	15 mg/L In Blood (unspecified) @ Autopsy
		diphenhydramine	1	1					diphenhydramine	21 mg/L In Blood (unspecified) @ Autopsy
		ethanol	2	2						
		cocaine	3	3						
1310h	31 y F				A	Ingst	Int-S	3		
		diphenhydramine	1	1						
		acetaminophen	2	2					acetaminophen (apap)	53 mcg/mL In Blood (unspecified) @ 1 h (pe)
		ethanol	3	3						
1311h	32 y M				A	Ingst	Int-S	2		
		diphenhydramine	1	1						
1312ha	36 y M				C	Ingst	Unk	1		
		diphenhydramine	2	1					diphenhydramine	1020 ng/mL In Blood (unspecified) @ Autopsy
		diphenhydramine	2	1					diphenhydramine	238 ng/mL In Blood (unspecified) @ Unknown
		diphenhydramine/ibuprofen	3	2						
		ethanol	1	3						
1313ph	40 y F				A	Ingst	Int-S	2		
		diphenhydramine	1	1						
1314ha	42 y F				A	Ingst	Int-S	2		
		diphenhydramine	2	1						
		quetiapine	1	1					quetiapine	1900 ng/mL In Blood (unspecified) @ Autopsy
1315ai	45 y M				U	Unk	Int-A	1		
		diphenhydramine	1	1						
		phentermine	2	2						
1316ai	51 y M				U	Unk	Int-S	1		

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		diphenhydramine	1	1						
1317ph	54 y F				A	Ingst	Int-S	2		
		diphenhydramine	1	1						
		hydroxyzine	2	2						
		isopropanol	3	3						
1318h	54 y F				A	Ingst	Int-S	3		
		diphenhydramine	1	1						
		quetiapine	2	2						
		duloxetine (ER)	3	3						
1319pa	54 y F				A	Ingst	Int-S	1		
		diphenhydramine	1	1					diphenhydramine	13 mg/L In Blood (unspecified) @ Unknown
		ethanol	2	2					ethanol	0.12 % (wt/Vol) In Blood (unspecified) @ Unknown
1320ai	54 y F				U	Unk	Int-A	1		
		diphenhydramine	1	1						
		ethanol	2	2						
1321ha	57 y F				U	Ingst	Int-S	3		
		diphenhydramine	1	1					diphenhydramine	2900 ng/mL In Blood (unspecified) @ Autopsy
		ethanol	2	2					ethanol	253 mg/dL In Blood (unspecified) @ Unknown
1322p	58 y M				U	Ingst	Unk	3		
		diphenhydramine	1	1						
		ethanol	2	2					ethanol	79 mg/dL In Serum @ Unknown
1323	60 y M				A	Ingst	Int-S	3		
		diphenhydramine	1	1						
See Also case 244, 419, 436, 490, 532, 534, 681, 688, 702, 708, 721, 830, 835, 861, 866, 868, 929, 993, 1024, 1041, 1086, 1095, 1165, 1169, 1175, 1176, 1188, 1205, 1212, 1214, 1219, 1221, 1224, 1225, 1227, 1230, 1232, 1237, 1263, 1284, 1325, 1370, 1394, 1395, 1397, 1410, 1451, 1453, 1476, 1508, 1519, 1529, 1568, 1576, 1585, 1594, 1599, 1655, 1665, 1671, 1690, 1724, 1726, 1728, 1736, 1737, 1762, 1814, 1848, 1865										
Antimicrobials										
1324h	18 y F				A	Par	AR-D	3		
		vancomycin	1	1						
		antibiotic, unknown	2	2						
1325ha	30 y M				A	Ingst	Int-S	1		
		chloroquine	1	1						
		diphenhydramine	2	2					diphenhydramine	166 ng/mL In Blood (unspecified) @ Autopsy
		zolpidem	3	3					zolpidem	1151 ng/mL In Blood (unspecified) @ Autopsy
		bupropion (ER)	4	4					bupropion	24 ng/mL In Blood (unspecified) @ Autopsy
1326h	31 y M				A/C	Ingst	Int-S	2		
		hydroxychloroquine	1	1						
		meloxicam	2	2						
		ethanol	3	3						
1327	39 y F				A	Ingst	Int-S	1		
		hydroxychloroquine	1	1						
		methotrexate	2	2						
		ibuprofen	3	3						
		corticosteroids	4	4						
1328ph	47 y F				A/C	Ingst	Int-S	2		
		hydroxychloroquine	1	1						
		ethylene glycol	2	2						
1329ha	61 y F				A	Ingst	Unt-T	2		
		hydroxychloroquine	1	1						
		metformin	2	2						
		amlodipine	3	3						
		glimepiride	4	4						
		alogliptin	5	5						
		duloxetine (ER)	6	6						
		hydrochlorothiazide/losartan	7	7						
		atorvastatin	8	8						
1330h	64 y F				C	Ingst+ Par	AR-D	3		
		dapsone	1	1						
		primaquine	2	2						
		fentanyl	3	3						
		antidote, N.O.S.	4	4						
1331h	70 y F				A	Ingst	Int-S	2		
		cobistat/elvitegravir/emtrictabine/tenofovir	1	1						
		citalopram	2	2						
		sulfamethoxazole/trimethoprim	3	3						
		ibuprofen	4	4						
[1332pha]	77 y F				A/C	Ingst	Int-S	1		
		hydroxychloroquine	1	1					hydroxychloroquine	18 mg/L In Blood (unspecified) @ 1 m (pe)
See Also case 383, 432, 1169, 1174, 1245, 1346, 1354, 1475, 1536, 1604, 1764										
Antineoplastics										
1333	72 y F				A	Ingst	Unk	2		
		methotrexate	1	1						
1334h	75 y F				C	Ingst	Unt-T	1		
		methotrexate	1	1						
1335h	75 y F				C	Unk	Unt-U	2		
		rituximab	1	1						
1336h	76 y F				A/C	Ingst	Unt-T	1		
		methotrexate	1	1					methotrexate	0.1 µmol/L In Blood (unspecified) @ Unknown
1337h	81 y F				A/C	Ingst	Unt-T	1		
		methotrexate	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1338h	85 y F				C	Ingst	AR-D	1		
		methotrexate	1	1					methotrexate	0.1 mmol/L In Blood (unspecified) @ 2 d (pe)
1339h	90 y F				C	Ingst	Unt-T	1		
		methotrexate	1	1						
See Also case 1327										
Asthma Therapies										
1340h	77 y M				C	Ingst	AR-D	3		
		theophylline	1	1					theophylline	35.2 mcg/mL In Blood (unspecified) @ Unknown
1341h	78 y M				A	Ingst	Unt-U	3		
		theophylline	1	1					theophylline	40 mcg/mL In Blood (unspecified) @ Unknown
See Also case 539, 914										
Cardiovascular Drugs										
1342ha	13 y F				A/C	Ingst	Int-S	1		
		amlodipine	1	1						
		venlafaxine	2	2						
		sertraline	3	3						
1343	14 y F				A	Ingst	Int-S	1		
		amlodipine	1	1						
		nebivolol	2	2						
		ziprasidone	3	3						
		vitamins (multiple)/iron	4	4						
		levothyroxine	5	5						
[1344ha]	14 y F				A	Ingst	Int-S	1		
		diltiazem (ER)	1	1					diltiazem	15000 ng/mL In Blood (unspecified) @ Autopsy
1345h	15 y F				A	Ingst	Int-S	2		
		amlodipine	1	1						
		salicylate	2	2						
		vitamins (multiple)/iron	3	3					iron	160 mcg/dL In Serum @ 2 d (pe)
1346p	16 y F				A	Ingst	Int-S	2		
		propranolol	1	1						
		acetaminophen	2	2						
		levofloxacin	3	3						
1347	18 y M				A	Ingst	Int-S	1		
		amlodipine	1	1						
		carvedilol	2	2						
		losartan	3	3						
		ethanol	4	4						
1348h	18 y M				A/C	Ingst	Int-S	2		
		verapamil	1	1						
		ethanol	2	2					ethanol	156 mg/dL In Blood (unspecified) @ 1 s (pa)
		citalopram	3	3						
		tramadol	4	4						
		gabapentin	5	5						
1349	18 y F				A	Ingst	Int-S	2		
		amlodipine	1	1						
		oxcarbazepine	2	2						
		lorazepam	3	3						
		acetaminophen/hydrocodone	4	4					acetaminophen (apap)	19 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen/antihistamine/decongestant/dextromethorphan	5	5						
1350pi	18 y F				U	Unk	Int-S	1		
		flecainide	1	1						
1351h	19 y F				A/C	Ingst	Int-S	2		
		guanfacine (ER)	1	1						
		duloxetine (ER)	2	2						
		ethanol	3	3					ethanol	128 mg/dL In Blood (unspecified) @ Unknown
		clonazepam	4	4						
		drug, N.O.S.	5	5						
1352h	19 y F				U	Ingst	Int-S	2		
		calcium antagonist	1	1						
1353	22 y F				A	Ingst	Int-S	2		
		acetutolol	1	1						
		ethanol	2	2						
1354h	23 y F				U	Ingst	Int-S	2		
		amlodipine	1	1						
		metformin	2	2						
		amoxicillin	3	3						
1355	23 y F				A/C	Ingst	Int-S	2		
		diltiazem	1	1						
		sertraline	2	2						
		lorazepam	3	3						
		salicylate	4	4					salicylate	12 mg/dL In Blood (unspecified) @ Unknown
1356	23 y F				A	Ingst	Int-S	2		
		beta blocker	1	1						
		escitalopram	2	2						
1357h	24 y M				A/C	Ingst	Unk	2		
		atenolol	1	1						
1358h	24 y F				A/C	Ingst	Int-S	1		
		propranolol	1	1						
		salicylate	2	2					salicylate	95 mg/dL In Blood (unspecified) @ 1 h (pe)

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		acetaminophen/diphenhydramine/phenylephrine	3	3						
1359h	24 y F				A	Ingst	Int-S	1		
		propranolol	1	1						
		verapamil	2	2						
		metformin	3	3						
		gabapentin	4	4						
1360ha	25 y F				A/C	Ingst	Int-S	1		
		propranolol	1	1						
		doxylamine	2	2						
1361h	27 y F				A	Ingst	Int-S	2		
		verapamil	1	1						
1362h	29 y F				A/C	Ingst	Int-S	2		
		labetalol	1	1						
1363h	30 y F				A	Ingst	Int-S	2		
		nifedipine (ER)	1	1						
		carvedilol	2	2						
		acetaminophen/hydrocodone	3	3						
		ethanol	4	4						
1364ha	31 y M				A/C	Ingst	Int-S	1		
		amlodipine	1	1						
		imipramine	2	2						
		sertraline	3	2						
		ethanol	4	3					ethanol	56 mg/dL In Serum @ 1 h (pe)
1365ai	31 y F				U	Unk	Int-S	1		
		metoprolol	1	1						
		sertraline	2	2						
		ethanol	3	3						
1366h	32 y M				A/C	Ingst	Int-S	1		
		flecainide	1	1						
		ethanol	2	2					ethanol	17 mcg/dL In Blood (unspecified) @ Unknown
		metoprolol (ER)	3	3						
1367h	33 y F				A	Ingst	Int-S	2		
		verapamil	1	1						
		clonidine	2	2						
		methamphetamine	3	3						
1368	33 y F				A	Ingst	Int-S	2		
		verapamil	1	1						
		ethanol	2	2					ethanol	170 mg/dL In Blood (unspecified) @ Unknown
1369h	34 y M				A/C	Ingst	Int-S	1		
		nifedipine (ER)	1	1						
1370	35 y F				A/C	Ingst	Int-S	2		
		metoprolol	1	1						
		quetiapine	2	2						
		hydroxyzine	3	3						
1371h	35 y F				A	Ingst	Int-S	2		
		labetalol	1	1						
1372h	37 y F				A	Ingst	Int-S	2		
		diltiazem	1	1						
1373h	37 y F				U	Ingst	Int-S	1		
		propranolol	1	1						
		lithium	2	2						
		tizanidine	3	3						
		clonazepam	4	4						
1374h	38 y M				A	Ingst	Int-S	2		
		metoprolol	1	1						
		diazepam	2	2						
		pregabalin	3	3						
1375	38 y M				A	Ingst	Int-S	2		
		nifedipine (ER)	1	1						
		atenolol	2	2						
		acetaminophen	3	3						
		losartan	4	4						
		calcitriol	5	5						
		levothyroxine	6	6						
1376h	39 y M				A	Ingst	Int-S	2		
		amlodipine	1	1						
		metformin	2	2						
		atorvastatin	3	3						
		lisinopril	4	4						
1377ph	39 y M				U	Ingst	Int-S	1		
		amlodipine	1	1						
		propranolol	2	2						
		alprazolam	3	3						
1378h	40 y M				U	Ingst	Unk	2		
		carvedilol	1	1						
		warfarin	2	2						
		hydrochlorothiazide	3	3						
1379	41 y F				A/C	Ingst	Int-S	2		
		metoprolol	1	1						
		verapamil	2	2						
1380h	41 y F				A/C	Ingst	Int-S	1		
		verapamil (ER)	1	1						
1381	42 y M				A	Ingst	Int-S	2		
		amlodipine	1	1						
1382ha	42 y M				A/C	Unk	Int-U	3		
		amlodipine	1	1						
		labetalol	2	2						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		clonidine	3	3						
1383h	42 y F				A/C	Ingst	Int-S	2		
		amlodipine	1	1						
		acetaminophen/oxycodone	2	2						
		fluoxetine	3	3						
		pregabalin	4	4						
		pregabalin	5	5						
1384h	43 y F				U	Ingst	Int-S	1		
		verapamil	1	1						
		clonazepam	2	2						
		ethanol	3	3						
1385a	43 y M				A	Ingst	Int-S	2		
		diltiazem	1	1						
		ethanol	2	2					ethanol	404 mg/dL In Blood (unspecified) @ Unknown
1386p	44 y F				A/C	Ingst	Int-S	2		
		beta blocker	1	1						
		prazosin	2	2						
		phenothiazine	3	3						
		mirtazapine	4	4						
		duloxetine (ER)	5	5						
1387h	44 y F				A/C	Ingst	Unt-M	2		
		diltiazem (ER)	1	1						
1388h	44 y F				A/C	Ingst	Int-S	1		
		verapamil	1	1						
		propranolol	2	2						
		quetiapine	3	3						
1389h	44 y F				A	Ingst+ Unk	Int-S	2		
		clonidine	1	1						
		phentermine	2	2						
		amphetamine/dextroamphetamine (ER)	3	3						
		naproxen	4	4						
		ethanol	5	5					ethanol	226.1 mg/dL In Blood (unspecified) @ Unknown
1390	44 y F				A	Ingst	Int-S	2		
		amlodipine	1	1						
1391h	44 y F				A/C	Ingst	Int-S	2		
		propranolol	1	1						
		duloxetine (ER)	2	2						
1392h	44 y M				A/C	Ingst	Int-S	2		
		amlodipine	1	1						
1393	44 y F				A	Ingst	Int-S	2		
		carvedilol	1	1						
1394ph	45 y M				U	Ingst	Unk	1		
		metoprolol	1	1					metoprolol	7991 ng/mL In Blood (unspecified) @ Autopsy
		diphenhydramine	2	2					diphenhydramine	14946 ng/mL In Blood (unspecified) @ Autopsy
		ethanol	3	3						
1395ph	45 y F				A	Ingst	Int-S	2		
		metoprolol	1	1						
		diphenhydramine	2	2						
1396ha	45 y F				U	Ingst	Int-S	1		
		propranolol	1	1					propranolol	1.1 mg/L In Blood (unspecified) @ 2 m (pe)
		trazodone	2	2					mcpp (meta-chlorophenylpiperazine)	0.27 mg/L In Blood (unspecified) @ 2 m (pe)
		trazodone	2	2					trazodone	9.3 mg/L In Blood (unspecified) @ 2 m (pe)
		quetiapine	3	3					quetiapine	4.1 mg/L In Blood (unspecified) @ 2 m (pe)
		duloxetine (ER)	4	4					duloxetine	0.37 mg/L In Blood (unspecified) @ 2 m (pe)
		oxycodone	5	5					oxycodone	0.1 mg/L In Blood (unspecified) @ 2 m (pe)
1397h	45 y F				A	Ingst	Int-S	2		
		propranolol	1	1						
		diphenhydramine	2	2						
		morphine	3	3						
		clonazepam	4	4						
		acetaminophen	5	5						
		ethanol	6	6						
		substance (non-drug), N.O.S.	7	7						
1398pha	46 y M				A/C	Ingst	Int-S	3		
		diltiazem	1	1						
1399h	47 y F				A/C	Ingst	Int-S	2		
		verapamil (ER)	1	1						
1400ha	47 y F				A	Ingst	Int-S	2		
		clonidine	1	1						
		lisinopril	2	2						
1401ha	47 y M				A/C	Ingst	Int-S	1		
		metoprolol	1	1					metoprolol	1.186 mg/L In Serum @ Autopsy
		amlodipine	2	2					amlodipine	0.034 mg/L In Serum @ Autopsy
1402ph	47 y M				A	Ingst	Int-S	1		
		metoprolol	1	1						
		amitriptyline	2	2						
		alcohol, N.O.S.	3	3					ethanol	0.25 g/dL In Blood (unspecified) @ Unknown
		furosemide	4	4						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		folic acid	5	5						
1403phi	47 y F				A/C	Ingst	Int-S	2		
		clonidine	1	1						
1404h	48 y M				A/C	Ingst	Int-S	2		
		verapamil	1	1						
1405ha	48 y F				A/C	Ingst	Int-S	1		
		propranolol	1	1					propranolol	1.9 mg/L In Blood (unspecified) @ 1 h (pe)
		citalopram	2	2					citalopram	1.4 mg/L In Blood (unspecified) @ 1 h (pe)
		trazodone	3	3					trazodone	4.2 mg/L In Blood (unspecified) @ 1 h (pe)
1406ha	48 y F				A/C	Ingst	Int-S	3		
		digoxin	1	1					digoxin	9.3 ng/mL In Blood (unspecified) @ Unknown
1407h	48 y F				U	Ingst	Int-S	1		
		verapamil	1	1						
		nortriptyline	2	2						
1408ha	48 y U				U	Ingst	Int-S	1		
		amlodipine	1	1					amlodipine	0.21 mg/L In Serum @ 0.5 d (pe)
		mirtazapine	2	2						
		irbesartan	3	3						
1409ha	48 y M				A/C	Ingst	Int-S	2		
		amlodipine	1	1						
1410ph	48 y M				A/C	Ingst	Int-S	2		
		nifedipine	1	1						
		venlafaxine	2	2						
		baclofen	3	3						
		oxybutynin	4	4						
		hydroxyzine	5	5						
		lisinopril	6	6						
		atorvastain	7	7						
1411h	49 y F				A/C	Ingst	Int-S	2		
		amlodipine	1	1						
		alprazolam	2	2						
1412h	49 y F				U	Ingst	Int-S	1		
		metoprolol (ER)	1	1						
		clonidine	2	2						
1413	49 y M				A/C	Ingst	Int-S	2		
		calcium antagonist	1	1						
		gabapentin	2	2						
		zaleplon	3	3						
		paroxetine	4	4						
		acetaminophen/salicylate	5	5						
1414h	50 y F				A	Ingst	Int-S	2		
		amiodarone	1	1						
1415ha	50 y F				A/C	Ingst	Int-S	1		
		verapamil	1	1					verapamil	1600 ng/mL In Blood (unspecified) @ Unknown
		bupropion	2	2					hydroxybupropion	350 ng/mL In Blood (unspecified) @ Unknown
1416ha	50 y F				A/C	Ingst	Int-S	1		
		amlodipine	1	1					amlodipine	996 ng/mL In Blood (unspecified) @ Unknown
		alprazolam	2	2					alprazolam	50.8 ng/mL In Blood (unspecified) @ Unknown
		fluoxetine	3	3					norfluoxetine	115 ng/mL In Blood (unspecified) @ Unknown
		fluoxetine	3	3					fluoxetine	248 ng/mL In Blood (unspecified) @ Unknown
1417	50 y M				A/C	Ingst	Int-S	2		
		verapamil	1	1						
		doxepin	2	2						
		citalopram	3	3						
		acetaminophen/tramadol	4	4						
1418	51 y M				A	Ingst	Unt-G	2		
		labetalol	1	1						
		clonidine	2	2						
		doxylamine	3	3						
1419h	51 y F				A/C	Ingst	Int-S	3		
		amlodipine	1	1						
		zolpidem	2	2						
1420	51 y F				A/C	Ingst	Int-S	2		
		metoprolol	1	1						
		amlodipine	2	2						
		ethanol	3	3						
1421a	52 y M				A/C	Ingst	Int-S	1		
		amlodipine	1	1						
		trazodone	2	2						
		alprazolam	3	3						
		fluoxetine	4	4						
		ethanol	5	5					ethanol	197 mg/dL In Blood (unspecified) @ 4 h (pe)
1422h	52 y F				A/C	Ingst	Int-S	2		
		diltiazem	1	1						
		alprazolam	2	2						
1423a	53 y M				A/C	Ingst	Int-S	1		
		nifedipine	1	1					nifedipine	280 ng/mL In Blood (unspecified) @ Autopsy
		nebivolol	2	2						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		fluoxetine	3	3					fluoxetine	75 ng/mL In Blood (unspecified) @ Autopsy
		ethanol	4	4					ethanol	71 mg/dL In Blood (unspecified) @ Autopsy
1424h	53 y F				A	Ingst	Int-S	1		
		amlodipine	1	1						
1425	54 y M				U	Ingst	Int-S	2		
		amlodipine	1	1						
		metoprolol	2	2						
		valbenazine	3	3						
		mirtazapine	4	4						
		apixaban	5	5						
		atorvastain	6	6						
		valsartan	7	7						
		irbesartin	8	8						
1426	54 y F				A/C	Ingst	Int-S	1		
		metoprolol	1	1						
		drug, N.O.S.	2	2						
1427p	55 y F				A	Ingst	Int-S	2		
		beta blocker	1	1						
		antipsychotic (atypical)	2	2						
		escitalopram	3	3						
		ethanol	4	4					ethanol	177 mg/dL In Blood (unspecified) @ Unknown
1428h	55 y F				A/C	Ingst	Int-S	1		
		diltiazem (ER)	1	1						
1429a	55 y F				A	Ingst	Int-U	2		
		amlodipine	1	1						
		cyclobenzaprine	2	2						
		ethanol	3	3					ethanol	127 mg/dL In Blood (unspecified) @ Unknown
		cilostazol	4	4						
1430h	55 y F				A/C	Ingst	Int-S	2		
		atenolol	1	1						
		amlodipine	2	2						
		propranolol	3	3						
1431ph	56 y M				A	Ingst	Int-S	2		
		metoprolol	1	1						
		citalopram	2	2						
1432h	56 y F				U	Ingst	Int-S	2		
		metoprolol (ER)	1	1						
		amlodipine	2	2						
		ethanol	3	3					ethanol	95 mg/dL In Serum @ 2 h (pe)
1433h	56 y M				A/C	Ingst	Int-S	3		
		diltiazem (ER)	1	1						
		calcium	2	2						
1434	56 y M				U	Ingst	Int-S	1		
		diltiazem	1	1						
		ethanol	2	2						
1435pha	56 y F				A/C	Ingst	Int-S	1		
		propranolol	3	1						
		nifedipine	1	2					nifedipine	87 ng/mL In Blood (unspecified) @ Unknown
		clonazepam	2	3					clonazepam	18 ng/mL In Blood (unspecified) @ Unknown
		clonazepam	2	3					7-aminoclonazepam	41 ng/mL In Blood (unspecified) @ Unknown
1436h	56 y F				A/C	Ingst	Int-S	1		
		amlodipine	1	1						
		carvedilol	2	2						
		beta blocker	3	3						
1437h	57 y M				A/C	Ingst	Int-S	1		
		amlodipine	1	1					ethanol	122 mg/dL In Serum @ Unknown
		metoprolol	2	2						
		lisinopril	3	3						
		ethanol	4	4						
1438ph	57 y F				A/C	Ingst	Unt-T	2		
		flecainide	1	1						
		potassium salts	2	2						
		oxycodone (ER)	3	3						
		beta blocker	4	4						
		metformin	5	5						
		magnesium sulfate	6	6						
		apixaban	7	7						
		trazodone	8	8						
		tizanidine	9	9						
		gabapentin	10	10						
		escitaopram	11	11						
		diazepam	12	12						
		gastrointestinal preparation, N.O.S.	13	13						
1439	57 y M				U	Ingst	Int-S	2		
		amlodipine	1	1						
		pregabalin	2	2						
		indomethacin	3	3						
		omeprazole	4	4						
1440h	58 y F				A	Ingst	Int-S	2		
		diltiazem	1	1						
		clonazepam	2	2						
		ethanol	3	3						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1441pha	58 y F				A/C	Ingst	Unk	2		
		calcium antagonist	1	1					amlodipine	100 ng/mL In Blood (unspecified) @ Unknown
		beta blocker	2	2					metoprolol	36 ng/mL In Blood (unspecified) @ Unknown
		ethanol	3	2					ethanol	271 mg/dL In Blood (unspecified) @ Unknown
1442h	58 y M				A	Ingst	Int-S	2		
		lisinopril	1	1						
		tramadol	2	2						
1443h	58 y M				C	Ingst	AR-D	2		
		verapamil	1	1						
		metformin	2	2						
1444h	58 y F				A/C	Ingst	Int-S	2		
		amlodipine	1	1						
		carvedilol	2	2						
		alprazolam	3	3						
1445h	58 y M				A	Ingst	Int-S	2		
		diltiazem (ER)	1	1						
1446	59 y M				A	Ingst	Int-S	2		
		lisinopril	2	1						
		amlodipine	1	2						
1447h	59 y M				A/C	Ingst	Int-S	2		
		diltiazem	1	1						
		metoprolol	2	2						
		furosemide	3	3						
		spironolactone	4	4						
		ethanol	5	5					ethanol	262 mg/dL In Serum @ 1 h (pe)
1448ha	59 y M				A/C	Ingst	Int-S	1		
		propranolol	1	1					propranolol	0.97 mg/L In Serum @ 0.25 d (pe)
1449h	59 y F				A/C	Ingst	Int-S	2		
		amlodipine	1	1						
		acetaminophen/oxycodone	2	2						
		cyclobenzaprine	3	3						
		tizanidine	4	4						
		lisinopril	5	5						
1450ha	60 y M				A/C	Ingst	Int-S	1		
		amlodipine	1	1						
1451ha	61 y M				A/C	Ingst	Int-S	1		
		diltiazem	1	1					diltiazem	3052 ng/mL In Blood (unspecified) @ 3 d (pe)
		atenolol	2	2					atenolol	2203 ng/mL In Blood (unspecified) @ 3 d (pe)
		diphenhydramine	3	3					diphenhydramine	583 ng/mL In Blood (unspecified) @ 3 d (pe)
		ethanol	4	4					ethanol	69 mg/dL In Blood (unspecified) @ 14 h (pe)
1452h	61 y M				A/C	Ingst	Int-S	2		
		amlodipine	1	1						
1453h	61 y F				A	Ingst	Int-S	2		
		atenolol	1	1						
		diphenhydramine	2	2						
		bupropion (ER)	3	3						
		quetiapine	4	4						
		chlordiazepoxide	5	5						
1454h	61 y M				C	Ingst	Unk	2		
		carvedilol	1	1						
		amlodipine	2	2						
1455h	61 y F				A/C	Ingst	Int-S	1		
		calcium antagonist	1	1						
		duloxetine (ER)	2	2						
		buspirone	3	3						
		omeprazole	4	4						
		pravastatin	5	5						
1456h	61 y F				A/C	Ingst	Int-S	2		
		amlodipine	1	1						
		metoprolol	2	2						
		duloxetine (ER)	3	3						
		lisinopril	4	4						
		pregabalin	5	5						
		isosorbide dinitrate	6	6						
		trazodone	7	7						
		levothyroxine	8	8						
		methocarbamol	9	9						
1457h	61 y M				A/C	Ingst+ Par	Int-S	2		
		diltiazem	1	1						
		amlodipine	2	2						
		insulin (glargine) (ER)	3	3						
		insulin (lispro)	4	4						
		clonidine	5	5						
		metformin	6	6						
		lisinopril	7	7						
		duloxetine (ER)	8	8						
		salicylate	9	9						
		rosuvastatin	10	10						
		allopurinol	11	11						
		omeprazole	12	12						
		hydralazine	13	13						
1458h	61 y F				A/C	Ingst+ Par	Unk	2		
		amlodipine	2	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		calcium	1	1						
		drug, N.O.S.	3	2						
1459h	61 y F				A/C	Ingst	Int-S	1		
		amlodipine	1	1						
		quetiapine	2	2						
		alprazolam	3	3						
1460ph	62 y M				A/C	Ingst	Int-S	2		
		diltiazem (ER)	1	1						
		losartan/hydrochlorothiazide	2	2						
1461a	62 y M				A/C	Ingst	Int-S	1		
		amlodipine	1	1					amlodipine	320 ng/mL In Serum @ 1 h (pe)
		metoprolol (ER)	2	2					metoprolol	760 ng/mL In Serum @ 1 h (pe)
		losartan	3	3						
		escitalopram	4	4					escitalopram	150 ng/mL In Serum @ 1 h (pe)
		clonazepam	5	5					clonazepam	3.5 ng/mL In Serum @ 1 h (pe)
		clonazepam	5	5					7-aminoclonazepam	52 ng/mL In Serum @ 1 h (pe)
1462h	62 y M				A/C	Ingst	Int-S	3		
		amlodipine	1	1						
		rivaroxaban	2	2						
		baclofen	3	3						
		atorvastain	4	4						
1463h	62 y M				A	Ingst	Int-S	2		
		amlodipine	1	1						
		lisinopril	2	2						
1464ph	63 y F				A/C	Ingst	Int-U	2		
		diltiazem	1	1						
		citalopram	2	2						
		topiramate	3	3						
		diazepam	4	4						
		salicylate (EC)	5	5						
		gabapentin	6	6						
		omeprazole	7	7						
1465h	63 y M				A/C	Ingst	Int-S	2		
		beta blocker	1	1						
		amlodipine	2	2						
1466h	63 y F				A/C	Ingst	Int-S	2		
		nifedipine	1	1						
		losartan	2	2						
1467ha	63 y M				U	Ingst	Int-S	1		
		mexiletine	1	1					mexilitine	4994 ng/mL In Blood (unspecified) @ Unknown
		caffeine	2	2						
		alprazolam (ER)	3	3					alprazolam	14.7 ng/mL In Blood (unspecified) @ Unknown
		lorazepam	4	4					lorazepam	59 ng/mL In Blood (unspecified) @ Unknown
1468ha	64 y F				A	Ingst	Int-S	1		
		propranolol	1	1						
1469h	64 y M				A/C	Ingst	Int-S	1		
		verapamil (ER)	1	1						
		furosemide	2	2						
		allopurinol	3	3						
		losartan	4	4						
1470ha	64 y F				A/C	Ingst	Int-S	1		
		verapamil	1	1					verapamil	7200 ng/mL In Blood (unspecified) @ Autopsy
		clonazepam	3	2					clonazepam	2.7 ng/mL In Blood (unspecified) @ Autopsy
		clonazepam	3	2					7-aminoclonazepam	34 ng/mL In Blood (unspecified) @ Autopsy
		lorazepam	4	3					lorazepam	7 ng/mL In Blood (unspecified) @ Autopsy
		acetaminophen/hydrocodone	5	4					hydrocodone (free)	5.9 ng/mL In Blood (unspecified) @ Autopsy
		trazodone	2	5					trazodone	1.6 mcg/mL In Blood (unspecified) @ Autopsy
		mirtazapine	6	6					mirtazapine	32 ng/mL In Blood (unspecified) @ Autopsy
		zaleplon	7	7						
1471h	64 y F				A	Ingst	Int-S	2		
		amlodipine	1	1						
		terazosin	2	2						
		hydralazine	3	3						
		atorvastain	4	4						
		pantoprazole	5	5						
1472	64 y F				A/C	Ingst	Int-S	1		
		verapamil (ER)	1	1						
		fluoxetine	2	2						
		benzodiazepine	3	3						
1473h	65 y M				C	Ingst	AR-D	3		
		digoxin	1	1						
1474h	65 y F				A/C	Ingst	Int-S	2		
		labetalol	1	1						
1475h	65 y M				U	Ingst	Int-S	2		
		tamsulosin	1	1						
		cobistat/elvitegravir/emtrictabine/tenofovir	2	2						
		darunavir	3	3						
1476ai	65 y F				U	Unk	Int-S	1		
		amlodipine	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		diphenhydramine	2	2						
		lamotrigine	3	3						
1477h	66 y F				A/C	Ingst	Int-S	2		
		diltiazem	1	1						
1478h	66 y M				A/C	Ingst	Int-M	2		
		amlodipine	1	1						
		metformin	2	2						
		ethanol	3	3						
		sitagliptin	4	4						
		atorvastain	5	5						
1479ha	66 y M				A	Ingst	Int-S	1		
		ranolazine (ER)	1	1						
		antihyperlipidemic	2	2						
		beta blocker	3	3						
		benzodiazepine	4	4						
		gabapentin	5	5						
		antiplatelet drug	6	6						
1480h	66 y F				U	Ingst	Int-U	2		
		verapamil	1	1						
		benzapril/hydrocholorothiazide	2	2						
1481ph	66 y M				A/C	Ingst	AR-D	1		
		digoxin	1	1					digoxin	3.21 ng/mL In Blood (unspecified) @ 4 h (pe)
		apixaban	2	2						
		salicylate	3	3						
		furosemide	4	4						
		metolazone	5	5						
		amiodarone	6	6						
		carvedilol	7	7						
		escitalopram	8	8						
		potassium chloride	9	9						
		vitamin D	10	10						
1482h	67 y F				A	Ingst	Int-S	2		
		calcium antagonist	1	1						
		beta blocker	2	2						
1483h	67 y M				A/C	Ingst	Int-S	2		
		flecainide	1	1						
1484h	67 y F				C	Ingst	AR-D	3		
		digoxin	1	1						
		metformin	2	2						
1485p	67 y M				A	Ingst	Unk	2		
		digoxin	1	1						
1486h	67 y M				A/C	Ingst	Unt-T	3		
		amlodipine	1	1						
		atenolol	2	2						
1487ai	67 y M				U	Unk	Int-S	1		
		amlodipine	1	1						
		citalopram	2	2						
		antiplatelet drug	3	3						
		pravastatin	4	4						
		ethanol	5	5						
1488h	68 y F				A	Ingst	Int-S	2		
		amlodipine	1	1						
		duloxetine (ER)	2	2						
		naproxen	3	3						
		ethanol	4	4						
1489h	68 y F				C	Ingst	Unk	1		
		digoxin	1	1					digoxin	3.8 ng/mL In Serum @ 1 d (pe)
1490ha	68 y F				A/C	Ingst	Int-S	1		
		amlodipine	1	1						
		lisinopril	2	2						
		zolpidem	3	3						
1491ha	68 y F				A	Ingst	Int-S	1		
		metoprolol	1	1					metoprolol	390 mg/L In Blood (unspecified) @ 15 m (pe)
		diltiazem	2	2						
		quetiapine	3	3					quetiapine	320 mcg/L In Blood (unspecified) @ 15 m (pe)
		sertraline	4	4					norsertraline	120 mcg/L In Blood (unspecified) @ 15 m (pe)
		sertraline	4	4					sertraline	66 mcg/L In Blood (unspecified) @ 15 m (pe)
1492h	68 y F				A/C	Ingst	Int-S	2		
		propranolol	1	1						
		amitriptyline	2	2						
		paroxetine	3	3						
		odansetron	4	4						
		lorazepam	5	5						
		acetaminophen	6	6					acetaminophen (apap)	24 mcg/mL In Plasma @ Unknown
1493	69 y F				A/C	Ingst	Int-S	2		
		amlodipine	1	1						
1494h	69 y M				A/C	Ingst	Int-S	2		
		antihypertensive, N.O.S.	1	1						
		sedative-hypnotic-anti-anxiety-anti-psychotic, N.O.S.	2	2						
1495	69 y M				A/C	Ingst	Int-S	2		
		clonidine	1	1						
1496h	69 y M				C	Ingst	AR-D	3		
		atenolol	1	1						
		verapamil	2	2						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		nonsteroidal antiinflammatory drug, N.O.S.	3	3						
1497h	69 y M				A/C	Ingst	AR-D	3		
		digoxin	1	1					digoxin	2.8 ng/mL In Blood (unspecified) @ Unknown
1498ph	70 y M				C	Ingst	Int-U	3		
		metoprolol	1	1						
1499ha	70 y F				A/C	Ingst	Int-S	1		
		amlodipine	1	1					amlodipine	160 ng/mL In Blood (unspecified) @ Autopsy
		zolpidem	2	2					zolpidem	170 ng/mL In Blood (unspecified) @ Autopsy
1500h	71 y M				A/C	Ingst	Int-S	2		
		diltiazem	1	1						
		piroxicam	2	2						
		ibuprofen	3	3						
1501ha	71 y M				A/C	Ingst	Unt-G	1		
		amlodipine	1	1					amlodipine	450 ng/mL In Blood (unspecified) @ Unknown
1502h	71 y F				A/C	Ingst	Int-S	2		
		amlodipine	1	1						
		bupropion	2	2						
		hydrochlorothiazide/triamterene	3	3						
		duloxetine (ER)	4	4						
1503h	71 y M				U	Ingst	Int-S	2		
		amlodipine	1	1						
1504	72 y F				U	Ingst	Int-S	2		
		amlodipine	1	1						
		acetaminophen/hydrocodone	2	2						
1505h	72 y F				A	Ingst	Int-S	2		
		sotalol	1	1						
		rivaroxaban	2	2						
1506h	72 y F				A	Ingst	Int-S	2		
		verapamil	1	1						
1507h	72 y M				A/C	Ingst	Int-S	1		
		calcium antagonist	1	1					amlodipine	830 ng/mL In Whole Blood @ Autopsy
		beta blocker	2	2					metoprolol	6000 ng/mL In Blood (unspecified) @ Autopsy
1508h	72 y F				A/C	Ingst	Int-S	2		
		atenolol	1	1						
		bupropion	2	2						
		trazodone	3	3						
		aricept	4	4						
		acetaminophen/hydrocodone	5	5						
		Claritin	6	6						
		atorvastain	7	7						
		benazepril	8	8						
		tramadol	9	9						
1509h	72 y F				C	Ingst	AR-D	3		
		digoxin	1	1					digoxin	3.5 ng/mL In Blood (unspecified) @ 1 h (pe)
1510	73 y F				A	Ingst	Int-S	2		
		amlodipine	1	1						
		atenolol	2	2						
1511h	73 y F				C	Ingst	AR-D	3		
		digoxin	1	1					digoxin	1.7 ng/mL In Blood (unspecified) @ 4 d (pe)
		digoxin	1	1					digoxin	2.5 ng/mL In Blood (unspecified) @ 5 d (pe)
		diltiazem	2	2						
1512h	73 y M				A/C	Ingst	Int-S	2		
		metoprolol	1	1						
		amlodipine	2	2						
		clopidogrel	3	3						
		atorvastain	4	4						
1513h	74 y F				A	Ingst	Int-S	1		
		diltiazem (ER)	1	1						
1514h	74 y M				A	Ingst+ Unk	Int-S	2		
		amlodipine	1	1						
		salicylate	2	2						
1515a	75 y F				A/C	Ingst	Int-S	1		
		bisoprodol	1	1						
		doxepin	2	2					doxepin	2400 ng/mL In Blood (unspecified) @ Unknown
		doxepin	2	2					desmethyldoxepin	270 ng/mL In Blood (unspecified) @ Unknown
		diazepam	3	3					oxazepam	200 ng/mL In Blood (unspecified) @ Unknown
		diazepam	3	3					diazepam	530 ng/mL In Blood (unspecified) @ Unknown
		diazepam	3	3					nordiazepam	640 ng/mL In Blood (unspecified) @ Unknown
		temazepam	4	4					temazepam	4500 ng/mL In Blood (unspecified) @ Unknown
1516h	75 y F				A/C	Ingst	Int-S	2		
		amlodipine	1	1						
1517pha	75 y M				A/C	Ingst	Int-S	2		
		amlodipine	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		amitriptyline	2	2						
		citalopram	3	3						
		losartan	4	4						
		hydrochlorothiazide	5	5						
		levothyroxine	6	6						
		clonazepam	7	7						
1518h	75 y F				A	Ingst	Int-S	2		
		metoprolol	1	1						
		spironolactone	2	2						
1519h	75 y F				A/C	Ingst+ Aspir	Int-S	2		
		amlodipine	1	1						
		tramadol	2	2						
		diphenhydramine	3	3						
1520i	75 y M				A	Ingst	Unk	2		
		metoprolol	1	1						
		losartan	2	2						
1521h	76 y M				A/C	Ingst	Int-S	2		
		metoprolol	1	1						
		amlodipine	2	2						
1522p	76 y M				A/C	Ingst	Int-S	2		
		metoprolol (ER)	1	1					digoxin	8 ng/mL In Blood (unspecified) @ Unknown
		digoxin	2	2						
		tizanidine	3	3						
		escitaopram	4	4						
		gabapentin	5	5						
		acetaminophen/butalbital/caffeine	6	6						
		hydrochlorothiazide	7	7						
		alprazolam	8	8						
		ibuprofen	9	9						
		hypochlorite	10	10						
1523h	76 y F				C	Ingst	AR-D	3		
		digoxin	1	1					digoxin	1.6 ng/mL In Blood (unspecified) @ 13 h (pe)
		digoxin	1	1					digoxin	2.45 ng/mL In Blood (unspecified) @ Unknown
1524h	76 y F				A/C	Ingst	Int-S	2		
		amiodarone	1	1						
		acetaminophen/hydrocodone	2	2						
		zolpidem	3	3						
1525h	76 y F				A/C	Ingst	AR-D	2		
		sotalol	1	1						
1526	77 y F				C	Ingst	Int-S	2		
		digoxin	1	1						
1527h	77 y F				A/C	Ingst	AR-D	2		
		flecainide	1	1					flecainide	0.67 mcg/mL In Blood (unspecified) @ 3 d (pe)
		flecainide	1	1					flecainide	1 mcg/mL In Blood (unspecified) @ 2 d (pe)
1528	77 y M				A/C	Ingst	Unt-T	3		
		metoprolol	1	1						
1529ha	77 y F				A/C	Ingst	Int-S	1		
		amlodipine	1	1						
		topiramate	2	2						
		diphenhydramine	3	3						
		diazepam	4	4						
1530h	77 y F				C	Ingst	Unt-G	3		
		metoprolol	1	1						
		diltiazem	2	2						
		amiodarone	3	3						
1531h	78 y F				A/C	Ingst	Int-S	2		
		verapamil (ER)	1	1						
1532ai	78 y M				A/C	Ingst	Int-S	2		
		amlodipine	1	1						
		carvedilol	2	2						
1533	79 y M				A/C	Ingst	Int-S	2		
		beta blocker	1	1						
		acetaminophen	2	2					acetaminophen (apap)	28 mcg/mL In Blood (unspecified) @ 1 h (pe)
		salicylate	3	3					salicylate	2 mg/dL In Blood (unspecified) @ 1 h (pe)
		metformin	4	4						
		fluoxetine	5	5						
		gabapentin	6	6						
		torsemide	7	7						
		angiotensin converting enzyme inhibitor	8	8						
		alpha-adrenergic blocker	9	9						
		simvastatin	10	10						
1534h	79 y F				A/C	Ingst	Int-S	2		
		amlodipine	1	1						
		escitalopram	2	2						
		tramadol	3	3						
		temazepam	4	4						
1535ha	80 y M				A/C	Ingst	Int-U	2		
		amlodipine	1	1					baclofen	0.67 mcg/mL In Whole Blood @ Unknown
		amlodipine	1	1					amlodipine	670 ng/mL In Whole Blood @ Unknown

