Chapter Objectives
After completing this chapter, you will be able to:

- **Explain** how regular checkups and immunizations can help prevent illness.
- **Summarize** effective ways to care for a sick child.
- **Outline** the steps to follow in an emergency situation.
- **Describe** appropriate first-aid procedures for three types of bleeding.
- **Compare and contrast** rescue breathing and CPR.

Writing Activity

**Descriptive Paragraph**

**Being Sick** Spend a few minutes thinking back to a time when you were sick. Were you miserable? Scared? Lonely? Bored? Use these memories to write a descriptive paragraph about yourself during that time.

**Writing Tips** Descriptive writing is attention-getting. It draws in the reader with details. Use these tips to help you write your descriptive paragraph:

1. Focus on using interesting adjectives and adverbs.
2. Work at painting a picture in the reader’s mind.
3. Keep your words varied. Use a thesaurus to come up with appealing synonyms.
Section 20.1  Childhood Illnesses

Section 20.2  Accidents and Emergencies

Explore the Photo
Appropriate safety gear is important at any age. *What messages are parents sending to children when they insist the children wear safety gear?*
Section 20.1 Childhood Illnesses

Reading Guide

Before You Read
Use a Dictionary Many of the names of diseases are difficult to pronounce. When you encounter a word you cannot pronounce, look it up in a dictionary or other appropriate resource.

Read to Learn
Key Concepts
• Explain how regular checkups and immunizations can help prevent illness.
• Summarize effective ways to care for a sick child.

Main Idea
Regular checkups and immunizations can help prevent many health problems and diseases. Common childhood illnesses include allergies, asthma, ear infections, colds, and diseases such as chicken pox.

Content Vocabulary
• communicable disease
• pollen
• asthma
• contagious

Academic Vocabulary
You will find these words in your reading and on your tests. Use the glossary to look up their definitions if necessary.
   ■ detection
   ■ sensitivity

Graphic Organizer
As you read, list common childhood illnesses. Use a diagram like the one shown to help organize your information. Add additional lines as needed.

   Childhood Illnesses

   ...

Graphic Organizer Go to this book’s Online Learning Center at glencoe.com to print out this graphic organizer.

Academic Standards

English Language Arts
NCTE 3 Apply strategies to interpret texts.

Science
NSES F Develop understanding of personal and community health; science in local, national, and global challenges.

NCTE National Council of Teachers of English
NCTM National Council of Teachers of Mathematics
NSES National Science Education Standards
NCSS National Council for the Social Studies
Regular Checkups

Children, like adults, should have regular medical checkups. Early detection, or discovery, followed by early treatment may keep a minor condition from becoming serious. Checkups also let parents know that their children are developing normally. Regular checkups and immunizations can help prevent many illnesses.

During their first year, babies should be examined regularly. After the first year, healthy children need checkups less frequently. However, they still need one at least once a year. Because these checkups are so important, many local health departments have free or inexpensive clinics that provide examinations and medical care for children who do not have their own pediatrician.

When a child becomes sick, parents and other caregivers need to know what to do. They need to be able to recognize common childhood illnesses. They also need to distinguish between minor conditions and those that need medical attention.

If a child shows symptoms that cause concern, caregivers should call the child’s doctor. In younger children, fever, lack of energy, prolonged diarrhea, constipation, vomiting, or difficulty breathing all warrant a call to the doctor. In older children, symptoms to bring to a doctor’s attention include fever, persistent cough, vomiting, severe headache, or dizziness.

Immunizations

To immunize is to protect a person against a particular disease. People can be protected from communicable diseases by being immunized. A **communicable disease** is a disease that is passed from one person to another.

The most common way to immunize people is to administer a vaccine. A vaccine is a small amount of a disease-causing agent that is introduced into the body so that a person can build resistance to it. After getting a vaccine, a person’s body produces antibodies. These are substances capable of fighting off germs for the disease. For example, if Monica gets the vaccine for chicken pox at twelve months of age, she will have the antibodies to fight it if she is later exposed to the disease.

**Figure 20.1** shows what immunizations a child should receive and when. Parents are responsible for making sure their children get the immunizations they need at the right times. Parents should keep a record of each child’s immunizations.

Many states require all children to be immunized for certain diseases before they enter school. Many also require that children in child care centers be immunized. Children under the age of five are the most likely to develop complications from the diseases. Therefore, parents should not wait until their children start elementary school to have them immunized.
The Centers for Disease Control and Prevention (CDC) establishes schedules for children’s immunizations. **How many polio vaccines should a child have received by age 12?**

