



California Poison Control System

Report for 1997 and 1998



Mission Statement

To enhance the health of the people of California by providing immediate access to high quality, emergency telephone advice after a poisoning exposure, and to educate the public and the health professional community about the prevention and treatment of poisoning.

Preface

I am pleased to present the first Biennial Report of the consolidated California Poison Control System (CPCS). Operation of this new statewide entity began on January 1, 1997, and during these first two years the system has managed 620,000 cases. Much has been accomplished in developing the response to the state's call for an innovative, cost-effective and high-quality system supported by a public/private partnership.

To properly serve the more than 33 million multi-ethnic, multi-lingual residents of California the CPCS requires highly skilled staff, modern technology to effectively link the sites, as well as innovative outreach and education techniques. We are aggressively pursuing all of these to enhance the quality of care for all our citizens. But this takes major resources. In the first two years, the CPCS received enough seed money to get the program organized and running for a two-year period. The System now faces the crucial task of mobilizing appropriate support to ensure the continuance of this vital service.

In California, poison control centers (PCCs) have experienced funding shortages and the threat of closure for many years. In the San Francisco Bay Area, funding cutbacks led to restricted access to PCC services for one California county for a 15-month period, after which full service was restored. During the 15-month period, when residents in this county dialed the PCC's 800 hotline number, they received a recorded message that informed them that direct access to the PCC was not available and advised them to call 9-1-1 if they thought that they had a poisoning emergency.

The costs and outcomes resulting from this restricted access were examined. Fifty-five percent called 9-1-1 as an alternative. There were significant cost shifts to the county EMS 9-1-1 system, health care payers, and providers. Also of concern were the 14% of callers who decided on home treatment for the poisoning without professional advice, even though 66% of these cases involved exposures to potentially toxic substances.

Poison control centers save California an estimated 30 million health care dollars annually. Reliable, ongoing financial support of the Poison Control System is vital if the state and its residents are to receive the proven benefits it provides.

Now that this statewide system has been organized, we need to resolve the pressing need for adequate funding so that we can focus on our true mission. We need to move forward with our public education, particularly targeting the underserved.

We are proud of the CPCS and wish to continue providing this vital service to the people of California. I urge all of you to help support this unique, invaluable program.

Stuart E. Heard, Pharm.D., FCSHP
Executive Director
Assistant Dean
Associate Clinical Professor of Pharmacy
University of California San Francisco

May 1999

Table of Contents

Background	1
What do we do?	2
Whom do we serve and why do they call?	4
1997 Statistics	4-10
1998 Statistics	11-17
Public Education	18
Professional Education	21
Financial Report	23
Contributors	25
Staff	26

Background

Thirteen years ago, 11 hospitals in California hosted their own poison control centers. Each served a geographic region and used its own version of staffing arrangements and information resources without guidance or regulation by the state. In 1987, after establishing minimum certification requirements, the Emergency Medical Services Authority (EMSA) recognized seven regional centers to serve California's population. However, each of these seven centers continued to operate independently, with its own phone number, staffing patterns, clinical management protocols, and funding arrangements.

Although these seven sites received a modest state subsidy, each center had to secure most of its own operating funds. In the 1980s, changes in the financing of health care began limiting the ability of hospitals to support such broad-based public services. This led to many years of patchwork and crisis-oriented funding schemes for the poison control centers. By 1992, one of the seven centers had closed due to lack of adequate funding, and for several years the remaining six centers barely survived perennial funding crises that threatened to leave large areas of the state without service. As the financial crisis deepened, Blue Cross of California funded the National Health Foundation (NHF) to carry out a statewide study to evaluate the existing centers. NHF looked at alternative ways of providing emergency poison response services to Californians. The NHF final report recommended substantial consolidation of the centers under one management, linking remaining sites through the use of technology and common treatment guidelines. The proposed system would replace the existing independent centers. The EMSA issued a Request for Proposals for design of the new system, which led to the establishment of the current California Poison Control System.

And Now. . .

The California Poison Control System (CPCS), administered by the University of California San Francisco School of Pharmacy and responsible to the California Emergency Medical Services Authority, began operation on January 1, 1997. The new CPCS is a highly integrated network combining four sites (U.C. Davis Medical Center in Sacramento, San Francisco General Hospital in San Francisco, Valley Children's Hospital in Fresno/Madera, and U.C. San Diego Medical Center in San Diego) under a single administration and medical advisory group.

Consolidation brought:

- adoption of a single statewide emergency number;
- linking the four answering sites and toxicology expertise throughout the state in a "virtual" system through a state-of-the-art telephone system and on-line computerized charting and information;
- development and implementation of standardized clinical management guidelines;
- development of a skills mix for staffing – introduction of and use of trained technical staff (Poison Information Providers) to enhance the cost-effectiveness of the service;
- establishment of a central office to provide coordinated management of the system;
- shared night coverage and overflow calls for a more efficient system;
- enactment of uniform statewide poison prevention education, including a separate toll free phone line for educational materials and program requests.

A woman took antihistamines while pregnant. Later, her two year old took 2-3 tablets of them. She knows he took them because the foil was punched out. Previously, when she had taken them, she cut the foil.

What Do We Do?

Through its emergency hotlines, the California Poison Control System (CPCS) is a major source of information about poisoning, treatment advice and referral assistance to both the public and health professionals. The System also provides educational materials, consultation services, and programs for children, parents, agencies/organizations and health professionals.

There are five toll free help lines

- **Public Hotline** - for poisoning exposures and information. This line serves the public at home, work, and school. PCC staff assess how serious the poisoning is, recommend first aid procedures for onsite management, or refer patients to an appropriate health care facility if the victim cannot be safely managed at home.
- **Medical Consultation Line** - for assisting hospital personnel and health professionals with diagnosis and treatment of more serious poisonings and overdoses. The PCC staff can draw on its extensive list of back-up specialty consultants to aid in the care of hospitalized poisoning victims.
- **9-1-1** - A response system, in which the CPCS provides immediate consultation to assess the severity of a poisoning, provide treatment advice, and help decide if ambulance transport is needed, to ambulance dispatchers, police and fire personnel. These consultations often result in safe home management of poisonings, thereby avoiding unnecessary ambulance dispatch and emergency department transport. Poison center triage for 9-1-1/Emergency Medical Services (EMS) toxic exposure-related calls provides significant cost savings for supporting government agencies, health care institutions, and payers.
- **TTY Line** - for the hearing and speech impaired. Using special machines for this purpose, the CPCS has the capacity to respond to people using TTY phones in their homes.
- **Public Education Line** - for ordering poison prevention stickers, pamphlets and other materials and for requesting public education programs and consultation services.

Special Services

Interpreter Service: The CPCS provides a 24-hour interpreter service in over 100 languages. When an emergency call is received from a non-English speaking individual, a three way conversation between the caller, the poison center, and the interpreter can be underway in less than a minute. More than 1,800 calls representing 18 different languages were managed during 1997 and 1998.

HazMat: CPCS staff members are specially trained to provide information about the health hazards of toxic chemicals and to assist on-scene personnel during a chemical spill disaster or possible terrorist chemical attack. Depending on the geographic location, 24-hour telephone/fax availability is supplemented with direct scene response by trained toxicologists who provide direct technical support to the incident commander. The CPCS is also a trusted source of information about health effects of the spills or other incidents for both the affected public and the involved medical professionals.

Public Health Surveillance: The CPCS acts as a “sentinel” for community-wide poisonings (such as food poisonings, adverse reactions to new drugs or products, drug tampering, etc.) and assists in notifying appropriate local and state agencies, the media, and the public of a potential health threat.

State of the Art Information References: Each site maintains a complete reference library and computer databases on over a million poisons, drugs, and toxic substances. The databases are updated every three months to provide the most up-to-date information possible.

Pesticide Surveillance: The CPCS works closely with the state in helping to implement a California law requiring county health officers to report pesticide exposures.

Company Contracts: The CPCS has several company contracts through which 24-hour poisoning emergency coverage is provided. See page 24.

Medical Toxicologists: The CPCS has a team of board certified physicians who serve as Medical Directors and on-call toxicologists to provide immediate consultations for hotline staff. Each of the Medical Directors has completed board certification in Medical Toxicology as well as in a primary specialty (e.g., Emergency Medicine, Critical Care Internal Medicine, Laboratory Medicine, Pediatrics or Occupational Medicine).

Public Education: An important component of the System's services is a program to increase public awareness of CPCS's services and to promote prevention of unintentional poisonings through educational outreach programs. A summary of these activities can be found on page 18.

Professional Education: The CPCS provides continuing education to emergency medicine physicians and other health care providers in the recognition and management of poisoning and toxicological emergencies. A complete report of those activities can be found on page 21.

Records: Computerized medical records are maintained on all cases managed by the System. These provide indicators of new trends in poisonings and assist in determining patterns of service usage. The data is computerized and submitted annually to the American Association of Poison Control Centers National Data Collection System. Similar information is collected from Poison Centers throughout the country. Beginning in 1997 all CPCS data from throughout California was available in a uniform format for the first time.

