



The Rise of Medicine in the Home: Implications for Today's Children

March 2016



Keeping Kids Safe Around Medicine

Medicine Use Increasing

1980

1.4 billion prescriptions filled



2014

4 billion prescriptions filled



\$5.5 billion in over-the-counter sales



\$30.8 billion in over-the-counter sales



125 prescriptions filled every second



\$84 million in OTC sales every day

More Grandparents Living with Children

The number of children living in a household where a grandparent was the head of the household **more than doubled** between 1980 – 2014.

1980



2.2 million

2014



4.8 million

Today, **67% of grandparents** live with or within 50 miles of at least one grandchild.

67%

Whose Medicine Are Kids Getting Into?

2014 emergency room visits; of the 26 percent of cases where details were reported.



48% grandparent's



38% parent's



7% sibling's

Where Are Kids Finding Medicine?

2014 emergency room visits; of the 17 percent of cases where details were reported.



23% pillbox



23% ground



19% purse or diaper bag



18% counter



8% reachable cabinet or refrigerator

What Products Are Kids Getting into?



pain/fever remedies



vitamins



allergy medicine



diaper rash products



eye drops



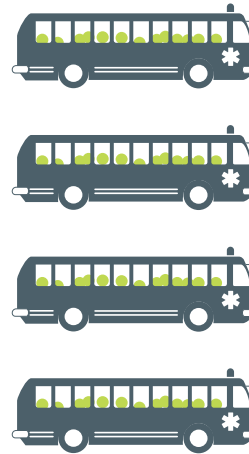
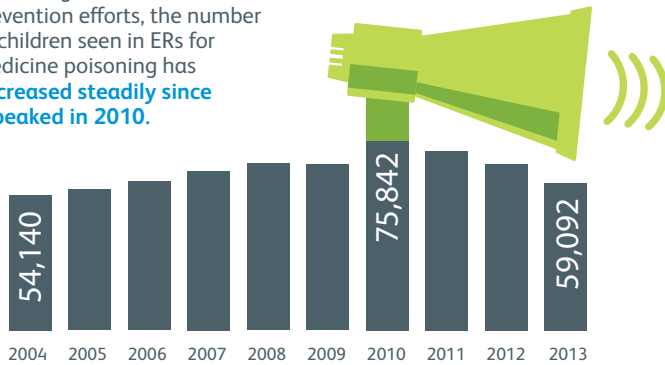
laxatives



vapor rubs with camphor

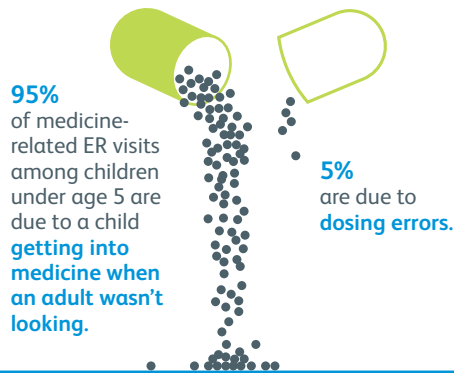
Children at Risk

Coinciding with increased prevention efforts, the number of children seen in ERs for medicine poisoning has **decreased steadily since it peaked in 2010.**

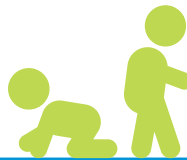


AND YET, each year more than **59,000 young children are seen at emergency rooms** because they got into medicine.

That's about **four busloads of kids** arriving at the ER each day.



1 and 2 year olds make up the majority (7 out of 10) of ER visits for medicine poisoning.



Almost every minute of every day there is a call to a poison control center because a young child got into medicine.

What Families Can Do to Protect Kids



Look around the places where kids find medicine and move all medicine up and away and out of sight.



Remember to check for all products that may cause harm, even those you might not think about as medicine.



Use the dosing device that comes with the medicine.



Write clear instructions for other people who give your child medicine.