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Birth</th>
<th>1 mo</th>
<th>2 mo</th>
<th>4 mo</th>
<th>6 mo</th>
<th>12 mo</th>
<th>15 mo</th>
<th>18 mo</th>
<th>24 mo</th>
<th>4–6 yrs</th>
<th>11–12 yrs</th>
<th>13–18 yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hepatitis B</strong></td>
<td>HepB #1</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td><strong>Diphtheria, Tetanus, Pertussis (DPT)</strong></td>
<td>DPT #1</td>
<td>DPT #2</td>
<td></td>
<td></td>
<td></td>
<td>DPT #3</td>
<td>DPT #4</td>
<td>DPT #5</td>
<td>Booster</td>
<td>Booster</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>H. Influenza type B</strong></td>
<td>HiB #1</td>
<td>HiB #2</td>
<td></td>
<td>HiB #3</td>
<td>HiB #4</td>
<td></td>
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</tr>
<tr>
<td><strong>Polio</strong></td>
<td>Polio #1</td>
<td>Polio #2</td>
<td></td>
<td>Polio #3</td>
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<tr>
<td><strong>Measles, Mumps, Rubella</strong></td>
<td>MMR #1</td>
<td></td>
<td></td>
<td>MMR #2</td>
<td>MMR #2</td>
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<tr>
<td><strong>Varicella (chicken pox)</strong></td>
<td>Varicella</td>
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<tr>
<td><strong>Pneumococcal</strong></td>
<td>PCV #1</td>
<td>PCV #2</td>
<td>PCV #3</td>
<td>PCV #4</td>
<td>PCV</td>
<td></td>
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<tr>
<td><strong>Influenza</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Influenza (yearly)</td>
<td></td>
</tr>
<tr>
<td><strong>Hepatitis A</strong></td>
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<td></td>
<td></td>
<td></td>
<td>Hepatitis A</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
- Green shading indicates that if child did not receive a dose of vaccine earlier, she or he can receive it during the period in green.
- Yellow shading indicates a range of recommended ages.
- **a** If the child did not receive the Hepatitis B vaccine earlier, the three-dose series should be given in this period.
- **b** Can be given any time during this period.
- **c** Tetanus and diphtheria boosters should be repeated every 10 years after this.
- **d** Influenza vaccine is recommended yearly for children older than 6 months who have certain risk factors, including asthma, HIV, and other diseases. The vaccine is also recommended for healthy children between 6 and 23 months of age.
- **e** Hepatitis A vaccine is recommended for children and adolescents who live in high-risk areas or belong to high-risk groups.
- **f** May not be necessary if a certain brand of vaccine was given in the first two doses.
- **g** Second dose should be given before the age of 12.

**Note:** This information is periodically reviewed and updated. Check the Web site of the Centers for Disease Control and Prevention for the most current information.
Some parents worry that a vaccine could harm their child. In extremely rare cases, a child does have a bad reaction to a vaccine. Parents should discuss these concerns with their child's doctor. In most cases, the chances of getting the disease are much greater than the chances of having a bad reaction to a vaccine.

**Common Childhood Conditions**

Allergies and asthma are becoming more and more common among children. Most children can live normal lives with these conditions as long as they receive proper medical care.

**Allergies**

An allergy is an extreme sensitivity, or reaction, to one or more common substances. Children may have allergic reactions when they eat or drink certain foods or inhale certain airborne particles. Foods that commonly cause allergic reactions in babies and children include milk, grains, eggs, shellfish, nuts, fruit juices, chocolate, and food additives. Airborne substances that can cause reactions include pollens, dust mites, molds, air pollution, and tobacco smoke. Pollens are powder-like grains that come from seed plants. Symptoms of an allergic reaction may be mild, such as a rash, a runny nose with clear drainage, or itchy eyes. Some allergic reactions, however, may be serious or even life-threatening. Sometimes, for instance, the air sacs in the lungs may become constricted, cutting the flow of oxygen in the body.

More than one-third of the children in the United States develop some type of allergy. Specific allergies are not inherited, but the tendency to be allergic seems to be. If both parents have allergies, their child has a 70 percent chance of having at least one.

Allergies cannot be cured, but their effects can often be prevented. For example, a child who is allergic to a specific food can avoid that food. One who is allergic to pollens can be encouraged to play indoors during peak pollen periods. A series of allergy tests can determine which specific substances are causing problems so that they can be avoided in the future. Medication or injections are used to control allergies.

**Asthma**

A growing health problem among children in this country is asthma. Asthma is a condition that causes the lungs to contract more than they should, narrowing the air passages and making it difficult to breathe. When this contraction of the lungs occurs, it is called an asthma attack.

Asthma attacks can be brought on by an allergic reaction. They may also be caused by a cold or the flu, physical activity, or exposure to cold air, smoke, or other irritants. Signs that a child may be having an asthma attack include coughing, wheezing, rapid breathing, and shortness of breath.

Children with asthma can take medication to open their airways and breathe more easily. A doctor must prescribe the medicine. Some medicines are taken every day to prevent asthma attacks.
Other medications are taken only to relieve an attack when it happens. Older children can be taught to give themselves their medication when they need it.

Recall  What signs indicate a possible asthma attack?

Caring for a Sick Child

All children get sick. Caregivers need to recognize the symptoms of common illnesses. Parents should feel free to call the doctor’s office. Often, a nurse assesses the symptoms, consults with the doctor, and decides if the child should be seen. Figure 20.2 provides detailed information about some childhood diseases.

Caring for a sick child may involve little more than keeping the child inside and comfortable for a while. Recovery from many childhood illnesses takes only a few days. It may also be important to keep the child away from other children during the contagious period of an illness.

When a child is contagious, the child can pass the illness on to someone else. In general, children with a fever should not go to school or to a child care setting.

Children may need medicine to relieve pain or to reduce fever. Never give aspirin to a child. Some children who take aspirin develop a serious illness called Reye syndrome. Also, be sure to use only children’s medicines recommended by the doctor, not those meant for adults. Parents should check with their pediatrician before giving a child any over-the-counter medicine.

Comforting a Sick Child

It is important to maintain a calm and cheerful manner around a child who is sick. Treat the illness matter-of-factly while remembering that the child may need some extra love and attention.

Children who are very ill do not have much energy and may spend a lot of time sleeping. However, children who have only a mild illness and those who are recovering after a serious illness may get restless or easily bored. Quiet play or reading, especially with a caregiver, helps pass the time.