A child was playing with a stalk of a "wild hemlock" using it like a spear. He was chewing on it and may have eaten a dime-sized piece.

Whom do we serve and why do they call?

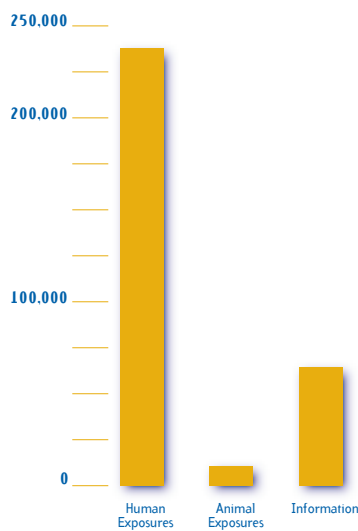
Over half of the calls involve children 5 years and younger. The most common unintentional poisonings involve substances such as acetaminophen and bleach. These are also two of the most common products kept in the home.

About 80% of the calls come from residences and 14% come from health care facilities and medical professionals.

Most of the calls to the CPCS (approximately 74%) involve human exposures. Twenty three percent are calls for information and 3% are calls regarding animal exposures.

The CPCS managed 322,740 cases during 1997. Statistics on various aspects of these cases follows.

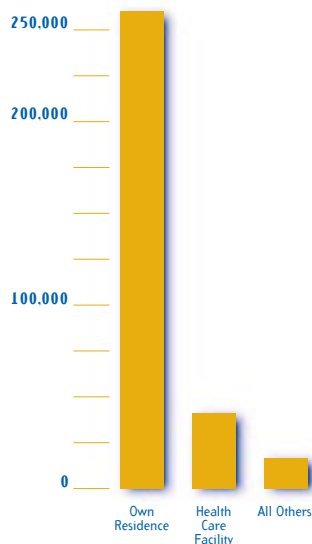
1997 HOW MANY INQUIRIES DID CPCS RECEIVE?



	Number	Percentage
Exposures		
Human Exposures	238,883	74.02%
Animal Exposures	10,674	3.31%
Total Exposures	249,557	77.33%
Information		
Drug Information	19,144	5.93%
Drug Identification	11,601	3.59%
Environmental	841	0.26%
Medical	4,312	1.34%
Occupational	89	0.03%
Poison	28,342	8.78%
Prevention/Safety	7,222	2.24%
Teratogenicity	318	0.09%
Other	1,314	0.41%
Total Information	73,183	22.67%
Total Calls	322,740	100.00%

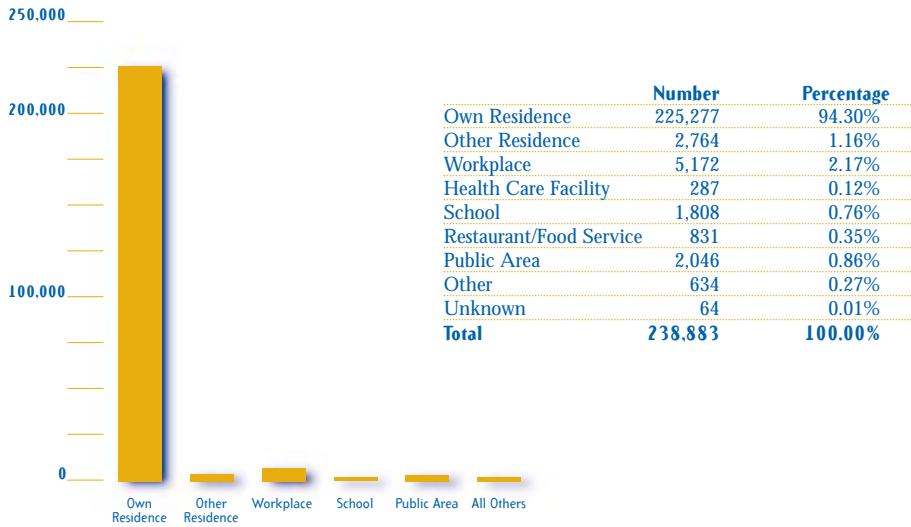
Education Materials & Programs voicemail line 9,093

1997 WHERE DID THE CALLS COME FROM?

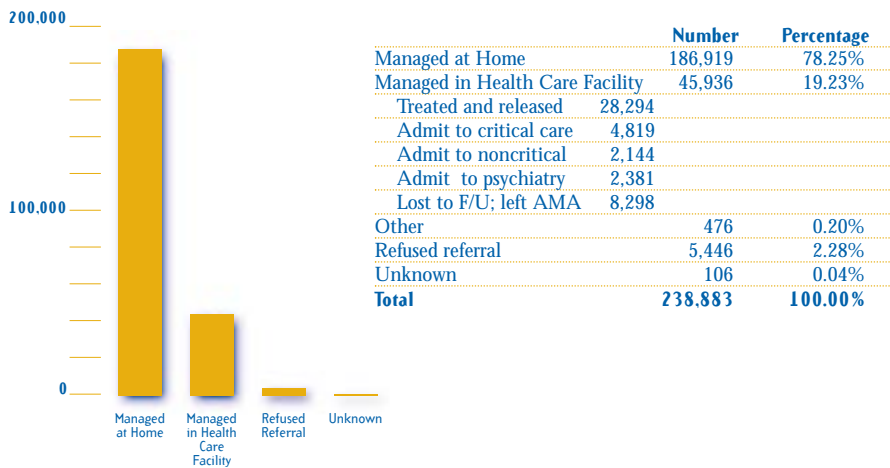


	Number	Percentage
Own Residence	266,066	82.44%
Other Residence	2,010	0.62%
Workplace	2,844	0.88%
Health Care Facility	41,468	12.85%
School	1,501	0.47%
Restaurant/Food Services	59	0.02%
Public Area	820	0.25%
Other	7,972	2.47%
Unknown	14	*
Total	322,754	100.00%

1997 WHERE DID THE POISONING HAPPEN?

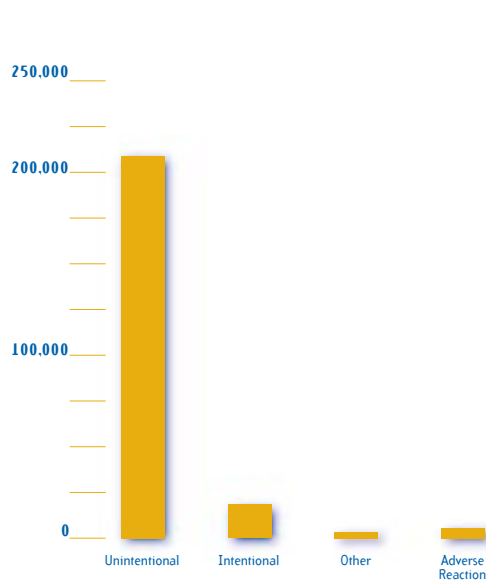


1997 WHERE WAS PATIENT TREATED?



A 63 year-old female was cleaning her bathroom with bleach and ammonia. Within seconds, fumes overcame her. She experienced tightness in her chest and soreness in her throat. She called the poison center immediately. The poison specialist recommended fresh air. Within minutes she was feeling better. There were no other symptoms and within a couple of days, the woman returned to her original healthy condition.

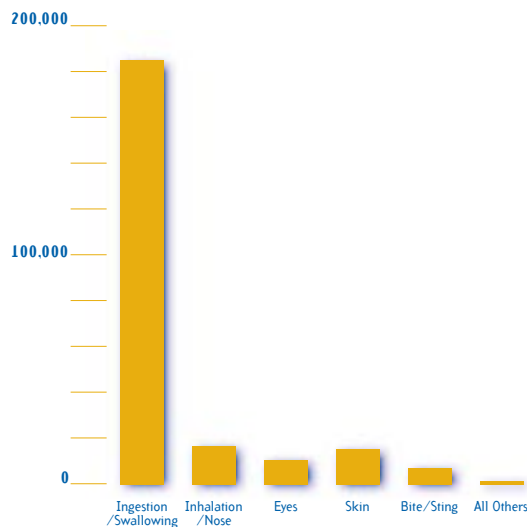
1997 WHAT WAS THE REASON FOR THE POISONING?



