

THE IMPORTANCE OF MEDICINE MEASURING TOOLS, STORAGE, AND SAFE DISPOSAL

Students learn about accurate dosages, where to store medicine, and how to dispose of it safely.

TIME: 40 minutes

OBJECTIVES

Students will:

- Identify dosing information found in the “Directions” section of *Drug Facts* labels (when, how, and how often to take the medicine)
- Explain the importance of reading and understanding dosing information and tools
- Discuss possible consequences of not following dosing instructions
- Describe what makes a location safe or unsafe for medicine storage and the consequences of improper storage
- Brainstorm ways to raise awareness about safe medicine storage and disposal

MATERIALS NEEDED

- Copies of the following reproducible activity sheets for each student in the class:
 - ◊ **Activity 4: Accurate Medicine Dosing**
 - ◊ **Activity 5: Safe Medicine Storage**
 - ◊ **Over-the-Counter Medicine Safety Mini Poster**
- **OTC Medicine Safety Answer Key**
- **OTC Medicine Safety for Families** (letter in English and Spanish)
- An assortment of empty OTC medicine bottles filled with colored water and their dosing devices (e.g., cup, dropper, spray); kitchen spoons of different sizes

Note: All Unit resources and digital assets featured on page 2 can be accessed at www.ymiclassroom.com/lesson-plans/otcmedsafety-teachers_7-8.

HOW TO USE THIS LESSON

PART 1

1. Begin with a class discussion about the importance of using the right tools when measuring different things. Ask students:
 - *If I wanted to measure how far it is from the school to my house, would I use a ruler? Why or why not?*
 - *What are some different ways that people make mistakes when measuring things?*

2. Encourage students to think about why accurate measurements are important. Ask:
 - *When is it okay to get less-accurate measurements or to estimate?*
 - *When is it important to get really accurate measurements? Why?*

Explain that students are going to learn why reading and understanding dosing instructions is important, and why medicines should always be measured using the proper dosing devices.

3. Ask students to think back to their examination of different *Drug Facts* labels. Ask:
 - *What types of measurements are used to measure doses of a medicine?*

Answers may include milliliters, tablets, drops, sprays, etc.

4. Emphasize the importance of following dosing directions and using the dosing device that comes with a medicine with a demonstration. Show students a sample OTC medicine that comes with a dosing cup. Have students imagine that this medicine’s *Drug Facts* label recommends a dose of 10mL. Explain that by conversion 10mL = 2 standard teaspoons. However, kitchen teaspoons are not universal in size. Use a kitchen teaspoon to measure out 2 spoonfuls of liquid. Pour the measured liquid into the dosing cup. Discuss how the dosing cup’s accurate measurement compares to the non-standardized kitchen spoon measurement. Follow the same steps with a plastic teaspoon and a teaspoon with a different design. Point to the message on the bottom of the poster for a reference. Explain that we should only use the dosing device that comes with a medicine because spoon measurements are not exact — household spoons come in various shapes and sizes, which means they hold different amounts of liquid.

5. Next, read the dosing information for an OTC medicine that comes with nasal spray or eye dropper dosing device. Explain that while it may be difficult for us to measure out 50 mg of a nasal spray or 1 milliliter of eye drops, the provided dosing device eliminates any guesswork.
6. Talk about how measuring doses incorrectly and using spoons instead of the dosing device that comes with the medicine can cause an overdose or underdose. **Reinforce the importance of always communicating with a trusted adult before taking any medicine, and only taking medicine with the approval and supervision of a parent or trusted adult.**

(Continued on the next page.)



THE IMPORTANCE OF MEDICINE MEASURING TOOLS, STORAGE, AND SAFE DISPOSAL (CONTINUED)

7. Distribute the [Accurate Medicine Dosing](#) activity sheet. Have students complete the worksheet either individually or as a class. Refer to the [Answer Key](#) and review the students' responses as a class.