Save the Poison Help line in your phone: **1-800-222-1222.**

For more medicine safety tips, visit www.safekids.org

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Executive Summary

Today there are more medicines in the home than ever before, and this increases the potential risk to children of accidental medicine poisoning. In fact, each year more than 59,000 young children are seen at emergency departments because they got into medicine while the caregiver wasn't looking¹ – the equivalent of four busloads of kids arriving at emergency rooms every day.

Medicines play a vital role in treating disease, relieving symptoms and extending lives – for many, they are part of daily living. However, these same medications can cause harm to children if accidentally ingested or not given as directed on the label. Recent trends in medicine sales and changes to household composition have resulted in an increase in medicines in the home and increased risk.

The good news is that we are observing some positive trends. Child-related accidental medicine poisonings have declined from their peak in 2010.¹⁻⁷ The decrease, which coincides with the prevention efforts of Safe Kids Worldwide, government agencies and other organizations, is encouraging, but we cannot let our guard down. Almost every minute of every day there is a call to a poison control center because a child has gotten into medicine.² Medicine poisonings remain a significant, yet preventable issue that must be addressed.

Parents and caregivers are the first line of defense in ensuring children of all ages are safe from medicine poisoning. Ask any parent and they will tell you they know to keep medicine up and away from children. Yet every nine minutes a child is treated in the emergency department for medicine poisoning, and about 95 percent of the time the child got into the medicine when the caregiver wasn't looking.^{1,8}

So what's going on in the home that leads to this disconnect between what families think they have under control and what the statistics show? Possible reasons may include that parents and caregivers sometimes make choices for convenience that unintentionally put children at risk, such as carrying medicine in a purse or storing it in a pillbox. Sometimes they do not recognize that it can take only seconds for a child to get into a medicine if, for example, it is left out for the next dose.

All families with children – regardless of their age – need to be aware of the risks and know what they can do to keep their children safe from accidental medicine poisoning and dosing errors. This includes being vigilant about protecting young children by ensuring safe storage of medicine and teaching older children and teens about medicine safety.

This report is a call to action to families and caregivers. We share the facts, provide insights about risk factors for accidental medicine poisoning learned over five years of research in medicine safety and highlight what families need to do to keep their children safe.



The Facts

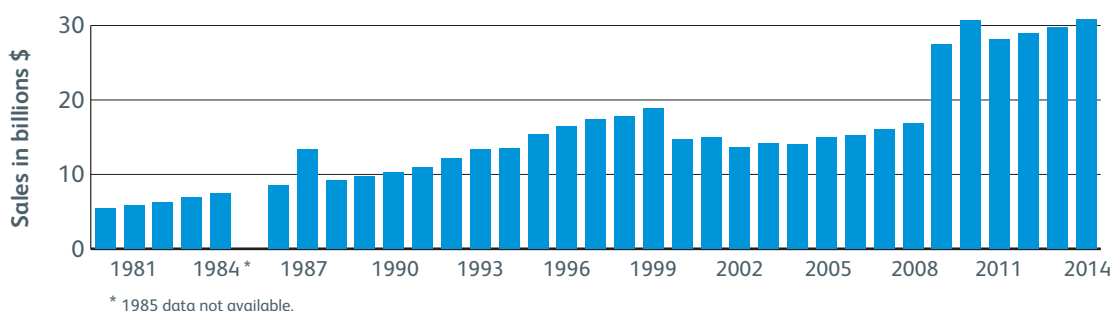
With nearly four million babies born in the U.S. each year⁹ and medicine use on the rise, there is a need to continuously educate families on how best to prevent accidental medicine poisonings and dosing errors. We explored a few of the recent developments that show why it's even more important than ever to educate parents and caregivers about medicine safety.

