



*Rule 59 Protocol: Emergency Response to Life-Threatening Asthma or Systemic Allergic Reactions (Anaphylaxis)*

**Education Plan & Curriculum**  
**For**  
**School Emergency Response Teams**

2<sup>nd</sup> Edition - 2007



## *Acknowledgments*

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## **RATIONALE**

### **ASTHMA**

Asthma is the most common chronic childhood disease, accounting for the majority of school absences and missed-work days for parents. Even so, asthma is often under-diagnosed or called by another name such as reactive airway disease (RAD) or recurrent bronchitis.

The last study done in Nebraska by the Department of Health & Human Services was published in 2001 and compiled data from 1987 – 1998. In 1998 there were:

- 1,254 – number of emergency room visits for children ages 5-14 yrs in 1998
- 111 – number of deaths (all ages combined) for 1996-1998
- 606 – number of hospitalizations (in-patient discharges) ages 0-34 yrs in 1998 (369 were for children 0-14 yrs)
- 21,515 office visits due to asthma for Medicaid-enrollees in 1998

The National Health, Lung, and Blood Institute reports that annual asthma-related healthcare costs were estimated at \$14 billion in 2002. There is no doubt that asthma affects quality of life, school performance and the ability to thrive. Asthma affects us all.

### **ANAPHYLAXIS**

According to the Food Allergy & Anaphylaxis Network, recent reports show that as many as 20% of all first-time anaphylaxis episodes (due to food or insect allergy) will occur at school. In fact, individuals that have asthma in addition to food allergies may be at increased risk for having a life-threatening reaction to food. Food allergy is believed to be the leading cause of anaphylaxis outside the hospital setting – approximately 30,000 emergency room visits annually.

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There is no cure for asthma or anaphylaxis, but both conditions can be well managed and the affected individual can be expected to lead a full life. Unfortunately, many parents don't understand the importance of informing the school that the child has asthma or an allergy. This may be due to a multitude of factors, to include, denial of diagnosis, misunderstanding the need for prescribed medications, fear of medication side effects, cultural differences towards disease and treatment and other reasons. This underlines the need for education, not just of the immediate and extended family of the diagnosed child, but includes those people and environments where the child spends time – schools, recreation centers, daycares, camps, etc.

To this end, Attack On Asthma Nebraska was formed to help support the protocol, *Emergency Response to Life-Threatening Asthma or Systemic Allergic Reactions (Anaphylaxis)* that all schools – public, parochial and private – are required to adopt and implement. (NDE - Title 92 NAC Chapter 59)



## **Attack On Asthma Nebraska**

Attack on Asthma Nebraska is partnering with the Nebraska Department of Education to provide education, training and medications for implementation of the protocol *Emergency Response to Life-Threatening Asthma or Systemic Allergic Reactions (Anaphylaxis)*. The Nebraska State Board of Education mandated this protocol in a unanimous vote on May 2, 2003 for implementation by May of 2004. All accredited public schools, approved nonpublic schools and early childhood education programs established by school boards or educational service units are required to train staff members as emergency responders.

Through collaborative partnerships with physicians, nurses, pharmacists, public health professionals, school district administration and staff, parents, state/local agencies, and community health organizations, Attack on Asthma Nebraska emphasizes comprehensive asthma and allergy awareness, education and medical treatment.

### **VISION**

We believe that no child should die at school from an asthma attack or severe allergic reaction.

### **MISSION**

To ensure Nebraska schools have the education, training and medications to respond to anyone experiencing a life-threatening asthma or anaphylaxis emergency at school.

### **GOALS**

We will meet our mission by:

- Supporting collaborative partnerships among medical and allied health professionals, school district administration and staff, parents, state/local agencies, and community health organizations;
- Emphasizing comprehensive asthma and allergy awareness, education and medical treatment;
- Encouraging community ownership of each school district's emergency plan;
- Promoting philanthropic contributions from corporate, foundation, government and individual donors.

**Protocol:**  
**EMERGENCY RESPONSE TO LIFE-THREATENING ASTHMA OR SYSTEMIC ALLERGIC REACTIONS (ANAPHYLAXIS)**

**DEFINITION:** Life-threatening asthma consists of an *acute episode of worsening airflow obstruction. Immediate action and monitoring are necessary.*

A systemic allergic reaction (anaphylaxis) is a severe response resulting in cardiovascular collapse (shock) after the injection of an antigen (e.g. bee or other insect sting), ingestion of a food or *medication*, or exposure to other allergens, such as animal fur, chemical irritants, pollens or molds, among others. The blood pressure falls, the pulse becomes weak, **AND DEATH CAN OCCUR.** Immediate allergic reactions may require emergency treatment and medications.

**LIFE-THREATENING ASTHMA SYMPTOMS:** Any of these symptoms may occur:

- Chest tightness
- Wheezing
- Severe shortness of breath
- Retractions (chest or neck “sucked in”)
- Cyanosis (lips and nail beds exhibit a grayish or bluish color)
- Change in mental status, such as agitation, anxiety, or lethargy
- A hunched-over position
- Breathlessness causing speech in one-to-two word phrases or complete inability to speak

**ANAPHYLACTIC SYMPTOMS OF BODY SYSTEM:** Any of the symptoms may occur within seconds. The more immediate the reactions, the more severe the reaction may become. Any of the symptoms present requires several hours of monitoring.

- Skin: warmth, itching, and/or tingling of underarms/groin, flushing, hives
- Abdominal: pain, nausea and vomiting, diarrhea
- Oral/Respiratory: sneezing, swelling of face (lips, mouth, tongue, throat), lump or tightness in the throat, hoarseness, difficulty inhaling, shortness of breath, decrease in peak flow meter reading, wheezing reaction
- Cardiovascular: headache, low blood pressure (shock), lightheadedness, fainting, loss of consciousness, rapid heart rate, ventricular fibrillation (no pulse)
- Mental status: apprehension, anxiety, restlessness, irritability

**EMERGENCY PROTOCOL:**

1. **CALL 911**
2. Summon school nurse if available. If not, summon designated trained, non-medical staff to implement emergency protocol
3. Check airway patency, breathing, respiratory rate, and pulse
4. Administer medications (EpiPen® and albuterol) per standing order
5. Determine cause as quickly as possible
6. Monitor vital signs (pulse, respiration, etc.)
7. Contact parents immediately and physician as soon as possible
8. Any individual treated for symptoms with epinephrine at school will be transferred to medical facility

**STANDING ORDERS FOR RESPONSE TO LIFE-THREATENING ASTHMA OR ANAPHYLAXIS:**

- Administer an IM EpiPen®-Jr. for a child less than 50 pounds or an adult EpiPen® for any individual over 50 pounds
- Follow with nebulized albuterol (premixed) while awaiting EMS. If not better, may repeat times two, back-to-back
- Administer CPR, if indicated

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## OVERVIEW

Attack on Asthma Nebraska prepared this Education Plan and Curriculum for Nebraska schools to be prepared to administer the protocol, *Emergency Response to Life-Threatening Asthma or Systemic Allergic Reactions (Anaphylaxis)*. The expected outcome of this protocol is no deaths and identification of undiagnosed students. It contains a standard curriculum that can be augmented with handouts and other resources contained in this publication.

Training of “Emergency Response Teams” in the administration of epinephrine and albuterol should be conducted in accordance with the Nebraska Medication Aide Act (Neb. Rev. Stats 71-6718 to 71-6742). See related regulations at Title 172 NAC Chapters 95 & 96 and Title 92 NAC Chapter 59.

**Nebraska Medication Aide Act** – [www.hhs.state.ne.us/CRL/statutes/mastat.pdf](http://www.hhs.state.ne.us/CRL/statutes/mastat.pdf)

**Title 172 NAC Chapter 95 -**

[www.sos.state.ne.us/business/regsearch/Rules/Health and Human Services System/Title-172/Chapter-95.pdf](http://www.sos.state.ne.us/business/regsearch/Rules/Health_and_Human_Services_System/Title-172/Chapter-95.pdf)

**Title 172 NAC Chapter 96 –**

[www.sos.state.ne.us/business/regsearch/Rules/Health and Human Services System/Title-172/Chapter-96.pdf](http://www.sos.state.ne.us/business/regsearch/Rules/Health_and_Human_Services_System/Title-172/Chapter-96.pdf)

**Title 92 NAC Chapter 59 –** [www.nde.state.ne.us/LEGAL/CLEANRULE59.pdf](http://www.nde.state.ne.us/LEGAL/CLEANRULE59.pdf)

**Civil Liability Immunity** – [www.unicam.state.ne.us](http://www.unicam.state.ne.us) , search – 25-21,280

In order to ensure continuous coverage throughout the school day, it is recommended that at least three (3) staff members per building be designated as the Emergency Response Team and receive training on the protocol. Members of the Emergency Response Team must also be trained in CPR and should be on the premises during normal school hours (use of “itinerant” staff is discouraged).

All staff members having contact with students should be made aware of the protocol and the school’s emergency procedures (who to contact, what to do, location of emergency medications and supplies). An introduction to asthma and anaphylaxis is also provided, *Asthma & Anaphylaxis: A Primer for Schools*; schools should distribute this information and discuss it during meetings or in-services.

Students that have been administered the protocol should return to school with medical clearance, a new or updated asthma/allergy action plan and medication(s) as ordered by the physician. This is also recommended for staff having been administered the protocol. With the increase in education and awareness of the potential life-threatening complications of asthma and allergies, it is our vision that no one should die at school from a life-threatening breathing emergency.

Nebraska Emergency Medical Services (EMS) units now have the education available for administering epinephrine and albuterol with the approval from their local medical director. You are urged to contact your local EMS unit on a regular basis and discuss their capabilities. Schools are encouraged to involve their local EMS responders in school emergency protocol training.

