

Public Health Perspective on Acute Poisoning: Epidemiology of Poisoning in the United States

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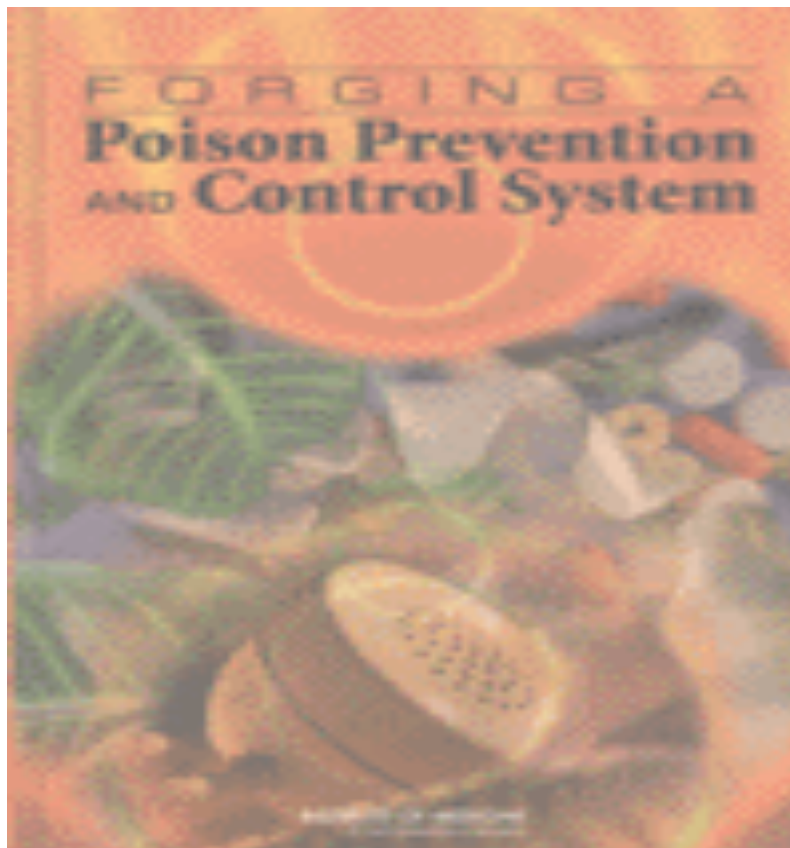


Learning Objectives

Upon completion of this session, participants will be able to:

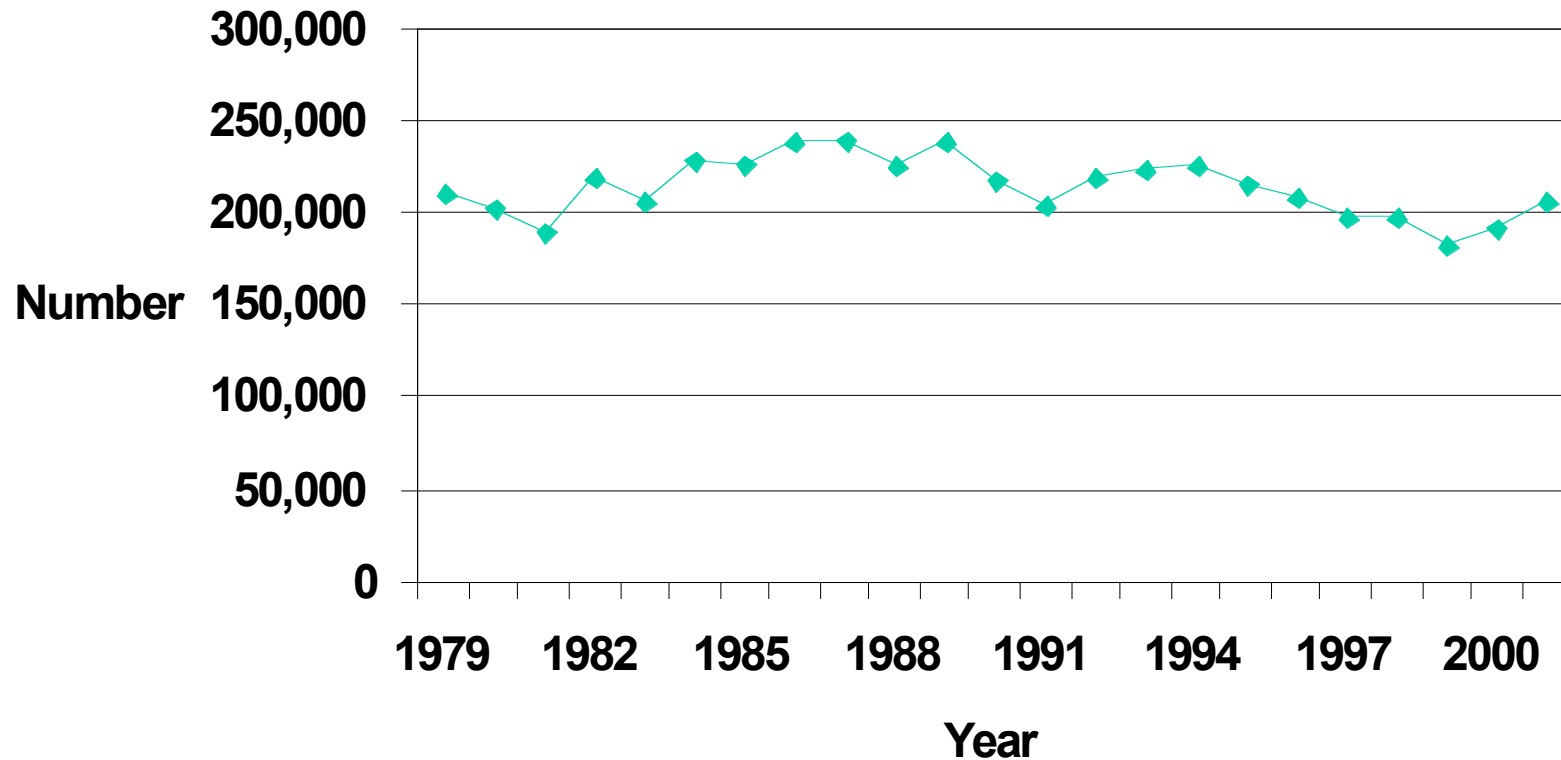
1. Discuss frequency and rate of poisoning as reported to the U.S. National Center for Health Statistics;
2. Discuss poisoning data reported by U.S. poison centers; and
3. Describe the substances most frequently implicated in calls to U.S. poison centers;
4. Describe the substances implicated in deaths as reported by U.S. poison centers; and
5. Describe the substances most often implicated in major effects and deaths in older people as reported by U.S. poison centers.

