California Poison Control System

Lee Cantrell, Pharm D., DABAT
Interim Director
Calif. Poison Control System- San Diego
Assistant Clinical Professor of Pharmacy
UCSF School of Pharmacy
Assistant Clinical Professor of Pharmacy
UCSD Skaggs School of Pharmacy and Pharmaceutical Sciences

Poison Control Centers (PCCs)
- 1953- First PCC developed in Chicago
- 1957- National Clearinghouse for PCCs developed by U.S. Public Health Services
- 1958- American Association of Poison Control Centers (AAPCC) established
- 1970- over 600 PCCs in U.S.
- 1982- AAPCC & ACEP approve certification criteria for regional PCCs

Poison Control Centers

Criteria for AAPCC certification:
- Provide info 24 hours/day, every day to public and health professionals
- Utilize national 800 telephone number
- Provide access for non-English speaking callers
- Keep records of all cases handled
- Submit all exposure data to AAPCC in proper format
- Produce an annual report

California Poison Control System- CPCS

Established in 1997
- Provide with high quality emergency telephone advice regarding poison exposures for the state’s 35+ million people
- The system uses identical telephones, computers, computer programs and databases, recording systems and automatic call distribution systems
- We use uniform protocols and guidelines and have identical health education materials

The California Poison Control System- CPCS

Operated by UCSF School of Pharmacy
- Single Fiscal Entity
- Central Administrative office
- One system with 4 call sites:
  - San Francisco
  - Fresno/Madera
  - San Diego
  - Sacramento
- Virtual single center:
  - Statewide 800 number with call-queuing technology
  - Single medical back-up panel
  - Uniform management guidelines
  - LAN and WAN data connection
  - Teleconferencing
  - Intranet with references, policies, guidelines

California Poison Control System- CPCS

Comprised of centers in:
- San Diego
- Sacramento
- Fresno/Madera
- San Francisco
CPCS Services
- Provide treatment advice provided to health care professionals and the public for poisoning exposures
- Provide general advice or referral for animal cases
- Information on a wide variety of topics including of plants, food safety, drug interactions, drug identifications, basic medical information, prevention, etc.

Translation services available
- 17 different languages required translator over 3 year period

TTY services available
- All services provided 24/7 via a toll-free number

Additional CPCS Services
- Health education materials for the public
- Telephone stickers for health care facilities
- Web site www.calpoison.org with information for the public, educators and health professionals
- Press releases as warranted
- Continuing education programs

Health education and prevention talks to the public
- Training for a multitude of students, residents, and fellows
- Partnership with State to report pesticide illness cases
- Terrorism preparedness training
- Toxicology Consult Service
- Some commercial contracts

Training Programs
- Training conducted by the Medical Directors, Managing Directors and staff who provide didactic lectures, informal lectures, rounding, etc.
- Required and elective rotations through the poison center to teach toxicology exist at all Divisions
  - Pharmacy students, medical students, pharmacy residents, medical residents, toxicology fellows

Research
- Results disseminated at local, state, national, and international meetings and in peer reviewed publications.
Innovative Health Education Program

- Consumer-focused approach
  - Quantitative research
  - Focus groups
- Comprehensive statewide approach
- Collaboration with state, county, and local agencies as well as professional organizations and businesses

Technology Development

- Single data collection system over a WAN
  - DOTLAB data collection software
  - Ability to immediately see/edit a case from anywhere in the State
- Single call-queuing ACD system
  - Prioritized to regional site
  - Excess call volume to next available operator
  - Three separate 800 numbers for the Public, Health Care Professionals and 9-1-1

Data Collection - Visual DOTLAB

Data Quality and Collection

- All cases entered into Visual DOTLAB; TESS data sent to AAPCC via AutoUpLoad
- Case volume data provided to Division Managers monthly both CPCS wide and by Division
  - Data includes total calls, human exposures, animal and information calls, plus trending graphs
- Data quality is measured in part using certain AAPCC metrics on annual report

