



NEWSLETTER



LETTER FROM THE EDITOR

December 2023

Happy Holidays!

While the holiday season is a time of celebration, it is also a time of increased poisonings risks and hazards in the home. Many holiday items may be overlooked as hazardous but can be particularly dangerous for children and pets.

The featured topic for this edition of the PCPHCoP newsletter is holiday poisonings. There is opportunity for poison centers (PC)s and public health to collaborate to educate the public on the potential poisoning risks of the season.

If you would like to hear more about a specific topic in future newsletters, please let me know.

Sincerely,
 Cailee Hill, MPH
 Community of Practice Facilitator
PCPHCoP@cdc.gov

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Holiday Poisonings

The holiday season is a festive time of the year. Yet, with the fun comes the potential of increased poisoning hazards in the home. Holiday preparations and decorations, along with items brought into the house by visitors, may pose poisoning risks. Curious children and pets especially are at risk since they may put potentially toxic things in their mouths. Since the hustle and bustle of the season can disrupt normal routines and create distractions in the home, proper adult supervision is critical to help prevent accidental poisonings.

Fortunately, most holiday related poisonings are relatively non-life-threatening. Holiday-related toxic ingestions primarily occur in children, and most are asymptomatic and/or can be managed at home, or outside of medical facilities. However, some holiday-related exposures can lead to severe health effects. Poison centers (PC) have expert knowledge in toxicology and can give insight into the severity of an exposure, potential need for medical intervention, and other management recommendations.



Credit: Getty Images

Knowing the potential poisoning risks of plants, décor, adult substances, and food during the holidays can keep the season safe and cheerful!

Holiday Plants

During the holiday season, decorative plant displays are common in households across the United States. Some holiday plants, like poinsettias, are not actually as toxic as people think. However, others such as holly, mistletoe, bittersweet, and Jerusalem cherry can be. No matter the holiday plant, when decorating, the best practice is to place them where children and pets can't reach them, such as up on a mantle.



Credit: Getty Images

Poinsettia, *Euphorbia pulcherrima*, is a large flowering plant with red and green foliage.

Indigenous to Mexico and Central America, poinsettia was first introduced to the United States in 1825 by Joel Poinsett, the American ambassador to Mexico.¹

The Myth of Toxicity: As one of the most commonly researched plants, studies have determined that contrary to popular beliefs, Poinsettia is not poisonous to humans.² Unlike other species in the *Euphorbia* genus, poinsettias do not contain complex terpene toxins.² Most exposures don't cause symptoms, while large ingestions of the plant may cause gastrointestinal (GI) upset.¹ A 50-lb child would have to eat about 500 leaves to experience nausea and diarrhea.³ Mouth and GI irritation can occur in pets if they chew on the leaves, but symptoms are mild if they develop.⁴

Latex Allergy: Poinsettia is in the same family as natural rubber latex and shares two allergen proteins. About 40% of people with a latex allergy develop cross-sensitivity with its sap. Symptoms vary from immediate hypersensitivity, allergic contact dermatitis, or irritant contact dermatitis.²



Credit: Getty Images

Holly is a small tree that produces red berries. English and American Holly, *Ilex aquifolium* and *Ilex opaca*, are the two common forms distributed and used in holiday displays in the United States.²

Toxicity and Health Effects: The holly berries, but not the leaves, of both forms contain toxic saponins.^{1,2} Saponins can damage red blood cells ([hemolysis](#)) and change the permeability of small intestinal [mucosal](#) cells. Most ingestions cause minor to no symptoms. When symptoms do occur, they include nausea, cramping, vomiting, and dermatitis, and rarely, dilated pupils ([mydriasis](#)), hyperthermia, and drowsiness.^{1,2} It may take as few as five berries for children to become symptomatic, while in adults, it rises to at least 20 to 30 berries.¹



