In the Wrong Hands: Preventing Accidental Poisonings in Children
Kevin Hope, RPh

Live Activity Handout
4 slides per page
In the Wrong Hands: Preventing Accidental Poisonings in Children

ACTIVITY DESCRIPTION
Despite the sustained progress made by the Poison Prevention Packaging Act of 1970, the percentage of childhood deaths attributed to medications continues to increase. Pharmacists, Pharmacy Technicians, and Nurses are in a prime position to provide education and awareness through professional advocacy. This session seeks to define the scope of the problem using analytical data collected from poison control centers in the United States. In addition, recommendations for the appropriate response to poisoning emergencies are reviewed and defined within the scope of professional practice.

TARGET AUDIENCE
The target audience for this activity is pharmacists, pharmacy technicians, and nurses in hospital, community, and retail pharmacy settings.

LEARNING OBJECTIVES
After completing this activity, the pharmacist will be able to:

• Identify current trends in accidental childhood poisoning incidents
• Describe the pharmacy’s role in poison prevention initiatives
• Differentiate between the resources available for use during an emergency response to an accidental poisoning incident
• Identify key requirements and limitations of the Poison Prevention Packaging Act of 1970

After completing this activity, the pharmacy technician will be able to:

• Identify current trends in accidental childhood poisoning incidents
• Describe the pharmacy’s role in poison prevention initiatives
• Differentiate between the resources available for use during an emergency response to an accidental poisoning incident
• Identify key requirements and limitations of the Poison Prevention Packaging Act of 1970

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ABOUT THE AUTHOR
Kevin T. Hope, RPh is a Clinical Education Specialist with the PharmCon team in Conway, SC. Kevin began his career in pharmacy at an early age and has practiced as a pharmacist in a variety of settings, beginning with a retail pharmacy experience at Eckerd Drug Corporation in York, SC. Kevin transitioned from a retail setting to a Charleston, SC nuclear pharmacy setting in 2002, where he practiced for over 13 years. Kevin has served as an adjunct faculty member for the South Carolina College of Pharmacy, having coordinated and instructed the college’s ‘authorized user’ program for nuclear pharmacy. In addition, Kevin has direct experience in the education of pharmacy technicians, having directed the pharmacy technology program at Horry Georgetown Technical College in Myrtle Beach, SC prior to joining the PharmCon team.

Kevin has received several professional awards, including the Pfizer Leadership Award and the Innovative Pharmacy Practice Award from the South Carolina Pharmacy Association. Having served as a corporate communications trainer for Triad Isotopes, Kevin has presented to a variety of audiences, including a nuclear pharmacy symposium at the American Pharmacists Association annual meeting. Kevin has served as an independent editor for several Paradigm Publishing textbooks, and currently serves on the professional advisory board for Paradigm Publishing. Kevin’s passions lie in helping students achieve and surpass personal educational goals.

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In the Wrong Hands: Preventing Accidental Poisonings in Children

What Childhood Events Shaped Your Path?

News Clip

“An ounce of prevention is worth a pound of cure.”

Benjamin Franklin
Objectives

- Identify current trends in accidental childhood poisoning incidents
- Describe the pharmacy’s role in poison prevention initiatives
- Differentiate between the resources available for use during an emergency response to an accidental poisoning incident
- Identify key requirements and limitations of the Poison Prevention Packaging Act of 1970

In The Wrong Hands ...

U.S. poison centers received more than 1.6 million calls involving children 19 and younger in 2009. About 80 percent of these calls were for children under 5, and more than half of them involved exposures to medications.

Cincinnati Children’s Hospital & University of Cincinnati Study

- Prescription drugs were a bigger problem than OTC drugs (55% of drug poisoning cases coming into the ER)
- 43% of these children were admitted to intensive care
- Biggest culprits: opioid drugs, sedatives, muscle relaxers, cardiac drugs

In the Wrong Hands ...