PART 2

1. Introduce the importance of safe medicine storage, which, when ignored, may lead to accidental ingestion and medicine poisoning.
2. Ask students to name the locations where medicines are stored in their homes. Write answers on the board. Common answers may include kitchen cabinet, bathroom cabinets, or parents' or trusted adult's bedroom. As students answer, ask for specifics:
 - Are the medicines in drawers or cabinets or on the countertop?
 - Are the medicines easy for young children to see or reach?
3. Get students thinking about how easy it is for children to find medicine in a home. Explain that medicines need to be kept out of reach and sight of their naturally curious younger siblings, or young visitors to their home.
4. If using a whiteboard, visit the [Up and Away interactive website](#) to learn more about storing medicine safely.
5. Distribute the [Safe Medicine Storage](#) activity sheet. Explain to students that they are examining the inside of a home to identify the medicine storage errors that could lead to accidental medicine poisoning. Have students complete the activity and review the answers as a class, referring to the [Answer Key](#).
6. Next, remind students about the expiration dates they found on the OTC medicine samples they examined in Unit 2. Ask how their families get rid of unused or expired medicine. Common answers may include putting the medicine in the trash or flushing the medicine.
7. Explain that safe disposal is just as important as safe storage for keeping medicines away from people who shouldn't have them. Before throwing away OTC medicines, families should mix them with an unappealing substance (such as kitty litter) and place them in a closed container (such as a sealed plastic bag).
8. The FDA has additional [disposal guidelines](#) for certain prescription medicines (like disposal by flushing or using the National Take-Back Initiative). In addition, the Poison Help Line (1-800-222-1222) can answer any questions families may have about how to dispose of medicines safely.

Ask students:

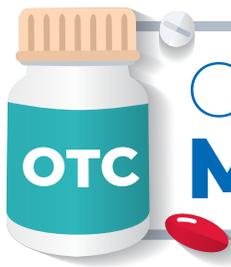
- Why do you think that the FDA has these guidelines for safe disposal of medicines?
 - What could happen if a medicine is not disposed of properly?
9. After reviewing storage and disposal information, ask students:
 - What did you learn about safe storage?
 - Is there anything from today's discussion that might be important to mention at home?
 10. **Family/Home Connection:** If you have not already done so, distribute the [OTC Medicine Safety for Families](#) letter for students to take home, or include the PDF in email correspondence to parents and caregivers. Encourage students to share what they have learned about the *Drug Facts* label and why it is important. Suggest that students post the Poison Help Line phone number in a visible place in their home and get family members to save the number in their mobile phones. **Reinforce the importance of always communicating with a trusted adult before taking any medicine, and only taking medicine with the approval and supervision of a parent or trusted adult.**

EXTENSION ACTIVITY

Ask students to come up with some ways to help people remember how to store and dispose of medicine safely. Some possibilities include:

- An idea for an app that can help families remember all of the ways to make a home medicine-safe. Research for the app idea may involve connecting with a local health expert (pharmacist, nurse, etc.).
- A jingle that describes the Poison Help Line's purpose and phone number
- A mnemonic device to remember the directions for safe medicine storage and disposal
- A survey to distribute to families to determine how medicine-safe their home is
- A fact list about OTC medicine safety for families

Work with your students to check that their OTC medicine safety awareness materials are accurate before they share them with others.



OVER-THE-COUNTER MEDICINE SAFETY



GRADES 7-8
UNIT 3, ACTIVITY 4

SKILLS:
Critical thinking,
reading informational text

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Accurate Medicine Dosing

Directions: Below is a sample dosing table for an over-the-counter (OTC) medicine, similar to the information you can find on a *Drug Facts* label. Use the table and your knowledge about medicine safety to answer the questions below.

Children under 6 years of age	Ask a doctor.
Children 6 to under 12 years of age	<ul style="list-style-type: none"> • 2.5 mL two times per day. • Dosage may be repeated every 12 hours while symptoms last. • Do not give more than 5 mL in 24 hours.
Adults and children 12 years of age and over	<ul style="list-style-type: none"> • 5 mL two times per day. • Dosage may be repeated every 12 hours while symptoms last. • Do not take more than 10 mL in 24 hours.
Adults 65 years of age and over	<ul style="list-style-type: none"> • 5 mL two times per day. • Dosage may be repeated every 12 hours while symptoms last. • Do not take more than 10 mL in 24 hours.



Did you know...

If you think that you or someone else has taken the wrong dose or wrong medicine, or if you just have questions about a medicine, call the Poison Help Line, 1-800-222-1222. Experts answer the phone 24/7.