Provide Good Nutrition During an Illness

Poor appetite during an illness is normal. If you have had the flu, you probably remember that eating was the last thing on your mind. The same response occurs in babies and children, but their smaller bodies cannot go as long without food and liquids. If illness and poor appetite persist for more than a few days, consult your doctor. Here are some ways to provide the nutrition sick children need:

- **Give the child more liquids.** Children need liquids to avoid dehydration. This is the depletion of needed body fluids. One good liquid is a sugar and mineral (glucose-electrolyte) solution, which can be found in most drugstores.
- **Encourage the child to eat.** Keep offering foods the child likes, a little at a time and as often as possible.
- **Do not force the child to eat.** One or two days of low food intake will not be harmful, as long as the child gets enough liquids.

Take Charge  Write a paragraph describing ways to make food and liquids more appealing to a sick child who is not interested in either.
Children often get illnesses such as the common cold. Which illnesses in this chart require a doctor’s attention?

<table>
<thead>
<tr>
<th>Disease</th>
<th>Signs</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicken Pox</td>
<td>A red, itchy rash appears first, usually on the head and back. It may spread to cover the entire body. The rash begins as small bumps that look like pimples. These develop into fluid-filled blisters, which break open, leaving sores that become dry, brown scabs. Fever usually rises no higher than 102°F (39°C).</td>
<td>Rest in bed during initial stage. Give acetaminophen to relieve fever. Keep the child cool in loose clothing. Apply calamine lotion to relieve itching, or give cool baths with baking soda or oatmeal added. Usually lasts 7 to 10 days. Marks left on the skin may take 6 to 12 months to fade.</td>
</tr>
<tr>
<td>Common Cold</td>
<td>Stuffy or runny nose, sneezing or coughing, mild fever, sore throat, diminished appetite.</td>
<td>Encourage rest and plenty of liquids. Give acetaminophen to reduce fever. Recovery takes 7 to 10 days.</td>
</tr>
<tr>
<td>Ear Infection</td>
<td>An infant may pull at the ear and cry. An older child is likely to say that the ear hurts. During the infection, there may be some temporary hearing loss. There is usually a fever.</td>
<td>See a doctor, who may prescribe an antibiotic. For a fever, use cool baths and acetaminophen.</td>
</tr>
<tr>
<td>Influenza (Flu)</td>
<td>Sudden onset of fever, chills, shakes, nausea, tiredness, and aching muscles. After a few days, a sore throat and stuffy nose may occur. The disease may last as long as a week.</td>
<td>Encourage rest and plenty of liquids. Doctors may prescribe antiviral medications for certain strains of flu. They may reduce the severity of the symptoms and shorten their duration.</td>
</tr>
<tr>
<td>Strep Throat and Scarlet Fever</td>
<td>Sudden onset, with headache, fever, sore throat not accompanied by runny nose or congestion, painful swallowing, white patches on the tonsils, loss of appetite, and fatigue. In scarlet fever, a rash of fine red dots usually appears within 24 hours. The rash is seen first on the neck and upper part of the chest before spreading. When it fades, the skin peels.</td>
<td>See a doctor, who will prescribe antibiotics for a positive throat culture. The child should rest in a warm, well-ventilated room. Throat lozenges and iced drinks can help reduce pain. Patients usually recover in a week. (The rash is the only sign that differentiates scarlet fever from strep throat.)</td>
</tr>
</tbody>
</table>
Children's behavior and needs during illness depend on their age. Infants may sleep much more than usual and tend to want lots of physical comforting. Children between one and three are usually very active and may have trouble staying in bed. Doctors might allow them to play quietly in the house. Older children can often help take care of themselves. They usually enjoy reading books, doing puzzles, or playing games while recovering.

Going to the Hospital

A hospital stay can be a difficult experience for a child. Children may fear that they will never go home, that they will be hurt, or that they will die. They may be frightened by unfamiliar doctors and nurses.

Parents can prepare their child for a hospital stay, unless it is an emergency. They can explain in simple terms what to expect. If possible, parents should take the child to tour the hospital. They may be able to see patient rooms, operating rooms, and recovery rooms. When the child is admitted, these things are already familiar and therefore less frightening.

The Hospital Stay

Hospital staff recognize that children are more at ease and may recover more quickly if a parent stays with them. Some hospitals provide a cot in the child's room so that a parent can sleep nearby. Other hospitals have rooms with space for both the child and a parent. Even when there are no such arrangements, parents can often visit their child any time.

A child may need many tests and forms of treatment. If the child asks, "Will this hurt?" the parent should answer truthfully. Parents may not want to upset the child, but it is more helpful to say something like, “It will hurt for a while, but then you will feel much better. It’s all right to cry, if you want.”

Section 20.1 After You Read

Review Key Concepts

1. Identify what antibodies are and what the purpose is behind producing them by vaccination.
2. Explain why a sick child should be kept away from other children during the contagious period of a disease.

Practice Academic Skills

English Language Arts

3. Go to a library and locate a book designed to help children prepare for a hospital stay. Read the book. Write a review discussing how the book attempts to help children and whether you think it is successful.

Science

4. Conduct research to learn more about polio and the development of the first polio vaccine. Write a report discussing the effects of polio in the years immediately prior to the vaccine. Also discuss the scientists who developed the first vaccine.

