"Inside 'Da Poison Center"

Amy Shimamoto, RN, CSPI and Debbie Ahina, RN, BSN

The wide variety of calls received by the Hawaii Poison Center are described. These include the typical, humorous and calls unique to the islands. Methods include descriptive anecdotal recall and review of Hawaii Poison Center call statistics. A brief description of staff, resources and call taking procedures are also provided.

It's 7:00 a.m. Monday morning at the Hawaii Poison Center (HPC), and one of the center's five phone lines rings. The registered nurse (RN) specially trained in poison information answers, "Hawaii Poison Center, how may I help you?"

A distraught mother is calling because her pediatrician's office has not yet opened. "My baby wen drink some stuff that my husband rubs on his head to make hair grow. She's okay. She goin' be okay?"

The RN obtains the information needed to assess the toxicity of the ingestion. She explains that Minoxidil lotion is also used to treat hypertension and based on calculations, the amount involved could be dangerous. Mother is instructed to take her child and the bottle of lotion to the closest emergency room (ER) now. The RN notifies the ER and treatment recommendations are given including faxed information. Follow up calls are made to ensure that the child got to the ER and to obtain her disposition.

At 7:10 a.m., the neighbor island toll-free phone line rings, and the RN speaks with a father on Maui who wants to bring his son to the ER. She reassures him that a bowl of dog food eaten by his 18-month-old son is not toxic. The father sighs with relief because he would have taken his son to the closest ER - an hour and a half away!

Then the 911 phone line signals an emergency situation. A mother is crying because her 16-year-old son has taken 15 extra strength acetaminophen tablets about four hours ago and is vomiting. "He's been under a lot of pressure at school," sobs his mother. The nurse stresses the urgency of immediate medical treatment at the closest ER to prevent hepatoxicity and also suggests psychiatric intervention.

The Oahu phoneline rings again. An ER physician calls for assistance in determining the level of toxicity for a 3-year-old child who has ingested children's chewable multivitamins with iron. The RN quickly completes the toxicity calculations and provides treatment recommendations.

Monday mornings are usually busy, and today is no exception.

Common Hazards In The Home

Almost one-half of the poison exposures (4,269) reported to the HPC last year involved prescription and over-the-counter medications.[1] Analgesics (acetaminophen, ibuprofen, opiates, non-steroid anti-inflammatory drugs), cold medications (antihistamines, decongestants) and multivitamins (with iron) are frequently involved because they are often in child's reach. Other common medications are sedatives, antidepressants, albuterol, theophylline, fluoride and cardiovascular drugs.

Over one-third of the poison exposures (3,018) involved household products last year.[1] The most common items are cleaning products such as bleach, desiccants, gasoline and personal care products such as nail polish remover.

Some incidents are related to look-alike products such as eating chocolated laxative tablets that resemble a chocolate candy bar, or using denture cleanser tablets instead of alka seltzer tablets.

A little peace and quiet—no lines ringing. Time to complete the day's case documentation, do follow up calls, and have a bite to eat. But then within a period of ten minutes, there were three calls.

A tube of fluoride toothpaste is never locked up. A concerned mother calls, "My three year old son was brushing his teeth and wen eat the *whole* tube of toothpaste. He looks happy and says it tastes ono. I heard that the fluroide is poisonous. Is he gonna be okay?" Calculations based on the amount ingested and the child's weight warranted a referral to the closest ER for the treatment of fluoride toxicity.

Combining household bleach with any cleaning product may result in chlorine and/or chloramine gas toxicity. "I was pouring bleach into my toilet and I took a whiff of the fumes. My eyes are burning, and my nose and throat hurts. What should I do?" The RN determined that the caller had poured toilet bowl acid cleaner prior to the bleach. This combination may result in symptoms of coughing, choking and dyspnea. She instructs the caller to ventilate the area, move from the toxic environment to fresh air, dilute with a glass of water and call 911 if respiratory distress develops.

Gasoline (hydrocarbon) is poorly absorbed from the gastrointestinal tract but may result in serious problems with aspiration. "My husband swallowed some gasoline while siphoning from the lawn mower because we ran out of gas in the car. He looks okay but he's burping a lot and wants to vomit." The RN instructed decontamination of the oral cavity, dilution with milk and observation for symptoms of aspiration and gastroenteritis.

Unique Island Toxins

The Hawaiian Islands are surrounded by thousands of miles of open ocean and contain unique plants and animals. The HPC has specific information for indigenous plants, insects, venomous marine organisms and tropical fish poisonings.