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		baclofen	2	2						
		marijuana	3	3						
1536	80 y M				A/C	Ingst	Int-U	2		
		diltiazem	1	1						
		valproic acid	2	2						
		cephalexin	3	3						
1537	80 y F				A	Ingst	Unk	3		
		cardiac glycoside	1	1					digoxin	2 ng/mL In Blood (unspecified) @ Unknown
1538h	81 y M				A/C	Ingst	Unt-T	2		
		atenolol	1	1						
1539h	81 y F				A/C	Ingst	Int-S	2		
		amlodipine	1	1						
		atenolol	2	2						
		trazodone	3	3						
		sertraline	4	4						
		lisinopril	5	5						
		ethanol	6	6						
1540h	81 y F				A/C	Ingst	Int-S	2		
		diltiazem (ER)	1	1						
		apixaban	2	2						
		mirtazapine	3	3						
1541h	82 y F				C	Ingst	Unt-T	2		
		sotalol	1	1						
1542h	82 y F				C	Ingst	AR-D	3		
		digoxin	1	1					digoxin	3.5 ng/mL In Blood (unspecified) @ Unknown
1543h	82 y M				A/C	Ingst	Unt-T	1		
		digoxin	1	1						
1544h	82 y F				A/C	Ingst	Int-S	2		
		amlodipine	1	1						
		carvedilol	2	2						
		metformin	3	3						
		nitroglycerin	4	4						
		celecoxib	5	5						
1545h	83 y F				U	Ingst	Unk	2		
		flecainide	1	1						
1546	83 y M				C	Ingst	AR-D	2		
		digoxin	1	1					digoxin	2.9 ng/mL In Serum @ Unknown
1547	84 y M				C	Ingst	Unk	2		
		carvedilol	1	1						
1548h	84 y F				U	Ingst	Unk	3		
		bisoprodol	1	1						
		amlodipine	2	2						
		valsartan and hydrochlorothiazide	3	3						
1549	85 y F				A/C	Ingst	Int-S	2		
		amlodipine	1	1						
		acetaminophen/oxycodone	2	2					acetaminophen (apap)	10.7 mcg/mL In Blood (unspecified) @ Unknown
1550h	86 y M				C	Ingst	AR-D	3		
		digoxin	1	1					digoxin	2.5 ng/mL In Blood (unspecified) @ 1 h (pe)
1551	86 y F				C	Ingst	Unt-U	3		
		digoxin	1	1					digoxin	2.07 ng/mL In Serum @ Unknown
1552	87 y F				A	Ingst	AR-D	3		
		atenolol	1	1						
		diltiazem (ER)	2	2						
1553ha	88 y M				A/C	Ingst	Unt-U	1		
		diltiazem (ER)	1	1					diltiazem	330 ng/mL In Blood (unspecified) @ Autopsy
		tamsulosin	2	2						
		ramipril	3	3						
		atorvastatin	4	4						
1554	88 y F				C	Ingst	AR-D	1		
		flecainide	1	1						
1555ha	88 y F				U	Ingst	Unt-T	1		
		verapamil	1	1					verapamil	1000 ng/mL In Whole Blood @ Unknown
1556h	88 y M				A/C	Ingst	Int-S	2		
		amlodipine	1	1						
		lisinopril	2	2						
		donepezil	3	3						
		simvastatin	4	4						
1557h	90 y F				C	Ingst	AR-D	3		
		digoxin	1	1					digoxin	3.4 ng/mL In Blood (unspecified) @ 10 m (pe)
1558	91 y F				A/C	Ingst	Unt-T	3		
		cardiac glycoside	1	1					digoxin	3.1 ng/mL In Blood (unspecified) @ Unknown
1559h	91 y F				U	Oth	Unk	3		
		digoxin	1	1						
1560h	91 y F				A/C	Ingst	Unt-M	1		
		amlodipine	1	1						
1561h	92 y M				A/C	Ingst	Int-S	1		
		amlodipine	1	1						
		enalapril	2	2						
1562h	94 y F				A	Ingst	Unt-T	3		
		metoprolol	1	1						
		diltiazem	2	2						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1563	94 y F				C	Ingst	Unt-T	3		
		digoxin	1	1					digoxin	1.77 ng/mL In Blood (unspecified) @ Unknown
1564h	95 y F				A	Ingst	Int-S	1		
		amlodipine	1	1						
		benzodiazepine	2	2						
		gabapentin	3	3						
1565pha	96 y M				A/C	Ingst	Int-S	1		
		flecainide	1	1					flecainide	3.7 mcg/mL In Serum @ Unknown
		warfarin	2	2						
		finasteride	3	3						
1566h	50+ y M				A/C	Ingst	Int-S	2		
		amlodipine	1	1						
See Also case 61, 133, 144, 381, 432, 460, 636, 798, 831, 839, 862, 866, 896, 914, 965, 981, 1005, 1032, 1068, 1105, 1140, 1143, 1163, 1165, 1168, 1169, 1172, 1181, 1188, 1192, 1212, 1221, 1225, 1229, 1233, 1238, 1244, 1247, 1249, 1264, 1266, 1277, 1280, 1329, 1597, 1604, 1607, 1613, 1617, 1618, 1624, 1632, 1640, 1655, 1659, 1676, 1716, 1722, 1735, 1817										
Cold and Cough Preparations										
1567ph	15 y F				A/C	Ingst	Int-S	2		
		benzonatate	1	1						
		sertraline	2	2						
1568ph	18 y F				A	Ingst	Int-S	2		
		benzonatate	1	1						
		hydroxyzine	2	2						
1569hi	20 y F				U	Ingst	Int-S	1		
		acetaminophen/antihistamine/dextromethorphan	1	1						
1570ph	20 y F				A	Ingst	Unk	2		
		benzonatate	1	1						
1571h	25 y M				A	Ingst	Int-S	1		
		dextromethorphan	1	1						
1572	32 y M				U	Unk	Unk	1		
		acetaminophen/dextromethorphan/doxylamine/phenylephrine	1	1					acetaminophen (apap)	461 mcg/mL In Blood (unspecified) @ Unknown
1573ph	36 y F				A	Ingst	Int-S	2		
		dextromethorphan	1	1						
1574ph	45 y F				U	Ingst	Int-S	2		
		Benzonatate	1	1						
		ethanol	2	2					ethanol	316 mg/dL In Blood (unspecified) @ Unknown
1575	46 y F				U	Ingst	Int-A	3		
		acetaminophen/antihistamine/decongestant/dextromethorphan	1	1						
		ethanol	2	2					ethanol	313 mg/dL In Blood (unspecified) @ Unknown
1576h	46 y F				A	Ingst	Int-S	2		
		benzonatate	1	1						
		pregabalin	2	2						
		omeprazole	3	3						
		cetirizine	4	4						
1577ph	53 y F				A/C	Ingst	Unk	2		
		antihistamine/opioid, N.O.S.	1	1						
1578h	77 y M				A	Ingst	Int-S	3		
		doxylamine	1	1						
		ibuprofen	2	2						
		ethanol	3	3					ethanol	212 mg/dL In Serum @ Unknown
1579a	95 y M				A	Ingst	Unt-M	3		
		cough and cold preparation, N.O.S.	1	1					acetaminophen (apap)	93 mcg/mL In Blood (unspecified) @ Unknown
See Also case 37, 461, 603, 605, 638, 687, 790, 803, 835, 917, 993, 1001, 1132, 1217, 1237, 1349, 1358, 1655, 1675, 1848, 1887										
Dietary Supplements/Herbals/Homeopathic										
1580	30 y M				A	Ingst	AR-D	3		
		dietary supplement	1	1						
		ethanol	2	2					ethanol	51 mg/dL In Blood (unspecified) @ Unknown
1581p	62 y F				A	Ingst	Int-U	3		
		homeopathic agent	1	1						
		ethanol	2	2						
		benzodiazepine	3	3						
See Also case 881, 948										
Electrolytes and Minerals										
[1582ha]	20 y M				A	Unk	Unt-O	1		
		calcium carbonate	1	1						
[1583h]	22 y F				C	Ingst	Int-M	1		
		sodium chloride	1	1						
[1584ha]	26 y M				A	Ingst	Int-S	1		
		iron	1	1					iron	21000 mcg/dL In Blood (unspecified) @ 12 h (pe)
		ethanol	2	2					ethanol	173 mg/dL In Serum @ Unknown
[1585h]	40 y F				A/C	Ingst	Int-S	1		
		ferrous sulfate	1	1					iron	115 mcg/dL In Serum @ 53 h (pe)
		ferrous sulfate	1	1					iron	138 mcg/dL In Serum @ 29 h (pe)
		ferrous sulfate	1	1					iron	2000 mcg/dL In Serum @ 20 m (pe)
		ferrous sulfate	1	1					iron	2000 mcg/dL In Serum @ 4 h (pe)
		ferrous sulfate	1	1					iron	203 mcg/dL In Serum @ 19 h (pe)
		ferrous sulfate	1	1					iron	788 mcg/dL In Serum @ 13 h (pe)
		salicylate	2	2						
		clonazepam	3	3						
		hydroxyzine	4	4						
		sertraline	5	5						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
[1586ha]	72 y M				A	Ingst	Unt-M	1		
		sodium bicarbonate	1	1						
See Also case 44, 1070, 1099, 1433, 1438, 1458, 1481, 1707										
Gastrointestinal Preparations										
[1587ha]	2 y F				C	Ingst	Unt-T	1		
		lactulose	1	1						
1588ph	26 y M				U	Ingst	Int-A	2		
		loperamide	1	1						
[1589pha]	28 y M				U	Ingst	Int-A	1		
		loperamide	1	1					loperamide	46 ng/mL In Blood (unspecified) @ 1 h (pe)
1590ph	29 y F				A	Ingst	Int-U	1		
		loperamide	1	1						
1591pa	32 y F				C	Ingst	Unt-M	1		
		loperamide	1	1						
1592ph	33 y F				A	Ingst	Int-S	2		
		loperamide	1	1						
1593ph	41 y M				U	Ingst	Int-S	2		
		loperamide	1	1						
		trazodone	2	1						
		drug, N.O.S.	3	2						
1594	46 y F				A/C	Ingst	Int-S	1		
		antiemetic	1	1						
		amitriptyline	2	2						
		ketorolac	3	3						
		omeprazole	4	4						
		lorazepam	5	5						
		alprazolam	6	6						
		promethazine	7	7						
1595ph	53 y F				A	Ingst	Int-S	2		
		loperamide	1	1						
		pregabalin	2	2						
1596ai	56 y M				U	Unk	Unk	1		
		loperamide	1	1						
1597h	65 y F				A/C	Ingst	Unk	2		
		laxative, unknown	1	1						
		carvedilol	2	2						
See Also case 115, 118, 774, 917, 1062, 1086, 1105, 1140, 1172, 1214, 1226, 1245, 1308, 1410, 1438, 1439, 1455, 1457, 1464, 1471, 1492, 1576, 1604, 1653, 1665, 1702, 1715, 1726, 1736, 1851										
Hormones and Hormone Antagonists										
[1598ha]	13 y F				A	Ingst	Int-S	1		
		metformin	1	1					metformin	76 mcg/dL In Plasma @ Unknown
1599ha	26 y M				U	Ingst+ Par	Int-S	2		
		insulin	1	1						
		promethazine	2	2						
		alcohol, N.O.S.	3	3						
		clonazepam	4	4						
1600	29 y M				A	Ingst	Int-S	2		
		deflazacort	1	1						
		quetiapine	2	2						
1601	33 y M				A	Par	Int-S	1		
		insulin	1	1						
[1602h]	34 y F				U	Unk	Int-S	2		
		insulin	1	1					insulin	5.6 % In Serum @ 24 h (pe)
1603h	36 y M				A	Unk	Int-A	2		
		metformin	1	1						
		cocaine	2	2						
1604h	36 y M				A/C	Ingst	Int-S	2		
		metformin	1	1						
		glipizide	2	2						
		losartan	3	3						
		gabapentin	4	4						
		naproxen	5	5						
		pantoprazole	6	6						
		antibiotic, unknown	7	7						
1605ha	38 y F				A	Par	Int-S	1		
		insulin	1	1						
1606a	43 y M				A/C	Par	Int-S	1		
		insulin	1	1						
1607	43 y M				A	Ingst	Int-S	2		
		glipzide/metformin	1	1						
		zolpidem	2	2						
		lisinopril	3	3						
1608h	43 y F				A/C	Par	Unk	1		
		insulin (glargine) (ER)	1	1					insulin	778 microU/mL In Serum @ Unknown
1609h	43 y F				U	Ingst	Unk	2		
		metformin	1	1					metformin	11 mcg/mL In Plasma @ 2 d (pe)
		ethanol	2	2						
1610ha	44 y M				A	Ingst	Int-S	1		
		metformin	1	1					metformin	110 mcg/mL In Blood (unspecified) @ Unknown
1611h	45 y F				A	Par	Int-S	2		
		insulin	1	1						
1612h	46 y F				A/C	Ingst+ Aspir+ Par	Int-S	1		
		metformin	1	1						
		insulin (glargine) (ER)	2	2						
		insulin (lispro)	3	3						
		diazepam	4	4						
1613ha	47 y M				C	Ingst	Int-S	1		
		metformin	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		amlodipine	2	2						
		nebivolol	3	3						
		lisinopril	4	4						
1614h	48 y F				U	Ingst	Int-S	2		
		metformin	1	1						
		trazodone	2	2						
1615h	49 y M				A/C	Par	Int-S	2		
		insulin (glargine) (ER)	1	1						
1616h	50 y F				U	Ingst	Int-S	2		
		metformin	1	1						
		drug, N.O.S.	2	2						
1617pha	51 y M				A	Ingst	Int-S	1		
		metformin	1	1					metformin	110 mcg/mL In Blood (unspecified) @ Unknown
		hydrochlorothiazide/lisinopril	2	2						
1618h	53 y F				A/C	Ingst	Int-S	2		
		metformin	1	1						
		acetaminophen/hydrocodone	2	2					acetaminophen (apap)	104 mcg/mL In Serum @ 4 h (pe)
		acetaminophen/hydrocodone	2	2					acetaminophen (apap)	134 mcg/mL In Serum @ 30 m (pe)
		acetaminophen/hydrocodone	2	2					acetaminophen (apap)	97 mcg/mL In Serum @ 5.5 h (pe)
		metoprolol	3	3						
		oxycodone	4	4						
1619ph	54 y F				A/C	Ingst+ Par	Unk	2		
		insulin	1	1						
		alprazolam	2	2						
1620ha	55 y F				U	Unk	Unk	3		
		metformin	1	1					metformin	42 mcg/mL In Blood (unspecified) @ 1 h (pe)
		acetaminophen	2	2						
		ethanol	3	3						
1621	56 y F				A/C	Ingst	Int-S	1		
		metformin	1	1						
1622h	57 y M				A/C	Ingst	Int-S	3		
		metformin (ER)	1	1						
1623h	57 y F				A/C	Ingst	Int-U	3		
		metformin	1	1					metformin	38 mcg/mL In Blood (unspecified) @ 12 h (pe)
1624	58 y F				A/C	Ingst	Int-S	3		
		insulin	1	1						
		metoprolol	2	2						
		bupropion	3	3						
		citalopram	4	4						
		gabapentin	6	5						
		lisinopril	5	5						
1625a	59 y F				A/C	Ingst+ Par	Int-S	1		
		insulin	1	1						
		acetaminophen	2	2					acetaminophen (apap)	16 mcg/mL In Plasma @ Unknown
1626h	59 y M				U	Ingst	Unk	2		
		insulin (detemir) (ER)	1	1						
		drug, N.O.S.	2	2						
1627ha	60 y M				A	Ingst	Int-S	1		
		metformin	1	1					metformin	83 mcg/mL In Serum @ Unknown
		ethanol	2	2					ethanol	80 mg/dL In Blood (unspecified) @ Unknown
		hydrochlorothiazide	3	3						
1628h	61 y M				A	Ingst	Int-S	1		
		metformin	1	1						
		ethanol	2	2						
1629h	61 y F				A/C	Par	Int-S	2		
		insulin (aspart)	1	1						
1630	61 y M				A	Ingst	Int-S	2		
		mirtazapine	1	1						
1631	62 y M				C	Ingst	AR-D	3		
		glipizide (ER)	1	1						
1632h	62 y F				U	Ingst	Int-S	2		
		metformin	1	1						
		citalopram	2	2						
		lisinopril	3	3						
		atorvastain	4	4						
		ibuprofen	5	5						
1633h	63 y M				C	Ingst	Unk	2		
		metformin	1	1						
		ethanol	2	2						
1634h	65 y M				A/C	Ingst	Int-S	1		
		metformin	1	1						
1635h	66 y F				C	Ingst	AR-D	3		
		metformin	1	1						
1636	68 y F				A	Ingst	AR-D	3		
		metformin	1	1						
1637h	69 y F				A	Ingst	Int-U	2		
		metformin	1	1						
1638h	69 y F				C	Ingst	AR-D	2		
		metformin	1	1						
1639a	70 y M				A/C	Ingst	Int-S	1		
		metformin	1	1					metformin	65 mcg/mL In Blood (unspecified) @ Autopsy
		ethanol	2	2					ethanol	144 mg/dL In Blood (unspecified) @ Unknown
1640h	70 y F				A/C	Ingst	Int-S	2		
		metformin	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		diltiazem	2	2						
		gabapentin	3	3						
		fluoxetine	4	4						
		acetaminophen/oxycodone	5	5						
1641h	74 y F				U	Ingst	Unk	1		
		metformin	1	1					metformin	44 mcg/mL In Blood (unspecified) @ 4 h (pe)
1642h	74 y M				A	Inhal	Unk	3		
		metformin	1	1						
1643h	75 y M				C	Ingst	AR-D	3		
		metformin	1	1					metformin	5.5 mcg/mL In Serum @ Unknown
1644h	76 y M				A/C	Ingst	Int-S	2		
		metformin	1	1						
1645	78 y F				C	Ingst	AR-D	3		
		metformin	1	1						
1646h	83 y F				C	Ingst	AR-D	3		
		glyburide	1	1						
1647h	89 y F				U	Ingst	Int-S	3		
		metformin	1	1						
1648h	89 y M				A	Ingst	AR-D	2		
		metformin	1	1						
1649ph	90 y M				U	Ingst	AR-D	2		
		glipizide	1	1						
See Also case 33, 61, 66, 378, 707, 839, 964, 981,993, 1023, 1100, 1135, 1163, 1168, 1174, 1210, 1233, 1249, 1254, 1277, 1281 , 1287, 1327, 1329, 1343, 1354,1359, 1375, 1376, 1438, 1443, 1456, 1457, 1478, 1484, 1517, 1533, 1544, 1660, 1702, 1725, 1728, 1796, 1851, 1927										
Miscellaneous Drugs										
1650h	10 y M				C	Ingst	AR-D	3		
		tetrabenazine	1	1						
1651	39 y F				C	Ingst	AR-D	3		
		tacrolimus	1	1						
1652h	48 y M				U	Ingst+ Unk	AR-D	3		
		drug, N.O.S.	1	1						
		cocaine	2	2						
1653h	71 y F				A/C	Ingst	Int-S	3		
		carbidopa/levodopa	1	1						
		primidone	2	2						
		acetaminophen/hydrocodone	3	3					acetaminophen (apap)	151 mcg/mL In Blood (unspecified) @ Unknown
		hydrochlorothiazide	4	4						
		sertraline	5	5						
		buspirone	6	6						
		pantoprazole (ER)	7	7						
1654	90 y M				A	Ingst	Int-S	2		
		carbidopa/entacapone/levodopa	1	1						
See Also case 61, 1105, 1137, 1154, 1245, 1288, 1330, 1425, 1457, 1469, 1508, 1556, 1565, 1665										
Muscle Relaxants										
1655h	11 y M				A	Ingst	Int-S	2		
		baclofen	1	1						
		cough and cold preparation, N.O.S.	2	2						
		amlodipine	3	3					amlodipine	4200 ng/mL In Blood (unspecified) @ Autopsy
		hydroxyzine	4	4						
1656	31 y M				A	Ingst	Int-S	2		
		muscle relaxant, N.O.S.	1	1						
		drug, N.O.S.	2	2						
1657h	31 y F				A	Ingst	Int-S	2		
		cyclobenzaprine	1	1						
		oxycodone	2	2						
1658ph	39 y F				U	Ingst	Unk	2		
		tizanidine	1	1						
1659h	44 y F				A/C	Ingst	Int-S	2		
		tizanidine	1	1						
		metoprolol	2	2						
		tramadol	3	3						
		olanzapine	4	4						
		duloxetine (ER)	5	5						
		acetaminophen/oxycodone	6	6						
		cleaner (anionic/nonionic)	7	7						
		laundry detergent (liquid)	8	8						
1660ph	47 y F				A/C	Ingst	Int-S	2		
		baclofen	1	1						
		alprazolam	2	2						
		cyclobenzaprine	3	3						
		indomethacin	4	4						
		estradiol	5	5						
1661h	49 y M				A/C	Ingst	Int-S	2		
		cyclobenzaprine	1	1						
		clonazepam	2	2						
1662h	55 y F				A/C	Ingst	Int-S	3		
		tizanidine	1	1						
		gabapentin	2	2						
1663h	56 y F				U	Ingst	Int-S	1		
		baclofen	1	1						
1664ph	56 y M				A/C	Ingst	Int-S	2		
		baclofen	1	1						
		diazepam	2	2						
		metaxalone	3	3						
1665h	56 y F				A/C	Ingst	Int-U	3		

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		cyclobenzaprine	1	1						
		hyoscyamine	2	2						
		hydroxyzine	3	3						
		carbidopa/levodopa	4	4						
		drug, N.O.S.	5	5						
1666ph	58 y M				A	Ingst	Int-S	2		
		baclofen	1	1						
1667pa	58 y F				A/C	Ingst	Int-S	1		
		baclofen	1	1						
		tramadol	2	2						
		ethanol	3	3					ethanol	256 mg/mL In Serum @ Unknown
1668ph	59 y F				A	Ingst	Int-S	2		
		cyclobenzaprine	1	1						
		narcotic, N.O.S.	2	2						
		benzodiazepine	3	3						
		acetaminophen	4	4					acetaminophen (apap)	36 mcg/mL In Blood (unspecified) @ Unknown
1669h	63 y M				A/C	Ingst	Int-S	2		
		baclofen	1	1					baclofen	351 ng/mL In Serum @ Unknown
		cyclobenzaprine	2	2						
		ethanol	3	3					ethanol	80 mg/dL In Serum @ Unknown
1670pa	65 y F				A	Unk	Int-S	1		
		carisoprodol	1	1					meprobamate	10.1 mg/L In Blood (unspecified) @ Autopsy
		acetaminophen/hydrocodone	2	2					morphine	0.008 mg/L In Blood (unspecified) @ Autopsy
		acetaminophen/hydrocodone	2	2					hydrocodone	0.022 mg/L In Blood (unspecified) @ Autopsy
		acetaminophen/hydrocodone	2	2					codeine	0.215 mg/L In Blood (unspecified) @ Autopsy
		acetaminophen/hydrocodone	2	2					acetaminophen (apap)	18 mcg/mL In Blood (unspecified) @ Unknown
1671h	67 y F				U	Ingst	Int-S	1		
		baclofen	1	1						
		tramadol	2	2						
		hydroxyzine	3	3						
		gabapentin	4	4						
1672h	67 y F				A	Ingst	Int-M	3		
		baclofen	1	1						
1673ph	69 y F				A	Ingst	Int-S	2		
		baclofen	1	1						
		temazepam	2	2						
		mirtazapine	3	3						
1674h	69 y M				A/C	Ingst	Int-S	2		
		baclofen	1	1						
1675ph	75 y F				A/C	Ingst	Int-M	3		
		tizanidine	1	1						
		cough and cold preparation, N.O.S.	2	2						
1676h	75 y F				A/C	Ingst	Int-S	2		
		methocarbamol	1	1						
		acetaminophen/oxycodone	2	2						
		amlodipine	3	3						
See Also case 145, 518, 557, 738, 760, 772, 917, 1005, 1021, 1083, 1186, 1198, 1225, 1226, 1240, 1249, 1263, 1308, 1373, 1410, 1429, 1438, 1449, 1456, 1462, 1522, 1535, 1692, 1695, 1702, 1715										
Sedative/Hypnotics/Antipsychotics										
1677pa	14 y F				A	Ingst	Int-S	2		
		antipsychotic (atypical)	1	1					quetiapine	0.035 mg/L In Blood (unspecified) @ Autopsy
1678ha	19 y M				U	Ingst	Int-S	2		
		quetiapine	1	1						
		citalopram	2	2					citalopram	0.333 mg/L In Blood (unspecified) @ Unknown
		escitalopram	3	3						
		benzodiazepine	4	4					midazolam	0.035 mg/L In Blood (unspecified) @ Unknown
1679pa	23 y M				A	Ingst	Int-S	3		
		antipsychotic (atypical)	1	1					quetiapine	10000 ng/mL In Blood (unspecified) @ Unknown
1680ai	23 y M				U	Unk	Int-S	1		
		olanzapine	1	1						
		carbamazepine	2	2						
		ethanol	3	3						
1681h	24 y F				A/C	Ingst	Int-S	2		
		quetiapine	1	1						
		benztropine	2	2						
		spironolactone	3	3						
1682h	25 y F				A/C	Ingst	Int-S	2		
		quetiapine	1	1						
		zolpidem	2	2						
		alprazolam	3	3						
1683ph	25 y F				U	Ingst	Int-S	2		
		alprazolam	1	1						
		marijuana, N.O.S.	2	2						
		barbiturate, N.O.S.	3	3						
		benzodiazepine	4	4						
		acetaminophen	5	5					acetaminophen (apap)	32 mcg/mL In Blood (unspecified) @ Unknown
1684ai	27 y M				A/C	Ingst	Int-S	2		
		clonazepam	1	1						
		narcotic, N.O.S.	2	2						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1685h	28 y F				A	Ingst	Int-S	2		
		alprazolam	1	1						
		ethanol	2	2					ethanol	205 mg/dL In Serum @ Unknown
		quetiapine	3	3						
		zolpidem	4	4						
		fluoxetine	5	5						
1686ph	29 y M				A/C	Ingst	Unk	2		
		zolpidem	1	1						
1687h	30 y M				A	Ingst+ Aspir	Int-S	2		
		quetiapine	1	1						
1688ha	33 y M				A/C	Ingst	Int-S	2		
		quetiapine	1	1						
		oxcarbazepine	2	2						
1689h	33 y M				A	Ingst	Int-S	2		
		alprazolam	1	1						
1690pha	34 y F				A/C	Ingst	Int-S	1		
		aripiprazole	2	1					aripiprazole	870 ng/mL In Blood (unspecified) @ Unknown
		bupropion	1	1					hydroxybupropion	1500 ng/mL In Blood (unspecified) @ Unknown
		bupropion	1	1					bupropion	3600 ng/mL In Blood (unspecified) @ Unknown
		methamphetamine	3	3					methamphetamine	1600 ng/mL In Blood (unspecified) @ Unknown
		ethanol	4	4					ethanol	166 mg/dL In Blood (unspecified) @ Unknown
		ethanol	4	4					ethanol	200 mg/dL In Blood (unspecified) @ Unknown
		diphenhydramine	5	5						
		hydroxyzine	6	6					hydroxyzine	100 ng/mL In Blood (unspecified) @ Unknown
1691	34 y M				A	Ingst	Int-S	3		
		quetiapine	1	1						
1692h	37 y F				A/C	Ingst	Int-S	2		
		quetiapine	1	1						
		carisoprodol	2	2						
		lurasidone	3	3						
		duloxetine (ER)	4	4						
1693	39 y F				A/C	Ingst	Int-S	2		
		buspirone	1	1						
		clonazepam	2	2						
1694ph	40 y F				A	Ingst	Int-A	2		
		zolpidem	1	1						
		buprenorphine/naloxone (sublingual film)	2	2						
		amphetamine/dextroamphetamine	3	3						
1695h	45 y F				A/C	Ingst+ Aspir	Int-S	3		
		quetiapine	1	1						
		cyclobenzaprine	2	2						
		acetaminophen/oxycodone	3	3						
1696i	45 y F				A/C	Ingst	Unk	2		
		alprazolam	1	1						
		salicylate	2	2					salicylate	22.9 mg/dL In Serum @ Unknown
		drug, N.O.S.	3	3						
1697pa	46 y F				A	Ingst	Int-S	1		
		alprazolam	1	1					alprazolam	6 ng/mL In Blood (unspecified) @ Unknown
		cocaine	2	2					benzoylecognine	2400 ng/mL In Blood (unspecified) @ Unknown
		narcotic, N.O.S.	3	3					6-mam (6-monoacetylmorphine)	280 ng/mL In Blood (unspecified) @ Unknown
		amphetamine	4	4					amphetamine	9.5 ng/mL In Blood (unspecified) @ Unknown
1698ph	46 y F				C	Ingst	Int-S	3		
		clonazepam	2	1						
		doxepin	1	2						
1699ai	46 y F				U	Unk	Unk	1		
		butalbital	1	1						
		lamotrigine	2	2						
		topiramate	3	3						
1700h	47 y F				U	Ingst	Int-U	3		
		benzodiazepine	1	1						
1701h	50 y F				A/C	Ingst+ Aspir	Int-S	3		
		quetiapine	1	1						
1702p	50 y F				A	Ingst	Int-S	1		
		benzodiazepine	1	1						
		oxycodone	2	2					acetaminophen (apap)	225 mcg/mL In Blood (unspecified) @ 2 m (pe)
		fluoxetine	3	3						
		levothyroxine	4	4						
		cyclobenzaprine	5	5						
		omeprazole	6	6						
1703a	50 y F				A	Ingst	Int-S	3		
		benzodiazepine	1	1					lorazepam	0.06 mg/L In Blood (unspecified) @ Unknown
		drug, N.O.S.	2	2						
1704ph	50 y F				A/C	Ingst	Int-S	2		
		diazepam	1	1						
		acetaminophen/oxycodone	2	2					acetaminophen (apap)	21 mcg/mL In Blood (unspecified) @

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
										Unknown
		zolpidem	3	3						
1705	50 y F				C	Ingst	AR-D	3		
		phenobarbital	1	1					phenobarbital	55 mcg/mL In Blood (unspecified) @ Unknown
1706h	51 y M				A/C	Ingst	Int-S	2		
		quetiapine	1	1						
1707h	51 y M				C	Ingst	Int-A	3		
		zolpidem	1	1						
		oxycodone	2	2						
		potassium chloride	3	3						
1708ph	52 y F				A/C	Ingst	Int-S	2		
		alprazolam	1	1						
		quetiapine	2	2						
1709ha	54 y M				A	Ingst	Unk	2		
		olanzapine	1	1					olanzapine	1300 ng/mL In Blood (unspecified) @ Unknown
		methamphetamine	2	2					amphetamine	6.5 ng/mL In Blood (unspecified) @ Unknown
		methamphetamine	2	2					methamphetamine	7 ng/mL In Blood (unspecified) @ Unknown
1710h	57 y F				A	Ingst	Int-S	1		
		barbiturate (long acting)	1	1					phenobarbital	219.33 mcg/mL In Blood (unspecified) @ Unknown
1711	57 y F				A	Ingst	Int-S	2		
		alprazolam	1	1						
		acetaminophen/hydrocodone	2	2						
		amphetamine	3	3						
1712ph	57 y F				U	Ingst	Unk	2		
		temazepam	1	1						
		acetaminophen	2	2						
1713pha	58 y M				A/C	Ingst	Int-S	2		
		quetiapine	1	1						
		gabapentin	2	2						
		fluoxetine	3	3						
		alcohol, N.O.S.	4	4						
1714h	58 y F				A/C	Ingst	Unk	2		
		phenobarbital	1	1					phenelzine	64.4 mg/L In Serum @ 13 h (pe)
1715h	59 y M				A/C	Ingst	Int-S	2		
		alprazolam	1	1						
		carisoprodol	2	2						
		tizanidine	3	3						
		pantoprazole	4	4						
		cyclobenzaprine	5	5						
		pregabalin	6	6						
1716h	59 y M				A	Ingst	Int-S	2		
		quetiapine	1	1						
		amlodipine	2	2						
1717ha	59 y M				A/C	Ingst	Int-S	1		
		alprazolam	1	1					alprazolam	47 ng/mL In Blood (unspecified) @ Autopsy
		quetiapine	2	2					quetiapine	570 ng/mL In Blood (unspecified) @ Autopsy
		duloxetine (ER)	3	3					duloxetine	60 ng/mL In Blood (unspecified) @ Autopsy
		fluoxetine	4	4					fluoxetine	820 ng/mL In Blood (unspecified) @ Autopsy
		ethanol	5	5					ethanol	116 mg/dL In Blood (unspecified) @ Autopsy
1718h	61 y M				A/C	Ingst	Int-S	3		
		chlordiazepoxide	1	1						
		alprazolam	2	2						
		ethanol	3	3					ethanol	181 mg/dL In Blood (unspecified) @ Unknown
		narcotic, N.O.S.	4	4						
1719h	61 y M				A/C	Ingst	Int-S	3		
		diazepam	1	1						
		trazodone	2	2						
		lamotrigine	3	3						
1720h	64 y F				U	Unk	Int-S	2		
		quetiapine	1	1						
1721ha	65 y F				A	Ingst	Int-S	2		
		doxylamine	1	1						
		fluoxetine	2	2						
		acetaminophen/hydrocodone	3	3						
1722	67 y M				A	Ingst	Int-S	3		
		diazepam	1	1						
		clonidine	2	2						
1723h	68 y F				U	Ingst	Int-S	3		
		temazepam	1	1						
		ethanol	2	2					ethanol	256 mg/dL In Serum @ Unknown
1724ha	68 y F				U	Ingst	Int-S	1		
		clonazepam	1	1					7-aminoclonazepam	58 ng/mL In Blood (unspecified) @ Autopsy
		clonazepam	1	1					clonazepam	74 ng/mL In Blood (unspecified) @ Autopsy
		diazepam	2	2					nordiazepam	31 ng/mL In Blood (unspecified) @ Autopsy
		diazepam	2	2					diazepam	40 ng/mL In Blood (unspecified) @ Autopsy

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		lorazepam	3	3						
		promethazine	4	4						
1725	69 y F				A/C	Ingst	Int-S	2		
		zolpidem	1	1						
		clonazepam	2	2						
		metformin	3	3						
1726h	70 y M				A	Ingst	Int-S	3		
		quetiapine	1	1						
		citalopram	2	2						
		diphenhydramine	3	3						
		loperamide	4	4						
		risperidone	5	5						
1727h	71 y M				A	Ingst	Int-S	3		
		alprazolam	1	1						
1728h	71 y M				A	Ingst	Unk	3		
		lorazepam	1	1						
		ranitidine	2	2						
		prednisone	3	3						
		acetaminophen	4	4						
1729ph	72 y F				A/C	Ingst	Int-S	2		
		quetiapine	1	1						
		lamotrigine	2	2						
		gabapentin	3	3						
1730a	74 y F				A	Ingst	Int-S	1		
		alprazolam	1	1						
		ethanol	2	2						
1731ph	74 y F				A/C	Ingst	Int-S	2		
		alprazolam	1	1						
		acetaminophen/hydrocodone	2	2						
1732ai	76 y M				U	Unk	Int-S	1		
		barbiturate (long acting)	1	1						
1733	83 y F				A/C	Ingst	Int-S	2		
		quetiapine	1	1						
1734h	87 y F				U	Ingst	Unk	2		
		clonazepam	1	1						
1735h	88 y M				A	Ingst	Int-S	2		
		alprazolam	1	1						
		amlodipine	2	2						
		losartan	3	3						
		fluoxetine	4	4						
		acetaminophen/codeine	5	5						
1736a	96 y M				A	Ingst	Unt-T	1		
		clozapine	1	1					clozapine	240 ng/mL In Blood (unspecified) @ Autopsy
		clozapine	1	1					norclozapine	53 ng/mL In Blood (unspecified) @ Autopsy
		topiramate	2	2					topiramate	8600 ng/mL In Blood (unspecified) @ Autopsy
		levetiracetam	3	3					levetiracetam	13 mcg/mL In Blood (unspecified) @ Autopsy
		buspirone	4	4						
		aripiprazole	5	5						
		escitalopram	6	6						
		docusate	7	7						
		ranitidine	8	8						
See Also case 5, 50, 118, 133, 151, 244, 327, 334,336, 337, 391, 407, 409, 421, 435, 446, 447, 460, 462,467, 509, 511, 516, 518, 526, 533, 539, 543, 567, 573,579, 594, 621, 626, 639, 670, 684, 688, 700, 702, 720,726, 759, 760, 764, 766, 767, 772, 773, 774, 783, 797, 805, 814, 831, 836, 845, 847, 848, 855, 866, 882, 883, 897, 899, 900, 908, 912, 914, 917, 921, 934, 936, 963, 964, 981, 988, 989, 996, 999, 1026, 1029, 1041, 1046, 1049, 1061, 1071, 1081, 1083, 1084, 1085, 1086, 1090, 1091, 1095, 1105, 1109, 1126, 1132, 1139, 1153, 1154, 1158, 1162, 1163, 1165, 1167, 1169, 1174, 1184, 1192, 1200, 1202,1203, 1210, 1212, 1213, 1218, 1220, 1221, 1222, 1223, 1224, 1230, 1231, 1233, 1236, 1239, 1241, 1245, 1246, 1247, 1249, 1253, 1254, 1264, 1267, 1272, 1280, 1287, 1306, 1307, 1314, 1318, 1325, 1343, 1349, 1351, 1355,1360, 1370, 1373, 1374, 1377, 1384, 1386, 1388, 1396, 1397, 1411, 1413, 1416, 1418, 1419, 1421, 1422, 1427, 1435, 1438, 1440, 1444, 1453, 1455, 1459, 1461, 1464, 1467, 1470, 1472, 1479, 1490, 1491, 1492, 1494, 1499,1515, 1517, 1522, 1524, 1529, 1534, 1564, 1581, 1585, 1594, 1599, 1600, 1607, 1612, 1619, 1653, 1659, 1660, 1661, 1664, 1668, 1673, 1740, 1742, 1760, 1762, 1763, 1765, 1785, 1817, 1848, 1856, 1865, 1868, 1870, 1881,1892, 1909, 1940, 2002, 2008, 2018, 2023, 2027									
Stimulants and Street Drugs										
1737h	16 y M				A	Ingst	Int-S	1		
		caffeine	1	1					caffeine	24.2 mcg/mL In Blood (unspecified) @ 3 d (pe)
		caffeine	1	1					caffeine	88.3 mcg/mL In Blood (unspecified) @ 2 d (pe)
		acetaminophen	2	2					acetaminophen (apap)	323 mcg/mL In Blood (unspecified) @ Unknown
		acetaminophen	2	2					acetaminophen (apap)	89.2 mcg/mL In Blood (unspecified) @ Unknown
		salicylate	3	3					salicylate	15 mg/dL In Blood (unspecified) @ Unknown
		salicylate	3	3					salicylate	24 mg/dL In Blood (unspecified) @ Unknown
		diphenhydramine	4	4						
		ibuprofen	5	5						
		nortriptyline	6	6						
		rizatriptan	7	7						
1738ha	18 y F				A	Unk	Int-S	1		
		methamphetamine	1	1					methamphetamine	1610 ng/mL In Blood (unspecified) @ Autopsy
		methamphetamine	1	1					amphetamine	182 ng/mL In Blood (unspecified) @ Autopsy
1739h	18 y M				A	Ingst	Int-A	2		
		methylenedioxymethamphetamine (MDMA)	1	1						
		phenelzine	2	2						
1740pha	19 y M				U	Unk	Unk	1		
		THC homolog	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		midazolam	2	2						
1741pha	20 y M				A	Ingst+ Par	Int-A	2		
		methamphetamine	1	1					methamphetamine	1.3 mg/L In Blood (unspecified) @ Autopsy
		amphetamine	2	2					amphetamine	0.088 mg/L In Blood (unspecified) @ Autopsy
		drug, N.O.S.	3	3						
1742ph	20 y F				A	Ingst	Int-A	2		
		methylenedioxymethamphetamine (MDMA)	1	1						
		quetiapine	2	2						
1743ha	20 y F				A	Ingst	Int-A	1		
		methylenedioxymethamphetamine (MDMA)	1	1					mda (3,4-methylenedioxyamphetamine)	24 ng/mL In Blood (unspecified) @ Unknown
		methylenedioxymethamphetamine (MDMA)	1	1					mdma (3,4-methylenedioxymethamphetamine)	422 ng/mL In Blood (unspecified) @ Unknown
		ethanol	2	2						
1744h	21 y M				A	Ingst	Int-M	1		
		methamphetamine	1	1						
1745h	22 y M				A/C	Ingst	Int-U	2		
		methamphetamine	1	1						
1746	22 y M				A	Ingst	Int-A	2		
		methamphetamine	1	1						
1747pai	22 y M				U	Unk	Int-A	1		
		cocaine	1	1						
		ethanol	2	2						
1748ph	23 y F				U	Ingst	Int-U	2		
		amphetamine	1	1						
1749ai	23 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
		gabapentin	2	2						
		bupropion	3	3						
1750ph	23 y F				C	Inhal	Int-M	2		
		marijuana (liquid)	1	1						
1751h	24 y M				U	Unk	Int-S	2		
		methamphetamine	1	1						
1752ha	24 y M				U	Ingst	Int-S	1		
		Mitragyna speciosa korthals	1	1						
1753a	24 y M				A	Ingst	Int-S	1		
		methamphetamine	1	1						
1754	24 y M				A	Ingst	Int-M	1		
		methamphetamine	1	1						
1755ph	24 y M				U	Unk	Unk	1		
		Mitragyna speciosa korthals	1	1						
1756h	25 y M				A/C	Ingst	Int-M	2		
		methamphetamine	1	1						
[1757ha]	25 y M				U	Ingst	Int-A	1		
		amphetamine (hallucinogenic)	1	1					mdma (3,4-methylenedioxymethamphetamine)	930 ng/mL In Blood (unspecified) @ Autopsy
1758ph	25 y M				U	Par	Int-A	1		
		stimulant/street drug, N.O.S	1	1						
		cocaine	2	2						
[1759h]	25 y M				C	Inhal	AR-O	2		
		marijuana (liquid)	1	1						
		nicotine (liquid)	2	2						
1760ha	25 y M				U	Ingst	Int-U	1		
		caffeine	1	1						
		methamphetamine	2	2					methamphetamine	1718 ng/mL In Blood (unspecified) @ Autopsy
		methamphetamine	2	2					amphetamine	78.3 ng/mL In Blood (unspecified) @ Autopsy
		marijuana	3	3					thc (tetrahydrocannabinol)	1 ng/mL In Blood (unspecified) @ Autopsy
		marijuana	3	3					carboxy-thc	7.6 ng/mL In Blood (unspecified) @ Autopsy
		lorazepam	4	4					lorazepam	29.3 ng/mL In Blood (unspecified) @ Autopsy
1761h	25 y F				U	Unk	Int-U	2		
		methamphetamine	1	1						
1762ai	25 y M				U	Unk	Int-S	1		
		Mitragyna speciosa korthals	1	1						
		diphenhydramine	2	2						
		etizolam	3	3						
1763pa	26 y M				U	Ingst	Unk	1		
		methamphetamine	1	1					methamphetamine	2700 ng/mL In Blood (unspecified) @ Autopsy
		quetiapine	2	1						
1764h	26 y M				U	Unk	Int-A	3		
		cocaine	1	1						
		levamisole	2	2						
1765h	26 y F				C	Ingst	Int-A	2		
		methamphetamine	1	1						
		quetiapine	2	2						
		sertraline	3	3						
1766h	26 y M				A	Unk	Unk	2		
		methylenedioxymethamphetamine (MDMA)	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		drug, N.O.S.	2	2						
1767pi	26 y M				A/C	Par	Int-A	1		
		methamphetamine	1	1						
1768	26 y M				A	Par	Int-A	2		
		methamphetamine	1	1						
1769h	27 y M				A	Ingst	Int-M	2		
		methamphetamine	1	1						
1770ph	27 y M				A/C	Unk	Int-A	2		
		cocaine	1	1						
		heroin	2	2						
		marijuana	3	3						
1771phai	27 y M				A/C	Unk	Int-A	2		
		cocaine	1	1						
		narcotic, N.O.S.	2	2						
1772ha	27 y M				U	Ingst+ Par	Int-A	1		
		methamphetamine	1	1					amphetamine	53.4 ng/mL In Blood (unspecified) @ Autopsy
		methamphetamine	1	1					methamphetamine	587 ng/mL In Blood (unspecified) @ Autopsy
		fentanyl	2	2					fentanyl	15.7 ng/mL In Blood (unspecified) @ Autopsy
		amphetamine (hallucinogenic), flakka	3	3						
1773pai	28 y M				U	Unk	Int-A	3		
		methamphetamine	1	1						
1774h	28 y M				A	Ingst	Int-M	2		
		amphetamine (hallucinogenic)	1	1						
1775ph	28 y F				U	Ingst	Int-S	2		
		cocaine	1	1						
		amitriptyline	2	2						
1776h	29 y M				A	Ingst	Int-S	2		
		methylenedioxymethamphetamine (MDMA)	1	1						
1777pa	29 y M				U	Unk	Int-A	2		
		cocaine	1	1						
1778ph	29 y F				U	Ingst+ Unk	Int-A	2		
		cocaine	1	1						
		ethanol	2	2						
[1779ha]	29 y M				U	Ingst+ Rec	Int-A	1		
		methamphetamine	1	1					methamphetamine	100000 ng/mL In Blood (unspecified) @ Unknown
		methamphetamine	1	1					ephedrine	119 ng/mL In Blood (unspecified) @ Unknown
		methamphetamine	1	1					amphetamine	15105 ng/mL In Blood (unspecified) @ Unknown
		heroin	2	2					morphine	121 ng/mL In Blood (unspecified) @ Unknown
1780ai	29 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
1781ph	30 y M				A	Ingst	Int-M	2		
		methamphetamine	1	1						
1782h	30 y M				U	Unk	Int-A	3		
		ethylone	1	1						
		cocaine	2	2						
		plant, mitragyna	3	3						
1783pai	30 y F				A/C	Unk	Int-A	2		
		cocaine	1	1					cocaine	42 ng/mL In Blood (unspecified) @ Autopsy
1784ph	30 y M				A	Ingst	Int-M	3		
		Mitragyna speciosa korthals	2	1						
		phenytoin (ER)	1	2						
1785ai	30 y F				U	Unk	Int-S	1		
		methamphetamine	1	1						
		clonazepam	2	2						
		ethanol	3	3						
1786h	30 y M				A	Ingst	Int-U	1		
		methamphetamine	1	1						
		amphetamine	2	2						
1787h	30 y M				A	Ingst	Int-M	2		
		methamphetamine	1	1						
		glass cleaner (household)	2	2						
1788h	31 y M				U	Unk	Unk	2		
		amphetamine	1	1						
		cocaine	2	2						
		drug, N.O.S.	3	3						
		fentanyl	4	4						
		marijuana	5	5						
1789ai	31 y M				U	Unk	Int-A	2		
		stimulant/street drug, N.O.S	1	1						
1790h	31 y M				A	Inhal	Int-A	2		
		cocaine	1	1						
1791h	31 y F				A	Unk	Int-U	2		
		methamphetamine	1	1						
		bupropion	2	2						
		narcotic, N.O.S.	3	3						
1792h	32 y M				A	Par	Int-A	2		
		methamphetamine	1	1						
1793ha	33 y M				A	Ingst	Int-A	1		
		methylenedioxymethamphetamine (MDMA)	1	1					mda (3,4-methylenedioxyamphet	0.069 mg/L In Blood (unspecified) @ 6 h (pe)

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
									amine)	
		methylenedioxymethamphetamine (MDMA)	1	1					mdma (3,4-methylenedioxymethamphetamine)	1.7 mg/L In Blood (unspecified) @ 6 h (pe)
1794h	33 y M				A	Ingst	Unt-U	3		
		amphetamine/dextroamphetamine (ER)	1	1						
		amphetamine/dextroamphetamine	2	2						
1795ha	33 y M				U	Ingst	Int-A	1		
		methamphetamine	1	1						
		codeine	2	2						
		narcotic, N.O.S.	3	3						
1796h	33 y M				A/C	Inhal+ Par	Int-S	2		
		methamphetamine	1	1						
		insulin (glargine) (ER)	2	2						
		insulin (aspart)	3	3						
		laundry detergent (granules)	4	4						
1797ai	33 y F				A	Ingst+ Unk	Int-A	1		
		cocaine	1	1						
		fentanyl	2	2						
		ethanol	3	3						
1798ai	33 y M				U	Unk	Int-A	2		
		cocaine	1	1						
		oxycodone	2	2						
1799h	33 y M				U	Unk	Unk	2		
		cocaine	1	1					cocaine	150 ng/mL In Unknown @ Unknown
1800ph	33 y M				A	Ingst	Int-U	2		
		methamphetamine	1	1						
1801h	34 y M				U	Unk	Int-A	1		
		methamphetamine	1	1					methamphetamine	1.9 mg/L In Whole Blood @ 0 h (pe)
1802ph	34 y M				A	Ingst	Int-M	2		
		methamphetamine	1	1						
1803pi	34 y M				U	Ingst	Int-A	1		
		cocaine	1	1						
1804h	34 y M				A	Unk	Unk	2		
		methamphetamine	1	1						
1805pha	34 y M				A	Par	Int-A	1		
		amphetamine	1	1					amphetamine	120 ng/mL In Serum @ Unknown
		amphetamine	1	1					methamphetamine	1700 ng/mL In Serum @ Unknown
		heroin	2	2					morphine	100 ng/mL In Serum @ Unknown
		heroin	2	2					codeine	6.8 ng/mL In Serum @ Unknown
		fentanyl, N.O.S.	3	3					norfentanyl	0.52 ng/mL In Serum @ Unknown
		fentanyl, N.O.S.	3	3					acetyl fentanyl	3.4 ng/mL In Serum @ Unknown
		fentanyl, N.O.S.	3	3					fentanyl	5.1 ng/mL In Serum @ Unknown
1806ai	34 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
		marijuana	2	2						
1807pi	34 y M				A/C	Inhal+ Par	Int-A	2		
		cocaine	1	1						
		methamphetamine	2	2						
		amphetamine	3	3						
1808pha	34 y F				A	Ingst	Int-S	1		
		methamphetamine	1	1					methamphetamine	3000 ng/mL In Blood (unspecified) @ Unknown
		methamphetamine	1	1					amphetamine	95 ng/mL In Blood (unspecified) @ Unknown
		acetaminophen	2	2					acetaminophen (apap)	337 mg/L In Blood (unspecified) @ Unknown
		ethanol	3	3					ethanol	147 mg/dL In Blood (unspecified) @ Unknown
		marijuana, N.O.S.	4	4					delta-9-thc	1.3 ng/mL In Blood (unspecified) @ Unknown
		marijuana, N.O.S.	4	4					delta-9-carboxy-thc	7 ng/mL In Blood (unspecified) @ Unknown
1809h	35 y M				U	Unk	Int-A	3		
		methamphetamine	1	1						
1810pha	35 y F				U	Unk	Int-A	1		
		cocaine	1	1						
		ethanol	2	2						
1811pha	35 y M				A	Unk	Int-U	1		
		methamphetamine	1	1						
1812ph	36 y M				U	Unk	Int-A	2		
		cocaine	1	1						
		heroin	2	2						
1813p	36 y M				A	Ingst	Int-A	2		
		amphetamine (hallucinogenic)	1	1						
		ethanol	2	2					ethanol	45 mg/dL In Unknown @ Unknown
1814ai	36 y F				U	Unk	Int-A	1		
		methamphetamine	1	1						
		diphenhydramine	2	2						
		ibuprofen	3	3						
1815ph	37 y M				A	Ingst	Int-U	3		
		cocaine	1	1						
		ethanol	2	2						
1816h	37 y M				A	Unk	Int-A	2		
		cocaine	1	1						
		amphetamine	2	2						
		drug, N.O.S.	3	3						
		ethanol	4	4						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1817ha	37 y F				A/C	Ingst	Unk	1		
		methamphetamine	1	1					methamphetamine	0.11 mg/L In Blood (unspecified) @ Unknown
		clonidine	2	2						
		trazodone	3	3						
		buspirone	4	4						
		mirtazapine	5	5						
		ibuprofen	6	6						
1818ai	37 y M				A	Ingst	Int-A	1		
		amphetamine (hallucinogenic)	1	1						
		cocaine	2	2						
		fentanyl	3	3						
		tramadol	4	4						
1819ph	37 y M				A	Ingst	Int-A	2		
		phencyclidine	1	1						
1820pi	37 y M				U	Ingst+ Unk	Int-A	2		
		cocaine	1	1						
		ethanol	2	2						
1821pha	37 y F				A/C	Ingst	Int-A	1		
		sodium oxybate	1	1						
1822h	37 y M				A/C	Inhal	Int-A	2		
		marijuana (liquid)	1	1						
		nicotine (liquid)	2	2						
1823ai	37 y F				U	Unk	Int-A	2		
		methamphetamine	1	1						
1824h	38 y M				U	Unk	Int-A	2		
		methamphetamine	1	1						
1825ai	38 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
1826ph	38 y F				U	Ingst	Int-U	2		
		methamphetamine	1	1						
1827h	39 y M				U	Unk	Int-A	2		
		methamphetamine	1	1						
1828ha	39 y F				U	Unk	Unk	2		
		cocaine	1	1					benzoylecognine	2.4 mg/L In Serum @ 1.5 d (pe)
		ethanol	2	2					ethanol	83 mg/dL In Serum @ Unknown
1829pha	39 y M				A	Unk	Unk	2		
		methamphetamine	1	1					methamphetamine	0.84 mg/L In Serum @ 0 m (pe)
		cocaine	2	2						
1830pai	39 y M				A/C	Ingst+ Inhal+ Unk	Int-A	3		
		methamphetamine	1	1					methamphetamine	1500 ng/mL In Liver @ Autopsy
		cocaine	2	2					benzoylecognine	2000 ng/mL In Liver @ Autopsy
		cocaine	2	2					cocaine	640 ng/mL In Liver @ Autopsy
		amphetamine	3	3					amphetamine	100 ng/mL In Liver @ Autopsy
		ethanol	4	4					ethanol	110 mcg/g In Liver @ Autopsy
		buprenorphine	5	5					buprenorphine	25 ng/mL In Liver @ Autopsy
		buprenorphine	5	5					norbuprenorphine	25 ng/mL In Liver @ Autopsy
1831ai	39 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
1832ai	39 y F				C	Unk	Int-A	2		
		methamphetamine	1	1						
1833ha	40 y M				A	Ingst	Int-M	1		
		methamphetamine	1	1					methamphetamine	11 mg/L In Blood (unspecified) @ Autopsy
1834pi	40 y M				U	Inhal+ Unk	Int-A	2		
		methamphetamine	1	1						
		amphetamine	2	2						
1835	40 y M				C	Unk	Oth-W	3		
		methamphetamine	1	1						
1836ai	40 y F				U	Unk	Int-A	1		
		methamphetamine	1	1						
1837ai	40 y M				U	Unk	Int-A	3		
		methamphetamine	1	1						
1838ai	40 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
1839h	41 y M				A	Ingst	Int-A	2		
		methamphetamine	1	1						
1840pai	41 y M				A	Oth+ Unk	Int-A	1		
		cocaine	1	1						
		fentanyl	2	2						
1841ph	41 y F				A	Unk	Int-A	2		
		cocaine	1	1						
		narcotic, N.O.S.	2	2						
1842ha	41 y F				U	Unk	Unk	3		
		methamphetamine	1	1					methamphetamine	357 ng/mL In Blood (unspecified) @ Unknown
		oxycodone	2	2					oxycodone	10 ng/mL In Blood (unspecified) @ Unknown
1843ai	41 y M				U	Unk	Int-A	1		
		cocaine	1	1						
		methadone	2	2						
		ethanol	3	3						
1844ph	41 y M				A	Inhal	Int-A	2		
		cocaine	1	1						
		fentanyl	2	2					fentanyl	0.002 mg/L In Blood (unspecified) @ Autopsy
		ethanol	3	3						
1845h	42 y M				A	Ingst	Int-S	2		
		methamphetamine	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1846h	42 y M				A	Ingst	Int-M	2		
		methamphetamine	1	1						
1847	43 y M				A	Ingst	Int-M	2		
		methamphetamine	1	1						
1848pha	43 y M				A	Ingst	Int-S	1		
		methylphenidate	1	1					methylphenidate	0.24 mg/L In Blood (unspecified) @ Autopsy
		methamphetamine	2	2						
		diazepam	3	3						
		doxylamine	4	4						
		diphenhydramine	5	5						
1849	44 y M				A	Ingst	Unt-M	2		
		methamphetamine	1	1						
1850ai	44 y F				U	Unk	Int-A	2		
		stimulant/street drug, N.O.S	1	1						
1851pha	44 y M				A	Ingst	Int-S	3		
		amphetamine	1	1					amphetamine	150 ng/mL In Blood (unspecified) @ Autopsy
		ethanol	2	2					ethanol	153 mg/dL In Blood (unspecified) @ Autopsy
		oxcarbazepine	3	3						
		omeprazole	4	4						
		levothyroxine	5	5						
1852pai	44 y M				A/C	Unk	Int-A	1		
		cocaine	1	1						
		fentanyl	2	2						
1853ai	45 y M				U	Unk	Int-A	2		
		stimulant/street drug, N.O.S	1	1						
1854ha	45 y F				U	Unk	Int-A	1		
		cocaine	1	1						
		heroin	2	2						
		methadone	3	3						
1855ai	45 y F				U	Unk	Int-A	2		
		methamphetamine	1	1						
		cocaine	2	2						
		isopropanol	3	3						
1856h	45 y F				A	Ingst	Int-A	2		
		methamphetamine	1	1						
		amphetamine	2	2						
		fentanyl	3	3						
		alprazolam	4	4						
		risperidone	5	5						
1857ai	45 y M				U	Unk	Int-A	2		
		methamphetamine	1	1						
		isopropanol	2	2						
		ethanol	3	3						
1858pai	46 y F				A/C	Unk	Int-A	1		
		cocaine	1	1						
		fentanyl	2	2						
		fentanyl analog (valerylfentanyl)	3	3						
		methamphetamine	4	4						
		ephedrine	5	5						
1859ai	46 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
1860ph	47 y F				A	Inhal	Int-A	2		
		phencyclidine	1	1						
		marijuana, N.O.S.	2	2						
1861ph	47 y M				A	Ingst	Int-M	1		
		cocaine	1	1						
1862ai	47 y F				A/C	Inhal	Int-A	2		
		cocaine	1	1						
		drug, N.O.S.	2	2						
1863ph	47 y M				U	Ingst	Int-S	2		
		amphetamine/dextroamphetamine	1	1						
1864ph	47 y F				U	Ingst	Int-A	2		
		phencyclidine	1	1						
		cocaine	2	2						
1865ai	48 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
		cetirizine	2	2						
		clozapine	3	3						
1866h	48 y M				A	Unk	Int-A	3		
		cocaine	1	1						
1867pai	48 y F				A/C	Unk	Int-A	1		
		cocaine	1	1						
		fentanyl	2	2						
1868h	48 y M				A	Ingst+ Inhal	Int-S	3		
		methamphetamine	1	1						
		quetiapine	2	2						
1869ai	49 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
1870ai	49 y F				U	Unk	Int-A	1		
		methamphetamine	1	1						
		amitriptyline	2	2						
		alprazolam	3	3						
1871ai	49 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
1872ha	50 y M				U	Par	Unk	1		

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		methamphetamine	1	1					amphetamine	150 ng/mL In Blood (unspecified) @ Unknown
		methamphetamine	1	1					methamphetamine	6000 ng/mL In Blood (unspecified) @ Unknown
		salicylate	2	2						
1873ai	50 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
1874ai	51 y M				U	Unk	Int-A	2		
		stimulant/street drug, N.O.S	1	1						
1875a	52 y M				A	Ingst+ Inhal	Int-U	2		
		methamphetamine	1	1						
		ethanol	2	2					ethanol	46 mg/dL In Serum @ Unknown
1876ha	52 y F				C	Ingst+ Unk	Unk	3		
		cocaine	1	1					benzoylecognine	490 ng/mL In Blood (unspecified) @ Unknown
		ibuprofen	3	1						
		acetaminophen	4	2						
		acetaminophen/hydrocodone	2	3						
1877ai	52 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
		ethanol	2	2						
1878ai	53 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
1879ai	53 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
		marijuana	2	2						
1880ai	54 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
1881ai	54 y F				U	Unk	Int-A	1		
		methamphetamine	1	1						
		alprazolam	2	2						
		citalopram	3	3						
1882ai	54 y M				U	Unk	Int-A	2		
		methamphetamine	1	1						
1883ai	55 y M				U	Inhal+ Unk	Int-A	2		
		cocaine	1	1						
		narcotic, N.O.S.	2	2						
1884pai	55 y M				A	Ingst+ Unk	Int-A	1		
		cocaine	1	1						
		fentanyl	2	2						
		ethanol	3	3						
1885pi	55 y M				U	Unk	Int-A	2		
		methamphetamine	1	1						
1886ai	55 y F				U	Unk	Int-A	2		
		methamphetamine	1	1						
		methadone	2	2						
1887ai	55 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
		phenylpropanolamine	2	2						
1888ai	55 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
1889ai	56 y M				U	Unk	Int-A	2		
		methamphetamine	1	1						
1890ai	56 y F				U	Unk	Int-S	2		
		methamphetamine	1	1						
1891ai	56 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
1892ph	57 y F				A	Ingst+ Unk	Int-S	2		
		cocaine	1	1						
		heroin	2	2						
		zolpidem	3	3						
		ethanol	4	4						
1893ai	57 y M				U	Unk	Int-A	2		
		methamphetamine	1	1						
1894ai	57 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
		marijuana	2	2						
1895ai	58 y M				U	Ingst+ Inhal+ Unk	Int-A	2		
		stimulant/street drug, N.O.S	1	1						
		ethanol	2	2						
1896ai	58 y M				U	Ingst+ Unk	Int-A	1		
		methamphetamine	1	1						
		ethanol	2	2						
1897ai	58 y M				U	Unk	Int-A	2		
		methamphetamine	1	1						
		heroin	2	2						
1898ai	58 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
		fentanyl	2	2						
1899ai	58 y M				U	Unk	Int-A	2		
		methamphetamine	1	1						
1900ai	59 y F				U	Inhal	Int-A	2		
		stimulant/street drug, N.O.S	1	1						
1901ai	59 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
		marijuana	2	2						
1902ph	59 y M				U	Ingst	Unk	1		
		methamphetamine	1	1					methamphetamine	2851 ng/mL In Whole Blood @ Unknown