More Medicines in the Home

There are more medicines in the home today than ever before. The number of prescriptions filled at retail pharmacies in the U.S. has increased from 1.4 billion in 1980 to more than 4.0 billion in 2014 – that is more than 125 prescriptions filled per second.¹⁰⁻¹¹ A recent study looking at trends in prescription medication use suggests that 59 percent of U.S. adults ages 20 and older take at least one prescription medicine and 15 percent take five or more.¹²

In addition, nonprescription or over-the-counter (OTC) medicines are playing an increasingly important role in the U.S. health care system. OTC medicines are defined as “drugs that are safe and effective for use by the general public without seeking treatment by a health professional.”¹³ Research shows that 81 percent of adults use OTC medicines as a first response to minor ailments.¹⁴ Retail sales of OTC medicines have increased fivefold since 1980, going from about \$5.5 billion in 1980 to \$30.8 billion in 2014.¹⁵ In addition, estimates indicate that every year 240 million people, or 79 percent of the population, take OTC medicines.¹⁶

Figure 1. OTC medicine sales have increased fivefold since the early 1980s¹⁵



Household Composition Is Changing

The population is aging and living longer. The number of adults ages 65 and older grew from 34.2 million in 2003 to 46.2 million in 2014 and it is estimated that it will reach 83.7 million by 2050.¹⁷⁻¹⁹ This trend is impacting household composition and grandparent involvement in their grandchildren's lives.

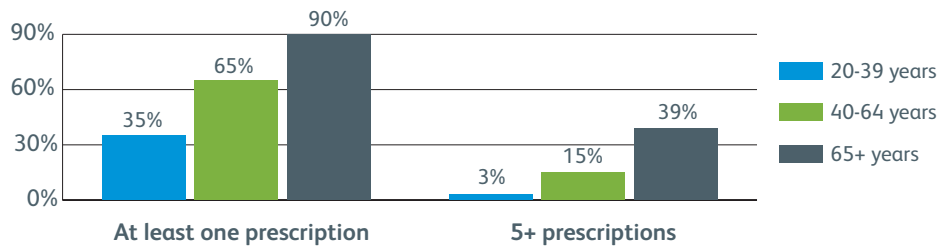
The population living in multi-generational households is increasing and the result is more children living with their grandparents.²⁰ Between 1980 and 2014, the number of children living in a household where a grandparent was head of the household more than doubled, going from 2.2 million to 4.8 million.²¹ It is estimated that today more than seven million grandparents in the U.S. live with their grandchildren ages 18 and under.²²

Living longer is also providing increasing opportunities for grandparents to play a greater role than ever in raising grandkids. A report examining this trend found that the majority of grandparents (67 percent) reported having at least one grandchild that either lives in the same household or lives within 50 miles of them, and almost a third of those grandparents see their grandchildren more than once a week.²³ About 13 percent of grandparents provide care for a grandchild on a regular basis.²³

Together, these two trends are increasing the potential for children to get into medicine. With increasing age come health problems, often requiring treatment in the form of medicine. Almost 40 percent of adults ages 65 and older take five or more prescription medications (Figure 2).¹² One study found that while older adults ages 65 and older make up 14 percent of the U.S. population, they were responsible for more than 34 percent of prescriptions and 30 percent of OTC medicines taken.²⁴

And it is not just the number of medicines that grandparents are taking, but also how they are storing them. Older adults, and particularly those over age 64 years, often use medicine bottles with easy-open caps or daily pill organizers to store their medicines. They also tend to keep their medicines in places that can be seen and remembered. A survey in 2014 found that 28 percent of grandparents use easy open or non-child resistant caps and 47 percent of those over age 64 use daily pill organizers.²⁶ While these storage options make it easier for grandparents, not using bottles with child resistant caps increases the risk for children. Thus, with 53 percent of grandparents reporting having grandchildren ages 5 or younger,²³ there are more situations where a child could get into medicine either at home or while visiting a grandparent. The increased risk requires increased vigilance by families to ensure safe storage.