Institute of Medicine: Forging a Poison Prevention and Control System - 2004



- 530 poisonings per 100,000 of U.S. population
- 8.5 deaths per 100,000 of U.S. population

National Trends in Poisoning and Toxic Effects Hospitalizations, 1979-2001



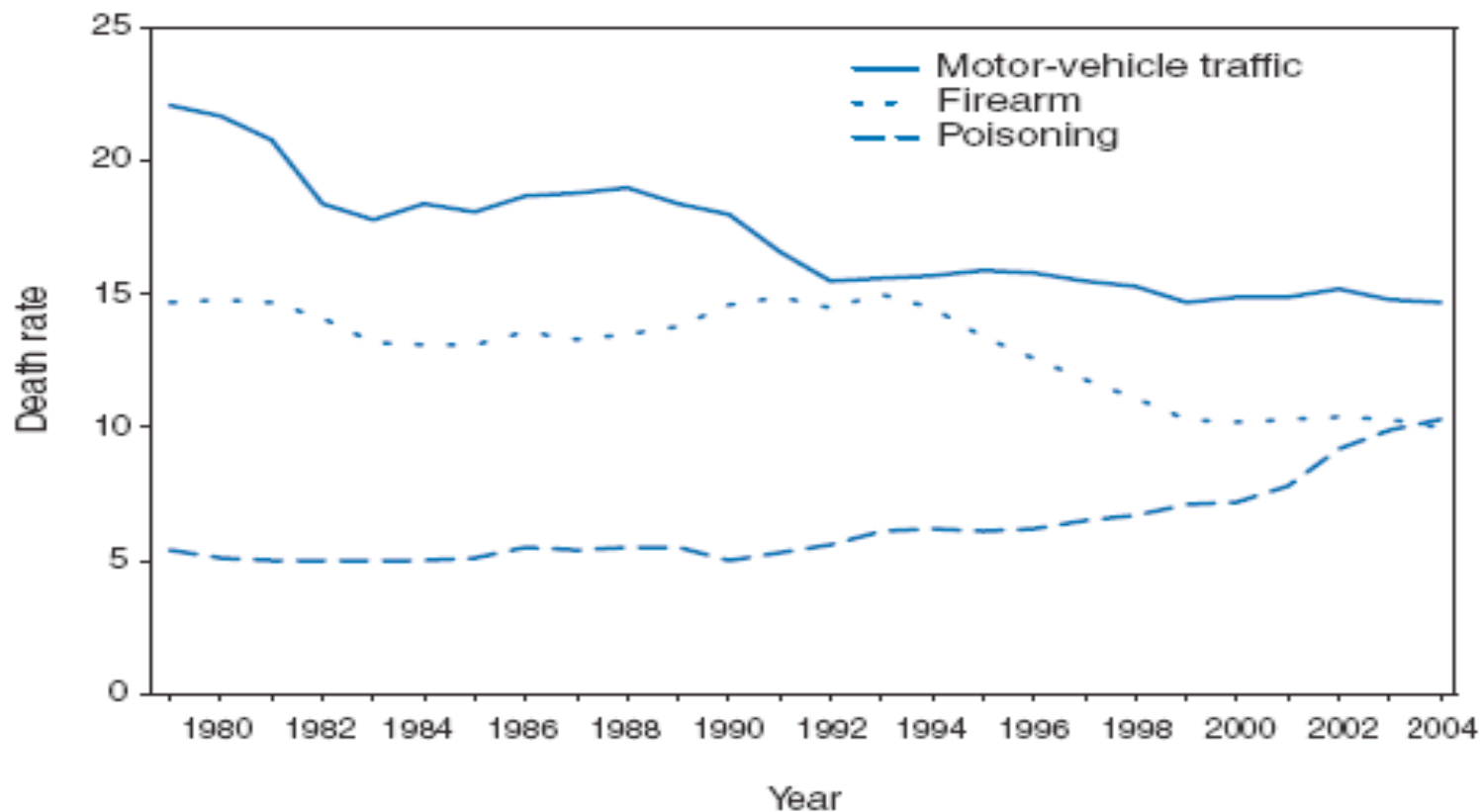
Source – CDC National Center for Health Statistics



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Age-Adjusted Death Rates for Leading Causes of Injury Death by Year, 1979—2004