Think It Through

1. Olivia is 13 years old. Yesterday, she took her first dose of medicine at 9 a.m. and took a second dose at 9 p.m. She wakes up at 5 a.m. because she is still not feeling better. She talks to her parents and says she should take another dose of medicine since a new day has started. Explain the error in Olivia's reasoning. Use evidence to support your answer.

2. Miguel is 11 years old. He and his parents are reading the directions in the dosing table above. Miguel says that since it is safe to take 2.5 mL twice a day, then he can take 5 mL once a day instead. Explain the error in Miguel's reasoning. Provide facts to support your answer.

3. Khadijah is reading the dosing table with her grandmother in the kitchen. Khadijah's grandmother says that the dosing cup that came with the medicine is in a cabinet upstairs. Khadijah says that they can use a household kitchen spoon to measure 1 teaspoonful of medicine instead. Explain the error in Khadijah's reasoning. Provide facts to support your answer.



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The *Drug Facts* label helps you understand how medicines can help you and how to take them safely.

Active Ingredients

Lists the ingredients in the medicine that make it work.

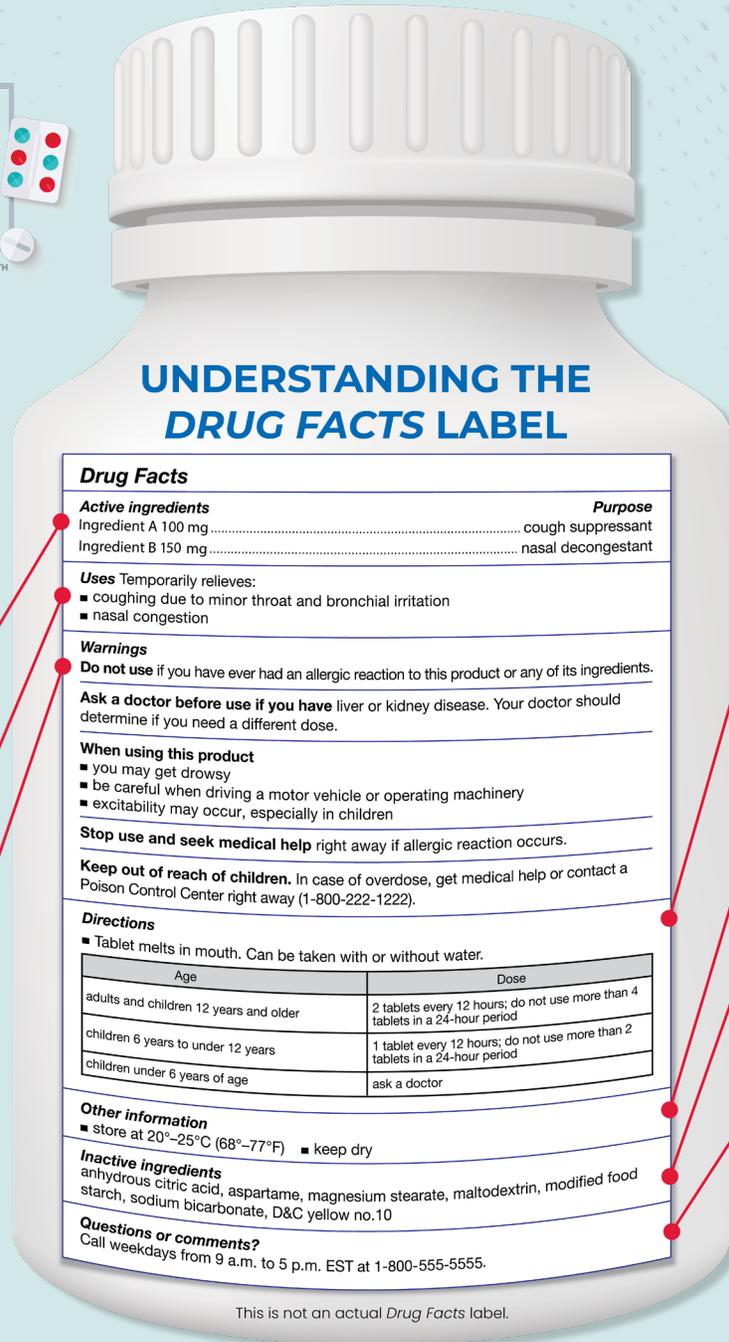
Uses

Describes the symptoms that the medicine treats.