Scombroid and ciguatera are the two most frequently occurring types of fish poisoning in Hawaii. Scombroid fish poisoning occurs when spoiled fish, primarily mahimahi, tuna and related species are eaten. The disease is often misdiagnosed as a "fish allergy." A young male caller had just eaten a mahi plate at a popular local restaurant about 10 minutes ago. His symptoms included "nausea, throbbing headache and dermal flushing." He denied any respiratory difficulty. The RN responded that it was probably related to Scombroid fish poisoning which is usually mild and self limited, resolving in

Experts at the Hawaii Poison Center

These are real cases representing the typical calls that Amy Shimamoto, R.N., CSPI, has handled during her 16 years of experience manning the HPC's hotline. Shimamoto is the State's only Certified Specialist In Poison Information (CSPI). CSPI's are RNs who have successfully passed the American Association of Poison Control Centers (AAPCC) national certification examination which includes questions on the signs and symptoms of toxicity, inherent toxicity, cause of toxic manifestations, calculations, triage and treatment. The candidate must have at least one year or 2,000 hours of experience providing telephone poison center consultations and have handled an accumulated 2,000 cases.

The RNs are specially trained in poison information and telephone interviewing techniques. The RN may answer as many as five calls at one time during peak hours. Each call is quickly triaged according to severity of toxicity. After the inital triaging, the RN immediately obtains vital specific information - the suspected poison and amount, route of exposure, the victim's age and weight, symptoms, elapsed time since exposure, events of the incident and any pertinent medical history. Callers are usually very cooperative, but there are times when they become angry and upset because the RN is asking them questions instead of telling them what to do. The RN then calms the anxious, sometimes hysterical caller, explaining the necessity for this information in order to determine the accurate assessment and appropriate treatment recommendations.

Once the information is obtained, the RN searches the Poisindex for the name of the specific product and ingredients. Poisindex is a comprehensive toxicology database with over one million commercial, pharmaceutical and biological substances, updated every 90 days. Each substance is linked to one or more management protocols providing information on clinical effects, range of toxicity, and treatment protocols.

The RN reviews the toxicologic management protocols and calculates toxicity. *The Poisindex is a valuable source of information, but making the correct assessment and treatment recommendation requires the judgement and expertise of a trained professional.*

Other databases used include *Identidex* (tablet and capsule identification), *Drugdex* (drug evaluation), Drug Reax (drug interactions), *Tomes System* (industrial), *Toxicity Nomogram* (for specific drugs) and *Martindale* (international drugs). The HPC also maintains a unique reference library of general toxicology, drugs, pesticides, plants, insects and dangerous marine organisms.

Follow up calls are made to determine the status of the victim and compliance with treatment recommendations. The RN stresses the importance of poison proofing the home and keeping Ipecac Syrup available (to be used only on the advice of the HPC). Callers are offered poison prevention literature and phone stickers. Last year HPC provided over 4,600 follow up calls.[1]

Complete documentation is recorded on a call sheet by each RN. Information is then entered into the HPC database for statistics. Call sheets are filed at the HPC, handled as a medical record, and reviewed for quality assurance.

three to 36 hours. Treatment recommendations included drinking copious amounts of water and observing for vomiting, diarrhea and abdominal cramping. She instructed the caller to go to the closest ER if respiratory difficulty and chest tightness developed and followed up with him within the hour to check on his status.

Common plant exposures are chili pepper, taro, dieffenbachia, mango and mushrooms. A mainland visitor purchased taro leaves to make a green salad without realizing they should not be eaten raw. With the first bite, she experienced intense pain in her mouth and called the HPC within five minutes. Taro contains large amounts of needle-like calcium oxalates which may produce pain and edema of the mouth, tongue and throat, possibly causing respiratory distress. These oxalates are dissolved in the process of cooking and hence the cooked leaves (luau) are not irritating. The caller was instructed to flush her mouth with milk to rinse the crystals, dilute with cold milk or water, suck on ice or popsicles and observe for respiratory difficulty.

An abundance of wild mushrooms appear with the frequent island rains. "My three kids were playing outside and eating the mushrooms that were growing in the yard. Is there anything to worry about? They look fine." The RN explains that we do have the close relatives of the deadly genus Amanita mushrooms in Hawaii. As these mushrooms are difficult to identify, the mother was instructed to take all three children to the closest ER now with the specimen. The ER was notified and provided with treatment recommendations and referrals to mushroom specialists at the university.