Source – CDC National Center for Health Statistics

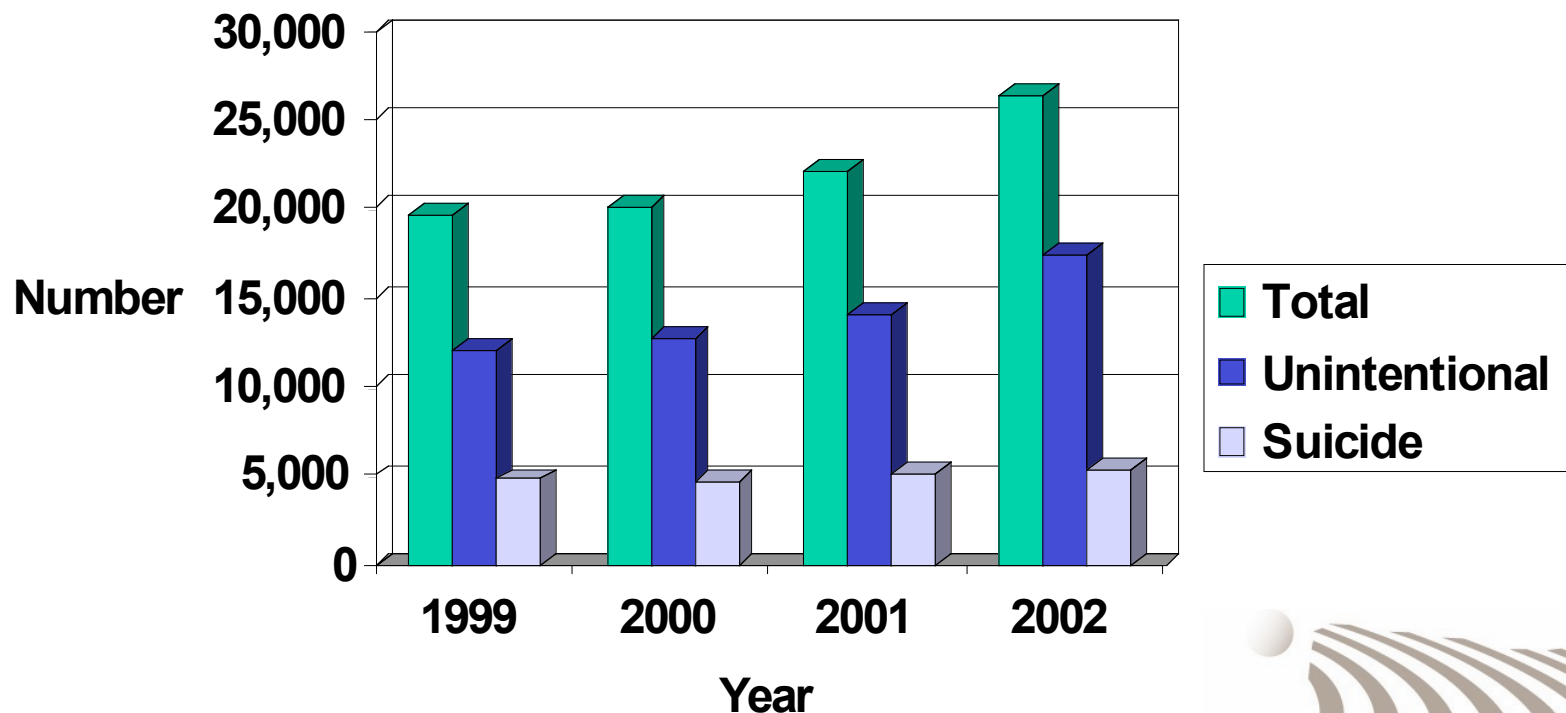


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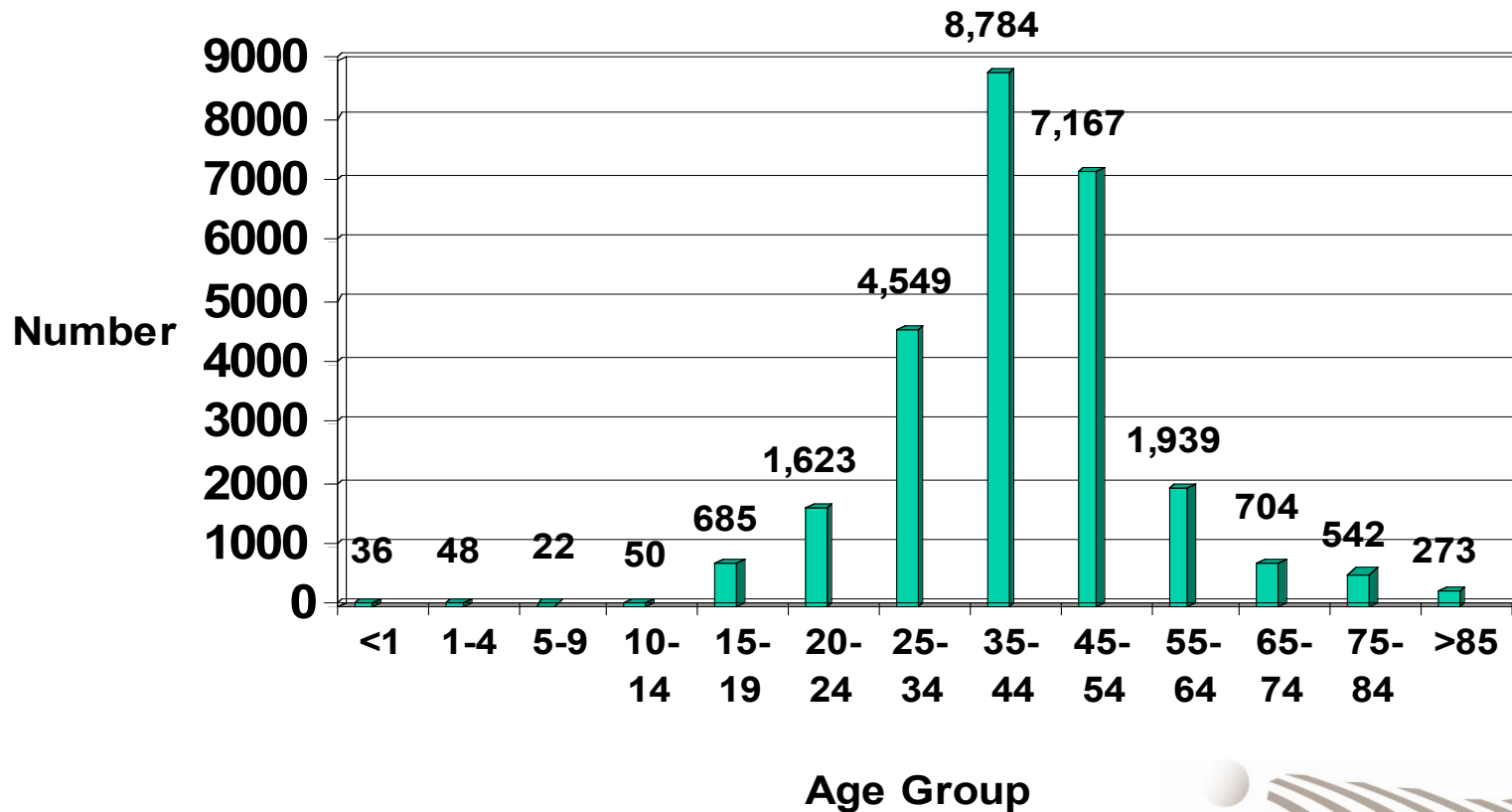
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National Trends in Poisoning Deaths, 1999 - 2002



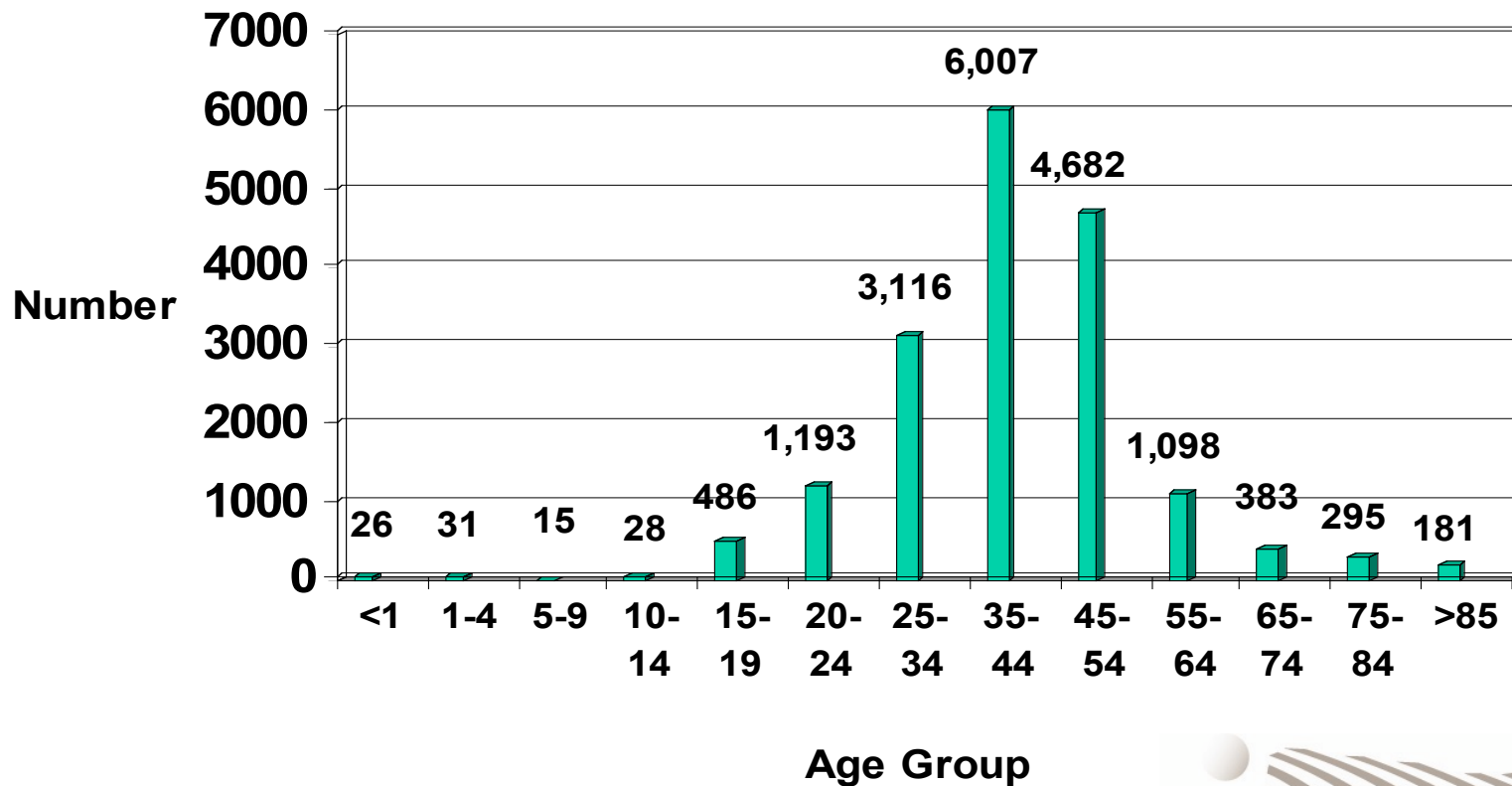
Source – CDC National Center for Health Statistics