Figure 2. Older adults take significantly more medicines¹²



Medicine Poisonings Happen Every Day

How do we know there's a problem? Safe Kids has been tracking trends in medicine poisonings over the past five years using three sources of data: emergency department (ED) visits, calls to poison control centers and fatalities collected from the Centers for Disease Control (CDC). All three sources send two consistent messages: the problem has seen improvement in recent years as awareness efforts were stepped up and medicine poisonings remain a significant issue needing action.

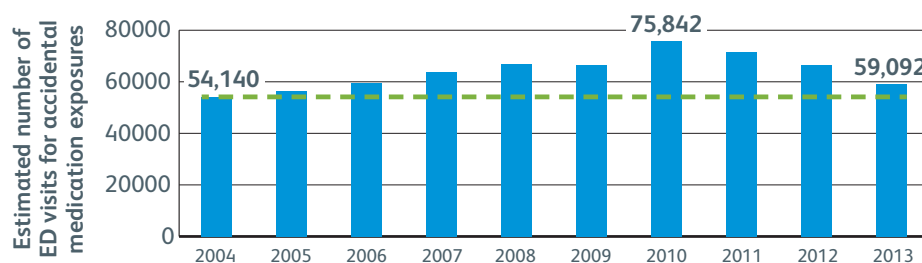
Emergency Department Visits

Estimates for 2013 indicate that over 59,000 young children were seen at emergency departments across the U.S. because a child got into medicine when their caregiver wasn't watching – that is about four busloads of children every day.¹ This number has decreased significantly after peaking in 2010, when an estimated 75,842 children were seen in EDs.¹ However, the estimated number of children seen in EDs for accidental medicine exposures in 2013 was still higher than the 54,140 estimated visits from 10 years ago (Figure 3).¹

The children most at risk for accidental exposures are the very young, who are at a stage of development where they actively explore the world around them and often put what they find in their mouths. In fact, about 7 out of 10 ED visits for accidental exposures to medicine involve 1- and 2-year old children.¹

In addition to kids getting into medicine when no one was looking, it is estimated that an additional 3,000 to 4,000 children visit the ED each year because they got the wrong medicine, the wrong amount of medicine or were given medicine too frequently.²⁵

Figure 3. Emergency visits for accidental poisonings down significantly from 2010 but still higher than 2004¹



Calls to Poison Control Centers

Every 30 seconds a poison control center receives a call about a child being exposed to a poison, nearly half of which are about over-the-counter and prescription medicines.² The number of medicine exposure calls involving children 5 and younger has decreased by 17 percent since 2010ⁱ, suggesting that educational efforts urging parents to ensure safe storage of medicines are having an impact.²⁻⁶ Despite this reduction, in 2014 there were still 447,037 calls because a child got into a medicine not meant for them (unintentional-general exposures) or were given too much medicine or the wrong medicine (unintentional-therapeutic errors) – almost one call every minute.²

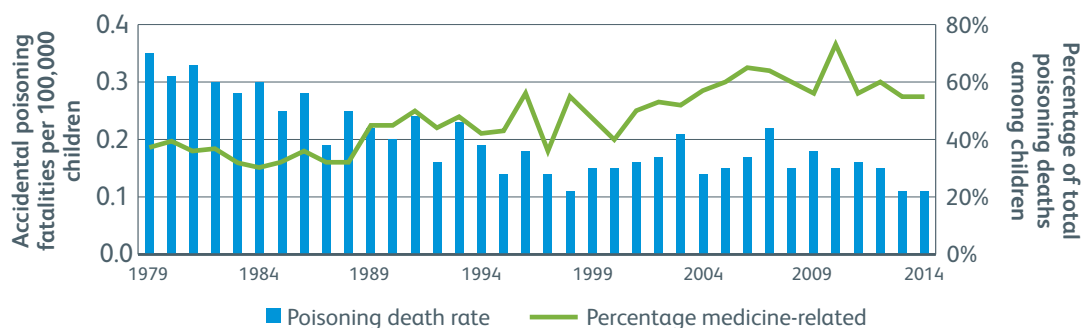
Our in-depth analysis of poison control data from 2013 found that young children made up the vast majority of the medicine-related calls to poison control centers for children.²⁶ Overall, three out of four calls were about a child ages 1 to 4 years. That's more than 1,100 calls every day about a young child getting into medicine or getting too much medicine.²⁶ In 2014, 1- and 2-year-olds alone accounted for 53 percent of calls where kids got into medicine not meant for them, were given too much medicine or the wrong medicine.²

