What You Should Know About:

►Unintentional Poisoning Injury

National Statistics

A poisoning exposure can be defined as the ingestion, injection, inhalation, absorption or contact with a substance that produces a toxic effect or bodily harm. Unintentional drug/poison exposures are the third leading cause of unintentional injury deaths, following motor vehicle crashes and falls.

In 2000, poison control centers reported approximately 2.2 million poison exposures.[1] The majority of these exposures (90%) occur in the home and more than half (53%) involve children younger than six years of age.[1] Children, especially those under age 6, are more likely to have unintentional poisonings than older children and adults.[1]

The most common poison exposures for children were ingestion of household products such as cosmetics and personal care products, cleaning substances, pain relievers, foreign bodies, and plants.[1] Among children, more deaths are caused by carbon monoxide and adult formulations of iron than any other poisonous exposures.[2] For adults, the most common poison exposures were pain relievers, sedatives, cleaning substances, antidepressants, and bites/stings.[1]

National data show that males have nearly three times the number and rate of unintentional drug/poisoning deaths than females.[3] Individuals between the ages of 35 and 44 years experience the largest number of fatal unintentional drug/poison exposures, averaging 7.5 deaths per 100,000 population. African Americans have consistently had the highest rate of unintentional drug/poisoning deaths of any racial group until 1998 when American Indian/Alaska Natives surpassed them.[3]

Oklahoma Statistics

In Oklahoma, unintentional poisonings from all sources are the seventh leading cause of unintentional injury deaths. According to the Oklahoma Office of the Chief Medical Examiner, there were 1,087 Oklahomans who died from 1987-2001 as a result of an unintentional drug or poison exposure (excluding deaths involving illicit drugs used alone or in combination with another drug/poison). Comparing deaths from 1987-1989 and 1999-2001, the number of deaths increased nearly 195%. Medication-related deaths account for nearly 60% of all unintentional drug/poisoning deaths. The annual average number of medication-related deaths from 1999-2001 (103) was more than seven times higher than the annual average number of deaths from 1987-1989. The leading types of medications found in the decedents' bloodstream were narcotic analgesics (74%), anti-anxiety (19%), tricyclic antidepressants (TCA) (14%), muscle relaxants (10%), non-narcotic analgesics (7%), and hypnotic/sedatives (6%). The most common narcotics found in the decedents' bloodstream were methadone, propoxyphene, and hydrocodone.

Males had more deaths in all drug/poison categories than females, including a rate five times higher in deaths due to poisons and inhalants, and four times higher among alcohol poisonings.

The average annual rates among whites and Native Americans were nearly equal (2.3 and 2.4 deaths per 100,000, respectively), while African Americans had the lowest drug/poison-related death rate (1.0 deaths per 100,000). The types of drugs/poisons used by each race varied as well. Whites had the highest rates in the medication and CO categories, while Native Americans had significantly higher rates of alcohol- and inhalant-related poisoning deaths than either of the other racial groups (2.5 and five times higher, respectively).

Medications were the leading cause of all drug/poison-related deaths in every age group except for persons age 65 years and older. In this age group, more deaths occurred as a result of CO exposure than any other cause. The second leading cause of drug/poison-related deaths, for most age groups, was alcohol intoxication. Of the five major categories of unintentional drug/poison-related deaths (medication, alcohol, carbon monoxide, inhalants, and poisons), each had a different age group that led with the highest average annual rate. The 35-44 year age group had the highest rate of medication deaths (3.5 deaths per 100,000 population), while the 45-54 year age group led the alcohol category with 1.3 deaths per 100,000 population. The 65 years and over group had the highest rate of carbon monoxide deaths (0.7 deaths per 100,000); the 25-34 year age group had the most inhalant deaths (0.3 deaths per 100,000 population;

and the 15-24 year age group led the poisons category with 0.2 deaths per 100,000 population.