## EDUCATION

### **General Education for all School Staff**

A general education brochure, *Asthma & Anaphylaxis: A Primer for Schools*, is provided in this publication and as a .pdf file for download ([www.attackonasthma.org](http://www.attackonasthma.org)). A PowerPoint presentation can also be found in this publication and on-line. It is essential that all school personnel understand the very serious nature of both asthma and anaphylaxis, and how to appropriately respond in the event of a life-threatening breathing emergency. School nurses, healthcare educators and professionals, and other community volunteers can present this information during staff meetings or in-services. A general education session for all staff takes 30-45 minutes.

### **Training for Emergency Response Team**

The curriculum specific to the protocol includes:

- Overview of protocol.
- Basic principles of asthma and anaphylaxis.
- Signs and symptoms of respiratory distress/breathing emergency.
- Determination of medical emergency – calling 911.
- Administration of epinephrine using an EpiPen® (trainer & video provided).
- Procedure for using a nebulizer to administer albuterol.
- Monitoring respirations and circulation/heart rate.
- Implementing CPR as needed.
- Documentation and reporting.

Qualified trainers for the emergency response team may include the following: RN's, LPN's with supervision by RN or MD, MD's, RT's and Paramedics.

***The Nebraska Department of Education and Attack On Asthma Nebraska recommend that both general education and Emergency Response Team training be done annually.***

The individual who has completed training and is deemed competent by a qualified trainer to implement the protocol is qualified to respond to an apparent life-threatening breathing emergency at school and correctly provide epinephrine by EpiPen® and albuterol by nebulizer as described in the emergency medication protocol. Thus both training and qualifications are limited specifically to the emergency medication protocol for life-threatening breathing emergencies. Becoming qualified to provide any students with any other medications, by any other routes, requires additional preparation and competency determination.

In Nebraska medication competency is assessed by a licensed health care provider within whose scope of practice falls medication administration by an individual recipient who is not a minor (not applicable to schools) or by a caregiver/guardian for an individual child (not applicable to the emergency medication protocol because an individual child is not specified).

## ANNUAL CHECKLIST

This booklet provides the structure for educating and training all school staff (including the designated “Emergency Response Team”) and is offered as a resource for Nebraska schools. In addition, the following checklist is recommended:

✓	TASK
	Distribute brochure, <i>Asthma &amp; Anaphylaxis: A Primer for Schools</i> to all staff and review during meetings/in-services.
	An annual review of the protocol with a signing physician(s) is recommended.
	Identify staff members to serve as “Emergency Response Team” (recommended: 3 personnel per school building) who are trained in CPR. Arrange for CPR training of team members, if necessary.
	Schedule education/training of “Emergency Response Team” with Qualified Trainer – RN’s, LPN’s with supervision by RN or MD, MD’s, RT’s and Paramedics. (Curriculum pg. 13)
	Maintain nebulizer compressor (with masks/tubing & training video).
	Maintain EpiPen®, EpiPen® Jr. and albuterol per protocol.
	Maintain a portable container for medications and nebulizer; to be kept in safe and accessible area, and clearly marked “Emergency Use Only.” Include pens and reporting/monitoring forms in container (see recommended list pg. 12).
	Display protocol posters.
	Inform all school staff of protocol, identity of “Emergency Response Team” and proper procedures for emergency (i.e. protocol must be followed exactly as written).
	Inform parents of protocol and its purpose. <i>Note: the school’s EpiPen® and albuterol do not replace a child’s own prescribed medications for asthma/allergy control and management. Parents are expected to ensure their children continue to have available at school their personal inhaled medications and/or auto-injectable epinephrine, etc. and to have an Asthma/Allergy Action Plan or emergency medical plan on file with the school.</i> Template for letter is online at <a href="http://www.attackonasthma.org">www.attackonasthma.org</a> .
	Complete Emergency Report Form (may download updated form from website) any time the protocol is followed and Rule 59 medications are used. Send copy to Attack on Asthma Nebraska within 14 days.
	Replace EpiPen® and albuterol as used or when expired.
	Replace nebulizer masks/tubing as used or needed.
	Provide general staff education and “Emergency Response Team” review annually. Practice drills with the “Emergency Response Team” are recommended semi-annually.

## MATERIALS & SUPPLIES

### Educational Materials

Attack on Asthma Nebraska has developed or made available the following:

- Education Plan and Curriculum for School Emergency Response Teams (“Green Book”)
  - PowerPoint presentations for all staff and Emergency Response Team training (Appendix E and available to download from [www.attackonasthma.org](http://www.attackonasthma.org))
  - Asthma & Anaphylaxis: A Primer for Schools
  - Additional Resources/References
- Asthma & Anaphylaxis: A Primer for Schools brochure (in this book or available to download from website)
- Protocol Posters/ EpiPen® trainer & DVD (Eng/Span) available upon request
- Skills Card for emergency container

### Medical Supplies

The following medical supplies are required for each building:

- Portable container for emergency supplies (labeled “Emergency Use Only”)
- EpiPen® and/or EpiPen® Jr. - each building needs to have an EpiPen®. If a building has students weighing 50 lbs or less, i.e. elementary, an EpiPen® Jr. is also required
- Nebulizer compressor with masks and tubing
- Albuterol (3 vials per school building)

***Other container supplies should include: copy of protocol, protocol skills card, current Emergency Report Form, pens and Medication Monitoring Form.***

***Additionally recommended are gloves, CPR face shield, paper, CPR & First Aid skills cards, Student Health Alert information to include corresponding action plans, gauze squares (4 X4)***

### Care, Storage & Disposal of Medication

- Medication must be monitored, kept current and disposed of appropriately
- EpiPens® and albuterol must be kept at a controlled room temperature (59-86°F), protected from light, freezing or extreme heat. **DO NOT REFRIGERATE!**
- Medication should be stored in a safe area, accessible to all staff, using a convenient transportable container clearly labeled “Emergency Use Only”
- ***Check for color of drug:***
  - Albuterol: do not use solution if it is brown or darker than slightly yellow. Do not use if pinkish in color. Do not use if it contains a precipitate (particles in the solution)
  - Epinephrine (EpiPen®): do not use if it is brown or pink. Do not use if it contains a precipitate (particles in the solution)
- ***Confirm expiration date:*** Check with local pharmacists to obtain medications that will remain “in date” for 12-15 months or more. A Medication Monitoring Form to help with keeping track of medication expiration dates can be found on page 37
- ***Disposal of Outdated EpiPens®:*** All expired EpiPens® must be disposed of in a sharps container. If none available, take expired EpiPens® to a medical facility for proper disposal. **NEVER** dispose of EpiPens® in the regular trash.

## CURRICULUM

### Summary of Objectives

At the conclusion of this training, Emergency Response Team members will be able to:

1. Define life threatening asthma and anaphylaxis.
2. Describe the signs and symptoms of life threatening asthma and anaphylaxis.
3. Identify the Nebraska Medication Administration Competencies.
4. List the steps to be taken in an emergency as outlined in the protocol.
5. Demonstrate how to use an EpiPen®.
6. Demonstrate how to administer a nebulized albuterol treatment.
7. Document pertinent information on the Emergency Report Form.
8. Complete a written test.

### Timeline

The Curriculum for Emergency Response Team can be completed in 1-2 hours. It is vital the Emergency Response Team members leave this training confident in their knowledge and abilities. Enough time should be set aside to allow for discussion and review, as necessary.

#### **Objectives 1 - 4** (30 minutes to 1 hour)

1. Overview of protocol and civil liability immunity.
2. Define life threatening asthma and anaphylaxis.
3. Describe the signs & symptoms of life threatening asthma & anaphylaxis.
4. List the steps to be taken in an emergency as outlined in the protocol.

#### **Objectives 5 - 9** (30 minutes to 1 hour)

5. Demonstrate how to use an EpiPen®.
6. Demonstrate how to administer a nebulized albuterol treatment.
7. Document pertinent information on the Emergency Report Form.
8. Complete a written test, skills demonstrations and Documentation of Competencies form.

***The above timeline does not include additional time required for CPR training or re-certification. If a school has staff members already trained in CPR, it is suggested these individuals be considered for selection as the emergency response team.***

### Suggestions for Trainers

1. Keep the training brief, simple and to the point.
2. Avoid using medical and nursing terms (see Glossary on pg. 31).
3. Allow time for re-demonstration, questions and answers.
4. Emphasize the protocol must be followed exactly as written. Unlicensed school personnel are not permitted to make independent decisions regarding choice/administration of medications in an emergency situation or in the absence of an emergency care plan or asthma/allergy action plan.
5. Be reassuring. Asking a non-medical person to administer medication in an emergency is a tremendous responsibility. Try to alleviate any apprehensions.
6. Encourage schools to incorporate response to breathing and other medical emergencies into existing building crisis response plans and documents. Notify all school staff the identities of the Emergency Response Team members who have been trained in implementing the protocol.

## **Emergency Response Team Curriculum**

Forms and other resources start on page 43. Download PowerPoint presentation from [www.attackonasthma.org](http://www.attackonasthma.org). Copies of PowerPoint slides and Notes Pages are available in Appendix E for ease of presentation.