Warnings

Provides important safety information, including side effects, questions you should ask a doctor before taking the medicine, and medicines to avoid using at the same time.

UNDERSTANDING THE DRUG FACTS LABEL



Drug Facts

Active ingredients **Purpose**
 Ingredient A 100 mg cough suppressant
 Ingredient B 150 mg nasal decongestant

Uses Temporarily relieves:
 ■ coughing due to minor throat and bronchial irritation
 ■ nasal congestion

Warnings
Do not use if you have ever had an allergic reaction to this product or any of its ingredients.

Ask a doctor before use if you have liver or kidney disease. Your doctor should determine if you need a different dose.

When using this product
 ■ you may get drowsy
 ■ be careful when driving a motor vehicle or operating machinery
 ■ excitability may occur, especially in children

Stop use and seek medical help right away if allergic reaction occurs.

Keep out of reach of children. In case of overdose, get medical help or contact a Poison Control Center right away (1-800-222-1222).

Directions

■ Tablet melts in mouth. Can be taken with or without water.

Age	Dose
adults and children 12 years and older	2 tablets every 12 hours; do not use more than 4 tablets in a 24-hour period
children 6 years to under 12 years	1 tablet every 12 hours; do not use more than 2 tablets in a 24-hour period
children under 6 years of age	ask a doctor

Other information
 ■ store at 20°–25°C (68°–77°F) ■ keep dry

Inactive ingredients
 anhydrous citric acid, aspartame, magnesium stearate, maltodextrin, modified food starch, sodium bicarbonate, D&C yellow no.10

Questions or comments?
 Call weekdays from 9 a.m. to 5 p.m. EST at 1-800-555-5555.

This is not an actual *Drug Facts* label.

All medicines — OTC medicines and prescriptions — should always be taken with the approval and supervision of a parent or trusted adult.

Directions

Tells the amount or “dose” of medicine to take, how often to take it, and how much you can take in one day.

Other Information

Tells how to store the medicine.

Inactive Ingredients

Lists ingredients not intended to treat your symptoms, like preservatives and flavorings.

Questions or Comments?

Tells how to call the manufacturer if you have questions about the medicine.

MEASURE IT CORRECTLY

To get an exact measurement, it is important to only use the dosing device that is provided with the medicine. The *Drug Facts* label tells you how much medicine you should take based on your weight and/or age. Take only one medicine with the same kind of active ingredient at a time.

Fact: Household spoons come in various shapes and sizes, which means they hold different amounts of liquid.



SAFETY TIPS

- **Always** read the entire *Drug Facts* label before using an OTC medicine.
- **Never** take medicines with the same active ingredient at the same time!
- Call the **Poison Control Center** number (also called Poison Help Line) at **1-800-222-1222** if you have **any** medicine questions or concerns.



Unit 1, Activity 1:

COMPARE OVER-THE-COUNTER VS. PRESCRIPTION (RX) MEDICINES

Part 1

1. Both
2. Prescription (Rx) medicine
3. Prescription (Rx) medicine
4. Both
5. Over-the-Counter (OTC) medicine
6. Both
7. Both

Part 2

1. Prescription (Rx)
2. Don't know (not enough information)
3. OTC

Unit 2, Activity 2:

USING THE DRUG FACTS LABEL

1. Side effects may include drowsiness and/or excitability, especially in children
2. Answers may include: A doctor should be consulted before taking this medicine if you have liver or kidney disease, and before giving the medicine to children under 6 years of age. A doctor should also be consulted if an allergic reaction or overdose occurs.
3. The **Directions** section.
4. Answers could include that the *Drug Facts* label appears in a standardized format for consumers' ease of use and understanding in what a medicine does and how to use it safely. The label allows consumers to know where to look for information to make informed choices relevant to their health situation. Most serious warnings are presented first as it is helpful to convey these important safety messages to consumers.¹
5. Answers might include: Uniform formatting on the label: Use of bolded and italicized headers and bulleted information within sections increases readability; use of bolded font emphasizes important safety information, such as "Keep out of reach of children," "Stop use and seek medical help right away."
6. 1-800-222-1222

Unit 2, Activity 3:

FIND A DRUG FACTS LABEL SCAVENGER HUNT

Answers will vary.