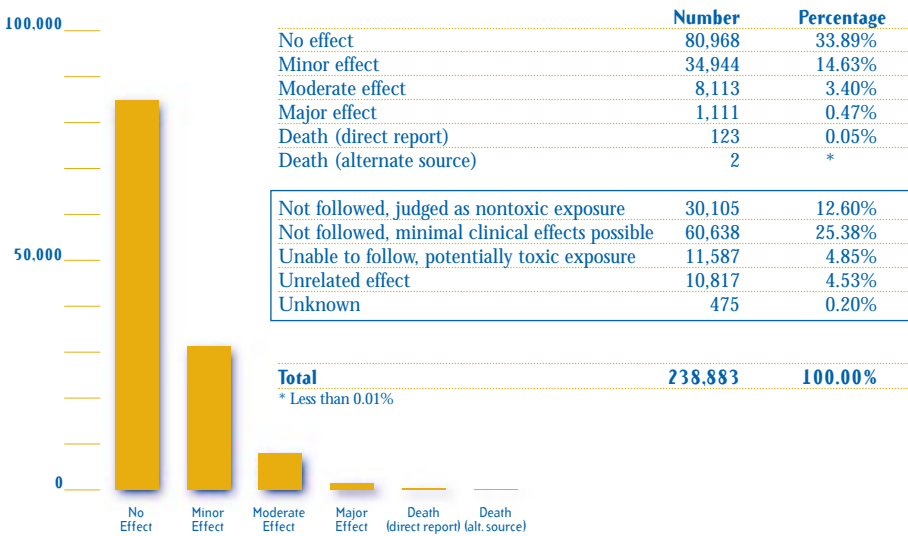
	Number	Percent
Unintentional		
General *	172,396	72.17%
Environmental	4,591	1.92%
Occupational	3,712	1.55%
Therapeutic Error	10,465	4.38%
Misuse	5,110	2.14%
Bite/Sting	10,394	4.35%
Food Poisoning	5,045	2.21%
Unknown	24	0.01%
Total Unintentional	211,737	88.73%
Intentional		
Suspected Suicide	14,744	6.17%
Misuse	3,586	1.50%
Abuse	3,345	1.40%
Unknown	129	0.05%
Total Intentional	21,804	9.12%
Other		
Contaminant/Tampering	320	0.13%
Malicious	635	0.27%
Total Other	955	0.40%
Adverse Reaction		
Drugs	3,441	1.44%
Food	459	0.19%
Others	433	0.18%
Total Adverse Reaction	4,333	1.81%
Unknown Reason	54	0.02%

Total 238,883 100.00%
 * Includes everything, except the reasons listed below.

1997 WHAT PART OF THE BODY WAS POISONED?



1997 WHAT WAS THE RESULT OF THE POISONING?



Definitions:

No Effect: The patient developed no symptoms as a result of the exposure.

Minor Effect: The patient exhibited some symptoms as a result of the exposure, but they were minimally bothersome to the patient. The symptoms usually resolve rapidly and usually involve skin or mucous membrane manifestations. The patient has returned to a pre-exposure state of well being and has no residual disability or disfigurement.

Moderate Effect: The patient exhibited symptoms as a result of the exposure which are more pronounced, more prolonged or more of a systemic nature than minor symptoms.

Major Effect: The patient has exhibited some symptoms as a result of the exposure. The symptoms were life-threatening or resulted in significant residual disability or disfigurement.

Death: The patient died as a result of the exposure or as a direct complication of the exposure which was unlikely to have occurred had the toxic exposure not preceded the complication. Only included are those deaths which are probably or undoubtedly related to the exposure.

Not followed, judged as nontoxic exposure: The patient was not followed because the exposure was likely to be nontoxic because: 1) the agent involved was nontoxic; 2) the amount implicated in the exposure was insignificant; and /or 3) the route of exposure was unlikely to result in a clinical effect.

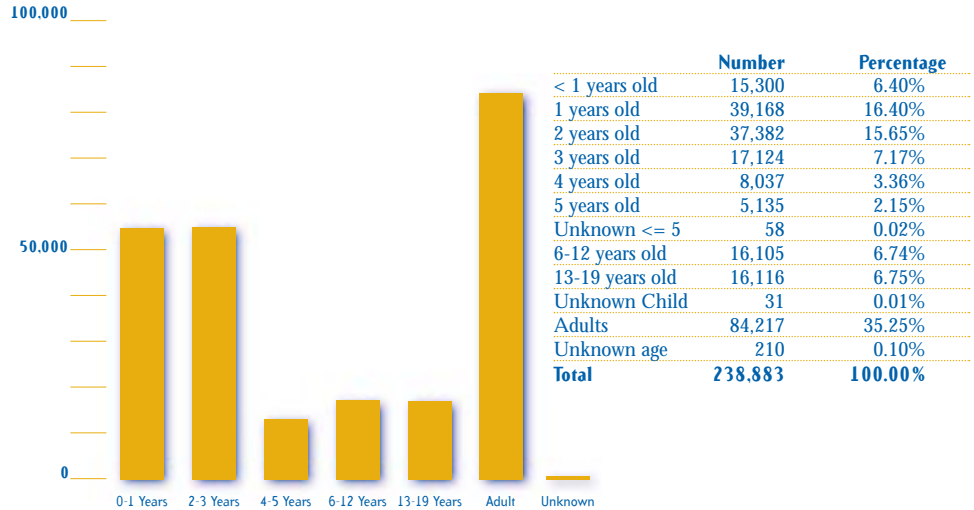
Not followed, minimal clinical effects possible: The patient was not followed because the exposure was likely to result in only minimal toxicity of a trivial nature.

Unable to follow, judged as a potentially toxic exposure: The patient was lost to follow-up and the exposure was significant and may have resulted in toxic manifestations with clinical effects greater than minor effect.

Unrelated Effect: Based upon all the information available, the exposure was probably not responsible for the effect(s).

A 42 year-old female had been taking a Chinese herbal medicine called An Shu Ling for insomnia. After two months of use, she developed acute hepatitis with jaundice, nausea and abdominal pain. Infectious causes were ruled out. The Poison Control Center researched the product and discovered it might contain Jin Bu Huan, a Chinese medicine known to cause hepatitis, which is banned in the U.S. The California Department of Health Services analyzed the product and confirmed the presence of Jin Bu Huan. A warning was issued to the public and authorities seized the remaining commercial product.

1997 HOW OLD WAS THE POISONED VICTIM?



1997 SUMMARY OF ALL DEATH CASES

Gender	
Male	71
Female	52
Total	123

Age	
0-5 years	4
6-12 years	2
13-19 years	6
20-29 years	12
30-39 years	26
40-49 years	38
50-59 years	12
60-69 years	11
70-79 years	10
80-89 years	0
90-99 years	1
unknown	1
Total	123

Reason	
Intentional/Suspected Suicide*	78
Intentional/Misuse	8
Intentional/Abuse	14
Intentional/Unknown	0
Unintentional/General	13
Unintentional/Therapeutic Error	5
Unintentional/Misuse	0
Unintentional/Environmental	2
Unintentional/Occupational	1
Adverse Reaction/Drug	2
Total	123

*Heaven's Gate mass suicide on March 31, 1997 in Rancho Santa Fe, CA accounts for 39 of the deaths in 1997.

1997 SUMMARY OF DEATH CASES: Children 0-19 years old

	Age	Gender	Substance	Reason
1)	1 year old	Female	Olanzapine	Unintentional
2)	16 month old	Male	Iron	Unintentional
3)	2 year old	Female	Unknown	Unintentional
4)	5 year old	Male	Carbamazepine	Unintentional
5)	7 year old	Female	Prochlorperazine	Adverse Reaction/Drug
6)	12 year old	Male	Propane/isobutane	Intentional/Abuse
7)	13 year old	Male	Freon	Intentional/Abuse
8)	14 year old	Female	Unknown	Intentional/Suspected suicide
9)	17 year old	Female	(GHB) Gamma Hydroxybutyric Acid	Intentional/Misuse
10)	17 year old	Male	Methane	Intentional/Abuse
11)	18 year old	Male	Morphine	Intentional/Abuse
			Hydrocodone/Acetaminophen	Intentional/Abuse
12)	19 year old	Male	Gold-colored paint	Intentional/Abuse

