What is asthma?

- Asthma is a chronic long-term condition in which air passages to the lungs become inflamed, swollen, and narrowed. The swelling can narrow passages enough to reduce or block airflow to and from the lungs. As air moves through the narrowed airway, it can make a wheezing sound.
- Children with asthma may have repeated episodes of wheezing, breathlessness, and chest tightness with nighttime or early morning coughing.

How common is it?

Asthma is one of the most common chronic diseases in children, affecting between 5% and 10%.

What are some characteristics of children with asthma?

- Asthma can vary from mild to severe and it can be occasional or continuous.
- Asthma can worsen with infections, weather changes, or exposure to an asthma trigger. Asthma triggers are those things that make asthma worse. Common triggers include viral infections, smoke, dust, mold, dust mites, cockroaches, and animal dander.
- Children with asthma may cough, wheeze, or have no symptoms at all depending on how much air is moving at that time. Cough can be one of the first symptoms that the child experiences when asthma is acting up. Wheezing that can be heard also means there is a problem.
- If the child’s airway is badly blocked, nothing might be heard, but the child will look like she is having trouble breathing.
- Asthma can and should be controlled. A child whose asthma is under control will look like any other child, be able to play normally, and only rarely have asthma symptoms. This is one of the goals of asthma care—to have the child live a normal life. Luckily, with good asthma care, this is possible for most children with asthma.
- A key component of good asthma control is management education for parents and self-management education for older school-aged children. Caregivers/teachers should support older children in self-managing their asthma, which includes recognizing symptoms and permitting those children with adequate knowledge, skills, and behaviors to carry and administer quick-relief medication (see “When Should Students With Asthma or Allergies Carry and Self-Administer Emergency Medications at School?” in Chapter 11 on page 173).
- Children who require frequent quick-relief medication for symptoms may need better controller medications. Use of quick-relief medication and any symptoms that keep children from fully participating in activities should be documented. This information is important to give to parents/guardians so they can share it with the child’s prescribing health care professional.

What are some elements of a Care Plan for asthma?

- The Asthma Action Plan is a specialized Care Plan for children with asthma.
- Asthma Action Plans should include a list of the child’s asthma triggers and which things to avoid. It should be updated after hospitalizations, emergency visits, child absences for illness, and changes in medications. Samples of Asthma Action Plans can be found in Chapter 11.
- Asthma Action Plans are usually designed with 3 zones based on a traffic light—red, yellow, and green.
  ~ **Green zone** is the plan when the child is doing well and includes any controller medications that the child needs to take to stay healthy (see “Medications”).
  ~ **Yellow zone** outlines the plan if the child begins to develop symptoms such as cough and the plan for quick-relief medications (see “Medications”).
  ~ **Red zone** is the trouble area when the child needs prompt and vigorous treatment.
- Older children may use a peak flow meter to monitor their airway health. Peak flow numbers can be used to determine when children should take their quick-relief medication and to monitor how they are doing at different times of the day.

What adaptations may be needed?

**Medications**

- Asthma medications are often categorized as **controller** or **quick relief**. These 2 types are used together for better asthma control.
- Controller medications
  ~ Fight the inflammation and keep the airways open.
  ~ The most common controller medications are inhaled steroids, which are typically given by parents/guardians at home.
  ~ There are few side effects of these medications, but the mouth should be rinsed after taking inhaled steroids to avoid thrush, a yeast infection of the mouth lining.
  ~ Sometimes the child will take oral steroids, like prednisone, by mouth for a short period.
Asthma, continued

~ Side effects of oral steroids include mood swings, increased appetite, nausea, weight gain, and behavior changes. If taken over a longer period, the immune system can be suppressed.

• Quick-relief medications
  ~ Relieve the muscle spasm to allow better airflow on a temporary basis.
  ~ Sometimes are referred to as rescue medications, but this terminology is not preferred because it can imply waiting until symptoms are bad.
  ~ The most common quick-relief medications are beta agonists such as albuterol. Side effects include jitteriness, fast heart rate, and hyperactivity. Some children will be sleepy after a treatment.