The other age group of concern is older children and teens. In 2013, there were 3,953 unintentional-general calls for teens ages 15 to 19, and of those, eight percent resulted in serious effects.²⁶ The percent of unintentional-general calls resulting in moderate or major effects was more than six-times higher among teens ages 15 to 19 than children ages 1 to 4.²⁶ A similar pattern was also found among the unintentional-therapeutic error calls; where three percent of the 10,229 therapeutic error calls for teens resulted in moderate or major effects, compared to 0.5 percent of calls for children ages 1 to 4.²⁶ This underlines the need for parents to talk to older children and teens about medicine safety. Parents can safeguard older children and teens by ensuring kids know how to take medicine safely and to only take it under the guidance of a parent or trusted adult. Parents can also model responsible medicine use behavior themselves.

Medicine Poisoning Fatalities

Data from the CDC indicate that just over one out of every two fatalities resulting from an accidental poisoning in children 0-14 years of age involves a medicine.⁷ Figure 4 shows that this is an improvement from 2010 when almost 75 percent of poisoning fatalities involved a medicine. The trend is encouraging and again coincides with increased efforts to address medicine safety by Safe Kids and others dedicated to safety education. However the current proportion is still higher than during most of the 1980s when less than one out of every three poisoning fatalities involved a medicine.⁷

Figure 4. Since peaking in 2010 medicine-related accidental poisoning fatalities are on the decrease in children ages 14 and under⁷



The decreases across data sets coincide with renewed action to educate parents about medicine safety and suggest that the prevention activities have made a difference. However, the numbers of children harmed by medicine each year remain substantial, signaling the need to continue educational efforts.

ⁱ Calls where a child aged 5 and under got into a single medicine or an error was made in giving a single medicine between 2010 decreased from 541,765 in 2010 to 447,037 in 2014.

Insights

Most parents will tell you they know to keep medicine “up and away” from children. But hospitals report that every nine minutes a child is treated in the ED for medicine poisoning.¹ About 95 percent of the time, the child got into medicine when the parent wasn’t looking.⁸ The question is, why is there a disconnect between what parents tell us and the significant numbers of ED visits and poison control center calls?

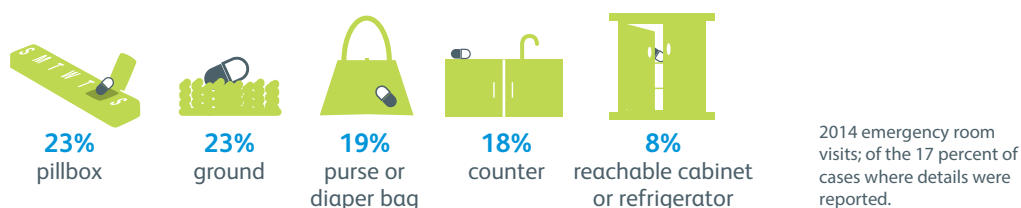
Over the past five years, Safe Kids Worldwide has explored this issue by analyzing existing data from hospitals and poison control centers and conducting primary research by talking to families and caregivers to better understand what drives these accidental medicine poisonings and medication errors. Here are some of the insights we have gained through our research.

Medicine Risks Vary with Age

The two groups of children at greatest risk for unintentional medicine poisoning are young children, ages 1 to 4 and teens, ages 15 to 19.²⁶ Thus medicine safety is important from the time a child is born until they become adults. When a child is very young, parents can ensure their safety by keeping medications up and away and out of reach and sight. As children get older, parents can begin to teach them about the importance of reading and following medicine labels and understanding that the labels are rules and not just guidelines.