- 1. Overview of protocol and civil liability**
- 2. Define life-threatening asthma and systemic allergic reactions (anaphylaxis)**
- 3. Describe the signs/symptoms of life-threatening asthma and anaphylaxis**
  - A. Review *What Is Asthma*, *What Is Anaphylaxis*, and/or PowerPoint presentation for Emergency Response Teams.
- 4. List the steps to be taken in an emergency as outlined in the protocol**
  - A. Stress importance of calling 911 *immediately*.
  - B. Review ABC's - monitoring for presence of respirations and circulation.
  - C. Review 5 R's for Administering Medication (page 28).
  - D. Reinforce that anyone treated at school using the protocol will be transferred to a medical facility.
- 5. Demonstrate how to administer an EpiPen®**
  - A. Review criteria for administering EpiPen® and EpiPen® Jr., possible side effects and expected outcome if EpiPen® is administered (page 29).
  - B. Optional: show EpiPen® video/DVD.
  - C. Demonstrate procedure for administration using EpiPen® trainer.
  - D. Have participants return demonstration.
  - E. Discuss needle stick prevention, reporting and needle contamination.
  - F. Stress importance of giving used EpiPen® to EMS for transport with patient.
- 6. Demonstrate how to administer a nebulized albuterol treatment**
  - A. Review purpose and effects of albuterol (page 30).
  - B. Demonstrate how to set up and use a nebulized breathing treatment.
  - C. Have participants return a demonstration (distilled water can be used for demonstration purposes).
- 7. Document pertinent information on Emergency Report Form**
  - A. Review Emergency Report Form (pages 39-40).
  - B. Stress importance of accuracy.
- 8. Complete written test and Documentation of Competencies form**
  - A. Administer written test.
  - B. Review answers to test – 80% or above, at least 11 correct answers, is recommended.
  - C. Sign test and Documentation of Competency Forms.
  - D. Schools shall maintain written Documentation of Competency Forms for, at least, two years.

## **DOCUMENTATION OF COMPETENCIES**

Upon completion of written test and demonstration of skills, the qualified trainer is to complete a Documentation of Competencies form (Appendix B). This documentation should then be maintained for, at least, two years.

## **DOCUMENTATION OF PROTOCOL USE**

The Emergency Report Form (Appendix B or download from website) should be completed whenever an incident occurs and the protocol is implemented. The responding Emergency Medical Service (EMS) should receive a copy at the time of the incident with as much information included as possible. Additional follow-up data can be added afterward.

Completed copies should be sent to: 1) the supervisor of the school's health services program & district administration; 2) the student's physician (with written parental authorization), 3) the student's school health record 4) and Attack on Asthma Nebraska. To maintain patient confidentiality, the copy sent to Attack on Asthma Nebraska will not contain the student name and date of birth.

## **PROTOCOL**

### ***Emergency Response To Life-Threatening Asthma Or Systemic Allergic Reactions (Anaphylaxis)***

**DEFINITION:** Life-threatening asthma consists of an *acute episode of worsening airflow obstruction*. *Immediate action and monitoring are necessary.*

A systemic allergic reaction (anaphylaxis) is a severe response resulting in cardiovascular collapse (shock) after the injection of an antigen (e.g. bee or other insect sting), ingestion of a food or *medication*, or exposure to other allergens, such as animal fur, chemical irritants, pollens or molds, among others. The blood pressure falls, the pulse becomes weak, **AND DEATH CAN OCCUR**. Immediate allergic reactions may require emergency treatment and medications.

**LIFE-THREATENING ASTHMA SYMPTOMS:** Any of these symptoms may occur:

- Chest tightness
- Wheezing
- Severe shortness of breath
- Retractions (chest or neck “sucked in”)
- Cyanosis (lips and nail beds exhibit a grayish or bluish color)
- Change in mental status, such as agitation, anxiety, or lethargy
- A hunched-over position
- Breathlessness causing speech in one-to-two word phrases or complete inability to speak

**ANAPHYLACTIC SYMPTOMS OF BODY SYSTEM:** Any of the symptoms may occur within seconds. The more immediate the reactions, the more severe the reaction may become. Any of the symptoms present requires several hours of monitoring.

- Skin: warmth, itching, and/or tingling of underarms/groin, flushing, hives
- Abdominal: pain, nausea and vomiting, diarrhea
- Oral/Respiratory: sneezing, swelling of face (lips, mouth, tongue, throat), lump or tightness in the throat, hoarseness, difficulty inhaling, shortness of breath, decrease in peak flow meter reading, wheezing reaction
- Cardiovascular: headache, low blood pressure (shock), lightheadedness, fainting, loss of consciousness, rapid heart rate, ventricular fibrillation (no pulse)
- Mental status: apprehension, anxiety, restlessness, irritability

#### **EMERGENCY PROTOCOL:**

1. **CALL 911**
2. Summon school nurse if available. If not, summon designated trained, non-medical staff to implement emergency protocol
3. Check airway patency, breathing, respiratory rate, and pulse
4. Administer medications (EpiPen® and albuterol) per standing order
5. Determine cause as quickly as possible
6. Monitor vital signs (pulse, respiration, etc.)
7. Contact parents immediately and physician as soon as possible
8. Any individual treated for symptoms with epinephrine at school will be transferred to medical facility

#### **STANDING ORDERS FOR RESPONSE TO LIFE-THREATENING ASTHMA OR ANAPHYLAXIS:**

- Administer an IM EpiPen-Jr. for a child less than 50 pounds or an adult EpiPen® for any individual over 50 pounds
- Follow with nebulized albuterol (premixed) while awaiting EMS. If not better, may repeat times two, back-to-back
- Administer CPR, if indicated

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## **CIVIL LIABILITY IMMUNITY**

### **Section 25-21,280**

*School, educational service unit, early childhood education program, school nurse, medication aide, and non-medical staff person; immunity; when.*

(1) Any person employed by a school approved or accredited by the State Department of Education, employed by an educational service unit and working in a school approved or accredited by the department, or employed by an early childhood education program approved by the department who serves as a school nurse or medication aide or who has been designated and trained by the school, educational service unit, or program as a non-medical staff person to implement the emergency response to life-threatening asthma or systemic allergic reactions protocols adopted by the school, educational service unit, or program shall be immune from civil liability for any act or omission in rendering emergency care for a person experiencing a potentially life-threatening asthma or allergic reaction event on school grounds, in a vehicle being used for school purposes, in a vehicle being used for educational service unit purposes, at a school-sponsored activity or athletic event, at a facility used by the early childhood education program, in a vehicle being used for early childhood education program purposes, or at an activity sponsored by the early childhood education program which results in damage or injury unless such damage or injury was caused by the willful or wanton act or omission of such employee.

(2) The individual immunity granted by subsection (1) of this section shall not extend to the school district, educational service unit, or early childhood education program and shall not extend to any act or omission of such employee which results in damage or injury if the damage or injury is caused by such employee while impaired by alcohol or any controlled substance enumerated in section 28-405.

(3) Any school nurse, such nurse's designee, or other designated adult described in section 79-224 shall be immune from civil liability for any act or omission described in such section which results in damage or injury unless such damage or injury was caused by the willful or wanton act or omission of such school nurse, nurse's designee, or designated adult.

*Source:*

*Laws 2004, LB 868, § 2*

*Laws 2005, LB 361, § 30*

*Laws 2006, LB 1148, § 2.*

*~Revised Statutes Cumulative Supplement, 2006*

## **WHAT IS ASTHMA?**

- Asthma is a chronic inflammatory lung disease that causes recurrent episodes of cough, wheezing and breathing difficulty.
- During an acute asthma episode, the airway lining becomes inflamed and swollen. Mucus production and muscle spasm further block air flow.
- Over time this process results in tissue damage and chronic airway inflammation.

### **Asthma is characterized by:**

- *Airway inflammation*: the airway lining becomes red, swollen and narrow.
- *Bronchoconstriction*: the muscles that encircle the airway tighten or spasm.
- *Airway obstruction*: as the airway tightens and narrows, it can be very difficult to get air in and out of the lungs.
- *Airway hyperresponsiveness*: the muscles that encircle the airway respond more vigorously and quickly to smaller amount of allergen and irritants.

***Asthma is the most common chronic childhood illness.***

***Although asthma cannot be cured, it can be controlled through the use of medications that reduce inflammation and swelling.***

***Asthma can be controlled more successfully by avoiding “triggers.”***

### **Common Signs & Symptoms of an Acute Asthma Episode**

- Coughing, wheezing or shortness of breath, often during or after exercise
- Chest pain or tightness
- Increased pulse rate
- Agitation
- Cyanosis – lips and nail beds exhibiting a grayish or bluish color
- Inability to complete a sentence
- Retractions – increased use of chest, neck or abdominal muscles
- Refusal to lie down – may prefer to sit or lean forward in order to facilitate breathing

It is important to remember that not everyone with asthma has the same symptoms. Persons at any level of asthma severity can have mild, moderate or severe episodes of asthma at any time.

**Those using their quick-relief inhaler two or more times per week, outside of an exercise precaution, are considered to have poorly controlled asthma and need to see a physician.**

### **Asthma Triggers**

Anything that causes airway irritation or inflammation leading to asthma symptoms is an asthma trigger. Some common triggers may include:

- Tobacco use or second-hand smoke
- Colds or respiratory infections
- Allergic reactions to pollen or mold
- Feathers or feathered & furred animals
- Cockroaches
- Dust, dustmites
- Vigorous exercise
- Exposure to cold air or sudden temperature change
- Air pollution or fumes
- Chalk dust
- Paints
- Cleaning agents
- New furnishings or equipment
- Pesticides
- Strong odors such as dry-erase markers, magic markers or glue/paste

#### **There are ways to remove potential triggers from the environment:**

- *Do not allow tobacco use or second-hand smoke*
- *Reduce indoor humidity*
- *Clean and service heating and ventilation systems regularly*
- *Limit outdoor activities when pollen count is high*
- *Keep environment clean and dust free*
- *Avoid using strong-smelling cleansers, air deodorizers and heavy perfumes*
- *Encourage sufficient warm-up prior to exercise*
- *Have child wear a scarf around his/her face (covering mouth and nose) during cold weather*
- *Encourage annual flu shots*
- *Discourage furred or feathered pets in classrooms*
- *Reduce carpet and upholstered furniture in classrooms*

***Encourage the child to know what triggers his/her asthma episodes and to avoid exposure to those triggers.***

### **Exercise-Induced Asthma (EIA)**

Lifelong physical fitness is an important goal for all students. Unfortunately, most students with asthma that is not well controlled will experience asthma symptoms after vigorous exercise.