~ Albuterol can be administered in different ways.
  ❖ Nebulizers—machines that drive air through liquid medication and make it into a mist that can be inhaled. Typically it takes 5 to 10 minutes to complete a treatment using a nebulizer.
    – Younger children may use a mask over their mouth and nose to get medication; older children may breathe through a mouthpiece.
    – The delivery device and its tubing should be cleaned regularly and dried completely.
    – Some children dislike nebulizer treatments and may need a distraction such as reading a book or watching a video.
  ❖ Metered-dose inhalers and spacers—most people lack the coordination to properly use a metered-dose inhaler and will get a better dose of medication if they use a spacer device. Typically, the child must have the device placed properly and then take several breaths to complete the treatment.

~ Quick-relief medications should be available for children with asthma to use if they need it while they are at school or child care.

~ The ways to recognize that the child needs treatment with a quick-relief medication should be clearly stated in lay language in the Care Plan (see Sample Asthma Action Plan in Chapter 11 on page 167).

• As always, expiration dates of medications should be checked regularly and medications should be stored in a safe location. The number of puffs used should be documented and a cumulative count kept, ensuring that medication is still in the inhaler.

• Children with asthma are especially vulnerable to respiratory infections. All children should get a flu shot every year, but especially those with asthma.

Dietary considerations
Diet may need to be modified for children with asthma who have food allergies.

Physical environment
• Indoor environment—be tobacco free; control mold and mildew by fixing any water leak quickly; avoid furry or feathered pets; clean frequently; use integrated pest management to limit pesticide use and pests; use dust covers for bedding; ensure good ventilation; change air filters frequently; and avoid strong perfumes or scented cleaning products.

• Outdoor play—be aware of ozone and pollen levels. Extremes of air temperature can sometimes be a problem but should be balanced with the child’s need to run and play outdoors. These are good issues to problem solve with parents/guardians and health care professionals. Children with exercise-induced asthma may need to use their albuterol inhaler before physical activity.
**Transportation considerations**

- Consider how to handle respiratory distress that develops during transportation to and from school or child care settings if transportation is not done by parents.
- If the child’s asthma is temperature sensitive, be aware of vehicle temperatures and take time to use heat or air conditioning to stabilize the temperature as necessary before the child enters the vehicle.

**What should be considered an emergency?**

- Notify parents/guardians if
  ~ Symptoms do not improve with one dose of prescribed quick-relief medication.
  ~ Two or more doses of quick-relief medication have been needed during the day.
- Always notify parents about any asthma symptoms, even when they do not reach the level that constitutes an emergency, so that parents can work with the child’s health care professional to monitor the control of the child’s asthma and keep the symptoms under good control. A daily symptom checklist can be a good communication tool to use with parents.
- Call emergency medical services/911 for
  ~ Severe breathing problems such as struggling to breathe, or pulling in at the neck or under the rib cage with every breath.
  ~ Child is having difficulty talking or walking.
  ~ Lips or fingernails are turning blue.
  ~ Symptoms are not improving after a second dose of quick-relief medication.
- Keep emergency contact information updated at all times.

**What types of training or policies are advised?**

- Preventing exposure of the child to asthma triggers.
- Recognizing the symptoms of an acute asthma episode.
- Treating acute episodes including the purpose of treatment, expected response, and possible side effects. Caregivers should be able to assist and supervise the child during the treatment.
- Using health consultants for training.
- Look for asthma coalitions in your area.
- Work as a team.
- Track absences and early dismissals.
- There should be a clear policy about exclusion and readmission for active wheezing.
Asthma, continued

What are some resources?

- Centers for Disease Control and Prevention, www.cdc.gov/HealthyYouth/asthma/strategies.htm
- Asthma and Allergy Foundation of America, www.aafa.org
- National Institute of Allergy and Infectious Diseases, www3.niaid.nih.gov

The information contained in this publication should not be used as a substitute for the medical care and advice of your pediatrician. There may be variations in treatment that your pediatrician may recommend based on individual facts and circumstances.
Cerebral Palsy

What is cerebral palsy?