Poison Control Centers - Staffing

- Medical Director
  - MD board certified by American Board of Medical Toxicology (ABMT)
  - Spend at least 50% of activities in toxicology
- Managing Director
  - RN, RPH or MD who is board eligible for the American Board of Applied Toxicology (ABAT)
  - Full-time commitment to PCC activities
CPCS Leadership: Medical Directors

- Adoption of operating procedures, PIP protocols
- Discovering & working out differences:
  - Multiple-dose AC
  - Use of hyperbaric oxygen therapy
  - Mushrooms
  - Snake bites
- Sharing of regional cases
  - Bi-weekly Statewide “Grand Rounds”
- Planning for prospective studies

CPCS Leadership: Divisional Directors

- Adoption of operating procedures, protocols, guidelines
- Workload assessment
- Staff evaluation, education & development
- Weekly management teleconferences

CPCS- Staffing

Specialists in Poison Information (SPIs)
- RN, RPH, MD or PA
- Required to pass AAPCC certification exam within 2 years of eligibility (CSPI)
- Expected to manage at least 2,000 exposure cases per year
- Poison Information Providers (PIPs)
  - Required to have healthcare-oriented background, but not license
  - Required to work directly under direction of CSPI, medical or managing director

CPCS Revenue & Expenses

CPCS Poison Call Service and Poison Prevention Expense/Revenue

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<td>CPCS Expense</td>
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<td>In-Kind Support</td>
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CPCS- Staffing

Staffing Mix
- Pharmacists 35.64 FTEs
- Providers 16.35 FTEs
- RNs 9.50 FTEs
- Admin Staff 9.00 FTEs
- Health Educators 6.00 FTEs
- Physicians 3.15 FTEs

CPCS- Staffing

Back-up Consultation
- Available 24 hours/day
- Provided by board certified clinical toxicologist (either ABMT or ABAT) or toxicology fellow

Health Education
- Provide a variety of public education activities targeting “at-risk” populations
- Provide info on new and important advances in poisoning management to health professionals
The Poison Information Phone Call

**Background**
- Roughly 3.5 million calls/year are made to U.S. PCCs
- >50% of exposures occur in children under 6 years old
- 75% of exposures are managed at home
- Fatalities are uncommon
  - 1,106 reported in 2003
  - 0.046% of all cases reported
  - 54% are suicides

Call Volume for CPCS – 2004
- Over 900 calls per day
- Over 300,000 cases total for year!
- Estimated cost per call: $26
- Call management:
  - Non-HCF: 77%
  - Already in HCF: 15%
  - Referred to HCF: 8%

The Poison Information Exposure Call

Poison Exposure Calls

**Key Questions**
- Who was exposed?
  - Patient age
    - Pediatric vs adult vs elderly
  - Patient weight
    - Many toxic doses are determined by mg/kg basis
  - Patient sex (pregnant?)
- What was the route of exposure?
  - Oral, dermal, ocular, inhalation, parenteral, etc.

Information Gathered for Exposure Calls

- Caller name
- Phone number
- Zip code/county
- Patient name
- Age
- Gender
- Weight, if needed
- Medical history
- Caller site
- Treatment site
- Substance causing exposure
- Amount & time of exposure
- Reason for exposure
- Route(s) of exposure
- Symptoms
- Treatment
- Outcome
- No Race/ethnicity

Poison Exposure Calls

**Key Questions**
- What is/are the substance(s) involved?
  - The exact name of the product or at least the active ingredients and concentration are critical to assessing the risk of toxicity
- How much of the substance was the patient exposed to?
  - Quantifying the amount involved in the exposure is crucial but can be difficult
Poison Exposure Calls

Key Questions

- How long since the exposure occurred?
  - Important in determining the urgency of the situation
  - Acute vs Chronic vs Acute-on-Chronic
- What is the condition of the patient?
  - Key in determining level and urgency of medical care required
  - Subjective & objective symptoms, vital signs
  - Many times, symptoms do not correlate with the suspected toxin

- Does the patient have any pre-existing medical conditions?
  - Existing medical conditions may complicate a poisoning exposure
- What interventions have been instituted?
  - Decontamination, antidotes, etc.