2002 Poisoning Deaths, By Age Group



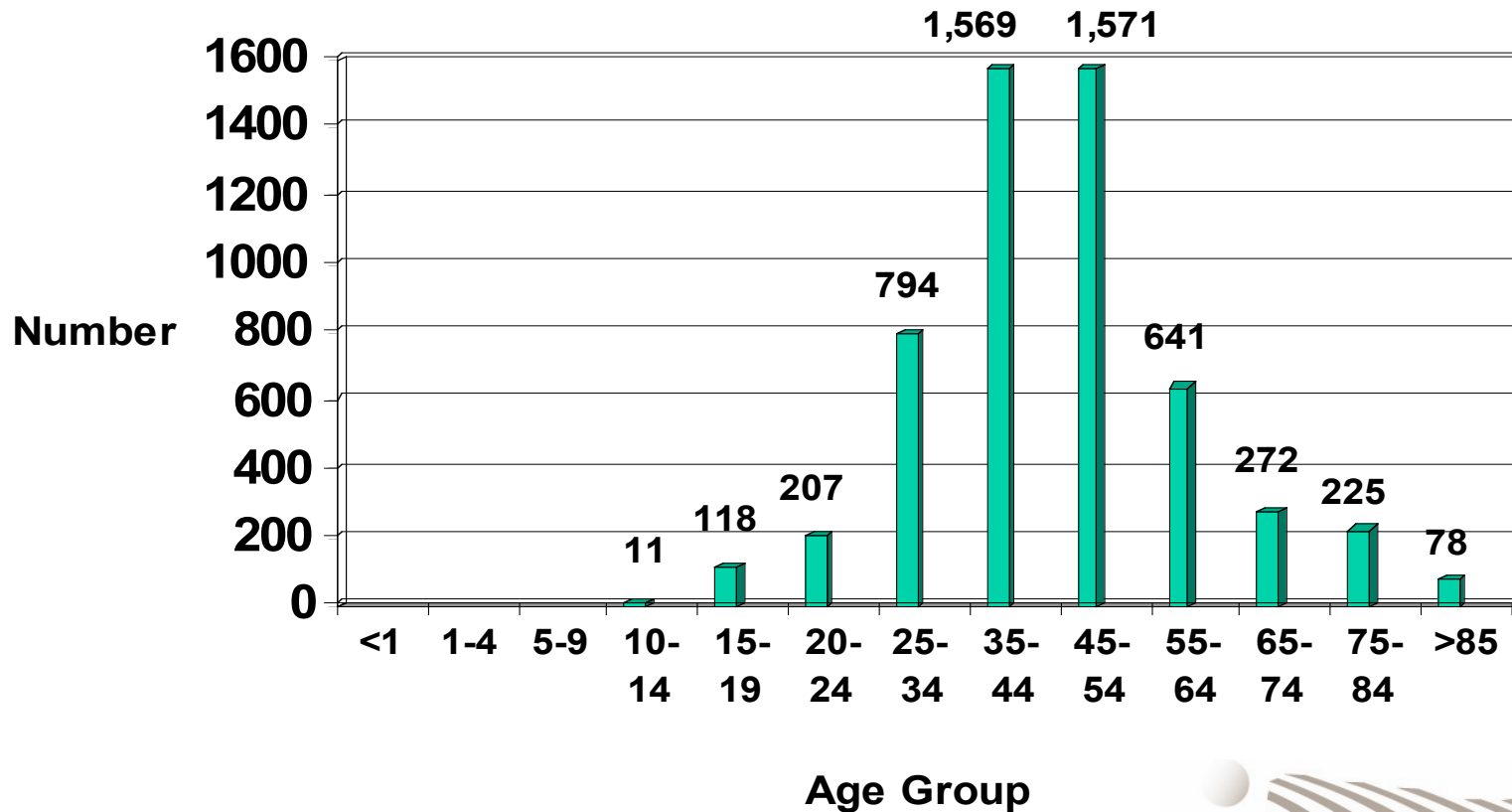
Source – CDC National Center for Health Statistics