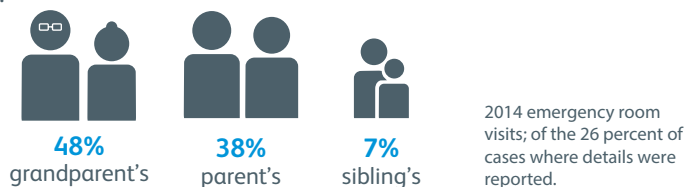
Where are Children Finding Medicine?

Kids find medicine in places that are not “up and away.” An analysis of 2014 data from the U.S. Consumer Product Safety Commission’s NEISS surveillance system shows that among ED cases where a location was specifiedⁱⁱ, the majority of children found medication in places that were within sight and reach. These included: in pillboxes (23 percent), on the ground (23 percent), in purses or diaper bags (19 percent), on counters (18 percent) and in reachable cabinets or in refrigerators (8 percent).²⁷ This underlines the importance for families of ensuring everyone’s medicines are kept up and out of reach and out of sight. Out of sight alone is not enough for curious kids.



Whose Medicine are Children Getting Into?

Earlier in this report we identified a trend toward multi-generational households, grandparents being more involved in childcare and more medicines in the home. It is therefore not surprising that in 87 percent of ED cases where details about whose medicine was involved were availableⁱⁱⁱ, the medication belonged to an adult.²⁷ In 48 percent of the cases the medicine belonged to grandparents, 38 percent belonged to parents and seven percent to a sibling.²⁷



The 2014 Safe Kids survey found that while most grandparents reported they do store medicine away safely when young children are visiting, some acknowledged they do take risks, such as keeping prescription medicines on a nightstand or dresser where a child could get into it.²⁸ Others reported keeping their medicine in easy-open containers or bottles without child resistant caps.²⁸ When young children are around, it is important that all family members get in the habit of putting medicines out of reach and out of sight.

ii Information on where the child found the medicine was only available for 17% of cases.

iii Information on whose medicine was involved was only available for 26% of cases.

What Medicines are Kids Getting Into?

Calls to poison control centers and visits to the EDs indicate that children get into all sorts of medicines.^{iv} The medicines most frequently involved in calls to poison control centers include those most frequently used around children. For example, the top five categories of medication involved in calls to poison control centers for children ages 5 and younger are ibuprofen (like Advil[®], Children's Advil[®], MOTRIN[®] and Children's MOTRIN[®]), diaper rash products (such as DESITIN[®], Calmoseptine[™]), children's vitamin tablets without iron or fluoride, children's acetaminophen (such as Children's TYLENOL[®], FEVERALL[®]) and antihistamines.^{2, v}



Parents may not think about certain products as potentially harmful. As a result they may leave products such as diaper rash cream, eye drops, laxatives and children's vitamins out in a handy place. However, these products have ingredients which pose a poisoning risk and the potential for serious consequences if large quantities are swallowed. It is important that parents read labels on all types of medicines, vitamins and supplements and store them up and away and out of sight and reach of children as they would with traditional medicines.



Parents may also not realize that some medicines are so dangerous for young children that one pill or a small amount can potentially be fatal. Examples of these medicines include camphor commonly found in vapor rubs, antidepressants such as amitriptyline, oral diabetes medicine and high blood pressure medications such as calcium channel blockers.²⁸

For older children and teens the medicines most frequently involved in accidental exposure calls to poison control centers were pain relievers, multi-vitamins, antihistamines and anti-anxiety medicines.²⁶ Antihistamines, pain relievers and prescription medicines, such as antibiotics, stimulants and anti-hypertensives, were frequently involved when there was a dosing error in this age group.²⁶

The reality is that parents and caregivers need to be vigilant not only about prescription and OTC medicines, but vitamins and supplements as well. Focusing on only those assumed to present the greatest risk can lead to a false sense of security. It only takes a few seconds for a young child to get into a medicine and older children may not understand the risks of not taking a medicine as directed if they are not taught.