- Medications: acetaminophen, cold and flu remedies, cough syrup, mouthwashes, vitamins, herbal remedies, antiseptics, antibiotics, sedatives, antidepressants, heart medications and more.
- Cleaning products: detergents and cleaning sprays, bleaches, washing machine and dishwashing powder, room deodorants, drain cleaners, methylated spirits and turpentine.
- Cosmetics: creams, ointments, shampoos, perfumes and aftershaves.
- Other products: alcohol, cigarettes (if eaten), illicit drugs, essential/aromatic oils, pesticides, car products, glue, batteries and gardening products.
- Poisonous plants: oleander, datura, arum lily, fox glove. Berries, mushrooms and plants with colored leaves can be attractive to children and harmful.
**Poisonous Plants**

- Oleander
- Foxglove
- Detura
- Arum Lily

**Medication “Look Alikes”**

**Where Are Children Finding Medicine?**

<table>
<thead>
<tr>
<th>Location</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>On Floor / Lost</td>
<td>15</td>
</tr>
<tr>
<td>Purse</td>
<td>20</td>
</tr>
<tr>
<td>Pill Box / Bag</td>
<td>25</td>
</tr>
<tr>
<td>Counter / Nightstand</td>
<td>30</td>
</tr>
<tr>
<td>Cabinet / Drawer</td>
<td>10</td>
</tr>
</tbody>
</table>

**Where Are Children Finding Medicine?**

<table>
<thead>
<tr>
<th>Source</th>
<th>Percentage Obtained From</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown / Other</td>
<td>30</td>
</tr>
<tr>
<td>Aunt / Uncle</td>
<td>25</td>
</tr>
<tr>
<td>Siblings</td>
<td>15</td>
</tr>
<tr>
<td>Father</td>
<td>20</td>
</tr>
<tr>
<td>Mother</td>
<td>10</td>
</tr>
<tr>
<td>Grandparents</td>
<td>5</td>
</tr>
</tbody>
</table>

Grandparents: the Overlooked Source

Around 100,000 children end up in the E.R. each year after ingesting medication belonging to grandparents, and such cases of exposure to medicine through grandparents account for as many as 10-20% of all accidental medication poisonings.

Most Common Substances Implicated in Poison Exposures

Poisoning Fatalities in Children Under 6 Reported to U.S. Poison Control between 2006 - 2014

Source of Poison

- Medications: 47%
- Fumes/Gases/Vapors
- Household Cleaners
- Alcohols
- Batteries
- Pesticides
- Street Drugs
- Hydrocarbons

Prevention Tips

- Keep potential poisons out of sight and out of reach
- If you take pills, do so out of sight of children.
- Always re-engage child-resistant closures immediately
- Never transfer a substance from its original container to an alternate one.
- Safely dispose of all unused medication
- Do not refer to medicines as candy.
- Post the poison control center number near the telephone. The universal telephone number in the United States is 800-222-1222. Calls are routed to the local poison control center.

Recommendations for Parents & Caregivers

- Keep handbags out of reach
- Store poisons and medications in their original containers.
- Discard old medications, batteries and poisons.
- Never put poisons in drink bottles.
- Keep children away from the dishwasher and close it after putting dishes in.
- Parents and caregivers should consider completing a first aid course.
- Do not grow poisonous plants.
The Poison Prevention Packaging Act of 1970

- Established standards for child-resistant packaging
  - Can NOT be opened by 80% of children under the age of 5
  - Can be opened by 90% of adults
- A patient or prescriber may request an “easy open” container
  - Excluded some items:
    - Sublingual nitroglycerin tablets
    - Oral contraceptives (blister packs)
    - Inhalation aerosols
    - Potassium supplements in unit dose packaging
    - Some corticosteroid tablets

Poison Prevention Act: Decades Later

* While the death rate among children from poisoning has been cut in half since the late 1970s, the percentage of all child poisoning deaths due to medications has nearly doubled, from 36 percent to 64 percent.
* Currently, more children are brought to emergency departments for medication poisonings than for motor vehicle occupant injuries.
* Among young children, 95 percent of medication-related poisoning visits to emergency departments are caused by a child ingesting medication while unsupervised and approximately five percent are due to dosing errors made by caregivers.

Poison Prevention Act: Decades Later

“About 165 kids -- or roughly four school bus loads of children -- are seen in emergency rooms for medication-related treatment every day in the United States.”

Kate Carr, President and CEO of Safe Kids Worldwide
Comparative Death Rate Trends

State Poison Control Centers

Managed by medical experts – doctors, nurses, and pharmacists who have extensive training in poison prevention and treatment.
Someone calls a poison control center every 11 seconds

First Action!