2002 Unintentional Poisoning Deaths, By Age Group



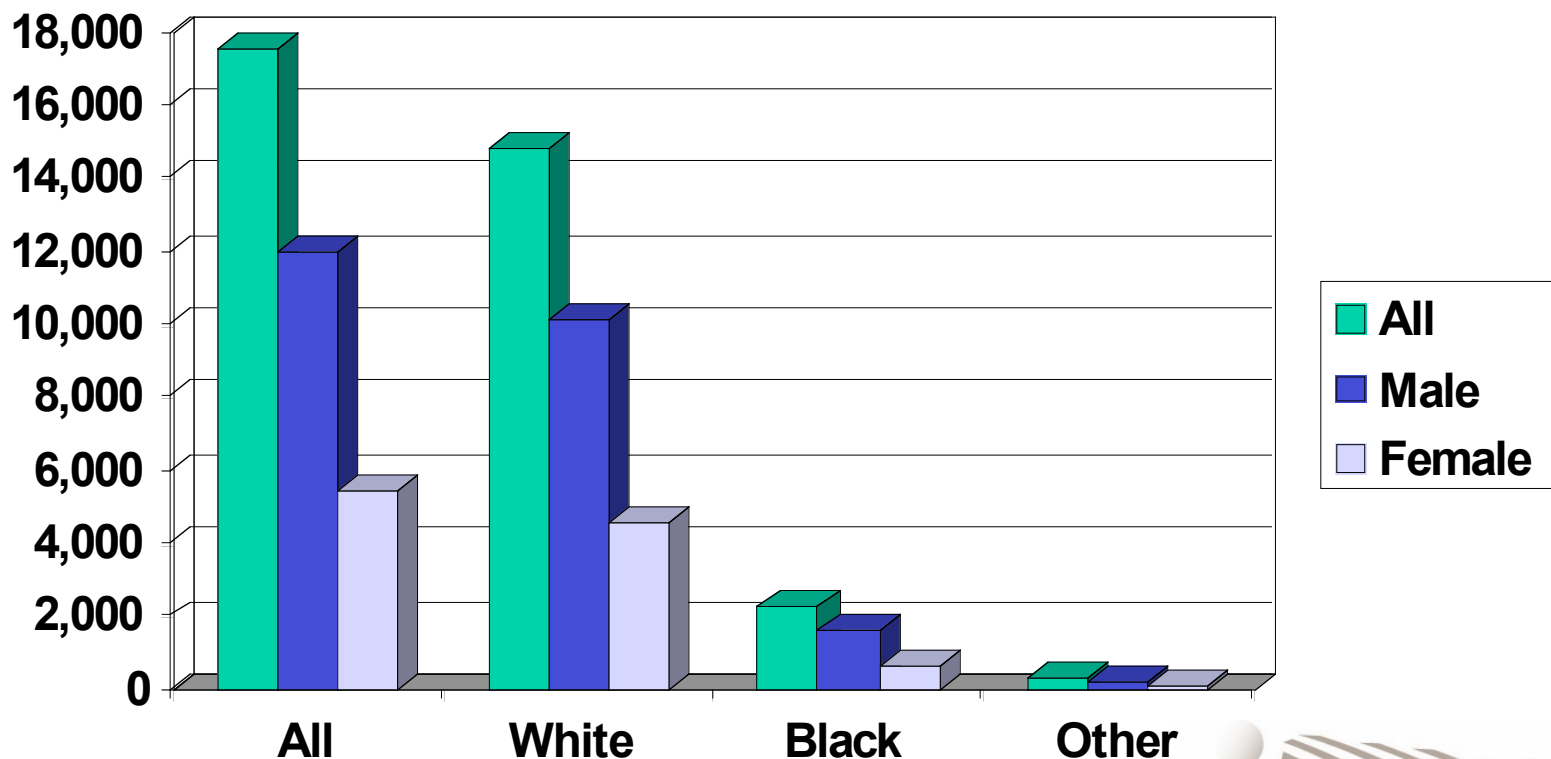
Source – CDC National Center for Health Statistics

2002 Suicide Poisoning Deaths, By Age Group



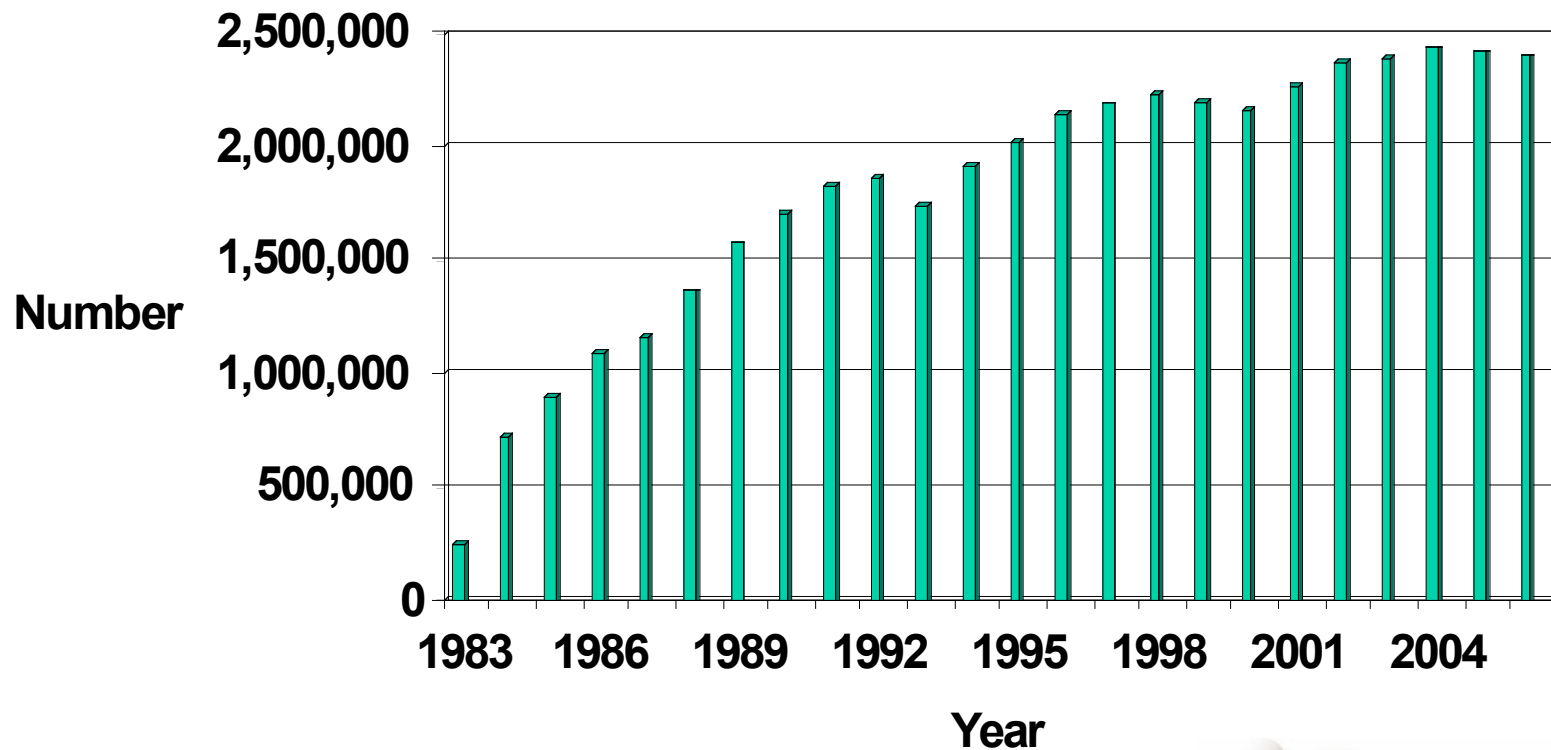
Source – CDC National Center for Health Statistics