Check Your Answers Check your answers at this book’s Online Learning Center at glencoe.com.
Section 20.2  Accidents and Emergencies

**Reading Guide**

**Before You Read**

**Visualizing** As you read this section, visualize yourself actually performing the first-aid instructions on a child. This will help you remember the necessary steps.

**Read to Learn**

**Key Concepts**
- **Outline** the steps to follow in an emergency situation.
- **Describe** appropriate first-aid procedures for three types of bleeding.
- **Compare and contrast** rescue breathing and CPR.

**Main Idea**
The steps to take in an emergency depend on several factors. If a child is choking or stops breathing, immediate action is essential.

**Content Vocabulary**
- antiseptic
- hives
- fracture
- shock
- sprain
- rescue breathing
- abdominal thrust
- cardiopulmonary convulsion
- resuscitation (CPR)

**Graphic Organizer**

Go to this book’s Online Learning Center at glencoe.com to print out this graphic organizer.

**Academic Vocabulary**
You will find these words in your reading and on your tests. Use the glossary to look up their definitions if necessary.
- elevate
- expel

**Graphic Organizer**
As you read, list the four steps of rescue breathing for small children. Use a chart like the one shown to organize your information.

<table>
<thead>
<tr>
<th>Four Steps of Rescue Breathing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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<td></td>
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</tbody>
</table>

**Academic Standards**

**English Language Arts**
- NCTE 3  Apply strategies to interpret texts.

**Science**
- NSES C  Develop understanding of the cell; biological evolution; matter, energy, and organization in living systems; and behavior of organisms.

**Social Studies**
- NCSS V F Individuals, Groups, and Institutions  Evaluate the role of institutions in furthering both continuity and change.
- NCSS V G Individuals, Groups, and Institutions  Analyze the extent to which groups and institutions meet individual needs and promote the common good in contemporary and historical settings.

NCTE  National Council of Teachers of English
NCTM  National Council of Teachers of Mathematics
NSES  National Science Education Standards
NCSS  National Council for the Social Studies
Safety

A caregiver’s most important responsibility is to keep children safe. Young children do not know what can harm them. To keep children safe, caregivers should know what to expect. Each age has different hazards because of different interests and abilities.

The Safe Child, Healthy Child features throughout this textbook highlight some of the dangers. Infants, for example, will chew on almost anything and run the risk of choking. Toddlers are so mobile that they can quickly get into dangerous situations. Safety in and around vehicles is essential for all children.

If you care for children in their own home, you need to plan for the possibility of a fire. Locate all outside doors. Note escape routes from the home. Find out whether the home has smoke detectors and a fire extinguisher. Ask parents to go over their escape plan.

If a fire does occur, the children are your first responsibility. Lead or carry them to safety. Then call the fire department.

Guidelines for Fast Action

Even if you do not spend a great deal of time with children, you should be prepared to act quickly in an emergency. Fast action can make the difference between minor harm and more serious injury. Memorizing the following five steps will help you if an accident occurs:

1. **Stay calm.** A soothing approach helps reassure the child and keeps your thoughts clear.
2. **Evaluate the situation.** Is the injury minor or serious? Can you handle it on your own, or do you need someone else to help?
3. **Provide comfort.** Offer words of comfort, along with treatment, if the injury is minor. If the injury is serious, keep the child warm until help arrives. Do not move the child.
4. **Call for help if necessary.** If you do not know what to do or if the child is seriously injured, call for help. Keep a list of emergency numbers on hand. In many communities, you can get help by calling 911. Know how to contact an ambulance service, the child’s doctor, and nearby hospitals. When you call for help, give the child’s age, your name, and your relationship to the child, as well as your location’s address. Describe the problem clearly and follow instructions.
5. **Give basic first aid.** If you know what to do, provide the necessary treatment. If you are not sure how to handle the injury, keep the child comfortable and wait until help arrives.

**Analyze** Why do you think toddlers are especially likely to be involved in accidents?
First Aid

Following are some general first aid guidelines. Reading about first aid is no substitute, though, for getting hands-on training. If you plan to take care of children, contact the American Red Cross for information about first aid training classes.

Bleeding

Many common injuries involve bleeding. To prevent the spread of disease, child care workers are advised to wear disposable gloves when giving first aid to a bleeding child.

Minor Cuts or Scrapes

Place a clean cloth or gauze pad on the cut and apply firm pressure until the bleeding stops. Then clean the area with mild soap and warm water. Dry the wound, and apply an antiseptic. An antiseptic is a substance that prevents or stops the growth of germs. Cover the wound with an adhesive bandage or sterile gauze.

Deep Cuts or Wounds

If a cut or wound seems very deep, or if the bleeding does not stop, seek medical attention immediately. Continue to try to stop the bleeding until help arrives. Do not try to use a tourniquet. This is a bandage that cuts off the blood supply to a part of the body. This could seriously harm the victim.

Nosebleeds

Have the child sit or stand and lean slightly forward over a sink or bowl. Squeeze the lower half of the child’s nose with a tissue for about ten minutes. Then release your hold and check to see if a clot has formed and the bleeding has stopped. If not, apply pressure again for ten minutes. If you cannot stop the bleeding, get medical help.

Bumps and Bruises

Minor bruises should be treated for ten minutes with a cold pack or a bag of frozen vegetables. Place a towel between the cold pack and the child’s skin. You should elevate, or raise, a bruised arm or leg for a while.