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		methamphetamine	1	1					amphetamine	368 ng/mL In Whole Blood @ Unknown
		morphine	2	2					morphine	64 ng/mL In Whole Blood @ Unknown
		lithium	3	3						
1903ha	60 y M				A	Unk	Unk	1		
		methamphetamine	1	1					methamphetamine	1.3 mg/L In Blood (unspecified) @ 5 m (pe)
1904ai	60 y M				A/C	Inhal	Int-A	2		
		cocaine	1	1						
		drug, N.O.S.	2	2						
1905h	60 y F				A	Inhal	Int-A	3		
		cocaine	1	1						
		valproic acid (ER)	2	1						
1906ai	60 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
1907i	61 y M				A	Oth+ Unk	Int-A	1		
		cocaine	1	1						
		fentanyl	2	2						
1908pai	61 y F				U	Unk	Int-A	1		
		cocaine	1	1						
		fentanyl	2	2						
1909ai	61 y M				U	Unk	Int-A	1		
		cocaine	1	1						
		oxycodone	2	2						
		alprazolam	3	3						
1910ai	61 y F				U	Unk	Int-A	2		
		methamphetamine	1	1						
1911ai	61 y M				C	Unk	Int-A	3		
		methamphetamine	1	1						
1912h	61 y M				A	Par	Int-A	2		
		stimulant/street drug, N.O.S	1	1						
1913ai	62 y M				U	Unk	Int-A	2		
		cocaine	1	1						
1914ph	62 y M				A	Ingst	Int-M	2		
		methamphetamine	1	1						
1915ai	63 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
1916ai	63 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
1917ai	65 y M				A/C	Unk	Int-A	2		
		cocaine	1	1						
		oxycodone	2	2						
1918h	69 y M				A	Ingst	Int-A	2		
		methamphetamine	1	1						
		ethanol	2	2					ethanol	400 mg/dL In Blood (unspecified) @ Unknown
1919ha	69 y M				A	Ingst	Int-A	2		
		Mitragyna speciosa korthals	1	1					mitragynine	260 ng/mL In Blood (unspecified) @ Autopsy
		ethanol	2	2					ethanol	4 mg/dL In Blood (unspecified) @ Unknown
1920pha	71 y M				A/C	Ingst	Int-M	1		
		gamma-hydroxybutyric acid	1	1						
1921ai	72 y M				U	Unk	Int-A	1		
		methamphetamine	1	1						
1922pa	Unknown adult (>=20 yrs) M				U	Ingst	Int-A	1		
		methamphetamine	1	1					methamphetamine	10000 ng/mL In Blood (unspecified) @ Autopsy
		marijuana, N.O.S.	2	2					thc (tetrahydrocannabinol)	0.82 ng/mL In Blood (unspecified) @ Autopsy
		insecticide, N.O.S.	3	3						
		ethanol (non-beverage)	4	4						
See Also case 5, 10, 14, 18, 19, 29, 50, 211, 244, 320, 321, 343, 345, 346, 385,387, 391, 399, 405, 408,412, 422, 423, 424,426, 435, 440, 448, 454, 457, 463, 464, 468, 473, 475, 479, 484, 495, 496, 512, 515, 531, 535, 543, 544, 551, 553, 556, 558, 565, 570, 584, 588, 593, 600, 608, 609, 617, 621, 622, 624, 635, 638, 642, 643, 644, 648, 654, 658, 659, 660, 679, 681, 696, 697, 705, 717, 718, 720, 724, 727, 728, 730, 749, 751, 758, 759, 775, 781, 782, 784, 788, 791, 795, 801, 803, 810, 812, 819, 822, 823, 846, 850, 854, 866, 877, 909, 937, 938, 943, 956, 959, 972, 975, 997, 1018, 1120, 1126, 1127, 1132, 1139, 1145, 1154, 1158, 1174, 1188, 1195, 1207, 1208, 1254, 1265, 1276, 1306, 1307, 1309, 1315, 1367, 1389, 1467, 1535, 1603, 1652, 1683, 1690, 1694, 1697, 1709, 1711, 1932, 1959, 1972, 1979, 2014, 2023, 2036										
Topical Preparations										
1923ph	24 y F				C	Ingst	AR-D	1		
		iodine/potassium iodide	1	1						
		sodium nitirite	2	2						
1924h	68 y F				A	Ingst	Unk	3		
		camphor/eucalyptus/menthol	1	1						
[1925h]	88 y M				A	Ingst	Int-S	1		
		methylsalicylate	1	1					salicylate	93 mg/dL In Blood (unspecified) @ Unknown
Unknown Drug										
1926ph	15 y F				U	Ingst	Int-S	2		
		drug, N.O.S.	1	1						
		alcohol, N.O.S.	2	2						
1927h	18 y M				U	Ingst+ Unk	Unk	2		
		drug, N.O.S.	1	1						
		acetaminophen	2	2					acetaminophen (apap)	47 mg/L In Serum @ Unknown
		metformin	3	3						
1928h	19 y F				U	Unk	Unk	2		
		drug, N.O.S.	1	1						
1929a	20 y M				A	Ingst	Int-S	2		
		drug, N.O.S.	1	1						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
1930ai	21 y M				A/C	Unk	Int-A	2		
		drug, N.O.S.	1	1						
1931ai	21 y M				U	Unk	Unk	2		
		drug, N.O.S.	1	1						
1932h	22 y M				A	Ingst	Int-A	2		
		drug, N.O.S.	1	1						
		THC homolog	2	2						
1933ai	22 y M				U	Unk	Unk	2		
		drug, N.O.S.	1	1						
1934ai	22 y M				U	Unk	Unk	2		
		drug, N.O.S.	1	1						
1935ph	23 y F				U	Unk	Unk	2		
		drug, N.O.S.	1	1						
1936ai	24 y M				A	Unk	Int-A	2		
		drug, N.O.S.	1	1						
1937ph	25 y M				U	Ingst+ Unk	Int-U	1		
		drug, N.O.S.	1	1						
		fentanyl	2	2					fentanyl	213 ng/mL In Urine (quantitative only) @ Unknown
		fentanyl	2	2					norfentanyl	40.4 ng/mL In Urine (quantitative only) @ Unknown
		ethanol	3	3					ethanol	0.096 g/dL In Blood (unspecified) @ 10 m (pe)
1938ai	25 y M				U	Unk	Unk	2		
		drug, N.O.S.	1	1						
1939p	26 y M				A	Ingst	Int-U	2		
		drug, N.O.S.	1	1						
1940pha	26 y M				A	Unk	Unk	2		
		drug, N.O.S.	1	1						
		benzodiazepine	2	2						
		cyclic antidepressant, N.O.S.	3	3						
1941ai	26 y M				U	Unk	Unk	2		
		drug, N.O.S.	1	1						
1942ai	26 y M				U	Inhal	Int-A	2		
		drug, N.O.S.	1	1						
1943pha	28 y F				A	Oth	Unk	1		
		drug, N.O.S.	1	1					norbuprenorphine	2.6 ng/mL In Blood (unspecified) @ 2 h (pe)
		drug, N.O.S.	1	1					methamphetamine	25 ng/mL In Blood (unspecified) @ 2 h (pe)
		drug, N.O.S.	1	1					citalopram	75 ng/mL In Blood (unspecified) @ 2 h (pe)
		drug, N.O.S.	1	1					amphetamine	9.1 ng/mL In Blood (unspecified) @ 2 h (pe)
1944pha	28 y F				A	Ingst+ Unk	Int-S	1		
		drug, N.O.S.	1	1						
		fentanyl	2	2						
1945ai	28 y M				U	Unk	Unk	2		
		drug, N.O.S.	1	1						
1946ai	28 y F				U	Unk	Int-A	2		
		drug, N.O.S.	1	1						
1947ai	28 y M				A/C	Unk	Int-A	2		
		drug, N.O.S.	1	1						
1948ph	28 y M				U	Unk	Int-S	2		
		drug, N.O.S.	1	1						
1949ai	28 y M				U	Unk	Int-A	2		
		drug, N.O.S.	1	1						
		narcotic, N.O.S.	2	2						
		ethanol	3	3						
1950ai	28 y M				U	Unk	Int-A	2		
		drug, N.O.S.	1	1						
1951ai	29 y M				A	Unk	Int-A	2		
		drug, N.O.S.	1	1						
1952h	29 y F				A	Unk	Unk	2		
		drug, N.O.S.	1	1						
		ethanol	2	2					ethanol	176 mg/dL In Blood (unspecified) @ 5 m (pe)
1953h	29 y M				A	Unk	Int-A	3		
		drug, N.O.S.	1	1						
1954ai	29 y M				U	Unk	Int-A	2		
		drug, N.O.S.	1	1						
1955h	30 y M				U	Par	Int-A	2		
		drug, N.O.S.	1	1						
1956pi	30 y F				A	Unk	Unk	2		
		drug, N.O.S.	1	1						
1957h	30 y F				U	Ingst+ Unk	Int-S	2		
		drug, N.O.S.	1	1						
		acetaminophen	2	2					acetaminophen (apap)	75 mcg/mL In Blood (unspecified) @ 10 m (pe)
		ethanol	3	3					ethanol	100 mg/dL In Blood (unspecified) @ 10 m (pe)
1958ai	31 y M				U	Unk	Int-A	2		
		drug, N.O.S.	1	1						
1959pa	32 y M				A	Ingst	Int-S	1		
		drug, N.O.S.	1	1						
		cocaine	2	2					benzoylecognine	8100 ng/mL In Blood (unspecified) @ Unknown
1960ai	32 y M				U	Unk	Unk	2		
		drug, N.O.S.	1	1						
1961ai	32 y M				U	Unk	Unk	2		

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		drug, N.O.S.	1	1						
1962ai	32 y F				U	Unk	Int-A	2		
		drug, N.O.S.	1	1						
1963ai	32 y M				U	Unk	Int-A	2		
		drug, N.O.S.	1	1						
1964ai	33 y F				U	Par	Int-A	2		
		drug, N.O.S.	1	1						
1965ai	33 y F				U	Par	Int-A	2		
		drug, N.O.S.	1	1						
1966ai	33 y M				A	Unk	Int-A	2		
		drug, N.O.S.	1	1						
1967ai	33 y F				A/C	Unk	Int-A	2		
		drug, N.O.S.	1	1						
1968	34 y F				A	Unk	Int-S	1		
		drug, N.O.S.	1	1						
		acetaminophen	2	2						
1969ai	34 y F				U	Par	Unk	2		
		drug, N.O.S.	1	1						
1970ha	34 y M				U	Ingst	Int-S	1		
		drug, N.O.S.	1	1						
1971ai	35 y M				U	Inhal	Int-A	2		
		drug, N.O.S.	1	1						
1972pha	35 y F				U	Ingst	Int-S	1		
		drug, N.O.S.	1	1						
		cocaine	2	2					benzoylecognine	820 ng/mL In Serum @ 1 h (pe)
		tramadol	3	3					o-demethyl tramadol	860 ng/mL In Serum @ 1 m (pe)
1973h	35 y M				A	Unk	Int-A	2		
		drug, N.O.S.	1	1						
1974ai	36 y F				C	Unk	Int-U	2		
		drug, N.O.S.	1	1						
1975ai	36 y F				U	Unk	Int-A	3		
		drug, N.O.S.	1	1						
1976ai	37 y M				U	Inhal	Int-A	2		
		drug, N.O.S.	1	1						
1977ai	37 y M				U	Unk	Unk	2		
		drug, N.O.S.	1	1						
1978h	37 y F				A	Unk	Int-U	2		
		drug, N.O.S.	1	1						
1979ph	38 y F				A/C	Unk	Int-A	1		
		drug, N.O.S.	1	1						
		heroin	2	2						
		methamphetamine	3	3						
1980ai	38 y M				U	Unk	Int-A	2		
		drug, N.O.S.	1	1						
1981ai	38 y M				U	Unk	Unk	2		
		drug, N.O.S.	1	1						
1982ai	38 y M				U	Unk	Int-A	2		
		drug, N.O.S.	1	1						
1983a	38 y M				A	Unk	Unk	2		
		drug, N.O.S.	1	1						
		antimony	2	2						
1984ai	38 y M				U	Inhal	Unk	2		
		drug, N.O.S.	1	1						
1985ai	39 y M				A	Unk	Int-S	2		
		drug, N.O.S.	1	1						
1986ai	39 y F				U	Unk	Int-A	2		
		drug, N.O.S.	1	1						
1987ai	39 y M				U	Unk	Int-A	2		
		drug, N.O.S.	1	1						
1988ai	40 y F				U	Unk	Int-A	2		
		drug, N.O.S.	1	1						
1989ai	40 y M				U	Unk	Int-A	2		
		drug, N.O.S.	1	1						
1990ph	41 y M				A	Inhal	Int-A	2		
		drug, N.O.S.	1	1						
1991ai	41 y M				A	Par	Int-A	2		
		drug, N.O.S.	1	1						
1992ai	41 y M				U	Unk	Int-A	2		
		drug, N.O.S.	1	1						
1993ph	42 y F				U	Unk	Int-U	3		
		drug, N.O.S.	1	1						
1994pi	43 y F				A	Ingst	Int-S	2		
		drug, N.O.S.	1	1						
1995ai	43 y M				A/C	Unk	Int-A	2		
		drug, N.O.S.	1	1						
1996ai	43 y M				U	Unk	Unk	2		
		drug, N.O.S.	1	1						
1997ai	43 y M				A/C	Par	Int-A	2		
		drug, N.O.S.	1	1						
1998ai	44 y M				U	Unk	Int-A	2		
		drug, N.O.S.	1	1						
1999ai	44 y M				U	Inhal	Int-A	2		
		drug, N.O.S.	1	1						
2000ai	45 y M				U	Unk	Unk	2		
		drug, N.O.S.	1	1						
2001h	46 y M				U	Unk	Unk	2		
		drug, N.O.S.	1	1						
2002ph	47 y F				U	Ingst	Int-S	2		
		drug, N.O.S.	1	1						
		citalopram	2	2						

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
		antipsychotic (atypical)	3	3						
		trazodone	4	4						
2003ai	47 y M				U	Unk	Int-A	2		
		drug, N.O.S.	1	1						
2004p	48 y F				A	Unk	Int-S	2		
		drug, N.O.S.	1	1						
2005ph	48 y F				U	Par	Unk	3		
		drug, N.O.S.	1	1						
2006ai	49 y M				U	Unk	Int-A	2		
		drug, N.O.S.	1	1						
2007ai	49 y M				A/C	Unk	Int-A	2		
		drug, N.O.S.	1	1						
2008pa	49 y F				A/C	Ingst	Int-S	1		
		drug, N.O.S.	1	1						
		buspirone	2	2						
2009ai	50 y M				U	Inhal	Int-A	2		
		drug, N.O.S.	1	1						
2010ai	50 y M				U	Ingst	Int-A	2		
		drug, N.O.S.	1	1						
2011ai	50 y M				U	Par	Int-A	2		
		drug, N.O.S.	1	1						
2012h	53 y M				U	Unk	Int-S	2		
		drug, N.O.S.	1	1						
2013ai	53 y M				U	Unk	Int-A	2		
		drug, N.O.S.	1	1						
2014ha	54 y F				U	Ingst	Unk	3		
		drug, N.O.S.	1	1						
		cocaine	2	2						
2015ai	54 y M				U	Unk	Int-A	2		
		drug, N.O.S.	1	1						
2016ai	54 y M				U	Ingst	Int-S	2		
		drug, N.O.S.	1	1						
2017ai	54 y M				U	Unk	Int-A	2		
		drug, N.O.S.	1	1						
2018ph	55 y F				U	Ingst	Int-S	3		
		drug, N.O.S.	1	1						
		zolpidem	2	2						
		acetaminophen	3	3					acetaminophen (apap)	104 mcg/mL In Blood (unspecified) @ Unknown
2019ai	55 y M				U	Unk	Unk	2		
		drug, N.O.S.	1	1						
2020ai	55 y M				U	Unk	Unk	2		
		drug, N.O.S.	1	1						
2021p	55 y M				U	Ingst	Int-S	2		
		drug, N.O.S.	1	1						
		ethanol	2	1						
2022ai	55 y M				U	Unk	Int-U	2		
		drug, N.O.S.	1	1						
2023ph	56 y M				A	Unk	Int-A	2		
		drug, N.O.S.	1	1						
		benzodiazepine	2	2						
		methadone	3	3						
		cocaine	4	4						
2024ai	59 y M				U	Par	Int-A	2		
		drug, N.O.S.	1	1						
2025pa	60 y M				A	Ingst	Int-S	2		
		drug, N.O.S.	1	1						
2026ai	60 y F				U	Unk	Int-A	2		
		drug, N.O.S.	1	1						
2027p	61 y F				A	Ingst	Int-S	2		
		drug, N.O.S.	1	1						
		acetaminophen/hydrocodone	2	2					acetaminophen (apap)	6 mcg/mL In Blood (unspecified) @ Unknown
		diazepam	3	3						
		temazepam	4	4						
2028ai	61 y M				U	Unk	Int-A	2		
		drug, N.O.S.	1	1						
2029ai	63 y M				U	Unk	Int-A	2		
		drug, N.O.S.	1	1						
2030ai	63 y M				U	Unk	Unk	2		
		drug, N.O.S.	1	1						
2031ph	63 y F				U	Ingst	Int-S	3		
		drug, N.O.S.	1	1						
		ethanol	2	2						
2032ai	66 y M				C	Unk	Int-A	3		
		drug, N.O.S.	1	1						
2033p	67 y M				U	Unk	Int-U	3		
		drug, N.O.S.	1	1						
		ethanol	2	2						
2034	70 y M				U	Ingst	Unk	1		
		drug, N.O.S.	1	1						
		acetaminophen	2	2						
2035ai	71 y M				U	Unk	Int-A	2		
		drug, N.O.S.	1	1						
2036h	77 y F				U	Ingst	Int-U	3		
		drug, N.O.S.	1	1						
		Mitragyna speciosa korthals	2	2					mitragynine	26 ng/mL In Blood (unspecified) @ 1 h (pe)
2037h	77 y M				A	Ingst	Unt-G	2		
		drug, N.O.S.	1	1					ethanol	0.06 % In Blood (unspecified) @ 1 h

(*continued*)

Table 21. Listing of fatal nonpharmaceutical and pharmaceutical exposures – Continued.

Annual Report ID	Age	Substances	Substance Rank	Cause Rank	Chronicity	Route	Reason	RCF	Analyte	Blood Concentration @ Time
										(pe)
		drug, N.O.S.	1	1					ethylene glycol	31 mg/dL In Blood (unspecified) @ 1 h (pe)
		ethylene glycol (antifreeze)	2	2						
		ethanol	3	3						
2038ai	81 y M				U	Unk	Unk	2		
		drug, N.O.S.	1	1						
2039h	82 y F				U	Ingst	Int-S	2		
		drug, N.O.S.	1	1						
2040i	86 y F				U	Unk	Int-S	2		
		drug, N.O.S.	1	1						
2041ha	88 y M				A	Ingst	Int-S	1		
		caffeine/salicylate	1	1					salicylate	32 mg/dL In Blood (unspecified) @ 3 h (pe)
		caffeine/salicylate	1	1					salicylate	44.3 mg/dL In Blood (unspecified) @ Unknown
		caffeine/salicylate	1	1					salicylate	52.8 mg/dL In Blood (unspecified) @ 6 h (pe)
		caffeine/salicylate	1	1					salicylate	72.8 mg/dL In Blood (unspecified) @ Unknown
		caffeine/salicylate	1	1					salicylate	86.8 mg/dL In Blood (unspecified) @ 13 h (pe)
2042h	13 m F				A	Ingst	Unt-G	2		
		drug, N.O.S.	1	1						
2043ai	30+ y M				U	Par	Int-U	2		
		drug, N.O.S.	1	1						
2044a	Unknown adult (>=20 yrs) M				A	Ingst	Int-S	1		
		drug, N.O.S.	1	1					sertraline	1600 ng/mL In Blood (unspecified) @ Unknown
		drug, N.O.S.	1	1					mirtazapine	1700 ng/mL In Blood (unspecified) @ Unknown
		sertraline	2	2						
		mirtazapine	3	3						
2045ai	Unknown adult (>=20 yrs) M				A/C	Unk	Int-A	2		
		drug, N.O.S.	1	1						
2046ai	Unknown adult (>=20 yrs) M				C	Unk	Unk	2		
		drug, N.O.S.	1	1						
2047ai	Unknown adult (>=20 yrs) M				U	Unk	Unk	2		
		drug, N.O.S.	1	1						
2048ha	Unknown age M				U	Unk	Unk	1		
		drug, N.O.S.	1	1						

See Also case 9, 48, 56, 381, 406, 441, 492, 545, 546, 641, 655, 739, 752, 787, 893, 961, 1006, 1204, 1257, 1275, 1351, 1426,1458, 1593, 1616, 1626, 1656, 1665, 1696, 1703, 1741, 1766, 1788, 1810, 1816, 1862, 1904

Listing of 2,048 (1,411 Direct + 637 Indirect) 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=Indirect case; identified through other sources (news feeds, medical examiner data, or other) about which no inquiry to the PC was made, **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.

Substance: EC = enteric coated, **ER =** extended release, **TD =** transdermal.

Cause Rank: Designates and orders the substance(s) deemed to have made the greatest contribution to the death. Cause rank permits 2 or more substances to be judged indistinguishable in terms of contribution to the death. Additional agents implicated in the death are listed below the primary agent(s) in the order of their contribution to the fatality.

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. Provided by the RPC for Indirect cases and the AAPCC Fatality Review Team for the direct (non-Indirect) cases.

APPENDIX B

Table 22(A) & Table 22(B), Demographic profile of SINGLE SUBSTANCE exposure cases by generic category

Nonpharmaceuticals (Table 22(A))

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

			Age							Reason					Outcome				
	No. of Case Mentions	No. of Single Exposures	<=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)	4,994	4,928	1,845	350	331	1,913	4	444	41	4,729	134	17	24	1,401	626	991	196	7	0
Epoxy	856	798	213	31	30	412	4	102	6	758	16	9	15	227	128	192	63	1	0
Non-Toxic Adhesives/Glues (White Glue, Paper Glue, etc)	704	623	364	142	46	51	0	16	4	557	61	3	2	34	81	35	1	0	0
Toluene/Xylene (Adhesives Only)	239	224	69	12	8	109	0	23	3	208	10	0	3	53	39	48	13	1	0
Unknown Types of Adhesive, Glue, Cement or Paste	3,964	3,742	1,393	347	202	1,379	15	365	41	3,470	158	34	60	534	579	503	92	2	0
Category Total:	**10,757**	**10,315**	**3,884**	**882**	**617**	**3,864**	**23**	**950**	**95**	**9,722**	**379**	**63**	**104**	**2,249**	**1,453**	**1,769**	**365**	**11**	**0**
Alcohols																			
Miscellaneous Alcohols																			
Ethanol (Beverages)	54,119	7,937	2,223	210	1,111	3,799	9	437	148	2,900	4,290	314	219	3,567	980	1,336	1,278	353	53
Ethanol (Non-Beverage, Non-Rubbing)	2,682	2,162	1,306	147	94	505	0	96	14	1,963	151	20	18	244	416	186	36	7	0
Higher Alcohols (Butanol, Amyl Alcohol, Propanols, etc)	118	102	37	5	4	46	0	10	0	90	8	0	0	28	21	21	5	3	0
Isopropanol (Excluding Rubbing Alcohols and Cleaning Agents)	4,523	3,909	1,550	158	233	1,707	6	224	31	2,932	854	49	25	1,156	716	732	325	66	1
Methanol (Excluding Automotive Products and Cleaning Agents)	868	710	90	15	85	433	2	76	9	603	56	32	2	280	193	87	39	16	11
Other Types of Alcohol	151	113	50	9	7	38	0	7	2	97	12	1	1	24	22	19	5	2	0
Unknown Types of Alcohol	3,646	795	135	21	85	460	3	74	17	274	412	33	21	395	76	128	127	50	5
Rubbing Alcohols																			
Rubbing Alcohols: Ethanol with Methyl Salicylate	9	7	6	0	0	1	0	0	0	7	0	0	0	2	1	0	0	0	0
Rubbing Alcohols: Ethanol without Methyl Salicylate	277	262	134	16	8	85	0	17	2	220	37	1	0	54	45	38	14	1	0
Rubbing Alcohols: Isopropanol with Methyl Salicylate	191	176	102	2	6	62	0	3	1	144	29	1	0	66	60	29	5	3	0
Rubbing Alcohols: Isopropanol without Methyl Salicylate	6,665	5,940	2,886	201	284	2,214	8	308	39	4,852	964	45	26	1,359	1,093	918	368	51	1
Rubbing Alcohols: Unknown	246	211	84	9	16	83	0	16	3	153	52	2	2	71	37	42	17	5	0
Category Total:	**73,495**	**22,324**	**8,603**	**793**	**1,933**	**9,433**	**28**	**1,268**	**266**	**14,235**	**6,865**	**498**	**314**	**7,246**	**3,660**	**3,536**	**2,219**	**557**	**71**
Arts/Crafts/Office Supplies																			
Miscellaneous Arts/Crafts/ Office Supplies																			
Artist Paints (Non-Water Color)	3,760	3,631	2,577	399	140	388	20	89	18	3,513	70	17	14	136	636	159	9	1	0
Artist Paints (Water Color)	1,398	1,354	1,134	105	36	64	2	11	2	1,320	22	5	2	26	174	30	0	0	0
Chalks	1,396	1,370	1,221	68	43	22	3	11	2	1,322	39	3	3	44	210	41	2	0	0
Clays	2,288	2,249	1,835	219	69	87	14	24	1	2,188	49	1	3	84	275	89	6	0	0
Crayons	1,899	1,823	1,459	207	51	81	6	15	4	1,777	35	0	3	43	189	62	0	0	0
Glazes	113	103	38	16	18	24	1	6	0	89	11	1	2	7	22	10	1	0	0
Office Supplies: Miscellaneous	132	127	71	21	6	23	0	6	0	116	11	0	0	11	14	5	0	0	0
Other Types of Arts/Crafts/ Writing Products	6,959	6,615	4,665	843	300	586	21	170	30	6,271	252	40	31	307	1,031	294	24	4	0

(*continued*)

Table 22A. Demographic profile of SINGLE SUBSTANCE Nonpharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility	Outcome				
			<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Pencils	1,306	1,247	508	518	133	51	5	24	8	1,055	156	17	1	53	145	42	3	0	0
Pens or Inks	8,999	8,739	5,393	2,014	806	318	54	109	45	8,092	540	35	37	275	1,153	200	11	3	0
Typewriter Correction Fluids	460	443	240	66	66	54	4	8	5	370	64	5	1	47	95	35	6	0	0
Unknown Types of Arts/Crafts/ Writing Products	124	122	76	27	6	11	1	0	1	118	3	0	1	11	18	10	2	0	0
Category Total:	**28,834**	**27,823**	**19,217**	**4,503**	**1,674**	**1,709**	**131**	**473**	**116**	**26,231**	**1,252**	**124**	**98**	**1,044**	**3,962**	**977**	**64**	**8**	**0**
Automotive/Aircraft/Boat Products																			
Automotive Products																			
Automotive Products: Brake Fluids	963	907	183	15	66	557	0	78	8	843	42	8	4	321	168	260	44	1	0
Automotive Products: Ethylene Glycol (Including Antifreeze)	7,242	6,739	466	170	500	4,828	10	692	73	5,737	749	154	20	2,377	1,366	973	424	134	12
Automotive Products: Glycol and Methanol Mixtures	170	166	43	9	10	88	0	16	0	138	22	1	0	54	48	23	8	5	1
Automotive Products: Hydrocarbons (Transmission Fluids, Power Steering Fluids, etc)	1,940	1,814	465	50	90	1,002	3	182	22	1,711	69	14	8	564	328	594	114	5	1
Automotive Products: Methanol (Dry Gas, Windshield Washing Solutions, etc)	1,607	1,536	181	49	139	963	5	183	16	1,388	112	17	8	468	373	294	52	5	5
Automotive Products: Other Glycols	235	220	61	12	9	122	0	15	1	198	13	7	1	53	59	30	11	0	0
Miscellaneous Automotive/Aircraft/ Boat Products																			
Automotive/Aircraft/Boat Products: Non-Toxic	26	24	11	1	1	7	0	4	0	23	1	0	0	5	7	4	0	0	0
Automotive/Aircraft/Boat Products: Other	1,336	1,267	438	36	67	608	4	105	9	1,194	36	11	20	386	208	331	83	2	0
Automotive/Aircraft/Boat Products: Unknown	208	187	38	4	12	109	0	21	3	163	9	5	4	81	26	57	11	2	0
Category Total:	**13,727**	**12,860**	**1,886**	**346**	**894**	**8,284**	**22**	**1,296**	**132**	**11,395**	**1,053**	**217**	**65**	**4,309**	**2,583**	**2,566**	**747**	**154**	**19**
Batteries																			
Disc Batteries																			
Disc Batteries: Alkaline (MNO2)	403	396	232	43	16	74	3	26	2	381	7	6	1	276	195	27	10	1	0
Disc Batteries: Lithium	556	351	75	23	31	206	0	13	3	201	67	2	68	275	95	56	97	16	1
Disc Batteries: Mercuric Oxide	15	15	3	1	0	11	0	0	0	13	2	0	0	12	9	2	0	0	0
Disc Batteries: Nickel Cadmium	9	9	2	1	0	6	0	0	0	9	0	0	0	3	1	1	0	0	0
Disc Batteries: Other	44	44	23	6	3	10	0	2	0	44	0	0	0	15	15	1	0	0	0
Disc Batteries: Silver Oxide	122	122	40	9	1	67	2	2	1	118	2	0	1	97	88	4	0	0	0
Disc Batteries: Unknown	2,027	1,987	1,183	228	79	426	14	43	14	1,861	95	5	2	1,580	1,040	140	34	14	2
Disc Batteries: Zinc-Air	501	497	295	44	9	130	2	17	0	475	12	3	3	385	256	31	7	0	0
Miscellaneous Batteries																			
Automotive/Aircraft/Boat Batteries	1,226	1,192	106	37	63	781	3	167	35	1,143	29	8	5	355	128	356	66	5	0
Other Types of Battery	524	509	110	47	57	227	6	53	9	467	34	3	5	104	109	74	18	0	0
Penlight/Flashlight/Dry Cell Batteries	5,530	5,402	3,381	554	303	895	13	216	40	4,875	431	47	17	1,266	1,607	509	92	4	0
Unknown Types of Battery	272	250	129	25	15	61	0	14	6	208	29	8	1	66	73	33	5	0	0
Category Total:	**11,229**	**10,774**	**5,579**	**1,018**	**577**	**2,894**	**43**	**553**	**110**	**9,795**	**708**	**82**	**103**	**4,434**	**3,616**	**1,234**	**329**	**40**	**3**
Bites and Envenomations																			
Aquatic																			
Fish Stings	461	458	20	35	62	307	0	30	4	457	0	0	1	237	12	161	80	1	0
Jellyfish and Other Coelenterate Stings	196	193	30	51	27	75	1	7	2	192	1	0	0	52	4	58	21	1	0
Other or Unknown Marine Animal Bites and/or Envenomations	423	416	219	37	21	113	3	19	4	398	10	3	3	83	52	66	16	0	0

(*continued*)

Table 22A. Demographic profile of SINGLE SUBSTANCE Nonpharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility	Outcome				
			<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Exotic Snakes																			
Exotic Snake: Unknown If Poisonous	4	4	1	1	0	2	0	0	0	4	0	0	0	4	0	1	2	0	0
Exotic Snakes: Non-Poisonous	26	26	3	5	4	11	0	3	0	26	0	0	0	20	2	7	2	0	0
Exotic Snakes: Poisonous	33	31	1	0	4	23	0	2	1	29	1	1	0	27	2	9	9	4	0
Insects																			
Ant or Fire Ant Bites	616	592	146	53	36	288	1	62	6	549	4	32	5	75	34	127	31	3	0
Bee, Wasp, or Hornet Stings	2,625	2,537	471	238	118	1,420	7	250	33	2,532	1	0	2	443	37	847	196	9	1
Caterpillars	1,764	1,753	416	249	151	794	2	119	22	1,707	14	10	19	292	72	541	107	3	0
Centipede or Millipede Bites	389	387	126	19	14	196	1	27	4	383	1	0	3	62	26	128	10	0	0
Mosquito Bites	138	125	36	15	8	47	1	17	1	125	0	0	0	15	1	31	6	0	0
Other Insect Bites and/or Stings	3,899	3,799	988	266	220	1,870	10	382	63	3,651	22	90	24	674	199	791	206	5	0
Scorpion Stings	9,765	9,756	1,123	1,006	723	6,491	4	344	65	9,751	4	0	1	1,331	96	6,007	542	28	0
Tick Bites	623	608	164	67	16	261	9	82	9	605	0	1	1	139	36	92	19	0	0
Mammals																			
Bat Bites	656	647	76	69	45	367	1	69	20	641	0	2	0	422	117	83	5	0	0
Cat Bites	882	877	74	80	68	532	5	99	19	876	0	1	0	601	11	319	33	0	1
Dog Bites	2,545	2,540	348	456	258	1,276	12	156	34	2,539	0	0	1	2,007	22	1,168	165	3	0
Fox Bites	23	23	1	1	2	18	0	1	0	23	0	0	0	19	0	9	0	0	0
Human Bites	9	9	1	0	1	7	0	0	0	8	0	1	0	6	0	3	0	0	0
Other Mammal Bites	712	708	68	80	56	371	11	101	21	684	8	2	5	410	73	151	11	0	0
Raccoon Bites	115	114	8	7	12	71	0	13	3	112	1	0	1	81	8	32	6	0	0
Rodent or Lagomorph Bites (Squirrels, Rats, Mice, Gerbils, Hamsters, Rabbits, etc)	798	781	190	105	51	327	8	87	13	755	0	16	2	291	47	173	19	0	0
Skunk Bites	21	21	2	1	2	14	0	0	2	21	0	0	0	12	1	3	1	0	0
Miscellaneous Bites and Envenomations																			
Other or Unknown Animal Bites	397	395	57	36	22	233	0	34	13	381	7	2	5	153	16	112	39	3	0
Other or Unknown Reptile Bites	347	342	118	64	30	108	1	12	9	316	15	4	5	66	37	70	15	0	0
Unknown Types of Insect or Spider Bite and/or Envenomation	2,538	2,486	682	148	142	1,248	4	220	42	2,444	6	25	8	431	79	575	131	3	0
Miscellaneous Snake Bites and Envenomations																			
Unknown or Known Non-Poisonous Snake Bites	560	559	48	85	63	333	1	26	3	557	0	1	1	349	31	297	32	2	0
Unknown Types of Snake Envenomation	2,254	2,235	152	230	244	1,553	0	40	16	2,229	2	1	0	2,032	80	957	785	42	1
Snakes																			
Copperhead Envenomations	2,216	2,189	82	171	167	1,739	1	25	4	2,183	5	0	1	2,125	22	535	1,438	54	1
Coral Envenomations	72	71	1	3	5	61	0	1	0	71	0	0	0	67	4	27	20	2	0
Cottonmouth Envenomations	215	211	9	14	22	162	0	3	1	210	1	0	0	196	3	68	101	6	0
Rattlesnake Envenomations	1,208	1,177	53	66	64	972	0	17	5	1,173	3	0	1	1,133	25	306	625	96	0
Unknown Crotalid Envenomations	544	524	35	55	37	385	1	9	2	523	1	0	0	508	8	185	258	15	0
Spiders																			
Black Widow Spider Bites and/or Envenomations	1,005	994	75	60	64	741	1	49	4	988	1	4	1	537	26	329	232	9	0
Brown Recluse Spider Bites and/or Envenomations	802	790	71	32	47	509	1	119	11	784	2	1	1	373	20	148	174	24	0
Other Necrotizing Spider Bites and/or Envenomations	96	96	24	7	4	52	0	8	1	94	1	0	1	22	3	21	6	0	0
Other Spider Bites and/or Envenomations	2,313	2,290	308	145	125	1,458	2	216	36	2,282	4	4	0	513	70	573	179	4	0
Tarantula Bites and/or Envenomations	47	46	4	6	4	31	0	1	0	44	1	0	1	21	2	15	5	2	0
Category Total:	**41,337**	**40,810**	**6,231**	**3,963**	**2,939**	**24,466**	**88**	**2,650**	**473**	**40,347**	**116**	**201**	**93**	**15,829**	**1,278**	**15,025**	**5,527**	**319**	**4**

(*continued*)

Table 22A. Demographic profile of SINGLE SUBSTANCE Nonpharmaceuticals exposure cases by generic category – Continued.

			Age							Reason					Outcome				
	No. of Case Mentions	No. of Single Exposures	<=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	382	326	44	15	19	155	3	78	12	316	4	5	0	52	43	20	7	0	0
Fiberglass	546	517	248	62	23	134	2	42	6	480	26	4	3	77	81	92	17	0	0
Other Types of Insulation	82	78	23	1	4	41	0	8	1	75	0	0	2	22	7	16	8	1	0
Unknown Types of Insulation	385	366	214	24	10	90	3	23	2	358	7	0	1	48	67	41	5	0	0
Urea or Formaldehyde Insulations	5	5	1	0	1	1	0	2	0	5	0	0	0	0	0	0	0	0	0
Miscellaneous Building and Construction Products																			
Caulking Compounds and Construction Putties	2,355	2,270	1,354	113	56	563	7	140	37	2,197	39	5	24	173	497	201	25	0	0
Cement or Concrete (Excluding Glues)	1,430	1,375	317	30	46	813	2	154	13	1,323	14	4	17	561	163	314	245	9	0
Other Types of Building or Construction Products	2,365	2,204	1,078	90	73	748	7	164	44	2,110	43	14	26	436	388	331	97	5	0
Soldering Flux	159	153	46	1	7	82	0	15	2	151	0	0	0	51	26	50	8	2	0
Unknown Types of Building or Construction Products	100	95	14	1	7	53	0	19	1	87	3	2	2	25	8	21	9	0	0
Category Total:	**7,809**	**7,389**	**3,339**	**337**	**246**	**2,680**	**24**	**645**	**118**	**7,102**	**136**	**34**	**75**	**1,445**	**1,280**	**1,086**	**421**	**17**	**0**
Chemicals																			
Acids																			
Hydrochloric Acid	1,868	1,579	70	63	168	1,086	7	157	28	1,511	35	12	11	693	200	528	166	10	2
Hydrofluoric Acid	728	617	14	7	31	518	0	41	6	595	12	2	4	468	85	228	120	12	1
Other Types of Acid	4,863	3,875	664	217	273	2,274	13	383	51	3,601	133	72	40	1,318	511	1,055	393	18	5
Unknown Types of Acid	206	174	9	3	13	115	1	27	6	157	4	7	3	85	7	48	22	2	0
Miscellaneous Chemicals																			
Acetone (Excluding Nail Polish Removers)	1,553	1,359	483	37	93	615	2	113	16	1,229	92	18	8	378	199	343	60	3	1
Alkalis (Excluding Cleaning Agents, Bleaches, Batteries, and Detergents)	3,523	3,090	491	123	288	1,901	9	239	39	2,921	85	32	29	1,578	302	983	525	40	1
Ammonia (Excluding Cleaning Agents)	2,434	1,764	306	81	110	1,027	3	219	18	1,616	90	29	19	699	215	515	165	25	0
Borates or Boric Acid (Excluding Topicals and Pesticides)	6,480	6,213	1,838	613	385	2,739	15	569	54	5,896	123	85	77	600	1,065	477	54	1	1
Chlorates (Excluding Matches and Fireworks)	23	11	3	1	1	6	0	0	0	10	0	1	0	1	2	1	1	0	0
Cyanides (Excluding Rodenticides)	283	205	10	2	4	139	0	41	9	154	11	20	3	122	59	37	16	3	2
Dioxins	6	6	0	0	0	5	1	0	0	6	0	0	0	2	0	3	0	0	0
Ethylene Glycol (Excluding Automotive, Aircraft, or Boat Products)	1,070	892	134	43	59	553	22	67	14	584	177	80	1	404	177	102	62	73	12
Formaldehyde or Formalin	670	613	27	38	76	390	6	66	10	548	28	13	13	269	69	177	42	0	0
Ketones	361	325	81	6	15	197	0	22	4	315	6	1	3	148	47	113	34	0	0
Methylene Chloride (Excluding Paint Strippers)	189	159	32	5	6	91	0	22	3	150	3	3	2	57	24	48	12	0	0
Nitrates and Nitrites (Excluding Medications and Substances of Abuse)	1,093	1,023	314	233	112	302	10	44	8	810	180	14	11	252	206	141	36	11	11
Other Chemicals	13,361	11,530	3,838	860	696	4,869	51	1,033	183	10,338	457	244	403	2,855	1,820	2,226	643	46	7
Other Glycols (Excluding Automotive, Aircraft, or Boat Products)	764	634	240	50	40	246	2	53	3	546	39	14	26	162	114	104	26	5	0
Phenol or Creosotes (Excluding Disinfectants)	306	262	17	5	14	188	1	34	3	249	5	1	4	119	26	98	26	0	0
Strychnine (Excluding Rodenticides)	28	24	7	2	2	9	0	4	0	15	3	1	4	12	4	4	2	0	0

(*continued*)

Table 22A. Demographic profile of SINGLE SUBSTANCE Nonpharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility	Outcome				
			<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Toluene Diisocyanate	786	768	118	37	25	448	5	113	22	733	18	1	14	158	272	154	45	5	0
Unknown Chemicals	6,088	5,693	1,073	370	285	2,973	27	809	156	4,433	153	678	212	1,836	713	1,279	410	28	6
Category Total:	**46,683**	**40,816**	**9,769**	**2,796**	**2,696**	**20,691**	**175**	**4,056**	**633**	**36,417**	**1,654**	**1,328**	**887**	**12,216**	**6,117**	**8,664**	**2,860**	**282**	**49**
Cleaning Substances (Household)																			
Automatic Dishwasher Detergents																			
Automatic Dishwasher Detergents: Granules (Unit Dose)	2,037	2,023	1,896	15	15	77	2	18	0	2,002	8	9	0	120	380	284	6	0	0
Automatic Dishwasher Detergents: Granules (Various Containers)	1,873	1,848	1,535	28	26	195	6	49	9	1,828	6	9	2	101	345	229	19	4	0
Automatic Dishwasher Detergents: Granules with Liquids (Unit Dose)	7,678	7,640	7,176	62	65	261	9	61	6	7,584	18	19	8	499	1,776	1,204	46	1	0
Automatic Dishwasher Detergents: Liquids (Unit Dose)	430	425	358	8	4	48	0	6	1	419	2	3	1	48	74	74	9	0	0
Automatic Dishwasher Detergents: Liquids (Various Containers)	1,468	1,428	1,082	32	22	240	1	47	4	1,399	13	13	3	127	249	225	28	0	0
Automatic Dishwasher Detergents: Tablets	2,591	2,578	2,362	30	22	136	5	22	1	2,559	9	7	0	162	591	388	15	0	0
Automatic Dishwasher Rinse Agents	759	735	540	11	12	134	2	32	4	721	6	5	3	74	127	116	15	0	0
Other or Unknown Types of Automatic Dishwasher Detergent	2,297	2,263	1,955	28	23	210	6	38	3	2,231	10	17	4	166	409	288	20	0	0
Bleaches																			
Bleaches: Borates	2,344	1,822	573	73	145	717	16	265	33	1,616	161	21	10	473	309	413	86	1	0
Bleaches: Hypochlorite (Liquid and Dry)	37,380	31,224	10,958	1,221	2,294	13,845	68	2,474	364	27,665	2,456	531	362	8,411	4,667	8,362	1,153	43	2
Bleaches: Non-Hypochlorite	274	218	78	9	16	89	2	22	2	199	12	2	2	49	38	54	10	0	0
Bleaches: Other or Unknown (Household)	1,283	1,040	324	34	82	513	2	72	13	882	109	36	8	334	121	253	38	1	0
Cleansers																			
Anionic or Nonionic Cleansers	2,135	1,949	1,354	54	47	396	1	86	11	1,863	46	17	13	194	389	221	19	1	0
Other or Unknown Types of Household Cleanser	2,513	2,271	1,124	94	110	773	5	154	11	2,078	112	45	26	497	387	384	77	3	0
Disinfectants																			
Disinfectants: Hypochlorite (Non-Bleach Products)	1,779	1,588	686	56	89	640	3	102	12	1,473	55	26	29	365	224	400	69	0	0
Disinfectants: Other or Unknown	6,898	6,446	3,496	462	330	1,646	20	433	59	5,874	324	110	108	755	1,186	1,116	127	3	1
Disinfectants: Phenol	370	337	154	23	18	119	0	22	1	307	25	3	1	73	64	67	11	1	0
Disinfectants: Pine Oil	3,011	2,599	1,309	94	88	900	1	176	31	2,375	128	37	40	473	579	503	36	4	1
Drain Cleaners																			
Drain Cleaners: Acids	161	120	14	6	4	78	1	15	2	113	3	1	1	47	9	30	22	1	0
Drain Cleaners: Alkalis	2,221	1,899	286	44	47	1,172	5	317	28	1,755	91	18	25	677	228	517	229	30	3
Drain Cleaners: Hydrochloric Acid	22	14	2	0	1	10	0	1	0	14	0	0	0	5	1	3	3	0	0
Drain Cleaners: Other or Unknown	569	471	113	17	19	255	3	55	9	423	28	8	11	144	80	102	34	6	0
Drain Cleaners: Sulfuric Acid	523	437	29	15	11	301	2	75	4	413	10	3	6	157	32	118	80	7	1
Fabric Softeners/Antistatic Agents																			
Fabric Softener/Antistatic Agent: Other or Unknown	44	42	32	1	3	5	0	1	0	40	0	0	2	4	9	3	0	0	0
Fabric Softeners/Antistatic Agents: Aerosol or Spray	119	117	92	4	5	12	0	4	0	114	2	1	0	5	31	10	0	0	0
Fabric Softeners/Antistatic Agents: Dry or Powder (Unit Dose)	4	4	2	0	0	1	0	1	0	3	1	0	0	1	1	0	0	0	0
Fabric Softeners/Antistatic Agents: Dry or Powder (Various Containers)	13	12	10	0	0	2	0	0	0	11	0	0	1	0	1	0	0	0	0
Fabric Softeners/Antistatic Agents: Liquid (Unit Dose)	18	18	14	0	0	4	0	0	0	17	0	1	0	1	3	1	0	0	0

(*continued*)

Table 22A. Demographic profile of SINGLE SUBSTANCE Nonpharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility	Outcome				
			<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Fabric Softeners/Antistatic Agents: Liquid (Various Containers)	901	828	537	33	28	204	1	21	4	780	26	6	9	92	167	74	6	2	0
Fabric Softeners/Antistatic Agents: Powder with Liquid (Unit Dose)	2	2	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
Fabric Softeners/Antistatic Agents: Solid or Sheet	584	563	472	12	10	53	0	11	5	537	12	3	9	13	94	16	3	0	0
Glass Cleaners																			
Glass Cleaners: Ammonia Containing	1,210	1,080	741	43	64	196	1	30	5	970	83	15	3	139	253	118	15	0	0
Glass Cleaners: Anionics or Nonionics	120	113	68	5	6	27	1	5	1	102	7	3	1	16	15	12	4	0	0
Glass Cleaners: Isopropanol	1,082	971	652	52	43	197	2	19	6	912	41	11	2	106	219	111	11	1	0
Glass Cleaners: Other or Unknown Types of Household	1,977	1,733	1,129	85	118	330	6	47	18	1,540	153	28	2	215	380	196	19	1	0
Hand Dishwashing																			
Anionic or Nonionic Hand Dishwashing Detergents	6,229	5,402	2,930	315	211	1,559	7	340	40	5,065	124	155	26	507	685	993	60	1	3
Other or Unknown Types of Household Hand Dishwashing Detergent	2,187	1,907	983	115	74	577	11	134	13	1,783	46	63	5	113	214	262	20	0	0
Laundry Additives																			
Enzyme and/or Microbiological Laundry Additives	60	52	27	2	4	15	0	3	1	50	1	0	1	13	10	13	1	0	0
Laundry Bluing and/or Brightening Agents (without Detergent)	30	24	7	2	1	10	1	2	1	23	1	0	0	2	8	3	1	0	0
Laundry Detergent Boosters	438	414	207	53	19	119	0	16	0	392	10	9	2	40	78	51	10	0	0
Other or Unknown Laundry Additives or Miscellaneous Products	1,702	1,626	1,300	57	65	157	3	37	7	1,567	39	13	1	131	376	163	14	0	0
Water Softeners	38	36	21	0	2	11	0	2	0	32	0	3	1	4	10	5	0	0	0
Laundry Detergents																			
Laundry Detergents: Granules (Unit Dose)	410	397	278	16	15	67	3	17	1	382	9	4	1	73	94	86	7	2	0
Laundry Detergents: Granules (Various Containers)	2,374	2,260	1,468	93	99	456	4	125	15	2,128	82	23	13	344	379	399	37	2	0
Laundry Detergents: Granules with Liquids (Unit Dose)	252	251	200	16	7	21	0	6	1	246	4	0	0	78	57	82	13	0	0
Laundry Detergents: Liquids (Unit Dose)	11,967	11,863	9,981	678	279	708	18	166	33	11,548	226	28	31	4,268	2,282	4,651	600	20	0
Laundry Detergents: Liquids (Various Containers)	6,211	5,896	3,786	233	272	1,335	8	230	32	5,511	273	67	20	953	984	1,090	109	5	1
Laundry Detergents: Other or Unknown Types of Household Laundry Detergent and/or Fabric Cleaner	324	292	161	13	13	70	3	26	6	267	10	5	6	55	58	65	11	0	0
Laundry Detergents: Soaps	289	257	154	7	8	67	0	18	3	241	8	3	3	24	43	34	4	0	0
Laundry Prewash/Stain Removers																			
Laundry Prewash/Stain Removers: Aerosol or Spray Solvent Based	94	90	80	1	2	5	0	2	0	89	0	1	0	11	12	20	1	0	0
Laundry Prewash/Stain Removers: Aerosol or Spray Surfactant Based	212	207	168	7	7	19	1	5	0	198	6	1	1	19	32	38	0	0	0
Laundry Prewash/Stain Removers: Dry Solvent Based	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Laundry Prewash/Stain Removers: Dry Surfactant Based	55	51	33	0	3	9	1	3	2	49	1	0	0	2	5	1	2	0	0

(*continued*)