2004 Accidental Poisoning Deaths, By Gender and Race



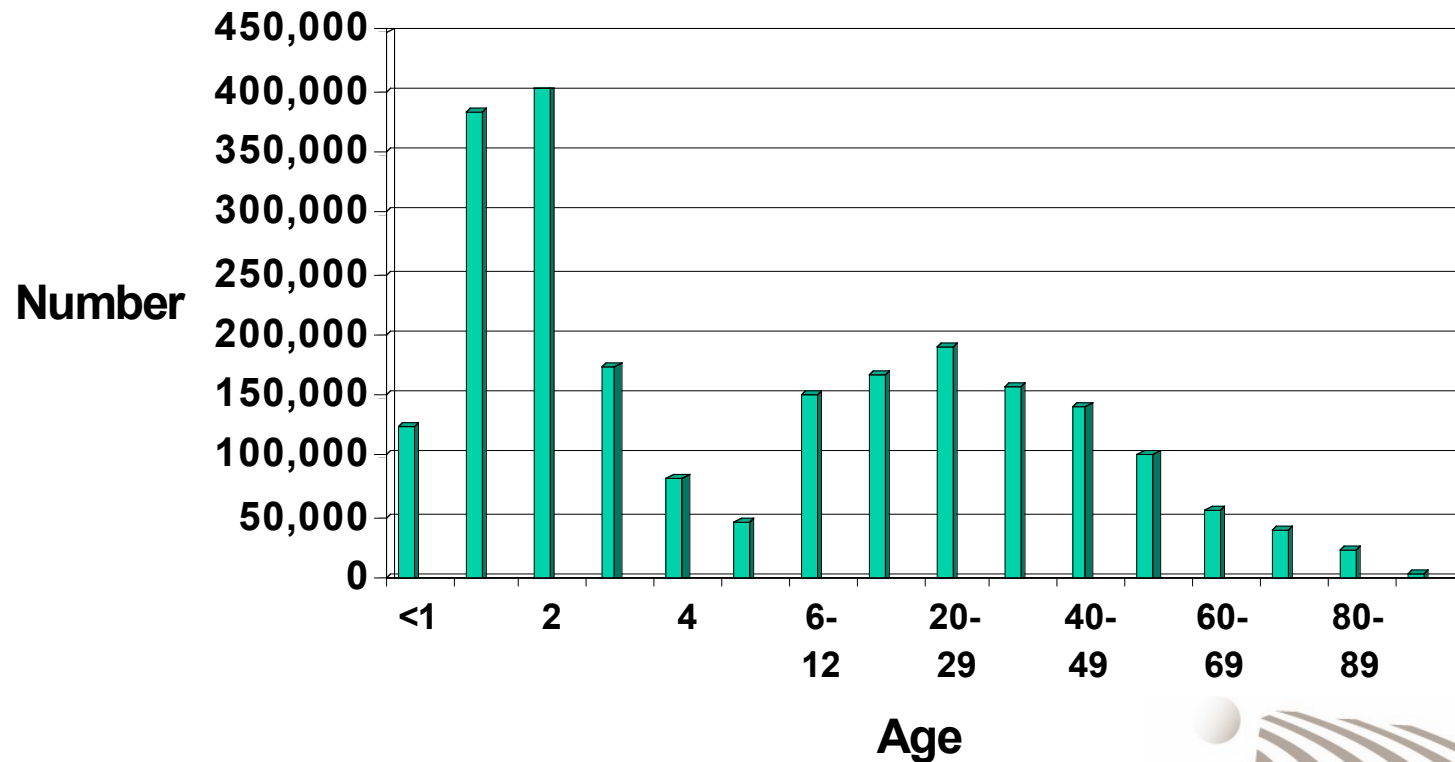
Source – CDC National Center for Health Statistics

Poison Center Human Exposure Reports, 1983 2006



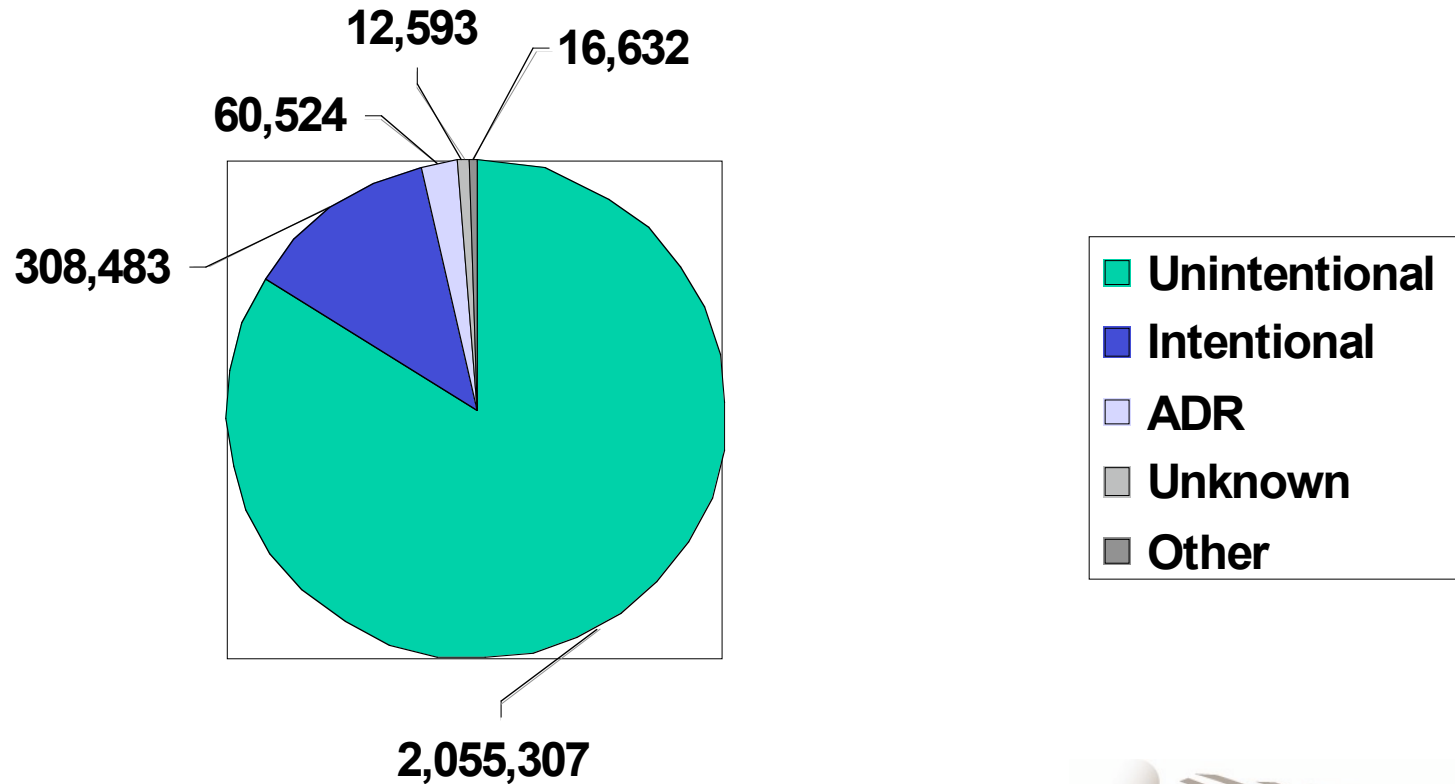
Source – American Association of Poison Control Centers