HUMAN EXPOSURE CALLS PER COUNTY - 1997

County	Human Exposures	Population	Penetrance
Alameda	12,142	1,328,139	9.14
Alpine	7	1,232	5.68
Amado	377	33,315	11.32
Butte	2,265	192,507	11.77
Calaveras	402	38,437	10.46
Colusa	160	18,223	8.78
Contra Costa	8,845	881,490	10.03
Del Norte	223	26,947	8.28
El Dorado	2,024	151,706	13.34
Fresno	8,590	751,272	11.43
Glenn	289	26,202	11.03
Humboldt	1,486	123,023	12.08
Imperial	617	142,651	4.33
Inyo	135	18,433	7.32
Kern	5,478	622,729	8.80
Kings	957	113,351	8.44
Lake	680	55,261	12.31
Lassen	357	31,431	11.36
Los Angeles	33,072	9,127,751	3.62
Madera	1,129	110,481	10.22
Marin	2,768	233,230	11.87
Mariposa	191	15,869	12.04
Mendocino	1,028	83,298	12.34
Merced	1,596	192,311	8.30
Modoc	62	9,693	6.40
Mono	36	10,497	3.43
Monterey	2,047	339,047	6.04
Napa	1,142	116,512	9.80
Nevada	1,194	89,016	13.41
Orange	10,430	2,636,888	3.96
Placer	3,273	213,227	15.35
Plumas	335	20,597	16.26
Riverside	8,347	1,417,425	5.89
Sacramento	14,863	1,117,275	13.30
San Benito	365	44,503	8.20
San Bernardino	10,149	1,598,358	6.35
San Diego	27,357	2,655,463	10.30
San Francisco	7,961	735,315	10.83
San Joaquin	5,414	533,392	10.15
San Luis Obispo	2,230	229,437	9.72
San Mateo	5,751	686,909	8.37
Santa Barbara	2,236	385,573	5.80
Santa Clara	12,551	1,599,604	7.85
Santa Cruz	2,630	237,821	11.06
Shasta	1,876	161,740	11.60
Sierra	20	3,409	5.87
Siskiyou	613	44,193	13.87
Solano	4,301	365,536	11.77
Sonoma	4,926	420,872	11.70
Stanislaus	4,791	415,786	11.52
Sutter	632	75,650	8.35
Tehama	530	54,108	9.80
Trinity	99	13,418	7.38
Tulare	2,625	349,922	7.50
Tuolumne	638	52,196	12.22
Ventura	3,841	714,733	5.37
Yolo	1,615	149,925	10.77
Yuba	775	60,905	12.72
Other	8,410	N/A	N/A
Total	238,883	31,878,234	7.49

Note: Penetrance is defined as the number of human poison exposure cases handled per 1,000 population per year.

Population Data Source: California State Department of Finance
Demographic Research Unit
City/County Population Estimates (January 1997)

CPCS experts warned the public about the potential danger of eating an exotic fish called puffer fish. In 1997 two southern California women nearly died after eating a meal of the fish. The women recovered fully, however, only after experiencing a progression of symptoms including tingling, numbness of the lips, muscle weakness, and total paralysis. Puffer fish, also known as fugu fish, balloon fish, blowfish, globefish, swellfish or toadfish, contain a powerful poison called tetrodotoxin, which is not destroyed by cooking. The toxin causes disruption of nerve transmission, leading to symptoms ranging from numbness of the lips to total paralysis and death, all of which can occur within minutes.

1997 THE MOST COMMON POISONINGS

Non-Drug Related by Category		Most Common Product or Substance in Category
1. Cleaning Substances –Household	22,279 (8.9%)	Bleach
2. Cosmetics and Personal Care Products	18,567 (7.4%)	Perfume/Cologne/Aftershave
3. Plants	14,828 (5.9%)	Plants causing a rash
4. Bites & Envenomations	11,758 (4.7%)	Unknown types of Insect or Spider Bites
5. Food Products and Food Poisoning	11,339 (4.5%)	Suspected Food Poisoning
6. Foreign Bodies, Toys and Miscellaneous	11,323 (4.5%)	Silica Gel (Desiccants)
7. Insecticides/Pesticides	8,437 (3.4%)	Organophosphates only
8. Chemicals	6,814 (2.7%)	Various Chemicals
9. Hydrocarbons	6,412 (2.5%)	Unknown types of Hydrocarbon
10. Alcohols	5,942 (2.4%)	Ethanol (Beverage)

Drug Related by Category		Most Common Product or Substance in Category
1. Analgesics	21,273 (8.5%)	Acetaminophen: Pediatric Formula
2. Cold & Cough Preparations	10,485 (4.2%)	Antihistamine or Decongestant w/Phenylpropranolamine w/o narcotic
3. Topicals	8,679 (3.5%)	Diaper Care and Rash Products
4. Sedative/Hypnotics/Anti-Anxiety/Anti-Psychotics	6,833 (2.7%)	Benzodiazepines
5. Antimicrobials	6,832 (2.7%)	Antibiotics
6. Antidepressants	5,929 (2.4%)	Various types of Antidepressant
7. Vitamins	5,253 (2.1%)	Multiple Vitamin: Children w/ Iron (No Fluoride)
8. Gastrointestinal Preparations	4,745 (1.9%)	Various types of Antacid
9. Antihistamines	4,585 (1.8%)	Antihistamines not mixed with other medications
10. Hormones and Hormone Antagonist	4,164 (1.7%)	Oral Contraceptives

Note: The percent is based on total human exposures of 238,883 for 1997.

THE MOST COMMON POISONINGS 1997 INVOLVING CHILDREN 5 Years and Younger

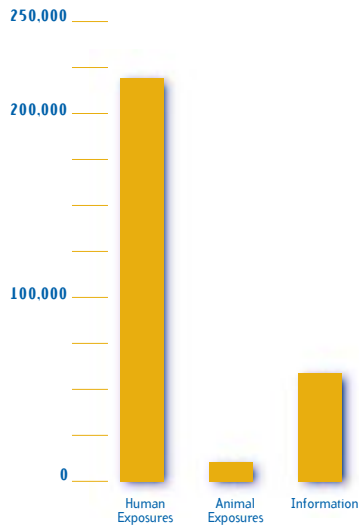
Non-Drug Related by Category		Most Common Product or Substance in Category
1. Cosmetics and Personal Care Products	13,879 (11.4%)	Perfume, Cologne, Aftershave
2. Cleaning Substances-Household	12,504 (10.2%)	Bleach
3. Plants	9,208 (7.5%)	Unknown toxic plants
4. Foreign Bodies, Toys and Miscellaneous	8,122 (6.6%)	Silica Gel (Desiccants)
5. Insecticides/Pesticides	3,273 (2.7%)	Organophosphates (only)
6. Arts, Crafts, Writing Products and Office Supplies	2,941 (2.4%)	Pens and Inks
7. Food Products & Food Poisoning	2,703 (2.2%)	Questions about possibly spoiled food
8. Hydrocarbons	2,432 (2.0%)	Unknown types of hydrocarbon
9. Alcohols	2,035 (1.7%)	Rubbing Alcohol: Isopropyl-without Methyl Salicylate
10. Bites & Envenomations	1,867 (1.5%)	Bee/Wasp/Hornet Bites

Drug Related by Category		Most Common Product or Substance in Category
1. Analgesics	9,268 (7.6%)	Acetaminophen: Pediatric Formula
2. Cold & Cough Preparations	7,137 (5.8%)	Antihistamine or Decongestant, with Phenylpropranolamine w/o narcotic
3. Topicals	5,919 (4.8%)	Diaper Care and Rash products
4. Antimicrobials	4,093 (3.3%)	Antibiotics
5. Vitamins	4,044 (3.3%)	Multiple Vitamins: Children w/Iron (No Fluoride)
6. Gastrointestinal Preparations	3,610 (2.9%)	Various types of Antacid
7. Hormones and Hormone Antagonist	2,688 (2.2%)	Oral Contraceptives
8. Antihistamines	2,072 (1.7%)	Antihistamines not mixed with other medications
9. Electrolytes/Minerals	1,799 (1.5%)	Fluoride (Excluding Vitamins, Hydrofluoric Acid and Mouthwashes)
10. Cardiovascular Drugs	1,418 (1.2%)	Antihypertensives (Excluding Diuretics)

Note: The percent is based on 122,204 exposures of children 5 years and younger in 1997.

The CPCS managed 297,557 cases during 1998. Statistics on various aspects of these cases follows.

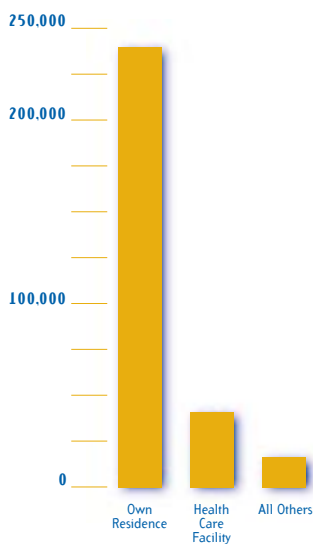
1998 HOW MANY INQUIRIES DID CPCS RECEIVE?