• Cerebral palsy, also known as CP, is a condition caused by brain injury that interferes with messages from the brain to the body; this affects movements and muscle coordination.
• The term cerebral refers to the brain, and palsy means weakness or problems using muscles.

How common is it?

• Each year 8,000 infants and nearly 1,500 preschoolers are diagnosed with CP.
• About 500,000 people in the United States have some form of CP, making this a very common condition.

What are some characteristics of children with cerebral palsy?

• Children may have mild, moderate, or severe CP.
  ~ Children with mild CP may appear to be a little clumsy and have specific difficulties with arm or leg muscle control.
  ~ Children with moderate CP may need adaptive equipment such as leg braces, and may walk with a limp or on their toes.
  ~ Children with severe CP may need a wheelchair or walker to get around.
• There are different types of CP.
  ~ Children with spastic CP, the most common form, have too much muscle tone or tightness. Their legs may come together, for example, when they are picked up, in a manner that is referred to as scissoring. They may walk on their toes or in a crouch.
  ~ Children with dystonic CP have difficulty controlling their movements; this causes unusual postures or twisting of their arms or legs that make it hard for them to use their hands or to walk.
  ~ Children with mixed CP have muscles that may be spastic, dystonic, or both. These children may have uncontrolled movements.
• Some children with CP have problems with seeing, hearing, or speaking.
• Children with CP mostly have normal intelligence, but some have intellectual or learning disabilities.
• The muscle problems that children with CP have can often improve with therapy; CP doesn’t get worse over time, and most of these children will live as long as their peers.

Who is the treatment team?

• Treatment team members may include the primary care provider, an orthopedist, a pediatric neurologist, and a developmental pediatrician or physical medicine specialist.
• Many children with CP can benefit from different kinds of therapy.
  ~ Physical therapy helps children work on gross-motor skills such as sitting, walking, or balance.
  ~ Occupational therapy helps children develop fine-motor skills necessary for feeding, writing, or dressing.
  ~ Speech therapy is important for children who may need to have the muscles around their face, throat, or tongue strengthened for communication or eating.
• Sometimes medicines or surgery can help lessen the effects of CP.
• Children who are younger than 3 years may receive these therapies through early intervention services. Early intervention is a system of services to support infants and toddlers with disabilities and their families.
• For children 3 years and older, special education and related services are available through the public schools to provide the therapies necessary for school achievement.

Children with CP are more likely to have seizures. If that is the case, see the Seizures, Non-febrile (Epilepsy) Quick Reference Sheet (page 125) for more details.
Cerebral Palsy, continued

What are some elements of a Care Plan for cerebral palsy?

Care Plans may include
- Incorporating physical, speech, or occupational therapy exercises into the child’s daily routine. These plans may include the use of splints, braces, communication devices, or adapted toys to help children be more active, participate more, and have fun while they are working their bodies.
- A written plan called the Individualized Family Service Plan will be provided for children in early intervention.
- An Individualized Education Program will describe an older child’s unique needs and the services available to address them.

What adaptations may be needed?

Medications
- Some children with CP will have muscle relaxants prescribed.
- Others will get injections done at a specialized treatment center to help relieve muscle spasms.
- If a child with CP has a seizure disorder, she may be taking antiseizure medicines. See the Seizures, Non-febrile (Epilepsy) Quick Reference Sheet on page 125 for more details.

Dietary considerations
- Children with CP may need a softer or smoother diet if the CP affects their swallowing muscles.
- Depending on the severity of the CP, they also may require extra time and more assistance with meals and snacks than their peers.
- Some children may need a feeding tube.

Physical environment
Develop strategies for accommodating children with cerebral palsy. Suggestions include
- Focus on the individual child and learn firsthand what capabilities and needs he has. Sometimes the physical appearance of a child with CP can give the wrong impression about his ability to learn.
- Remember that despite their physical disabilities, about two thirds of all children with CP have normal intelligence.
- Ask individuals who have cared for children with CP about strategies to help them best learn, and become knowledgeable about different learning styles. Some children will use different techniques such as communication boards to learn.
- Ask the treatment team for tips on how to best adapt lessons and daily routines for the child to develop active learning.
- Work with the physical, occupational, and speech therapists to learn strategies that can best help the child with CP while attending the program or class.