2006 Poison Center Human Exposure Reports, By Age



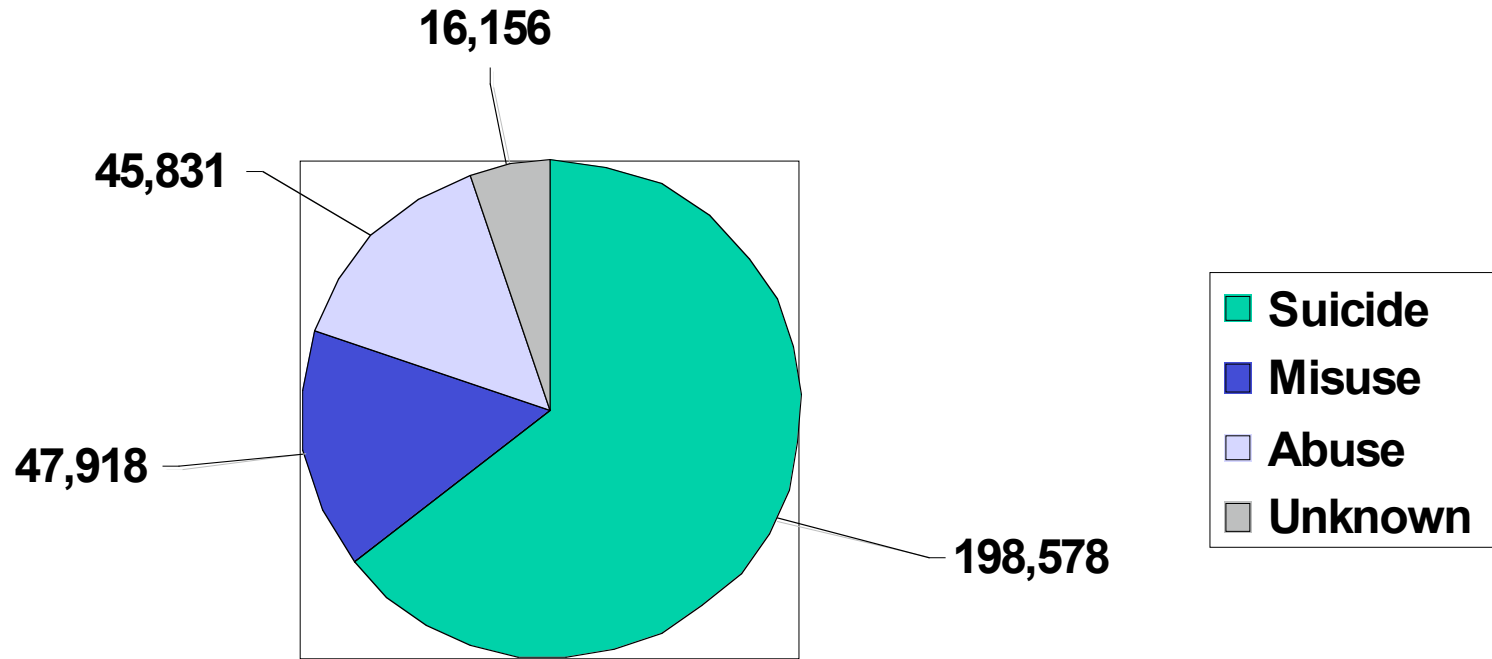
Source – American Association of Poison Control Centers

2006 Poison Center Human Exposure Reports, Reason



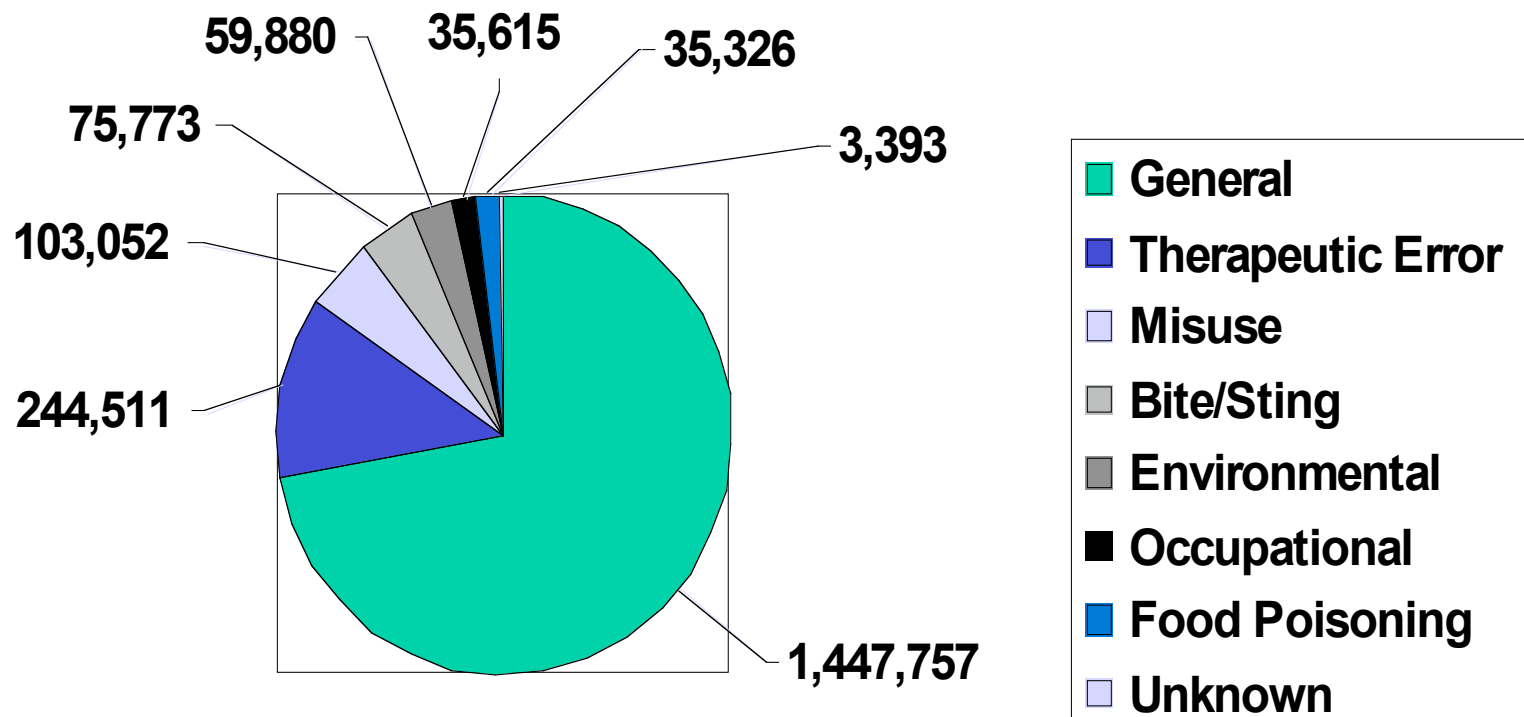
Source – American Association of Poison Control Centers