	Number	Percentage
Exposures		
Human Exposures	224,813	75.55%
Animal Exposures	11,510	3.87%
Total Exposures	236,323	79.42%
Information		
Drug Information	14,759	4.97%
Drug Identification	11,754	3.95%
Environmental	367	0.12%
Medical	3,232	1.09%
Occupational	44	0.01%
Poison	23,024	7.74%
Prevention/Safety	7,228	2.43%
Teratogenicity	251	0.08%
Other	575	0.19%
Total Information	61,234	20.58%
Total Calls	297,557	100.00%

Education Materials & Programs voicemail line 10,763

1998 WHERE DID THE CALLS COME FROM?

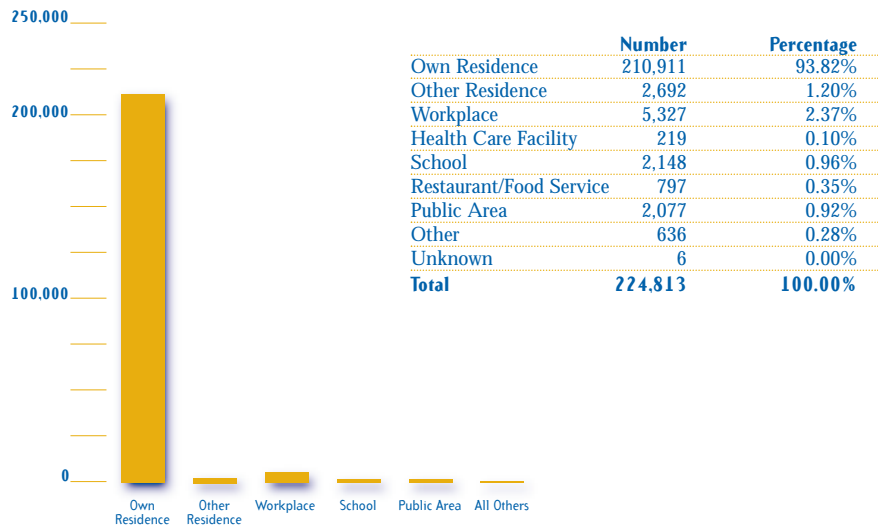


	Number	Percentage
Own Residence	238,710	80.22%
Other Residence	1,927	0.65%
Workplace	2,630	0.88%
Health Care Facility	41,810	14.05%
School	1,610	0.54%
Restaurant/Food Services	75	0.03%
Public Area	824	0.28%
Other	9,969	3.35%
Unknown	4	*
Total	297,560	100.00%

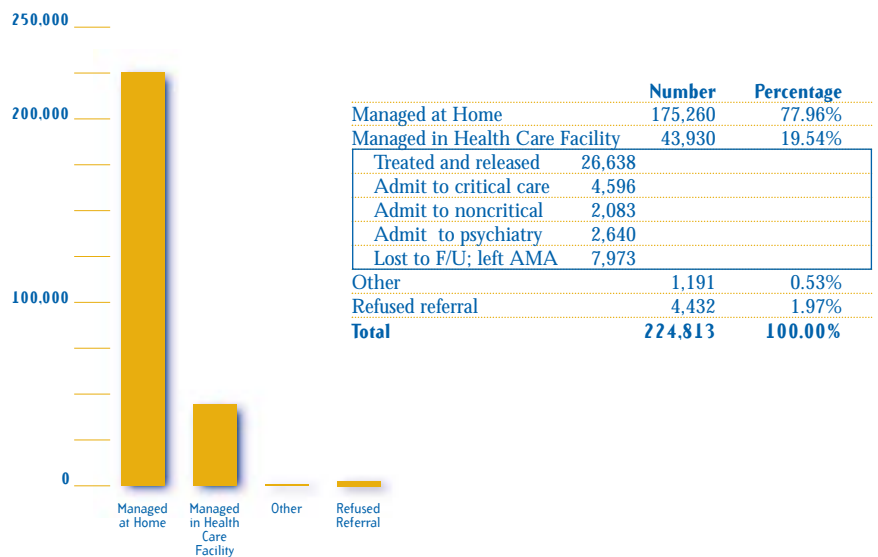
* Less than 0.01%

The CPCS issued a warning to the public about EPIL-STOP, a depilatory product that removes hair from the legs and other body parts. The center received five calls within a 14-day period from people who had developed second-degree chemical burns after having used the product as directed on the label. The victims reported immediate burning pain, skin discoloration, blisters, and scab formation.

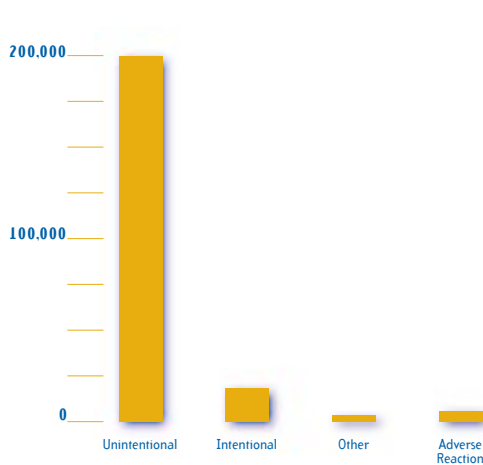
1998 WHERE DID THE POISONING HAPPEN?



1998 WHERE WAS PATIENT TREATED?



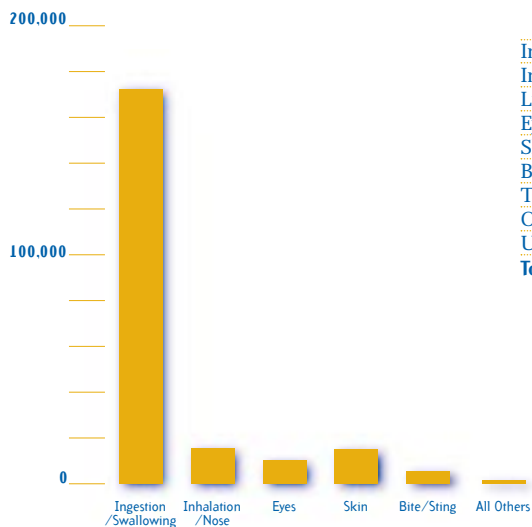
1998 WHAT WAS THE REASON FOR THE POISONING?



	Number	Percent
Unintentional		
General *	162,835	72.43%
Environmental	4,245	1.89%
Occupational	3,539	1.57%
Therapeutic Error	11,535	5.13%
Misuse	5,242	2.33%
Bite/Sting	7,882	3.51%
Food Poisoning	4,694	2.09%
Unknown	24	1.00%
Total Unintentional	199,996	88.96%
Intentional		
Suspected Suicide	14,369	6.39%
Misuse	3,294	1.47%
Abuse	2,815	1.25%
Unknown	50	0.02%
Total Intentional	20,528	9.13%
Other		
Contaminant/ Tampering	267	0.12%
Malicious	533	0.24%
Total Other	800	0.36%
Adverse Reaction		
Drugs	2,716	1.21%
Food	355	0.16%
Others	399	0.18%
Total Adverse Reaction	3,470	1.55%
Unknown Reason	19	0.01%
Total	224,813	100.00%

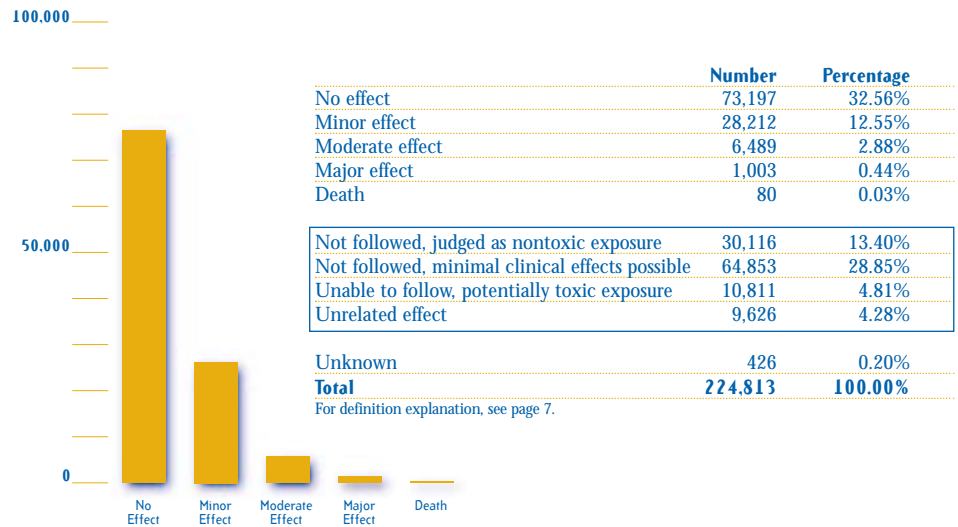
* Includes everything, except the reasons listed below.

