

Poison Alert

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Pharmacist's role in poison prevention and management



Each year about 160,000 poisonings are reported to Canadian poison control centres and nearly half of these involve prescription or over-the-counter (OTC) pharmaceuticals.^(1,2) Community pharmacists can play a key role in managing and preventing these poisonings. This article identifies the most commonly involved products, contributing factors, and steps community pharmacists can take when responding to concerns and queries about possible poisonings. It also highlights opportunities for community pharmacists in poison prevention education.

Poisonings by age

Young children

More than half of poisonings occur in young children, with those 1–3 years of age presenting the highest risk. Every year about seven Canadian children die and 1,700 are hospitalized because of poisoning.^(1,2) Most of these incidents are unintentional. Those substances most commonly involved are also the most accessible (see sidebar [1,3]). Serious poisoning is more likely when a child ingests an adult-strength, high-potency, sustained-release product (see sidebar [1,3]). Oral hypoglycemic agents, prescription opioid analgesics, sedative-hypnotics, and cardiovascular drugs account for the highest hospitalization and injury rates in young children; deaths are most frequently related to ingestion of opioid analgesics and cardiovascular agents.⁽³⁾ Substances, particularly prescription drugs, in current use or not in their usual (safe) storage place account for 75% of pediatric poisonings.⁽⁴⁻⁶⁾ More than half of poisonings occur in young children, with those 1–3 years of age presenting the highest risk.

Poison prevention education, the introduction of child-resistant packaging, and legislated limits on strength and dosage of medication per bottle have contributed to reduced mortality related to pediatric poisonings.⁽⁷⁾ However, since 2001, calls to poison centres reporting pediatric pharmaceutical exposures have steadily increased.⁽³⁾ In one study, half of pharmaceutical-related poisonings in young children involved medicines originally dispensed in conventional (not child-resistant) packages or in child-resistant packaging that had been disabled.⁽⁷⁾ Grandparents' medicines are involved in 10%–20% of pediatric poisonings, particularly when not stored in child-resistant containers.⁽⁸⁾ Blister packs and dosettes are not child-resistant.

Adolescents

Poisonings are less frequent in adolescents than in young children, but are often more serious. More than half are intentional (ie, suicide or recreational drug abuse).⁽¹⁾ Pharmaceuticals associated with fatalities in adolescents include acetaminophen, acetaminophen/hydrocodone, oxycodone, salicylate, clonazepam, diphenhydramine, methadone, and morphine. Illicit drug abuse has decreased, while prescription and OTC drug abuse has increased in the last few years.⁽⁹⁾ Commonly abused medications include dimenhydrinate, dextromethorphan, high-potency opioids (oxycodone, methadone, fentanyl), newer antidepressants (eg, snorting bupropion), antipsychotics (eg, olanzapine, quetiapine), and benzodiazepines.⁽¹⁰⁾

Adults

In adults, unintentional poisonings are more common than intentional poisonings; however, most fatalities are the result of intentional self-poisoning.⁽¹⁾ People at higher risk of suicide include those with a recent serious illness or death in the family, the depressed elderly, those living alone, those with alcohol or drug dependence, and those who hoard antidepressants, antipsychotics, or sedatives. Categories of substances associated with the largest number of poisoning deaths in adults are listed in the sidebar.⁽¹⁾

Unintentional poisonings can result from therapeutic errors or drug interactions, or from taking more than one product containing the same ingredient or with similar effects. Common therapeutic errors in adults include repeat doses, taking the wrong medication, taking doses too close together, and incorrect dosing route.⁽¹⁾ A recent review of unintentional, non-illicit, non-methadone opioid deaths in British Columbia noted that persons at greatest risk were younger than 60 years of age with nonmalignant chronic pain and who, in addition to their opioid prescription, were taking at least one other nonopioid class of medications with neurologic side effects (eg, antidepressant, benzodiazepine, antipsychotic, anticonvulsant, antiemetic, antispasmodic).⁽¹¹⁾ Most were not taking high doses of prescription opioids and multidrug therapy was not a factor.

Steps in handling poisoning requests and managing poisoning incidents

Community pharmacists might receive requests for information about drug poisoning. A mother may call to ask how much acetaminophen is too much for her 2-year-old. Or a young man may ask how much Graval could kill someone. A senior may have just discovered she took her husband's antihypertensive medication instead of her own thyroid pill.

The first step in handling any request is to obtain a thorough history. This way you can determine relevant facts and proceed with appropriate recommendations. For example, whether the mother is asking for the correct dose to treat a fever or whether her child has taken an acute overdose; whether the young man is considering suicide or whether he has taken an extra dose and is concerned; and whether the senior is taking potentially conflicting medications and how long ago the accidental substitution occurred.

The second step is to determine urgency. An acute poisoning is an urgent situation that needs to be dealt with immediately, as is contemplating suicide, even if ingestion has not yet occurred.