2006 Poison Center Intentional Human Exposure, Reasons



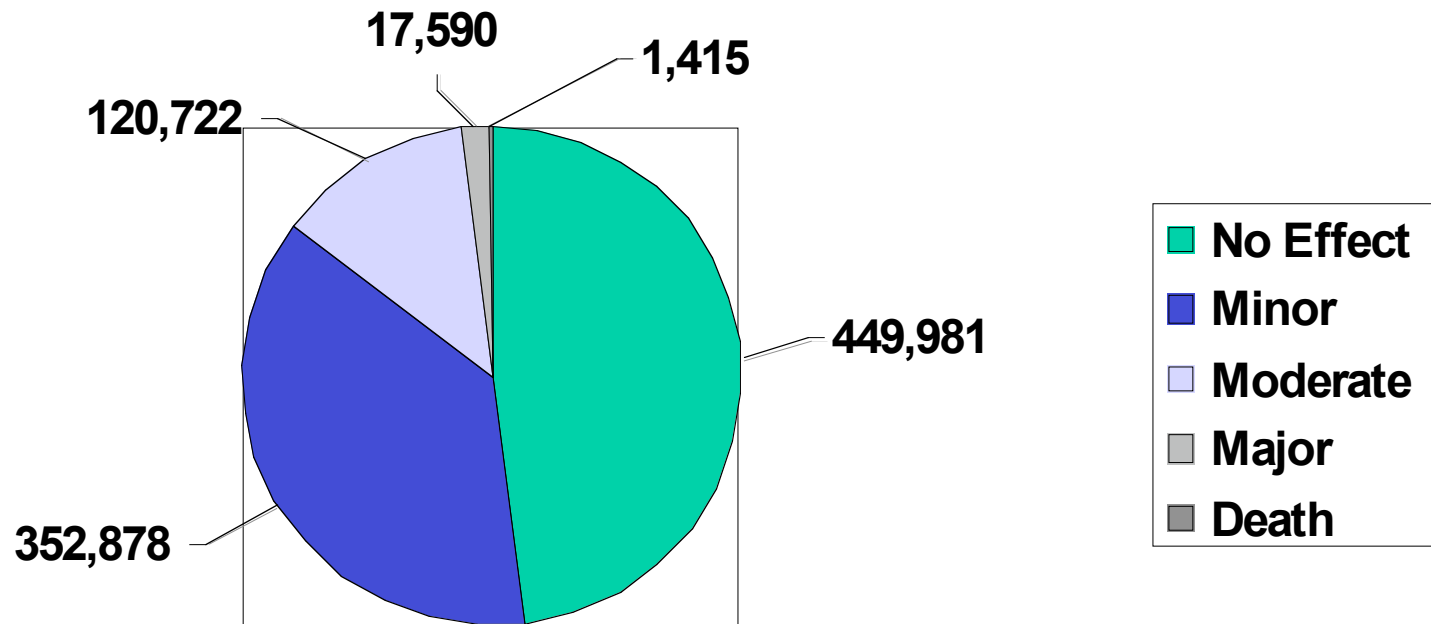
Source – American Association of Poison Control Centers

2006 Poison Center Unintentional Human Exposure, Reasons



Source – American Association of Poison Control Centers

2006 Poison Center Human Exposure, Known Medical Outcomes



Source – American Association of Poison Control Centers

2006 Poison Center Human Exposures, Most Frequently Involved Substances

Substance/Substance Group	Number of Exposures
Analgesics	284,906
Cosmetics/personal care products	214,780
Household cleaning substances	214,091
Sedatives/hypnotics/antipsychotics	141,150
Foreign bodies/toys	120,752
Cough and cold preparations	114,559
Topical preparations	108,308
Pesticides	96,811
Antidepressants	95,327
Bites and envenomations	82,133

Source – American Association of Poison Control Centers



2006 Poison Center Pediatric Exposures, Most Frequently Involved Substances

Substance/Substance Group	Number of Exposures
Cosmetics/personal care products	162,514
Household cleaning substances	120,250
Analgesics	103,189
Foreign bodies/toys	90,906
Topical preparations	85,079
Cough and cold preparations	69,645
Vitamins	47,997
Pesticides	45,848
Plants	44,710
Antihistamines	36,591

Source – American Association of Poison Control Centers



2006 Poison Center Adult Exposures, Most Frequently Involved Substances

Substance/Substance Group	Number of Exposures
Analgesics	127,135
Sedatives/hypnotics/antipsychotics	106,705
Household cleaning substances	74,926
Antidepressants	64,145
Bites and envenomations	53,715
Cardiovascular drugs	50,643
Alcohols	45,448
Pesticides	41,487
Food products/food poisoning	37,497
Cosmetics/personal care products	33,633

Source – *American Association of Poison Control Centers*



2006 Poison Center Death Reports, Most Frequently Involved Substances

Substance/Substance Group	Number of Exposures
Sedatives/hypnotics/antipsychotics	382
Opioids	307
Cardiovascular drugs	252
Acetaminophen in combination	214
Antidepressants	210
Stimulants and street drugs	203
Alcohols	139
Acetaminophen only	138
Muscle relaxants	98
Anticonvulsants	93

Source – American Association of Poison Control Centers



Cobaugh DJ, Krenzelok EP. Adverse drug reactions and therapeutic errors in older adults: a hazard factor analysis of poison center data. *Am J Health Syst Pharm.* 2006;63(22):2228-34.

- Toxic Exposure Surveillance System (TESS) cases from 1993 through 2002 involving a single substance in patients ≥ 60 years coded as adverse reaction, suicide, or therapeutic error were included.
- Hazard factors (HF) were determined by calculating the sum of the major effects and deaths for each substance sub-category and dividing this by the total number of exposures for that sub-category.
- The data were normalized for reporting purposes.
- Sub-categories with a HF of ≥ 2.5 and with ≥ 50 cases reported were included in the final analysis.



Therapeutic Errors - Substance Sub-Categories with ≥ 50 Exposures and Hazard Factors ≥ 2.5

Subcategory	Hazard Factor
Heparin	13.6
Colchicine	13.5
Aminophylline/Theophylline	10.7
Lithium	10.3
Aspirin, Unknown Formulation	10.2
Lidocaine	10.0
Cardiac Glycoside	8.6
Acetaminophen, Unknown Formulation	5.8
Opioid, Other/Unknown	4.9
Meperidine	4.6

Adverse Reactions - Substance Sub-Categories with ≥ 50 Exposures and Hazard Factors ≥ 2.5

Subcategory	Hazard Factor
Biguanide hypoglycemics	5.4
Cardiac glycosides	4.6
Warfarin	4.2
Antineoplastics	3.6
Heparin	3.5
Aminophylline/theophylline	3.5
Nitroprusside	3.4
Sulfonylurea hypoglycemics	3.3
Lithium	2.7



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