Symptoms of exercise-induced asthma (EIA) include coughing, wheezing, chest tightness and/or shortness of breath. EIA usually begins during exercise and peaks 5-10 minutes after stopping exercise. With today's treatments and management strategies, students can successfully control their asthma and participate fully in physical activities most of the time.

***Asthma should not be an excuse to not participate in physical education, sports or exercise.***

There are several actions school personnel can take to facilitate full participation in physical education by students with asthma:

- ❑ Make sure the child has an asthma management plan on file.
- ❑ Create school policies that make it easy for children with asthma to take medications as prescribed prior to exercise.
- ❑ Warming up with 10-15 minutes of stretching. Begin aerobic exercise and sustain for 5-10 minutes prior to planned activity.
- ❑ If full activity is not possible, modify activity.

## **Asthma Medications**

To keep asthma under control, children often need to take medications. There are two categories of asthma medications – **long-term control** medications and **quick relief** medications.

### **Long-Term Control**

Long -term control medications are anti-inflammatory medications that reduce and prevent airway inflammation (swelling), the quiet part of asthma that's always there but not always noticed. These medications are taken daily and NOT effective once an episode has begun.

### **Quick Relief**

Quick relief medications are short-acting bronchodilators that relax the muscles around the airways and treat the noisy part of asthma: coughing, wheezing and shortness of breath. They should be used at the first sign of symptoms and prior to exercise if directed by a physician.

## **Medication Delivery Systems**

Common asthma medication delivery systems include:

- Metered-dose inhaler (MDI)
- Nebulizer (medication cup) used with compressor
- Dry powder inhaler (DPI)
- Breath-activated MDI

Metered-dose inhalers work better with holding chambers (spacers). Holding chambers can help medication be more easily and effectively given.

- **Encourage the parent/guardian to provide an extra inhaler to be kept at school if the student self carries prescribed asthma/anaphylaxis medications.**
- **Encourage the parent/guardian to see their health care provider regularly, as medicine doses or asthma severity may change as the child develops.**
- **Remember, the child may need to take inhaled medications prior to sports or exercise.**
- **Using a peak flow meter may help to monitor asthma for some children.**

## **Asthma Action Plans**

A plan is essential in order to take good care of children with asthma. **All children with asthma should have a written asthma management plan/action plan on file at school.** For an action plan contact your physician.

An asthma action plan may include:

- Identification of triggers to avoid
- Long-term control medications when prescribed
- Signs & symptoms of an acute asthma episode
- An action plan for treating acute episodes
- Emergency numbers to call
- Best peak flow, or peak flow zones

Asthma action plans can be guided by:

- Change or increase in asthma symptoms
- Changes in peak flow measurements

*Source pgs 18-20: The School Nurse Allergy & Asthma Tool Kit/AAAAI/2002  
The Language of Asthma™/AANMA 2007*

## **Early Signs of an Asthma Episode**

In asthma education programs, students are taught to identify early warning signs – the physical changes that occur in the early stage of airway obstruction. These early warning signs usually happen before more serious symptoms occur. They alert students that it is time to measure their peak flow and take medication according to their action plan. Each student’s early warning signs should be documented in the student’s asthma action plan available in the school health room or clinic. Teachers should be aware of each student’s early signs and symptoms and enable students with asthma to take the proper steps to prevent more serious asthma trouble.

Recognizing the early warning signs of an asthma episode can avoid a more serious medical emergency. **There should be no delay once a student has notified the teacher of a possible problem.**

A student may have one or more of these symptoms during the initial phase of an asthma episode:

### **1. Changes in breathing**

- Coughing
- Chest tightness
- Throat tightness
- Breathing through mouth

Later signs may include:

- Wheezing
- Shortness of breath
- Rapid breathing

### **2. Verbal Complaints**

Often a student who is familiar with asthma will know that an episode is about to happen.

The student might say:

- “My chest is tight”
- “My chest hurts”
- “I cannot catch my breath”
- “My mouth is dry”
- “My neck feels funny”
- “I don’t feel well” or “I feel tired”
- My chin (or neck) itches”
- “I need more air”

Students may also use “clipped” speech – very short, choppy sentences.

See the following page for more guidance regarding the severity of an asthma episode.

*Source:  
Managing Asthma: A Guide For Schools – July 2003*

## Severity of Asthma Episodes

The following chart can be a guide to the severity of asthma episodes and the signs and symptoms specific to the severity.

	<b>MILD episode</b>	<b>MODERATE episode</b>	<b>SEVERE episode</b>
<b>Breathless</b>	When walking Can lie down	When talking Prefers sitting	<b>At rest</b> <b>Hunched forward</b>
<b>Can only speak in:</b>	Sentences	Phrases	<b>Words</b>
<b>Retractions</b> (accessory muscles)	Usually not	Usually	<b>Usually</b>
<b>Wheeze</b>	Moderate, often only at end of expiration	Loud	<b>Usually loud</b>
<b>Peak Flow</b> (if used)	>80% of personal best	60-80% of personal best	<b>&lt;60% of personal best</b>
<b>Respiratory Rate/min</b>	Normal to increased	Increased	<b>Often &gt; 30/min</b>
<b>Pulse/min</b>	< 100/min	100-120/min	<b>&gt;120/min</b>

<b>Normal Rates of Breathing in Awake Children</b>	
<b>Age</b>	<b>Normal Rate</b>
2-10 years/old	20-25/min
10 yrs to adult	16-20/min
<b>Guide to Normal Heart Rate in Children</b>	
2-10 years/old	70-110/min
10 yrs to adult	55-90/min

*Source:*  
GINA/Global Strategy for Asthma Management & Prevention 2006  
Hockenberry MJ and D Wilson (eds.) Wong's Nursing Care of Infants and Children, 8th edition. St. Louis: Mosby Elsevier. 2007.

## WHAT IS ANAPHYLAXIS?

Anaphylaxis is a sudden, severe, potentially fatal allergic reaction that involves 2 or more organ systems simultaneously (i.e. hives and feeling faint) or the respiratory tract. It is commonly caused by:

- **Food allergy:** peanuts, tree nuts, milk, fish, shellfish, wheat, egg and soy – although any food can cause an anaphylactic reaction, those listed account for the largest percentage of reactions in the U.S.
- **Stinging insects:** yellow jackets, honeybees, wasps, hornets and fire ants
- **Medications**
- **Latex allergy** (natural rubber products)

In most cases, anaphylaxis results when several organ systems react at once. Left untreated, these symptoms can cause death.

### Typical Symptoms of a Severe Allergic Reaction

SKIN	GASTROINTESTINAL	RESPIRATORY	CARDIOVASCULAR
Hives Swelling Itchy, red rash Eczema flare	Cramps Nausea Vomiting Diarrhea	Itchy, watery eyes Runny nose Stuffy nose Sneezing Coughing Itching or swelling of lips, tongue, throat Change in voice Difficulty in swallowing Tightness of chest Wheezing Shortness of breath Repetitive throat clearing	Drop in blood pressure Fainting Shock

### Treatment of Anaphylaxis

Prevention of anaphylaxis by avoidance of triggers is paramount. Quick treatment can be life saving. A written action plan should be on file for all at risk students, particularly students with food allergy and asthma.

***Up to 20% of students, who will eventually have an anaphylactic reaction, may have their first in school.***

***Children who have had severe reaction to a high-risk food such as peanut, tree nuts, or shellfish are at a high risk of having a similar reaction with an accidental ingestion.***

**Epinephrine** is the ONLY medication that can reverse severe symptoms.

**Antihistamines**, if included on student's action plan, may be administered with epinephrine, but never instead of epinephrine, because it cannot reverse many of the symptoms of anaphylaxis.

**Asthma medications**, such as bronchodilators, should never be given in place of epinephrine to treat anaphylaxis, although they may be helpful for asthma symptoms in addition to epinephrine.

## **FOOD ALLERGY**

A true food allergy involves an interaction between a food protein and the immune system. The only way to avoid a reaction is to eliminate ingestion of the food protein even in small amounts.

Eight foods account for up to 90% of all food-allergic reactions in the U.S. They are:

- Peanuts
- Tree nuts (pecans, almonds, walnuts, pistachio, nuts, cashews, hazelnuts, Brazil nuts, and many more)
- Fish/Shellfish
- Milk
- Eggs
- Soy
- Wheat

The symptoms of an allergic reaction usually occur within minutes, but can be delayed for up to 2 hours after the food is eaten.

***Reactions can range from mild to life threatening.***

***The same food can cause different reactions from person to person.***

***There is no way to know how serious a reaction will become, so it is important to treat all reactions quickly.***

### **People with food allergies must:**

- Completely avoid the food(s) that cause(s) the allergic reaction
- Read the food ingredient labels of every product they buy, every time they buy it; sometimes manufacturers change product ingredients without warning
- Constantly ask questions about food ingredients and preparation techniques; cross contamination can occur by using the same spatula for both allergen-containing and allergen-free foods
- Remember that just one little bite can hurt – for some people, even a trace amount of the food is enough to cause an allergic reaction
- Have a food allergy management plan on file at school

***The key to successfully managing food allergies in school is constant communication and teamwork between staff, parents and students!***

### **Schools should:**

- Discuss “allowed” foods with the parents and the student in advance so that the child knows what foods to eat and to avoid, but can do so discreetly
- Allow the student with an allergy to provide his/her own food for snacks or celebrations and keep it in a clearly marked separate box/shelf
- Require that only commercially prepared food that contains a printed ingredient list be sent for sharing with other students during class celebrations or snack time
- Clean all tabletops, counters and cutting surfaces thoroughly between uses, as trace amounts of food left on them can cause an allergic reaction
- Designate a “peanut free” table in the cafeteria where any student with a peanut free lunch is able to sit. *It is important not to isolate children with food allergies*
- Implement a “no food trading” rule for all students, not just those with food allergies, to guard against accidental ingestions of an unsafe food
- Educate teachers and food service staff



## **INSECT STING ALLERGY**

Reactions can vary from mild and local (any swelling at the sting site – a normal reaction) to anaphylactic. Symptoms of an allergic reaction usually occur within minutes of the sting.