Credit: Getty Images

Mistletoe, or the "kissing plant," commonly refers to the American mistletoe, *Phoradendron serotinum* or *leucarpum*, and the European mistletoe, *Viscum album*.^{1,2} Mistletoe is a [parasitic plant](#) with white or translucent berries. It grows on the trunk and branches of a variety of trees.²

Toxicity and Health Effects: Mistletoe contains the toxalbumins phoratoxin and viscotoxin.¹ The American species has a lower toxicity than the European one. These toxins inhibit [cellular synthesis](#) when ingested.¹ GI mucosa are particularly susceptible due to their rapid [turnover](#).¹ Severe symptoms are uncommon. The primary symptoms are GI upset and mucosal [necrosis](#), resulting in sloughing of the intestinal tract. Other reported adverse effects include slow heart rate (bradycardia), delirium, and acute damage to the liver, kidneys, adrenal glands, and central nervous system.^{1,2} Placing the plant in hot water, such as in teas, may result in larger amounts of ingested toxins.¹ The only reported deaths have been cases of mistletoe-infused tea consumption.¹



Credit: Getty Images

Bittersweet nightshade, *Solanum dulcamara*, is a woody vine with purple and yellow flowers and red berries common to northern United States and southern Canada, introduced from Europe.²

Jerusalem cherry, *Solanum pseudocapsicum*, is a flowering plant with yellow-red berries originally from the Middle East, that grows mostly in Hawaii and Gulf Coast states.²

Toxicity and Health Effects: Both plants contain the glycoalkaloid poison solanine, and the immature fruit are more poisonous than the ripened fruit.^{1,2} There is little evidence of serious toxicity in adults, but effects in children can be more potent and dangerous. Symptoms are primarily GI upset and abdominal cramping, but salivation, bradycardia, tachycardia, hypotension, and death have also been reported.²

Holiday Decorations

Nothing says “holiday season” like adding fun and exciting décor around the house. To safely enjoy these decorations, it is important to understand the potential toxicity of such items, particularly for children and pets.



Credit: Getty Images

Tinsel, which translates to “sparkle” from Old French, was originally made of actual silver.¹ In the early 1900s, manufacturers began producing it from other metals such as copper and aluminum because the materials were more affordable and didn’t tarnish.¹ The proven flammability of aluminum and the need for copper during World War I led to manufacturers making tinsel with lead up until the 1970s, when the toxicity of lead exposure was realized by the Food and Drug Administration (FDA).¹

Today tinsel is made from foil or plastic and is relatively harmless, other than as a choking hazard. Vintage tinsel made prior to the 1970s and imported tinsel may still pose a risk for lead exposure, especially in children.¹



Credit: Getty Images

Artificial snow, in the form of sprays, powders, and granules, is a popular holiday decoration. This “snow” usually consists of a polymer of sodium polyacrylate.¹ If it gets in the eyes, the “snow” absorbs the water and expands as a gel material, sticking to the ocular surface and leading to pH and osmolarity changes.¹ Some artificial snow sprays contain acetone or methylene chloride which can be harmful when inhaled. Inhalation may result in nausea, lightheadedness, and headache symptoms.¹

In response to their unreasonable risk determination for methylene chloride in 2022, the Environmental Protection Agency (EPA), proposed a ban on all consumer and most industrial and commercial uses earlier this year.⁵ They identified risks for adverse health effects, including neuro and liver toxicity, and cancer from inhalation and dermal exposures to methylene chloride.⁵ When using snow sprays, it is important to be in a well-ventilated room. Once dry, artificial snow is considered non-toxic.⁶



Credit: Getty Images

Snow globes made in the United States are typically filled with water. But many manufactured abroad and imported contain a small amount of ethylene glycol (EG) to prevent breakage and freezing during shipping.¹ However, the amount of EG is typically not enough to cause symptoms if ingested.¹ The “snow” in snow globes is calcium carbonate, which is non-toxic.¹

Another risk from ingestion of snow globe liquid is the potential of bacterial contamination.¹ Exposure to bacteria-contaminated liquid can result in food poisoning and development of symptoms including vomiting, diarrhea, and stomach cramps.^{1,7}



Credit: Getty Images

Fire color additives come in packets of small crystals which contain chemicals that, when added to flames, produce vivid colors. These additives contain toxic metal salt powders such as copper, selenium, and arsenic.⁶

If ingested, they can cause burns in the mouth and throat, as well as GI upset. Metal poisoning can occur if large amounts are ingested.⁶ Since the colorful crystals may look like candy to children, it is important to keep them out of reach.