Consult the local poison control center immediately!

The Pharmacy As An Educational Advocate

- Target the Audience
  - Parents / Grandparents
  - Children
  - Medical Professionals

- Select the Means of Education
  - School or community functions
  - Patient dialogue
  - Written resources

Don’t Forget the Resources that your state’s Poison Prevention Center has to offer!
**Medicine is NOT Candy**

“A Rowan County couple says they are outraged after a local pharmacy company handed out pill bottles filled with candy during a 4th of July parade.”

“A third graders birthday treat to their fellow classmates has raised some red flags for parents. They say every student in the class received prescription pill bottles filled with M&M’s.”

**Medicine is NOT Candy**

“According to officials, a faculty member promoted her medical technology program by distributing pharmaceutical bottles filled with M&M’s at a family event over the weekend. The bottles’ prescription labels were made out to “A Great Kid,” and described the candy as “Happy Pills.” The directions on the bottles were: “Take 1 m & m every 2 to 4 hours... may refill 5 times by 2/13/2016.”

**The Pharmacy As An Educational Advocate**

“The Challenge: Dare to Make A Difference!”

Take Initiative! Educate!
Partner with your local schools or civic organization!

We want to hear about it! We want to tell your advocacy stories during future “pre-hour” offerings of this program!
Free Resources for the Education of Children

www.iowapoison.org

- Coloring Pages
- Quiz Games
- Word Searches
- Play Scenarios

“You have permission to reprint and/or reformat information sheets, articles or other content from this website as long as the number 1-800-222-1222 is prominently displayed and the “Poison Help” logo, if used, remains unaltered.”

Pharmaceuticals Used In the Elimination of Poisons

**CATHARTICS:**
- Magnesium citrate, sorbitol

**EMETICS:**
- Syrup of Ipecac

**GASTRIC LAVAGE:**
- “stomach pump”
- Magnesium citrate, sorbitol

Methods should **NOT** be used if:
- the poison is corrosive or volatile
- more than one hour has passed since ingestion of the poison

Syrup of Ipecac

**Previous American Family Physician Recommendation:**

“Keep a 1-oz bottle of syrup of ipecac in the home to be used for inducing emesis on the advice of a physician or a poison control center.”

**Revised American Family Physician Thought:**

“Syrup of ipecac selectively administered in the home will not improve outcomes or reduce the use of emergency services in a large portion of the population served by poison control centers.”
**Syrup of Ipecac**

- Adverse effects: persistent vomiting, lethargy, and diarrhea
- Concern over administration of ipecac when it is not indicated
- No other country promotes the home use of ipecac

**Activated Charcoal**

- Most effective intervention for reducing the bioavailability of ingested substances
  - There should be clear evidence for patient benefit before its implementation as a public health intervention.
    - poorly accepted by young children
    - forms sediment clumps that are difficult to resuspend
    - often vomited and messy

**Common Antidotes**

<table>
<thead>
<tr>
<th>Overdosed toxin</th>
<th>Antidote</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaminophen</td>
<td>Acetylcystine</td>
</tr>
<tr>
<td>Iron</td>
<td>Deferoxamine</td>
</tr>
<tr>
<td>Digoxin</td>
<td>Digoxin Immune Fab</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>Flumazenil</td>
</tr>
<tr>
<td>Insulin</td>
<td>Glucagon</td>
</tr>
<tr>
<td>Opioids</td>
<td>Naloxone</td>
</tr>
<tr>
<td>Warfarin</td>
<td>Vitamin K</td>
</tr>
<tr>
<td>Heparin</td>
<td>Protamine Sulfate</td>
</tr>
</tbody>
</table>

**Recommendations**

Dilution by having the child drink 100 to 200 mL of water or another drink is a routine recommendation for the ingestion of a nonpharmaceutical.

* This is **NOT** recommended after ingestion of a medication because there is concern that this procedure would hasten the drug's absorption caused by earlier exit from the stomach.
What Childhood Paths Will You Shape Today?

First Action!

Consult the local poison control center immediately!

Sources Cited

- https://www.safekids.org/search?search_api_views_fulltext=poisoning&page=1
- https://www.safekids.org/search?search_api_views_fulltext=poisoning&page=1
- http://www.ncpoisoncenter.org/body.cfm?id=276