Assessment

- Factor in answers from key questions
- Utilize information resources
  - Poisindex
  - Texts
    - Toxicologic Emergencies, Medical Toxicology, Poisoning & Drug Overdose
    - Primary literature
    - Case reports, case series most common, RC or outcome based studies less common
    - Triage guidelines
      - National, local
- Formulate a conclusion regarding the risk of toxicity!

Plan

- Assessment will dictate level of acuity
  - Ranging from non-toxic exposures managed at home to life-threatening poisonings which require immediate intervention
- First-aid/treatment recommendations
  - Decontamination
  - Specific therapy (antidotes, hemodialysis, etc)

Follow-up

- Home cases
  - Check for the development of serious symptoms
  - Provide reassurance
- HCF cases
  - Assess current therapy
  - Make further treatment recommendations based on information gathered (vitals, labs, clinical condition)
The Poison Information Call

- **Information calls**
  - Tablet ID’s, poison prevention calls, “hot topics”, limited drug information
- **Veterinary exposures**
  - Large variety of animals, but usually dogs and cats

Case 1- *Pill bottles are not toys!*

- A mother calls the PCC regarding her daughter who was given a closed bottle of Tylenol to play with. Now the bottle is open and the child has pill residue in her mouth.
- What additional information do we need to assess the toxicity risk?

Case 1

- **Helpful information**
  - How old is the child?
    - 2 years old
  - How much does she weigh?
    - 22 lbs
  - How long ago did this happen?
    - 5 minutes
  - Is the child having any unusual symptoms?
    - No.
  - What strength is the Tylenol?
    - 325 mg
  - What is the maximum amount that could have been ingested?
    - 8 tablets

Case 1

- **Formulate your assessment**
  - Acute toxic dose for APAP- 250mg/kg
    - 8 x 325 mg = 2600 mg
    - 22 lbs/2.2 = 10 kg
    - Amount taken = 260 mg/kg
  - Potentially toxic!

Case 1

- **Formulate your plan**
  - Home interventions?
    - None
  - Need to go to ER?
    - Yes
  - If yes, how urgently?
    - OK to go via private vehicle
Case 2 - It just wanted to bee your friend!

- A 37 year-old male was stung on the arm by a bee while playing fetch with his dog.
  - What additional information do we need to assess the toxicity risk?

Case 2

- Helpful information
  - How long ago did this happen?
    - 20 minutes
  - What kind of symptoms are you having?
    - Local pain, redness and swelling. Also, the stinger is still stuck in his skin.

Case 2

- Helpful information
  - Any difficulty breathing, generalized hives or dizziness?
    - No
  - Are you allergic to bees?
    - I've never been stung before

Case 2

- Formulate your assessment
  - The patient is 20 minutes post-exposure and is only having mild, local symptoms
  - Anaphylactic reactions usually occur within a few minutes
  - Local symptoms typically resolve within a few hours

Case 2

- Formulate your plan
  - Home interventions?
    - Remove the stinger
    - Apply a cold compress and elevate
    - Consider OTC analgesics/antihistamines
    - Review symptoms of anaphylaxis
  - Need to go to ER?
    - Not unless severe allergic symptoms develop

Case 3 - Plant your lips on this!

- The father of a small child is calling because he found him chewing on the leaf of a houseplant.
  - What additional information do we need to assess the toxicity risk?
Case 3

Helpful information

- How old is the child?
  - 18 months old
- How long ago did this happen?
  - < 5 minutes ago
- Is the child having any unusual symptoms?
  - His lips are swollen and he is crying

Is he breathing OK?
- Yes.

What is the name of the plant?
- Dieffenbachia

How much was ingested?
- Part of 1 leaf.

Formulate your assessment

- What type of toxicity does this plant have?
  - Calcium oxalate crystals which cause local inflammation when embedded in soft tissue, but are insoluble in the GI tract and do not get absorbed

Formulate your plan

- Home interventions?
  - Wipe the inside of the mouth with a damp cloth to dislodge crystals
  - Give something cold (popsicle, ice chips, etc) to suck on to decrease local inflammation
  - Observe for difficulty breathing

- Need to go to ER?
  - Not unless respiratory distress develops