^{iv} 'Medicines' here refer to 'pharmaceuticals', which within the National Poison Data System includes prescription and OTC medicines as well as vitamins and supplements)

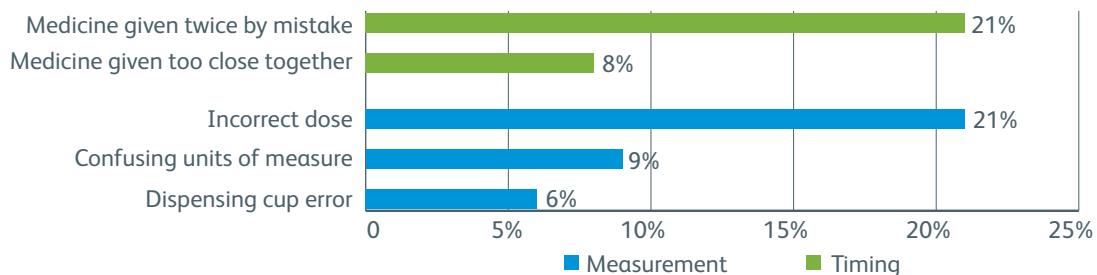
^v Third party trademarks used herein are trademarks of their respective owners.

How Do Kids Get the Wrong Amount of Medicine?

In addition to getting into medicine on their own, there is a smaller proportion of poisonings that involve a dosing error. Of the 447,037 medicine-related calls to poison control centers for children ages 5 and younger reported in 2014, 13 percent were for a dosing error.² Among more serious emergency department visits for children ages 5 and younger, an estimated five percent are a result of dosing errors.⁸

Research indicates there are two primary drivers that lead to young children getting the wrong amount of medicine – errors related to measurement (such as giving too much of a medicine) and errors related to timing of doses (such as giving medicine too close together). These two types of errors accounted for 66 percent of calls to poison control centers for dosing errors in children ages 5 and younger in 2014.²

Figure 5. Kids typically get the wrong amount of medicine because of mistakes in measurement and timing²



Measurement errors can occur when a dosing device other than the one that came with the medicine is used, such as a teaspoon measure or kitchen spoon. Making sure to use the dosing device that comes with medicines will help ensure the right amount is given. For timing errors, clear communication about when a child has already been given a dose – such as using a medicine schedule or sending a text message to the next caregiver – can help reduce doses being given too close together.

For older children, unsupervised self-administration of medication is of particular concern. Research shows that children are starting to self-medicate as young as 11 years and that 90 percent of teens report self-administering OTC medicines by age 16.²⁹ If not equipped with the knowledge and training to make safe choices, mistakes can happen. Taking the time to talk to kids about medicine safety, modelling responsible medicine use behavior and reminding them to only take medicines under the guidance of a parent or trusted adult can help ensure that they avoid accidental harm.



What Families Can Do To Protect Their Children

The first line of defense in preventing medicine poisoning is the family – parents and other caregivers – so we want to remind you what you need to do to keep kids safe.

Put all medicine, including your own, up and away and out of sight. In 86% of emergency department visits for medicine poisoning^{vi}, the child got into medicine belonging to a parent or grandparent.²⁷

Consider places where kids get into medicine. Kids get into medicine in all sorts of places, like in purses and nightstands. Place purses and bags in high locations, and avoid leaving medicine on a nightstand or dresser. In 2 out of 3 emergency room visits for medicine poisoning^{vii}, the medicine was left within reach of a child.²⁷

Consider products you might not think about as medicine. Health products such as vitamins, diaper rash creams, eye drops and even hand sanitizer can be harmful if kids get into them. Store these items up, away and out of sight, just as you would traditional medicine.