Other Holiday Decor with Potential Poisoning Risks⁶

- Bubble lights contain small amounts of methylene chloride.
- Antique or foreign-made ornaments and gift wrap may be decorated with lead-based paint.
- Commercial holiday tree preservatives usually contain sugar solutions, but homemade solutions may contain aspirin or bleach. Along with preservatives, tree water can also contain fertilizers, pesticides, and bacteria.⁸

Holiday Substances

Alcoholic Beverages

During the holidays, the incidence of alcohol poisoning increases.¹ Traditional holiday drinks, such as eggnog and colorful cocktails, can tempt a child's interest. At holiday gatherings, children may be prone to imitating the adults and drinking from glasses left around the house.¹ It is important to ensure alcohol is kept out of reach of children, and leftover glasses are immediately cleaned up after gatherings.

Alcohol poisoning is a serious emergency which can result in severe intoxication and even death, no matter one's age. However, because of a child's small and developing body, they are at higher risk for severe health effects.

Depending on the amount ingested, symptoms of alcohol poisoning include the following.^{1,9}

- Confusion and disorientation
- Unresponsiveness
- Vomiting
- Increased heart rate
- Low blood pressure
- Difficult or very slow breathing
- Pale or blueish skin
- Seizures



Credit: Getty Images

If you suspect alcohol poisoning, call 911 immediately!

Nicotine Products



Credit: Getty Images

With the busyness of the holiday season and the potential for increased household guests, nicotine products such as tobacco cigarettes, e-cigarettes (vapes), and nicotine gum may also be more accessible to children. Always store nicotine products out of reach and sight of children and pets.

Eating small amounts of tobacco can cause nausea and vomiting. Touching or drinking small amounts of concentrated liquid nicotine can be highly toxic for young children. Symptoms can include seizure, coma, respiratory arrest, and death.¹⁰

From April 2022 to March 2023, 7,043 e-cigarette or e-liquid exposure cases were reported to poison centers. Approximately 88% of exposures occurred among children under 5 years old.¹⁰

Marijuana Products

Marijuana, or cannabis, products have become increasing more available in certain states across the country. Cannabis-containing edible products such as brownies, candies, and beverages may look tasty to children and pets. To reduce the risk of accidental exposure, these products should not be prepared or served around children. Storing these items in their original packaging in locked cabinets can also minimize the risk of accidental exposure.⁶



Credit: Getty Images



Credit: Getty Images

Medications

Holiday visitors may bring medications with them to gatherings. Be sure to have guests keep all their personal items, such as purses and travel bags, out of reach of children and pets. Depending on the medication ingested, there can be a vast variety of symptoms and severity.

Preventing Exposures

Though alcohol, nicotine, marijuana, and medication availability is not limited to the holiday season, it is often more pronounced during this time of year because of house gatherings and visitors. It is important to remember that children and pets are curious and often put things in their mouth. To help prevent accidental exposures, ask family and guests to store their personal items out of reach and view of children and pets. If a child is old enough to understand, explain to them the danger of these products and that they should only be touched by adults.¹⁰

Holiday Food Poisoning

Turkey¹¹

Food poisoning can happen at any time due to improper preparation, cooking, or storage of food. Holidays are no exception. Many households celebrate by cooking turkey dinners. Whether you're cooking the whole bird or just part of it, raw turkey can contain dangerous germs, so it is important to take special care to prevent food poisoning.