What should be considered an emergency?

- Children with CP may need extra time, supervision, or transport in case of an emergency such as a fire.
- Any critical adaptive equipment would also need to be brought in the event of an evacuation.

What are some resources?
- United Cerebral Palsy, www.ucp.org, 800/872-5827
- Easter Seals, www.easter-seals.org, 800/221-6827
Premature Newborns (Preemies): An Overview

What is a premature newborn (preemie)?

• Premature newborns (preemies) are babies who are born early. A premature newborn is one who is born before 37 weeks of pregnancy; a preemie can be very early (after only 6 months of pregnancy) or older (after 8 months), but both may have problems that result in the need for specialized care.
• Many newborns who are born prematurely will need neonatal intensive care after birth, and some continue to face challenges or health issues throughout childhood.

How common is premature birth?

One in 8 babies (12.7%) was born prematurely (less than 37 weeks’ gestation) in 2005. Of live births, 2% were born very preterm (less than 32 weeks).

What are some characteristics of premature newborns?

Some of the most common long-term problems faced by preemies are
• Lungs
  ~ The lungs of premature newborns are often not ready to function and can suffer damage during necessary treatment. This form of lung disease is called bronchopulmonary dysplasia (BPD). Many very premature babies with BPD will be discharged from the hospital with supplemental oxygen, often to be used for 6 to 12 months.
  ~ Parents and care providers need to learn how to use oxygen tanks and associated monitors as they provide these newborns with usual life experiences.
  ~ Long-term treatment of BPD overlaps with asthma treatment. (See Asthma on page 65 for more details.)
• Apnea
  ~ When a baby stops breathing, it is called apnea. Premature babies can have apnea because the part of the brain responsible for breathing is immature.
  ~ In most cases, apnea goes away when newborns reach the age when they would have been born (40 weeks after conception). Rarely does this problem continue after hospital discharge, but in selected cases, babies may be sent home on an apnea monitor, which sounds an alarm warning for changes in breathing or heart rate.
  ~ Sometimes apnea can be related to gastroesophageal reflux, which requires specific treatment. (See Gastroesophageal Reflux Disease [GERD] on page 91 for more details.)
• Central nervous system
  ~ Some babies may have brain injuries associated with premature birth, including bleeding into the brain, which can lead to hydrocephalus (water on the brain), cerebral palsy, or other developmental disabilities.
  ~ All premature newborns need close monitoring for developmental problems during infancy and some may need specialized therapies to improve their functional ability. Please see Cerebral Palsy on page 79 and Hydrocephalus and Shunts on page 111 for more information.
• Vision
  ~ There can be an overgrowth of blood vessels in the back of the eye in premature newborns that can pull on the delicate lining of the eye called the retina. The retina is the part of the eye responsible for vision.
  ~ Sometimes this condition resolves on its own as the baby grows; sometimes it causes permanent vision loss.
  ~ Babies may require laser surgery to stabilize the condition. Even those preemies who do not require surgery have an increased need for glasses as they get older.
  ~ Premature newborns should have regularly scheduled eye examinations throughout infancy and childhood. (See Visual Impairments on page 139 for more details.)
Premature Newborns (Preemies): An Overview, continued

• **Hearing**
  ~ Premature newborns face multiple risk factors for hearing loss. Most babies have their hearing tested before they leave the neonatal intensive care unit (NICU), but they may need periodic testing as they get older as well. (See Hearing Loss and Deafness on page 95 for more details.)

• **Gastrointestinal**
  ~ Some babies have an intestinal infection in the NICU that can damage the bowel, and sections of bowel may need to be surgically removed. This can leave a baby with short gut syndrome, which makes it hard for the newborn to digest food properly.
  ~ Babies with short gut may need small, frequent feedings and a special diet.

• **Blood**
  ~ Some premature newborns become anemic (low red blood cell count). They may require blood transfusions while in the NICU or may need iron and extra vitamins.

• **Nutrition**
  ~ Premies frequently need special formula or fortified breast milk early on to grow properly.
  ~ Some babies continue to have growth and feeding challenges that may require occupational, speech, or feeding therapies, and in some cases, use of feeding devices.