Centipede bites are one of the more common bite/sting calls that the HPC receives throughout the year. The number of calls increase during the rainy seasons and in areas that are wet and lush with greenery. "Eh, I goin' die or what? Dis orange centipede wen bite my toe when I was putting on my shoe. Da bugga was really long. My toe is really sore and fat. So what, I have to go to da hospital?" The RN reassures the caller that the bite is extremely painful, but not deadly. The treatment recommendations that were given included observation for anaphylactic reactions, dermal decontamination and treatment, intermittent cool compresses, usual medication for pain, infection precautions and tetanus update.

Hawaii's species of scorpion and brown recluse spider venoms differ in their degree of toxicity compared to other regions. The Hawaiian scorpion species *Isometrus maculatus* may sting humans

Amy Shimamoto, R.N., C.S.P.I., has helped thousands of people over the Hawaii Poison Center's hotline during the last 16 years

in self defense but it's venom is not dangerous. Hawaii's *Brown Violin Spider* is a close relative of the mainland's infamous brown reculse spider. It's venom is less toxic.[2]

One of the most common venomous marine organism exposures are jellyfish stings, specifically box and portuguese man-of-war. Stings are nonlethal but may result in severe anaphylactic reactions.

Since Hawaii is the only rabies free state in the United States for dog bites, the RN is able to reassure the caller and thereby eliminate the need for aggressive treatment.[3] Infection precautions and tetanus update are advised.

Hawaii's cosmopolitan population includes different cultures and languages (including pidgin and local slang) that require special communication skills. A victim calls because he stepped on a *wana* (sea urchin). Treatment recommendations include hot water therapy as the venom is heat labile. "My son ate a *make-man flower*. Is it poisonous?" "*Make*" means "die". The RN inquires whether the caller is referring to the oleander or plumeria. Plumeria trees often planted in cemetaries are gastrointestinal irritants when ingested and may produce dermatitis. Oleandar plants contain cardiac glycosides and may be deadly.

Challenging, Yet Humorous At Times

Working in the HPC can be stressful, but it is interesting, rewarding and unpredictable. Staff are trained to conduct themselves in a professional, courteous manner, and deal supportively with all callers. But at times humor is no stranger behind the scenes.

A female caller was concerned that the vaginal tablets that her physician prescribed were very difficult to swallow because they were "so big."

A male caller discovered that he had inadvertently used an herbicide spray to fry ahi poke and inquired whether he could still eat it.

A three-year-old screaming child is stuck standing on the kitchen table. Her frantic mother called for help. Her daughter apparently climbed onto the table where mom was using Super Glue and stepped on the open tube. The initial treatment is warm soapy water soaks and softening with cooking oils, but these measures usually require time. The RN recommended the quickest and most effective treatment of applying nail polish remover with acetone followed by decontamination with soap and water.

Although the majority of calls are human exposures, the HPC also receives about 300 calls a year from pet owners regarding their dogs, cats, rabbits, turtles, pigs, chicken and horses. "My cat ate one acetaminophen tablet." One tablet ingested by a cat is a serious problem because cats do not have the ability to metabolize acetaminophen, and therefore, no dose is safe. The HPC refers pet owners to their veterinarian or to an emergency animal clinic, and provides animal poisoning information to veterinarians.

And there are some requests from callers wanting a little too much information such as "How much acetaminophen does it take to kill someone?" or "Where can I buy cyanide?" The RNs do attempt to find out what's behind the question, is there an exposure, is there a victim involved, or does this caller need to be referred to the suicide or crisis line.

A day at the HPC is fascinating and challenging, whether the nurse is a 16 year veteran of the Center or a recently trained staff. Many families and medical professionals express their appreciation of having the HPC available in their time of need.

The RN answers her last call from a frantic mother regarding a corrosive substance, "My baby drank oven cleaner! Tell me what to do until the ambulance gets here!"

The phonelines continue to ring.....the shift changes....another RN answers, "Hawaii Poison Center, how may I help you?"

References

1. Hawaii Poison Center: Hawaii Poison Center Annual Report 1996-1997. Honolulu, HI: Hawaii Poison Center, 1997.
2. Nishida, G.M., Tenorio, J.M.: What Bit Me, University of Hawaii Press: 1993;13, 27.
3. Benenson, A. S.: Control of Communicable Diseases in Man, 1990, American Public Health Association: 353.