Table 22A. Demographic profile of SINGLE SUBSTANCE Nonpharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility	Outcome				
			<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Laundry Prewash/Stain Removers: Liquid Solvent Based	163	153	101	2	2	42	0	6	0	148	2	2	1	19	36	19	2	0	0
Laundry Prewash/Stain Removers: Liquid Surfactant Based	1,406	1,328	1,117	36	34	105	4	30	2	1,293	20	9	2	112	234	207	15	1	0
Laundry Prewash/Stain Removers: Other or Unknown	1,818	1,710	1,234	63	34	312	1	64	2	1,662	27	9	9	186	304	329	26	1	0
Laundry Prewash/Stain Removers: Other or Unknown Solvent Based	30	26	19	1	1	3	0	2	0	25	0	0	0	7	2	6	1	0	0
Laundry Prewash/Stain Removers: Other or Unknown Surfactant Based	59	57	49	0	0	7	0	1	0	56	0	0	1	3	11	6	0	0	0
Miscellaneous Cleaners																			
Miscellaneous Cleaning Agents: Acids	1,769	1,595	705	60	57	622	2	135	14	1,475	51	42	20	293	282	328	60	3	0
Miscellaneous Cleaning Agents: Alkalis	7,183	6,295	3,192	175	252	2,204	16	399	57	5,846	278	85	54	1,496	1,179	1,333	334	21	3
Miscellaneous Cleaning Agents: Anionics or Nonionics	4,712	4,285	2,619	187	157	1,060	11	220	31	4,039	141	57	33	528	716	620	77	5	1
Miscellaneous Cleaning Agents: Cationics	2,118	1,958	976	87	104	663	3	119	6	1,811	99	19	22	386	320	368	67	1	1
Miscellaneous Cleaning Agents: Ethanol (Excluding Automotive Products)	473	444	295	23	14	90	1	20	1	425	12	3	2	44	106	60	7	1	0
Miscellaneous Cleaning Agents: Glycols (Excluding Automotive Products)	354	322	189	25	13	72	0	21	2	309	10	2	1	55	73	60	5	1	0
Miscellaneous Cleaning Agents: Isopropanol (Excluding Automotive Products and Glass)	940	885	372	151	99	227	1	33	2	762	101	13	7	114	163	140	18	1	0
Miscellaneous Cleaning Agents: Methanol (Excluding Automotive Products)	30	25	7	1	2	13	0	1	1	23	1	0	1	10	7	7	0	0	0
Miscellaneous Cleaning Agents: Other or Unknown Household Cleaning Agents	4,902	4,442	2,468	197	209	1,240	14	271	43	4,076	183	82	71	810	841	888	102	7	0
Miscellaneous Cleaning Agents: Phenol (Excluding Disinfectants)	11	9	3	0	0	4	0	2	0	9	0	0	0	3	1	5	1	0	0
Miscellaneous Cleaning Substances (Household)																			
Ammonia Cleaners (All Purpose)	770	557	145	22	26	298	0	56	10	514	28	4	8	131	76	140	35	3	1
Carpet, Upholstery, Leather, or Vinyl Cleaners	3,032	2,856	1,847	98	89	664	4	135	19	2,743	51	31	25	371	488	510	38	1	0
Hydrofluoric Acid or Bifluoride Wheel Cleaners	47	45	2	1	4	38	0	0	0	41	3	0	0	39	3	26	10	0	1
Starches, Fabric Finishes, or Sizing	154	142	109	10	4	15	0	4	0	141	0	0	0	7	33	13	0	0	0
Oven Cleaners																			
Oven Cleaners: Acids	15	15	4	0	1	10	0	0	0	14	0	1	0	2	1	2	0	0	0
Oven Cleaners: Alkalis	1,858	1,803	278	62	115	1,082	9	239	18	1,685	30	52	26	604	190	483	207	17	0
Oven Cleaners: Detergent Types	8	8	5	0	0	3	0	0	0	8	0	0	0	0	3	1	0	0	0
Oven Cleaners: Other or Unknown	520	490	55	13	34	302	1	78	7	449	9	18	12	143	76	135	44	2	1
Rust Removers																			
Rust Removers: Acids Other Than Hydrofluoric Acid Types	320	279	72	10	12	153	1	26	5	261	9	6	1	69	52	73	10	0	1
Rust Removers: Alkalis	9	8	1	0	0	6	0	1	0	8	0	0	0	1	1	3	0	0	0

(*continued*)

Table 22A. Demographic profile of SINGLE SUBSTANCE Nonpharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility	Outcome				
			<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Rust Removers: Anionics or Nonionics	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0
Rust Removers: Hydrofluoric Acid	215	206	21	1	7	158	0	18	1	196	8	1	1	99	38	64	23	0	0
Rust Removers: Other or Unknown	106	96	16	2	1	62	0	14	1	89	2	1	3	19	14	24	2	0	0
Spot Removers/Dry Cleaning Agents																			
Spot Removers/Dry Cleaning Agents: Anionics or Nonionics	129	122	90	2	0	26	1	2	1	120	1	1	0	12	22	18	1	1	0
Spot Removers/Dry Cleaning Agents: Glycols	39	38	23	1	1	10	1	2	0	37	0	0	0	9	13	9	1	0	0
Spot Removers/Dry Cleaning Agents: Isopropanol	22	22	12	1	0	5	0	4	0	20	0	0	2	2	4	7	0	0	0
Spot Removers/Dry Cleaning Agents: Other Halogenated Hydrocarbon Containing Products	11	10	4	0	0	5	0	1	0	10	0	0	0	0	0	2	0	0	0
Spot Removers/Dry Cleaning Agents: Other Hydrocarbon and/or Non-Halogenated Containing	692	666	428	21	23	151	0	42	1	644	12	6	4	100	165	116	20	3	0
Spot Removers/Dry Cleaning Agents: Other or Unknown	79	76	49	1	3	19	1	2	1	73	1	1	1	8	13	12	2	0	0
Spot Removers/Dry Cleaning Agents: Perchloroethylene	4	4	4	0	0	0	0	0	0	4	0	0	0	1	0	3	0	0	0
Toilet Bowl Cleaners																			
Toilet Bowl Cleaners: Acids	2,847	2,286	1,230	61	89	742	4	144	16	2,169	79	7	22	491	532	585	84	11	0
Toilet Bowl Cleaners: Alkalis	2,517	2,290	1,871	35	37	272	2	68	5	2,209	57	4	17	305	680	302	26	2	0
Toilet Bowl Cleaners: Other or Unknown	4,612	4,195	3,376	76	60	525	11	130	17	4,082	70	9	17	432	1,006	418	40	2	0
Wall/Floor/Tile Cleaners																			
Wall/Floor/Tile/All-Purpose Cleaning Agents: Acids	969	762	388	24	31	268	1	43	7	713	36	6	6	142	171	169	21	0	0
Wall/Floor/Tile/All-Purpose Cleaning Agents: Alkalis	6,959	6,227	3,814	205	257	1,582	14	297	58	5,857	220	48	72	1,158	1,163	1,503	176	5	1
Wall/Floor/Tile/All-Purpose Cleaning Agents: Anionics or Nonionics	7,770	6,858	4,023	216	285	1,995	14	290	35	6,410	320	58	38	1,253	1,357	1,019	114	10	0
Wall/Floor/Tile/All-Purpose Cleaning Agents: Cationics	2,266	1,996	1,274	67	92	461	5	90	7	1,868	91	16	14	275	357	372	25	2	0
Wall/Floor/Tile/All-Purpose Cleaning Agents: Ethanol	167	155	100	23	6	20	1	5	0	149	3	0	2	9	29	37	0	0	0
Wall/Floor/Tile/All-Purpose Cleaning Agents: Glycols	687	602	393	19	21	134	2	29	4	576	22	1	3	64	135	80	10	1	0
Wall/Floor/Tile/All-Purpose Cleaning Agents: Isopropanol	445	396	276	16	25	63	3	11	2	370	23	2	1	40	80	56	6	0	0
Wall/Floor/Tile/All-Purpose Cleaning Agents: Methanol	3	2	0	0	0	2	0	0	0	2	0	0	0	2	0	1	1	0	0
Wall/Floor/Tile/All-Purpose Cleaning Agents: Other or Unknown	1,598	1,462	951	62	50	322	6	57	14	1,381	47	13	13	181	286	222	23	1	0
Category Total:	**184,402**	**166,093**	**97,147**	**6,316**	**7,099**	**45,049**	**365**	**8,925**	**1,192**	**155,196**	**6,844**	**1,992**	**1,315**	**31,215**	**30,028**	**34,630**	**4,734**	**243**	**22**
Cosmetics/Personal Care Products																			
Dental Care Products																			
False Teeth Cleaning Agents	2,607	2,587	246	48	41	1,969	2	259	22	2,500	49	7	20	165	420	190	14	2	0
Other Dental Care Products (Excluding Fluoride Supplements)	1,544	1,485	510	89	89	617	2	171	7	1,335	68	7	72	141	236	144	23	1	0

(*continued*)

Table 22A. Demographic profile of SINGLE SUBSTANCE Nonpharmaceuticals exposure cases by generic category – Continued.

			Age							Reason					Outcome				
	No. of Case Mentions	No. of Single Exposures	<=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
Toothpastes (with Fluoride)	13,570	13,238	11,304	436	280	896	14	264	44	12,788	218	25	156	259	2,182	715	22	0	0
Toothpastes (without Fluoride)	1,664	1,604	1,391	46	23	106	2	26	10	1,557	16	6	22	18	245	56	1	0	0
Hair Care Products																			
Curl Activators	56	53	43	2	0	6	0	1	1	51	0	0	2	8	9	2	1	0	0
Hair Coloring Agents (Excluding Peroxides)	2,550	2,454	879	82	148	1,043	6	262	34	2,130	28	9	270	485	325	533	119	5	0
Hair Oils	629	616	525	14	12	51	1	13	0	600	6	4	4	81	134	48	8	2	0
Hair Relaxers (with Other Alkalines)	155	154	102	3	8	35	0	6	0	145	3	0	6	84	31	59	23	0	0
Hair Relaxers (with Other Non-Alkalines)	32	31	24	1	1	3	0	2	0	30	0	0	1	6	6	6	2	0	0
Hair Relaxers (with Sodium Hydroxide)	207	207	126	4	7	60	0	10	0	197	1	0	9	89	33	53	22	1	0
Hair Rinses, Conditioners, Relaxers	2,012	1,884	1,532	83	50	177	1	38	3	1,808	35	6	23	151	319	189	20	0	0
Hair Sprays	1,072	970	534	55	78	240	1	60	2	856	84	9	14	152	169	164	27	2	0
Other Hair Care Products (Excluding Peroxides)	2,297	2,209	1,729	79	70	258	5	61	7	2,113	35	7	45	273	403	265	30	5	0
Permanent Wave Solutions	102	99	52	5	5	32	0	5	0	89	1	0	9	34	15	23	8	0	0
Shampoos	5,388	5,054	3,623	245	204	792	9	166	15	4,758	206	15	58	460	681	817	48	0	1
Hand Sanitizers																			
Hand Sanitizers: Ethanol Based	19,854	19,273	13,762	2,044	952	2,137	32	288	58	16,905	1,935	313	24	1,707	4,523	1,509	299	53	0
Hand Sanitizers: Isopropanol Based	241	228	153	26	6	38	0	5	0	195	31	2	0	39	46	26	4	1	0
Hand Sanitizers: Non-Alcohol Based	732	721	589	56	24	35	2	13	2	674	41	4	1	26	118	30	1	0	0
Hand Sanitizers: Unknown	902	829	453	153	78	117	3	22	3	648	129	39	3	109	148	92	17	2	0
Miscellaneous Cosmetics/Personal Care Products																			
Baby Oils	1,558	1,508	1,324	31	21	111	2	19	0	1,470	21	6	8	147	327	129	8	0	0
Bath Oils and/or Bubble Baths	4,046	3,956	3,416	315	41	129	17	30	8	3,852	66	2	26	178	725	314	18	0	0
Creams, Lotions, and Make-Up	18,310	17,596	13,775	528	479	2,153	41	560	60	16,609	245	56	635	673	2,590	1,120	96	3	0
Deodorants	11,758	11,549	9,963	320	480	596	25	125	40	11,073	309	50	86	464	1,669	803	48	3	0
Depilatories	598	577	231	13	56	218	2	52	5	435	23	1	116	164	82	153	38	0	0
Douches	55	51	25	0	1	20	0	5	0	47	1	0	3	5	11	5	0	0	0
Eye Products	1,336	1,290	988	30	31	180	3	49	9	1,229	15	2	38	102	200	109	16	0	0
Lipsticks and Lip Balms (with Camphor)	794	778	611	62	43	36	1	20	5	728	28	2	12	17	144	41	2	0	0
Lipsticks and Lip Balms (without Camphor)	4,183	4,051	3,450	167	96	223	7	84	24	3,732	77	7	214	94	546	276	16	0	0
Perfumes, Colognes, and Aftershaves	6,929	6,683	5,002	434	404	648	14	151	30	6,201	341	88	16	627	1,261	1,119	56	3	1
Peroxides	6,161	5,686	1,605	256	368	2,815	11	542	89	5,241	246	44	114	1,090	688	1,359	185	12	0
Powders Made of Material Other Than Talc	1,281	1,234	1,063	43	28	68	2	28	2	1,186	25	3	18	71	180	178	22	0	0
Powders Made of Talc	1,269	1,232	918	66	52	153	6	30	7	1,169	33	13	8	168	228	193	19	0	0
Soaps (Bar, Hand or Complexion)	12,674	12,052	7,962	741	554	2,263	24	438	70	11,319	412	85	184	858	1,535	1,713	103	8	1
Suntan and/or Sunscreen Products	6,294	6,181	5,146	353	115	438	12	100	17	6,022	52	21	64	213	836	537	32	0	0
Mouthwashes																			
Mouthwashes: Ethanol Containing	5,255	4,771	1,090	346	427	2,454	3	411	40	3,844	856	15	21	842	696	490	221	32	0
Mouthwashes: Fluoride Containing	4,900	4,851	3,097	939	132	575	2	100	6	4,720	100	5	19	76	783	128	4	0	0
Mouthwashes: Non Ethanol Containing	1,866	1,794	522	156	103	851	3	146	13	1,664	85	3	29	98	263	75	6	0	0
Mouthwashes: Unknown	255	205	39	18	26	92	0	26	4	166	32	1	2	31	27	12	7	0	0
Nail Products																			
Acrylic Nail Adhesives	1,244	1,233	396	211	154	396	4	66	6	1,195	28	1	6	559	131	391	93	1	0
Acrylic Nail Primers	166	160	123	2	5	26	0	4	0	159	0	0	1	52	34	42	15	0	0
Acrylic Nail Removers	12	12	6	0	3	3	0	0	0	10	2	0	0	3	1	0	2	0	0
Miscellaneous Nail Products	762	748	483	21	42	165	2	28	7	722	8	2	14	141	130	138	23	1	0

(*continued*)

Table 22A. Demographic profile of SINGLE SUBSTANCE Nonpharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility	Outcome				
			<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Nail Polish Removers (Acetone Containing)	2,598	2,497	1,602	117	164	492	4	104	14	2,354	94	24	8	319	548	339	23	1	0
Nail Polishes	5,070	4,914	4,175	221	117	320	10	64	7	4,791	83	18	7	345	851	523	20	0	0
Other Nail Polish Removers	746	730	518	32	38	112	0	27	3	689	26	9	4	74	146	121	5	0	0
Unknown Nail Polish Removers	3,486	3,339	2,172	176	200	657	9	114	11	3,152	126	40	5	416	616	492	26	1	0
Category Total:	**159,220**	**153,374**	**107,279**	**9,069**	**6,256**	**24,806**	**284**	**4,995**	**685**	**143,158**	**6,220**	**951**	**2,397**	**12,114**	**25,291**	**15,721**	**1,793**	**139**	**3**
Deodorizers																			
Air Freshener																			
Air Fresheners: Aerosols	2,066	2,004	1,309	158	89	356	4	79	9	1,875	75	29	17	203	363	312	22	0	0
Air Fresheners: Liquids	8,525	8,416	7,208	239	144	648	18	146	13	8,223	94	53	20	592	1,616	1,121	55	2	0
Air Fresheners: Solids	2,419	2,391	2,090	83	36	151	4	23	4	2,344	26	9	7	169	480	182	7	0	0
Air Fresheners: Unknown Form	1,915	1,890	1,493	106	40	196	3	47	5	1,835	26	16	4	137	334	246	11	2	0
Miscellaneous Deodorizers																			
Diaper Pail Deodorizers (Excluding Moth Repellants)	23	23	20	1	1	1	0	0	0	22	1	0	0	0	1	1	0	0	0
Other Types of Deodorizer (Not For Personal Use)	5,477	5,261	3,593	214	180	1,056	10	195	13	5,036	121	55	30	505	1,073	682	56	2	0
Toilet Bowl Deodorizers	311	302	226	14	6	51	0	2	3	291	10	1	0	38	74	29	6	0	0
Unknown Types of Deodorizer (Not for Personal Use)	84	83	45	6	0	26	0	5	1	80	1	0	2	16	9	13	2	0	0
Category Total:	**20,820**	**20,370**	**15,984**	**821**	**496**	**2,485**	**39**	**497**	**48**	**19,706**	**354**	**163**	**80**	**1,660**	**3,950**	**2,586**	**159**	**6**	**0**
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	329	319	218	23	13	56	0	9	0	305	4	4	6	20	77	18	0	1	0
Dyes: Foods (Including Easter Egg)	584	529	406	77	13	21	3	6	3	501	19	1	6	18	111	15	1	0	0
Dyes: Leathers	77	77	55	5	0	13	1	3	0	75	1	1	0	10	16	3	0	0	0
Dyes: Other	489	452	211	74	67	74	2	21	3	401	25	7	18	43	85	46	4	1	0
Dyes: Unknown	87	80	57	7	3	9	0	3	1	74	1	1	4	9	14	3	0	0	0
Category Total:	**1,567**	**1,458**	**948**	**186**	**96**	**173**	**6**	**42**	**7**	**1,357**	**50**	**14**	**34**	**100**	**304**	**85**	**5**	**2**	**0**
Essential Oils																			
Miscellaneous Essential Oil																			
Cinnamon Oil	595	527	365	33	15	81	11	18	4	468	37	2	20	60	63	152	9	0	0
Clove Oil	636	578	384	15	11	138	5	24	1	534	15	0	27	97	123	102	10	0	1
Eucalyptus Oil	1,722	1,562	972	55	42	385	4	96	8	1,471	45	10	22	243	336	216	15	1	0
Miscellaneous Essential Oils	18,212	17,378	12,795	636	367	2,849	35	630	66	16,601	323	76	312	1,223	3,308	2,603	136	13	0
Pennyroyal Oil	26	21	3	0	0	11	0	6	1	19	1	0	1	0	7	1	0	0	0
Tea Tree Oil	4,309	4,038	1,983	128	186	1,432	10	275	24	3,718	167	31	92	419	906	435	38	3	0
Category Total:	**25,500**	**24,104**	**16,502**	**867**	**621**	**4,896**	**65**	**1,049**	**104**	**22,811**	**588**	**119**	**474**	**2,042**	**4,743**	**3,509**	**208**	**17**	**1**
Fertilizers																			
Miscellaneous Fertilizers																			
Household Plant Foods (Generally for Indoor Plants)	1,386	1,335	653	117	41	435	2	78	9	1,283	23	15	9	59	265	40	3	0	0
Other Types of Fertilizer	1,404	1,274	757	94	21	321	4	64	13	1,228	14	11	15	103	256	94	12	0	0
Outdoor Fertilizers	2,069	1,986	1,114	132	45	567	8	102	18	1,908	36	16	21	157	362	138	22	0	0
Plant Hormones	54	49	23	0	2	17	1	6	0	49	0	0	0	5	14	6	3	0	0
Unknown Types of Fertilizer	208	182	80	11	6	68	1	16	0	175	2	3	2	20	29	21	4	0	0
Category Total:	**5,121**	**4,826**	**2,627**	**354**	**115**	**1,408**	**16**	**266**	**40**	**4,643**	**75**	**45**	**47**	**344**	**926**	**299**	**44**	**0**	**0**
Fire Extinguishers																			
Miscellaneous Fire Extinguisher																			
Miscellaneous Fire Extinguishers	2,553	2,474	223	322	366	1,231	35	244	53	2,239	95	100	19	719	460	658	125	0	0
Category Total:	**2,553**	**2,474**	**223**	**322**	**366**	**1,231**	**35**	**244**	**53**	**2,239**	**95**	**100**	**19**	**719**	**460**	**658**	**125**	**0**	**0**
Foreign Bodies/Toys/Miscellaneous																			
Miscellaneous Foreign Bodies/Toys/ Miscellaneous																			
Ashes	362	343	266	6	0	51	2	16	2	337	2	2	1	9	38	24	2	1	0

(*continued*)

Table 22A. Demographic profile of SINGLE SUBSTANCE Nonpharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility	Outcome				
			<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Bubble Blowing Solutions	2,737	2,694	2,373	188	46	70	4	11	2	2,638	42	4	1	102	327	371	5	0	0
Charcoals	614	485	331	23	11	80	4	29	7	420	26	10	25	32	85	35	4	0	0
Christmas ornaments	266	264	190	20	4	40	0	9	1	259	3	1	1	14	53	14	2	0	0
Coins	3,063	3,002	2,439	468	33	36	11	11	4	2,927	55	5	3	1,033	739	273	29	3	0
Desiccants	19,742	19,612	15,471	1,532	544	1,428	83	462	92	18,964	384	209	11	857	2,639	206	4	0	0
Feces/Urine	6,520	5,921	4,578	195	107	734	23	254	30	5,691	34	150	19	240	803	172	16	0	0
Glass	3,384	3,300	793	198	183	1,422	19	620	65	3,096	43	141	10	237	545	163	20	0	0
Glow Products	12,204	12,179	9,046	2,514	267	198	39	90	25	11,959	172	11	9	442	1,394	2,187	25	0	0
Incense (Punk)	210	203	166	3	5	22	0	7	0	195	5	0	2	8	40	10	2	0	0
Other Types of Foreign Body, Toy, or Miscellaneous Substance	29,990	28,749	19,420	3,392	1,066	3,428	139	1,130	174	27,105	845	395	294	2,736	4,974	1,309	129	17	0
Oxygen Absorbers	660	654	230	157	69	150	4	37	7	566	55	26	4	25	119	25	0	0	0
Soil	2,361	2,141	1,554	126	37	320	5	90	9	2,054	23	13	32	126	308	129	15	0	0
Toys	10,824	10,701	8,427	1,669	240	243	43	69	10	10,364	263	20	36	697	1,789	587	42	2	0
Unknown Types of Foreign Body, Toy, or Miscellaneous Substance	2,168	2,105	1,543	284	68	138	4	59	9	2,021	56	11	7	154	402	110	11	2	0
Thermometers																			
Thermometers: Mercury	1,040	1,030	179	112	61	379	14	255	30	1,006	10	10	3	74	230	15	2	0	0
Thermometers: Other	590	578	158	86	34	183	3	99	15	561	8	6	3	33	113	13	4	0	0
Thermometers: Unknown	90	90	22	10	4	33	0	20	1	86	0	4	0	6	8	1	0	0	0
Category Total:	**96,825**	**94,051**	**67,186**	**10,983**	**2,779**	**8,955**	**397**	**3,268**	**483**	**90,249**	**2,026**	**1,018**	**461**	**6,825**	**14,606**	**5,644**	**312**	**25**	**0**
Fumes/Gases/Vapors																			
Miscellaneous Fumes/Gases/Vapors																			
Carbon Dioxide	485	471	35	49	51	245	25	55	11	431	26	6	6	116	58	88	26	1	0
Carbon Monoxide	15,483	14,168	1,746	1,040	1,067	7,951	131	1,911	322	13,578	395	42	37	6,729	2,624	3,623	1,550	362	48
Chloramine Gas	2,563	2,442	82	44	141	1,735	3	380	57	2,334	85	2	13	471	286	683	188	4	1
Chlorine Gas	3,231	3,024	167	129	183	2,010	14	488	33	2,894	78	3	25	843	347	934	352	11	0
Chlorine Gas (When Household Acid is Mixed with Hypochlorite)	3,188	3,068	122	88	151	2,267	16	385	39	2,936	113	0	18	603	477	956	293	11	0
Hydrogen Sulfide (Sewer Gas)	879	761	57	29	30	519	3	111	12	749	3	3	0	351	92	213	95	9	1
Methane and Natural Gas	4,246	4,006	772	302	247	1,859	45	697	84	3,971	14	12	4	785	1,049	712	90	4	0
Other Types of Fume, Gas or Vapor	2,308	2,071	236	81	133	1,202	15	354	50	1,906	98	22	39	510	318	426	142	21	4
Polymer Fume Fever	17	17	5	0	0	9	0	2	1	15	0	1	1	0	4	2	0	0	0
Simple Asphyxiants	3,220	2,937	352	229	264	1,662	12	349	69	2,733	163	15	11	893	510	670	215	19	3
Unknown Types of Fume, Gas or Vapor	2,043	1,945	102	59	102	1,107	20	499	56	1,815	18	69	23	504	175	390	138	3	0
Category Total:	**37,663**	**34,910**	**3,676**	**2,050**	**2,369**	**20,566**	**284**	**5,231**	**734**	**33,362**	**993**	**175**	**177**	**11,805**	**5,940**	**8,697**	**3,089**	**445**	**57**
Heavy Metals																			
Miscellaneous Heavy Metals																			
Aluminum	927	847	444	52	34	237	6	70	4	802	10	22	6	52	114	46	12	1	0
Arsenic (Excluding Pesticides)	676	605	34	20	24	430	1	75	21	340	12	129	20	318	86	47	33	4	1
Barium, Soluble Salts	28	21	2	1	3	12	0	3	0	20	0	1	0	9	3	4	2	0	0
Cadmium	77	50	2	0	1	40	0	7	0	33	1	3	0	25	4	2	0	2	0
Copper	684	568	77	41	115	274	0	54	7	493	34	8	20	154	72	147	27	1	0
Fireplace Flame Colors	29	28	14	5	4	4	0	1	0	28	0	0	0	7	4	5	0	0	0
Gold	11	9	4	0	0	5	0	0	0	7	0	0	2	1	3	0	1	0	0
Lead	2,467	2,286	1,080	156	100	679	24	208	39	2,083	47	53	27	1,080	605	132	81	5	0
Manganese	50	33	3	2	3	22	0	3	0	18	1	1	6	20	5	5	7	0	0
Mercury (Other)	550	517	37	22	36	317	4	83	18	400	5	35	49	192	94	36	25	6	0
Mercury, Elemental (Excluding Thermometer)	819	790	55	45	61	437	27	146	19	683	27	24	26	220	179	35	19	2	0
Metal Fume Fever	247	212	6	2	16	165	0	20	3	202	5	0	4	94	6	71	32	0	0
Other Types of Heavy Metal	2,638	1,938	723	105	90	827	4	165	24	1,549	119	25	217	357	293	249	66	1	0
Selenium	2	2	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0

(*continued*)

Table 22A. Demographic profile of SINGLE SUBSTANCE Nonpharmaceuticals exposure cases by generic category – Continued.

			Age							Reason					Outcome				
	No. of Case Mentions	No. of Single Exposures	<=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
Thallium	64	49	1	0	0	37	0	10	1	24	0	9	1	26	8	1	4	0	0
Unknown Types of Heavy Metal	92	84	15	4	4	46	0	13	2	50	3	15	9	34	9	2	5	0	0
Category Total:	**9,361**	**8,039**	**2,497**	**455**	**491**	**3,534**	**66**	**858**	**138**	**6,734**	**264**	**325**	**387**	**2,589**	**1,485**	**782**	**314**	**22**	**1**
Hydrocarbons																			
Miscellaneous Hydrocarbons																			
Benzene	204	159	11	6	4	111	5	21	1	153	1	1	3	71	18	32	27	0	0
Carbon Tetrachloride	37	33	1	0	0	25	0	6	1	33	0	0	0	15	6	10	3	1	0
Diesel Fuels	1,235	1,174	148	29	81	746	7	150	13	1,080	64	24	1	317	161	367	56	2	0
Freon and Other Propellants	4,479	4,290	315	193	321	2,867	27	488	79	3,458	735	47	27	1,541	627	1,060	479	61	10
Gasolines	10,619	10,244	1,510	562	876	5,982	24	1,154	136	9,408	637	97	36	2,143	1,372	3,068	334	17	1
Kerosenes	687	634	254	33	19	262	1	56	9	580	31	15	2	240	124	164	48	7	0
Lamp Oils	978	953	614	32	31	234	0	35	7	914	22	9	2	364	199	226	118	17	1
Lighter Fluids and/or Naphtha	1,742	1,642	896	49	103	473	3	99	19	1,506	66	40	9	596	352	416	102	11	1
Lubricating Oils and/or Motor Oils	3,490	3,240	1,627	143	182	1,054	11	192	31	3,081	87	54	3	629	765	531	81	6	1
Mineral Seal Oil	37	34	18	1	4	9	0	1	1	33	0	1	0	5	12	5	0	0	0
Mineral Spirits	1,955	1,786	395	56	109	1,001	4	200	21	1,658	71	24	16	593	231	533	133	16	0
Other Types of Halogenated Hydrocarbon	239	209	38	7	12	132	1	15	4	192	11	3	3	82	23	74	19	2	0
Other Types of Hydrocarbon	3,693	3,423	1,504	149	157	1,325	6	227	55	3,193	113	54	49	844	620	639	157	12	1
Toluene and/or Xylene (Excluding Adhesives)	615	496	59	7	19	350	0	52	9	468	16	4	4	189	37	159	56	5	0
Turpentine	288	256	37	4	17	164	1	29	4	193	54	4	2	98	41	66	14	2	1
Unknown Types of Hydrocarbon	636	578	192	20	35	268	2	48	13	501	61	8	4	182	129	118	48	7	1
Category Total:	**30,934**	**29,151**	**7,619**	**1,291**	**1,970**	**15,003**	**92**	**2,773**	**403**	**26,451**	**1,969**	**385**	**161**	**7,909**	**4,717**	**7,468**	**1,675**	**166**	**17**
Industrial Cleaners																			
Miscellaneous Industrial Cleaners																			
Industrial Cleaner: Disinfectants	1,398	1,320	169	60	114	808	1	153	15	1,160	117	18	18	446	171	412	137	2	0
Industrial Cleaner: Other or Unknown	1,399	1,300	251	41	103	782	1	101	21	1,182	52	43	9	561	166	418	134	6	0
Industrial Cleaners: Acids	1,566	1,326	283	35	62	797	2	129	18	1,229	43	36	12	429	200	394	117	3	1
Industrial Cleaners: Alkalis	2,626	2,472	320	63	181	1,672	1	192	43	2,309	70	63	13	1,384	217	914	447	32	0
Industrial Cleaners: Anionics or Nonionics	367	325	113	17	21	148	1	22	3	300	19	4	1	86	42	81	17	0	0
Industrial Cleaners: Cationics	913	865	129	66	88	496	4	71	11	771	69	9	12	276	114	278	36	0	0
Category Total:	**8,269**	**7,608**	**1,265**	**282**	**569**	**4,703**	**10**	**668**	**111**	**6,951**	**370**	**173**	**65**	**3,182**	**910**	**2,497**	**888**	**43**	**1**
Infectious and Toxin-Mediated Diseases																			
Algae Associated Exposures																			
Cyanobacteria Exposure (Blue Green Algae)	599	581	115	118	50	148	19	46	85	562	2	8	9	81	155	77	13	0	0
Karenia brevis Exposure (Red Algae Tide)	8	8	2	1	0	5	0	0	0	8	0	0	0	3	0	1	0	0	0
Botulinum Toxins																			
Botulism	275	254	90	3	4	129	1	24	3	191	9	5	39	63	38	9	8	15	1
Ichthyosarcotoxins																			
Ciguatera Poisoning	162	162	4	5	9	129	0	14	1	139	0	0	23	78	13	31	50	4	0
Clupeotoxic Fish Poisoning	2	2	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0
Other Types of Seafood Poisoning	261	243	11	10	16	166	1	35	4	211	1	1	29	88	7	53	42	2	0
Palytoxin Poisoning	4	4	0	0	1	3	0	0	0	4	0	0	0	4	0	2	1	0	0
Paralytic Shellfish Poisoning	69	66	3	5	8	39	0	9	2	51	1	2	12	21	6	9	2	0	0
Scombroid Fish Poisoning	129	122	3	5	6	86	0	19	3	88	1	0	33	41	5	40	24	2	0
Tetrodon Poisoning	210	209	42	47	23	76	0	15	6	185	16	0	7	22	39	22	2	0	0
Infectious Diseases																			
Bacterial Diseases	389	364	75	27	13	200	4	40	5	304	1	15	38	81	32	31	20	2	0
Fungal Diseases	3,422	3,332	983	295	201	1,452	10	352	39	2,960	7	172	190	93	399	129	20	0	0

(*continued*)

Table 22A. Demographic profile of SINGLE SUBSTANCE Nonpharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility	Outcome				
			<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Other Types of Bacterial Food Poisoning (Salmonella, Shigella, Vibrio, Staphylococcus, Streptococcus, etc)	117	109	25	10	9	46	1	17	1	98	1	1	9	16	6	13	6	0	0
Parasitic Diseases	32	26	4	3	2	14	0	3	0	23	0	0	2	3	1	4	0	0	0
Prion Diseases	4	4	2	0	0	1	0	1	0	1	1	2	0	0	0	1	0	0	0
Unknown Types of Bacterial Food Poisoning	459	433	63	22	33	213	3	88	11	408	0	11	13	67	9	35	28	0	0
Unknown Types of Suspected Food Poisoning	14,036	13,597	2,486	949	927	7,307	50	1,617	261	12,512	25	191	824	1,315	804	2,193	540	9	0
Viral Diseases	341	323	124	20	13	135	0	20	11	307	4	3	0	198	15	18	43	1	0
Category Total:	**20,519**	**19,839**	**4,032**	**1,520**	**1,316**	**10,149**	**89**	**2,301**	**432**	**18,053**	**69**	**411**	**1,229**	**2,174**	**1,529**	**2,668**	**799**	**35**	**1**
Information Calls																			
Food Information Calls																			
Information Calls About Food Products, Additives or Supplements	6,500	4,934	2,084	372	246	1,569	28	529	106	3,974	316	266	343	473	666	614	115	10	1
Obsolete: Information Calls About Possibly Spoiled Foods	5,446	5,294	1,257	445	295	2,487	42	694	74	4,789	11	126	348	222	518	376	120	2	0
Category Total:	**11,946**	**10,228**	**3,341**	**817**	**541**	**4,056**	**70**	**1,223**	**180**	**8,763**	**327**	**392**	**691**	**695**	**1,184**	**990**	**235**	**12**	**1**
Lacrimators																			
Miscellaneous Lacrimators																			
Lacrimators: Capsicum Defense Sprays	2,908	2,879	530	656	492	840	103	210	48	2,268	113	378	18	659	105	1,374	164	0	0
Lacrimators: CN (Chloroacetophenone)	47	45	8	13	5	18	0	1	0	35	2	8	0	15	1	26	3	0	0
Lacrimators: CS (O-Chlorobenzylidene Malonitrile)	28	20	1	2	3	11	0	2	1	15	1	3	1	7	4	3	2	0	0
Lacrimators: Other	45	28	2	2	2	16	0	5	1	28	0	0	0	8	0	7	1	1	0
Lacrimators: Unknown	157	151	33	28	14	55	5	13	3	105	9	22	4	58	8	76	12	0	0
Category Total:	**3,185**	**3,123**	**574**	**701**	**516**	**940**	**108**	**231**	**53**	**2,451**	**125**	**411**	**23**	**747**	**118**	**1,486**	**182**	**1**	**0**
Matches/Fireworks/Explosives																			
Miscellaneous Matches/ Fireworks/Explosives																			
Explosives	175	167	88	17	17	38	1	6	0	146	11	8	2	55	36	19	9	1	0
Fireworks	791	786	670	46	15	38	4	2	11	765	10	9	1	79	223	66	6	0	0
Matches	295	293	250	5	8	26	0	4	0	284	7	1	1	11	57	10	2	0	0
Other Types of Match, Firework, or Explosive	98	94	70	10	7	3	0	4	0	90	2	0	0	11	22	15	5	1	0
Unknown Types of Match, Firework, or Explosive	5	5	2	0	1	1	0	1	0	4	1	0	0	3	1	1	1	0	0
Category Total:	**1,364**	**1,345**	**1,080**	**78**	**48**	**106**	**5**	**17**	**11**	**1,289**	**31**	**18**	**4**	**159**	**339**	**111**	**23**	**2**	**0**
Miscellaneous Foods																			
Foods																			
Capsicum Peppers	2,738	2,677	603	423	440	881	24	276	30	2,006	164	124	304	442	119	1,114	109	3	0
Food Additives	464	408	161	44	29	141	3	26	4	291	31	14	68	60	46	66	9	1	0
Food Products	11,605	10,927	5,056	793	497	3,267	73	1,033	208	8,805	246	322	1,495	708	1,224	826	184	8	0
Other Adverse Reactions to Food	1,785	1,686	310	112	123	784	6	314	37	805	34	59	781	297	85	340	128	7	0
Category Total:	**16,592**	**15,698**	**6,130**	**1,372**	**1,089**	**5,073**	**106**	**1,649**	**279**	**11,907**	**475**	**519**	**2,648**	**1,507**	**1,474**	**2,346**	**430**	**19**	**0**
Mushrooms																			
Miscellaneous Mushrooms																			
Group 1 Mushrooms: Cyclopeptides	69	68	16	4	4	42	0	2	0	51	12	0	5	32	17	13	4	4	0
Group 1A Mushrooms: Orellanine	5	3	1	0	0	2	0	0	0	2	1	0	0	1	0	0	1	0	0
Group 2 Mushrooms: Muscimol (Ibotenic Acid)	33	30	7	1	1	17	0	2	2	15	13	0	2	16	5	7	6	2	0

(*continued*)

Table 22A. Demographic profile of SINGLE SUBSTANCE Nonpharmaceuticals exposure cases by generic category – Continued.

			Age							Reason					Outcome				
	No. of Case Mentions	No. of Single Exposures	<=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 3 Mushrooms: Monomethylhydrazine (MMH)	49	47	1	1	3	40	0	2	0	39	4	0	4	17	15	14	5	1	0
Group 4 Mushrooms: Muscarine and Histamine	18	18	3	0	0	15	0	0	0	13	3	0	2	8	3	4	5	0	0
Group 5 Mushrooms: Coprine	10	9	6	0	1	2	0	0	0	8	1	0	0	4	4	1	1	0	0
Group 6 Mushrooms: Hallucinogenics (Psilocybin and Psilocin)	590	387	27	6	144	188	1	14	7	52	331	0	3	309	25	86	159	5	0
Group 7 Mushrooms: Gastrointestinal Irritants	279	266	90	30	15	116	2	11	2	196	41	0	28	112	56	87	33	1	0
Mushrooms: Miscellaneous, Non-Toxic	234	208	99	15	6	65	0	22	1	167	9	1	31	38	61	20	11	0	0
Mushrooms: Other Potentially Toxic	109	100	36	6	3	49	0	5	1	73	7	0	19	41	11	22	12	2	0
Mushrooms: Unknown	4,403	4,279	2,722	424	189	813	11	90	30	3,606	502	11	144	1,195	1,657	518	189	10	2
Category Total:	**5,799**	**5,415**	**3,008**	**487**	**366**	**1,349**	**14**	**148**	**43**	**4,222**	**924**	**12**	**238**	**1,773**	**1,854**	**772**	**426**	**25**	**2**
Other/Unknown Nondrug Substances																			
Miscellaneous Other/Unknown Nondrug Substances																			
Other Non-Drug Substances	27,349	25,651	11,231	2,398	1,151	7,618	131	2,496	626	22,489	820	1,012	986	3,772	4,677	4,046	642	64	12
Unknown Substances Unlikely to be Drug Products	7,940	7,556	1,366	296	339	4,376	25	895	259	5,429	210	1,110	227	1,880	548	759	348	77	11
Category Total:	**35,289**	**33,207**	**12,597**	**2,694**	**1,490**	**11,994**	**156**	**3,391**	**885**	**27,918**	**1,030**	**2,122**	**1,213**	**5,652**	**5,225**	**4,805**	**990**	**141**	**23**
Paints and Stripping Agents																			
Miscellaneous Paints and Stripping Agents																			
Other Types of Paint, Varnish or Lacquer	673	631	260	37	33	228	1	65	7	601	10	2	17	126	73	102	34	4	0
Unknown Types of Paint, Varnish or Lacquer	3,708	3,507	2,095	165	111	835	16	257	28	3,371	57	26	43	463	603	310	67	6	0
Varnishes and Lacquers	697	657	126	19	34	367	2	100	9	626	5	1	24	124	85	144	28	3	0
Paints																			
Anti-Algae Paints	12	11	2	0	1	7	0	1	0	11	0	0	0	3	2	2	0	0	0
Anti-Corrosion Paints	36	33	3	2	4	22	0	2	0	33	0	0	0	11	4	10	2	0	0
Oil-Base Paints	2,160	2,044	554	128	124	969	7	231	31	1,908	71	7	47	370	279	443	93	5	0
Water Base Paints (Acrylic, Latex, etc)	4,308	4,166	2,971	164	138	692	11	182	8	4,057	51	15	36	293	559	275	41	2	0
Wood stains	680	643	263	17	24	246	1	81	11	617	4	4	15	79	115	111	14	1	0
Stripping Agents																			
Methylene Chloride Stripping Agents	323	306	24	2	18	227	0	29	6	288	8	1	6	152	19	105	53	6	0
Other Types of Stripping Agent	430	401	62	8	11	277	1	40	2	377	10	3	9	186	26	110	75	5	0
Unknown Types of Stripping Agent	143	127	12	4	7	90	0	13	1	122	2	1	1	58	8	37	23	1	0
Category Total:	**13,170**	**12,526**	**6,372**	**546**	**505**	**3,960**	**39**	**1,001**	**103**	**12,011**	**218**	**60**	**198**	**1,865**	**1,773**	**1,649**	**430**	**33**	**0**
Pesticides																			
Fumigants																			
Aluminum Phosphide	84	77	3	0	4	57	1	9	3	72	2	0	2	37	15	18	2	1	1
Methyl Bromide	20	19	2	0	0	16	0	1	0	18	0	1	0	9	0	4	3	0	0
Other Fumigants	57	54	3	0	2	42	0	6	1	52	0	0	2	27	6	31	1	0	0
Sulfuryl Fluoride	279	256	27	12	10	162	1	35	9	240	5	2	7	44	33	37	4	0	0
Unknown Fumigants	152	147	12	9	7	94	0	18	7	132	5	4	6	37	17	39	5	0	0
Fungicides (Non-medicinal)																			
Carbamate Fungicides	65	45	12	1	0	22	2	8	0	42	1	0	2	9	8	9	5	0	0
Copper Compound Fungicides	88	87	8	3	2	52	0	20	2	83	1	0	2	25	11	15	9	0	0
Mercurial Fungicides	2	2	0	0	1	0	0	1	0	1	1	0	0	0	0	0	0	0	0
Other Types of Non-Medicinal Fungicide	529	375	63	11	11	213	19	51	7	356	8	1	9	62	97	59	16	1	1

(*continued*)

Table 22A. Demographic profile of SINGLE SUBSTANCE Nonpharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility	Outcome				
			<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Phthalimide Fungicides	28	20	6	2	0	9	0	2	1	19	0	1	0	1	2	1	0	0	0
Unknown Types of Non-Medicinal Fungicide	33	21	6	0	0	11	1	3	0	18	0	1	2	6	2	3	0	0	0
Wood Preservatives	144	138	24	1	9	85	0	18	1	129	3	1	5	31	17	29	8	1	0
Herbicides (Including Algaecides, Defoliants, Desiccants, Plant Growth Regulators)																			
Carbamate Herbicides (Excluding Metam Sodium)	17	17	0	0	1	14	0	2	0	15	1	1	0	5	2	4	2	0	0
Chlorophenoxy Herbicides	1,575	1,387	346	57	23	765	2	173	21	1,312	21	7	34	216	279	258	48	1	0
Diquat	447	411	105	21	4	231	2	39	9	389	8	4	9	58	92	83	7	0	2
Glyphosate	3,608	3,206	556	125	63	2,009	13	404	36	2,959	51	55	118	572	649	704	79	8	1
Other Types of Herbicide	1,594	1,243	272	44	26	724	7	135	35	1,173	24	3	38	226	223	246	36	1	1
Paraquat	153	132	7	0	6	105	0	12	2	121	7	3	1	75	21	27	20	5	3
Triazine Herbicides	169	123	18	0	6	81	1	16	1	118	3	1	1	25	14	35	3	0	0
Unknown Types of Herbicide	610	519	112	38	18	281	5	57	8	465	9	28	14	109	93	102	9	2	2
Urea Herbicides	51	32	7	0	0	18	0	7	0	30	0	0	2	7	7	7	0	0	0
Insecticides (Including Insect Growth Regulators, Molluscicides, Nematicides)																			
Carbamate Insecticides Alone	1,055	986	326	68	20	462	2	95	13	908	28	27	16	174	232	149	23	2	0
Carbamate Insecticides in Combination with Other Insecticides	277	252	61	7	13	145	0	24	2	231	10	3	8	38	30	55	13	0	0
Chlorinated Hydrocarbon Insecticides Alone	122	119	38	5	5	54	3	12	2	110	5	2	1	29	22	23	4	0	0
Chlorinated Hydrocarbon Insecticides in Combination with Other Insecticides	212	202	34	13	13	116	0	19	7	192	5	2	1	47	28	71	9	0	0
Insect Growth Regulators	166	96	34	5	0	43	0	11	3	92	1	0	2	19	17	14	1	0	0
Metaldehyde	27	27	11	1	0	13	0	2	0	25	0	0	1	6	6	6	0	0	0
Nicotine (Excluding Tobacco Products)	122	114	57	3	7	41	1	2	3	95	11	0	4	23	23	15	2	0	0
Organophosphate Insecticides Alone	1,783	1,644	458	62	42	861	10	171	40	1,485	73	23	44	453	377	287	77	25	1
Organophosphate Insecticides in Combination with Carbamate Insecticides	48	42	11	1	0	25	0	5	0	40	1	0	1	7	5	8	2	0	0
Organophosphate Insecticides in Combination with Non-Carbamate Insecticides	356	334	50	12	16	201	0	50	5	318	5	3	3	45	45	86	15	1	0
Other Types of Insecticide	9,593	8,979	4,431	391	187	2,995	35	773	167	8,582	124	47	189	849	1,687	1,014	115	8	3
Piperonyl Butoxide Only (Alone)	1	1	0	0	0	1	0	0	0	1	0	0	0	1	0	1	0	0	0
Pyrethrins	5,925	5,607	1,609	353	220	2,702	23	606	94	5,184	158	34	205	1,242	682	1,390	295	10	0
Pyrethroids	20,853	19,719	4,433	907	692	10,855	73	2,374	385	17,895	561	226	898	3,379	2,704	5,198	720	18	3
Rotenone	28	25	2	1	1	14	0	6	1	18	1	0	6	2	1	7	0	0	0
Unknown Types of Insecticide	4,258	3,918	830	172	129	2,013	24	635	115	3,409	136	168	146	1,027	503	740	173	8	1
Veterinary Insecticide/Pesticide Product (For Pets-Flea Collars, Etc.)	2	2	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
Miscellaneous Pesticides																			
Arsenic Pesticides	17	16	6	0	0	7	1	1	1	13	1	1	1	7	2	2	1	0	0
Borates and/or Boric Acid Pesticides (Excluding Other Uses)	9,479	9,388	8,335	178	81	575	18	161	40	9,271	49	39	16	567	1,637	182	13	0	0
Repellents																			
Animal Repellents	347	341	78	13	11	168	5	57	9	315	5	6	14	41	52	80	10	0	0

(*continued*)

Table 22A. Demographic profile of SINGLE SUBSTANCE Nonpharmaceuticals exposure cases by generic category – Continued.

			Age							Reason					Outcome				
	No. of Case Mentions	No. of Single Exposures	<=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
Insect Repellents with DEET	4,030	3,943	1,995	453	179	990	8	270	48	3,598	67	50	204	316	557	988	59	5	0
Insect Repellents without DEET	1,988	1,941	1,380	149	43	263	7	82	17	1,875	19	8	33	95	355	290	10	0	0
Naphthalene Moth Repellants (Excluding Deodorizing Products)	687	673	337	37	16	195	3	73	12	629	27	5	10	99	185	67	15	0	0
Other Types of Moth Repellant	19	19	10	1	0	6	0	2	0	18	1	0	0	2	2	1	0	0	0
Paradichlorobenzene Moth Repellants (Excluding Deodorizing Products)	76	73	33	0	2	28	1	9	0	67	5	0	0	7	14	11	1	1	0
Unknown Types of Insect Repellent	338	326	170	34	15	85	1	15	6	300	12	3	10	40	38	59	6	0	0
Unknown Types of Moth Repellant	2,322	2,274	1,129	115	44	652	14	283	37	2,135	61	35	28	339	482	185	32	3	0
Rodenticides																			
ANTU (1-naphthalenylthiourea)	9	9	1	4	3	1	0	0	0	3	4	0	2	1	1	1	0	0	0
Bromethalin Rodenticides	1,248	1,212	874	32	13	196	7	50	40	1,148	33	21	3	393	423	46	3	0	0
Cholecalciferol Rodenticides	378	364	289	7	1	52	1	10	4	347	12	5	0	95	100	15	1	0	0
Cyanide Rodenticides	2	2	0	0	0	2	0	0	0	2	0	0	0	2	0	1	0	0	0
Long-Acting Anticoagulant Rodenticides	3,586	3,481	2,751	108	32	426	10	111	43	3,325	80	51	14	967	921	65	11	4	1
Other Types of Rodenticide	739	716	480	15	8	164	2	32	15	666	27	11	11	165	186	38	6	0	0
Sodium Monofluoroacetate	3	3	1	0	0	2	0	0	0	3	0	0	0	1	2	1	0	0	0
Strychnine Rodenticides	65	50	1	1	1	34	0	10	3	21	6	16	1	25	10	7	1	1	0
Unknown Types of Rodenticide	2,347	2,163	1,337	56	38	484	13	172	63	1,860	144	110	12	734	514	89	22	3	2
Warfarin Type Anticoagulant Rodenticides	228	212	162	5	3	30	2	9	1	205	2	1	1	52	63	4	2	0	0
Zinc Phosphide Rodenticides	129	123	18	7	2	61	2	29	4	114	6	1	1	40	40	17	1	1	0
Category Total:	**82,570**	**77,707**	**33,363**	**3,540**	**2,030**	**29,953**	**320**	**7,178**	**1,323**	**72,246**	**1,830**	**1,011**	**2,140**	**12,910**	**13,534**	**12,924**	**1,900**	**110**	**22**
Photographic Products																			
Miscellaneous Photographic Products																			
Developers, Fixing Baths, Stop Baths	95	87	34	1	18	26	0	7	1	85	0	0	2	20	9	22	1	0	0
Other Types of Photographic Product	478	467	260	34	21	127	1	22	2	445	14	5	2	37	103	36	5	1	0
Photographic Coating Fluids	18	18	12	1	2	2	0	1	0	18	0	0	0	2	5	1	0	0	0
Unknown Types of Photographic Product	2	2	1	0	0	0	0	1	0	2	0	0	0	0	0	1	0	0	0
Category Total:	**593**	**574**	**307**	**36**	**41**	**155**	**1**	**31**	**3**	**550**	**14**	**5**	**4**	**59**	**117**	**60**	**6**	**1**	**0**
Plants																			
Miscellaneous Plants																			
Plants: Amygdalin and/or Cyanogenic Glycosides	5,897	5,819	2,845	720	256	1,614	16	322	46	5,326	223	42	190	293	1,129	193	38	0	1
Plants: Anticholinergics	689	662	376	68	33	158	1	22	4	581	63	2	10	120	159	50	48	3	0
Plants: Cardiac Glycosides (Excluding Drugs)	1,831	1,783	922	235	70	463	5	78	10	1,611	121	16	28	233	438	138	31	6	0
Plants: Colchicine	5	5	2	0	0	2	0	1	0	5	0	0	0	1	0	1	0	0	0
Plants: Depressants	173	119	48	13	8	43	0	7	0	78	16	1	23	21	19	12	4	1	0
Plants: Gastrointestinal Irritants (Excluding Oxalate Containing Plants)	5,303	5,124	3,578	595	131	639	9	150	22	4,765	234	5	104	313	983	400	51	5	0
Plants: Hallucinogenics (Code as Street Drug Unless Plant Part Involved)	428	363	83	36	56	148	0	24	16	212	109	5	36	122	48	68	45	3	0
Plants: Nicotine (Excluding Tobacco Products)	215	196	76	22	10	71	0	13	4	177	17	0	1	41	45	36	5	0	0
Plants: Non-Toxic	3,959	3,655	2,460	521	89	439	18	102	26	3,319	170	8	152	189	540	212	31	0	0

(*continued*)

Table 22A. Demographic profile of SINGLE SUBSTANCE Nonpharmaceuticals exposure cases by generic category – Continued.