A fall resulting in a hard blow to the head can be serious. Seek medical help right away if a child loses consciousness, becomes drowsy or irritable, complains of a headache, or vomits after receiving a blow to the head.
Fractures and Sprains

A fracture is a break or crack in a bone. A sprain is an injury caused by sudden, violent stretching of a joint or muscle. Both types of injury may cause pain, swelling, and bruising. It is often difficult to tell a fracture from a sprain without an X-ray.

If you suspect that a child has a fracture or a sprain, do not move the child until you know how serious the injury is. This is especially important if the injury is to the head, neck, or back. Movement can cause further damage. Call for qualified medical help.

Splinters and Thorns

A splinter is a tiny piece of wood, metal, glass, or plastic that becomes embedded in the skin. Thorns are treated like splinters. Although splinters are usually not dangerous, they do hurt and can cause an infection.

If a splinter is sticking out of the skin and is small, you can use tweezers to remove it. Sterilize the tweezers in boiling water or in the flame of a candle or match. Pull evenly on the exposed part of the splinter to remove it. Then put antiseptic and a bandage on the wound.

If a splinter is just under the surface of the skin and is not glass, you can remove it with a sterilized needle and tweezers. Use the needle to break the skin and expose the end of the splinter. Grasp the end of the splinter with the tweezers, and gently pull it out. Clean and cover the wound.

For a mild sprain, elevate the injured area and apply cold packs to help reduce swelling. If the pain persists, check with a doctor about further treatment.

Think About It
You often see an eleven-year-old child in your neighborhood riding her bike unsafely. She never wears a helmet and frequently darts into traffic without looking. Write a paragraph describing what you might do to improve this situation.

Bicycle Safety Classes

While bike riding is fun, it also raises serious safety concerns. Each year, about 500,000 bicycle accidents require emergency room visits. Children fourteen and under are five times more likely to have injuries than older cyclists. Every child who rides a bike should know and practice safe bike-riding techniques. Some park districts, schools, and bicycle shops offer bicycle safety classes for children of various ages. Learning the rules of the road is very important. Knowing which side of the street to ride on and how to signal to make a turn are just two of these rules. In addition, the bike should be the correct size for the child and the rider should always wear a protective helmet. This helps shield the brain if an accident occurs.

“With a toddler on the loose, accidents are bound to happen once in a while. One study showed that the typical toddler has three minor bumps or boo-boos a day.”

— Heidi Murkoff, Arlene Eisenberg, and Sandee Hathaway, coauthors, What to Expect: The Toddler Years
**Burns**

First aid for burns depend on the cause and how serious it is. Most burns are serious because they may cause shock, infection, or scarring. Burns are classified by degrees.

**First-Degree Burns**

First-degree burns are mild and may turn the skin pink or red. There are no blisters or peeling. First-degree burns may be caused by too much sun, hot objects, hot water, or steam. Put the burned area under cold water or a cold, wet cloth. Then keep it dry and clean. Do not put ointment on the burn.

**Second-Degree Burns**

Second-degree burns are red and form blisters. They can be caused by too much sun or by hot liquids and flames. If the burned area is small, cover it with a clean, wet cloth and take the child to a doctor. If the burned area is large, cover the child with a blanket or clean sheet and call for emergency help.

**Third-Degree Burns**

Third-degree burns leave the skin blackened or white. These burns do not always cause pain because nerve endings may have been destroyed. They can be caused by flames, very hot objects, or electricity. Immediate medical care is essential.

**Chemical Burns**

Some products, such as disinfectants, can burn the skin. These products should always be kept away from children. Always read the directions and cautions on product labels. Should a burn occur, use protective gloves to thoroughly wash off the affected area with cool water. Remove any clothing with the chemical on it, unless the clothing has stuck to the skin. Seek immediate medical attention.

**Electrical Burns**

These burns may be deep, but appear to be minor. They may leave only a small black dot on the skin. Cool the burn with water. Cover it with a clean, smooth cloth. Lie the child down with legs elevated and head turned to one side to prevent shock. Call emergency services.

**Resistance to Antibiotics**

Germs are natural-born survivors. When scientists develop antibiotics to kill specific germs, the germs often mutate so that they are immune to the drugs. This mutation has caused many diseases to become more resistant to antibiotics. Conditions such as ear infections and tuberculosis are becoming harder to treat.

**Procedure**

Conduct research to find out what scientists think is causing this growing resistance. What can be done to reduce it?

**Analysis**

Analyze what scientists and doctors say can be done to reduce antibiotic resistance. Choose two of these ideas and prepare a presentation to explain the ideas to your class.

**Choking**

Choking occurs when a person’s airway becomes blocked by a piece of food or some other object. Young children are especially prone to choking because they tend to put all kinds of objects, including small toys, into their mouths. If the object is not removed, air will not reach the lungs and the person could die.

A choking child may wheeze or make high-pitched noises or gurgling sounds. An inability to speak, breathe, or cry and a bluish tint to the face are other signs of choking.

If a child is choking, you must act quickly. For a choking infant, follow the steps shown in Figure 20.3 on page 562. For children older than one and adults, use abdominal thrusts. An **abdominal thrust** is a quick upward thrust with the heel of the hand into the abdomen that forces the air in the lungs to expel, or force out, an object caught in the throat. Figure 20.4 on page 563 illustrates this technique.
The amount of pressure to use depends on the age and size of the choking person. Too much pressure can harm a child. Get training before you use abdominal thrusts.

**Convulsions**

A **convulsion**, or seizure, is a brief period during which muscles suddenly contract, causing the person to fall and twitch or jerk. Most convulsions last less than five minutes. There are many causes of convulsions. In infants and toddlers, the most common cause is a high fever.