Unit 3, Activity 4:

ACCURATE MEDICINE DOSING

1. Olivia is 13 years old. The proper dose for adults and children 12 years of age and older is 5 ml two times per day. The dose may be repeated every 12 hours while symptoms last. Olivia's reasoning might be that since it is a new day that she can take another dose of medicine. This is an error as no more doses should be given until 9 am. The label directs that it is not safe to take more than 10 ml in 24 hours.
2. Miguel is 11 years old. The proper dose for children under 12 years of age is 2.5 ml two times per day. Taking 5 ml once a day can result in an overdose and potential side effects.
3. Using anything other than the dosing device that is packaged with the medicine can result in an inaccurate dose.

Unit 3, Activity 5:

SAFE MEDICINE STORAGE

Any response that identifies medication stored in a location that is not up, away, and out of sight would be acceptable. The medication storage errors shown in the picture are as follows:

1. Open purse with pain relief bottle sticking out of the top
2. Medicine left out on the nightstand with dosage cup
3. Toiletry bag hanging low from doorknob inside closet with vitamin bottle showing
4. Medicine bottles visible and accessible inside cabinet below kitchen sink
5. Bottle of cough medicine on the counter and a teaspoon with a trace of medicine visible on spoon (should be using the dosing device and stored up and away)
6. Allergy medicine on the table next to vase

Unit 4, Activity 6:

OTC MEDICINE SAFETY AWARENESS IN YOUR COMMUNITY

Answers will vary.

Unit 5, Activity 8:

OTC MEDICINE SAFETY ARTICLE

Answers will vary.



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1. <https://www.fda.gov/media/150098/download>;

2. <https://www.fda.gov/drugs/information-consumers-and-patients-drugs/otc-drug-facts-label>



OVER-THE-COUNTER MEDICINE SAFETY

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REPRODUCIBLE LETTER
FOR FAMILIES

Dear Parents and Caregivers,

Did you know that more than 85,000 children, ages 19 and under, require medical attention each year due to medicine mistakes or misuse?

As kids get older, they start to take on more responsibility — at home, at school, and even with their health. That is why it's so important for families to help kids learn how to make safe choices *before* they take on a more active role in their self-care, including medicine use.

Since over-the-counter (OTC) medicines can be bought from a store without a doctor's prescription, young people often falsely assume that they don't need to be careful with them. However, OTC medicines can cause harm if they are not used correctly. To prevent medicine mistakes or misuse, make sure all members of your household know to read and follow the *Drug Facts* label.

Your child has already started to learn about the importance of medicine safety at school. Now is the perfect time to build on that knowledge to make sure everyone in your home feels ready to handle medicines responsibly. When families work together to create a medicine action plan, they help to keep everyone safe and healthy.

Use the checklist below to ensure that you keep your family "OTC Ready."



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Developed with support of the National Association of School Nurses.

Medicine Safety Practices

- Make sure all OTC medicines are properly labeled and stored in their original packaging.
- Never mix medicines — keep them in separate labeled containers.
- Teach your children that they should never take any medicine without adult approval and supervision — children should always ask a parent, caregiver, or other trusted adult for help before taking medicines.
- Read and follow the *Drug Facts* label every time you or your children use a medicine.
- Carefully follow the dosage directions on the *Drug Facts* label to avoid an overdose.
- Never use household spoons to measure medicine — only use the dosing device packaged with an OTC medicine.
- Never take medicines with the same active ingredient at the same time to avoid an overdose of that ingredient.
- Communicate with other caregivers in your home to prevent double-dosing errors.
- Call the **Poison Control Center** (also called the **Poison Help Line**) at **1-800-222-1222** if you have any questions or if a medicine mistake occurs.

Safe Medicine Storage and Disposal

- Store all medicines up, away, and out of sight of young children.
- Make sure that child safety caps are locked on all medicines after use.
- Keep the medicine and the dosing device it came with together.
- Remind visitors to keep luggage, purses, or anything else that might have medicines in it, out of children's reach and sight.
- Check the use-by and expiration dates on OTC medicines and safely dispose of any that are outdated.
- Mix leftover or expired OTC medicines with coffee grounds or kitty litter for safe disposal.