### **Managing students with insect sting allergy:**

- Identify each allergic student. Get information about previous history of reactions and the insect that caused the reactions.
- Minimize exposure to stinging insects. Avoidance is the key to preventing an allergic reaction.

### **Avoidance Strategies**

- *Have students avoid wearing flowers, i.e. corsages, outdoors.*
- *Have students wear long-sleeved shirts, long pants and shoes when walking in grassy areas.*
- *Keep hands and face clean of sweet liquids: soda pop, juice, ice cream, butter, meat juices, etc.*
- *Keep students away from large bushes, especially flowering ones.*
- *Keep garbage covered.*
- *Do not eat or drink sweetened liquids outdoors. If unavoidable, keep sweetened drinks covered.*

### **Treatment**

It is not uncommon for stings to cause immediate pain or pain followed by swelling and itching. To relieve *mild and local* (not anaphylactic) symptoms:

- Remove the stinger from the skin by scraping it away gently with a rigid piece of plastic like a credit card
- Wash the area with soap and water
- Put ice or a cold pack on the sting site
- Watch the child for 30 minutes for any signs or symptoms of allergic reaction

**If the student has a history of anaphylaxis with insect stings or is developing symptoms of anaphylaxis, follow student's action plan using prescribed medications and/or follow the Protocol: *Emergency Response to Life-Threatening Asthma or Systemic Allergic Reactions (Anaphylaxis)*.**

## **LATEX ALLERGY**

While statistics are unclear for the prevalence within the general population, it's estimated that between 1 to 6 percent of the general population has a latex allergy.

### **Latex and Food Allergy Connection**

People with latex allergy may also experience an allergic reaction to some foods that contain the same allergic proteins as those found in latex. This reaction, called cross-reactivity, can be triggered by:

- Bananas
- Chestnut
- Passion Fruit
- Avocado
- Kiwi
- Celery
- Melon

Symptoms can range from mild to severe.

### **Avoidance Strategies**

- *There is no cure for latex allergy; avoidance of latex-containing products is the only way to prevent a reaction.*
- *The student should have a latex allergy management plan on file at school if previously diagnosed.*
- *As latex is found in a whole host of products, many of which are used at school, please communicate with the student and parents/guardians to find out the severity of the child's allergy.*

***The key to successfully managing allergies in school is constant communication and teamwork between staff, parents and students!***

(NOTE – more information on latex allergy in Resources)

*Source pgs 23-26: The School Nurse Allergy & Asthma Tool Kit/AAAAI/2002*

## **How a Child Might Describe Anaphylaxis**

Children have unique ways of describing their experiences and perceptions, including allergic reactions. Precious time is lost when adults do not immediately recognize that a reaction is occurring or don't understand what the children might be telling them.

Know that sometimes children, especially very young ones, will put their hands in their mouths, or pull or scratch at their tongues in response to a reaction. Also, children's voices may change (i.e., become hoarse or squeaky), and they may slur their words.

The following text contains examples of the words a child might use to describe a reaction.

- This food's too spicy.
- My tongue is hot (or burning).
- It feels like something's poking my tongue.
- My tongue (or mouth) is tingling (or burning).
- My tongue (or mouth) itches.
- It (my tongue) feels like there is hair on it.
- My mouth feels funny.
- There's a frog in my throat.
- There's something stuck in my throat.
- My tongue feels full (or heavy).
- My lips feel tight.
- It feels like there are bugs in there (to describe itchy ears).
- It (my throat) feels thick.
- It feels like a bump is on the back of my tongue (throat).

If you suspect a child is having an allergic reaction, follow doctor's instructions.

*Source:  
The Food Allergy & Anaphylaxis Network/2007*

## **MEDICATION ADMINISTRATION & MINIMUM COMPETENCIES**

The training for the Emergency Response Team does not require Medication Aide Administration Certification, but does pre-suppose the minimum competencies referenced in Rule 59.

1. Recognize the recipient's right to personal privacy.
2. Recognize the recipient's right to refuse medication.
3. Maintain hygiene and standards of infection control.
4. Follow facility procedures regarding storage, handling, and disposal of medications.
5. Recognize general conditions when the medication should not be given.
6. Accurately document all medications: name, dose, route, time administered, or refusal.
7. Follow the five rights:
  - ✓ right medication,
  - ✓ right person,
  - ✓ right time,
  - ✓ right dose,
  - ✓ right route.
8. Provide medications according to the specialty needs of the recipient.
9. Recognize general conditions which may indicate an adverse reaction to medication.
10. Have the ability to understand and follow instructions.
11. Practice appropriate safety standards when providing medications.
12. Recognize limits and conditions by which unlicensed persons may legally provide medications.
13. Recognize the responsibility to report and the mechanisms for reporting possible child or adult abuse or neglect if reasonable cause exists.
14. Recognize the recipient's property rights and personal boundaries.

*Source:  
Nebraska Revised Statutes 71-6718 to 71-6742  
Title 92, Nebraska Administrative Code, Chapter 59  
Title 172, Nebraska Administrative Code, Chapter 95*

## **EPINEPHRINE & EPIPEN® AUTO INJECTOR**

During an asthma attack or systemic allergic reaction, the bronchi ("tubes" leading into the lungs) swell and become filled with mucus, which prevents oxygen from entering the lungs. Epinephrine is the medication of choice for treatment of anaphylaxis and life-threatening asthma. It reverses the body's reaction to an antigen and reduces swelling and congestion in the lungs.

Epinephrine constricts blood flow to the skin and mucous membranes resulting in blanching of the skin at the injection site. The individual may appear pale briefly or vomit. Epinephrine also increases the heart rate. The individual may complain heart is racing or "pounding."

Other side effects of epinephrine include restlessness, apprehension, headache, and tremors. An "unnecessary" dose of epinephrine should have no prolonged or significant ill effects on an adult or child.

**Quick treatment with epinephrine is the safest approach, even if it may have been unnecessary. This will keep the individual breathing, until s/he is transported to the emergency room by Emergency Medical Services (EMS).**

### **EpiPen® Auto-Injector**

An EpiPen® auto-injector is a disposable, pre-filled automatic injection device that is designed to deliver a single dose of epinephrine.

- Keep the EpiPen® auto-injector accessible and ready for use at all times. Store in a clearly labeled, transportable container "Emergency Use Only."
- Protect from exposure to light and extreme heat – **DO NOT REFRIGERATE!**
- Note the expiration date and replace prior to expiration.
- Do not use if solution appears brown in color or contains a precipitate.

### **Directions for Administration: NEVER PUT THUMB, FINGERS OR HAND OVER BLACK TIP!**

1. Grasp auto-injector, with the black tip pointing downward.
2. Form a fist around the auto-injector (black tip down).
3. With your other hand, pull off the gray activation cap.
4. Hold black tip near outer thigh.
5. Swing and jab firmly into outer thigh so that auto-injector is perpendicular (at a 90° angle) to the thigh.
6. Hold firmly in thigh for several seconds.
7. Remove auto-injector and massage injection area for several seconds.
8. Carefully place the used auto-injector, needle-end first, into the storage tube of the carrying case that provides built-in needle protection after use. Then screw the cap of the storage tube back on completely, and give to EMS for transport with individual to hospital.

### **Things to know:**

- Apply to thigh, regardless of what body part is affected.
- One of the most common errors is not leaving the auto-injector in long enough for all medication to be dispensed. Count to ten before removing unit.
- The auto-injector is designed to be administered through clothing (including jeans).
- The auto-injectors leave the distribution center with 22 months shelf life. Do call several pharmacies prior to purchase to insure the lengthiest shelf-life possible.
- In the unlikely event of a "needle-stick" to the individual administering an EpiPen®, consult and follow the school's exposure control plan.
- If an unintended needle-stick occurs before the epinephrine is administered to victim, do not attempt to administer the EpiPen®. This dose is contaminated.

## **NEBULIZER & ALBUTEROL**

During an asthma attack or systemic allergic reaction, the bronchi ("tubes" leading into the lungs) go into spasm preventing oxygen from entering the lungs. Albuterol relaxes the bronchi, helps open the airway, and moves the mucus out of the lungs.

A nebulizer is a chamber (cup) for medication. The nebulizer (medication cup) is attached by tubing to a machine (compressor) that mixes medication with air to provide a fine mist (aerosol) for breathing in through a mask. This is the most efficient way to get the medication into the lungs during an emergency (better than a metered-dose inhaler).

### **Directions for Administration**

1. Place the compressor where it can safely reach its power source and where you can reach the ON/OFF switch.
2. Set up nebulizer (medication cup).
  - a. Open top of nebulizer (medication cup) by twisting counter-clockwise.
  - b. Open vial of premixed albuterol by twisting off cap and squeezing medication into bottom of nebulizer (medication cup).
3. Re-attach top and bottom of nebulizer (medication cup).
4. Attach one end of tubing to bottom of nebulizer (medication cup) and the other end of the tubing to the compressor.
5. Attach mask to top of nebulizer (medication cup).
6. Plug in compressor unit and turn on. A fine mist can be seen flowing through tubing and into mask.
7. Instruct individual to:
  - a. Assume seated position
  - b. Place mask over mouth and nose. As aerosol begins to flow, instruct to inhale deeply and slowly through mouth, then exhale slowly.
8. If coughing occurs during treatment, remove mask. Allow individual to clear secretions completely; resume treatment. Monitor individual for changes in respiratory rate, effort, and vocal ability.