During a convulsion, do not move the child. Move any hard objects out of the way. Do not try to restrain the child or stop the movements. Loosen any tight clothing, especially around the neck. If the child vomits, or if saliva builds up in the mouth, turn the child onto his or her side or stomach to help drain the fluids. Do not attempt to put anything into the child’s mouth.

Bring the fever down by applying cool washcloths to the forehead and neck. Once the convolution is over, give the child acetaminophen. If the seizure lasts more than five minutes, or if the child remains confused or groggy, call emergency services.

**Bites and Stings**

Many young children suffer bites, mostly from household pets or from other children. It also is common for a child to be stung by an insect such as a mosquito or bee. The type of treatment depends on the seriousness of the injury and the child’s response to the injury.

**Rescue Technique for Choking Infants**

20.3 Choking infants require immediate attention. What is the purpose of giving the infant five quick blows to the back?

Place the infant stomach-down across your forearm, using your thigh or lap for support, and hold the infant’s chest in your hand and jaw in your fingers. Point the infant’s head downward and give up to five quick, firm blows to the infant’s back with the heel of your hand.

*If this procedure fails to expel the object that is causing the choking, follow these steps:*

- **Step 3** Turn the infant face up. Lay the infant on your thigh or lap, and support the infant’s head with your hand.
  - Using your other hand, place two fingers on the middle of the infant’s breastbone just below the nipples. Give up to five quick downward thrusts.
  - Continue giving five back blows followed by five chest thrusts until the object is dislodged or the infant loses consciousness.

*If the child loses consciousness or starts to turn blue, immediate cardiopulmonary resuscitation (CPR) is needed. Have someone call 911, and begin CPR if you have been trained. Also, look into the infant’s throat. If you can see the object that is causing the choking and think you might be able to grasp it, try to remove it with a finger.*
Animal or Human Bites

For a bite that does not break the skin or has a small puncture wound, wash the area with soap and water. Flush with water for several minutes. Apply antibiotic ointment and give acetaminophen for pain relief if necessary.

If the wound is more serious and is actively bleeding, apply pressure to stop the bleeding. Then elevate the area of the bite. If the wound is bleeding heavily and the child cannot move or is too weak to stand, apply pressure to the wound and call emergency services. If the animal that bit the child was a bat, fox, coyote, skunk, or raccoon, call the local health department so that the animal can be caught and tested for rabies. The child must be given shots to prevent the disease after being bitten by an infected animal.

Insect Stings and Bites

The greatest risks from stings and bites are allergic reactions and infections. Any child known to be allergic to bee stings should be taken to a doctor immediately after being stung. Other symptoms after a sting that require immediate medical attention include wheezing, tightness in the chest, vomiting or dizziness, and heavy perspiration. A severe allergic reaction called anaphylactic shock can cause the airway to swell shut and a person to die.

Rescue Technique for Choking Children and Adults

Rescue techniques are different depending on whether or not the victim is conscious. If a victim is unconscious, what should you do first?

If the victim is standing or sitting:

1. Stand behind the victim and wrap your arms around his or her waist.
2. Make a fist with one hand and place it, with the thumb toward the victim, just above the child’s navel. Grasp the fist with your other hand.
3. Thrust your fist upward and inward quickly. Repeat the technique until you dislodge the object.

If the victim is unconscious:

1. Position the victim on his or her back, and look inside the mouth. If you can see the object, use a sweeping motion with your index finger to remove it.
2. If not, kneel over the victim, place the heel of one hand in the middle of the abdomen just above the navel, and place your other hand on top of the first hand.
3. Give five quick thrusts, pressing your hands in and up.
4. Open the victim’s mouth again, and sweep the area again to try to remove the blockage.
5. Repeat these steps until the object is expelled or help arrives.
6. If the victim stops breathing, begin CPR if you have been trained in this technique.
You should also seek help if a child is stung in the mouth or breaks out in hives. **Hives** are blisterlike sores caused by an allergic reaction.

You can remove a bee's stinger by scraping it with a blunt-edged object, such as a credit card. Wash the area with soap and water, and apply a cold pack. Watch the site for the next few days for signs of infection.

Ticks are small insects that cling to the skin and may carry diseases. If you find a tick, use tweezers to grasp the tick as close to the skin as possible. Pull the tick off in one smooth motion. Wash the area with soap and water.

Mosquito, ant, and chigger bites are annoying but not usually dangerous. Calamine lotion or a paste of baking soda and water will generally relieve itching. Using witch hazel or rubbing alcohol on the spot may also provide relief.

**Poisoning**

Children are curious and do not always comprehend danger. Young children tend to put things in their mouth. These factors can lead to poisoning. It is not always easy to tell that a child has been poisoned. The following symptoms may indicate poisoning:

- Inability to track movement with the eyes
- Burns or stains around the mouth
- Strange-smelling breath
- Difficulty breathing
- Unconsciousness
- Fever

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**Figure 20.5 Common Household Poisons**

Most poisonings occur when children eat or drink a substance they have found. *What plants should you keep away from children?*