Here's to keeping families safe!



Please visit
www.ymiclassroom.com/otcmedsafety-families
for more *OTC Medicine Safety* information, including games, quizzes, and a storybook.



SEGURIDAD DE LOS OTC MEDICAMENTOS DE VENTA LIBRE

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CARTA REPRODUCIBLE
PARA LAS FAMILIAS

Estimados padres y cuidadores:

¿Sabían que más de 85,000 niños, de 19 años o menos, requieren atención médica cada año debido a errores o al mal uso de los medicamentos?¹

A medida que los niños crecen, comienzan a asumir más responsabilidades: en casa, en la escuela e incluso con su salud. Por eso es tan importante que las familias ayuden a los niños a aprender cómo tomar decisiones seguras antes de asumir un papel más activo en su cuidado personal, incluido el uso de medicamentos.

Dado que los medicamentos de venta libre (OTC) pueden comprarse en una tienda sin receta médica, los jóvenes suelen suponer erróneamente que no necesitan tener cuidado con ellos. Sin embargo, los medicamentos OTC pueden causar daños si no se utilizan de forma correcta. Para evitar errores o usos indebidos de medicamentos, asegúrense de que todos los miembros de su hogar sepan leer y seguir la etiqueta *Drug Facts* (Información del medicamento).

Sus hijos ya han comenzado a aprender sobre la importancia de la seguridad de los medicamentos en la escuela. Este es el momento perfecto para aprovechar ese conocimiento y asegurarse de que todos en su hogar se sientan listos para manejar los medicamentos de manera responsable. Cuando las familias trabajan juntas para crear un plan de acción de medicamentos, ayudan a mantener a todos seguros y saludables.

Utilicen la lista de verificación a continuación para asegurarse de que su familia esté "lista para los medicamentos OTC".



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Medidas de seguridad para medicamentos

- Asegúrense de que todos los medicamentos OTC estén debidamente etiquetados y almacenados en su envase original.
- Nunca mezclen medicamentos: consérvenlos en recipientes separados y etiquetados.
- Enséñenles a sus hijos que nunca deben tomar ningún medicamento sin la aprobación y supervisión de un adulto; los niños siempre deben pedir ayuda a un padre, cuidador u otro adulto de confianza antes de tomar medicamentos.
- Lean y sigan la etiqueta *Drug Facts* cada vez que ustedes o sus hijos utilicen un medicamento.
- Sigán con atención las instrucciones de dosificación en la etiqueta *Drug Facts* para evitar una sobredosis.
- Nunca utilicen cucharas domésticas para medir el medicamento, solo utilicen el dosificador que viene con un medicamento OTC.
- Nunca tomen medicamentos con los mismos ingredientes activos al mismo tiempo para evitar una sobredosis de ese ingrediente.
- Comuníquense con otros cuidadores en su hogar para evitar errores de dosis doble.
- Llamen al **Centro de control de envenenamiento** (también llamado **Línea de ayuda por envenenamiento**) al **1-800-222-1222** si tienen alguna pregunta o si se produce un error con un medicamento.

Almacenamiento y eliminación seguros de medicamentos

- Guarden todos los medicamentos en un lugar alto, lejos y fuera de la vista de los niños pequeños.
- Asegúrense de que los tapones de seguridad para niños estén bloqueados en todos los medicamentos después de usarlos.
- Conserven juntos el medicamento y el dosificador con el que vino.
- Recuérdenles a los visitantes que guarden el equipaje, las carteras o cualquier otro elemento que pueda contener medicamentos fuera del alcance y la vista de los niños.
- Comprueben las fechas de caducidad de los medicamentos OTC y desechen de forma segura los que estén caducados.
- Mezclen los medicamentos OTC sobrantes o caducados con granos de café o arena para gatos para desecharlos de manera segura.

¡Por la seguridad de las familias!



Visiten

www.ymiclassroom.com/otcmedsafety-families

para obtener más información sobre la Seguridad de los medicamentos OTC, incluidos juegos, cuestionarios y un libro de cuentos.



1. Sistema Nacional de Datos Toxicológicos de la Asociación Americana de Centros de Control de Envenenamientos. Los datos cubren el promedio anual entre 2011 y 2021, edades de 0 a 19.