			Age							Reason					Outcome				
	No. of Case Mentions	No. of Single Exposures	<=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: Other Toxic Types	4,556	4,341	2,747	542	137	718	19	157	21	3,918	240	15	154	462	892	305	86	11	1
Plants: Oxalates	5,083	5,013	3,541	649	199	480	15	109	20	4,621	318	9	55	391	776	1,037	63	3	0
Plants: Skin Irritants (Excluding Oxalate Containing Plants)	5,722	5,352	1,912	507	217	2,172	34	457	53	4,877	160	14	280	957	494	905	295	8	0
Plants: Solanine	1,409	1,386	798	117	40	345	3	76	7	1,252	47	10	76	101	315	113	13	0	0
Plants: Stimulants	417	399	86	44	16	200	2	48	3	346	34	1	13	78	102	43	11	0	0
Plants: Toxalbumins	209	197	67	15	16	80	2	16	1	144	35	14	1	71	55	27	9	1	1
Plants: Unknown Toxic Types or Unknown if Toxic	9,523	9,065	6,041	1,178	231	1,246	51	275	43	8,341	445	19	235	728	1,646	688	99	10	0
Category Total:	**45,419**	**43,479**	**25,582**	**5,262**	**1,509**	**8,818**	**175**	**1,857**	**276**	**39,573**	**2,232**	**161**	**1,358**	**4,121**	**7,641**	**4,228**	**829**	**51**	**3**
Polishes and Waxes																			
Miscellaneous Polishes and Waxes																			
Floor Waxes, Polishes, or Sealers	370	350	183	6	12	106	0	40	3	335	5	1	9	63	51	53	6	0	0
Furniture Polishes	1,180	1,130	921	26	23	119	6	28	7	1,092	18	12	2	104	294	147	11	3	0
Miscellaneous Polishes and Waxes (Excluding Mineral Seal Oils)	1,222	1,166	732	36	42	294	7	46	9	1,120	25	4	14	147	245	144	19	2	0
Category Total:	**2,772**	**2,646**	**1,836**	**68**	**77**	**519**	**13**	**114**	**19**	**2,547**	**48**	**17**	**25**	**314**	**590**	**344**	**36**	**5**	**0**
Radiation																			
Ionizing Radiation																			
Alpha Radiation	8	8	0	0	0	5	0	2	1	3	0	2	2	1	0	0	0	0	0
Beta Radiation	2	2	1	0	0	1	0	0	0	2	0	0	0	0	1	0	0	0	0
Gamma Radiation	4	4	0	0	0	3	0	1	0	3	0	1	0	3	0	2	0	0	0
Ionizing Radiation: Type Unknown	33	32	1	1	1	19	0	9	1	20	0	2	7	12	5	1	1	0	0
Radon	118	111	23	12	2	42	5	27	0	110	0	0	0	18	27	11	1	0	0
Specific Nonpharmaceutical Radionuclides	104	87	11	3	4	51	0	16	2	72	2	1	9	32	17	5	2	0	0
X-ray Radiation	37	36	0	2	0	20	0	13	1	24	0	1	11	13	1	2	1	0	0
Miscellaneous Radiation																			
Nonpharmaceutical Radiation: Type Unknown	13	13	0	0	0	8	0	5	0	11	0	2	0	6	4	1	0	0	0
Non-ionizing Radiation																			
Extremely Low-frequency Radiation	1	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0
Infrared Radiation	2	2	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0
Microwave Radiation	22	22	1	1	0	11	0	9	0	18	0	4	0	3	1	0	0	0	0
Non-ionizing Radiation: Type Unknown	22	22	3	0	0	10	0	7	2	17	0	2	2	6	5	2	0	0	0
Radio Frequency Radiation	15	15	0	0	1	10	0	4	0	13	0	1	0	7	0	7	0	0	0
Ultraviolet Radiation	9	8	0	1	0	5	0	2	0	7	1	0	0	2	0	3	0	0	0
Visible Light Radiation (Lasers)	8	7	0	1	0	5	0	0	1	6	0	0	1	3	1	2	0	0	0
Category Total:	**398**	**370**	**40**	**21**	**8**	**191**	**5**	**97**	**8**	**309**	**3**	**16**	**32**	**107**	**62**	**36**	**5**	**0**	**0**
Sporting Equipment																			
Miscellaneous Sporting Equipment																			
Fishing Baits	49	47	34	6	2	5	0	0	0	46	1	0	0	2	1	2	2	0	0
Fishing Products, Miscellaneous	19	19	11	1	3	3	0	1	0	17	2	0	0	2	2	4	0	0	0
Golf Balls (Including Liquid Center of Golf Balls)	1	1	0	0	0	1	0	0	0	1	0	0	0	1	0	1	0	0	0
Gun Bluing Compounds	30	29	8	0	0	20	0	1	0	28	1	0	0	13	4	6	3	0	0
Hunting Products, Miscellaneous	270	262	129	24	16	81	0	8	4	227	16	12	2	80	86	19	5	2	0
Other Types of Sporting Equipment	10	8	5	1	1	1	0	0	0	8	0	0	0	3	1	1	1	0	0
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:	**380**	**367**	**188**	**32**	**22**	**111**	**0**	**10**	**4**	**328**	**20**	**12**	**2**	**101**	**94**	**33**	**11**	**2**	**0**
Swimming Pool/Aquarium																			
Miscellaneous Swimming Pool/Aquarium																			
Algicides	408	370	127	23	13	169	3	32	3	363	2	1	4	63	65	74	21	3	0

(*continued*)

Table 22A. Demographic profile of SINGLE SUBSTANCE Nonpharmaceuticals exposure cases by generic category – Continued.

			Age							Reason					Outcome				
	No. of Case Mentions	No. of Single Exposures	<=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
Aquarium Products, Miscellaneous	1,224	1,163	834	81	32	180	2	32	2	1,132	19	8	4	77	252	44	12	0	0
Bromine Shock Treatments	48	45	9	4	1	26	0	5	0	43	0	0	1	12	3	14	3	0	0
Chlorine Shock Treatments	3,138	3,025	580	385	232	1,514	11	272	31	2,881	45	16	74	816	218	1,052	340	8	0
Other Types of Swimming Pool or Aquarium Product	2,101	2,008	493	222	118	973	2	172	28	1,913	35	3	51	468	220	665	186	7	0
Swimming Pool and Aquarium Test Kits	161	147	32	29	43	32	0	10	1	140	5	0	1	18	13	27	4	0	0
Category Total:	**7,080**	**6,758**	**2,075**	**744**	**439**	**2,894**	**18**	**523**	**65**	**6,472**	**106**	**28**	**135**	**1,454**	**771**	**1,876**	**566**	**18**	**0**
Tobacco/Nicotine/eCigarette Products																			
eCigarettes: Nicotine Containing																			
eCigarettes: Nicotine Device Flavor Unknown	1,792	1,417	790	46	204	298	4	59	16	1,040	220	17	131	509	358	266	116	16	5
eCigarettes: Nicotine Device With Added Flavors	518	481	325	25	28	84	0	16	3	413	35	1	31	134	178	77	18	3	0
eCigarettes: Nicotine Device Without Added Flavors	692	445	227	8	79	108	0	21	2	303	67	11	61	180	105	77	59	9	2
eCigarettes: Nicotine Liquid Flavor Unknown	1,271	1,151	755	26	111	221	4	28	6	986	100	13	43	431	346	263	37	8	1
eCigarettes: Nicotine Liquid With Added Flavors	1,000	918	565	31	126	159	0	28	9	738	110	6	54	273	296	189	43	8	1
eCigarettes: Nicotine Liquid Without Added Flavors	121	116	73	2	12	23	0	6	0	103	6	0	6	25	39	21	4	0	0
Miscellaneous Tobacco Products																			
Chewing Tobacco	1,880	1,842	1,623	37	46	121	0	12	3	1,769	46	8	14	339	539	423	39	2	0
Cigarettes	5,426	5,260	4,800	35	54	285	11	65	10	5,054	87	22	60	562	1,542	753	40	0	0
Cigars	269	252	155	1	16	55	1	20	4	179	34	1	33	37	59	53	12	0	0
Dissolvable Tobacco	11	11	7	0	1	3	0	0	0	10	1	0	0	1	5	2	0	0	0
Filter Tips Only (i.e. Butts)	109	102	93	2	0	4	0	3	0	99	3	0	0	13	42	6	2	0	0
Heat Not Burn Tobacco	3	3	2	0	0	1	0	0	0	2	1	0	0	0	2	0	0	0	0
Other Types of Tobacco Product	227	211	138	4	10	41	0	16	2	190	14	0	7	47	58	37	4	0	0
Snuff	245	240	219	3	3	14	0	1	0	232	3	0	1	41	80	53	4	0	0
Unknown Types of Tobacco Product	1,855	1,745	1,081	43	136	377	1	96	11	1,467	173	8	86	447	455	327	74	3	1
Category Total:	**15,419**	**14,194**	**10,853**	**263**	**826**	**1,794**	**21**	**371**	**66**	**12,585**	**900**	**87**	**527**	**3,039**	**4,104**	**2,547**	**452**	**49**	**10**
Waterproofers/Sealants																			
Miscellaneous Waterproofers/Sealants																			
Waterproofers/sealants: aerosols	164	163	69	11	13	55	0	14	1	152	2	2	6	41	16	31	8	2	0
Waterproofers/sealants: liquids	117	114	36	2	4	47	0	24	1	108	5	0	1	19	18	16	3	0	0
Waterproofers/sealants: solids	7	7	4	2	0	1	0	0	0	7	0	0	0	0	0	0	0	0	0
Waterproofers/sealants: unknown form	27	26	10	0	2	11	0	3	0	25	0	0	1	8	1	3	3	0	0
Category Total:	**315**	**310**	**119**	**15**	**19**	**114**	**0**	**41**	**2**	**292**	**7**	**2**	**8**	**68**	**35**	**50**	**14**	**2**	**0**
Weapons of Mass Destruction																			
Miscellaneous Weapons of Mass Destruction																			
Anthrax	9	8	0	1	1	6	0	0	0	4	0	4	0	4	2	0	0	0	0
Nerve Gases	2	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0
Other Biological Weapons	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
Other Chemical Weapons	12	10	0	0	0	8	0	2	0	7	0	2	0	7	3	1	1	0	0
Other Suspicious Powders	226	203	45	12	11	106	1	26	2	136	24	25	2	102	45	52	15	5	0
Other Suspicious Substances (Non-Powder)	2,190	1,992	401	102	133	977	13	295	71	1,065	203	357	75	890	221	282	216	108	9
Suspicious Powders in Envelope or Package	36	34	2	5	2	20	1	4	0	26	2	3	0	19	10	10	1	1	0
Category Total:	**2,476**	**2,249**	**448**	**120**	**147**	**1,118**	**15**	**327**	**74**	**1,239**	**229**	**392**	**77**	**1,022**	**281**	**345**	**233**	**114**	**9**
Nonpharmaceuticals Total:	**1,081,392**	**969,604**	**493,406**	**65,950**	**45,792**	**290,124**	**3,348**	**61,217**	**9,767**	**890,856**	**40,599**	**13,683**	**17,908**	**167,043**	**158,034**	**154,703**	**33,445**	**3,116**	**319**

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category.

			Age							Reason				Treated in Health Care Facility	Outcome				
	No. of Case Mentions	No. of Single Exposures	<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Analgesics																			
Acetaminophen Alone																			
Acetaminophen Alone, Adult	47,314	30,676	6,574	1,294	7,559	14,257	21	800	171	14,037	15,707	11	477	19,389	8,424	5,238	2,840	985	101
Acetaminophen Alone, Pediatric	20,792	18,751	16,608	1,394	240	409	26	64	10	18,146	456	4	98	2,509	3,959	370	113	34	0
Acetaminophen Alone, Unknown if Adult or Pediatric	6,765	3,868	955	203	888	1,710	5	74	33	1,701	2,011	1	43	2,546	976	732	412	147	26
Acetaminophen Combinations																			
Acetaminophen in Combination with Other Drugs, Adult Formulations	5,638	3,186	661	139	1,256	1,041	2	64	23	1,141	1,924	2	70	2,170	774	808	502	57	1
Acetaminophen in Combination with Other Drugs, Pediatric Formulations	365	308	263	41	3	1	0	0	0	298	5	0	3	23	73	9	1	1	0
Acetaminophen with Codeine	2,869	1,338	167	40	182	877	0	58	14	562	638	3	109	789	344	261	146	32	5
Acetaminophen with Diphenhydramine	6,400	3,779	565	94	733	2,278	2	87	20	1,117	2,576	2	36	2,765	811	861	825	177	9
Acetaminophen with Hydrocodone	11,323	4,890	696	122	537	3,309	1	189	36	2,316	2,240	23	215	2,868	1,217	1,008	542	217	14
Acetaminophen with Other Narcotics or Narcotic Analogs	195	96	8	1	12	69	0	4	2	38	47	1	8	63	26	18	14	9	0
Acetaminophen with Oxycodone	6,056	2,673	315	44	260	1,896	1	122	35	1,050	1,411	13	140	1,778	590	456	420	262	7
Acetaminophen with Propoxyphene	48	15	3	1	2	8	0	1	0	6	8	0	0	13	4	2	4	1	0
Acetylsalicylic Acid Alone																			
Acetylsalicylic Acid Alone, Adult Formulations	8,224	4,304	1,531	208	823	1,633	1	85	23	2,175	1,959	5	75	2,528	1,080	628	754	106	11
Acetylsalicylic Acid Alone, Pediatric Formulations	2,086	959	466	71	136	265	2	12	7	606	304	1	17	433	238	81	113	23	0
Acetylsalicylic Acid Alone, Unknown if Adult or Pediatric Formulations	6,007	2,748	716	135	557	1,259	5	47	29	1,148	1,415	3	52	1,792	612	511	521	112	8
Acetylsalicylic Acid Combinations																			
Acetylsalicylic Acid in Combination with Other Drugs, Adult Formulations	803	521	148	23	30	301	0	17	2	276	205	3	24	288	106	75	107	18	0
Acetylsalicylic Acid in Combination with Other Drugs, Pediatric Formulations	2	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Acetylsalicylic Acid with Carisoprodol	3	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0
Acetylsalicylic Acid with Codeine	24	19	2	0	2	15	0	0	0	6	11	0	2	13	2	5	7	1	0
Acetylsalicylic Acid with Other Narcotics or Narcotic Analogs	4	3	1	0	0	1	0	1	0	3	0	0	0	0	0	0	0	0	0
Acetylsalicylic Acid with Oxycodone	5	2	0	0	1	1	0	0	0	1	1	0	0	1	0	0	0	1	0

(*continued*)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

			Age							Reason					Outcome				
	No. of Case Mentions	No. of Single Exposures	<=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 Analgesics																			
Non-Aspirin Salicylates (Excluding Topicals and/or Gastrointestinal Drugs)	357	282	145	10	34	72	1	15	5	238	32	1	10	71	57	38	13	2	0
Other Analgesics	713	503	194	22	61	203	0	18	5	329	150	0	20	189	90	111	50	6	0
Phenazopyridine	1,432	1,233	929	30	40	208	0	22	4	1,121	52	0	55	269	413	99	29	5	0
Salicylamide	5	4	4	0	0	0	0	0	0	4	0	0	0	1	1	0	0	0	0
Unknown Analgesics	164	74	16	3	29	22	0	3	1	26	42	0	4	54	22	17	7	1	0
Nonsteroidal Antiinflammatory Drugs																			
Colchicine	384	255	51	7	5	186	1	5	0	175	48	0	30	141	55	47	40	7	3
Cyclooxygenase-2 Inhibitors	864	421	129	19	13	230	0	26	4	364	34	0	18	65	107	29	3	0	0
Ibuprofen	83,082	62,762	38,959	3,621	8,631	10,182	45	1,036	288	48,745	13,168	33	560	14,982	14,666	4,385	1,124	97	1
Ibuprofen with Diphenhydramine	2,411	1,490	321	31	273	797	0	58	10	737	714	0	29	783	288	289	238	22	0
Ibuprofen with Hydrocodone	37	11	4	0	0	5	0	2	0	6	3	0	1	6	5	1	0	0	0
Indomethacin	356	190	47	6	17	107	0	11	2	126	44	0	18	63	34	31	10	0	1
Ketoprofen	35	12	7	0	1	4	0	0	0	8	1	0	3	3	4	2	1	0	0
Naproxen	12,509	7,103	2,099	267	1,667	2,734	3	280	53	4,102	2,762	2	191	2,902	1,964	941	261	14	1
Other Types of Nonsteroidal Antiinflammatory Drug	7,630	4,167	1,361	159	254	2,085	4	264	40	3,480	497	6	162	847	940	299	64	12	0
Unknown Types of Nonsteroidal Antiinflammatory Drug	16	5	2	0	0	2	0	0	1	4	0	0	1	1	2	0	1	0	0
Other Acetaminophen and Acetylsalicylic Acid Combinations																			
Acetaminophen and Acetylsalicylic Acid with Other Ingredients	6,832	4,301	1,409	183	1,129	1,460	3	95	22	2,130	2,013	1	116	2,339	996	977	503	28	2
Acetaminophen and Acetylsalicylic Acid without Other Ingredients	239	146	49	5	21	67	0	3	1	83	52	0	8	82	34	25	16	5	0
Pharmaceutical and Illegal Opioid Preparations																			
Alfentanil	2	1	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	1	0
Buprenorphine	4,642	2,800	1,172	61	61	1,316	9	164	17	1,647	785	113	195	2,072	421	686	635	131	1
Butorphanol	53	25	2	1	0	19	0	3	0	14	10	0	1	16	3	7	3	1	0
Codeine	1,203	802	233	100	64	368	0	31	6	632	126	2	33	218	197	110	23	2	1
Difenoxin	3	1	0	0	0	1	0	0	0	1	0	0	0	1	0	1	0	0	0
Dihydrocodeine	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fentanyl (Prescription)	2,657	1,354	60	10	79	1,121	0	61	23	287	934	50	42	1,089	198	171	231	390	60
Heroin	8,317	4,859	25	5	93	4,561	0	132	43	209	4,441	135	25	4,381	466	447	842	2,193	121
Hydrocodone Alone or in Combination (Excluding Combination Products with Acetaminophen, Acetylsalicylic Acid or Ibuprofen)	1,217	501	77	18	41	316	0	38	11	303	152	5	29	212	112	89	41	8	0
Hydromorphone	850	390	26	11	18	306	0	23	6	209	135	5	33	225	79	62	48	30	1
Levorphanol	4	1	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0
Meperidine	57	23	3	3	1	14	0	1	1	12	5	0	5	18	6	4	8	2	0
Methadone	2,117	979	123	16	30	746	1	49	14	406	382	64	73	799	116	161	250	191	5
Morphine	2,074	972	130	15	36	731	0	53	7	543	343	16	46	609	207	154	159	83	4
Nalbuphine	7	4	0	0	0	4	0	0	0	1	0	0	3	2	0	1	0	0	0
Non-Prescription Fentanyl	54	25	1	1	7	16	0	0	0	1	22	2	0	24	1	4	8	11	1

(*continued*)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility	Outcome				
			<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Other or Unknown Narcotics	2,837	1,559	70	6	63	1,339	1	63	17	171	1,066	203	29	1,306	86	107	268	725	70
Oxycodone Alone or in Combination (Excluding Combination Products with Acetaminophen or Acetylsalicylic Acid)	6,529	2,989	399	117	255	2,015	2	162	39	1,355	1,383	38	135	1,907	584	521	480	366	12
Oxymorphone	91	44	5	1	2	34	0	1	1	14	26	0	2	36	8	2	12	10	0
Pentazocine	20	12	1	0	1	9	0	1	0	6	5	0	0	7	4	1	2	0	0
Propoxyphene	10	2	0	0	0	2	0	0	0	0	0	0	0	2	0	0	1	1	0
Synthetic Opioids, Analogs and Precursors (Excluding Pharmaceutical Preparations)	117	68	1	0	6	52	0	7	2	19	45	2	1	63	7	10	21	17	3
Tapentadol	184	94	6	1	3	80	0	4	0	49	36	4	3	55	18	21	16	5	0
Tramadol	8,287	3,706	579	85	327	2,547	3	121	44	1,590	1,822	29	194	2,511	879	882	590	144	5
Serotonin 5-HT 1B,1D Receptor Agonists																			
Serotonin 5-HT 1B,1D Receptor Agonists: Other or Unknown	299	138	51	16	17	48	0	6	0	108	18	0	12	47	49	11	8	1	0
Serotonin 5-HT 1B,1D Receptor Agonists: Sumatriptan	960	454	119	37	51	228	0	15	4	327	70	0	55	184	126	59	34	1	1
Category Total:	**284,582**	**182,900**	**78,489**	**8,677**	**26,551**	**63,570**	**139**	**4,398**	**1,076**	**114,211**	**62,338**	**783**	**3,511**	**78,553**	**42,481**	**21,865**	**13,361**	**6,695**	**475**
Anesthetics																			
Inhalation Anesthetics																			
Nitrous Oxide	195	149	24	6	14	98	0	6	1	61	73	1	14	87	17	35	32	8	1
Other Types of Inhalation Anesthetic	74	58	1	0	2	48	0	5	2	45	4	3	3	35	9	15	5	2	2
Unknown Types of Inhalation Anesthetic	1	1	0	0	0	1	0	0	0	0	0	0	1	1	0	0	1	0	0
Local and/or Topical Anesthetics																			
Dibucaine	16	15	11	0	0	3	0	1	0	15	0	0	0	1	3	1	0	0	0
Lidocaine	2,188	1,934	621	88	90	946	4	164	21	1,533	107	2	277	444	377	244	96	24	3
Other or Unknown Local and/or Topical Anesthetic	2,993	2,774	1,378	140	148	937	7	152	12	2,340	124	23	269	472	696	305	113	30	0
Miscellaneous Anesthetics																			
Ketamine and Analogs	310	137	7	6	16	102	1	3	2	38	65	6	23	109	14	28	41	19	1
Other Types of Anesthetic	30	24	11	3	0	8	0	2	0	21	0	0	3	1	5	1	1	0	0
Unknown Types of Anesthetic	8	7	2	0	0	3	0	2	0	6	1	0	0	1	2	0	0	0	0
Category Total:	**5,815**	**5,099**	**2,055**	**243**	**270**	**2,146**	**12**	**335**	**38**	**4,059**	**374**	**35**	**590**	**1,151**	**1,123**	**629**	**289**	**83**	**7**
Anticholinergic Drugs																			
Miscellaneous Anticholinergic Drugs																			
Anticholinergic Drugs (Excluding Cough and Cold Preparations, and Plants)	5,316	2,886	218	46	120	2,183	3	287	29	2,390	310	7	159	601	435	239	194	30	0
Category Total:	**5,316**	**2,886**	**218**	**46**	**120**	**2,183**	**3**	**287**	**29**	**2,390**	**310**	**7**	**159**	**601**	**435**	**239**	**194**	**30**	**0**
Anticoagulants																			
Miscellaneous Anticoagulants																			
Glycoprotein IIIa/IIb Inhibitors	18	12	0	0	0	9	0	3	0	9	1	0	2	4	0	0	1	0	1
Heparins	213	185	31	6	3	123	0	21	1	160	13	0	10	60	43	16	7	0	1
Other Antiplatelets	3,096	1,060	196	18	10	745	0	82	9	979	54	1	22	179	260	26	5	3	0
Other Types of Anticoagulant	5,583	2,847	478	28	22	2,099	4	204	12	2,564	183	1	88	528	663	71	55	12	2
Unknown Types of Anticoagulant	20	14	8	0	0	4	0	0	2	13	0	1	0	3	8	0	0	0	0
Warfarin (Excluding Rodenticides)	2,227	1,066	156	15	15	822	0	53	5	895	133	4	24	321	196	65	77	16	0

(*continued*)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

			Age							Reason				Treated in Health Care Facility	Outcome				
	No. of Case Mentions	No. of Single Exposures	<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Category Total:	**11,157**	**5,184**	**869**	**67**	**50**	**3,802**	**4**	**363**	**29**	**4,620**	**384**	**7**	**146**	**1,095**	**1,170**	**178**	**145**	**31**	**4**
Anticonvulsants																			
Anticonvulsants: Carbamazepine and Analogs																			
Carbamazepine	3,139	1,556	111	29	106	1,261	0	36	13	526	800	0	160	1,199	325	319	425	88	3
Oxcarbazepine	4,593	2,073	394	267	507	847	1	44	13	1,108	895	3	50	1,159	431	486	307	51	0
Anticonvulsants: Gamma Aminobutyric Acid and Analogs																			
Gabapentin	22,974	7,803	1,284	152	556	5,465	6	273	67	3,328	4,068	42	222	4,651	2,017	1,585	922	190	7
Other Types of Gamma Aminobutyric Acid Anticonvulsant	2,843	1,076	199	18	53	764	0	33	9	536	469	8	42	632	238	225	178	39	0
Anticonvulsants: Hydantoins																			
Fosphenytoin	12	10	2	0	2	6	0	0	0	5	0	0	5	10	1	4	2	1	0
Phenytoin	1,920	1,262	42	4	21	1,168	0	22	5	409	243	2	522	1,088	161	356	407	41	2
Miscellaneous Anticonvulsants																			
Felbamate	71	27	8	8	3	8	0	0	0	25	2	0	0	9	9	4	4	0	0
Lamotrigine	10,774	4,223	510	193	795	2,513	3	189	20	2,569	1,483	2	141	2,043	744	895	581	121	2
Levetiracetam	5,584	2,803	942	270	258	1,243	3	72	15	2,191	536	5	47	862	769	343	111	21	0
Other Types of Anticonvulsant (Excluding Barbiturates)	1,415	546	100	53	51	321	0	18	3	451	82	1	9	207	102	95	54	12	1
Primidone	350	120	12	3	6	96	0	2	1	80	30	0	9	59	22	26	22	4	0
Succinimides	198	133	64	42	15	10	0	1	1	120	12	0	1	23	38	19	6	0	0
Topiramate	4,553	1,659	413	145	349	689	1	46	16	910	668	3	67	925	467	351	178	12	0
Unknown Types of Anticonvulsant (Excluding Barbiturates)	11	4	1	0	0	2	0	0	1	4	0	0	0	0	0	0	0	0	0
Valproic Acid	7,748	3,033	278	143	375	2,130	2	88	17	1,197	1,221	3	473	2,084	674	602	594	119	2
Zonisamide	742	374	83	35	51	189	1	14	1	310	55	0	6	80	105	37	12	0	0
Category Total:	**66,927**	**26,702**	**4,443**	**1,362**	**3,148**	**16,712**	**17**	**838**	**182**	**13,769**	**10,564**	**69**	**1,754**	**15,031**	**6,103**	**5,347**	**3,803**	**699**	**17**
Antidepressants																			
Lithium Salts																			
Lithium	7,085	3,869	98	51	420	3,146	2	111	41	912	1,342	4	1,384	3,270	574	910	1,348	197	4
Miscellaneous Antidepressants																			
Antidepressants: Type Unknown to Consumer	71	19	3	1	3	6	0	3	3	5	14	0	0	15	0	3	2	0	0
Bupropion	16,254	7,920	666	201	1,358	5,281	3	356	55	4,347	3,344	7	153	5,138	1,450	1,254	1,861	509	15
Other Types of Antidepressant	270	92	11	4	15	56	0	4	2	35	50	3	3	60	28	18	8	5	0
Trazodone	22,772	8,533	566	261	1,663	5,791	3	184	65	1,931	6,402	10	104	6,810	1,739	2,584	2,049	169	2
Monoamine Oxidase Inhibitors (MAOI)																			
Other Types of Monoamine Oxidase Inhibitor (MAOI)	63	22	5	0	0	15	0	2	0	19	0	0	3	7	10	2	2	0	0
Phenelzine	45	16	0	0	0	15	0	1	0	6	6	1	3	11	3	1	5	0	0
Selegiline	43	15	6	0	0	8	0	1	0	14	0	0	1	5	6	0	1	0	0
Tranylcypromine	51	25	0	0	0	21	0	4	0	11	7	0	5	19	3	2	11	1	0
Selective Serotonin Reuptake Inhibitors (SSRI)																			
Citalopram	7,508	3,082	662	148	782	1,383	1	89	17	1,506	1,494	8	58	1,719	834	558	460	58	0
Escitalopram	10,663	4,798	778	304	1,753	1,783	1	143	36	2,039	2,597	7	124	2,865	1,336	990	648	36	1
Fluoxetine	14,933	6,710	848	534	3,069	2,050	3	159	47	2,457	4,060	10	138	4,335	2,168	1,429	630	65	0
Fluvoxamine	513	169	24	9	40	89	0	7	0	101	60	0	7	72	39	26	20	5	0

(*continued*)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility	Outcome				
			<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Other Types of Selective Serotonin Reuptake Inhibitor (SSRI)	4,416	1,887	453	104	536	731	0	49	14	912	892	7	59	1,144	540	430	246	17	1
Paroxetine	3,078	1,191	251	44	251	575	0	59	11	578	539	8	61	638	289	241	136	5	0
Sertraline	21,915	11,102	2,447	609	3,811	3,840	8	290	97	5,053	5,676	19	288	6,512	2,804	2,505	1,431	73	0
Serotonin Norepinephrine Reuptake Inhibitors (SNRI)																			
Duloxetine	6,304	2,318	550	54	339	1,275	1	86	13	1,257	900	17	117	1,217	588	507	283	16	1
Nefazodone	28	11	1	1	0	8	0	1	0	6	5	0	0	5	1	4	1	0	0
Other Types of Serotonin Norepinephrine Reuptake Inhibitor (SNRI)	641	259	49	15	53	128	0	11	3	165	85	0	8	124	57	42	34	1	0
Venlafaxine	7,016	2,803	566	74	470	1,574	1	95	23	1,524	1,141	9	104	1,614	709	485	451	64	5
Tetracyclic Antidepressants																			
Maprotiline	2	1	0	0	1	0	0	0	0	0	0	0	1	1	0	0	1	0	0
Mirtazapine	5,098	1,485	226	46	219	937	1	46	10	587	828	2	57	944	352	403	219	22	0
Tricyclic Antidepressants (TCA)																			
Amitriptyline	5,314	2,381	270	95	395	1,551	0	58	12	850	1,408	4	58	1,797	369	406	650	350	10
Amoxapine	8	3	0	1	0	2	0	0	0	3	0	0	0	0	1	0	0	0	0
Clomipramine	236	109	9	4	16	74	0	4	2	64	30	1	11	53	13	20	19	5	0
Desipramine	44	22	2	0	2	16	0	2	0	9	9	0	4	14	1	5	1	2	2
Doxepin	1,620	592	44	20	50	456	1	14	7	185	386	2	10	448	101	126	145	67	0
Imipramine	225	111	19	14	21	53	0	4	0	64	39	0	6	62	21	15	20	5	0
Loxapine	131	49	1	0	6	40	0	2	0	12	35	0	2	35	6	13	13	6	0
Nortriptyline	845	360	39	9	64	236	0	11	1	159	167	1	22	229	68	70	81	25	1
Other Types of Tricyclic Antidepressant (TCA)	342	166	6	4	15	135	0	6	0	18	102	24	11	155	13	32	67	34	2
Protriptyline	6	4	0	0	1	3	0	0	0	1	2	0	1	3	0	1	1	0	0
Tricyclic Antidepressants (TCA) Formulated with a Benzodiazepine	10	5	0	0	2	3	0	0	0	2	1	0	0	2	2	1	0	0	0
Tricyclic Antidepressants (TCA) Formulated with a Phenothiazine	17	11	5	0	1	5	0	0	0	7	3	0	1	8	6	1	1	2	0
Tricyclic Antidepressants (TCA): Type Unknown to Consumer	10	2	0	0	1	1	0	0	0	0	1	0	0	2	0	0	0	2	0
Trimipramine	2	2	0	0	0	2	0	0	0	0	2	0	0	1	0	1	1	0	0
Category Total:	**137,579**	**60,144**	**8,605**	**2,607**	**15,357**	**31,289**	**25**	**1,802**	**459**	**24,839**	**31,627**	**144**	**2,804**	**39,334**	**14,131**	**13,085**	**10,846**	**1,741**	**44**
Antihistamines																			
Histamine H2 Antagonists																			
Cimetidine and Other Histamine-2 Blockers	8,932	6,282	4,452	263	228	1,107	9	202	21	5,885	280	9	96	508	1,332	193	19	1	0
Less Sedating Antihistamines																			
Cetirizine	10,797	8,616	5,615	1,248	519	1,084	8	129	13	8,168	385	3	48	643	1,837	257	31	2	0
Fexofenadine	219	160	59	18	14	64	0	5	0	153	5	0	2	7	28	9	1	0	0
Levocetirizine	106	82	44	19	0	17	0	1	1	80	2	0	0	4	17	2	0	0	0
Loratadine	8,773	7,014	4,576	1,072	410	850	4	89	13	6,591	352	2	52	648	1,613	230	32	0	0
Other Less Sedating Antihistamines	2,179	1,651	745	224	134	490	0	55	3	1,565	62	0	22	124	372	55	7	0	0
Miscellaneous Antihistamines																			
Other Antihistamines Alone (Excluding Cough and Cold Preparations)	24,741	16,541	8,713	2,213	1,790	3,367	18	370	70	13,386	2,875	6	194	3,583	3,812	1,267	672	54	0

(*continued*)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

			Age							Reason					Outcome				
	No. of Case Mentions	No. of Single Exposures	<=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
Sedating Antihistamines																			
Diphenhydramine Alone (Over the Counter)	27,058	19,075	9,343	1,175	2,706	5,371	14	373	93	12,283	6,302	20	315	7,944	3,961	2,730	2,627	375	5
Diphenhydramine Alone (Prescription)	1,302	851	339	54	145	283	0	22	8	485	339	2	11	408	165	114	140	23	0
Diphenhydramine Alone (Unknown if Over the Counter or Prescription)	15,950	10,751	4,654	703	1,780	3,380	9	161	64	6,246	4,185	17	182	5,036	2,171	1,791	1,757	279	11
Hydroxyzine	1,457	543	65	19	140	297	0	18	4	142	384	1	7	390	128	160	77	9	0
Other Sedating Antihistamines	10,511	4,743	1,218	211	918	2,193	3	153	47	2,103	2,468	3	126	2,773	1,245	1,021	576	38	1
Category Total:	**112,025**	**76,309**	**39,823**	**7,219**	**8,784**	**18,503**	**65**	**1,578**	**337**	**57,087**	**17,639**	**63**	**1,055**	**22,068**	**16,681**	**7,829**	**5,939**	**781**	**17**
Antimicrobials																			
Anthelmintics																			
Diethylcarbamazine	17	15	10	1	1	3	0	0	0	15	0	0	0	0	3	1	0	0	0
Levamisole	42	31	1	2	2	22	0	3	1	22	6	1	1	16	4	10	7	1	0
Other Types of Anthelmintic	1,748	1,637	880	155	35	458	5	87	17	1,494	69	6	59	157	418	135	19	2	1
Piperazine	147	142	103	6	3	25	0	5	0	131	9	0	0	19	39	6	3	0	0
Unknown Types of Anthelmintic	18	16	5	1	2	4	1	3	0	13	0	0	2	1	0	2	0	0	0
Antibiotics																			
Systemic Antibiotic Preparations (Oral, Intravenous, Intramuscular)	28,591	22,726	10,200	2,091	1,392	7,699	49	1,154	141	19,329	1,328	14	1,983	2,799	3,853	1,624	339	39	3
Topical Antibiotic Preparations (Dermal, Otic, Ophthalmic, Nasal)	4,645	4,432	2,895	212	119	957	9	218	22	4,251	62	10	95	136	713	202	15	3	0
Unknown Types of Antibiotic Preparation	305	214	113	10	12	60	1	13	5	179	12	1	21	23	23	24	3	0	0
Antifungals																			
Systemic Antifungal Preparations (Oral, Intravenous, Intramuscular)	1,199	916	390	54	43	349	1	70	9	787	24	0	103	123	160	58	17	0	0
Topical Antifungal Preparations (Dermal, Otic, Ophthalmic, Nasal)	6,613	6,337	3,855	209	119	1,742	10	369	33	6,040	65	15	199	412	943	434	61	1	0
Unknown Types of Antifungal Preparation	13	12	5	1	0	5	0	1	0	11	0	0	0	4	3	2	0	0	0
Antiparasitics																			
Antimalarials	796	441	114	25	48	233	2	14	5	362	47	4	26	188	120	50	37	7	2
Metronidazole	1,658	995	274	24	95	504	2	83	13	792	96	3	102	173	171	119	18	1	0
Other Types of Antiparasitic	39	34	15	1	1	16	0	0	1	31	1	0	2	6	3	3	0	0	0
Antituberculars																			
Isoniazid	96	62	6	5	10	38	1	2	0	32	11	0	17	39	9	7	8	12	0
Other Types of Antitubercular	26	11	0	0	1	9	0	1	0	10	0	0	1	1	2	1	1	0	0
Rifampin	69	47	8	6	9	24	0	0	0	35	6	0	5	22	7	10	8	0	0
Unknown Types of Antitubercular	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Antivirals																			
Amantadine	340	116	25	15	20	50	0	5	1	77	22	0	15	54	27	21	11	3	0
Antiretrovirals	880	487	58	7	28	322	1	67	4	371	94	0	21	144	108	47	14	2	0
Other Anti-Influenza Agents	1,252	1,119	452	310	107	208	5	33	4	1,000	8	0	105	122	175	79	29	2	0
Systemic Antiviral Preparations (Oral, Intravenous, Intramuscular)	1,862	1,319	355	37	76	749	1	95	6	1,088	116	1	107	246	235	99	35	8	0

(*continued*)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility	Outcome				
			<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Topical Antiviral Preparations (Dermal, Otic, Ophthalmic, Nasal)	166	163	72	9	8	57	0	16	1	157	0	0	6	5	29	7	2	0	0
Unknown Types of Antiviral Preparations	90	47	11	5	3	22	0	6	0	39	5	0	3	7	9	4	0	1	0
Miscellaneous Antimicrobials																			
Other Types of Antimicrobial	293	279	169	5	7	85	1	12	0	268	2	0	8	26	66	16	4	0	0
Unknown Types of Antimicrobial	12	8	4	1	0	1	0	1	1	7	1	0	0	2	1	1	0	0	0
Category Total:	**50,918**	**41,606**	**20,020**	**3,192**	**2,141**	**13,642**	**89**	**2,258**	**264**	**36,541**	**1,984**	**55**	**2,881**	**4,725**	**7,121**	**2,962**	**631**	**82**	**6**
Antineoplastics																			
Miscellaneous Antineoplastics																			
Antineoplastic Drugs	2,322	1,835	272	53	47	1,301	0	131	31	1,655	48	9	115	613	424	181	82	29	9
Category Total:	**2,322**	**1,835**	**272**	**53**	**47**	**1,301**	**0**	**131**	**31**	**1,655**	**48**	**9**	**115**	**613**	**424**	**181**	**82**	**29**	**9**
Asthma Therapies																			
Miscellaneous Asthma Therapies																			
Albuterol	4,600	4,197	2,020	747	382	881	7	135	25	3,306	591	8	270	531	738	512	271	4	0
Aminophylline or Theophylline	140	88	8	3	2	70	0	5	0	48	10	0	27	63	13	14	25	4	3
Leukotriene Antagonist or Inhibitor	6,254	4,290	2,866	681	176	487	2	66	12	4,067	189	4	27	440	995	77	9	0	0
Non-Selective Beta Agonists	3,437	3,397	1,476	734	193	831	6	147	10	3,307	59	3	20	821	246	1,400	243	3	0
Other Asthma Therapeutic Agents	323	233	80	18	15	98	0	17	5	196	25	0	10	44	50	23	9	4	0
Terbutaline and Other Beta-2 Agonists	1,012	858	138	92	38	518	0	68	4	743	64	1	46	104	150	67	53	5	0
Unknown Asthma Therapeutic Agents	7	6	2	1	2	1	0	0	0	3	1	0	1	1	1	1	0	0	0
Category Total:	**15,773**	**13,069**	**6,590**	**2,276**	**808**	**2,886**	**15**	**438**	**56**	**11,670**	**939**	**16**	**401**	**2,004**	**2,193**	**2,094**	**610**	**20**	**3**
Cardiovascular Drugs																			
Angiotensin Converting Enzyme Inhibitor																			
Angiotensin Converting Enzyme Inhibitor in Combination with Diuretic	2,163	1,256	415	83	50	660	0	41	7	1,104	142	0	6	376	387	89	48	0	0
Angiotensin Converting Enzyme Inhibitor in Combination with Other Drugs (Excluding Calcium Antagonists)	15	8	1	2	0	5	0	0	0	7	1	0	0	1	1	0	1	0	0
Angiotensin Converting Enzyme Inhibitor, Alone	15,100	6,098	2,272	327	239	3,010	3	220	27	5,151	816	3	94	2,022	2,099	245	186	10	0
Angiotensin Receptor Blocker																			
Angiotensin Receptor Blocker in Combination with Diuretic	1,862	1,060	181	31	43	738	0	57	10	984	54	4	11	185	303	44	26	0	0
Angiotensin Receptor Blocker in Combination with Other Drugs (Excluding Calcium Antagonists)	325	116	15	3	0	92	0	6	0	100	12	0	4	26	40	0	4	1	0
Angiotensin Receptor Blocker, Alone	8,799	3,880	827	116	100	2,591	1	227	18	3,528	261	16	63	841	1,182	199	71	4	0
Antihyperlipidemic																			
Antihyperlipidemic Combinations (Excluding Calcium Antagonists)	37	9	1	1	0	7	0	0	0	9	0	0	0	0	0	0	0	0	0
Antihyperlipidemic, Alone	13,149	4,473	1,572	138	128	2,342	8	265	20	4,155	222	3	81	496	850	111	30	1	0

(*continued*)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

			Age							Reason				Treated in Health Care Facility	Outcome				
	No. of Case Mentions	No. of Single Exposures	<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Antihypertensives																			
Antihypertensive (Excluding Diuretics), Alone	5,323	2,938	736	1,297	602	273	1	22	7	2,357	484	4	65	1,498	886	423	495	27	0
Antihypertensive in Combination with Diuretic	9	3	1	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0
Antihypertensive in Combination with Other Drugs (Excluding Diuretics)	4	2	0	0	0	2	0	0	0	1	1	0	0	2	0	0	1	0	0
Beta Blockers																			
Beta Blocker in Combination with Diuretic	263	135	25	6	6	92	0	5	1	116	15	0	2	38	50	6	10	0	0
Beta Blocker in Combination with Other Drugs (Excluding Calcium Antagonists)	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Beta Blocker, Alone	27,930	11,166	2,699	350	497	7,131	6	427	56	8,858	1,949	5	268	4,494	3,828	695	1,032	173	19
Calcium Antagonist																			
Calcium Antagonist in Combination with Angiotensin Converting Enzyme Inhibitor	341	207	32	3	9	150	0	12	1	186	19	0	1	82	70	12	16	2	0
Calcium Antagonist in Combination with Angiotensin Receptor Blocker	178	115	25	2	7	77	0	4	0	109	4	0	1	41	37	6	6	0	0
Calcium Antagonist in Combination with Antihyperlipidemic	24	6	2	1	0	3	0	0	0	6	0	0	0	0	3	0	0	0	0
Calcium Antagonist in Combination with Diuretic	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Calcium Antagonist in Combination with Other Drugs	57	41	9	3	1	27	0	1	0	40	1	0	0	13	15	3	2	0	0
Calcium Antagonist, Alone	15,176	6,020	1,198	208	200	4,117	1	274	22	5,094	733	1	144	2,946	2,220	441	521	111	31
Miscellaneous Cardiovascular Drugs																			
Alpha Blockers	6,008	1,725	253	47	204	1,134	2	74	11	1,101	545	4	63	747	451	261	184	6	0
Antiarrhythmics	2,260	1,188	104	19	28	975	2	54	6	1,064	62	0	54	555	421	81	121	40	7
Cardiac Glycosides	1,623	1,138	66	4	9	1,040	0	18	1	408	41	0	615	945	141	97	464	126	27
Clonidine	11,082	5,596	1,724	1,253	1,088	1,442	3	62	24	3,503	1,884	16	116	3,987	1,039	1,032	1,889	233	2
Hydralazine	1,545	561	122	10	22	381	0	24	2	438	104	1	13	238	172	67	41	5	0
Long-Acting Nitrates	1,146	327	52	2	8	242	0	21	2	298	21	0	8	91	92	28	20	1	0
Nitroglycerin	700	476	237	28	16	171	0	21	3	366	95	0	10	197	209	34	17	3	0
Nitroprusside	11	10	2	1	0	7	0	0	0	5	0	0	5	9	2	1	2	0	0
Other Types of Cardiovascular Drug	537	237	49	8	7	162	0	8	3	217	15	0	5	77	70	18	19	1	1
Other Types of Vasodilator	1,305	882	299	46	44	440	1	49	3	663	101	9	99	328	243	116	56	8	0
Unknown Types of Cardiovascular Drug	57	24	8	0	1	12	1	0	2	15	8	0	1	16	6	2	3	1	0
Unknown Types of Vasodilator	24	13	3	0	0	6	0	2	2	8	4	0	0	7	2	1	2	0	0
Vasopressors	370	319	95	56	9	134	0	20	5	299	11	0	8	96	34	96	31	4	1
Category Total:	**117,426**	**50,029**	**13,025**	**4,045**	**3,318**	**27,465**	**29**	**1,914**	**233**	**40,193**	**7,605**	**66**	**1,737**	**20,354**	**14,853**	**4,108**	**5,298**	**757**	**88**

(*continued*)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility	Outcome				
			<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Cold and Cough Preparations																			
Acetaminophen and Acetylsalicylic Acid with Decongestant and/or Antihistamine																			
Acetaminophen and Acetylsalicylic Acid with Antihistamine without Opioids	13	10	3	1	0	6	0	0	0	7	3	0	0	5	1	1	1	0	0
Acetaminophen and Acetylsalicylic Acid with Decongestant and Antihistamine without Opioids	20	14	8	4	2	0	0	0	0	13	1	0	0	4	6	1	0	0	0
Acetaminophen and Acetylsalicylic Acid with Decongestant without Opioids	10	4	3	0	1	0	0	0	0	3	1	0	0	1	3	0	0	0	0
Acetaminophen, Acetylsalicylic Acid, and Dextromethorphan with Antihistamine	21	15	7	2	1	5	0	0	0	10	4	0	1	6	3	3	1	0	0
Acetaminophen, Acetylsalicylic Acid, and Dextromethorphan with Decongestant	13	11	5	1	2	3	0	0	0	7	2	0	2	3	2	0	1	0	0
Acetaminophen, Acetylsalicylic Acid, and Dextromethorphan with Decongestant and Antihistamine	12	7	4	1	1	1	0	0	0	7	0	0	0	1	1	0	0	0	0
Acetaminophen, Acetylsalicylic Acid, and Opioid with Decongestant	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Obsolete: Acetaminophen and Acetylsalicylic Acid with Decongestant and/or Antihistamine Combinations without Phenylpropanolamine or Opioids	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Obsolete: Acetaminophen, Acetylsalicylic Acid, and Dextromethorphan Combinations with Decongestant and/or Antihistamine without Phenylpropanolamine	2	2	1	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0
Obsolete: Acetaminophen, Acetylsalicylic Acid, and Opioid Combinations with Decongestant and/or Antihistamine without Phenylpropanolamine	1	1	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
Acetaminophen with Decongestant and/or Antihistamine																			
Acetaminophen and Codeine with Antihistamine	4	4	1	1	0	2	0	0	0	2	1	0	1	1	1	1	0	1	0

(*continued*)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility	Outcome				
			<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Acetaminophen and Codeine with Decongestant	4	3	1	0	0	2	0	0	0	1	2	0	0	2	0	0	2	0	0
Acetaminophen and Codeine with Decongestant and Antihistamine	14	8	1	1	1	5	0	0	0	5	2	0	1	5	0	5	1	0	0
Acetaminophen and Dextromethorphan with Antihistamine	3,809	1,835	658	125	362	614	4	60	12	1,001	746	9	50	828	357	335	197	12	1
Acetaminophen and Dextromethorphan with Decongestant	4,482	2,428	1,229	225	285	615	3	60	11	1,847	428	4	130	607	538	226	85	9	0
Acetaminophen and Dextromethorphan with Decongestant and Antihistamine	3,994	2,020	939	147	302	573	1	42	16	1,293	643	5	49	749	453	272	142	18	2
Acetaminophen and Other Opioid with Antihistamine	1	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Acetaminophen and Other Opioid with Decongestant	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Acetaminophen and Other Opioid with Decongestant and Antihistamine	3	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Acetaminophen with Antihistamine without Opioids	584	412	72	9	123	197	1	6	4	118	274	0	6	287	82	82	117	9	0
Acetaminophen with Decongestant and Antihistamine without Opioids	1,167	710	390	81	81	140	1	11	6	552	125	0	24	174	157	69	31	6	0
Acetaminophen with Decongestant without Opioids	1,081	625	311	49	75	167	0	21	2	477	99	0	47	143	139	50	17	2	0
Obsolete: Acetaminophen and Codeine Combinations with Decongestant and/or Antihistamine without Phenylpropanolamine	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Obsolete: Acetaminophen and Dextromethorphan Combinations with Decongestant and/or Antihistamine without Phenylpropanolamine	14	9	4	3	0	2	0	0	0	8	0	0	1	2	2	0	0	0	0
Obsolete: Acetaminophen with Decongestant and/or Antihistamine Combinations without Phenylpropanolamine or Opioids	6	5	1	1	0	3	0	0	0	4	0	0	0	1	1	0	0	0	0
Acetylsalicylic Acid with Decongestant and/or Antihistamine																			
Acetylsalicylic Acid and Codeine with Decongestant and Antihistamine	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0

(continued)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility	Outcome				
			<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Acetylsalicylic Acid and Dextromethorphan with Antihistamine	6	5	3	1	0	1	0	0	0	5	0	0	0	3	2	1	0	0	0
Acetylsalicylic Acid and Dextromethorphan with Decongestant	7	4	4	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0
Acetylsalicylic Acid and Dextromethorphan with Decongestant and Antihistamine	25	16	10	3	1	2	0	0	0	14	1	0	1	1	7	1	0	0	0
Acetylsalicylic Acid and Other Opioid with Decongestant and Antihistamine	1	1	0	0	0	1	0	0	0	0	1	0	0	1	0	1	0	0	0
Acetylsalicylic Acid with Antihistamine without Opioids	7	4	3	0	0	0	0	1	0	4	0	0	0	0	0	0	0	0	0
Acetylsalicylic Acid with Decongestant and Antihistamine without Opioids	109	77	49	10	5	12	0	1	0	69	5	0	2	7	11	5	0	0	0
Acetylsalicylic Acid with Decongestant without Opioids	3	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Antihistamine and/or Decongestant																			
Antihistamine and Decongestant with Codeine	45	29	11	4	3	10	0	0	1	24	4	0	1	9	7	3	0	1	0
Antihistamine and Decongestant with Dextromethorphan	2,683	2,280	1,594	392	101	181	1	11	0	2,104	124	0	46	336	554	188	60	2	0
Antihistamine and Decongestant with Other Opioid	16	13	6	1	1	5	0	0	0	11	1	0	1	5	7	3	0	0	0
Antihistamine and Decongestant without Opioid	4,226	3,421	2,214	426	175	545	2	47	12	3,154	182	3	62	550	831	250	79	10	0
Antihistamine with Codeine	405	294	71	21	37	152	0	9	4	203	79	0	7	121	62	49	25	6	0
Antihistamine with Dextromethorphan	3,894	3,021	613	241	817	1,308	2	27	13	1,122	1,836	3	25	1,939	428	617	957	60	0
Antihistamine with Other Opioid	127	105	20	7	4	72	0	0	2	77	21	0	5	36	19	20	13	1	1
Antihistamine without Opioid	1,503	884	440	36	85	299	0	21	3	607	247	0	23	361	274	100	96	9	0
Decongestant with Codeine	29	22	8	5	0	8	0	1	0	19	2	0	1	11	5	1	0	0	0
Decongestant with Dextromethorphan	1,619	1,239	810	182	71	154	1	16	5	1,084	124	0	22	193	296	101	48	3	0
Decongestant with Other Opioid	13	7	4	2	0	1	0	0	0	5	1	0	0	0	0	0	0	0	0
Decongestant without Opioid	3,752	2,546	1,218	147	202	866	3	97	13	2,227	206	1	90	349	612	183	66	7	0
Obsolete: Antihistamine and/or Decongestant with Dextromethorphan without Phenylpropanolamine	93	73	7	1	22	43	0	0	0	9	62	0	0	64	15	23	28	1	0
Obsolete: Antihistamine and/or Decongestant without Phenylpropanolamine and Opioid	5	5	4	0	1	0	0	0	0	5	0	0	0	1	3	1	0	0	0