*Note: Nebulizers (medication cups) are not all the same. Please consult the directions relating specifically to the equipment you are using.*

### **Storage of Equipment**

- Keep mask, nebulizer (medication cup) and tubing for emergency protocol use in the portable emergency container.
- Have compressor and portable emergency container readily accessible to all staff.

### **Things To Know:**

- PARI equipment is latex-free.
- Nebulizer (medication cup) tubing and mask, used for emergency protocol should be discarded after use and replaced immediately.
- Compressors may be used for regularly scheduled student treatments with medications and tubing/mask/mouthpiece/nebulizer (medication cup) supplied by the parent/guardian. The student's tubing, mask, mouthpiece/nebulizer (medication cup) may be cleaned according to manufacturer instruction and re-used only by that individual student.
- Filters need to be replaced periodically, see manufacturer's instructions.

## **Appendix A: GLOSSARY**

**Airways** - Common term used to describe the passages in the lungs that move air into and out of the body. Sometimes called bronchial tubes, bronchi or respiratory system.

**Albuterol** - A short-acting bronchodilator that relaxes the muscles around the airways and treats the noisy part of asthma: coughing, wheezing and shortness of breath.

**Allergen** – Substances that stimulate production of IgE antibodies and thus provoke allergic attacks. Examples of allergens can be pollen, dust mites, medications, insect stings, foods.

**Allergy/allergies** - An overreaction by the body's immune system to a specific substance called an allergen. An allergy occurs only in people sensitive to a particular allergen(s).

**Allergic reaction** – A response in sensitive people to specific allergens. An allergic reaction can occur in different parts of the body. Common areas include the skin, the eyes, the respiratory system and the gastrointestinal tract. Symptoms often include itching, sneezing, runny nose, coughing, wheezing or shortness of breath.

**Anaphylactic shock/anaphylaxis** - The most severe or extreme type of allergic reaction, creating a potentially life-threatening medical emergency. Most common cause is reaction to a medication. Other causes include insect stings and foods.

**Asthma** - A lung disease that is usually ongoing or continuous (chronic). Symptoms include wheezing, coughing, feeling of "tightness" in the chest, difficulty breathing, itching neck, throat and ears. Symptoms vary greatly from person to person, and usually, individuals with asthma also experience "ups and downs" with symptoms. No cause or cure is yet known. Symptoms can be well managed and stabilized for most people who have asthma. Certain substances or conditions trigger asthma symptoms.

**Asthma action plan** - A document that outlines the treatment approach for an individual asthma patient; developed in consultation with the health care provider, family members and caregivers. Effective action plans help patients control their asthma and live healthy active lives.

**Asthma attack** - See asthma episode.

**Asthma episode** - A time when asthma symptoms flare up or intensify, requiring immediate adjustments in treatment and medication to get symptoms under control. Asthma episodes may occur suddenly, with few warning signs, or build slowly over a period of hours or even days. Most asthma episodes can be handled by following the student's asthma action plan. Often called "asthma attacks," the more appropriate term is "asthma episode."

**Bronchial tubes** – These are the major airways of the respiratory system that carry air from the trachea (windpipe) to the microscopic air sacs (alveoli) in the lungs.

**Bronchitis** - An infection or inflammation in the bronchial tubes caused by bacteria, a virus, an allergy or irritating dust and fumes. Typical symptoms may include coughing, wheezing, shortness of breath, chills, fever, fatigue and excessive phlegm.

**Bronchodilator** - A medication to relax bronchial muscles, and in turn, open up the bronchial tubes.

**Bronchospasm; bronchoconstriction** - The tightening in the airways of the respiratory system that occurs with asthma or allergies. Caused when the muscles around the bronchial tubes contract in response to specific triggers.

**Cyanosis** - A bluish discoloration of the skin or mucous membranes caused by lack of oxygen in the blood.

**Dander** - Scaly or shredded dry skin that comes from animals or bird feathers. Dander may be a cause of an allergic response in susceptible persons.

**Environmental control measures** - Specific procedures undertaken to remove known allergens or irritants from a designated area.

**Epinephrine** – Another name for adrenaline.

**EPI-PEN®** - The trade name, or manufacturer's name, for a device used to deliver epinephrine, a medication used to bring quick relief by improving breathing and heart function in life-threatening medical emergencies due to asthma and anaphylaxis.

**Exercise-induced asthma** - Asthma symptoms that appear following strenuous exercise. Symptoms may be minimal or severe enough to require emergency treatment. About one in 10 students experience exercise-induced asthma.

**Hidden ingredients** - Some prepared food products contain derivatives or "by-products" of other foods. These "hidden ingredients" may or may not be shown on the food label.

**Hyperventilation** – A medical condition with some symptoms similar to an asthma episode.

**Inhaler/metered-dose inhaler (MDI)** - a device used to deliver a variety of commonly prescribed asthma medications that help ease breathing by opening up the airways.

**Integrated Pest Management (IPM)** - Procedures developed by the Environmental Protection Agency to reduce exposure to cockroaches, rats, mice, and other pests found in a school setting.

**Irritant** – Substances not triggering allergic responses (as is the case with allergens), but often worsening existing asthma or allergy conditions. Examples of irritants include tobacco smoke, chemical fumes, perfumes, air deodorizers, scented candles, insecticides or air pollution.

**Long-term control medication** - Long -term control medications are anti-inflammatory medications that reduce and prevent airway inflammation (swelling), the quiet part of asthma that's always there but not always noticed. These medications are taken daily and NOT effective once an episode has begun.



**Mucus** - Often called phlegm or sputum, this slippery fluid is produced by the membranes lining the airways to aid in various body functions. Exposure to certain triggers can increase mucus production for asthma patients. The increased amount of mucus makes breathing more difficult. Mucus that is not clear may indicate a student has an infection (unrelated to asthma) in the airways.

**Nebulizer** - A nebulizer is a chamber (cup) for medication. The nebulizer (medication cup) is attached by tubing to a machine (compressor) that mixes medication with air to provide a fine mist (aerosol) for breathing in through a mask.

**Peak flow meter** - A small, portable hand-held device that measures how well the lungs are able to expel air, allowing asthma patients to detect airway narrowing and adjust medications accordingly.

**Quick-relief medication/short-acting bronchodilators** - Quick relief medications are short-acting bronchodilators that relax the muscles around the airways and treat the noisy part of asthma: coughing, wheezing and shortness of breath. They should be used at the first sign of symptoms and prior to exercise if directed by a physician.

**Respiratory Illness** - Illnesses affecting the airways caused by a virus or bacterial infection. Symptoms of respiratory illness can be similar to asthma symptoms. Students with asthma may experience increased asthma symptoms for some time following a respiratory illness.

**Sensitivity/sensitization** - Refers to a person's response when exposed to an allergen. For some people, repeated exposure to allergens makes them more likely to develop an allergic reaction.

**Spacer** - A short tube device that can be attached to an inhaler to help the student use the inhaler more effectively.

**Trigger/triggers/triggered** - A general term referring to either an allergen or irritant that causes or worsens asthma or allergy symptoms.

**Valved holding chamber** – Holding chambers trap and suspend MDI inhaler medications for a few seconds so you can breathe them in slowly.

**Wheezing/wheeze** - The whistling sound that occurs when air moves through narrowed or tightened airways. Wheezing is a classic symptom of asthma. Not all wheezing can be heard by the ears; a stethoscope may be needed to detect levels of wheezing within the lungs.

Source pgs 31-33: [www.asthmaandschools.org](http://www.asthmaandschools.org)  
*The Language of Asthma/ AANMA/2007*  
*School Nurse Allergy & Asthma Tool Kit/ AAAAI/2002*

## **Appendix B: FORMS**

### **WRITTEN TEST**

**Please select True or False:**

1. The person administering the protocol in the event of a life-threatening breathing emergency may choose to only give the EpiPen® or nebulized albuterol.

TRUE

FALSE

2. An EpiPen® should only be used if the student has stopped breathing.

TRUE

FALSE

3. While following the protocol, if the victim stops breathing, ERT members will assess for an open airway and, if present, begin CPR.

TRUE

FALSE

**Please choose one answer for each question:**

4. Which of the following statements is TRUE about EpiPen® administration?

- a) The preferred site of administration is the upper arm muscle.
- b) If properly administered, the needle will be exposed after removing from the site of injection.
- c) It cannot be administered through clothing.
- d) When administering, press hard and hold in place for 60 seconds.

5. Which of the following statements is TRUE about the protocol standing order?

- a) Use the EpiPen® Jr for a student weighing more than 100 lbs.
- b) Administer nebulized albuterol followed by the EpiPen®.
- c) Administer EpiPen® followed by nebulized albuterol.
- d) Nebulized albuterol may only be administered once.

6. Which of the following is TRUE about the use of nebulized albuterol when initiating the protocol during an anaphylactic reaction?

- a) If the student weighs less than 50 lbs, use half the albuterol dose.
- b) The albuterol treatment should only be administered once.
- c) It is not necessary to call 911 if the student feels better after administering the protocol.
- d) Administer the albuterol treatment immediately after using the EpiPen®.

7. Which of the following are NOT signs or symptoms of an asthma/anaphylaxis emergency?

- a) Chest tightness, wheezing, severe shortness of breath causing speech in 1-2 word phrases, or complete inability to speak
- b) Vomiting, dilated pupils, unsteady when walking
- c) Retractions (chest or neck sucked in), cyanosis (lips or nail beds exhibiting gray or bluish color), hunched over position
- d) Change in mental status, agitation, anxiety or lethargy

8. Daniel, a 10 yr old student diagnosed with asthma, enters the (health) office and states that he feels “a little wheezy”. This student has an asthma action plan and personal medications at school. Which of the following would you do FIRST?