1998 WHAT PART OF THE BODY WAS POISONED?

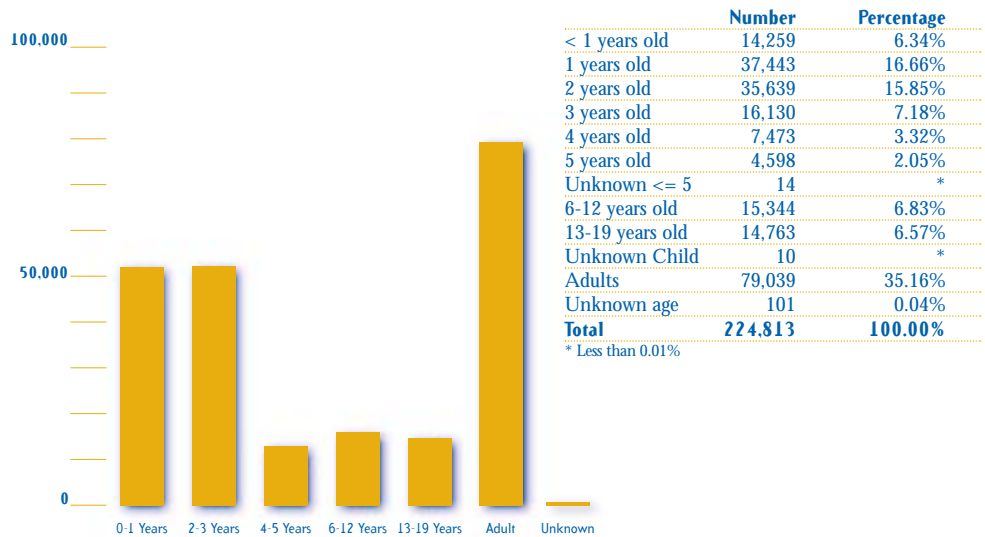


The CPSC warned consumers that they need to be extremely cautious about drinking or eating off-the-shelf products that promise weight loss, increased energy, or enhanced athletic performance. In early April 1998, the death of a woman in Southern California allegedly was linked to her use of a product containing several stimulants known to increase heart rate and blood pressure. People should not assume that any dietary supplement is safe just because it is labeled “natural” or “herbal.”

1998 WHAT WAS THE RESULT OF THE POISONING?



1998 HOW OLD WAS THE POISONED VICTIM?



1998 SUMMARY OF ALL DEATH CASES

Gender

Male	44
Female	36
Total	80

Age

0-5 years	3
6-12 years	0
13-19 years	4
20-29 years	13
30-39 years	13
40-49 years	15
50-59 years	15
60-69 years	5
70-79 years	8
80-89 years	2
90-99 years	2
Total	80

Reason

Intentional/Suspected Suicide	45
Intentional/Misuse	4
Intentional/Abuse	9
Intentional/Unknown	1
Unintentional/General	12
Unintentional/Therapeutic Error	2
Unintentional/Misuse	2
Unintentional/Environmental	1
Adverse Reaction/Drug	4
Total	80

1998 SUMMARY OF DEATH CASES: Children 0-19 years old

	Age	Gender	Substance	Reason
1)	13 month old	Male	Mercury vapor	Unintentional/Environmental
2)	2 year old	Female	Desipramine	Unintentional
3)	14 year old	Female	Doxepin	
			Acetaminophen with codeine	Intentional/Suspected suicide
4)	17 year old	Male	Nitrous oxide	Intentional/Abuse
5)	17 year old	Male	Divaltroex	
			Gabapentin	
			Nefazdone	Intentional/Suspected suicide
6)	19 year old	Male	Venlafaxine	Intentional/Suspected suicide

1998 HUMAN EXPOSURE CALLS PER COUNTY

County	Human Exposures	Population	Penetrance
Alameda	11,335	1,408,100	8.05
Alpine	11	1,200	9.17
Amador	321	33,700	9.53
Butte	2,107	201,600	10.45
Calaveras	372	38,350	9.70
Colusa	132	18,550	7.12
Contra Costa	7,926	900,700	8.80
Del Norte	245	28,900	8.48
El Dorado	1,790	147,600	12.13
Fresno	7,534	786,800	9.58
Glenn	245	26,950	9.09
Humboldt	1,584	127,700	12.40
Imperial	714	142,100	5.02
Inyo	139	18,500	7.51
Kern	4,887	639,800	7.64
Kings	856	122,800	6.97
Lake	710	55,100	12.89
Lassen	304	34,150	8.90
Los Angeles	35,990	9,603,300	3.75
Madera	938	114,300	8.21
Marin	2,821	245,900	11.47
Mariposa	195	16,150	12.07
Mendocino	779	86,900	8.96
Merced	1,440	204,400	7.05
Modoc	63	10,150	6.21
Mono	39	10,600	3.68
Monterey	2,046	386,200	5.30
Napa	954	123,300	7.74
Nevada	906	88,800	10.20
Orange	13,889	2,722,300	5.10
Placer	2,451	217,900	11.25
Plumas	251	20,600	12.18
Riverside	8,667	1,441,200	6.01
Sacramento	13,564	1,159,800	11.70
San Benito	369	46,600	7.92
San Bernardino	10,304	1,621,900	6.35
San Diego	25,760	2,794,800	9.22
San Francisco	6,720	789,600	8.51
San Joaquin	4,976	545,200	9.13
San Luis Obispo	2,198	239,000	9.20
San Mateo	4,928	715,400	6.89
Santa Barbara	1,937	405,500	4.78
Santa Clara	11,544	1,689,900	6.83
Santa Cruz	2,274	250,200	9.09
Shasta	1,654	165,000	10.02
Sierra	30	3,360	8.93
Siskiyou	387	44,700	8.66
Solano	3,679	383,600	9.59
Sonoma	4,209	427,600	9.84
Stanislaus	4,580	437,600	10.47
Sutter	569	76,800	7.41
Tehama	476	55,400	8.59
Trinity	98	13,250	7.40
Tulare	2,484	360,400	6.89
Tuolumne	572	52,800	10.83
Ventura	3,544	730,800	4.85
Yolo	1,405	156,800	8.96
Yuba	1,023	61,400	16.66
Other	2,888	N/A	N/A
Total	224,813	33,252,010	6.76

Note: Penetrance is defined as the number of human poison exposure cases handled per 1,000 population per year.

Population Data Source: California State Department of Finance
Demographic Research Unit
City/County Population Estimates (January 1998)

1998 THE MOST COMMON POISONINGS

Non-Drug Related by Category		Most Common Product or Substance in Category
1. Cleaning Substances –Household	21,314 (9.5%)	Bleach
2. Cosmetics and Personal Care Products	18,701 (8.3%)	Perfume/Cologne/Aftershave
3. Plants	12,817 (5.7%)	Plants causing a rash
4. Foreign Bodies, Toys and Miscellaneous	11,950 (5.3%)	Silica Gel (Desiccants)
5. Food Products and Food Poisoning	10,344 (4.6%)	Suspected Food Poisoning
6. Bites and Envenomations	9,104 (4.0%)	Various types of Insect or Spider Bite
7. Insecticides/Pesticides	7,154 (3.2%)	Organophosphates only
8. Chemicals	6,294 (2.8%)	Various Chemicals
9. Hydrocarbons	5,832 (2.6%)	Gasoline
10. Alcohols	5,426 (2.4%)	Ethanol (Beverage)

Drug Related by Category		Most Common Product or Substance in Category
1. Analgesics	21,006 (9.3%)	Ibuprofen
2. Cold & Cough Preparations	9,731 (4.3%)	Antihistamine or Decongestant w/Phenylpropranolamine w/o narcotic
3. Topicals	8,589 (3.8%)	Diaper Care and Rash Products
4. Sedative/Hypnotics/Anti-Anxiety/Anti-Psychotics	6,653 (3.8%)	Benzodiazepines
5. Antimicrobials	6,359 (2.8%)	Antibiotics
6. Vitamins	5,270 (2.3%)	Multiple Vitamin w/Iron (No Fluoride)
7. Antihistamines	4,502 (2.0%)	Antihistamines not mixed with other medications
8. Gastrointestinal Preparations	4,450 (2.0%)	Various types of Antacid
9. Hormones & Hormone Antagonists	4,198 (1.9%)	Corticosteroids
10. Antidepressants	3,838 (1.7%)	Various types of Antidepressant

Note: The percent is based on total human exposures of 224,813 for 1998.

THE MOST COMMON POISONINGS 1998 INVOLVING CHILDREN

5 Years and Younger

Non-Drug Related by Category		Most Common Product or Substance in Category
1. Cosmetics and Personal Care Products	14,072 (12.2%)	Perfume, Cologne, Aftershave
2. Cleaning Substances-Household	11,662 (10.1%)	Bleach
3. Foreign Bodies, Toys and Miscellaneous	8,576 (7.4%)	Silica Gel (Desiccants)
4. Plants	7,993 (6.9%)	Unknown toxic plants
5. Arts, Crafts, Writing Products and Office Supplies	2,973 (2.6%)	Pens and Inks
6. Insecticides/Pesticides	2,729 (2.4%)	Organophosphate only
7. Food Products & Food Poisoning	2,659 (2.3%)	Questions about possibly spoiled food
8. Hydrocarbons	2,109 (1.8%)	Unknown types of hydrocarbon
9. Alcohols	1,765 (1.5%)	Rubbing Alcohol: Isopropyl-w/o Methyl Salicylate
10. Rodenticides	1,491 (1.3%)	Long-Acting anticoagulant Rodenticides

Drug Related by Category		Most Common Product or Substance in Category
1. Analgesics	9,143 (7.9%)	Acetaminophen: Pediatric Formula
2. Cold & Cough Preparations	6,466 (5.6%)	Antihistamine or Decongestant, with Phenylpropranolamine w/o narcotic
3. Topicals	5,949 (5.1%)	Diaper Care and Rash products
4. Vitamins	4,145 (3.6%)	Multiple Vitamins: Children w/ Iron (No Fluoride)
5. Antimicrobials (Antibiotics)	3,744 (3.2%)	Antibiotics
6. Gastrointestinal Preparations	3,417 (2.9%)	Various types of Antacid
7. Hormones and Hormone Antagonist	2,667 (2.3%)	Oral Contraceptives
8. Antihistamines	1,951 (1.7%)	Antihistamines not mixed with other medications
9. Electrolytes/Minerals	1,691 (1.4%)	Fluoride (Excluding Vitamins, Hydrofluoric Acid and Mouthwashes)
10. Misc. Prescription and Over-the-Counter Drugs	1,362 (1.2%)	Homeopathic/Herbal Preparations

Note: The percent is based on 115,556 exposures of children 5 years and younger in 1998.