(continued)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility	Outcome				
			<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Miscellaneous Cold and Cough Preparations																			
Acetaminophen in Combination with Dextromethorphan (Without Decongestants or Antihistamines)	157	103	52	11	11	26	0	2	1	70	27	0	5	34	22	11	5	1	0
Cough and Cold Preparations (Not Otherwise Classified)	3,754	2,651	1,918	160	160	357	7	35	14	2,213	339	7	61	507	480	218	118	14	1
Dextromethorphan Preparations (Not Otherwise Classified)	10,943	8,067	2,753	985	1,233	2,889	5	175	27	5,131	2,640	6	229	3,164	1,314	1,296	1,254	76	2
Dextromethorphan With Expectorants	920	723	374	84	60	186	1	17	1	554	144	1	18	216	144	74	74	5	0
Expectorants Without Dextromethorphan	2,170	1,346	527	61	98	568	3	75	14	1,170	142	0	31	165	256	58	23	2	0
Non-Narcotic Antitussives Excluding Dextromethorphan	2,322	1,676	534	106	208	729	3	77	19	1,294	275	0	102	655	511	268	71	12	3
Obsolete: Expectorants or Antitussives (Without Narcotics or Narcotic Analogs)	21	16	9	0	0	5	0	2	0	15	0	0	1	2	10	1	3	0	0
Obsolete: Unknown Types of Cough and Cold Preparation	21	12	5	0	2	4	0	1	0	7	5	0	0	6	3	3	2	0	0
Non-Acetylsalicylic Acid Salicylates with Decongestant and/or Antihistamine																			
Non-Acetylsalicylic Acid Salicylates and Dextromethorphan with Antihistamine	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Non-Acetylsalicylic Acid Salicylates and Dextromethorphan with Decongestant	16	11	6	0	1	3	0	1	0	8	2	0	1	4	5	0	1	0	0
Non-Acetylsalicylic Acid Salicylates and Dextromethorphan with Decongestant and Antihistamine	3	3	2	1	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
Non-Acetylsalicylic Acid Salicylates with Antihistamine without Opioid	4	4	2	0	2	0	0	0	0	3	1	0	0	2	0	0	0	0	0
Non-Acetylsalicylic Acid Salicylates with Decongestant and Antihistamine without Opioid	5	3	2	0	0	1	0	0	0	2	1	0	0	1	1	1	0	0	0
Non-Acetylsalicylic Acid Salicylates with Decongestant without Opioid	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phenylpropanolamine Containing Preparations																			
Acetaminophen and Phenylpropanolamine Combinations with Decongestant and/or Antihistamine without Opioid	37	20	12	0	1	7	0	0	0	13	5	0	2	7	3	1	2	0	0

(*continued*)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility	Outcome				
			<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Acetaminophen, Acetylsalicylic Acid, and Phenylpropanolamine Combinations with Decongestant and/or Antihistamine without Opioid	8	6	1	3	0	2	0	0	0	5	1	0	0	1	0	0	0	0	0
Acetaminophen, Acetylsalicylic Acid, Phenylpropanolamine, and Dextromethorphan Combinations with Decongestant and/or Antihistamine	31	24	16	0	2	6	0	0	0	20	4	0	0	7	3	1	0	0	0
Acetaminophen, Phenylpropanolamine, and Dextromethorphan Combinations with Decongestant and/or Antihistamine	36	28	14	2	2	9	0	1	0	20	5	0	3	8	5	4	1	0	0
Acetylsalicylic Acid and Phenylpropanolamine Combinations with Decongestant and/or Antihistamine without Opioid	10	5	1	2	1	1	0	0	0	3	2	0	0	1	2	0	0	0	0
Acetylsalicylic Acid, Phenylpropanolamine, and Dextromethorphan Combinations with Decongestant and/or Antihistamine	6	3	1	1	1	0	0	0	0	2	0	0	1	0	1	0	0	0	0
Antihistamine and/or Decongestant with Phenylpropanolamine and Codeine	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Antihistamine and/or Decongestant with Phenylpropanolamine and Dextromethorphan	130	99	62	16	12	9	0	0	0	86	11	0	1	17	17	6	5	0	0
Antihistamine and/or Decongestant with Phenylpropanolamine without Opioid	150	103	80	14	5	3	0	1	0	97	4	0	1	16	24	4	3	0	0
Non-Acetylsalicylic Acid Salicylates and Phenylpropanolamine Combinations with Decongestant and/or Antihistamine without Opioid	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
Other Phenylpropanolamine Preparations (Excluding Street Drugs and Diet Aids)	206	178	94	1	1	72	0	8	2	178	0	0	0	14	46	3	0	0	0
Category Total:	**54,784**	**37,258**	**17,199**	**3,578**	**4,562**	**10,873**	**38**	**826**	**182**	**27,007**	**8,835**	**39**	**1,054**	**11,634**	**7,726**	**4,541**	**3,529**	**267**	**10**

(*continued*)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility	Outcome				
			<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Diagnostic Agents																			
Miscellaneous Diagnostic Agents																			
Diagnostic Tablets for Glucose or Ketones	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Other Types of Diagnostic Agent	436	386	76	19	23	209	1	49	9	305	7	1	71	126	51	59	20	4	0
Unknown Types of Diagnostic Agent	8	8	3	1	0	4	0	0	0	7	1	0	0	1	3	4	0	0	0
Category Total:	**445**	**395**	**80**	**20**	**23**	**213**	**1**	**49**	**9**	**313**	**8**	**1**	**71**	**127**	**54**	**63**	**20**	**4**	**0**
Dietary Supplements/Herbals/ Homeopathic																			
Amino Acids																			
Creatine	134	106	71	3	10	21	0	1	0	90	4	1	11	20	28	8	6	0	0
Other Amino Acid Dietary Supplements	887	629	309	32	34	207	0	42	5	441	50	3	130	117	126	99	25	3	0
Botanical Products																			
Citrus Aurantium (Single Ingredient)	7	7	0	0	2	4	0	0	1	6	0	0	1	2	0	5	0	0	0
Echinacea	145	114	90	6	1	13	0	4	0	105	3	0	6	11	18	4	3	0	0
Ginkgo Biloba	108	68	30	0	6	28	0	4	0	51	10	0	7	13	13	8	0	0	0
Ginseng	83	44	16	3	1	21	0	3	0	24	4	1	15	12	6	4	5	0	0
Kava Kava	124	79	8	1	10	53	0	5	2	22	32	1	20	30	9	13	7	0	0
Ma Huang/Ephedra (Single Ingredient)	19	15	4	1	0	10	0	0	0	7	5	0	3	8	1	3	5	0	0
Multi-Botanicals with Citrus Aurantium	42	38	13	4	5	16	0	0	0	18	8	0	12	18	6	7	4	1	0
Multi-Botanicals with Ma Huang	33	21	9	1	2	9	0	0	0	12	3	0	6	9	4	6	5	0	0
Multi-Botanicals without Ma Huang or Citrus Aurantium	2,077	1,735	993	70	57	543	1	60	11	1,191	114	4	415	329	267	340	98	7	0
Other Single Ingredient Botanicals	4,034	3,238	1,861	166	112	882	6	194	17	2,699	170	7	336	393	514	332	66	7	1
St. John's Wort	186	122	61	1	18	37	0	4	1	89	21	0	11	25	20	9	6	1	0
Valerian	195	104	29	9	10	51	1	2	2	53	23	1	26	33	20	10	6	0	0
Yohimbe	111	86	7	0	2	72	0	5	0	28	15	0	42	58	7	16	33	0	0
Cultural Medicines																			
Asian Medicines	78	62	23	1	1	34	0	3	0	41	3	0	16	24	16	4	7	1	0
Ayurvedic Medicines	14	7	5	1	0	1	0	0	0	5	1	0	1	3	3	1	0	1	0
Hispanic Medicines	10	8	4	0	2	1	0	1	0	6	1	0	1	5	3	2	1	0	0
Other Cultural Medicines	140	120	60	4	6	44	0	6	0	88	17	0	15	43	30	14	13	1	0
Energy Products																			
Energy Drinks: Caffeine Containing (From Any Source Including Guarana, Kola Nut, Tea, Yerba Mate, Cocoa, etc)	1,251	1,043	614	83	121	198	2	23	2	764	138	2	133	192	193	167	80	9	1
Energy Drinks: Caffeine Only (Without Guarana, Kola Nut, Tea, Yerba Mate, Cocoa, etc)	868	681	443	55	64	97	0	19	3	530	68	2	74	66	131	87	40	0	0
Energy Drinks: Ethanol and Caffeine Containing (From Any Source Including Guarana, Kola Nut, Tea, Yerba Mate, Cocoa, etc)	132	39	15	2	11	10	0	1	0	16	16	0	6	14	5	11	6	1	0
Energy Drinks: Ethanol and Caffeine Only (Without Guarana, Kola Nut, Tea, Yerba Mate, Cocoa, etc)	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0

(continued)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

			Age							Reason				Treated in Health Care Facility	Outcome				
	No. of Case Mentions	No. of Single Exposures	<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Energy Drinks: Ethanol Containing Without Caffeine (From Any Source)	3	2	0	0	2	0	0	0	0	1	1	0	0	1	0	0	0	0	0
Energy Drinks: No Caffeine (From Any Source)	20	20	10	2	1	5	1	1	0	13	4	0	3	3	2	1	0	0	0
Energy Drinks: Unknown	791	596	283	59	96	141	1	12	4	393	98	3	99	115	84	113	48	1	0
Energy Products: Other	289	232	124	15	21	66	0	5	1	156	37	0	38	68	55	45	26	0	0
Hormonal Products																			
Androgen or Androgen Precursor Dietary Supplements	152	110	72	3	6	27	0	1	1	88	8	0	13	25	20	9	6	1	0
Glandular Dietary Supplements	27	15	11	0	1	3	0	0	0	11	2	0	2	3	5	0	1	1	0
Melatonin	44,281	39,040	31,881	3,780	1,637	1,415	54	199	74	36,182	2,445	26	213	4,280	7,901	2,946	126	3	0
Phytoestrogen Dietary Supplements	76	44	15	2	3	20	0	4	0	34	2	0	8	11	8	7	1	0	0
Miscellaneous Dietary Supplements/Herbals/ Homeopathic																			
Homeopathic Agents	8,278	7,755	6,697	342	94	509	17	80	16	7,413	103	6	212	610	1,314	238	35	3	0
Unknown Dietary Supplements or Homeopathic Agents	2,233	1,846	1,165	109	73	430	6	55	8	1,446	105	7	278	375	354	191	84	9	0
Other Dietary Supplements																			
Fatty Acid Supplements	448	348	284	20	5	30	1	8	0	325	10	3	10	24	70	14	1	0	0
Glucosamine (with or without Chondroitin)	510	372	261	4	4	88	0	11	4	345	6	1	19	19	53	13	1	0	0
Other Single Ingredient Non-Botanical Dietary Supplements	1,542	866	555	40	38	198	0	31	4	698	38	1	127	94	154	78	23	1	0
Category Total:	**69,329**	**59,613**	**46,024**	**4,819**	**2,456**	**5,284**	**90**	**784**	**156**	**53,392**	**3,565**	**69**	**2,309**	**7,053**	**11,440**	**4,805**	**768**	**51**	**2**
Diuretics																			
Miscellaneous Diuretics																			
Furosemide	3,394	978	305	24	27	556	1	59	6	864	73	0	38	273	201	128	49	0	0
Other Types of Diuretic	3,137	1,163	371	66	73	584	0	61	8	995	114	0	46	280	315	91	34	4	0
Thiazide	3,966	1,346	460	77	78	672	1	54	4	1,157	154	0	33	346	349	91	35	1	0
Unknown Types of Diuretic	368	111	29	4	0	71	0	7	0	97	11	1	1	30	16	8	3	0	0
Category Total:	**10,865**	**3,598**	**1,165**	**171**	**178**	**1,883**	**2**	**181**	**18**	**3,113**	**352**	**1**	**118**	**929**	**881**	**318**	**121**	**5**	**0**
Electrolytes and Minerals																			
Miscellaneous Electrolytes and Minerals																			
Calcium and Calcium Salts	10,629	9,239	8,084	485	111	454	11	76	18	8,953	194	3	61	365	1,601	175	31	3	1
Chromium, Trivalent	113	98	28	2	4	53	1	9	1	84	3	0	9	22	16	8	2	0	0
Colloidal Silver	138	117	46	11	5	47	1	6	1	78	16	0	18	37	20	12	5	1	0
Fluoride (Excluding Vitamins, Hydrofluoric Acid & Mouthwashes)	1,213	1,160	839	119	36	125	3	36	2	1,061	12	2	78	77	190	110	4	0	0
Germanium and Germanium Salts	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Iron and Iron Salts (Excluding Vitamins with Iron)	6,608	4,858	2,130	190	609	1,682	12	209	26	3,759	695	5	360	1,331	998	674	142	12	0
Magnesium and Magnesium Salts	2,707	2,183	1,006	107	91	823	4	135	17	1,753	176	16	218	291	375	253	43	5	0
Multi-Mineral and Multi-Herbal Dietary Supplement	520	411	254	18	39	91	1	6	2	296	62	1	51	126	107	53	35	2	0
Multi-Mineral Dietary Supplements	247	206	74	11	7	102	0	12	0	120	9	1	73	23	29	64	10	1	0

(*continued*)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility	Outcome				
			<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Other Types of Electrolyte or Mineral	68	56	15	5	0	27	1	7	1	47	2	2	4	9	6	15	0	0	0
Potassium and Potassium Salts	1,866	701	204	19	24	398	0	50	6	567	98	4	26	167	169	43	30	5	0
Selenium and Selenium Salts	122	94	26	3	2	59	0	4	0	75	3	2	12	28	28	13	1	0	0
Sodium and Sodium Salts	4,811	4,122	2,202	425	170	1,058	13	212	42	3,463	460	45	120	692	748	596	75	3	2
Unknown Types of Electrolyte or Mineral	20	17	7	1	1	7	0	1	0	16	0	1	0	4	3	3	0	0	0
Vanadium and Vanadium Salts	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
Zinc and Zinc Salts	1,235	1,069	441	43	51	454	1	73	6	783	54	4	220	91	109	190	25	1	0
Category Total:	**30,299**	**24,332**	**15,356**	**1,439**	**1,150**	**5,381**	**48**	**836**	**122**	**21,056**	**1,784**	**86**	**1,250**	**3,263**	**4,399**	**2,209**	**403**	**33**	**3**
Eye/Ear/Nose/Throat Preparations																			
Miscellaneous Eye/Ear/Nose/ Throat Preparations																			
Topical Steroids For Eye/ Nose/Throat	2,065	1,760	776	279	66	522	4	101	12	1,647	51	1	59	66	292	123	5	0	0
Nasal Preparations																			
Other Nasal Decongestants or Sympathomimetics (Excluding Tetrahydrazoline)	1,933	1,816	555	86	144	871	3	141	16	1,555	111	7	139	223	360	204	55	2	0
Other Types of Nasal Preparation	718	693	404	22	21	172	1	72	1	644	6	5	35	21	104	48	4	0	0
Tetrahydrozoline, Nasal Preparations	41	41	25	0	1	11	0	3	1	35	4	1	1	15	15	5	1	0	0
Unknown Types of Nasal Preparation	18	15	1	2	2	7	0	2	1	14	0	0	1	3	2	2	0	0	0
Ophthalmic Preparations																			
Contact Lens Products	2,091	2,020	1,013	49	121	722	2	100	13	1,949	34	7	19	309	249	348	65	1	0
Glaucoma Medications	438	381	75	6	8	253	1	35	3	353	5	1	22	54	72	44	9	1	0
Other Ophthalmic Sympathomimetics	549	529	326	21	31	127	1	20	3	470	26	16	15	120	189	30	14	0	0
Other Types of Ophthalmic Preparation	2,021	1,935	959	72	38	666	5	180	15	1,806	36	11	79	122	316	91	29	3	0
Tetrahydrozoline, Ophthalmic Preparations	929	896	448	19	59	279	2	75	14	728	63	88	13	242	280	58	28	2	0
Unknown Types of Ophthalmic Preparation	60	52	22	1	5	20	0	4	0	41	1	6	4	10	10	3	1	0	0
Otic Preparations																			
Combination Products	785	775	294	52	27	330	0	63	9	757	6	4	8	76	98	183	14	1	0
Other Types of Otic Preparation	2,404	2,382	735	103	81	1,215	2	230	16	2,336	15	2	24	308	260	700	54	0	0
Unknown Types of Otic Preparation	42	40	11	0	2	23	0	4	0	38	0	0	1	7	1	12	0	0	0
Throat Preparations																			
Other Types of Throat Preparation	632	606	126	66	67	288	2	47	10	543	44	3	16	45	126	43	3	0	0
Throat Lozenges with Local Anesthetics	183	165	95	13	10	39	1	6	1	141	9	0	14	16	49	8	2	1	0
Throat Lozenges without Local Anesthetics	635	569	461	36	11	47	0	11	3	529	16	2	17	18	122	24	3	0	0
Unknown Types of Throat Preparation	1	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Category Total:	**15,545**	**14,676**	**6,327**	**827**	**694**	**5,592**	**24**	**1,094**	**118**	**13,587**	**427**	**154**	**467**	**1,655**	**2,545**	**1,926**	**287**	**11**	**0**
Gastrointestinal Preparations																			
Antacids																			
Antacids: Other Types	3,095	2,803	2,417	146	23	167	4	39	7	2,694	72	2	33	78	411	40	5	0	0
Antacids: Proton Pump Inhibitors	9,511	4,077	1,903	119	205	1,586	4	240	20	3,651	293	1	116	476	799	130	29	3	0

(*continued*)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility	Outcome				
			<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Antacids: Salicylate-Containing	2,604	2,312	1,721	190	61	283	1	51	5	2,092	129	4	70	252	533	76	22	2	0
Antidiarrheals																			
Antidiarrheals: Diphenoxylate and Atropine Containing	192	101	26	3	2	66	0	3	1	74	17	1	8	54	32	8	8	5	0
Antidiarrheals: Loperamide	1,310	902	380	22	36	418	4	36	6	574	261	5	48	395	276	91	78	50	6
Antidiarrheals: Non-Narcotic Containing (Excluding Salicyl Containing)	31	25	17	3	1	4	0	0	0	21	0	2	2	3	10	1	0	0	0
Antidiarrheals: Other Narcotic Containing	2	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
Antidiarrheals: Paregoric Containing	3	3	0	0	0	3	0	0	0	2	1	0	0	3	0	0	0	1	0
Antispasmodics																			
Antispasmodics: Anticholinergic Containing	2,744	1,073	358	66	99	497	1	43	9	797	216	0	53	428	326	134	97	9	0
Antispasmodics: Other Types	315	138	23	0	2	99	1	12	1	119	10	0	8	29	33	7	8	0	0
Miscellaneous Gastrointestinal Preparations																			
Laxatives	14,722	12,684	8,557	713	469	2,416	13	466	50	11,546	553	67	484	1,194	1,836	1,287	173	6	1
Other Types of Gastrointestinal Preparation	9,425	7,795	5,896	353	137	1,164	11	205	29	7,124	201	10	438	484	1,365	410	62	6	0
Unknown Types of Gastrointestinal Preparation	27	13	12	0	0	0	0	1	0	13	0	0	0	0	1	0	0	0	0
Serotonin 5-HT3 Receptor Antagonists																			
Serotonin 5-HT3 Receptor Antagonists: Ondansetron	3,312	1,944	1,185	164	127	407	1	49	11	1,688	190	1	57	511	629	141	45	7	0
Serotonin 5-HT3 Receptor Antagonists: Other or Unknown	13	8	2	1	0	2	0	2	1	7	0	0	1	3	1	0	0	0	0
Category Total:	**47,306**	**33,879**	**22,497**	**1,780**	**1,162**	**7,113**	**40**	**1,147**	**140**	**30,403**	**1,943**	**93**	**1,318**	**3,910**	**6,252**	**2,325**	**527**	**89**	**7**
Hormones and Hormone Antagonists																			
Hypoglycemic, Combination																			
Hypoglycemic: Biguanide Combinations (Excluding Sulfonylurea)	491	258	46	7	10	173	0	21	1	234	19	0	4	42	91	14	8	3	0
Hypoglycemic: Other or Unknown Oral Hypoglycemic Combination	36	22	6	0	0	16	0	0	0	21	1	0	0	7	10	1	1	0	0
Hypoglycemic: Sulfonylurea Combinations	108	65	25	2	2	34	0	2	0	49	11	0	5	48	21	2	14	2	0
Hypoglycemic, Single Agent																			
Hypoglycemics: Glucagon-Like Peptide-1 (GLP-1) Receptor Agonists	857	766	19	12	5	661	1	64	4	687	30	0	44	194	177	117	33	3	0
Hypoglycemics: Other or Unknown	35	19	4	1	2	12	0	0	0	15	4	0	0	8	14	0	3	0	0
Insulin	7,044	5,868	149	94	165	5,077	4	338	41	4,930	804	8	92	2,772	2,322	377	968	88	9
Oral Hypoglycemics: Alpha-Glucosidase Inhibitors	25	17	10	1	1	5	0	0	0	15	2	0	0	6	7	0	0	0	0
Oral Hypoglycemics: Biguanides	9,482	3,955	778	143	302	2,516	2	188	26	3,051	722	5	136	1,256	828	357	275	81	21
Oral Hypoglycemics: Dipeptidyl Peptidase-4 (DPP-4) Inhibitors	1,044	374	114	7	6	225	0	20	2	342	14	1	14	99	110	21	8	1	0

(*continued*)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

			Age							Reason					Outcome				
	No. of Case Mentions	No. of Single Exposures	<=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 Hypoglycemics: Meglitinides	83	35	5	2	0	25	0	2	1	26	1	0	6	21	10	2	6	0	0
Oral Hypoglycemics: Sodium Glucose Co-Transporter 2 Inhibitor (SGLT2) Inhibitors	686	300	87	9	8	176	0	17	3	268	13	0	19	64	103	12	11	1	0
Oral Hypoglycemics: Sulfonylureas	3,565	1,370	570	63	35	671	1	26	4	1,113	161	3	61	1,051	458	72	403	56	4
Oral Hypoglycemics: Thiazolidinediones	388	122	41	3	5	65	0	7	1	109	10	0	2	30	44	1	0	0	0
Miscellaneous Hormones and Hormone Antagonists																			
Androgens	462	381	77	12	15	240	1	32	4	279	44	1	53	108	58	75	14	6	1
Corticosteroids	11,879	9,742	3,862	712	386	4,040	17	657	68	9,039	177	10	498	642	1,377	398	81	4	0
Estrogens	1,382	955	419	33	57	382	0	54	10	864	60	3	24	74	149	43	7	0	0
Oral Contraceptives	3,499	2,827	1,700	114	463	433	4	88	25	2,320	445	0	51	282	464	168	14	0	0
Other Hormone Antagonists	688	519	149	35	18	268	2	47	0	473	32	2	11	72	103	29	7	0	0
Other Hormones	930	704	243	72	54	282	0	45	8	638	28	2	33	154	174	48	19	3	0
Progestins	1,310	1,034	549	42	62	315	2	55	9	905	51	3	72	122	191	49	9	1	0
Selective Estrogen Receptor Modulators	276	160	49	10	3	87	0	10	1	153	4	0	3	19	52	3	3	0	0
Thyroid Preparations (Including Synthetics and Extracts)	13,900	9,141	4,246	380	292	3,725	4	446	48	8,747	305	4	65	1,131	1,775	156	54	1	0
Unknown Hormones or Hormone Antagonists	27	20	9	3	1	7	0	0	0	14	3	1	2	2	5	2	0	0	0
Category Total:	**58,197**	**38,654**	**13,157**	**1,757**	**1,892**	**19,435**	**38**	**2,119**	**256**	**34,292**	**2,941**	**43**	**1,195**	**8,204**	**8,543**	**1,947**	**1,938**	**250**	**35**
Miscellaneous Drugs																			
Alzheimer Drugs																			
Miscellaneous Alzheimer Drugs	2,689	872	92	5	14	716	0	42	3	767	43	0	49	309	148	162	83	7	2
Antidotes																			
Miscellaneous Antidote Drugs	387	232	57	9	11	142	1	7	5	198	11	4	15	77	54	32	20	0	0
Other Miscellaneous Drugs																			
Allopurinol	1,007	315	137	9	6	141	1	19	2	302	10	0	3	39	80	8	1	1	0
Bisphosphonates (Including Combinations)	510	439	6	4	2	391	0	31	5	423	1	0	14	78	77	29	6	0	0
Disulfiram	220	84	4	1	0	69	0	9	1	32	22	0	28	42	4	16	18	4	0
Ergot Alkaloids	39	31	10	0	1	17	0	3	0	24	2	0	4	12	5	1	5	0	0
Hematopoietics	47	42	12	1	1	24	0	3	1	34	1	1	6	9	4	4	0	0	0
Monoclonal Antibodies (Including Fragments)	204	191	17	3	6	145	0	20	0	136	3	1	51	40	17	28	9	0	0
Neuromuscular Blocking Agents (Succinylcholine, Curare, etc)	31	22	0	1	0	18	0	3	0	19	0	0	3	16	9	2	4	0	0
Nicotine Pharmaceuticals	1,809	1,714	979	127	53	453	4	81	17	1,505	95	9	100	269	419	241	40	1	0
Other Types of Miscellaneous Prescription or Over the Counter Drug	10,898	7,739	3,130	490	530	3,062	13	438	76	6,688	539	36	426	1,535	1,570	852	262	37	2
Parkinson Drugs																			
Decarboxylase Inhibitor, Alone	32	12	1	0	0	8	0	3	0	11	1	0	0	5	1	3	1	0	0
Levodopa (Alone or with Decarboxylase Inhibitor)	1,465	842	156	9	6	606	0	63	2	751	57	1	25	218	167	108	70	1	0
Levodopa and Carbidopa with Other Drugs	75	46	9	1	0	29	0	7	0	42	2	0	1	12	10	5	0	1	1
Other Parkinson Drugs (Including Combinations)	1,670	736	259	30	13	395	0	31	8	585	94	2	46	305	134	185	85	6	0
Category Total:	**21,083**	**13,317**	**4,869**	**690**	**643**	**6,216**	**19**	**760**	**120**	**11,517**	**881**	**54**	**771**	**2,966**	**2,699**	**1,676**	**604**	**58**	**5**

(*continued*)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility	Outcome				
			<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Muscle Relaxants																			
Miscellaneous Muscle Relaxants																			
Baclofen	5,347	2,341	227	66	169	1,823	1	43	12	748	1,330	29	122	1,850	284	383	698	453	4
Carisoprodol (Formulated Alone)	1,429	571	27	6	26	496	0	12	4	111	420	3	7	493	57	134	220	55	1
Cyclobenzaprine	9,648	4,111	877	205	427	2,482	3	89	28	1,988	1,988	3	77	2,549	883	911	768	142	2
Metaxalone	346	170	19	2	22	113	0	11	3	94	72	0	3	80	39	34	17	1	0
Methocarbamol	2,296	878	120	16	92	615	0	28	7	357	489	0	20	570	222	215	113	18	0
Other Types of Muscle Relaxant	547	212	27	7	26	143	1	4	4	100	100	1	6	130	60	43	41	8	0
Tizanidine	4,904	2,043	282	40	105	1,539	1	67	9	919	1,000	10	85	1,429	293	399	647	98	3
Unknown Types of Muscle Relaxant	218	39	6	1	5	24	0	2	1	11	28	0	0	32	7	10	8	2	0
Category Total:	**24,735**	**10,365**	**1,585**	**343**	**872**	**7,235**	**6**	**256**	**68**	**4,328**	**5,427**	**46**	**320**	**7,133**	**1,845**	**2,129**	**2,512**	**777**	**10**
Narcotic Antagonists																			
Miscellaneous Narcotic Antagonists																			
Miscellaneous Narcotic Antagonist	1,279	531	29	10	28	392	1	63	8	247	112	28	130	260	42	80	94	34	0
Category Total:	**1,279**	**531**	**29**	**10**	**28**	**392**	**1**	**63**	**8**	**247**	**112**	**28**	**130**	**260**	**42**	**80**	**94**	**34**	**0**
Radiopharmaceuticals																			
Miscellaneous Radiopharmaceutical																			
Specific Pharmaceutical Radionuclides	45	37	6	4	1	20	0	5	1	24	0	1	12	11	5	1	4	0	0
Category Total:	**45**	**37**	**6**	**4**	**1**	**20**	**0**	**5**	**1**	**24**	**0**	**1**	**12**	**11**	**5**	**1**	**4**	**0**	**0**
Sedative/Hypnotics/Antipsychotics																			
Barbiturates																			
Long Acting Barbiturates	1,207	710	166	21	25	471	0	26	1	534	124	6	29	250	154	81	66	39	4
Short or Intermediate Acting Barbiturates	145	73	1	2	2	54	1	13	0	53	17	1	0	38	10	12	5	8	1
Unknown Types of Barbiturate	39	9	1	1	1	5	0	0	1	1	4	1	0	8	2	2	1	1	0
Miscellaneous Sedative/Hypnotics/ Antipsychotics																			
Atypical Antipsychotics	46,132	18,011	1,670	866	3,298	11,565	8	430	174	5,719	11,253	35	717	13,716	3,190	4,582	4,633	871	13
Benzodiazepines	58,430	21,367	3,022	513	2,861	13,930	17	793	231	6,127	14,194	279	414	16,032	4,206	6,547	3,809	731	11
Buspirone	7,196	2,211	282	65	392	1,365	1	81	25	872	1,244	3	74	1,412	616	579	224	24	0
Chloral Hydrate	6	2	0	0	0	2	0	0	0	1	1	0	0	1	0	0	1	0	0
Ethchlorvynol	5	2	0	0	0	2	0	0	0	1	0	0	1	0	1	0	0	0	0
Meprobamate	15	9	1	0	0	7	0	1	0	4	3	0	1	6	0	2	2	1	0
Methaqualone	3	1	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0
Other Types of Sedative/ Hypnotic/Anti-Anxiety or Anti-Psychotic Drug	11,562	4,643	422	153	292	3,567	4	172	33	1,536	2,805	63	141	3,321	672	1,360	1,007	172	4
Phenothiazines	3,871	1,511	129	56	139	1,099	0	75	13	617	664	4	207	1,045	262	297	412	47	0
Sleep Aids, Over the Counter Only (Excluding Diphenhydramine)	2,084	1,393	627	22	167	542	1	29	5	739	629	2	11	763	378	217	239	40	0
Unknown Types of Sedative/ Hypnotic/Anti-Anxiety or Anti-Psychotic Drug	250	95	4	0	14	61	0	11	5	10	79	1	2	81	12	20	25	3	0
Category Total:	**130,945**	**50,037**	**6,325**	**1,699**	**7,192**	**32,670**	**32**	**1,631**	**488**	**16,214**	**31,018**	**395**	**1,597**	**36,673**	**9,503**	**13,700**	**10,424**	**1,937**	**33**

(*continued*)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility	Outcome				
			<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Serums, Toxoids, Vaccines																			
Miscellaneous Serums, Toxoids, Vaccines																			
Miscellaneous Serums, Toxoids and Vaccines	1,924	1,706	301	96	110	962	6	198	33	1,337	2	7	359	628	163	343	105	10	0
Category Total:	**1,924**	**1,706**	**301**	**96**	**110**	**962**	**6**	**198**	**33**	**1,337**	**2**	**7**	**359**	**628**	**163**	**343**	**105**	**10**	**0**
Stimulants and Street Drugs																			
Cannabinoids and Analogs																			
Cannabidiol (CBD)	1,131	912	361	90	53	361	0	42	5	612	149	4	135	343	191	178	68	10	0
eCigarettes: Marijuana Device Flavor Unknown	697	368	55	2	165	120	2	18	6	96	216	5	47	245	18	102	101	14	1
eCigarettes: Marijuana Device With Added Flavors	36	23	5	0	10	7	0	0	1	10	10	0	3	14	3	7	7	0	0
eCigarettes: Marijuana Device Without Added Flavors	39	27	6	1	12	5	0	2	1	10	15	1	1	18	2	5	11	0	0
eCigarettes: Marijuana Liquid Flavor Unknown	136	59	12	0	24	20	0	3	0	17	34	0	8	35	7	13	18	0	1
eCigarettes: Marijuana Liquid With Added Flavors	23	16	3	0	7	6	0	0	0	7	6	0	1	8	2	3	3	0	0
eCigarettes: Marijuana Liquid Without Added Flavors	17	12	6	0	4	2	0	0	0	6	5	1	0	9	1	2	5	1	0
Marijuana: Concentrated Extract (Including Oils and Tinctures)	1,517	1,152	282	73	300	430	4	49	14	520	481	14	128	662	167	275	236	45	0
Marijuana: Dried Plant	5,668	2,186	529	117	605	790	1	110	34	866	1,016	49	177	1,431	222	545	508	55	1
Marijuana: Edible Preparation	2,947	2,620	957	370	438	749	16	64	26	1,547	801	52	166	1,754	234	829	559	42	0
Marijuana: Oral Capsule or Pill Preparation	80	56	14	6	5	28	1	2	0	22	16	2	14	35	4	22	8	0	0
Marijuana: Other or Unknown Preparation	1,286	418	148	25	120	98	0	18	9	184	154	7	34	293	25	97	122	15	2
Marijuana: Pharmaceutical Preparation	154	105	25	7	10	57	0	5	1	53	30	1	19	57	13	24	20	0	0
Marijuana: Topical Preparation	36	34	13	1	2	13	0	4	1	24	5	1	4	8	6	7	2	1	0
Marijuana: Undried Plant	143	54	14	0	15	17	0	6	2	24	25	1	2	28	8	5	8	2	0
Synthetic Cannabinoids, Analogs and Precursors	1,163	726	34	16	203	430	1	29	13	110	545	25	16	618	45	146	278	95	0
Diet Aids																			
Diet Aids: Phenylpropanolamine and Caffeine Combinations	12	10	4	1	0	5	0	0	0	8	0	0	2	3	4	1	1	0	0
Diet Aids: Phenylpropanolamine Only	7	4	1	0	0	2	0	1	0	4	0	0	0	1	0	0	1	0	0
Other Types of Diet Aid, Over the Counter Only	148	112	48	4	17	40	0	2	1	62	32	0	18	50	26	21	14	1	0
Other Types of Diet Aid, Prescription Only	17	9	4	0	1	2	0	1	1	6	1	0	2	6	2	3	0	0	0
Unknown Types of Diet Aid	44	23	4	0	5	12	0	1	1	10	9	0	4	14	3	4	4	0	0
Miscellaneous Stimulants and Street Drugs																			
Amphetamines and Related Compounds	16,663	10,222	3,410	1,864	1,842	2,832	17	192	65	6,941	2,809	47	255	5,307	2,432	1,744	1,769	180	6
Amyl or Butyl Nitrites (Street Drugs)	217	182	11	0	6	146	0	15	4	66	103	5	2	96	21	30	25	11	0
Caffeine	3,934	3,031	1,158	132	411	1,160	3	145	22	1,796	716	10	484	829	415	547	344	23	0
Cocaine	5,441	1,264	75	9	50	1,013	4	84	29	154	1,015	28	11	1,079	192	194	347	167	11
Ephedrine	112	83	48	0	4	27	0	3	1	66	15	0	1	20	18	9	7	0	0

(*continued*)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

			Age							Reason					Outcome				
	No. of Case Mentions	No. of Single Exposures	<=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
gamma-Hydroxybutyric Acid including Analogs or Precursors	730	462	8	1	26	392	0	24	11	87	277	64	6	402	21	71	147	112	2
Hallucinogenic Amphetamines	929	438	21	4	118	267	0	22	6	45	359	18	7	371	31	93	169	42	3
Kratom	1,357	885	60	3	39	733	0	35	15	120	540	51	135	713	63	203	275	78	3
Lysergic acid diethylamide (LSD)	1,069	655	12	4	426	184	2	17	10	33	581	20	4	568	32	125	336	38	0
Mescaline/Peyote	20	16	2	0	2	12	0	0	0	5	8	1	2	13	0	1	5	2	0
Methamphetamines	8,666	4,022	250	38	191	3,185	4	246	108	562	3,196	106	41	3,444	387	666	1,410	400	67
Methylphenidate	9,026	6,133	1,390	2,519	1,384	748	7	70	15	4,936	1,036	3	119	1,943	1,434	881	648	32	1
Other Hallucinogens	11	8	0	0	3	5	0	0	0	0	4	3	0	6	1	2	4	0	0
Other Stimulants (Excluding Amphetamines)	583	375	131	17	35	182	0	10	0	248	71	1	50	153	61	72	60	4	0
Other Street Drugs	24	12	1	1	3	7	0	0	0	1	10	0	0	9	1	2	5	0	0
Other Synthetic Street Drugs	34	21	2	0	5	10	0	4	0	3	17	0	1	17	2	0	7	4	0
Phenylcyclohexylpiperidine (PCP)	327	130	10	0	14	97	0	7	2	23	90	5	1	113	7	18	50	19	1
Phenylpropanolamine Containing Look Alike Drugs	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Synthetic Cathinones, Analogs and Precursors	268	140	5	0	17	104	0	10	4	8	108	15	1	114	4	20	51	27	0
Synthetic Phenethylamines, Analogs, and Precursors	1,076	478	15	5	119	296	1	25	17	38	418	7	4	398	40	85	165	21	1
Synthetic Tryptamines, Analogs and Precursors	85	43	1	0	12	30	0	0	0	1	33	1	5	40	0	9	22	7	0
Unknown Hallucinogens	8	6	0	0	3	2	0	1	0	0	5	0	1	5	0	0	4	0	0
Unknown Stimulants or Street Drugs	342	223	10	3	54	141	1	11	3	26	164	16	4	186	8	38	78	42	8
Category Total:	**66,224**	**37,755**	**9,145**	**5,313**	**6,760**	**14,767**	**64**	**1,278**	**428**	**19,357**	**15,125**	**564**	**1,915**	**21,458**	**6,153**	**7,099**	**7,902**	**1,490**	**108**
Topical Preparations																			
Miscellaneous Topical Preparations																			
Acne Preparations	1,714	1,644	786	111	236	406	3	92	10	1,503	45	2	84	136	274	179	35	0	0
Boric Acid or Borates (As Antiseptics, Excluding Insecticides)	479	469	60	16	24	322	3	39	5	443	10	2	12	35	71	33	2	0	0
Calamine (Including All Caladryl Type Products)	1,639	1,596	991	44	24	466	1	62	8	1,565	13	3	4	141	258	162	4	0	0
Camphor	9,308	9,148	7,321	251	180	1,144	14	209	29	8,864	157	15	78	1,083	2,345	1,028	82	15	1
Camphor and Methyl Salicylate Combinations	1,327	1,313	903	47	27	279	2	49	6	1,239	17	9	45	145	290	188	5	0	0
Diaper Care and Rash Products	20,257	19,924	18,730	217	121	659	35	139	23	19,816	28	11	42	429	2,701	682	24	1	0
Hexachlorophene Containing Antiseptics	31	31	11	0	0	14	0	5	1	28	2	0	1	2	4	3	1	0	0
Hydrogen Peroxide 3%	6,843	6,477	1,876	339	360	3,338	8	507	49	6,149	235	25	51	718	713	1,199	91	0	0
Iodine or Iodide Containing Antiseptics	917	849	169	38	52	513	1	68	8	712	57	5	63	178	174	130	25	0	0
Mercury Containing Antiseptics	41	37	14	3	0	19	0	1	0	32	4	0	1	10	7	5	3	0	0
Methyl Salicylate	4,608	4,515	2,965	208	146	970	4	198	24	4,302	74	8	118	469	920	673	44	2	1
Minoxidil, Topical	168	163	54	4	6	78	0	21	0	143	6	2	10	39	37	19	4	1	0
Other Types of Rubefacient or Liniment (Excluding Camphor and Methyl Salicylate)	2,979	2,917	1,998	73	60	661	2	113	10	2,671	20	11	209	181	451	418	26	0	0
Other Types of Topical Antiseptic	2,150	2,071	860	69	106	882	2	142	10	1,936	67	8	48	303	349	279	43	0	0
Podophyllin	41	41	15	7	2	15	0	2	0	33	7	0	1	8	7	11	1	0	0
Silver Nitrate	80	73	21	1	22	18	0	11	0	65	0	0	7	14	12	21	2	0	0

(*continued*)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility	Outcome				
			<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Topical Steroids (Including Otic, Ophthalmic, and Dermal Preparations)	8,198	8,003	4,055	648	185	2,501	6	564	44	7,863	42	11	77	141	1,103	271	12	1	0
Topical Steroids in Combination with Antibiotics (Including Otic, Ophthalmic, and Dermal Preparations)	1,204	1,176	560	73	34	410	3	83	13	1,145	8	3	19	62	153	139	12	0	0
Wart Preparations and Other Keratolytics	1,091	1,070	545	81	36	331	3	70	4	988	20	6	54	158	183	158	41	1	0
Category Total:	**63,075**	**61,517**	**41,934**	**2,230**	**1,621**	**13,026**	**87**	**2,375**	**244**	**59,497**	**812**	**121**	**924**	**4,252**	**10,052**	**5,598**	**457**	**21**	**2**
Unknown Drug																			
Miscellaneous Unknown Drug																			
Miscellaneous Unknown Drugs	25,603	17,229	3,898	721	2,246	9,054	53	805	452	5,803	7,112	926	688	12,988	2,909	2,484	3,768	2,238	210
Category Total:	**25,603**	**17,229**	**3,898**	**721**	**2,246**	**9,054**	**53**	**805**	**452**	**5,803**	**7,112**	**926**	**688**	**12,988**	**2,909**	**2,484**	**3,768**	**2,238**	**210**
Veterinary Drugs																			
Miscellaneous Veterinary Drugs																			
Miscellaneous Veterinary Drugs without Human Equivalent	5,839	5,271	1,141	105	117	3,318	9	513	68	5,172	44	10	33	400	1,061	473	55	5	0
Category Total:	**5,839**	**5,271**	**1,141**	**105**	**117**	**3,318**	**9**	**513**	**68**	**5,172**	**44**	**10**	**33**	**400**	**1,061**	**473**	**55**	**5**	**0**
Vitamins																			
Miscellaneous Vitamins																			
Other Types of Vitamin	800	617	448	44	13	89	4	14	5	556	30	1	27	58	138	35	2	0	0
Unknown Types of Vitamin	802	596	423	88	23	45	2	10	5	538	45	2	7	66	155	24	8	0	0
Multiple Vitamin Liquids: Adult Formulations																			
Multiple Vitamin Liquids: Adult Formulations with Fluoride (No Iron)	23	17	13	1	1	2	0	0	0	17	0	0	0	1	4	0	0	0	0
Multiple Vitamin Liquids: Adult Formulations with Iron (No Fluoride)	303	248	154	10	9	63	0	11	1	218	8	1	20	25	46	19	3	0	1
Multiple Vitamin Liquids: Adult Formulations with Iron and Fluoride	19	12	10	0	0	1	0	1	0	12	0	0	0	0	0	0	0	0	0
Multiple Vitamin Liquids: Adult Formulations without Iron or Fluoride	564	452	313	59	12	59	1	6	2	420	20	0	10	28	67	14	2	0	0
Multiple Vitamin Liquids: Pediatric Formulations																			
Multiple Vitamin Liquids: Pediatric Formulations with Fluoride (No Iron)	103	102	95	5	0	2	0	0	0	102	0	0	0	7	17	1	0	0	0
Multiple Vitamin Liquids: Pediatric Formulations with Iron (No Fluoride)	614	587	560	15	4	5	2	1	0	573	2	0	9	44	122	27	2	0	0
Multiple Vitamin Liquids: Pediatric Formulations with Iron and Fluoride	25	24	23	1	0	0	0	0	0	23	0	0	1	1	6	3	0	0	0
Multiple Vitamin Liquids: Pediatric Formulations without Iron or Fluoride	1,065	1,006	822	154	11	12	2	3	2	972	23	1	7	55	159	26	2	0	0

(*continued*)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility	Outcome				
			<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Multiple Vitamin Tablets: Adult Formulations																			
Multiple Vitamin Tablets: Adult Formulations with Fluoride (No Iron)	125	108	93	6	3	5	0	1	0	103	4	0	1	6	14	4	0	0	0
Multiple Vitamin Tablets: Adult Formulations with Iron (No Fluoride)	4,542	3,575	2,614	115	109	627	0	98	12	3,328	151	6	75	369	743	176	24	1	0
Multiple Vitamin Tablets: Adult Formulations with Iron and Fluoride	36	24	20	1	0	3	0	0	0	23	1	0	0	3	5	1	0	0	0
Multiple Vitamin Tablets: Adult Formulations with Iron Carbonyl (No Fluoride)	109	99	70	4	4	18	0	2	1	89	5	0	4	5	25	5	0	0	0
Multiple Vitamin Tablets: Adult Formulations without Iron or Fluoride	7,932	6,518	4,781	728	225	657	8	104	15	6,028	313	6	155	426	1,218	221	20	1	0
Multiple Vitamin Tablets: Pediatric Formulations																			
Multiple Vitamin Tablets: Pediatric Formulations with Fluoride (No Iron)	183	170	152	13	4	1	0	0	0	166	2	0	2	18	30	5	0	0	0
Multiple Vitamin Tablets: Pediatric Formulations with Iron (No Fluoride)	3,868	3,619	3,221	291	33	58	6	10	0	3,547	46	3	18	363	756	237	23	1	0
Multiple Vitamin Tablets: Pediatric Formulations with Iron and Fluoride	18	17	14	2	1	0	0	0	0	16	1	0	0	2	2	1	0	0	0
Multiple Vitamin Tablets: Pediatric Formulations with Iron Carbonyl (No Fluoride)	51	47	42	5	0	0	0	0	0	46	0	0	0	1	5	2	0	0	0
Multiple Vitamin Tablets: Pediatric Formulations without Iron or Fluoride	14,241	13,554	10,820	2,282	277	139	13	20	3	12,964	542	1	18	594	2,367	349	9	0	0
Multiple Vitamins, Unspecified Adult Formulations																			
Multiple Vitamins, Unspecified Adult Formulations with Fluoride (No Iron)	11	9	8	0	0	1	0	0	0	9	0	0	0	0	1	0	0	0	0
Multiple Vitamins, Unspecified Adult Formulations with Iron (No Fluoride)	777	539	388	7	23	104	1	15	1	498	28	0	13	63	97	32	5	0	0
Multiple Vitamins, Unspecified Adult Formulations with Iron and Fluoride	9	7	5	0	1	1	0	0	0	6	1	0	0	2	2	0	0	0	0
Multiple Vitamins, Unspecified Adult Formulations without Iron or Fluoride	635	569	425	70	23	48	0	2	1	532	29	0	6	33	91	13	2	0	0
Multiple Vitamins, Unspecified Pediatric Formulations																			
Multiple Vitamins, Unspecified Pediatric Formulations with Fluoride (No Iron)	31	27	25	2	0	0	0	0	0	27	0	0	0	2	4	1	0	0	0
Multiple Vitamins, Unspecified Pediatric Formulations with Iron (No Fluoride)	97	92	75	14	1	0	0	1	1	89	3	0	0	10	12	8	1	0	0

(*continued*)

Table 22B. Demographic profile of SINGLE SUBSTANCE pharmaceuticals exposure cases by generic category – Continued.

	No. of Case Mentions	No. of Single Exposures	Age							Reason				Treated in Health Care Facility	Outcome				
			<=5	6-12	13-19	>=20	Unknown Child	Unknown Adult	Unknown Age	Unint	Int	Other	Adv Rxn		None	Minor	Moderate	Major	Death
Multiple Vitamins, Unspecified Pediatric Formulations with Iron and Fluoride	9	8	5	1	0	1	0	1	0	7	1	0	0	1	0	0	0	0	0
Multiple Vitamins, Unspecified Pediatric Formulations without Iron or Fluoride	1,718	1,638	1,298	293	27	16	1	1	2	1,568	67	0	3	65	289	38	2	0	0
Other Vitamins																			
Other B Complex Vitamins	5,282	3,402	2,642	191	87	396	3	69	14	3,146	131	2	108	286	620	85	13	2	0
Vitamin A	438	368	218	21	5	101	1	19	3	336	9	3	18	28	69	24	3	0	0
Vitamin B3 (Niacin)	889	693	204	10	60	352	1	57	9	346	132	3	209	169	61	198	45	3	0
Vitamin B6 (Pyridoxine)	369	237	161	5	5	56	0	6	4	210	6	0	20	23	25	5	6	0	0
Vitamin C	1,634	1,127	777	129	35	150	2	31	3	1,008	82	0	32	56	178	41	0	1	0
Vitamin D	8,086	5,738	3,667	341	215	1,309	7	181	18	5,464	159	10	99	587	1,016	219	38	3	0
Vitamin E	653	434	306	21	9	76	1	19	2	396	15	0	23	19	70	22	1	0	0
Category Total:	**56,061**	**46,280**	**34,892**	**4,929**	**1,220**	**4,397**	**55**	**683**	**104**	**43,383**	**1,856**	**39**	**885**	**3,416**	**8,414**	**1,836**	**211**	**12**	**1**
Pharmaceuticals Total:	**1,493,423**	**922,213**	**400,339**	**60,318**	**93,521**	**331,330**	**1,011**	**29,945**	**5,749**	**661,076**	**216,056**	**3,931**	**30,569**	**312,489**	**191,401**	**112,070**	**74,927**	**18,240**	**1,096**
GRAND TOTAL (Nonpharmaceuticals + Pharmaceuticals):	**2,574,815**	**1,891,817**	**893,745**	**126,268**	**139,313**	**621,454**	**4,359**	**91,162**	**15,516**	**1,551,932**	**256,655**	**17,614**	**48,477**	**479,532**	**349,435**	**266,773**	**108,372**	**21,356**	**1,415**

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. Changes in place since the 2014 report for the selection of the top 200 cases: include all pregnant subjects, include all children (0-2 y/o) subjects, increase (double) the weight on the autopsy report, add a weighting for Age of subject (1/age in years), add a weighting for infrequency of substance category (Generic Code).

Qualifying cases were thus: Age 0-2 y/o, Pregnant, or RCF = 1-Undoubtedly Responsible, 2-Probably Responsible or 3-Contributory. Fatalities by Indirect report were excluded beginning with the 2008 annual report. The ranking was based on Final Case Weighting (FCW).

$$\textbf{FCW} = \textbf{f}\,[1/(\textbf{num substances in this case}),\ \textbf{WCS},\ 1/\textbf{Age}\ (\textbf{years}),\ 1/(\textbf{num cases in that generic code this year})]$$

Where:

$$\begin{aligned}\text{Weighted Case Score (WCS)} = {} & \text{Hospital records} * 8.8 \\ & + \text{Postmortem} * 15.2 \\ & + \text{Blood levels} * 6.9 \\ & + \text{Quality/Completeness} * 6.4 \\ & + \text{Novelty/Educational value} * 13.2\end{aligned}$$

WCS Scores were normalized (z-score) within each AAPCC reviewer before the final weighting: 25% for each (1/NumSubstances, WCS, 1/Age, 1/NumCodes).

The WCS weighting factors were the averages of review team recommendations gathered in 2006.

The top ranked abstracts (200 + ties) were each read by individual reviewers who volunteered (See Appendix E) and the 2 managers (DAS and DEB). Each reader judged each abstract as "publish" or "omit" and all abstracts receiving 8 or more of 12 publish votes were selected, further edited, cross-reviewed by the 2 managers and JBM, and published in this report.