- a) Have him lay down on a cot.
- b) Call his parent/guardian.
- c) Let him use his quick-relief inhaler according to his action plan.
- d) Offer a drink of water.

9. Sophie, a 14 yr old student, enters the (health) office and states she ate a cookie and she feels like her mouth is swelling. She is very short of breath and gasping for air. She doesn't have a personalized allergy action plan or medications at school. According to the Rule 59 protocol, which of the following would you do FIRST?

- a) Call 911
- b) Call her physician
- c) Check her mouth
- d) Have someone get the cookie package

10. The Rule 59 medications (EpiPen®, albuterol) found in the portable emergency container

- a) Can be given to a student if the parent requests
- b) Can be used if parents supply tubing for albuterol
- c) Are only to be used for life-threatening breathing emergencies
- d) Can go on field trips

11. Identify the five (5) R's for administering medication.

- a)
- b)
- c)
- d)
- e)

12. Select the two choices below that describe the desired action of an EpiPen®.

\_\_\_ Enable the victim to relax and sleep

\_\_\_ Help the body to eliminate excess fluid

\_\_\_ Reverse the body's reaction to an antigen

\_\_\_ Reduce swelling and congestion in the lungs

13. Select the two choices below that describe the desired action of albuterol.

\_\_\_ Relaxes tightened muscles around the airways

\_\_\_ Opens airways to ease breathing

\_\_\_ Increases heart rate

\_\_\_ Reduces nausea and anxiety

14. Which two of the following must be verified prior to EpiPen® administration?

- a) Check student health file for history of asthma/allergies
- b) Check window in EpiPen® for color, clarity, and crystallization of medication
- c) Check to see if victim is breathing
- d) Check to see if victim appears to weigh more or less than 50 lbs to determine which dose of epinephrine to administer (EpiPen®, EpiPen® Jr.)

## **Answers to Written Test**

***Please select True or False:***

1. *The person administering the protocol in the event of a life-threatening breathing emergency may choose to only give the EpiPen® or nebulized albuterol.*

**FALSE**

2. *An EpiPen® should only be used if the student has stopped breathing.*

**FALSE**

3. *While following the protocol, if the victim stops breathing, ERT members will assess for an open airway and, if present, begin CPR.*

**TRUE**

***Please choose one answer for each question:***

4. *Which of the following statements is TRUE about EpiPen® administration?*

*(b) If properly administered, the needle will be exposed after removing from the site of injection.*

5. *Which of the following statements is TRUE about the protocol standing order?*

*(c) Administer EpiPen® followed by nebulized albuterol.*

6. *Which of the following is TRUE about the use of nebulized albuterol when initiating the protocol during an anaphylactic reaction?*

*(d) Administer the albuterol treatment immediately after using the EpiPen®.*

7. *Which of the following are NOT signs or symptoms of an asthma/anaphylaxis emergency?*

*(b) Vomiting, dilated pupils, unsteady when walking*

8. *Daniel, a 10 yr old student diagnosed with asthma, enters the (health) office and states that he feels “a little wheezy”. This student has an asthma action plan and personal medications at school. Which of the following would you do FIRST?*

*(c) Let him use his rescue inhaler according to his action plan*

**Answers to Written Test continued**

9. Sophie, a 14 yr old student, enters the (health) office and states she ate a cookie and she feels like her mouth is swelling. She is very short of breath and gasping for air. She doesn't have a personalized allergy action plan or medications at school. According to the Rule 59 protocol, which of the following would you do FIRST?

(a) Call 911

10. The Rule 59 medications (EpiPen®, albuterol) found in the portable emergency container

(c) Are only to be used for life-threatening breathing emergencies

11. Identify the five (5) R's for administering medication.

- Right Person
- Right Medication
- Right Dose
- Right Time
- Right Route

12. Select the two choices below that describe the desired action of an EpiPen®.

Enable the victim to relax and sleep

Help the body to eliminate excess fluid

Reverse the body's reaction to an antigen

Reduce swelling and congestion in the lungs

13. Select the two choices below that describe the desired action of albuterol.

Relaxes tightened muscles around the airways

Opens airways to ease breathing

Increases heart rate

Reduces nausea and anxiety

14. Which two of the following must be verified prior to EpiPen® administration?

(b) Check window in EpiPen® for color, clarity, and crystallization of medication

(d) Check to see if victim appears to weigh more or less than 50 lbs to determine which dose of epinephrine to administer (EpiPen®, EpiPen® Jr.)

**Trainers** – Please note the passing percentage of 80%, at least 11 questions answered correctly.

**Documentation of Competencies**

I have provided orientation, instruction, training and practice opportunities for \_\_\_\_\_  
\_\_\_\_\_ to administer EpiPen® injections and albuterol by nebulizer treatments in response  
to life-threatening asthma or systemic allergic reactions (anaphylaxis). I observed the above named person and feel  
s/he can appropriately perform the tasks above. Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Date

\_\_\_\_\_  
School Nurse/ Qualified Trainer Signature

\* \* \* \* \*

I have been provided adequate orientation, instruction, training and opportunities to practice administering EpiPen®  
injections and albuterol by nebulizer treatments in response to life-threatening asthma or systemic allergic reactions  
(anaphylaxis). I feel I have the competencies necessary to provide these services in a safe manner.  
Comments: \_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Date

\_\_\_\_\_  
Participant/Staff Signature

**EMERGENCY REPORT FORM** (July 2007)

Send copy within 14 days of incident to Attack on Asthma Nebraska - P.O. Box 194, Malcolm, NE 68402  
Copy to others at school's discretion with authorization of parent/guardian.

School district: \_\_\_\_\_

School telephone: (\_\_\_\_\_) \_\_\_\_\_ Circle one: Elementary Middle School High School

Patient age: \_\_\_\_\_ Circle one: Male Female

Date of incident: \_\_\_\_\_ Time of incident: \_\_\_\_\_

**STEP 1. ASSESSMENT OF EVENT (circle all symptoms observed/described)**

Typical Asthma Symptoms: (circle all symptoms observed or described)		
<ul style="list-style-type: none"> <li>• Chest tightness</li> <li>• Wheezing</li> <li>• Coughing</li> </ul>	<ul style="list-style-type: none"> <li>• Shortness of breath</li> <li>• Inability to speak</li> <li>• Retractions</li> </ul>	<ul style="list-style-type: none"> <li>• Cyanosis (blue around lips)</li> <li>• Anxious/restless</li> </ul>

Typical Anaphylaxis Symptoms: (circle all symptoms observed or described)				
<b>Skin:</b> <ul style="list-style-type: none"> <li>• Warm</li> <li>• Itching</li> <li>• Flushed</li> <li>• Hives</li> </ul>	<b>Stomach:</b> <ul style="list-style-type: none"> <li>• Pain</li> <li>• Nausea</li> <li>• Vomiting</li> <li>• Diarrhea</li> </ul>	<b>Breathing:</b> <ul style="list-style-type: none"> <li>• Sneezing</li> <li>• Swelling of lips, mouth, tongue, or throat</li> <li>• Lump or tightness in throat</li> <li>• Hoarseness</li> <li>• Shortness of breath</li> <li>• Difficulty inhaling</li> </ul>	<b>Cardiovascular:</b> <ul style="list-style-type: none"> <li>• Headache</li> <li>• Fainting</li> <li>• Loss of consciousness</li> <li>• Rapid heart rate</li> <li>• No pulse</li> </ul>	<b>Mental status:</b> <ul style="list-style-type: none"> <li>• Apprehension</li> <li>• Anxiety</li> <li>• Irritability</li> <li>• Restlessness</li> </ul>

**STEP 2. CALL 911**

Time EMS called: \_\_\_\_\_ Time EMS arrived: \_\_\_\_\_

**STEP 3. DOCUMENT TIME OF TREATMENT**

Patient's own medication used: Time: \_\_\_\_\_ Medication name: \_\_\_\_\_

EpiPen® given (circle one): EpiPen® EpiPen® Jr.  
 • Time given: \_\_\_\_\_  
 • Not given (if not given, why?) \_\_\_\_\_

Nebulized albuterol given (circle one): Yes No  
 • Time given: \_\_\_\_\_  
 • Not given (if not given, why?) \_\_\_\_\_  
 • Albuterol repeated? (circle one) Yes (If yes, time: \_\_\_\_\_) No

CPR Initiated (circle one): Yes No (If yes, time initiated: \_\_\_\_\_)

Who initiated CPR? (Circle all that apply) Nurse Teacher Other \_\_\_\_\_

Time parent/emergency contact called: \_\_\_\_\_

**STEP 4. OUTCOMES**

(Please circle all that apply)

- Improved after EpiPen® administration
- No improvement after EpiPen® administration
- Improved after albuterol administration
- No improvement after albuterol administration
- Returned to school same day
- Stayed home remainder of day
- Taken to emergency medical facility
- Taken to physician's office
- Hospitalized (where and duration): \_\_\_\_\_
- Death (include date): \_\_\_\_\_

**STEP 5. FOLLOW-UP AND ADDITIONAL INFORMATION**

Does the student have a history of asthma?	Yes	No
Does the student have a history of anaphylaxis?	Yes	No
Does the student have medications at school?	Yes	No
If yes, please list medications and time last doses given:		
1. Drug name: _____	Time last dose: _____	
2. Drug name: _____	Time last dose: _____	

Does the student self-carry his/her medication? Yes    No  
 If yes, does the student have back-up medication at school? Yes    No

Does student have an asthma action plan on file at school? Yes    No  
 Does student have an allergy action plan (for potential anaphylaxis) on file at school? Yes    No  
 Did the student return to school with a new or updated action plan? Yes    No

How long was the student absent from school following the event? \_\_\_\_\_

Activity at time of emergency (circle one):

- At rest
- Low exertion (i.e. standing, walking)
- Meal/Snack \_\_\_\_\_
- High exertion (PE or playground)
- Other (please describe) \_\_\_\_\_

Location at time of event (circle all that apply):

- Classroom
- Hallway
- Cafeteria
- Gym
- Outside
- Other (please describe) \_\_\_\_\_

Type of Emergency Medical Service (EMS) responding (circle one):

- 1<sup>st</sup> Responder
- EMT
- Paramedic

Comments or further description of emergency:

Names of individual(s) responding at scene of emergency:

\_\_\_\_\_

\_\_\_\_\_

Form Completed by: \_\_\_\_\_ Date: \_\_\_\_\_



**MEDICATION MONITORING FORM**

School \_\_\_\_\_ School Year \_\_\_\_\_

Date	EpiPen	Exp. Date*	EpiPen Jr.	Exp. Date*	Albuterol	Exp. Date *	Signature (Nurse/Health Services Supervisor)
August							
September							
October							
November							
December							
January							
February							
March							
April							
May							
June							
July							

\*Expiration: verify date, color, consistency, clarity.