• **Infection**
  ~ Premies may be vulnerable to infections in the first year of life. The most serious are usually viral infections such as flu or respiratory syncytial virus (RSV) that attack the lungs.

• **Development**
  ~ The development of premature babies can vary.
  ~ Some preemies catch up quickly and do things like walk and talk at the same time as their peers who were born at term after a full 9 months. Others may lag behind their peers until 2 or 3 years of age.
  ~ Some preemies have permanent neurologic damage and developmental delays, which are usually apparent early in infancy.
  ~ Other preemies, without clearly defined neurologic injuries, show more subtle educational and behavioral problems as they get older. Early childhood experiences may lessen the risk of these problems.
  ~ Preemies may be small for their age and have long, narrow heads from the pressure on the soft skull bones.
  ~ Some preemies are poor feeders and grow slowly in weight and height.

Who is the treatment team?

• Preemies will often be followed by a special neonatal follow-up team at the hospital where they were in the NICU. Neonatal follow-up teams might include neonatologists, developmental specialists, and neonatal nurse practitioners.
• Speech, occupational, physical, and respiratory therapists might also be involved in the baby’s care.
• Social workers are available to help parents cope with family and social issues.
• These teams may monitor preemies for developmental delays or apnea, or might give special medications like those listed under “Medications.”
• Preemies might need to see subspecialists such as pediatric ophthalmologists (eye doctors), pulmonologists (lung doctors), neurologists (brain doctors), or gastroenterologists (stomach and intestine doctors).
• Audiologists (hearing specialists) may be needed to monitor hearing over time.

What adaptations may be needed?

**Medications**

• Premature newborns should receive immunizations on the same schedule as their term peers.
• In addition, they may receive special injections (palivizumab/Synagis) during winter months for their first year to strengthen their immune system’s ability to fight off RSV.
• There are no other routine medications given to premature infants, but those with BPD may receive medications for wheezing, diuretics (water pills), and supplemental oxygen.

**Dietary considerations**

• Give preemies extra time to eat and digest their food if necessary.
• Some preemies may be on special infant formulas or breast milk fortifiers.

**Physical environment**

• Find out from parents what challenges their child had from being born prematurely and what challenges still exist.
• Check out the Quick Reference Sheets in this book related to the specific problem that the child still faces such as apnea, GERD, cerebral palsy, or visual or hearing impairments.
• Exposure to colds and respiratory illnesses can be a problem for premature babies with lung disease. Preemies without lung disease will likely do better when faced with respiratory infections. With premature newborns with lung
Premature Newborns (Preemies): An Overview, continued

- Premature newborns often have a complex medical history after a long newborn hospitalization. Assessment during an emergency department visit may be difficult if that background information is not readily available. The program should have a copy of pertinent medical history in the event the child must be taken to the hospital for immediate evaluation.

What types of training or policies are advised?

- Pediatric first aid training that includes CPR (management of a blocked airway and rescue breathing) with instructional demonstration and return demonstration by participants on a manikin. Pediatric First Aid for Caregivers and Teachers is a course designed to teach these skills.
- Specific training related to care, especially apnea monitor training.

What are some resources?

- March of Dimes, www.marchofdimes.com
- Emory University School of Medicine Developmental Progress Clinic On-line Resource Center, www.pediatrics.emory.edu/neonatology/dpc

What should be considered an emergency?

Premature babies often have a long hospitalization. Assessment during an emergency department visit may be difficult if that background information is not readily available. The program should have a copy of pertinent medical history in the event the child must be taken to the hospital for immediate evaluation.

- Premature newborns are at increased risk for sudden infant death syndrome (SIDS). Be sure to place babies to sleep on their backs. A preemie may be even more susceptible to SIDS when placed asleep on his tummy than a term baby.
- Remember to adjust developmental expectations to account for the baby’s prematurity (e.g., a baby born 2 months early should be acting like a 4-month-old when she is 6 months old).
- Let parents/guardians know if the program staff has any concerns about a baby’s hearing or vision, especially if the baby was born prematurely.