<table>
<thead>
<tr>
<th>Type of Poison</th>
<th>Examples</th>
<th>Type of Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Medicines</strong></td>
<td>Painkillers, stimulants, sleeping pills, aspirin, vitamins, cold medicines</td>
<td>Swallowing</td>
</tr>
<tr>
<td><strong>Cleaning Products</strong></td>
<td>Ammonia, automatic dishwashing detergent, laundry detergent, bleach, drain and toilet-bowl cleaner, disinfectant, furniture polish</td>
<td>Swallowing, contact with skin or eyes, inhaling</td>
</tr>
<tr>
<td><strong>Personal Care Products</strong></td>
<td>Shampoo, conditioner, soap, nail polish remover, perfume, after-shave lotions, mouthwash, rubbing alcohol</td>
<td>Swallowing, contact with skin or eyes, inhaling</td>
</tr>
<tr>
<td><strong>Gardening and Garage Products</strong></td>
<td>Insecticides, fertilizers, rat and mouse poisons, acids, gasoline, paint thinner, charcoal, lighter fluid, antifreeze</td>
<td>Swallowing, contact with skin or eyes, inhaling</td>
</tr>
<tr>
<td><strong>Plants</strong></td>
<td>Some wild mushrooms, English ivy, daffodil bulbs, rhubarb leaves, holly berries, poinsettias, poison ivy, poison oak</td>
<td>Swallowing, contact with skin or eyes</td>
</tr>
</tbody>
</table>
- Rash
- Burning or irritation of the eyes or blindness
- Choking, coughing, nausea, dizziness

If you believe a child has swallowed, breathed, or touched poison, call the hospital or a poison control center. Describe the poison, how it was taken, and if the child has vomited. You will also be asked the child’s age, weight, and height, and any health problems the child has. Keep the poison’s container with you when you call so that you can answer any questions. Follow the directions you receive. Take the container with you if you take the child to the emergency room. Figure 20.5 gives examples of poisons and lists the ways children usually come into contact with them.

**Figure 20.5**

You should remove the object only if it is visible and loose.

**Rescue Breathing for Infants and Small Children**

If you determine that a child is not breathing, send someone to call 911 and follow the steps below. If you are alone and no one hears your call for help, continue the following steps for one minute. Then make the 911 call yourself.

1. **Step 1**
   - Place the child face up on a firm surface. Turn the child’s head to one side and clear the mouth of any fluid or foreign matter. If there is an object caught in the child’s throat, use the procedure for choking described on pages 561–563. You should remove the object only if it is visible and loose.
2. **Step 2**
   - To open the child’s airway, lift the child’s chin with one hand and push down on the forehead with the other.
3. **Step 3**
   - Take a breath, cover the child’s mouth with your mouth, and pinch the nose closed. Keeping the child’s chin lifted, give one slow breath. If you see the child’s chest rise, remove your mouth and let the child’s lungs expel the air. Then repeat the breathing. If the chest does not rise, position the head, as in Step 2, and attempt another breath. If the second breath does not make the chest rise, use the procedure for choking described on pages 561–563.
4. **Step 4**
   - If the child is still not breathing and there are no signs of life, CPR, which combines chest compressions with rescue breathing, should be started immediately.

**Shock**

When a person suffers a severe injury, loses a great deal of blood, or is poisoned, the body may go into shock. **Shock** is a serious medical condition in which important body functions, including breathing and heartbeat, are impaired. Symptoms of shock can include cool, clammy skin; a rapid and weak pulse; shallow breathing; enlarged pupils; or loss of consciousness. Shock must be treated quickly. If you suspect shock, seek medical help. Lay the child down and elevate the feet. Loosen tight clothing, and keep the child warm until help arrives.

**Reading Check**

Recall: What should you do if a child appears to be in shock?
Rescue Techniques

When a child stops breathing, or when a child's heart stops beating, immediate and correct action is vital. Learning rescue techniques will allow you to respond quickly and possibly save a life.

Rescue Breathing

Rescue breathing is a procedure for forcing air into the lungs of a person who is not breathing. In children, breathing may stop as a result of drowning, choking, serious head injury, poisoning, or other emergency situations. If the brain is deprived of oxygen for five minutes, brain damage may result. Longer periods without oxygen usually result in death.

The technique to use with infants and small children is shown in Figure 20.6 on page 565. Child care workers should wear gloves and use a protective face mask when using this technique. You can learn more about rescue breathing in a rescue training class.

Cardiopulmonary Resuscitation (CPR)

Cardiopulmonary resuscitation (CPR) combines rescue breathing with chest compressions to restore breathing and circulation. CPR can save the life of a person who has stopped breathing and whose heart has stopped beating. The technique used for infants and children is different from that used for adults. Only people who have received training from a certified instructor can perform CPR. Many communities offer training programs. For information, call your local chapter of the American Red Cross or the American Heart Association.

Review Key Concepts

1. Identify the steps you would take to be prepared in case a fire broke out where you were caring for children.
2. Explain what you should do if you think a child has been poisoned.
3. Define rescue breathing. Under what circumstances would rescue breathing be needed?

Practice Academic Skills

English Language Arts

4. Locate three different articles containing instructions on how to care for burns. Carefully read each article. Write an analysis in which you choose the article that you think gives the best instructions. Explain why you chose this article as the best.

Social Studies

5. Lead poisoning is a serious problem that can lead to brain damage in children. Conduct research to determine what federal and state governments are doing to reduce lead poisoning in children. Prepare a presentation to share the information you learn with your class.

Check Your Answers  Check your answers at this book’s Online Learning Center at glencoe.com.
Chapter Summary

Regular checkups allow health problems to be detected early. Immunizations help prevent certain diseases. Children who have allergies and asthma can take steps to avoid the causes and treat the symptoms. Caregivers should know what steps to follow when a child gets sick or injured. The rescue technique to use with a choking victim depends on the person's age. Rescue breathing is needed for someone who stops breathing. If the person does not respond to rescue breathing, CPR should be used.