The third step is to make a recommendation. A suicidal caller should be referred to someone who can help avert the overdose, such as a crisis centre or physician. In some cases, 911 should be contacted while the person is in the pharmacy. If the mother is inquiring about the proper dose with which to treat her child, the community pharmacist can readily supply that information. On the other hand, if the mother is phoning about an acute overdose or a chronic excessive overdose, she should be referred to the local poison control centre. For questions about a therapeutic error, the community pharmacist can assess the situation and provide appropriate advice using the patient's profile and drug information resources available in the pharmacy. The pharmacist can work with the poison control centre to advise patients with particularly complicated problems. The telephone numbers for Canadian poison control centres are found in the Compendium of Pharmaceuticals and Specialties (CPS) and are also available on the Canadian Association of Poison Control Centres (CAPCC) website, www.capcc.ca.

Poison control centres provide 24-hour emergency telephone information to both healthcare professionals and the general public. These centres have specially trained poison information pharmacists and nurses, current treatment guidelines, and medical toxicology consultants, and should be consulted for poison treatment recommendations. Poison control centres can determine who needs to be referred to hospital and who can be managed at home. When the patient is referred to hospital, the poison centre will phone ahead and provide treatment guidelines to the emergency department.

Ipecac syrup is no longer recommended in the management of a poisoned patient and should not be sold for this purpose.⁽¹²⁾ It has little effectiveness in preventing absorption of a toxin and in some cases may worsen the situation (eg, causing vomiting in a patient with a depressed central nervous system). Activated charcoal administration is also no longer routine. The decision to use it depends on the amount of medication ingested, time since ingestion, type of formulation, and the risk of vomiting and aspiration.⁽¹³⁾ Poison control centres can make specific recommendations for each situation.

Pharmacist's role in poison prevention

Poison prevention education can be incorporated into many facets of community pharmacy practice. The approach to preventing an unintentional poisoning will likely vary from that of an intentional poisoning. However in both situations, prevention begins with the identification of high-risk patients.

Unintentional poisonings

Community pharmacists can promote poison prevention by encouraging all consumers to use child-resistant packaging and to keep all medications out of reach of children. Specific prevention information can be targeted to those picking up prescriptions for opioids, cardiovascular medications, and sedative-hypnotic agents. Grandparents can be reminded to keep their medicines out of sight and reach and to remove their medications from purses and luggage when visiting the grandchild's home.

Parents and caregivers must be reminded that child-resistant packaging is not "childproof." While legislation requires child-resistant packages to prevent at least 80% of children younger than five years of age from opening them within a specified time, 20% of young children are able to open child-resistant containers.⁽⁷⁾

Parents, grandparents, and caregivers should keep the phone number of the local poison control centre with other emergency numbers, and know basic first aid in case a poisoning occurs. Community pharmacists can increase awareness by distributing poison prevention pamphlets and poison control centre phone numbers.

Intentional poisonings and overdoses

Anyone who expresses the hint of suicide should be taken seriously. Poison prevention in this patient population will involve working with other healthcare professionals, agencies, and family members. The community pharmacist can limit the number of pills provided at one time to a suicidal or depressed patient and monitor the intervals between refills to ensure appropriate use and prevent drug hoarding. Pharmacists must protect the patient's right to confidentiality, but this may be breached when failure to disclose information could place the patient in serious danger. Before confidentiality is compromised, the pharmacist should consult with other health professionals involved with the patient.

Intentional poisoning also occurs when someone abuses medication for recreational purposes. Patterns of drug abuse differ by region, vary with time, and are often inventive. Community pharmacists must be knowledgeable about local drug abuse trends to address adverse effects, potential interactions, drug diversion issues, and overdose management. Poison control centres, drug

Substances involved in pediatric (< 6 years) poisonings(1,3)

Most common (in order of frequency)

Cosmetics, personal care products
Analgesics
Cleaning substances (household)
Foreign bodies, toys, miscellaneous
Topical preparations
Vitamins
Antihistamines
Pesticides
Cold and cough preparations
Gastrointestinal preparations
Plants
Antimicrobials

Most deadly (ranked in order)

Prescription opioid analgesics
Sedative-hypnotics
Cardiovascular agents
Antihistamines
Oral hypoglycemic agents

Drug categories associated with the largest number of fatalities in adults(1)

Sedative-hypnotics, antipsychotics
Cardiovascular drugs
Opioids
Acetaminophen combinations
Newer antidepressants
Alcohols
Acetaminophen alone
Anticonvulsants
Stimulants and street drugs
Cyclic antidepressants

Categories are ranked in order of occurrence; each fatality may have had exposure to more than one substance.

information centres, local law enforcement agencies, and internet sites can provide insight into local drug abuse patterns. Awareness of local drug abuse practices can also help pharmacists enhance patient care by identifying patients at risk for drug overdose and misuse.

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