Storage: Frozen turkey should be stored in the freezer at 0°F or below until you are ready to thaw.

Thawing: Thawing a frozen turkey can be done in cold water, the refrigerator, or the microwave. Each thawing method has its own safety recommendations regarding the processes and time requirements.

Handling: Wash hands with soap and water before and after handling raw turkey.

Cooking: Set the oven temperature to at least 325°F. Use a food thermometer to make sure your turkey has reached a safe internal temperature of 165°F.

Leftovers: Refrigerate leftovers at 40°F or colder within 2 hours of cooking. Reheat all leftovers to at least 165°F before serving or eating.

You can find more information [here](#).¹¹



Credit: Getty Images

Since 2005, federal agencies have recommended not washing turkey as it can spread germs to other food. A 2020 survey found that 78% of participants reported washing turkey.¹¹

Turkey-related Food Poisoning¹¹

Raw turkey can contain bacteria including *Salmonella*, *Clostridium perfringens*, and *Campylobacter*.

Clostridium perfringens grows in cooked foods left at room temperature and is the second most common bacterial cause of food poisoning. *Clostridium perfringens* outbreaks occur most often in November and December. Many of these outbreaks have been linked to foods commonly served during the holidays. The major symptoms are vomiting and abdominal cramps within 6 to 24 hours after eating.

Other Holiday Foods of Concern¹¹

- **Raw eggs:** Salmonella and other germs can live on the outside and inside of normal-looking eggs. Many holiday favorites contain raw eggs, including eggnog, tiramisu, and hollandaise sauce. Always use pasteurized eggs when making foods requiring raw eggs, and don't taste or eat raw dough or batter.
- **Flour:** Flour is a raw food. The grains are grown in fields and may be contaminated with harmful bacteria such as *Salmonella* and *Escherichia coli* (*E.coli*). Processing raw grains into flour does not kill bacteria, so don't taste or eat raw dough or batter made with flour, even if pasteurized eggs were used.
- **Chocolate:** While eating holiday chocolate can be exceptionally enjoyable for humans, chocolate is poisonous to pets, especially dogs. Dogs can experience symptoms of vomiting, diarrhea, tremors, and a coma from eating chocolate, so be sure to keep it out of reach.⁶



Credit: Getty Images

Pregnant people are at increased risk of food poisoning.

Other Holiday Exposures

Two other notable exposure risks during the holidays are button batteries and carbon monoxide (CO). People should seek medical help if they suspect either of these exposures have occurred.

Carbon Monoxide is an odorless, colorless gas that can cause sudden illness and death if inhaled. Cold weather can mean increased use of furnaces and fireplaces indoors, so make sure chimney flues are open. Never use gas ovens, charcoal, or kerosene to heat indoors, and keep outdoor generators at least 20 feet away from windows and doors.¹²

Common symptoms of CO poisoning are headache, dizziness, nausea, weakness, vomiting, chest pain, and confusion. People who are sleeping or who have been drinking alcohol can die from CO poisoning before ever having symptoms.¹² Every year in the United States, at least 420 people die and over 100,000 people visit the emergency department due to accidental CO poisoning.¹²



Credit: Getty Images

Button Batteries: Holiday gifts may require or contain flat, coin-shaped button batteries. More than 3,300 people swallow button batteries every year in the United States.¹³ Between 1999 and 2019, the National Poison Data System reported a 66.7% increase in yearly ingestion of button batteries and a 10-fold increase in complications.¹⁴

If ingested, most batteries pass through the body and are eliminated in stool. But if a button battery gets lodged somewhere in the body, serious health problems can occur. An electrical current can form around the outside of the battery, leading to electrolysis, liquefactive necrosis, and severe burns.¹³ If a battery is lodged in the esophagus, you have approximately 2 hours from the time of ingestion to remove it to avoid potentially devastating complications.¹⁴

Battery ingestion in children can go unrecognized. Often nobody witnesses the ingestion, and children may be initially asymptomatic until hours later.¹³ Even if there's no history of battery ingestion, suspect it if the patient has symptoms of airway obstruction, difficulty swallowing, vomiting, chest discomfort, coughing, or bloody stool.^{13,14}

If you suspect CO exposure or battery ingestion, call the poison center, and seek medical attention immediately. Do not wait to see if symptoms develop!