Use the dosing device that comes with the medicine. Kitchen spoons aren't all the same, and a teaspoon or tablespoon used for cooking won't measure the same amount of medicine as the dosing device.

Write clear instructions for caregivers about your child's medicine. When other caregivers are giving your child medicine, they need to know what medicine to give, how much to give and when to give it. Using a medicine schedule can help with communication between caregivers.

Put the Poison Help line in your phone. Put the toll-free number for the Poison Control Center (1-800-222-1222) into your home and cell phones. You can also put the number on your refrigerator or another place in your home where babysitters and caregivers can see it. And remember, the Poison Help line is not just for emergencies, you can call with questions about how to take or give medicine.

Talk to your kids about medication safety.

- Teach your child that medicine should always be given by an adult. It's important for kids to know that they should not take medicine on their own. Parents and caregivers can help make sure they are taking it correctly.
- Model responsible medicating behavior. What kids see us doing is a much stronger message than what we tell them to do. Make sure to store medicine out of reach of children, read the entire drug facts and prescription labels before taking medicine and follow the recommended dose.
- Educate your pre-teens and teens on how to read an over-the-counter (OTC) Drug Facts or prescription label. Take the time to teach them about each section of a Drug Facts label and its purpose. For a great resource on this topic, visit <http://www.scholastic.com/otcmedsafety>.
- Talk to older kids about the importance of only taking medicine that is meant for them. Taking prescription medicine that belongs to someone else or misusing medicine, even OTCs, can cause harm.
- Teach your child that medicine labels are rules, not guidelines. Be sure your child knows that taking more than the recommended dose could hurt them.

^{vi} In the 26% of cases where information on whose medicine was involved was available.

^{vii} In the 17% of cases where information on where the child found the medicine was available.



Federal Government Must Fully Fund Poison Centers

Ever since Safe Kids began to focus on keeping kids safer by urging parents and caregivers to put medicines out of the reach of our kids, we have advocated for the national network of poison centers. It is an indispensable and effective part of our health care system and deserves a significant federal investment to support them. Year after year, Congress has failed to fund poison centers to the level the law authorizes it to receive following oversight hearings.³⁰ The commitment of the law must be matched by action. Safe Kids will continue to advocate that the federal contribution must be consistent with the mission, the return on investment and the new challenges poison centers face today.

Poison Center Fast Facts

- About 53 percent of medicine-related calls to poison centers involve kids ages 1 and 2. Yearly, 1.34 million calls to poison centers involve children 19 and under.²
- For the past three years, Congress authorized funding at \$28.6 million but had allocated only \$18.8 million.
- The return on the small investment in poison centers is high. For every dollar invested in the system, there is a savings of \$13.39.³¹
- More than 70 percent of the people who call a poison center with a potential poisoning are treated at home, eliminating costly and time consuming ER visits, and saving Medicaid dollars.³²
- The toll-free Poison Help line is 1-800-222-1222.

Dosing by the Milliliter, Not Teaspoonful, Makes Sense

The child safety community is concerned about dosing errors involving oral liquid medications, especially involving young children. A 2014 study found that 39.4 percent of parents incorrectly measured the dose they intended to give and 41.1 percent made an error in measuring the dosage prescribed by the doctor.³³ One of the reasons why a parent may be confused regarding proper dosing is that a range of units of measurement – like milliliters, teaspoons and tablespoons – may be used interchangeably to recommend the proper dosage. There is research demonstrating that the use of a teaspoon to administer a medication leads to under-serving and the use of tablespoons leads to over-serving.³⁴ The American Academy of Pediatrics and other organizations and agencies have recommended milliliters as the single standard unit of measurement for pediatric liquid medications.³⁵ We support the Food and Drug Administration (FDA) for releasing guidelines on liquid pediatric acetaminophen medicines that recommend mL as the single ingredient unit of measure.³⁶ The same practice should be followed for other liquid medications for children.



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