Eight members of an Hispanic family became ill after inhaling mercury vapor fumes from a gold recovery effort in the family home. The parent had been following a family tradition learned in his native Mexico of using mercury to extract the gold from ore. The poison center was consulted by the local hospital about treatment for exposure to this very toxic heavy metal. Despite treatment, the damage to the lungs was so extreme, that both the mother and 13 month-old died. The other family members slowly recovered.

Public Education

Major goals of the CPCS's public education component are:

- to inform the public about the 24-hour free emergency "hotline" service while encouraging its proper use;
- to reduce the frequency of unintentional poisonings by providing poison prevention education using a variety of interventions in different settings;
- to evaluate patterns of calls to identify low-use regions or high-risk substances, and target educational efforts in those areas.

During the first two years as a statewide system, the CPCS health educators from the four sites worked together on common projects. Education materials from all sites were consolidated into statewide materials, and the Health Educators began developing new and innovative materials and programs. They provided educational materials, consulted on poison prevention strategies with numerous individuals and organizations, taught classes, provided workshops, made presentations, and had displays at many injury prevention fairs. They also participated in a number of conferences and served on local coalitions concerned with injury prevention. More than 20,000 calls were received on the CPCS's new education line and more than 300,000 pieces of information were distributed during 1997 and 1998.

Written Materials

What's available?

- Prevention brochures in 12 languages (many available in camera ready copy)
- Telephone stickers with the public hotline
- Telephone stickers for hospitals and physicians
- Educational posters (e.g. lead poisoning prevention, iron poisoning dangers and prevention)
- Resource guide
- Curriculum guides, coloring books, and activity sheets designed for duplication

New publications

- Plant brochure in collaboration with the University of California Cooperative Extension
- Curriculum scripts for elementary classes that are taught by UCSF pharmacy students
- A community newsletter that is widely distributed throughout the state.
- CPCS Fact sheet
- New translations (Spanish version of Emergency Action flyer; eight languages available in a coloring book)

How is material distributed?

The Central Office now distributes most of the stickers and brochures, although each site has a supply for local use at presentations and health fairs. Most of the other educational materials, such as activity sheets, curriculum guides, newsletters, etc. are distributed by the educators.

Printed Materials Distributed

	1997	1998
Public stickers (strips of 3 in '97 & strips of 4 in '98)	266,330	263,935
Professional stickers (strips of 3 stickers)	29,607	48,500
Sample packets (stickers & brochures)	1,902	2,516
Brochures/other written materials	140,644	163,732

Lending Library

The CPCS maintains a collection of 66 poison related videos. A number of them are in Spanish and there are several in Cantonese, Hmong and one in sign language. The collection includes poison prevention videos for all age groups and many videos specifically on the prevention of lead poisoning. The videos are loaned free of charge to teachers, parents, agencies, health professionals, etc. During 1997 and 1998 more than 260 individuals and/or organizations used the lending library. In addition, four of these videos were played numerous times by four California cable TV stations during the two years.

The health educators also loan "props" for poison prevention presentations, health fairs, and other events. These include look-a-like displays of candy and medicine, examples of containers with safety resistant caps, objects containing lead, photo exhibits, and numerous games.

Public Outreach

During the two years many programs were provided in the community. Emphasis in 1998 centered on training trainers rather than going to individual classrooms and small groups, as was done in 1997. Two pharmacy associations provided outreach on behalf of the CPCS, and CPCS staff also had many interactions with the media. A summary of these activities follows.

Event	1997		1998	
	Number of Presentations	Number in audience	Number of Presentations	Number in audience
Presentations, trainings	164	9,933	63	6,500
Health Fairs	29	7,000	28	9,260
Press	124	-	98	-
Radio Interviews	19	-	26	-
TV	66	-	48	-

A 14 month-old female ate 10 or 11 long-acting anticoagulant rodenticide pellets. Mom called the poison center immediately. The child was rushed to a local hospital for treatment. The child was given activated charcoal and was observed in the emergency department. The child made a complete recovery after receiving appropriate treatment.

Special Projects

National Poison Prevention Week

In 1998, children throughout California participated in a poster contest to mark National Poison Prevention Week. With the assistance of 12 major pharmacy chains representing over 2100 pharmacies and many independent pharmacies, contest information was distributed to children of all ages. Publicity about the contest appeared throughout the state both in print and on the radio. Judging took place in March 1998, and winners received cash prizes. The best posters were submitted to the National Poison Prevention Week Council for competition in a national selection process.

1999 Poison Prevention Week Calendar

A 1999 calendar was developed using artwork from the poster contest to illustrate a poison prevention message for each month. Five thousand were printed and sold or used for fundraising throughout California. Eleven hundred preschools received copies of the calendar. The project's publicity resulted in: a San Diego TV station using the content for a poison safety program; several radio interviews; and the translation of much of the material by a Spanish media organization which made it available to Spanish print, radio, and TV throughout the state.

Professional Education

Presentations

Lectures and poster sessions were given at local, state, national as well as international levels. Examples of topics include: plant toxicology; poisonous mushrooms; spiders, snakes, scorpions and bees; medical management of chemical/biological terrorist incidents; drugs of abuse; respiratory emergencies in aeromedical transport, current concepts in poisoning; and new anesthetic agents. In addition, the CPCS conducted five special all-day continuing education programs for health professionals throughout California. The programs, "Poisons, Bites and Environmental Toxins: Emergency Management and Treatment," were held in San Diego, Sacramento, San Francisco, Fresno and Los Angeles.

	Number of presentations	Number in audience
1997	238	11,800
1998	254	14,564
TOTALS	492	26,364

Publications

The CPCS staff members have written books/ book chapters and contributed articles and abstracts to numerous professional journals. A complete list of these publications is available on request.

	Books/Chapters	Journal Articles	Abstracts/posters
1997	5	28	18
1998	143*	30	20

*135 of these chapters were in Olson KR (Editor), Anderson IB, Benowitz, NL, Blanc PD, Clark RF, Kearney TE, Osterloh JD (Associate Editors): *Poisoning & Drug Overdose*, 3rd edition. Stamford, Connecticut: Appleton and Lange, 1998.

Special Projects

Mark Galbo, MS (CPCS-SF) is a member of the San Francisco City & County Hazardous Materials Advisory Board, which provides reviews and recommendations to the San Francisco Board of Supervisors and Health Commission on hazardous and toxic materials, hazardous waste, and environmental issues.

Steven R. Tharratt, MD (CPCS-Sacramento) is a member of the Chemical Terrorist Response Group: Members of the CPCS provide technical and field support to local, state and federal emergency response teams responding to suspected incidents of chemical/biological terrorism. This support includes medical implications of suspected releases, decontamination, management, and other mitigation advice. These teams are active on several standing multidisciplinary committees designed to plan California's response to such incidents.

"I'm so glad you're there for us" Leah, El Cajon

"You guys are wonderful. You have helped me so many times."

Caroline, San Diego

"I have less worries with you around. I will rest a lot easier tonight."

Koreena, Santee

"Twenty-four hours a day, someone is there to answer the phone. That means a lot to me."

Chris, Fresno

"I am so impressed with the poison center. They provide a personable service. They are very attentive and make you feel like they care about your situation."

Julie, Fresno

Research

Clark RF

- Study of a new antibody fragment for digoxin poisoning in humans.
- Study on the toxicity of "pepper spray" in volunteers, with regard to pulmonary function.

Clark RF, Williams SR

- Study of the cost effectiveness of a Medical Toxicology consulting service.

Clark RF, Williams SR, Nordt SP

- A trial of the safety and efficacy of a new polyvalent crotalid antivenom for severe crotalid envenomation.
- CPCS study on short course N acetylcysteine for acetaminophen poisoning.

Dyer J

- Continuing research projects since 1990 on gamma hydroxybutyrate (GHB). Currently collecting data for study to correlate level of consciousness with GHB blood levels in acute overdose. Prospective clinical and pharmacokinetic evaluation of severe Gamma hydroxybutyrate ingestions, in progress 1998-1999.

Ekins B (CPCS Coordinator)

- Button battery study.
- DEET Neurologic study.
- Nicotrol patch study.