Among persons 14 years and older, alcohol was a contributing factor in 40% (422/1058) of unintentional drug/poison-related deaths. Among Native Americans, alcohol was a contributing factor in 60% (54/90) of unintentional drug/poison-related death cases, compared to 50% (19/38) among African Americans, and 37% (335/910) among whites.

►What Works

Poison Control Centers

Poison control centers have consistently proven to be cost-effective tools in reducing and managing poison exposures.[4-6] Poison control centers are typically staffed on a 24-hour basis, 365 days a year by toxicologists and specialists in poison information who respond to calls from the general public as well as health care providers for immediate information and treatment advice about poisonings. These specialists may provide emergency advice, parental and caregiver instructions for managing simple exposures at home, and recommend hospital evaluation for cases involving serious exposure. Every public call to a poison control center has been shown to save $175 in other medical spending.[4] In fact, treatment of poison exposures generally costs twice as much without the services of a regional poison control center as with such assistance. Maintaining funding for poison control centers is a key element in poison prevention. By maintaining appropriate funding levels and expanding services, poison control centers can increase awareness of unintentional poisonings among children and adults, as well as reduce the morbidity, mortality, and associated costs.[4-6]

Poison Prevention Counseling/Education

Effective counseling by pharmacists, physicians, nurses, or poison control specialists can reduce medication errors, dispensing errors, reduce the use of old medications, and decrease the number of childhood poisonings.[7-11]

Poison prevention counseling and education can cover a variety of issues affecting parents and caregivers, for persons taking newly prescribed medications, or when purchasing over- the- counter medicines.

Poison Prevention Instructor Training Program/Train-the-trainer Program

Community-based programs and projects are often effective means of targeting specific groups of people and efficient ways to spread important and/or detailed information. Poison prevention has based many interventions on such a community-based approach, particularly with the instructor training programs that are being adapted and supported by various poison control centers across the country. Train-the-Trainer programs are designed to instruct key community members on how to conduct successful poison prevention programs in their own communities. Using a comprehensive training manual, participants are instructed on how to discuss all aspects of poisoning risk factors and prevention measures.[12,13] These programs are designed to instruct key community members on how to conduct successful poison prevention programs in their own communities. While these programs have not been formally evaluated, they have received local support as being logistically and economically feasible options for effective poison education. For more information, contact the Oklahoma College of Pharmacy at www.oklahomapoison.org/

Quick Access to Antidotes

Unintentional poisonings can occur from a wide variety of substances and exposures, each one with its own specific ways of prevention and avoiding harm. However, there are general modifications that can be made to homes or other social environments that reduce one's risk of exposure or increase one's level of preparedness in the event of an exposure. For example, having quick access to certain antidotes is critical in minimizing the damage done by a poisonous substance. In many cases, this access simply means having activated charcoal and ipecac syrup on hand in the home. Once instructed by a health professional to administer such an agent, precious time can be saved if it is already available.[14]

Environmental Modifications

Important preventive measures include installing and maintaining carbon monoxide detectors, the storage of poisonous products and medications in locked closets or cabinets, carefully reading directions on medications and household products, keeping substances in their original containers, removing lead-based paint from homes and buildings, buying products in child-resistant packaging, cooking and preparing foods properly, and learning about dangerous plants and insects in the area.[14]

Child Resistant Packaging

The Unites States Poison Prevention Packaging Act (PPPA) of 1970 was enacted to prevent young children from accidentally ingesting hazardous substances. The law requires toxic, corrosive, or irritative substances to be packaged in such a way that it will be difficult for children less than 5 years to open them, yet not difficult for adults to open. However, because its effectiveness is limited, child resistant packaging should be considered as only one approach to comprehensive poisoning prevention and education efforts.[15]

Carbon Monoxide Detectors

Carbon monoxide detectors are as important in any living space as smoke alarms, and a proven prevention strategy for reducing the chances of a fatal poisoning.[16] Carbon monoxide detectors can also be installed in boats and recreational vehicles. Carbon monoxide detectors are designed to sound an alarm before potentially life-threatening levels of CO are reached. Experts recommend choosing a CO detector that meets the Underwriters Laboratory (UL) 2034 Standard (1998 revision), has an 85-decibel alarm, a digital display to check that the detector is continually monitoring CO levels, and a "Test/Reset" button to check that the alarm is functioning properly.