Vocabulary Review

1. Arrange the vocabulary terms below into groups of related words. Explain why you put the words together.

   **Content Vocabulary**
   - communicable disease (p. 551)
   - pollen (p. 553)
   - asthma (p. 553)
   - contagious (p. 554)
   - antiseptic (p. 559)
   - fracture (p. 560)
   - sprain (p. 560)
   - abdominal thrust (p. 561)
   - convulsion (p. 562)
   - hives (p. 564)
   - shock (p. 565)
   - rescue breathing (p. 566)
   - cardiopulmonary resuscitation (CPR) (p. 566)

   **Academic Vocabulary**
   - detection (p. 551)
   - sensitivity (p. 553)
   - elevate (p. 559)
   - expel (p. 561)

Review Key Concepts

2. Explain how regular checkups and immunizations can help prevent illness.
3. Summarize effective ways to care for a sick child.
4. Outline the steps to follow in an emergency situation.
5. Describe appropriate first-aid procedures for three types of bleeding.
6. Compare and contrast rescue breathing and CPR.

Critical Thinking

7. Analyze Why do you think infants need more frequent checkups than older children?
8. Draw Conclusions Suppose you are taking a group of children on a campout. As a leader, what safety skills should you have?
9. Predict Imagine you are going to care for two small children. Do you think you would prepare differently now than you would have before reading this chapter? Explain your answer.
10. Apply You have a neighbor who has not been taking her eight-month-old to the doctor for routine checkups. She says it costs too much. What might you say to her to encourage her to take the child?
11. **Health and Safety Improvements**  Interview an adult over age fifty. Ask the person to discuss how concerns about children's health and safety have changed over the years. For example, they might discuss improvements in automobile safety or in immunizations. Also ask them to discuss why they think these changes have occurred. Write a report discussing what you learn.

12. **PRICE**  A series of steps commonly called PRICE (for protect, rest, ice, compression, and elevation) is commonly used for minor injuries, such as a bruise. Research the steps in PRICE. Then create a poster containing both text and illustrations that explains the procedure.

13. **Hazards in the Home**  Many parents and grandparents are unaware of the hazards present in their homes. As a child grows from a baby to a toddler, they may not realize how much more mobile the child has become.

   **Procedure**  Ask a parent or grandparent of a child from one to three if you may evaluate their home for safety hazards. When you visit, tour the home and identify any potential hazards.

   **Analysis**  Write a list of the items you notice along with an explanation of why each is a hazard. Also offer potential solutions.

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**Real-World Skills**

14. **Organize Information**  Many babysitters may not have the needed information in case of an emergency. Create a form babysitters can take with them and complete when caring for children. Be sure to include space for all the needed information, such as the children's names and ages, and any needed phone numbers.

15. **Write an E-mail**  When a child stops breathing, immediate action can help save his or her life. Write an e-mail to a friend who babysits explaining how tragedy can be avoided when caregivers know CPR. Explain in your e-mail the options for learning CPR in your community.

16. **First-Aid Kits**  Imagine that you have decided to sell home first aid kits. Research what each kit should contain and each item's cost. Create a table listing each item and its cost. Calculate the total. Add 25 percent to this total to obtain a selling price. Then calculate how much you will make on each kit.

**Additional Activities**  For additional activities, go to this book’s Online Learning Center at glencoe.com.
Academic Skills

**English Language Arts**

17. **Bike Safety Poem** Write a poem about bicycle safety. Your poem should contain at least four bicycle safety rules. Use words that can be understood by third- and fourth-graders. If possible, make arrangements to read your poem aloud to a group of elementary school children.

   **NCTE 5** Use different writing process elements to communicate effectively.

**Mathematics**

18. **Automobile Safety** The Centers for Disease Control and Prevention reported that in the United States during 2005, 1,451 children ages 16 years and younger died as occupants in motor vehicle crashes, and approximately 203,000 were injured. How many injuries, on average, is that each day?

   **Math Concept** Mean or Average The mean is one type of average. The mean is calculated by dividing the sum of a set of terms by the number of terms.

   **Starting Hint** Convert years to days (1 year = 365 days). Then divide the number of days by the total number of injuries. Round your answer to the nearest whole number.

   For math help, go to the Math Appendix at the back of the book.

   **NCTM Number and Operations** Understand numbers, ways of representing numbers, relationships among numbers, and number systems.

**Science**

19. **Emergency Preparedness** When people confront an emergency, they often realize they do not have the information they need. Perhaps the information is as simple as “Where is the fire extinguisher?” or “What is the house’s address?”

   **Procedure** Locate at least eight people who have dealt with emergencies. Find out whether or not they have an emergency plan. Ask each, “Was there any needed information that you did not have? What was it?”

   **Analysis** Write a paragraph summarizing the survey’s results. Based on this information, how do you think people can better prepare for emergencies?

   **NSES A** Develop abilities necessary to do scientific inquiry, understandings about scientific inquiry.

**Standardized Test Practice**

**ESSAY**

Read the essay question. Then write a one-half page answer on a separate sheet of paper.

20. Describe the three degrees of burns. Explain how you would treat each type of burn.

   **Test-Taking Tip** When writing an answer to an essay question, imagine you are traveling down a narrow country road. Beware of any detours or side paths. Stay focused on the question!