Abstracts

Abstracts of the cases were selected (see Selection of Abstracts for Publication, above) from the human fatalities judged related to an exposure as reported to US PCs in 2019. 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 67. Acute isopropanol ingestion: undoubtedly responsible

Scenario/Substances: A 61 y/o female was found down at her home with an empty 1 L bottle of isopropyl alcohol next to her. CPR was performed by EMS enroute to the ED.
Past Medical History: Psychiatric illness.
Physical Exam: PEA cardiac arrest. After ROSC: BP 84/40, HR 120s, O_2 sat 100% on FiO_2 100%.
Laboratory/Diagnostic Findings: ABG-pH 7.15/pCO_2 56/pO_2 310. K 2.8/CO_2 21/BUN 18/Cr 1.2, AG 21. Lactic acid was 8.8 then 9.5; troponin was .09 then .25. Serum APAP and salicylate were not detected. EKG: atrial fibrillation with RVR, QRS 120msec. Repeat labs on Day 1: ABG-pH 7.21/pCO_2 44/pO_2 76 (50% FiO_2). Repeat lactic acid 10.4. Repeat EKG: QRS 120 msec, QTc 529 msec. Isopropyl alcohol level was 590 mg/dL (repeat was 59); initial acetone was 'low' (repeat was 259 mg/dL). Serum ethanol and methanol were not detected.
Clinical Course: She was intubated in the ED and admitted to the ICU. She received epinephrine and norepinephrine drips for hypotension (SBP 38); repeat SBP was in the 80s, HR 120s. On Day 2 she was not responding; pupils were non-reactive. BP 94/70, HR 100 on amiodarone, vasopressin and norepinephrine drips. Repeat vital signs: BP 113/77, HR 139. On Day 4 she had ventricular tachycardia; Cardiac ECHO showed LVEF of 20-25%. She was anuric; HCO_3 8, lactate 5.3, Cr 3.38. She received a sodium bicarbonate drip and IVFs; amiodarone was stopped. On Day 6 she was transferred to hospice care and died that evening.
Autopsy Findings: Cause of death: acute isopropanol toxicity; manner of death: suicide. Toxicology analysis of hospital blood: isopropanol 480 mg/dL, acetone 59 mg/dL, urine positive for acetone and isopropanol.

Case 102. Acute disc battery ingestion: probably responsible

Scenario/Substances: A 2 y/o female presented to an ED with dyspnea. Several days prior she had been prescribed medications by her pediatrician for suspected throat infection.
Clinical Course: In the ED, x-ray showed a button battery in the throat. It was suspected the battery had been in the esophagus for at least 10 days. On Day 2, the battery was removed via endoscopy; 1 h later she began bleeding from the nose and mouth and then died.
Autopsy Findings: Not available.

Case 104. Acute envenomation (Agkistrodon): probably responsible

Scenario/Substances: A 52 y/o male was bitten on his right ankle by a copperhead. Soon after he turned blue and stopped breathing.
Past Medical History: HTN, allergic to bees. Medications: lisinopril.
Physical Exam: In the ED: 2 puncture marks were noted with localized bruising and edema. Shortly later he developed facial edema, bleeding from his NGT and rectum, and then cardiac arrest.
Laboratory/Diagnostic Findings: Na 133/K 3.7/Cl 97/CO_2 13/BUN 21/Cr 1.5/Glu 219, AG 23, Ca 10.2, AST 1495, ALT 847, ALK 64, bilirubin 0.8. WBC 12.4/Hgb 13.2/Hct 41.7/PLT 138. PT 68.0, INR 6.8, troponin 0.224, ethanol 197 mg/dL ECG: HR 127, QRS 76, QTc 389.
Clinical Course: In the ED he was intubated for dyspnea and hypotension, then had a cardiac arrest. He was resuscitated, and received 4 vials of antivenom, IVFs, diphenhydramine, epinephrine, famotidine and started on a sodium bicarbonate drip. He was transferred to a tertiary HCF and received 4 units FFP, 2 PRBCs and 10 of cryoprecipitate. There was clinical concern for anoxic brain injury. On Day 2 he developed a bite site bleb and worsening edema. On Day 4 he required norepinephrine and sodium bicarbonate drips but later died from suspected anaphylaxis.
Autopsy Findings: Not available.

Case 105. Acute sting (Hymenoptera) bite/sting: probably responsible

Scenario/Substances: After a 73 y/o male beekeeper was stung by an > 60 bees his wife drove him to the ED. During transport, he lost consciousness and EMS was called. CPR was performed for ~ 30 min prior to ED arrival.
Past Medical History: Chronic kidney disease, coronary stenting. Medications: clopidogrel.
Physical Exam: He presented with seizure activity and multiple ecchymotic stings sites but no signs of anaphylaxis (no hives, swelling to lips or throat). Initial BP 104/49, HR 102, RR 16, O_2 sat 100% (30% FiO_2).
Laboratory/Diagnostic Findings: CT head: anoxic injury.
Clinical Course: He was intubated and treated with lorazepam, propofol, levetiracetam, and q6 H doses of methylprednisolone, famotidine and diphenhydramine. Seizures stopped but he was posturing with no purposeful movement. Based on the prognosis, the family opted for comfort measures and he died on Day 2.
Autopsy Findings: Not available.

Case 107. Acute sodium nitrite ingestion: undoubtedly responsible

Scenario/Substances: A 15 y/o female left a suicide note saying she took sodium nitrite.
Physical Exam: Unresponsive in PEA, being bagged. Pupils 3 mm and fixed, blue-gray skin.
Laboratory/Diagnostic Findings: ABG-pH 6.93/pCO_2 20/pO_2 134/HCO_3 4/BE -25.7 (FiO_2 100%), MetHgb 88.8%, oxyhemoglobin 9.4%.
Clinical Course: In the ED she received CPR, epinephrine, sodium bicarbonate, calcium and ILE. Methylene blue 100 mg bolus was given, then another 50 mg. Ultrasound showed no cardiac activity and she was declared dead.
Autopsy Findings: Cause of death; methemoglobinemia and sodium nitrite poisoning; manner of death: suicide.

Case 108. Acute sodium nitrite ingestion: undoubtedly responsible

Scenario/Substances: 16 y/o female intentionally ingested sodium nitrite powder she purchased online. EMS initially found her responsive, but she became unresponsive and cyanotic enroute to the ED.
Past Medical History: Depression, prior suicide attempts.
Physical Exam: GCS 3, cyanotic, pale, PERRLA, heart and lungs unremarkable. BP 70/40, HR 130s, O_2 sat 70% (RA).
Laboratory/Diagnostic Findings: VBG: pH 6.81/pCO_2 71/pO_2 39. Na 140/K 3.2/Cl 104/CO_2 13/BUN 8/Cr 1.03/Glu 284, AG 23, AST 12, ALT 6, bilirubin 0.5. INR 1.35, WBC 11/Hgb 9.5/Hct 27.8/PLT 207, troponin 0.019. Serum APAP, ethanol and salicylate not detected. ECG: HR 117, ST elevation. MetHgb $>$ 30%.
Clinical Course: Upon arrival to the ED she was intubated and ventilated. Methylene blue had to be borrowed from a nearby hospital. She became bradycardic, went into PEA arrest and was resuscitated with CPR, epinephrine and sodium bicarbonate. She also received 1mg/kg IV methylene blue (over 1 hour) and a second dose 30 minutes later. Her MetHgb remained $>$ 30% despite treatments and she was transfused blood. Bedside ultrasound demonstrated no cardiac activity and asystole. She died ~2h after ED arrival.
Autopsy Findings: Cause of death: sodium nitrite ingestion

Case 111. Acute sodium azide ingestion: undoubtedly responsible

Scenario/Substances: A 19 y/o male called EMS ~ 1 h after an ingesting of 1.5 oz of 5% sodium azide in a suicide attempt.
Physical Exam: SBP 88-148, DBP 34-123, HR 137-160, RR 21-47, T 36.9 °C, O_2 sat 96-98%. Agitated, intermittently answering questions; tachypneic, labored breathing.
Laboratory/Diagnostic VBG-pH 7.42/pCO_2 23/pO_2 51/HCO_3 15. Na 141/K 3.8/BUN 23/Cr 1.2/Glu 194. Lactate 14, CPK 121, WBC 11.8, PT 14.3, INR 1.1, troponin: <0.10. Serum APAP, ethanol and salicylate not detected. Urine comprehensive drug test (by GC/MS): caffeine.
Clinical Course: The patient was initially lethargic, tachycardic, tachypneic and hyperpnic. He received IVFs and hydroxocobalamin without effect. Over Day 1 he became more somnolent requiring intubation and ventilation. He was started on a sodium bicarbonate drip for worsening acidosis (peak lactate 16.5). Hypotension was treated with norepinephrine; exchange transfusion was performed. He developed low K, Phos and Mg that partially responded to replacement. ~ 18 h after ingestion he developed shock and required increased vasopressor support (including norepinephrine, phenylephrine, and dobutamine drips). HR 150s; Cardiac ECHO showed severe global hypokinesis. He suffered PEA with ROSC after ~ 10 min of CPR and ACLS. ECMO was at the bedside when he had a second PEA arrest. After 20 min of resuscitation efforts he was declared dead (~ 19 h after ingestion).
Autopsy Findings: Cause of death: ingestion of sodium azide; manner of death: suicide.

Case 123. Acute-on-chronic silicone injections: undoubtedly responsible

Scenario/Substances: A 35 y/o. male presented to the ED with dyspnea after repeatedly injecting silicone into his scrotum and penis (once a month for the last 4 years). Last injection was 1 h prior to arrival. He reported a friend developed pulmonary emboli after similar injections.
Past Medical History: Depression, obesity, obstructive sleep apnea on CPAP, Ecstasy and GHB abuse.
Physical Exam: P 95/50; HR 102, O_2 sat 88% (100% FiO_2). Sedated, intubated, coarse breath sounds bilaterally, diminished aeration L $>$ R, no wheezing. Uncircumcised penis with chronic, markedly swollen and diffusely erythematous scrotum, well-healed scar present on the left side, scabbed over lesion on inferior left side without any drainage.
Laboratory/Diagnostic Findings: ABG-pH 7.25/pCO_2 63.5/pO_2 59.8/HCO_3 27.8. Na 138/K 4.6/Cl 101/CO_2 28/BUN 20/Cr 1.3/Glu 127, AG 9. Ca 9.7, AST 28, ALT 41, PT 15.5, INR 1.2, WBC 16.24/Hgb 14.6/Hct 44.2/PLT 313. UDS positive for benzodiazepines and fentanyl (received in hospital) CxR: diffuse opacities throughout all lobes. CT chest: negative for pulmonary embolism. CT Abd/pelvis: no acute findings. EKG: HR 95, QRS 96, QTc 427.
Clinical Course: He was placed on BiPAP and admitted to the ICU. Hypoxia worsened and he was intubated and received propofol, midazolam and antibiotics. On Day 2 he developed consolidations in the dependent portions of the lower lobes. Bronchoscopy showed pulmonary hemorrhage. Proning was attempted but not tolerated. He was started on high-dose methylprednisolone (125mg q6h IV) based on CT chest findings suggesting eosinophilic pneumonia. He was placed on VV ECMO for worsening hypoxia; heparin drip started. Vital signs on ECMO: BP 117/60, HR 95; RR 30 (vent setting), O_2 sat 100% (40% FiO2). On Day 6 he developed worsening ARDS and was started on epoprostenol. ECHO showed a mild decrease in RV function. On Day 9 he was interactive off sedation but developed epistaxis and pneumopericardium. On Day 14 he had hypoxia and then cardiac arrest; received CPR with ROSC. He was started on CRRT. Based on the poor prognosis his family decided on comfort measures and he died on Day 17.
Autopsy Findings: Cause of death: bilateral pulmonary silicone emboli due to chronic silicone injections to the external genitalia; manner of death: accident. Autopsy findings: hard distorted penis, enlarged hard scrotum with infiltrating foamy histiocytes. Large areas of pulmonary consolidation, organizing and necrotizing pneumonia, collections of foamy histiocytes, pulmonary scarring with fibrosis.

Case 148. Acute sulfuric acid ingestion: undoubtedly responsible

Scenario/Substances: An 80 y/o male was brought to the ED by EMS 1 h after an intentional ingestion of 16 ounces of sulfuric acid-containing drain cleaner.
Physical Exam: Awake, confused, drooling, audible stridor, diffusely whitened intraoral mucosa, PERRLA, tachypnea. BP 215/91 HR 84, RR 34, O_2 sat 90% (RA).
Laboratory/Diagnostic Findings: VBG: pH 7.27/pCO_2 32. Serum APAP, ethanol and salicylate not detected. CT chest/abd/pelvis showed evidence of gastritis and duodenitis without perforation. ECG: NSR in 80s with normal intervals.
Clinical Course: The patient was intubated on arrival without difficulty for airway protection. Patient was admitted to the ICU where he had progressive worsening of his AG metabolic acidosis with rising lactate. His abdomen became rigid ~ 12 h later. Repeat CT showed gastric perforation. He was not a surgical candidate, family decided on comfort measures only and he died within 36 h of presentation.
Autopsy Findings: Not available.

Case 149. Acute cyanide exposure: undoubtedly responsible

Scenario/Substances: An 83 y/o male was discovered unresponsive at home by a neighbor with a bottle of cyanide (labelled 1995) and crushed tablets near him.

Past Medical History: Depression, CAD, thyroid disease.
Clinical Course: EMS attempted resuscitation including CPR, defibrillation, amiodarone, and epinephrine. Patient was not transported to the ED.
Autopsy Findings: Cause of death: cyanide poisoning; manner of death: suicide. Autopsy records note a burnt almonds smell when opening the body bag; decedent blood was bright cherry-red. Post-mortem iliac blood: cyanide 13 mcg/mL, free dihydrocodeine 9.6 ng/mL, free hydrocodone 61 ng/mL.

Case 167. Acute cleaner (cationic) dermal: probably responsible

Scenario/Substances: An 85 y/o male presented to the ED for headaches that developed several days after a scalp biopsy.
Past Medical History: Prostate cancer s/p prostatectomy and radiation, NIDDM, depression. Medications: fluoxetine, gemfibrozil, metformin, gabapentin, bupropion and amitriptyline.
Laboratory/Diagnostic Findings: Na 149/K 2.9/Cl 124/CO_2 14/BUN 27/Cr 1.16/Glu 183, AG 11, Ca 5.1, Mg 1.6, Phos 3.4, protein 3.6, albumin 1.6, ALP 37, AST 82, ALT 16, bilirubin 0.2. CxR: no abnormalities. CT head/abdomen: no acute disease.
Clinical Course: While in the ED, his wife mistakenly wiped his head with a disinfectant wipe. He immediately developed scalp burning, erythema and facial edema. Despite irrigation his periorbital edema worsened into his face and neck. He had dyspnea and was unable to swallow. He was intubated and transferred to a tertiary HCF $\sim$ 3 h after presentation. In the ICU he had anaphylactic shock with hypotension, tachycardia and worsening acidosis. He received IVFs, epinephrine, norepinephrine and vasopressin drips. He was able to follow commands when sedation was weaned. He was started on antibiotics, steroids, antihistamines, sodium bicarbonate and insulin. CRRT was initiated for metabolic acidosis and AKI. On Day 1 (on 3 pressors): BP 100/52, HR 104, RR 18, T 37 °C; he had no urine output. On Day 2 he required increased vasopressor doses. Based on the prognosis, the family opted for institution of comfort measures and he died on Day 2.
Autopsy Findings: Not available.

Case 171. Acute cleaner (alkali) ingestion: undoubtedly responsible

Scenario/Substance: A 97 y/o male accidentally ingested $\sim$1 gallon of an oil-based (alkali) soap thinking it was apple juice. He had abdominal pain and black tarry stools but no vomiting.
Past Medical History: Dementia, COPD, hypertension, kidney disease, chronic anemia.
Physical Exam: BP 93/51, HR 96, RR 38, O_2 sat 94% (RA), T 94.1 C; Positive fecal blood.
Laboratory/Diagnostic Findings: ABG-pH 7.03/pCO_2 27/pO_2 47/HCO_3 7. Na 133/K 5.7/Cl 98/CO_2 8/BUN 76/Cr 2.63/Glu 83/AG 27, Ca 7.7, albumin 2.8, lactate $>$ 16. CPK 670, AST 30, ALT 15, PT 18.6, INR 1.6. WBC 16.4/Hgb 14.2/Hct 35/PLT 262. ECG: HR 92, QRS 98, QTc 442.
Clinical Course: He was intubated, warmed and received vasopressors, sodium bicarbonate, octreotide, antibiotics and blood products (PRBC x 12, PLT x 2, FFP x 12; post transfusion Hgb 12.7). Abdominal CT showed duodenal hemorrhage; Chest CT showed bilateral infiltrates likely from aspiration. He developed abdominal distention with concern for abdominal compartment syndrome. Given the poor prognosis and co-morbidities, comfort measures were instituted and he died on Day 2.
Autopsy Findings: Cause of death: massive upper GI bleed and aspiration pneumonitis; manner of death: accidental. No autopsy was performed.

Case 177. Acute carbon monoxide inhalation/nasal: undoubtedly responsible

Scenario/Substance: A 2 y/o female (and 6 other patients) was rescued from a house fire. She was in cardiac arrest; CPR was initiated with a supraglottic airway and IO access prior to transfer.
Physical Exam: GCS 3; pupils fixed and dilated; 2nd degree facial and extremity burns, TBSA 15%. Soot in mouth and nasal secretions. After ROSC: BP 78/45, HR 100, RR 24, O_2 sat 100% (100%), T 36.2 °C.
Laboratory/Diagnostic Findings: VBG-pH 6.769/pCO2 50/pO_2 85/HCO_3 7.2, lactate 14.87. Na 142/K 4.5/Cl 111/CO_2 7/BUN 20/Cr 0.66/Glu 418. AST 146, ALT 45, WBC 27.2/Hgb 10.4/Hct 33/PLT 306. CxR: bilateral perihilar opacities consistent with atelectasis. COHb (3 h after presentation) was 6.8%.
Clinical Course: She achieved ROSC after 30 min of CPR, 4 doses of epinephrine, sodium bicarbonate and calcium. She was intubated and given hydroxocobalamin for presumed cyanide toxicity. In the PICU she received phenylephrine for hypotension and transitioned to an oscillator for persistent hypoxia. She remained unresponsive with fixed pupils. After worsening shock and hypoxia, comfort measures were instituted and she died 17 h after presentation.
Autopsy Findings: Cause of death: inhalational injuries from a house fire; manner of death: accidental.

Case 224. Acute nitrogen oxides inhalation/nasal: undoubtedly responsible

Scenario/Substances: A 47 y/o male collapsed inside a grain silo while attempting to rescue his son who fell into it. He was found in cardiac arrest and resuscitated during air transport to the ED.
Physical Exam: Unresponsive, in cardiac arrest.
Laboratory/Diagnostic Findings: ABG-pH 6.96/pCO_2 87/pO_2 90/HCO_3 19; MetHgb $<$2%.
Clinical Course: In the ED he was intubated, started on epinephrine and bicarbonate drips and received ACLS for 1 h prior to ROSC. Head CT showed extensive anoxic brain injury. In the ICU he had repeated cardiac arrests with ROSC but died $\sim$15 h after exposure.
Autopsy Findings: Cause of death: asphyxia, inhalation of silo gas; manner of death: accidental.

Case 263. Acute carbon monoxide inhalation/nasal: undoubtedly responsible

Scenario/Substances: A 64 y/o male was last seen by his daughter 3 D prior. During a police wellness he was found unresponsive; his wife was dead at the scene.
Physical Exam: In the ED BP 118/101, HR 40s, O_2 sat 100% (100% FiO_2).
Laboratory/Diagnostic Findings: Na 146/K 4.4/Cl 112/CO_2 20/BUN 52/Cr 2.86. Ca 7.5, Mg 2.3. ECG: QRS 116, QTc 511. Initial COHb 42.8% (then 18%, then 3.7%).
Clinical Course: In the ED he was intubated, ventilated with 100% FiO_2 and transferred for HBO therapy. After HBO, repeat COHb was reportedly 18%. ABG-pH 7.36/pCO_2 34.2/pO_2 582. BP 128/61, HR 49, RR 22, T 36.3 °C. An external rewarming device was placed. Later that day he became bradycardic (HR 40s). He was started on a sodium bicarbonate drip for CK 17,434. On Day 2: COHb 3.7%. Cr 2.6. On Day 3 he developed hypotension with ST and frequent PVCs; norepinephrine drip was started. BP 99/50, HR 96, O_2 sat 100%, T 37 °C. Repeat labs: Cr 1.83, CK 9778; EKG: QRS 133, QTc 511. Based on a poor prognosis his family opted for comfort measures and he died on Day 4.
Autopsy Findings: Cause of death: anoxic/ischemic encephalopathy due to CO poisoning; manner of death: accident. Other findings: cerebral edema with tonsillar herniation and midbrain hemorrhages. Home investigation revealed that the fireplace flue was blocked by ice.

Case 318. Acute arsenic ingestion: undoubtedly responsible

Scenario/Substances: A 3 y/o boy ingested sodium arsenate containing ant poison that had been left in the basement. Within minutes he started coughing, vomiting and then lost consciousness. EMS transported him to the closest hospital.
Physical Exam: BP 96/49, HR 132, RR 17, O_2 sat 100%, T 33.6 °C. Intubated, sedated, pupils 2 mm, membranes moist, clear lungs with

rhonchi, abdomen soft, no distention. Responded to tactile stimuli, facial grimace.
Laboratory/Diagnostic Findings: VBG-pH 7.12/pCO_2 51.7/pO_2 28/HCO_3 16.8/BE -11 Na 153/K 2.6/Cl 118/CO_2 14/BUN 15/Cr 0.7/Glu 246/AG 24, AST 151, ALT 151, bilirubin <0.1. INR 1.3, WBC 2.5/Hgb 13.3/Hct 40.9/PLT 426, Serum APAP, ethanol and salicylate not detected. CxR: no focal consolidation. Spot urine serum arsenic: 4,200 mcg/L (obtained 2 h after ingestion). EKG: ST 125, normal QRS, QTc and PR intervals.
Clinical Course: In the ED he was unconscious, intubated. He was given 25 g activated charcoal via NGT, 10 mL/kg IVF bolus, ondansetron, fentanyl and 20 mEq IV sodium bicarbonate. He was transported to a tertiary pediatric hospital. In the PICU: BP 96/49, HR 132, RR 17, O_2 sat 100% (FiO_2 75%), T 33.6 °C. He developed metabolic acidosis, had emesis and then developed a dysrhythmia. He lost pulses, received CPR, sodium bicarbonate, epinephrine, calcium, magnesium, and IVFs during a 40-min resuscitation without ROSC. He died within 24 h of presentation.
Autopsy Findings: Not available.

Case 331. Acute fluorinated hydrocarbon inhalation/nasal: undoubtedly responsible

Scenario/Substances: A 45 y/o male presented to the ED with shortness of breath after huffing 10 cans of spray dust cleaner.
Past Medical History: HTN, depression, ethanol abuse.
Physical Exam: He was alert and oriented. BP 121/95, HR 99, RR 32, O_2 sat 95% (RA).
Laboratory/Diagnostic Findings: VBG: pH 7.27/pCO_2 25.6/pO_2 94/HCO_3 12. Na 135/K 4.1/Cl 97/CO_2 14/BUN 29/Cr 4.1, AG 24. Ca 4.9, Mg 2, AST 191, ALT 139, bilirubin 0.4. Serum APAP 9.6; salicylate not detected. CxR: normal. ECG: QRS 90, QTc 481.
Clinical Course: In the ED he received Ca and IVF, and then admitted. About 5 h later he was found cyanotic; he was emergently intubated and placed on a ventilator. He developed Torsades de Pointes, then asystole, and died despite resuscitation efforts.
Autopsy Findings: Case of death: acute difluorethane intoxication; manner of death: accident. Autopsy findings: pulmonary congestion. Hospital blood was positive for difluoroethane and mirtazepine.

Case 339. Acute lamp oil ingestion: undoubtedly responsible

Scenario/Substances: A 13 m/o male ingested 2 swallows of torch fuel that was stored in a water bottle. Within 30 min he was lethargic and coughing up clear liquid.
Physical Exam: BP 119/86, HR 123, RR 17, O_2 sat 90% (RA) and 98% (3 L NC).
Laboratory/Diagnostic Findings: CxR: bilateral infiltrates. Renal function 'normal.' Serum ethanol not detected.
Clinical Course: He was transferred to a tertiary care hospital's PICU where he was intubation and sedated with midazolam and fentanyl. He became hypoxic (O_2 sat 67% then 88% following ventilator adjustment and albuterol treatment). He received D5 1/2NS IVF. Repeat vitals: BP 117/50, HR 174, RR 30, O_2 sat 88%. He had multiple cardiac arrests, required vasopressors and died on Day 2.
Autopsy Findings: Not available.

Case 341. Acute botulism ingestion: undoubtedly responsible

Scenario/Substances: An 80 y/o female was 1 of 4 adults who shared the same potatoes at a meal. They had purchased a bag of commercially frozen potatoes from a warehouse club and then stored it at ambient temperature for 15 days before they ate them.
Laboratory/Diagnostic Findings: The state health department confirmed botulism toxin Type A in the stool and serum of all 4 people who ate the potatoes (including the deceased). None of the potato product or packaging were available for testing.
Clinical Course: The patients presented to the ED with varying degrees of facial droop, double vision, and weakness. The survivors required intubation, ventilation and prolonged ICU hospitalization. The patient died of respiratory arrest
Autopsy Findings: Not available.

Case 344. Acute-on-chronic water ingestion: undoubtedly responsible

Scenario/Substances: A 14 y/o female was found vomiting with confusion and ataxia after drinking a large quantity of water when left alone for ~20 min.
Past Medical History: Autism, ADHD, obsessive compulsive disorder. Compulsive water drinking behavior had developed several months prior.
Physical Exam: Confused.
Laboratory/Diagnostic Findings: Na 122. Serum APAP, ethanol and salicylate were not detected. Head CT showed global cerebral edema with impending herniation.
Clinical Course: In the PICU she was intubated and started on hypertonic saline. She remained unresponsive with an isoelectric EEG concerning for brain death. She developed central diabetes insipidus with a Na of 165 and died on Day 2.
Autopsy Findings: Cause of death: complications of psychogenic polydipsia.

Case 353. Acute-on-chronic dinitrophenol ingestion: undoubtedly responsible

Scenario/Substances: A 30 y/o male reported daily, increasing use of dinitrophenol powder. Most recent increase was on the morning of presentation.
Physical Exam: BP 118/71, HR 120, RR 22, O_2 sat 98% on RA, T 37.1 °C. Anxious appearing with diaphoresis and tachycardia.
Clinical Course: Patient arrived in the ED complaining of nausea and palpitations. Within 2 h of arrival his T increased to 41.1 °C with tachycardia to 150. He had altered mental status and diaphoresis. At 4 h after arrival he had worsening hyperthermia, mental status and the onset of rigidity. During intubation with succinylcholine he developed immediate sustained rigidity and then cardiac arrest. An emergent cricothyrotomy was attempted due to inability to open the mouth; chest compressions were difficult due to chest wall rigidity. ROSC was not achieved; he died within hours of presentation.
Autopsy Findings: Cause of death: dinitrophenol toxicity. Complete autopsy showed no evidence of other contributing factors.

Case 354. Acute aluminum phosphide, esfenvalerate inhalation/nasal: probably responsible

Scenario/Substances: A 32 y/o male was found dead in a warehouse on the morning after a rainstorm. He had placed aluminum phosphide and cans of an insect fogger (containing esfenvalerate) in a warehouse where he slept at night.
Clinical Course: He was pronounced dead at the scene.

Case 363. Acute paraquat dermal: undoubtedly responsible

Scenario/Substances: A 65 y/o man spilled paraquat onto his clothing and worked all day without decontaminating. Ten days after his exposure, the patient presented to the ED.
Physical Exam: Healing 2nd degree burns to his abdomen.
Laboratory/Diagnostic Findings: Cr 4.8, BUN 45. CxR: diffuse, bilateral interstitial opacities.
Clinical Course: In the ED he complained of dizziness with nausea and vomiting. He was admitted, placed on oxygen and given antibiotics with silver sulfadiazine applied to the burn. He was discharged home on Day 2 with (Cr 4.9). Five days later he presented to another facility with renal, hepatic and pulmonary failure He was admitted to the ICU; several days later he was started on vasopressin and placed on ECMO and CRRT.

Over several days intrapulmonary bleeding ensued. Although ECMO and CRRT were continued, he died 34 days after the initial exposure.
Autopsy Findings: Not available.

Case 369. Acute plant (Taxus) ingestion: undoubtedly responsible

Scenario/Substances: A 41 y/o female made a tea and brownie from *Taxus* leaves after reading about its toxicity on the internet. She told her counselor 2 h after ingestion who triaged her to the ED.
Past Medical History: Depression, PTSD, history of abuse.
Physical Exam: Awake, alert, giddy; tachycardic.
Clinical Course: She had no symptoms for the first 90 min, but then developed tachycardia, QRS 'widening' and then VF. She was coded for ~20 min, receiving amiodarone, lidocaine and sodium bicarbonate with ROSC. She was started on dopamine for hypotension and received ILE. She had further episodes of cardiac arrest with ROSC. She was transferred to a tertiary care center in refractory shock for ECMO evaluation. She received increased doses of dopamine, norepinephrine and vasopressin but lost pulses. CPR was restarted and more sodium bicarbonate, magnesium and epinephrine were given. Her condition continued to deteriorate, resuscitation efforts were stopped and she died ~9 h after ingestion.
Autopsy Findings: Cause of death: toxic effects from Yew.

Case 376. Acute nicotine (liquid) ingestion and dermal: undoubtedly responsible

Scenario/Substances: A 17 m/o male was found unresponsive and apneic with nicotine vape liquid in his mouth and on the floor. A 16.5 mL (18mg/mL) bottle, 1/3 full, was found next to him. EMS found the child in asystole and started CPR.
Clinical Course: CPR was continued for 40 min in the ED without return of spontaneous circulation.
Autopsy Findings: Postmortem blood nicotine 300 ng/mL, caffeine 222 ng/mL. Swab analysis of the liquid spilled on the floor and in the nicotine vape liquid bottle did not show evidence of added adulterants.

Case 380. Acute methadone ingestion: undoubtedly responsible

Scenario/Substances: A 10 y/o female accidentally received her mother's liquid methadone, twice, instead of cough medicine. Later that night she developed respiratory distress; her grandfather performed CPR. EMS found her in PEA; she was intubated and received IO epinephrine enroute to the ED.
Physical Exam: Unresponsive in PEA.
Laboratory/Diagnostic Findings: Urine was positive for methadone and methadone metabolite.
Clinical Course: She received several rounds of epinephrine and sodium bicarbonate with ROSC. She was then intubated and given 3L IVFs. CxR showed aspiration and she developed ARDS. Head CT: consistent with acute anoxic injury; she developed central diabetes insipidus. Based on the prognosis, the family opted for institution of comfort measures and she died ~6 h after presentation.
Autopsy Findings: Cerebral edema with ischemic changes Blood methadone: 0.24 mg/L. Cause of death: methadone toxicity.

Case 381. Acute colchicine, amlodipine, fenofibrate ingestion: undoubtedly responsible

Scenario/Substances: A 14 y/o female intentionally ingested a family member's medications after writing a suicide note. She vomited repeatedly but did not tell anyone until the following morning, when she was transported to the ED. Available medications included amlodipine, colchicine and fenofibrate.
Physical Exam: Lethargic, BP 84/66, HR 120, RR 20, O_2 sat 99% (RA), T 37 °C.
Laboratory/Diagnostic Findings: ABG-pH 6.95/pCO_2 77. Na 141/K 3.6/Cl 106/CO_2 22/BUN 21/Cr 1.8/Glu 98/AG 13, AST 257, ALT 54, WBC 44, Hgb 17.9, Hct 50.7, INR 1.9, CPK 523, lipase 666. Serum APAP, ethanol and salicylate not detected.
Clinical Course: She was drowsy upon arrival to the ED which improved after 1 L IVFs and an antiemetic. In the PICU she become more hypotensive and had a cardiac arrest. She was intubated (after aspirating), ventilated and received sodium bicarbonate, calcium and epinephrine with ROSC (MAP 55). Her BP declined (BP 63/36, HR 147) and she developed worsening renal (Cr 2.4) and hepatic (INR 2.8) function. She died shortly after admission to the PICU.
Autopsy Findings: Antemortem peripheral blood: colchicine 44 ng/mL. Cause of death: intoxication of colchicine and other unknown drugs; manner of death: suicide.

Case 386. Acute acetaminophen ingestion: undoubtedly responsible

Scenario/Substance: A 17 y/o female was evaluated in the ED for sore throat with vomiting and had an APAP level of 30 but was discharged. She returned to the ED the following day unresponsive with jaundice and sluggish pupils.
Physical Exam: On readmission: BP 115/79, HR 127, O_2 sat 100% (RA), T 37 °C.
Laboratory/Diagnostic Findings: On first ED visit: Serum APAP 30 mcg/mL; serum salicylate and ethanol not detected. On second ED visit: AST 6,332, ALT 7,489, INR 13, lactate 8.6. EKG: sinus tachycardia.
Clinical Course: When she returned to the ED, she was only responsive to pain, had icteric sclerae and jaundice, pupils 7 mm and sluggish. NAC IV was started and she was transported for liver transplant evaluation. She received vitamin K and 4 units of FFP. It was then learned that she had intentionally taken an overdose of APAP 3 days prior and had been nauseated with vomiting for the past 2 days. On Day 2 she was intubated and started on epinephrine drip. ICP monitoring was initiated, for anisocoria, and measured in the 90s. She received 2 boluses of 3% NaCl with ICP improvement. Head CT showed CSF narrowing and potential cerebral edema, no intracranial hemorrhage. She received CRT, plasmapheresis and continued IV NAC. Repeat tests: AST 1559, ALT 1402, bilirubin 4.6, ammonia 143, lactate 4.37. Over the next several days her ICP increased, averaging 30-50 despite interventions. Her AST and ALT decreased (44/134) and INR was 1.9 on Day 4. On Day 6 she was removed from the transplant list due to shock and refractory intracranial hypertension. She had constricted pupils; EEG showed burst suppression. Repeated hypertonic saline was provided without benefit. Based on the prognosis, comfort measures were instituted and she died on Day 11.
Autopsy Findings: Not available.

Case 389. Acute-on-chronic colchicine ingestion: undoubtedly responsible

Scenario/Substances: A 17 y/o female reported taking 10 of her 0.6 mg colchicine tablets due to pain. Her father stated it could have been up to 45 tablets.
Past Medical History: Mediterranean fever and rheumatic fever.
Physical Exam: Alert and oriented. BP 120/65, HR 79.
Laboratory/Diagnostic Findings: WBC 2.9, AST 22, ALT 32. Repeat values: WBC 13.3, neutrophils low at 900. AST 244, ALT 113, bilirubin 0.1 then 0.6, albumin 3.5, ALP 115, Tprot 6.2, BUN 5, Cr 0.61, CO_2 18, Cl 119, Ca 8.3 and CK 79. EKG was unremarkable.
Clinical Course: Patient was admitted to the ICU. On Day 2 she was treated for vomiting but developed recurrent emesis, diarrhea, and abdominal and back pain. Aspiration was suspected based on her O_2 sat of 91% (2 LPM); BP 108/78, HR 106, RR 47. She received IVFs, famotidine, esomeprazole, ondansetron and morphine. She was transferred to a tertiary care center where she was intubated and sedated with dexmedetomidine and fentanyl. On Day 3 she was placed on HD. BP 60/40, HR 100-220; she was started on epinephrine, norepinephrine and vasopressin. She died on Day 3.

Autopsy Findings: Cause of death: acute colchicine intoxication; manner of death: suicide. Toxicology analysis by LC-MS/MS on antemortem peripheral blood showed colchicine 43 ng/mL.

Case 838. Acute acetaminophen ingestion: undoubtedly responsible

Scenario/Substances: A 52 y/o female was found unresponsive with emesis at home. She was last seen about 8 h prior to ED arrival.
Past Medical History: Prior suicide attempts.
Physical Exam: BP 114/60, HR 83, T 33 °C, O_2 sat 97% on ventilator.
Laboratory/Diagnostic Findings: ABG-pH 7.09/pCO_2 17.9, Lactate 12.5, Na 142/Cl 90/CO_2 5/BUN 23/Cr 2.1/Glu 146/AG 47, OG 24 (measured 325, calculated 301). Serum APAP 759 mcg/mL (at least 8 h post dose).
Clinical Course: Patient was started on NAC and received fomepizole and HD for possible toxic alcohol. She deteriorated despite aggressive therapy and died on Day 1.
Autopsy Findings: Cause of death: APAP intoxication, post-mortem APAP concentration 300 mg/L.

Case 1132. Acute ketamine, etizolam, dextromethorphan, Mitragyna speciosa korthals, lysergic acid diethylamide, ethanol ingestion: undoubtedly responsible

Scenario/Substances: A 25 y/o male was using LSD, kratom, dextromethorphan and ethanol after an argument with his girlfriend. He was later found cyanotic with agonal breathing and O_2 sat in the 80's. He was intubated and transported to the ED.
Past Medical History: Anxiety, depression with suicidal ideation, hypertension and chronic back pain.
Physical Exam: GCS 3, pupils 8 mm and sluggish. BP 123/70, HR 93, RR 20, O_2 sat 98%, T 35.7 °C.
Laboratory/Diagnostic Findings: WBC 14.4, K 3.1, Ca 8.2, CO_2 18, Cr 2.03, Glu 177, AG 23, bilirubin 2.1, lactate 11.2. Serum APAP and salicylate were not detected. UDS negative. ABG-pH 7.199/pO_2 104.5/HCO_3 14.3/BE -12.9, MetHgb 0.4%. Head CT was normal. Repeat LFTS (12 h later): AST 379 then 900, ALT 379 then 1040. EKG: QRS 152, QTc 554.
Clinical Course: In the ED he became hypotensive and was started on norepinephrine. He began posturing; Head CT was negative. He received IVFs and increased vasopressors for increased metabolic acidosis which resolved with fluids and vasopressor support. He became bradycardic and died on Day 2 from suspected brain herniation.
Autopsy Findings: Postmortem blood toxicology analysis: ketamine 1400 ng/mL; nor-ketamine 240 ng/mL; dextromethorphan 370 ng/mL; mitragynine 170 ng/mL; LSD (not quantified). Cause of death: acute ketamine, dextromethorphan, mitragynine and etizolam intoxication; manner of death: accidental.

Case 1138. Acute lidocaine parenteral: probably responsible

Scenario/Substances: A 68 y/o male presented to the ED with trigeminal neuralgia. Neurology recommended lidocaine 5 mg/kg over 1 h but he mistakenly received 2 gm and developed asystole.
Past Medical History: HTN, GERD, gout.
Laboratory/Diagnostic ABG-pH 7.06/pCO_2 36.4/pO_2 93.2/HCO_3 10.4. Na 132/K 4.6/Cl 99/CO_2 14/BUN 28/Cr 3.27/Glu 233, AG 19, Mag 3.3, Phos 7.1. WBC 53.3/Hgb 11.9/Hct 31.2/PLT 258, PT 12.3.
Clinical Course: CPR was initiated with ROSC. He was intubated and received ILE. BP 70/44, HR 41, RR 30, T 36 °C. He was admitted to ICU and required high doses of epinephrine, phenylephrine, norepinephrine, vasopressin and dopamine. He had no neurological activity or improvement. Based on the prognosis, family opted for comfort measures and he died on Day 2.
Autopsy Findings: Not available.

Case 1209. Acute venlafaxine ingestion: undoubtedly responsible

Scenario/Substances: A 33 y/o male ingested 157 venlafaxine 150 mg XL in a suicide attempt.
Past Medical History: Anxiety, depression, obsessive compulsive disorder. Noncompliant with past prescription for venlafaxine.
Physical Exam: BP 99/66, HR 102, RR 16, O_2 sat 98% (RA), T 37 °C. He was alert and oriented, GCS 15, physical exam was normal.
Laboratory/Diagnostic Findings: Glu 170, Cl 107, EKG: HR 125, QRS 100, QTc 603; later: QRS 180, QTc 398. ABG-pH 7.27/pCO_2 51/pO_2 193/HCO_3 23.1/BE -4. ABG several h later: pH 7.14/pCO_2 66/pO_2 62/HCO_3 21.3/BE -8.8.
Clinical Course: He received Mg for QTc prolongation. Shortly after arrival he had a seizure which resolved with lorazepam; ocular clonus, diaphoresis and hyperthermia was reported (T 38 °C). He was intubated for airway protection, and received additional lorazepam, midazolam and 12 mg cyproheptadine for serotonin syndrome prior to being transferred to a tertiary care center. He required norepinephrine drip for hypotension and was loaded with leviteracitam. EEG was abnormal without focal or epileptiform findings. He developed hypoxia; ABG and CxR were consistent with ARDS. Antibiotics and steroids were administered; his hypoxia was not improved after being paralyzed with ventilator adjustments. He developed worsening acidosis and oliguria; a sodium bicarbonate drip was started. He suffered a PEA arrest. Based on the prognosis, the family opted for institution of comfort measures and he died on Day 3.
Autopsy Findings: Venlafaxine concentration (unknown sample) 26.3 mg/L. Cause of death: venlafaxine toxicity; manner of death: suicide.

Case 1290. Acute diphenhydramine ingestion: undoubtedly responsible

Scenario/Substances: A 3 y/o female was found by her mother, unresponsive and apneic, face-down on a couch pillow. EMS performed CPR, intubation and provided intraosseous medications during transportation to the ED.
Laboratory/Diagnostic Findings: ABG-pH $<$6.5/pCO_2 19/pO_2 65/BE $>$-30. Na 143/K 5/Cl 112/CO_2 2/BUN 12/Cr 0.6/Glu $<$ 10, AG 29, AST 2,333, ALT 3,564, bilirubin 0.3, INR 6.5, PTT $>$ 250, WBC 18/Hgb 7/Hct 22.6/PLT 55. Serum APAP, ethanol and salicylate not detected. UDS and blood by LC/MS/MS were positive for diphenhydramine. CxR: extensive airspace disease consistent with aspiration with pulmonary edema; bowel distention. CT head: hypoxic-ischemic changes, cerebral edema with impending herniation. ECG: HR 136, QRS 62, QTc 545.
Clinical Course: ROSC was achieved in the ED after intubation (EMS ETT was in the esophagus): BP 90/51, HR 129, RR 22, T 32 °C, O2 sat 84% (FiO_2 100%). Pupils dilated, blood oozing from nares, mouth and rectum; good air exchange but rales and rhonchi; abdominal distended; extremities cool with poor pulses and delayed capillary refill. In the PICU she was received glucose, sodium bicarbonate, calcium, FFP, PLTs, and vasopressor drips. Based on the prognosis, the family opted for comfort measures and she died within several hours of admission.
Autopsy Findings: Cause of death: anoxic encephalopathy from accidental diphenhydramine toxicity. Postmortem blood diphenhydramine 2733 ng/mL

Case 1332. Acute-on-chronic hydroxychloroquine ingestion: undoubtedly responsible

Scenario/Substances: A 77 y/o female was found ~2 h after last being seen, with a suicide note and missing pills. Her medications included buspirone, valproic acid, methotrexate and hydroxychloroquine.
Past Medical History: COPD, NIDDM, hypertension, PTSD, CVA, prior suicide attempts.
Physical Exam: Initially BP 99/62 then 62/49. Bradycardic. Fixed and dilated pupils.
Clinical Course: She was initially alert but became unresponsive, developed VT cardiac arrest, was defibrillated, intubated and given 2 rounds of epinephrine via EMS. In the ED she received amiodarone, sodium

bicarbonate, magnesium, calcium, epinephrine and 90 min of CPR. She died within 2 h of hospital arrival.
Autopsy Findings: Autopsy demonstrated COPD, mild liver steatosis and portal inflammation, moderate glomerulosclerosis with cysts. Postmortem aortic blood: diazepam 0.02 mg/L, nordiazepam 0.074 mg/L, valproic acid 32 mg/L. No other organic acids/neutrals or bases were detected. Antemortem peripheral blood: hydroxychloroquine 18 mg/L. Cause of death: hydroxychloroquine poisoning; manner of death: suicide.

Case 1344. Acute diltiazem ingestion: undoubtedly responsible

Scenario/Substances: A 14 y/o female presented to the ED ~6 H after ingesting an unknown amount of diltiazem.
Past Medical History: Psychiatric disorder.
Physical Exam: In the ED she was alert and oriented; BP 70/40, HR 80, O_2 sat 98% (RA).
Laboratory/Diagnostic Findings: ABG-pH 6.9/pCO_2 70/pO_2 79/HCO_3 8.0. K 2.6, BUN 17, Cr 0.9. Serum APAP, ethanol and salicylate not detected. CxR: ARDS. ECG: junctional bradycardia.
Clinical Course: In the ED she had a seizure and was intubated prior to transfer to a tertiary care PICU. She was treated with IVFs, norepinephrine, sodium bicarbonate, Ca, HIE and ILE. Vasopressors and calcium drips were continued and ECMO was started. Several hours later she became bradycardic (HR 30s) which was unresponsive to atropine, glucagon, isoproterenol and transcutaneous pacing. Hypotension (MAP 40) and acidosis persisted despite interventions and she died on Day 3.
Autopsy Findings: Cause of death: diltiazem intoxication. Diltiazem blood concentration: 15,000 ng/mL.

Case 1582. Acute calcium carbonate unknown: undoubtedly responsible

Scenario/Substances: A 20 y/o male was found unresponsive in an industrial tanker that he was cleaning which contained $CaCO_3$/limestone/quartz vapors.
Physical Exam: Unresponsive, covered in a white powder.
Laboratory/Diagnostic Findings: ABG-pH 7.07/pO_2 106/pCO_2 47.2. Na 143/K 4.7/Cl 113/CO_2 11/Glu 113/BUN 18/Cr 1.3, lactate 9.4, troponin 1932. CT chest: bilateral pulmonary consolidations consistent with ARDS or hemorrhage.
Clinical Course: Upon ED arrival he was intubated for hypoxia. During decontamination he had a PEA arrest and received CPR x 2 min, 1 mg of IV epinephrine with ROSC. He had then had a second cardiac arrest which responded to epinephrine. He was started on epinephrine and norepinephrine drips and transferred to a burn center. He remained unresponsive on ventilator: BP 111/85, HR 166, RR 21, O_2 sat 96%, T 37 °C. He received 5 g hydroxocobalamin. Despite ventilator adjustments he developed hypoxia (O_2 sats in the 60s%). In the ICU he had a third cardiac arrest threated with epinephrine, Ca, sodium bicarbonate and defibrillation. He was too unstable for ECMO and after 35 min of ongoing resuscitation was declared dead.
Autopsy Findings: Cause of death: asphyxia. Autopsy findings: massive lung hemorrhage and patchy pneumonia; cerebral edema with sagittal sinus thrombosis.

Case 1583. Acute-on-chronic sodium chloride ingestion: undoubtedly responsible

Scenario/Substance: A 22 y/o female was found seizing with emesis and cyanosis after ingesting large amounts of salt to induce vomiting.
Past Medical History: Asthma, anorexia.
Physical Exam: Unresponsive.
Laboratory/Diagnostic Findings: VBG-pH 6.91/pCO_2 76/pO_2 227/HCO_3 15.2, BE -18.3. Na 172/K 3.6/Cl 150/CO_2 16/BUN 5/Cr 0.94/Glu 405/AG 6, Ca 5, lactate 3.3, beta hydroxybutyrate 0.1mmol/L, AST 37, ALT 19, bilirubin 0.5, PT 12.1, PTT 26, INR 1.06, WBC 12.2/Hgb 13.1/Hct 43.9/PLT 371. Serum APAP, ethanol and salicylate not detected. UDS was negative. Urine specific gravity slightly elevated. Head CT was negative; CT abd/pelvis demonstrated a massively dilated stomach with a bezoar; no evidence of perforation. ECG: HR 139, QRS 72, QTc 553.
Clinical Course: She was given midazolam for intubation in the ED; she received D5 IVFs and free water via orogastric tube. Gastric lavage with a carbonated beverage was attempted to try to break up the bezoar. Sodium bicarbonate and insulin drips were started for acidosis and hyperglycemia. An EEG on Day 2 did not demonstrate any seizure activity. She developed increased tachycardia, abdominal distention and rigidity. An exploratory laparotomy showed gastric perforation with free air; 70 cm of dead bowel was resected. She had a cardiac arrest in the OR and underwent CPR with ROSC within 2 min. In the ICU she developed hemorrhagic septic shock which was treated with multiple vasopressors. CRRT was performed to correct her sodium; she received multiple transfusions (24 packed RBCs and FFP, cryoprecipitate and tranexamic acid) for DIC (PLT 14, fibrinogen 66) with bleeding from lines, nose, mouth and wounds. A bedside laparotomy showed diffuse bowel and liver necrosis. Based on the prognosis, comfort measures were instituted and she died on Day 3.
Autopsy Findings: Not available.

Case 1584. Acute iron, ethanol ingestion: undoubtedly responsible

Scenario/Substances: A 26 y/o male intentionally ingested 1.5 bottles of 325 mg ferrous sulfate tablets. He presented to the ED with abdominal pain, hematemesis and hematuria.
Past Medical History: Bulimia, alcoholism, and depression.
Physical Exam: Obtunded; HR 119. In the ICU: BP 78/50, HR 124, RR 28, T 38.3C.
Laboratory/Diagnostic Findings: Laboratory interference with some tests. ABG-pH <6.8, HCO_3 2, Cr 2.5, INR 5, Hgb 20, lactate 14. Ethanol 173 mg/dL, serum APAP and salicylate not detected. Initial serum iron was 21 mcg/dL; 12 h later it was 762 mcg/dL. CxR: pneumomediastinum. Abd CT: widespread edema and mucosal inflammation.
Clinical Course: He was intubated the ED, received blood products and antibiotics, and then transferred to a tertiary care center where he was started on deferoxamine, fentanyl, propofol, norepinephrine and dextrose drips. On Day 2, he had worsening pneumomediastinum, pneumothorax and pneumopericardium with bloody rectal and orogastric tube output; repeat PLT 90. He had worsening renal (peak Cr 6.3) and hepatic (ALT 7595) function and died on Day 3.
Autopsy Findings: Cause of death: acute iron toxicity; manner of death: suicide. Autopsy demonstrated cerebral edema, GI hemorrhage, extensive mucosal iron deposition in GI tract (crusted on the surface of the rugae). Petechias and hemorrhages on pericardial, pulmonary pleural, bowel and mesenteric surfaces, renal cortex and adrenal glands consistent with DIC.

Case 1585. Acute-on-chronic ferrous sulfate, salicylate, clonazepam, hydroxyzine, sertraline ingestion: undoubtedly responsible

Scenario/Substances: A 40 y/o female was found down with empty bottles of ferrous sulfate, hydroxyzine, sertraline and clonazepam. EMS transported her to the ED.
Past Medical History: Medications: clonazepam, sertraline, prazosin, oxycodone/APAP and quetiapine.
Physical Exam: GCS 8. BP 87/64, HR 50, RR 28, O_2 sat 97% (RA).
Laboratory/Diagnostic Findings: ABG-pH 7.14/pCO_2 40/pO_2 108/HCO_3 13.5/BE -15.5. Na 135/K 2.9/Cl 106/CO_2 12/BUN 14/Cr 0.98/Glu 221, AG 17, Mg 0.5, Ca 5.7 AST 14, ALT 7, bilirubin 2.8. INR 3.04, WBC 20.8/Hgb 18.1, lactate 5.3. Serum APAP and ethanol not detected. Serum ASA 36 mg/dL (later 19.3); serum iron: > 2000 mcg/dL. Subsequent iron concentrations: >2000 mcg/dL 4 h after arrival, 788 mcg/dL 13 h after arrival, 203 mcg/dL 19 h after arrival, 138 mcg/dL 29 h after arrival, 115 mcg/dL 53 h after arrival.
Clinical Course: In the ED she was sedated, intubated and ventilated. She received IVFs, and deferoxamine (after it was obtained from another

hospital). Her SBP dropped to 40 during the deferoxamine drip, it was stopped and a norepinephrine drip was started. In the ICU the deferoxamine was restarted at a slower rate; 100 mEq sodium bicarbonate was given for acidosis (pH 7.1). Blood was noted in her mouth and she started producing black tarry stool (Hgb 18.1, then 15.6 2 h later, then 9.6). She developed acute renal and hepatic dysfunction (Cr 1.25 then 2.4; ALT 792 then 3,226). Norepinephrine was increased to support BP during deferoxamine infusion (total dose was 26 g). On Day 2 she required phenylephrine drip for BP support (HR 135, BP 106/54). NAC and vitamin K were given for hepatotoxicity; 2 units of FFP was transfused. By Day 3 she was requiring 5 pressors (HR 140, BP 41/23). Her pupils were non-reactive; she became oliguric and coagulopathic despite blood products and vitamin K. She went into PEA arrest, was coded for 45 min, and died on Day 3.
Autopsy Findings: Not available.