Increase Knowledge of Over-The-Counter Medications

Over-the-counter medications (OTCs) are commonly used by consumers and are often preferred over prescription medications for their cost and convenience. The public now has access to a variety of medications that were previously only available through prescription.[17] Doctors, nurses, and pharmacists must collaborate in order to provide much needed guidance to the general public. The development of such a strategy should include a shared vision between medical professions about their concerns with OTCs, accurate reporting of adverse events associated with OTCs, and development of a policy initiative to address OTCs usage.[18] The need for medical professionals to give information on proper dosage and administration of OTCs and to utilize new technologies to increase patient knowledge of drug interactions provides unique opportunities for preventing future unintentional medication-related poisonings.[19,20]

Reducing the Overuse of Medications (Polypharmacy)

The use of medications usually benefits patients, but when medications are administered unnecessarily, the effects can be detrimental. Older adults represent an intended group for medication prescription and consumption, and estimates suggest that 25 to 40 % of all medication

prescriptions are written to older adults.[21] Developing a comprehensive medication assessment that includes a thorough drug history and assessment would be a valuable tool to be used by medical professionals to reduce the number of medications taken and offer greater understanding of how prescribed medications interact. The implementation of such a strategy would help reduce adverse events and deaths associated with multiple medication consumption.

►What You Can Do

Campaigns to Increase Awareness of Poison Control Services

Due to recent efforts aimed at improving access, Americans can now use a single toll-free phone number 1-800-222-1222 to reach a poison control center anywhere in the nation. Callers dialing the number are automatically linked to the closest poison center. Advise families to post the telephone number for poison control near their phone, in a place where all family members would find it quickly in an emergency.

Campaigns to Increase Awareness of the Effectiveness of Carbon Monoxide Detectors

Public awareness campaigns should focus on the warning signs of CO poisoning, the effectiveness of carbon monoxide detectors, as well as the need to have them properly installed and maintained in every home.

Expand and Implement Poison Prevention and Medication Safety Education Programs

Comprehensive prevention measures are needed that target specific age groups and address appropriate high-risk poison exposure behaviors. Collaborate with the medical community, including physicians, nurses, and pharmacists to promote safe consumption of medications. Partner with senior citizen organizations and/or grandparents-raising-grandchildren support groups to educate about proper medication usage and storage.

Provide Training for Public Health Nurses

Make the train-the-trainer program available to public health nurses and utilize their expertise to train other county health department employees as well as educate persons who visit the clinic.

Conduct Home Inspections

Partner with other programs (e.g., home health care, head start, etc.) that make home visits to develop a home inspection checklist that identifies

and remedies possible poison exposures and adverse events associated with multiple medication usage.

Distribute Carbon Monoxide Detectors

Work in conjunction with the local fire department and other groups to distribute alarms through the fire department or by canvassing high-risk areas and distributing and/or installing detectors. Carbon monoxide detectors may be purchased in bulk amounts at reduced pricing.

►Where You Can Go

The following organizations can provide information about unintentional poisoning injuries as well as links to other organizations and web sites.

State

- Injury Prevention Service
  Oklahoma State Department of Health
  405/271-3430
  www.health.state.ok.us/PROGRAM/injury

- Oklahoma SAFE KIDS Coalition
  405/271-5695
  www.oksafekids.org

- Oklahoma Poison Control Center
  800/ 222-1222
  405/ 271-1122 TDD/TTY

National

- American Academy of Pediatrics
  www.aap.org/family/poisonwk.htm

- American Association of Poison Control Centers
  www.aapcc.org

- National SAFE KIDS Campaign
  www.safekids.org

- U.S. Consumer Product Safety Commission
  www.cpsc.gov/cpscpub/pubs/466.html

- National Lead Information Center
  800/LEAD-FYI

Local

Pharmacies
Physicians
Hospitals

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