Announcements

The next quarterly PCPHCoP webinar will be held **January 17th, 2024, from 3:00 p.m. to 4:00 p.m. Eastern Time.**

If anyone wants to be added to the CoP email distribution list, they can email their request to PCPHCoP@cdc.gov.

References

1. Salts L, Counselman F. Holiday Poisonings. *Emergency Medicine*. 2016;48(12):538-546. doi:<https://doi.org/10.12788/emed.2016.0071>
2. Evens ZN, Stellpflug SJ. Holiday Plants with Toxic Misconceptions. *Western Journal of Emergency Medicine*. 2012;13(6):538-542. doi:<https://doi.org/10.5811/westjem.2012.8.12572>
3. Holiday Hazards | Connecticut Poison Control Center. UConn Health. Published December 27, 2016. Accessed 2023. <https://health.uconn.edu/poison-control/about-poisons/seasonal-poisons/winter/holiday-hazards/>
4. Holiday health hazards for pets. Veterinary Teaching Hospital. Accessed November 2023. <https://hospital.vetmed.wsu.edu/2023/11/23/holiday-health-hazards-for-pets/>
5. US EPA O. EPA Proposes Ban on All Consumer, Most Industrial and Commercial Uses of Methylene Chloride to Protect Public Health. www.epa.gov. Published April 20, 2023. Accessed November 2023. <https://www.epa.gov/newsreleases/epa-proposes-ban-all-consumer-most-industrial-and-commercial-uses-methylene-chloride>
6. Holiday Hazards · California Poison Control System (CPCS). California Poison Control System (CPCS). Accessed 2023. <https://calpoison.org/holiday-hazards>
7. CDC. Food Poisoning Symptoms. Centers for Disease Control and Prevention. Published August 7, 2018. <https://www.cdc.gov/foodsafety/symptoms.html>
8. Holiday Safety Tips. ASPCA. Published 2015. Accessed November 2023. <https://www.asPCA.org/pet-care/general-pet-care/holiday-safety-tips>
9. NIAAA. Understanding the Dangers of Alcohol Overdose | National Institute on Alcohol Abuse and Alcoholism (NIAAA). Nih.gov. Published 2017. Accessed November 2023. <https://www.niaaa.nih.gov/publications/brochures-and-fact-sheets/understanding-dangers-of-alcohol-overdose>
10. How to Properly Store E-Liquids and Prevent Accidental Exposure of E-Liquids to Children. FDA. Published online June 22, 2023. Accessed November 2023. <https://www.fda.gov/consumers/consumer-updates/how-properly-store-e-liquids-and-prevent-accidental-exposure-e-liquids-children>
11. CDC. Seasonal and Holiday Food Safety. Centers for Disease Control and Prevention. Published October 14, 2022. <https://www.cdc.gov/foodsafety/prevention/food-safety-seasons-holidays.html>
12. CDC. Carbon Monoxide. Centers for Disease Control and Prevention. Published January 20, 2020. Accessed November 2023. <https://www.cdc.gov/nceh/features/copoisoning/index.html>
13. Newman RK, Dijkstra B, Gibson J. Disk Battery Ingestion. [Updated 2023 Aug 14]. StatPearls. Treasure Island (FL): StatPearls Publishing; 2023. <https://www.ncbi.nlm.nih.gov/books/NBK470298/>
14. Zipursky AR, Ratnapalan S. Button battery ingestions in children. *Canadian Medical Association Journal*. 2021;193(38):E1498-E1498. doi:<https://doi.org/10.1503/cmaj.210572>