Ingels M, Nordt SP, Williams SR, Manoguerra AS, Clark RF

- CPCS study on rodenticide poisoning in children.

Khasigian P, Ekins B, Geller R

- Oral rodenticide exposures in children. Valley Children's Hospital.

Moss ST, Bogden G, Dart RC, Nordt SP, Williams SR, Clark RF

- An association of rattlesnake bite location to severity of clinical manifestations.
- Abnormal urinalysis following rattlesnake envenomation.

Nordt SP, Williams SR, Manoguerra AS, Clark RF

- Study of the absorption of different iron preparations in swine model of iron poisoning.
- Ethanol analysis following the consumption of "alcohol-free" beer.
- Availability of activated charcoal and ipecac at pharmacies in California.

Palmer M, Everson G

- Herbal/homeopathic drug study.

Rangan C, Nordt SP, Clark RF

- Study on the absorptive capacity of activated charcoal in volunteers in a subtoxic overdose of acetaminophen.

Rosa CM, Nordt SP, Williams SR, Clark RF, Turchen S, Manoguerra AS

- Prospective evaluation of home treatment of mild to moderate pediatric acetaminophen exposures.

Roth B, Geller R

- Short Course NAC for Acetaminophen.

Financial Report

Operating Revenues and Expenses

The bulk of funding for the first three fiscal years of CPCS operations came from a Disproportionate Share Hospital Medi-Cal matching program with the California Medical Assistance Commission and State Department of Health Services. (The funding began mid-fiscal year, in January 1997.) The remainder of funds for operations came from industry contracts, community hazardous material programs, and donations. These include the Chemical Manufacturers Association (CHEMTREC), 3E/Safety Kleen, Tosco Corporation, and the City and County of San Francisco Department of Public Health.

The California Poison Control System also receives an estimated \$1.68 million annually of in-kind support, such as space, accounting, and administrative services. This support comes from campus and medical center facilities of the University of California, which house the CPCS Central Office and hotline sites in San Diego and Sacramento. Also, Valley Children's Hospital in Fresno/Madera and the San Francisco Community Health Network in San Francisco house and support the hotline sites.

	FY 96-97*		FY 97-98		FY 98-99**	
	\$	%	\$	%	\$	%
OPERATING REVENUE						
Medi-Cal/DHS	2,705,583	97.8%	5,726,299	95.8%	5,698,962	94.9%
Contracts	38,000	1.3%	193,200	3.3%	231,727	3.9%
Education materials revenue	7,800	0.3%	31,300	0.5%	50,000	0.8%
Donations	4,200	0.2%	7,500	0.1%	5,000	0.1%
Other	10,000	0.4%	18,000	0.3%	20,000	0.3%
TOTAL	2,765,583	100.0%	5,976,299	100.0%	6,005,689	100.0%
DIRECT OPERATING EXPENSES						
Salaries and Benefits	2,342,078	84.7%	5,149,230	86.2%	5,300,000	88.2%
Telephone	127,243	4.6%	373,885	6.2%	367,000	6.1%
Reference materials and printing	55,000	2.0%	117,410	2.0%	120,000	2.0%
Health Education	9,865	0.4%	48,710	0.8%	81,000	1.4%
Other (supplies, equipment, travel, misc.)	231,397	8.3%	287,064	4.8%	137,689	2.3%
TOTAL	2,765,583	100.0%	5,976,299	100.0%	6,005,689	100.0%
IN KIND SUPPORT	819,512		1,680,000		1,722,000	

* One-half year operations only, from start-up date of January 1, 1997 through June 30, 1997.

** Projections based on July to December expenses of current FY 98-99 budget.

Contracts

3E/Safety Kleen (environmental consulting company): The CPCS provides support for employees of 3E customers who have a poisoning emergency. Among others, 3E customers include consumer retail outlets (hardware stores, department stores), transportation companies (UPS, US Postal Service), and health care centers.

Pesticide Incident Reports (PIR) with the California Department of Pesticide Regulation: California law requires physicians to report exposures to pesticides to the county health officer. The PIR project identifies patients who are ill after an exposure to pesticides and are being seen by a physician. The poison center specialist provides the physician with a consultation explaining the nature of the pesticide, the expected symptoms and the treatment needed. In November 1998, the CPCS began to offer reporting of pesticide-related exposures to the county health officer for the treating physician.

CHEMTREC (Chemical Manufacturers Association Transportation Emergency Response Program): The Chemical Manufacturers' Association contracts with the CPCS for medical emergency response assistance for incidents involving chemical exposures on a 24-hour, seven day a week basis.

Toxic Information Center: This is a service of the San Francisco Division of the CPCS, which provides general information to the residents of San Francisco on toxic and hazardous materials. It also serves as a resource and provides research on requested toxic and hazardous materials to the Bureau of Environmental Health Management of the San Francisco Department of Public Health.

DAWN (Drug Abuse Warning Network): The San Francisco Division of the CPCS provides emergency department facility reports of visits for drug-related illnesses and injuries to the National Institute on Drug Abuse, Division of Epidemiology and Prevention Research, Department of Health and Human Services.

The San Diego Division of the CPCS provides information and assistance to first responders and hazardous materials response personnel for the San Diego County Department of Environmental Health.

Contributors

During 1997 and 1998, the CPCS received approximately \$15,000 in contributions from individuals, foundations, businesses, and organizations. Donations enable the CPCS to provide more outreach and prevention education in the community. The California Poison Control System gratefully acknowledges the support of the following individuals and groups who contributed \$50 or more during these two years.

Alameda Pediatrics Associates
Ms. Lisa Albo
Dr. and Mrs. Corrie Anderson
Ms. Susan G. Anderson
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Mr. Anthony Breslin
Mr. and Mrs. Jaime L. Carbajal
Violeta M. Carnero, M.D.
Mr. and Mrs. Steve Cassriel
Dr. and Mrs. Simon P. Cohn
Ms. Leslie Comnes
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Mr. and Mrs. Alan De Ruff
Mr. and Mrs. Ted De Wilde
Ms. Barbara E. Dittmann
Ms. Laura Duskin
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Ms. Dominique Hendershot Embrey
Mr. and Mrs. Victor S. Engleman
Mr. David K. English, M.D.
Mr. and Mrs. Douglass C. Fake
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Abner P. Korn, M.D.
Lamorinda Pediatric Medical Grp.
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ABAT	American Board of Applied Toxicology
CHES	Certified Health Education Specialist
CSPI	Certified Specialist in Poison Information Certified by the American Association of Poison Control Centers
FACEP	Fellow, American College of Emergency Physicians
FACMT	Fellow, American College of Medical Toxicology
PIP	Poison Information Provider

Staff

Pharmacists, nurses, and poison information providers (PIPs) answer hot-line phones 24 hours a day. Many of the staff are Certified Specialists in Poison Information (CSPI). This title recognizes those who have passed a national toxicology examination given by the American Association of Poison Control Centers. All new staff members receive rigorous training at their respective sites. Pharmacists and nurses supervise the poison information providers. Staff members are supported by board-certified physician toxicologists at all times. A combination of full- and part-time staff manages approximately 900 calls per day.

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Sacramento

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R. Steven Tharratt, MD, PhD, FACMT Associate Med. Dir.	

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San Diego

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Richard Clark, MD, FACMT, FACEP, Medical Director

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Helene Breckenridge, RN, CSPI

Margaret Grisell, PharmD

Maureen Phillips, RN, BSN, CSPI

Mary Broderick, RN, CSPI

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F. Lee Cantrell, PharmD, CSPI

Cynthia Johnson, PharmD, ABAT

Kim Seto, PharmD

Mary Farson Collier, RN, CSPI

Sharie Kaemerle, RN, BSN, CSPI

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Nancy Cunningham, RN, BSN, CSPI

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San Francisco

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Alan Tani, PharmD, CSPI

Kathryn Keller, PharmD, CSPI

Denise Merlo, PIP

Kelly Woodard, BS, PIP



CENTRAL OFFICE

School of Pharmacy
University of California San Francisco
Box 1262
San Francisco, California 94143-1262
tel 415/502-8600
fax 415/502-8620

FRESNO DIVISION

at Valley Children's Hospital
9300 Valley Children's Place, MB15
Madera, California 93638-8762
tel 559/622-2300
fax 559/622-2322

SACRAMENTO DIVISION

at UC Davis Medical Center
2315 Stockton Boulevard
Sacramento, California 95817-2201
tel 916/227-1400
fax 916/227-1414

SAN DIEGO DIVISION

at UC San Diego Medical Center
200 West Arbor
San Diego, California 92103-8925
tel 619/715-6300
fax 619/715-6323

SAN FRANCISCO DIVISION

at San Francisco General Hospital
1001 Potrero Avenue
San Francisco, California 94110-3518
tel 415/502-6000
fax 415/502-6010

**EMERGENCY/INFORMATION
24-HOUR HOTLINE**
800/876-4766 (California Only)