Case 1586. Acute sodium bicarbonate ingestion: undoubtedly responsible

Scenario/Substances: A 72 y/o male used ~ 1/2 box of baking soda to relieve constipation.
Past Medical History: Small bowel obstruction, constipation, HTN, NIDDM and AF. Medication: rivaroxaban.
Laboratory/Diagnostic Findings: ABG in the ED: pH 7.58/pCO_2 38/pO_2 181/HCO_3 36; Na 160 (then 168, 175).
Clinical Course: In the ED he exhibited seizure activity and was transferred to a tertiary care center. At that point vital signs revealed BP 70/50, HR 120, and T 40 °C. He continued to deteriorate and 6 h after ICU admission was without cough or gag and his pupils were fixed and dilated. His heart rate had decreased to 60 and his blood pressure came up to 125/49 on norepinephrine. He was receiving D5NS and free water intravenously and his urine output was 450 cc per hr. His serum sodium at that time was 168. He received levetiracetam for seizures. A head CT 12 hr after admission showed partial herniation with cerebral edema. His serum sodium at that time had increased to 175. He showed no reflexes or posturing. On Day 2 he remained unresponsive, requiring 3 vasopressors to maintain BP. He received potassium for hypokalemia (potassium level noted as "very low"). Based on the prognosis, the family opted for institution of comfort measures and he died shortly thereafter.
Autopsy Findings: Cause of death: trans-tentorial herniation and anoxic brain resulting from ingestion of baking soda.

Case 1587. Chronic lactulose ingestion: undoubtedly responsible

Scenario/Substances: A 2 y/o female with a complex medical history including hyperammonemia secondary to valproic acid use, received excessive doses of lactulose.
Past Medical History: Microcephaly, seizures, developmental delay, gastric tube. Medications included valproic acid (and 4 other anticonvulsants) and L-carnitine.
Physical Exam: BP 69/38, HR 145, RR 26, T 35.8 °C. GCS 3, intubated, absent bowel sounds.
Laboratory/Diagnostic Findings: Na 144/K 4.7/Cl 111/HCO_3 20/BUN 7/Cr <0.2/Glu 76, Ca 9.6, lactate 0.8, AST 7, ALT 18, albumin 3.9. WBC 7.8/Hgb 10.2/Hct 31/PLT 216. Valproate 91 mcg/mL, topiramate 6.8 mcg/mL, levetiracetam 17.3 mcg/mL. Ammonia 235. Repeat labs: phenytoin: 10.7 mcg/mL, ammonia 219. On Day3: VBG-pH <6.9/PCO_2 >80/HCO_3 10/BE -25, lactate 5. ABG (3.5 h later): pH 6.99/pCO_2 42/pO_2 47/HCO_3 12, lactate 8.92. Repeat labs: Na 182 (peak 201 1.5 h later), K 3 (nadir 2.3 1.5 h later), Cl 157, Cr 2.65, Glu 1209, Ca 9.3, AG 14, WBC 24.1, osmolality 482.
Clinical Course: In the hospital she received extra doses of lactulose every 4 h via gastric tube. On Day 2 she was transferred to the PICU for status epilepticus; she received her routine medications and 2 doses of lorazepam. She had hypoxia (O_2 sats ~75%) and tachycardia (HR ~200). She was placed on oxygen and received 20 cc/kg NS IVFs, levetiracetam load (20 mg/kg) and fosphenytoin (20 mg/kg). She developed apneic episodes with desaturations and lost pulses. She had ROSC after CPR, intubation, epinephrine, sodium bicarbonate boluses and IVFs. She required vasopressors (norepinephrine, vasopressin, angiotensin II) for shock. Cardiac ECHO demonstrated a LVEF of 30%. She was started on CRRT, D5W drip, stress-dose hydrocortisone, and electrolyte replacement. EEG showed status epilepticus with encephalopathy. She became bradycardic, desaturated and coded several times. Despite ongoing resuscitation efforts, she died on Day 3.
Autopsy Findings: Cause of death: electrolyte imbalance due to lactulose administration; manner of death: accidental.

Case 1589. Acute loperamide ingestion: undoubtedly responsible

Scenario/Substances: A 28 y/o male (last seen ~ 5 h earlier) was found down by his mother after a loperamide overdose.
Past Medical History: Opioid and loperamide abuse.
Physical Exam: Unresponsive in cardiac arrest.
Laboratory/Diagnostic Findings: Serum APAP, ethanol and salicylate not detected.
Clinical Course: CPR was continued in the ED where he received naloxone, epinephrine (1mg x 4) and sodium bicarbonate (50 mEq). He was defibrillated x 2 for VT with ROSC. About 4 h later he remained comatose with dilated pupils on an amiodarone drip. BP 226/179, HR 110. He died about 16 H after admission.
Autopsy Findings: Cause of death: loperamide intoxication; manner of death: accident. Hospital blood (from time of admission): loperamide 46 ng/mL.

Case 1598. Acute metformin ingestion: undoubtedly responsible

Scenario/Substances: A 13 y/o female was found unresponsive, ~ 7 h after last being seen. EMS documented hypoglycemia (Glu < 20) and treated her with dextrose.
Past Medical History: Self-harm (cutting).
Laboratory/Diagnostic Findings: Initial ABG-pH 6.88/pCO_2 16/pO_2 164/HCO_3 3/BE -30. CT head and chest radiograph were unremarkable. Serum APAP, ethanol and salicylate not detected. UDS was negative. Later, in the PICU: HR 130, pH 6.9, pCO_2 60, HCO_3 <10, O_2 sat 100%, lactate 25, PTT 20 (then 31.1), INR 1.9 (then 1.5), ALT 27, AST 54. Serum methanol and ethylene glycol were not detected. CK 7,848, troponin 1.15, ammonia 250, fibrinogen 171.
Clinical Course: In the ED she had AMS that did not improve with naloxone; she was intubated. Multiple boluses of dextrose and sodium bicarbonate were administered, and she was transferred to a tertiary care center. 'Bright red venous blood' raised concern for cyanide toxicity and she received hydroxocobalamin. She became hypotensive requiring vasopressors. She remained coagulopathic despite treatment with Vitamin K, cryoprecipitate and fresh frozen plasma. Other treatments included calcium chloride, azithromycin, piperacillin/tazobactam, metronidazole, lactulose, hydrocortisone, sodium bicarbonate, epinephrine, insulin, norepinephrine, dexmedetomidine and vasopressin drips. Repeat CT head showed ischemic changes in both hemispheres, basal ganglia and brain steam. She developed multisystem organ failure and cerebral edema that did not improve with mannitol and hypertonic saline. She developed tonsillar herniation; comfort measures were instituted and she died on Day 3.
Autopsy Findings: Cause of death: metformin toxicity; manner of death: suicide. Toxicologic analysis of pre-mortem hospital blood showed metformin 76 mcg/dL.

Case 1602. Acute insulin exposure: probably responsible

Scenario/Substances: A 34 y/o female was found unresponsive with two empty insulin pens belonging to a roommate. EMS gave naloxone without effect; Glu was not detectable.
Past Medical History: Anxiety, depression, and pseudoseizures. Medications: alprazolam, clonidine, diphenhydramine, iron, gabapentin, lurasidone, metoclopramide, ondansetron, pantoprazole, paroxetine, prazosin and bismuth subsalicylate

Physical Exam: Intubated, unresponsive with dilated pupils and posturing. BP 102/66, HR 170s, RR 15, T 37.5 °C, O_2 sat 100% (ventilated).
Laboratory/Diagnostic Findings: Glu 49 (after dextrose) then increased to 170 after several D50 boluses. Electrolytes were 'normal.' Serum APAP, ethanol and salicylate not detected. UDS positive for TCAs, benzodiazepines and methadone. ECG: ST QRS <100, QTc 480. Insulin level 5.6 mIU/L, c-peptide <0.01.
Clinical Course: Octreotide and dextrose were given for repeated hypoglycemia. The patient remained comatose, was made comfort care only and died.
Autopsy Findings: Not available.

Case 1757. Acute methylenedioxymethamphetamine ingestion: undoubtedly responsible

Scenario/Substances: A 25 y/o male ingested "molly" at a rave and had a seizure lasting 8 min. He was intubated in the field and transported
Past Medical History: Crohn's disease, asthma, hay fever.
Physical Exam: Pupils fixed and dilated. BP 189/98, HR 98, RR 17, O_2 sats 100%, T 32.7 °C .
Laboratory/Diagnostic Findings: Na 117, K 3.2, CO_2 17, Glu 116, osmolality 238, AST 25, ALT 47, PT 12.7, INR 1.1.
Clinical Course: In the ED he became more hypertensive (BP 230/120) and received propofol and labetalol. He received hypertonic saline bolus and drip. Repeat Na 129. Head CT showed diffuse cerebral edema and herniation. Based on his poor prognosis, family elected for comfort care and he died within 48 h of admission.
Autopsy Findings: Cause of death: anoxic encephalopathy due to MDMA (Ecstasy); manner of death: accidental. Postmortem MDMA concentration 930 ng/mL.

Case 1759. Chronic marijuana (liquid), nicotine (liquid) inhalation/nasal: probably responsible

Scenario/Substances: A 25 y/o male presented to the ED complaining of fatigue and SOB with a 10-week history of vaping nicotine and marijuana. He also reported chest pain, weight loss and fevers.
Physical Exam: In the ED O_2 sat 70s% (RA), tachycardia and he was placed on an NRB. Pupils midrange and reactive, EOMI, pulmonary crackles bilaterally, no focal neurological deficits.
Laboratory/Diagnostic Findings: ABG-pH 7.41/pCO_2 38/pO_2 95. Na 133/K 4.3/Cl 92/CO_2 25/BUN 17/Cr 0.6/Glu 115, INR 1.2, WBC 15.9/Hgb 10.8/Hct 31.7/PLT 572, CPK 81. Serum APAP, ethanol and salicylate not detected. UDS was positive for THC.
Clinical Course: He was admitted to the ICU where his condition deteriorated; he was intubated and sedated. CxR showed bilateral opacities; he developed a pneumothorax after central line placement on Day 2. He required vasopressors for hypotension; methylprednisolone was administered for presumed vaping-related pulmonary illness. WBC increased to 25 with low grade fevers. Blood cultures and sputum cultures were reported as negative. On Day 8 a tension pneumothorax developed in the opposite lung; he received another chest tube. He was transferred for ECMO therapy but died 2 months after presentation from pulmonary dysfunction and hypoxia presumed to have been caused by vaping related injuries.
Autopsy Findings: Not available.

Case 1779. Unknown methamphetamine, heroin ingestion, rectal: undoubtedly responsible

Scenario/Substances: A 29 y/o male driver swallowed heroin and stuffed a bag of methamphetamine in his rectum while being pulled over by police. At home, two days later, he had a seizure while attempting to remove the methamphetamine with an enema. His girlfriend called EMS, midazolam given, he became apneic and was transported to the ED.
Past Medical History: Drug abuse, hepatitis C.
Physical Exam: For EMS: BP 133/77, HR 92, RR 8 (assisted), Glu 72. In the ED: BP 104/67, HR 75, RR 16, O_2 sat 99%, pupils 7 mm and reactive.
Laboratory/Diagnostic Findings: VBG: pH 7.26/pCO_2 68/pO_2 94/HCO_3 30/BE 3. Na 139/K 3.5/Cl 103/CO_2 26/BUN 9/Cr 0.85/Glu 85, AG 10, AST 39, ALT 42, bilirubin 0.6, INR 1.2, WBC 7.4/Hgb 15.1/Hct 44.1/PLT 294. Serum APAP, ethanol and salicylates not detected. UDS positive for amphetamines, benzodiazepines and opiates. CxR: unremarkable. Head CT was negative. ECG: HR 81, QRS 118, QTc 506.
Clinical Course: He received naloxone without response but then had a seizure. He was intubated and sedated, received Mg for QTc prolongation (repeat QTc 600). In the ICU he had 5 seizure episodes on EEG. He was loaded with levetiracetam; EEG showed continued seizure. Propofol was restarted and his seizures resolved. On Day 2 a repeat CT head CT showed white matter hypoattenuation and cerebral edema. He received sodium bicarbonate without QRS shortening. He was cardioverted and required five vasopressors for hypotension. He developed another wide complex tachycardia. The family requested comfort care, and he died on Day 2.
Autopsy Findings: Cause of death: combined toxic effects of methamphetamine and morphine; manner of death: accident. Blood methamphetamine >100,000 ng/mL, amphetamine 15,105 ng/mL, ephedrine 119 ng/mL, morphine 121 ng/mL.

Case 1925. Acute methylsalicylate ingestion: undoubtedly responsible

Scenario/Substances: An 88 y/o male took an intentional overdose of a product containing methylsalicylate, pine oil, cinnamon oil and capsicum. He called EMS who found him unresponsive with a suicide note.
Past Medical History: CAD, HTN, COPD on home O_2, chronic kidney disease.
Physical Exam: BP 112/57, HR 109, RR 28, O_2 sat 100% (NRB), T 36 °C. Obtunded, no gag reflex, pupils 2mm, moving all extremities. Nasopharyngeal airway in place.
Laboratory/Diagnostic Findings: ABG-pH 7.29/pCO_2 30/pO_2 55/HCO_3 16/BE -11. WBC 22, Cr 1.64, HCO_3 21, AG 16, CK 777, lactate 2.8, salicylate 73 mg/dL, then 93.
Clinical Course: In the ED he was intubated, received IVFs, sodium bicarbonate and dextrose. He was admitted to the ICU and underwent HD; salicylate level decreased to 15. He had worsening shock that was refractory to vasopressors. He became hyperthermic, hypoglycemic and had a seizure. Based on the prognosis, the family opted for institution of comfort measures and he died shortly after.
Autopsy Findings: Not available.

ABBREVIATIONS & NORMAL RANGES

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[a], Goldfrank's[b] or Dart[c]

[a]Table SR12-1 Selected Examples of Laboratory Critical Values, *Harrison's Principles of Internal Medicine 20e.* McGraw-Hill Professional, 2018. Available from: http://www.accessmedicine.com/ Oct 6, 2020.
[b]*Goldfrank's Toxicologic Emergencies, 11th Edition*, McGraw-Hill Education, 2019.
[c]*Dart RC, ed. Medical Toxicology, 3rd Edition,* Lippincott, Williams & Wilkins, 2004.

Typical laboratory panels
ABG-pH/pCO_2/pO_2/HCO_3/BE
Basic metabolic panel: Na/K/Cl/CO_2/BUN/Cr/Glu/AG,
Complete blood count: WBC/Hgb/Hct/platelets,

~	approximately;
abd	abdomen;
ABG-pH/pCO_2/pO_2/HCO_3/BE	
ABG	arterial blood gases;
pH	hydrogen ion concentration [7.38-7.42 mmHg];
pCO_2	partial pressure of carbon dioxide [38-42 mmHg];
pO_2	partial pressure of oxygen [90-100 mmHg];
HCO_3	bicarbonate [22 - 28 mEq/L];

BE	base excess [±2mEq/L or mmol/L];
ACLS	advanced cardiac life support, protocol for the provision of cardiac resuscitation;
ADHD	attention deficit hyperactivity disorder;
AF	atrial fibrillation;
AG	anion gap Na – ($Cl + HCO_3$) [12 ± 4 mEq/L or mmol/L];
AICD	automatic implanted cardiodefibrillator;
AKI	acute kidney injury;
ALP	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;
amp	ampoule;
amphetamines (hallucinogenic)	one or more of the products (6-APB, bath salts, plant food, Bliss, Ivory Wave, Purple Wave, Vanilla Sky, et al) or chemicals (3,4 methylenedioxypyrovalerone [MDPV], 6-(2-aminopropyl)benzofuran [6-APB], butylone, desoxypipradrol [2-DPMP], ethylone, flephedrone, naphyrone, mephedrone, methylenedioxypyrovalerone, methylone, methcathinone, et al);
AMS	altered mental status;
APAP	acetaminophen (acetyl-para-aminophenol), therapeutic [10-20] mcg/mL;
APLS	advanced pediatric life support, protocol for the provision of cardiac resuscitation;
aPTT	activated partial thromboplastin time [30-40] sec;
ARDS	acute respiratory distress syndrome;
AST	Aspartate aminotransferase [12-38] U/L = (SGOT);
AV block	atrio-ventricular block;
BAL	British anti-Lewisite;
BE	base excess [±2mEq/L or mmol/L];
bicarbonate	[22-26] mmol/L;
bili (direct)	direct bilirubin [0.1, 0.4] mg/dL;
bili (indirect)	indirect bilirubin [0.2, 0.9] mg/dL;
bilirubin	total [0.3-1.3] mg/dL;
BiPAP	bilevel positive airway pressure, pressure support with 2 levels of continuous positive airway pressure;
BLQ	below the limit of quantitation;
BMI	body mass index;
BNPT	prohormone with a 76 amino acid N-terminal inactive protein that is cleaved from the molecule to release brain natriuretic peptide. CHF is likely if BNPT > 125 pg/mL (<75 y/o), > 450 pg/mL (>75 y/o);
body packing	insertion of drugs into body orifices to evade law enforcement;
body stuffing	the ingestion of drugs in order to evade law enforcement;
BP	Blood Pressure, systolic/diastolic, (Torr);
BPH	benign prostatic hypertrophy;
BUN	see Urea nitrogen;
C	degrees Centigrade;
Ca (ionized)	ionized calcium, [4.5-5.6] mg/dL;
Ca	calcium [8.7–10.2] mg/dL;
CABG	coronary artery bypass graft;
CAD	coronary artery disease;
CHF	congestive heart failure;
CIWA	Clinical Institute Withdrawal Assessment for Alcohol;
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;
CMV	cytomegalovirus;
CNS	central nervous system;
COHb	carboxyhemoglobin (RR < 3%);
COPD	chronic obstructive pulmonary disease;
CPAP	continuous positive airway pressure;
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;
CVP	central venous pressure;
CVVH	continuous venovenous hemodiafiltration;
CxR	chest radiograph, chest xray;
c/w	consistent with;
D10W	10% dextrose in water;
D50W	50% dextrose in water;
D5NS	5% dextrose in normal saline;
D5W	5% dextrose in water;
Day	when capitalized, Day = hospital day, i.e., days since admission to the initial hospital admission for this exposure;
DIC	disseminated intravascualar coagulation;
DM	diabetes mellitus;
DNI	do not intubate;
DNR	do not resuscitate;
drip	intravenous infusion;
Dx	diagnosis;
ECG	electrocardiogram (EKG), leads = I, II, III, aVR, aVL, aVF, V1, V2, V3, V4, V5, V6;
ECHO	echocardiogram;
ECMO	extracorporeal membrane oxygenation;
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;
EGD	esophagogastroduodenoscopy;
ELISA	enzyme-linked immunosorbent assay;
EMS	emergency medical services, paramedics, the first responders;
EOMI	extraocular movements intact.;
ER	extended release medication;
ETT	endotracheal tube;
FFP	fresh frozen plasma;
FiO_2	fraction of inspired oxygen (%);
g	grams;
g/dL	grams per deciliter;
GCS	Glasgow Coma Score, ranges from 3 to 15;
GERD	gastroesophageal reflux disease;
GI	gastrointestinal;
Glu	glucose, fasting [75-110] mg/dL;
h	hours;
HBO	hyperbaric oxygen treatment/therapy;
HCF	health care facility;
HCG	human chorionic gonadotropin test for pregnancy;
HCO_3	bicarbonate [22 - 28 mEq/L];
HCP	health care provider;
Hct	hematocrit [35.4-44.4] females, [38.8-46.4]% males;
HD	hemodialysis;
Hgb	hemoglobin [12.0-15.8] g/dL females, [13.3-16.2] g/dL males;
HIE	hyperinsulinemia-euglycemia therapy;
HIV	human immunodefficiency virus;
Hour	when capitalized, Hour = hours since admission or since exposure as specified in the narrative;
HR	HR, beats per min;
IABP	intraortic balloon pump;
ICP	intracranial pressure;
ICU	intensive care unit;
IDDM	insulin dependent diabetes mellitus;
IgE	immunoglobulin E;
ILE	intravenous lipid emulsion (20%);
IM	intramuscular;
INR	international normalized ratio (PT to control) [0.8-1-2];
IO	intraosseous;
IU/L	international units per Liter;

IV	intravenous;
IVF	intravenous fluid(s);
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 [0.5-1.6] mmol/L arterial, [0.5-2.2] mmol/L venous;
LBBB	left bundle branch block on ECG;
LFT	liver function tests;
LV	left ventricle;
LVEF	left ventricular ejection fraction;
m/o	months old;
MAP	mean arterial pressure;
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, molly);
ME	medical examiner;
MetHgb	methemoglobin (RR $<$ 1%);
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;
ml	milliliter;
mmol	millimoles;
mmol/L	millimoles per Liter (previously mEg/L);
mmol/L	millmoles per Liter;
mosm/kg	milliosmoles per kilogram;
mosm/L	milliosmoles per Liter;
MRI	Magnetic Resonance Imaging;
MRSA	Methicillin-resistant Staphylococcus aureus;
ms	milliseconds;
MSDS	material safety data sheet;
Na	sodium [136-146] mEq/L;
NAC	n-acetyl cysteine;

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
- Laboratory/Diagnostic Findings: initial results, give units except for units given in abbreviations
- Clinical Course: concise narrative of HCF & beyond with outcome

Autopsy Findings	medical examiner and/or autopsy results;
NG	nasogastric;
ng/mL	nanograms per milliliter;
NOS	not otherwise specified;
not detected	analyte below the level of quantitation, negative;
NPO	nil per os, nothing by mouth;
NRB	non rebreathing mask for O_2 delivery;
NS	normal saline;
NSR	normal sinus rhythm;
NSTEMI	non-ST segment elevation myocardial infarction;
O_2 sat	oxygen percent saturation [94-100]% at sea level;
OG	serum osmol gap = measured serum osmolality – calculated serum osmolality [0 ± 10 mOsmol/kg];
OR	operating room;
Osm	osmole;
OTC	over the counter;
PALS	pediatric advanced life support;
PC	poison center (= PCC, or Poison Control Center);
PCC	prothrombin complex concentrate;
PCP	primary care provider;
PEA	pulseless electrical activity;
PEEP	positive end expiratory pressure;
PERRLA	pupils, equal, round and reactive to light and accomodation;
Phos	phosphate (phosphorous) [2.5-4.5] mg/dL;
PICU	pediatric intensive care unit;
PLT	platelet count [150-400] x109/L;
PO	per os ("by mouth" in Latin);
POC	point of care;
Ppm	parts per million;
PR	P-R interval [120-200] msec on the ECG;
PRN	as needed;
PT	prothrombin time, INR is preferred, but PT may be used if INR is not available;
PTA	Prior to admission;
PTSD	post-traumatic stress disorder;
PTT	partial thromboplastin time [26.3-39.4] sec;
PVC	premature ventricular contraction;
QRS	ECG QRS complex duration [60-100] msec;
QT	Q to T interval on the ECG waveform, varies with HR;
QTc	QT interval corrected for HR, usually $QTcB = QT/RR^{1/2}$ (Bazett correction) 1-15 y-o [$<$440] msec, adult male [$<$430] msec, adult female [$<$450] msec;
RA	on room air;
RBBB	right bundle branch block on ECG;
RBC	red blood cell(s);
ROSC	return of spontaneous circulation;
RPC	regional poison center;
RR	respiratory rate, breaths per minute;
s/p	status post;
salicylate	aspirin, acetylsalicylic acid, therapeutic [15-30] mg/dL;
SBP	systolic blood pressure;
sec	seconds;
SL	sublingual;
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;
TBSA	total body surface area;
THC	tetrahydrocannabinol;
THC Homolog	one or more of the products (Blaze, Dawn, herbal incense, K2, Red X, spice, et al) or chemicals (cannabicyclohexanol, CP-47,497, JWH-018, JWH-073, JWH-200, et al);
TPN	total parenteral nutrition;
Tprot	total protein;
troponin	troponin I, normal range [0-0.08] ng/mL, Cut-off for MI $>$ 0.04 ng/mL;
TTE	transthoracic echocardiogram;
U	units;
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;
VBG	venous blood gases;
VF	ventricular fibrillation;
VSD	ventricular septal defect;
VT	ventricular tachycardia;
WBC	white blood cell (leukocyte) count [3.54-9.06] $10^3/mm^3$;
WBI	whole bowel irrigation;
WNL	within normal limits;
y/o	year old;

APPENDIX D

POISONHELP.ORG DATA

Methods: Raw data from PoisonHelp.org was extracted into Microsoft Excel (v. 2009. Redmond, WA, USA) in sequential contact format. On review it was evident that some sequential contacts appeared to be repeat entries due to similarities of nearly every data field over short time periods (i.e., minutes) between contacts. To account for these apparent repeats, identified by adjacent sequential contact numbers or separated by only a single contact, line items with identical age category, state, verbatim substance input, and originating operating system used for contact entry were considered repeat entries and were excluded from the final analyses. An exploratory search for repeat contacts separated by 2 interposed contacts revealed a relatively low number of possible repeats (<1.5%) and were not excluded from the final analysis. Repeat entries excluded by this process were:

Year	2017	2018	2019	3 years
Original Counts	17,870	38,010	43,981	99,861
Final Counts	15,169	34,498	40,419	90,086
Number Excluded	2,701	3,512	3,562	9,775
% Excluded	15.11%	9.24%	8.10%	9.79%

Table D-1. Age Distribution of PoisonHelp.org Contacts (repeats redacted).

	2017	2018	2019
Age <5	7,796	11,405	11,824
6-12	1,152	2,113	2,209
Teen 13-19	1,158	4,156	5,136
Adult 20-69	4,777	1,5485	19,479
Adult 70+	286	1,339	1,771
Total Counts	**15,169**	**34,498**	**40,419**

The table shows ages of individuals who were involved in human exposures (HEs) reported to PoisonHelp.org Virtual Poison Center during the initial 3 years of operation.

Table D-2A. Substance Frequency – 2017.

Substance Generic Code	Contact Counts	Percentage of contacts
Bleaches: Hypochlorite (Liquid and Dry)	283	2.63%
Ibuprofen	276	2.57%
Acetaminophen Alone, Adult	261	2.43%
Other Antihistamines Alone (Excluding Cough and Cold Preparations)	197	1.83%
Pyrethroids	181	1.68%
Diphenhydramine Alone (Over the Counter)	164	1.53%
Diaper Care and Rash Products	158	1.47%
Creams, Lotions, and Make-Up	157	1.46%
Soaps (Bar, Hand or Complexion)	124	1.15%
Desiccants	123	1.14%
Other Non-Drug Substances	107	1.00%
Deodorants	105	0.98%
Hand Sanitizers: Ethanol Based	105	0.98%
Systemic Antibiotic Preparations	102	0.95%
Miscellaneous Essential Oils	101	0.94%

The table lists the 15 most frequent substances involved in cases of human exposures when the substance was known (n = 10,743) reported to PoisonHelp.org in year 2017.

Table D-2B. Substance Frequency – 2018.

Substance Generic Code	Contact Counts	Percentage of contacts
Systemic Antibiotic Preparations	1,080	4.42%
Other Antihistamines Alone (Excluding Cough and Cold Preparations)	966	3.95%
Benzodiazepines	957	3.92%
Atypical Antipsychotics	505	2.07%
Ibuprofen	466	1.91%
Sertraline	463	1.90%
Other Types of Miscellaneous Prescription or Over the Counter Drug	447	1.83%
Acetaminophen Alone, Adult	413	1.69%
Bleaches: Hypochlorite (Liquid and Dry)	372	1.52%
Beta Blocker, Alone	287	1.17%
Diphenhydramine Alone (Over the Counter)	257	1.05%
Leukotriene Antagonist or Inhibitor	243	0.99%
Other Types of Nonsteroidal Anti-inflammatory Drug	238	0.97%
Antacids: Proton Pump Inhibitors	226	0.93%
Pyrethroids	218	0.89%

The table lists the 15 most frequent substances involved in cases of human exposures when the substance was known (n = 24,426) reported to PoisonHelp.org in year 2018.

Table D-2C. Substance Frequency – 2019.

Substance Generic Code	Contact Counts	Percentage of contacts
Systemic Antibiotic Preparations	1,581	5.47%
Benzodiazepines	1,561	5.40%
Other Antihistamines Alone (Excluding Cough and Cold Preparations)	1,338	4.63%
Atypical Antipsychotics	654	2.26%
Other Types of Miscellaneous Prescription or Over the Counter Drug	630	2.18%
Sertraline	613	2.12%
Ibuprofen	498	1.72%
Diphenhydramine Alone (Over the Counter)	489	1.69%
Angiotensin Receptor Blocker, Alone	460	1.59%
Acetaminophen Alone, Adult	392	1.36%
Antacids: Proton Pump Inhibitors	382	1.32%
Beta Blocker, Alone	369	1.28%
Bleaches: Hypochlorite (Liquid and Dry)	340	1.18%
Cimetidine and Other Histamine-2 Blockers	316	1.09%
Leukotriene Antagonist or Inhibitor	306	1.06%

The table lists the 15 most frequent substances involved in cases of human exposures when the substance was known (n = 28,924) reported to PoisonHelp.org in year 2019.

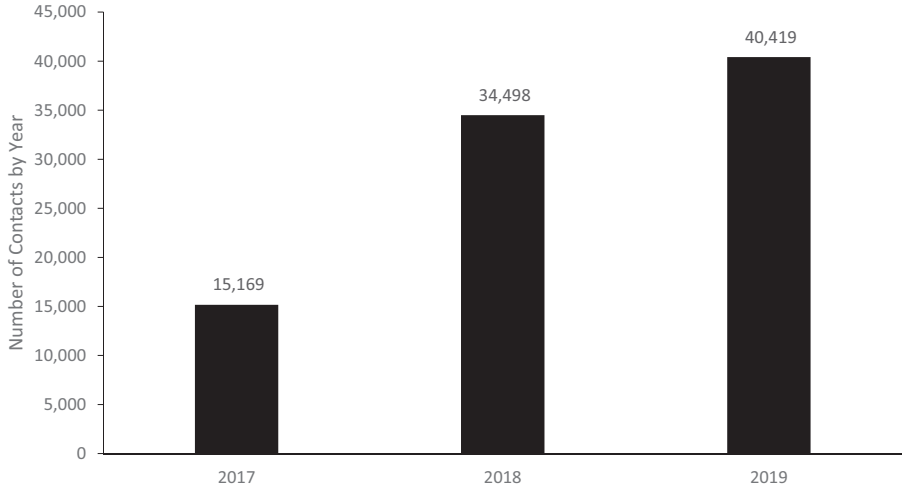

Figure D-1A. Cases per Year. The figure demonstrates total contacts to the PoisonHelp.org Virtual Poison Center during the initial 3 years of operation.

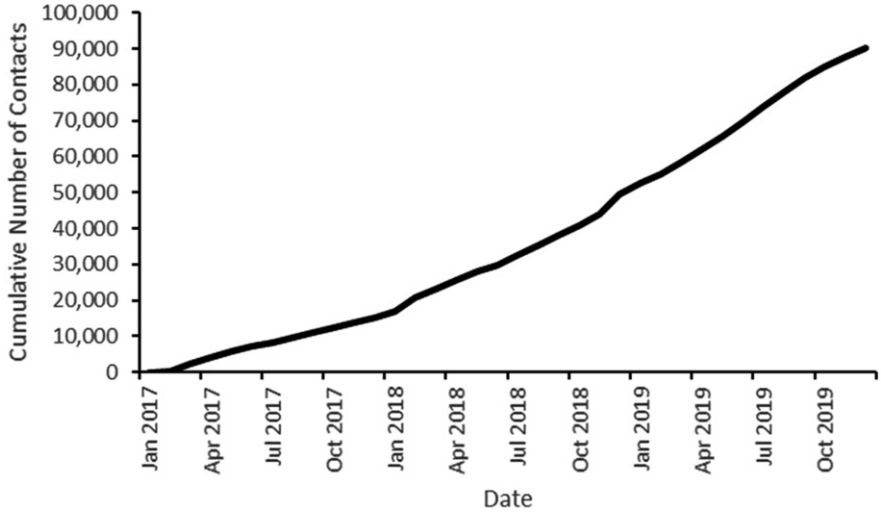

Figure D-1B. Cumulative counts. The figure demonstrates cumulative contacts to the PoisonHelp.org Virtual Poison Center during the first 3 years of operation.

APPENDIX E

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Poison Centers (PCs)

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Regional Poison Center Fatality Awards

Each year the AAPCC and the Fatality Review team recognizes several regional PCs for their extra effort in their preparation of fatality reports and prompt responses to reviewer queries. The awards are presented each year at the North American Congress of Clinical Toxicology Annual meeting.

First Center to Complete all Cases (12/29/18, 19 cases)
Alabama Regional Poison Control Center - Children's Hospital (Birmingham)
Largest Number with Autopsy Reports (43 of 58 cases; 74%)
Maryland Poison Center (Baltimore)
Highest Percentage with Autopsy Reports (92% of 37 cases)
Connecticut Poison Control Center (Farmington)
Largest Number of Indirect cases (n = 1180; 91% of all Indirect cases)
Banner Poison & Drug Information Center (Phoenix)
Highest Overall Quality of Reports (5.89 out of possible 12 for 44 cases)
Connecticut Poison Control Center (Farmington)
Greatest improvement in Overall Quality of Reports (1.98 increase from last year)
Connecticut Poison Control Center (Farmington)
Most Abstracts Published in the 2018 Annual report (6 of the 66 published narratives)
Carolinas Poison Center (Charlotte) [4 years running]
Most Helpful Regional Poison Center Staff (based on survey of AAPCC review team)
Indiana Poison Center
Endurance Award (Reviewer and additional voluntary efforts for the NPDS review process)
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APPENDIX F

DATA DEFINITIONS

Table of Clinical Effects

The following table details the clinical effects available in NPDS, status and the date they were activated or deactivated. For new clinical effects or those with a name change, a column shows what the clinical effects was classified as to prior to the new code or name change.

Name	Status	Added	Inactivated	Previous Mapping/Name
Cardiovascular				
Asystole	Active	1/1/2000		
Atrial Fibrillation/Flutter*	Active	1/1/2019		Dysrhythmia, other
Bradycardia	Active	1/1/1993		
Cardiac arrest	Inactive	1/1/1993	1/1/2019	Asystole
Chest pain (incl. noncardiac)	Active	1/1/1993		
CK-MB elevation*	Active	1/1/2019		CPK Elevation
Conduction disturbance	Inactive	1/1/1993	1/1/2019	
Dysrhythmia (other/N.O.S.)†	Active	1/1/1993		Dysrhythmia (other)
ECG change - PR prolongation*	Active	1/1/2019		Conduction Disturbance
ECG change - QRS prolongation*	Active	1/1/2019		Conduction Disturbance
ECG change - QTc prolongation*	Active	1/1/2019		Conduction Disturbance
ECG change (other/N.O.S.)†	Active	1/1/2000		EKG Change, other
Heart Block (2nd, 3rd degree)*	Active	1/1/2019		Conduction Disturbance
Hypertension	Active	1/1/1993		
Hypotension	Active	1/1/1993		
Pulseless Electrical Activity*	Active	1/1/2019		EKG Change, other
Tachycardia	Active	1/1/1993		
Torsade de pointes*	Active	1/1/2019		Dysrhythmia (other)
Troponin elevation*	Active	1/1/2019		Miscellaneous, other
V. tachycardia/V. fibrillation†	Active	1/1/1993		Dysrhythmia (v tach, v fib)
Other - Cardiovascular*	Active	1/1/2019		Miscellaneous, other
Dermal				
Alopecia*	Active	1/1/2019		Miscellaneous, other
Blisters - Bullae†	Active	1/1/1993		Bullae
Blisters - vesicles*	Active	1/1/2019		Miscellaneous, other
Burns (superficial)	Active	1/1/1993		
Burns 2 - 3 degree	Active	1/1/1993		
Cellulitis	Active	1/1/1993		
Dermal - Irritation/pain	Active	1/1/1993		
Desquamation*	Active	1/1/2019		Miscellaneous, other
Ecchymosis	Active	1/1/1993		
Edema	Active	1/1/1993		
Erythema/flushed	Active	1/1/1993		
Hives/welts	Active	1/1/1993		
Nail changes*	Active	1/1/2019		Miscellaneous, other
Necrosis	Active	1/2/1993		
Pallor	Active	1/1/1993		
Petechia*	Active	1/1/2019		Miscellaneous, other
Pruritus	Active	1/1/1993		
Puncture wound/sting	Active	1/1/1993		
Rash	Active	1/1/1993		
Other - Dermal*	Active	1/1/2019		Miscellaneous, other
Gastrointestinal				
Abdominal Pain	Active	1/1/1993		
Anorexia	Active	1/1/1993		
Blood per rectum (other)	Active	1/1/2000		
Constipation	Active	1/2/1993		
Dehydration	Active	1/2/1993		
Diarrhea	Active	1/1/1993		
Diarrhea - bloody*	Active	1/1/2019		Blood per rectum (other)
Dysphagia	Active	1/1/1993		
Esophageal injury	Active	1/1/1993		
Esophageal stricture	Active	1/1/1993		
Fecal incontinence	Active	1/1/1993		
Gastric burns	Active	1/1/2000		
Hematemesis	Active	1/1/1993		
Ileus/no bowel sounds	Active	1/1/2000		
Melena	Active	1/2/1993		
Nausea	Active	1/1/1993		
Oral burns (incl. lips)	Active	1/1/1993		
Oral irritation	Active	1/1/1993		
Oropharyngeal edema	Active	1/1/2000		
Pancreatitis*	Active	1/1/2019		Miscellaneous, other
Throat irritation	Active	1/1/1993		

(*continued*)

Name	Status	Added	Inactivated	Previous Mapping/Name
Vomiting	Active	1/1/1993		
Other - Gastrointestinal*	Active	1/1/2019		Miscellaneous, other
Heme/Hepatic				
Ammonia elevation*	Active	1/1/2019		Other LFT abnormality
AST, ALT > 1,000	Active	1/1/1993		
AST, ALT > 100< =1,000	Active	1/1/1993		
Bilirubin increased	Active	1/1/1993		
Coagulopathy - other	Active	1/4/1993		
Cytopenia	Inactive	1/2/1993	1/1/2019	
DIC	Active	1/16/1993		
Hemolysis	Active	12/30/1993		
Jaundice*	Active	1/1/2019		Miscellaneous, other
LFT abnormality - other†	Active	1/1/1993		Other LFT abnormality
Low absolute lymphocyte count*	Active	1/1/2019		Cytopenia
Low hemoglobin/hematocrit*	Active	1/1/2019		Cytopenia
Low neutrophils*	Active	1/1/2019		Cytopenia
Low platelets*	Active	1/1/2019		Cytopenia
Low white blood count*	Active	1/1/2019		Cytopenia
Methemoglobinemia*	Active	1/1/2019		Miscellaneous, other
PT/INR prolonged†	Active	1/1/1993		Elevated PT
Other - Heme/Hepatic*	Active	1/1/2019		Miscellaneous, other
Neurological				
Agitation†	Active	1/1/1993		Agitated/irritable
Ataxia	Active	1/1/1993		
Clonus*	Active	1/1/2019		Miscellaneous, other
CNS Depression (Major)*	Active	1/1/2019		Coma
CNS Depression (Mild)*	Active	1/1/2019		Drowsiness/Lethargy
CNS Depression (Moderate)*	Active	1/1/2019		Drowsiness/Lethargy
Coma	Inactive	1/1/1993	1/1/2019	
Confusion	Active	1/1/1993		
CVA	Active	1/1/1993		
Diplopia*	Active	1/1/2019		Miscellaneous, other
Dizziness/vertigo	Active	1/1/1993		
Drowsiness/lethargy	Inactive	1/1/1993	1/1/2019	
EPS - akathisia*	Active	1/1/2019		Miscellaneous, other
EPS - dyskinesia*	Active	1/1/2019		Miscellaneous, other
EPS - dystonia*	Active	1/1/1993		Miscellaneous, other
EPS - other*	Active	1/1/2019		Miscellaneous, other
EPS - parkinsonism*	Active	1/1/2019		Miscellaneous, other
Fasciculations	Active	1/1/1993		
Hallucinations/delusions	Active	1/1/1993		
Headache	Active	1/1/1993		
Hypoxic brain injury*	Active	1/1/2019		Miscellaneous, other
Intracranial bleed	Active	1/8/1993		
Muscle rigidity	Active	1/1/1993		
Muscle weakness	Active	1/1/1993		
Myoclonus*	Active	1/1/2019		Miscellaneous, other
Numbness	Active	1/1/2000		
Paralysis	Active	1/3/1993		
Paranoia*	Active	1/1/2019		Miscellaneous, other
Peripheral neuropathy	Active	1/1/1993		
Seizure (single)	Active	1/1/1993		
Seizures (multi/discrete)	Active	1/1/1993		
Seizures (status)	Active	1/1/1993		
Slurred speech	Active	1/1/1993		
Syncope	Active	1/1/1993		
Tinnitus	Active	1/1/1993		
Tremor	Active	1/1/1993		
Other - Neurological*	Active	1/1/2019		Miscellaneous, other
Ocular				
Blurred vision	Active	1/1/1993		
Burns	Active	1/1/1993		
Corneal abrasion	Active	1/1/1993		
Lacrimation	Active	1/1/1993		
Miosis	Active	1/1/1993		
Mydriasis	Active	1/1/1993		
Nystagmus	Active	1/1/1993		
Ocular - Irritation/pain	Active	1/1/1993		
Papilledema	Active	1/1/1993		
Photophobia	Active	1/1/2000		
Pupil(s) nonreactive	Active	1/2/1993		
Red eye/conjunctivitis	Active	1/1/2000		
Visual defect	Active	1/1/1993		
Other - Ocular*	Active	1/1/2019		Miscellaneous, other

(*continued*)

Name	Status	Added	Inactivated	Previous Mapping/Name
Renal/GU				
Creatinine increased	Active	1/1/1993		
Hematuria	Active	1/8/1993		
Hemo/myoglobinuria	Active	1/3/1993		
Oliguria/anuria	Active	1/1/1993		
Oxalate crystals (urine)	Active	1/1/2000		
Polyuria	Active	1/1/1993		
Renal failure	Active	1/2/1993		
Urinary incontinence	Active	1/1/1993		
Urinary retention	Active	1/1/1993		
Urine color change	Active	1/1/2000		
Other - Renal/GU*	Active	1/1/2019		Miscellaneous, other
Respiratory				
Bronchospasm	Active	1/1/1993		
Cough/choke	Active	1/1/1993		
Cyanosis	Active	1/1/1993		
Dyspnea	Active	1/1/1993		
Hyperventilation/tachypnea	Active	1/1/1993		
Pneumonitis	Active	1/5/1993		
Pulmonary edema	Active	1/1/1993		
Respiratory arrest	Active	1/7/1993		
Respiratory depression	Active	1/1/1993		
X-ray findings(+)	Active	1/1/1993		
Other - Respiratory*	Active	1/1/2019		Miscellaneous, other
Miscellaneous				
Acidosis	Active	1/1/1993		
ADR to treatment	Active	1/1/1993		
Alkalosis	Active	1/2/1993		
Anaphylactoid reaction*	Active	1/1/2019		Miscellaneous, other
Anion gap increased	Active	1/1/1993		
Bleeding (other)	Active	1/1/1993		
CPK elevated	Inactive	1/1/2000	1/1/2019	
Deafness	Active	1/1/1993		
Diaphoresis	Active	1/1/1993		
Electrolyte abnormality	Active	1/1/1993		
Excess secretions	Active	1/1/1993		
Fetal death	Active	1/1/2000		
Fever/hyperthermia	Active	1/1/1993		
Hyperglycemia	Active	1/1/1993		
Hypoglycemia	Active	1/1/1993		
Hypothermia	Active	1/1/1993		
Multiple Chemical Sensitivities	Inactive	1/5/1993	1/1/2019	
Osmolal gap increased	Active	1/1/1993		
Pain (not dermal, GI, ocular)	Active	1/1/1993		
Rhabdomyolysis	Active	1/1/1993		
Unspecified	Inactive	1/1/1985	12/31/1992	
Other - Miscellaneous†	Active	1/1/1993		Miscellaneous, other

* New in 2019.
† Name Change in 2019.

Table of Therapies

The following table details the therapies available in NPDS, status, and the date they were activated or deactivated. For new therapies or those with a name change, a column shows what the therapy was classified as to prior to the new code or name change.

Name	Status	Added	Inactivated	Previous Mapping/Name
2-PAM	Active	1/1/1985		
Acidification	Inactive	1/5/1985	12/31/1992	
Alkalinization	Inactive	1/1/1985	1/1/2019	
Alkalinization - Systemic*	Active	1/1/2019		Alkalinization
Alkalinization - Urinary*	Active	1/1/2019		Alkalinization
Amifostine*	Active	1/1/2019		Other
Amyl nitrite	Active	1/17/1993		
Anthrax vaccine*	Active	1/1/2019		Other
Antiarrhythmic	Active	1/1/1993		
Antibiotics	Active	1/2/2000		
Anticonvulsants	Active	1/1/1985		
Antiemetics	Active	1/1/2000		
Antifungals*	Active	1/1/2019		Other
Antihistamines	Active	1/1/1985		
Antihypertensives	Active	1/2/1993		
Antipsychotics*	Active	1/1/2019		Sedation (other)
Antivenom - Elapidae*	Active	1/1/2019		Antivenin/antitoxin
Antivenom - Latrodectus*	Active	1/1/2019		Antivenin/antitoxin
Antivenom (Immune Fab fragment) – Not Specified†	Active	1/2/1985		Antivenin/antitoxin
Antivenom (Immune Fab) - Centruroides (Scorpion)*	Active	1/1/2019		Antivenin (fab fragments)
Antivenom (Immune Fab) - Latrodectus*	Active	1/1/2019		Antivenin (fab fragments)
Antivenom/antitoxin (Non-Fab) – Not Specified†	Active	1/3/1985		Antivenin (fab fragments)
Antivirals*	Active	1/1/2019		Other
Atropine	Active	1/2/1985		
BAL	Active	1/6/1985		
Benzodiazepines	Active	1/1/2000		
Blood Products*	Active	1/1/2019		Other
Botulinum antitoxim*	Active	1/1/2019		Antivenin/antitoxin
Bronchodilators	Active	1/2/1993		
Calcium	Active	1/1/1993		
Cardioversion	Active	1/2/1993		
Cathartic	Active	1/1/1985		
Charcoal, multiple doses	Active	1/1/1993		
Charcoal, single dose	Active	1/1/1985		
Colony Stimulating Factors*	Active	1/1/2019		Other
Continuous Renal Replacement Therapy (CRRT)*	Active	1/1/2019		Extracorp. procedure (other)
CPR	Active	1/1/1985		
Deferiprone*	Active	1/1/2019		Other
Deferoxamine	Active	1/1/1985		
Digoxin Immune Fab†	Active	1/1/1993		Fab fragments
Dilute/irrigate/wash	Active	1/1/1985		
Direct-acting Oral Anticoagulant Reversal Agents*	Active	1/1/2019		Other
DMPS*	Active	1/1/2019		Other
DTPA - Calcium*	Active	1/1/2019		Other
DTPA - Zinc*	Active	1/1/2019		Other
ECMO	Active	1/8/1993		
EDTA	Active	1/24/1985		
Ethanol	Active	1/2/1985		
Exchange transfusion	Inactive	1/3/1985	12/16/1992	
Extracorp. procedure (other)	Active	1/1/1993		
Fluids, IV	Active	1/1/1993		
Flumazenil	Active	1/1/1993		
Folate	Active	1/2/1993		
Fomepizole	Active	1/5/2000		
Food/snack	Active	1/1/1993		
Forced diuresis	Inactive	1/1/1985	12/30/1992	
Fresh air	Active	1/1/1985		
Glucagon	Active	1/1/1993		
Glucarpidase*	Active	1/1/2019		Other
Glucose, > 5%	Active	1/1/1985		
Granulocyte Stimulating Growth Factors*	Active	1/1/2019		Other
Hemodialysis	Active	1/3/1985		
Hemoperfusion	Active	1/4/1985		
High Dose Insulin/Glucose*	Active	1/1/2019		Insulin
Hydroxocobalamin	Active	2/18/1993		
Hyperbaric oxygen	Active	1/3/1985		
Hypothermia Protocol*	Active	1/1/2019		Other
Insulin	Active	1/5/2000		
Intubation	Active	1/1/1993		
Ipecac	Active	1/1/1985		

(*continued*)

Name	Status	Added	Inactivated	Previous Mapping/Name
Lavage	Active	1/1/1985		
L-Carnitine*	Active	1/1/2019		Other
Leucovorin*	Active	1/1/2019		Folate
Lipid Emulsion Therapy*	Active	1/1/2019		Other
Magnesium*	Active	1/1/2019		Other
Methylene blue	Active	1/3/1985		
Molecular Adsorbant Recirculating System (MARS)*	Active	1/1/2019		Extracorp. procedure (other)
NAC, IV	Active	1/1/1985		
NAC, PO	Active	1/1/1985		
Nalmefene	Active	2/29/2000		
Naloxone	Active	1/1/1985		
Neuromuscular blocker	Active	1/2/1993		
No Therapy Provided	Inactive	1/1/1985	1/1/1985	
Observation Only	Inactive	1/1/1985	1/1/1985	
Octreotide	Active	1/3/2000		
Opioid analgesia*	Active	1/1/2019		Sedation (other)
Other	Active	1/1/1985		
Other Decontamination	Inactive	1/1/1985	12/31/1992	
Other emetic	Active	1/1/1985		
Oxygen	Active	1/1/1985		
Pacemaker	Active	1/10/2000		
Patient Refused Any Help	Inactive	1/1/1985	1/1/1985	
Penicillamine	Active	1/13/1985		
Peritoneal dialysis	Inactive	1/18/1985	12/30/1992	
Physostigmine	Active	1/1/1985		
Phytonadione	Active	1/2/1993		
Plasmapheresis*	Active	1/1/2019		Extracorp. procedure (other)
Potassium*	Active	1/1/2019		Other
Potassium iodide*	Active	1/1/2019		Other
Propofol*	Active	1/1/2019		Sedation (other)
Prussian blue*	Active	1/1/2019		Other
Pyridoxine	Active	1/8/1985		
Rabies immune globulin*	Active	1/1/2019		Other
Rabies vaccine*	Active	1/1/2019		Other
Raxibacumab*	Active	1/1/2019		Other
Sedation (other)	Active	1/1/2000		
Silibinin*	Active	1/1/2019		Other
Smallpox vaccine*	Active	1/1/2019		Other
Sodium bicarbonate - metabolic acidosis*	Active	1/1/2019		Alkalinization
Sodium bicarbonate - nebulized*	Active	1/1/2019		Alkalinization
Sodium nitrite	Active	1/2/1985		
Sodium thiosulfate	Active	1/2/1985		
Steroids	Active	1/3/2000		
Succimer	Active	1/9/1993		
Surgical intervention*	Active	1/1/2019		Other
Thiamine*	Active	1/1/2019		Other
Transplantation	Active	2/10/1993		
Unknown if Therapy Provided	Inactive	1/1/1985	1/1/1985	
Vasopressors	Active	1/1/1993		
Ventilation, Non-invasive (CPAP, BiPAP)*	Active	1/1/2019		Other
Ventilator	Active	1/1/1993		
Whole bowel irrigation	Active	1/1/1993		

* New in 2019.
† Name Change in 2019.

Reason for Exposure

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

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 for reasons other than the pursuit of a psychotropic effect.

Intentional abuse: An exposure resulting from the intentional improper or incorrect use where the patient was likely attempting to gain a high, euphoric effect or some other psychotropic effect, including recreational use of a substance for any effect.

Contaminant/tampering: The patient is an unintentional victim of a substance that has been adulterated (either maliciously or unintentionally) by the introduction of an undesirable substance.

Malicious: Patients who are victims of another person's intent to harm them.

Withdrawal: Inquiry about or experiencing of symptoms from a decline in blood concentration of a pharmaceutical or other substance after discontinuing therapeutic use or abuse of that substance.

Adverse Reaction Drug: Unwanted effects due to an allergic, hypersensitivity, or idiosyncratic response to the active ingredient(s), inactive ingredient(s) or excipient of a drug, chemical, or other drug substance when the exposure involves the normal, prescribed, labeled or recommended use of the substance.

Adverse Reaction Food: Unwanted effects due to an allergic, hypersensitivity, or idiosyncratic response to a food substance.

Adverse Reaction Other: Unwanted effects due to an allergic, hypersensitivity, or idiosyncratic response to a substance other than drug or food.

Unknown Reason: Reason for the exposure cannot be determined or no other category is appropriate.

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 Case Review Team (CRT) includes the Author and Reviewer from the RPC, The AAPCC Lead Reviewer, Peer Reviewer and Manager.

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

1. **Undoubtedly responsible** - In the opinion of the CRT, the Clinical Case Evidence establishes beyond a reasonable doubt that the SUBSTANCES actually caused the death.
2. **Probably responsible** - In the opinion of the CRT, the Clinical Case Evidence suggests that the SUBSTANCES caused the death, but some reasonable doubt remained.
3. **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.
4. **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
5. **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.
6. **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.