*Specialists in effective inhalation*

## Attack on Asthma Nebraska ORDER FORM

PARI Respiratory Equipment, Inc.  
2943 Oak Lake Blvd.  
Midlothian, VA 23112

1.800.FAST.NEB (327.8632)  
Fax 1.800.727.4112  
www.PARI.com

### School Order Form:

Includes	PARI Part Number	Price Per Package	Quantity Ordered	Product Sub-Total
1 ea 86F81-LCD PRONEB® ULTRA II Deluxe with PARI LC PLUS® Reusable Nebulizer, 5 Year Warranty, carrying case and Instructional Video. 6 ea 22H71-LCD™ Disposable Nebulizer 1 ea 44F7248 BUBBLES THE FISH™ II Pediatric Mask 1 ea 14F20-PVC Adult Mask	Package 2	\$ 46.99		
<b>Total Due before Tax &amp; Shipping:</b>				
<b>Note: All product shipped UPS. Please provide appropriate UPS shipping (street) address and telephone number for contact.</b>				
<b>Bill To:</b>		<b>Ship To:</b>		
Name:		Name:		
Address:		Address:		
City: State: Zip:		City: State: Zip:		
Phone: Fax:		Email:		
Purchase Order number:	Credit Card #:	Exp:		
Signature:		Title:		
Print Name:		Date:		
TAX RESALE NUMBER: (Please enter number here or you will be charged Sales Tax)				

**Fax to PARI at (800) 727-4112**

***Thank you for your order!***

Please have my local PARI Respiratory Equipment Specialist contact me.  
on the latest aerosol technology, devices and procedures.

Via: Office Visit  Phone  Mail  Email

**NOTE:** Please call AOAN prior to ordering, as there may be a compressor on hand. Thank You!

## **Appendix D: RESOURCES**

Contact the organizations listed below for information about asthma and allergies/anaphylaxis. There are **many** ideas to help your school be more asthma/allergy friendly. If you find a resource that is not listed, please let us know for further updates. Thank You!

### **Attack On Asthma Nebraska**

PO Box 194  
Malcolm, NE 68402

**[www.attackonasthma.org](http://www.attackonasthma.org)**

402-616-9600

Attack On Asthma Nebraska (AOAN) is a non-profit organization working in partnership with the Nebraska Department of Education to provide educational materials and training to support the Rule 59 *Emergency Response to Life-Threatening Asthma or Systemic Allergic Reactions (Anaphylaxis)*. AOAN receives no state or federal funding and operates solely on charitable contributions.

Available online

- *Education Plan & Curriculum for School Emergency Response Teams*
- *PowerPoint presentation for general staff education*
- *PowerPoint presentation for Emergency Response Teams*
- *Much, much more*

### **Department of Health and Human Services [www.hhs.state.ne.us/ash/ashindex](http://www.hhs.state.ne.us/ash/ashindex)**

Division of Public Health  
School and Child Health Program  
P.O. Box 95026  
Lincoln, NE 68509-5026  
402-471-0160 / 800-801-1122

The School and Child Health Program provides consultation, training services and resources to Nebraska schools, school nurses, and others in order to promote the health, well-being, and educational success of every child in Nebraska. Resources related to the management of asthma and anaphylaxis in schools include: state guidelines for the management of asthma in school health programs; information on statutes and regulations pertaining to management of asthma and other chronic conditions; materials for school health professionals; sample forms and a wide variety of resources from national, state, and local sources.

### **Allergy & Asthma Network Mothers of Asthmatics**

2751 Prosperity Avenue, Suite 150  
Fairfax, VA 22031

**[www.breatherville.org](http://www.breatherville.org)**

800-878-4403/703-641-9595

A national nonprofit organization dedicated to assisting allergy and asthma patients and their families. AANMA provides reliable and practical information, support and resources. Breatherville, USA is the online equivalent of a tour of AANMA and its services. Click on the School House to find information on keeping kids with asthma and allergies safe at school.

Attack on Asthma Nebraska



**The Food Allergy & Anaphylaxis Network**

11781 Lee Jackson Hwy, Suite 160  
Fairfax, VA 22033

[www.foodallergy.org](http://www.foodallergy.org)

800-929-4040/703-691-3179

A non-profit organization working to be a world leader in food allergy and anaphylaxis awareness and the issues surrounding this disease. FAAN publishes several newsletters and has dozens of books, booklets, videos and other educational products. Click on “Managing Food Allergies in Schools”. Check out:

- [School Food Allergy Program](#) - The comprehensive, multimedia program includes a video, an EpiPen® trainer, Twinject® trainer, a poster, and a binder filled with more than 100 pages of information and standardized forms. Thousands of schools across the country have used it to safely and successfully manage their students with food allergies. **FREE!**
- [Protect A Life \(PAL\)](#) - This educational awareness program is designed to provide educators with information for teaching students about food allergies and to help them learn how to help friends who have food allergies.
- [www.faankids.org](http://www.faankids.org) - FAAN’s website for kids
- [www.faanteen.org](http://www.faanteen.org) - FAAN’s website designed for young adults who want to take a more active role in managing their food allergies.

**American Lung Association®**

7101 Newport Ave., Suite 303  
Omaha, NE 68152

[www.lungnebraska.org](http://www.lungnebraska.org)

402-572-3030

The American Lung Association offers a wide variety of health education programs to help students breathe easier. From smoking prevention and cessation programs to asthma education and indoor air quality programs in schools, we are a resource for educators nationwide. Educational materials for individuals, as well as teachers are available. For more information on programs in your area, call your local ALA office. Check out:

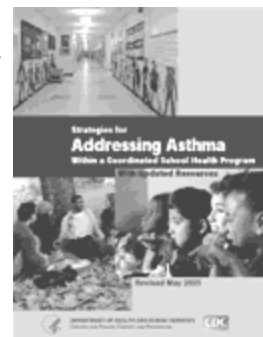
- [Open Airways For Schools](#) - American Lung Association's elementary-school education program for children with asthma. Open Airways teaches children with asthma to understand and manage their illness so they can lead more normal lives.
- [Teens Against Tobacco Use \(TATU\)](#) - an important part of the American Lung Association® drive to eliminate tobacco use among youth. TATU is a peer-teaching tobacco control program aimed at deterring youngsters from taking up smoking. We also have a smoking cessation program for teens, called **Not On Tobacco**, or N-O-T.
- [Asthma-Friendly Schools Initiative](#) - The goal of the *Asthma-Friendly Schools Initiative (AFSI)* is to assist local communities and community organizations in planning and implementing comprehensive asthma management programs within their local schools and existing school structure.
- [www.asthmabusters.org](http://www.asthmabusters.org) - on-line club for kids with asthma

**Centers for Disease Control and Prevention**

[www.cdc.gov/healthyyouth/asthma](http://www.cdc.gov/healthyyouth/asthma)  
770-488-7320

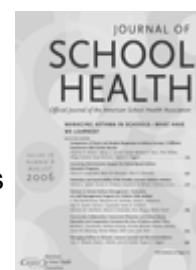
The CDC has many resources available to view or download. Check out:

- Strategies for Addressing Asthma Within a Coordinated School Health Program – This publication offers concrete suggestions for schools working to improve the health and school attendance of students with asthma and has provided the backdrop for the Guidelines for School Health Services in Nebraska – Asthma and Severe Allergy (Anaphylaxis). The six strategies identified by the CDC can be effective whether your program is for the entire school district or just one school.



- Managing Asthma: A Guide for Schools – This publication is intended to assist schools that are planning or maintaining an asthma management program. This guide provides follow-up steps for schools that currently identify students with asthma through health forms or emergency cards or plan to do so. It is designed to offer practical information to school staff members of every position.

- Managing Asthma In Schools – What Have We Learned? - This special issue of the American School Health Association's Journal of School Health features more than 25 research articles, brief reports, and case studies that cover a range of activities, such as asthma education programs for students and staff members, asthma-related health services, and policy changes. It also includes a list of resources for school-based asthma programs.



**Asthma and Allergy Foundation of America**

[www.aafa.org](http://www.aafa.org)  
800-727-8462

AAFA, a non-profit, provides practical information, community based services and support through a national network of chapters and support groups. AAFA develops health education, organizes state and national advocacy efforts and funds research to find better treatments and cures.

**Healthy Kids: The Key to Basics**

79 Elmore Street  
Newton, MA 02459-1137

[www.healthy-kids.info](http://www.healthy-kids.info)

617-965-9637

HEALTHY KIDS: THE KEY TO BASICS is dedicated to promoting a better understanding of the health and educational needs of students with asthma and other chronic health conditions. Healthy Kids resources are designed to help parents, educators, health professionals, organizations, and policy makers' work together to improve educational and environmental health policies and practices so that schools are safe for children's healthy development.

**American Academy of Allergy, Asthma  
And Immunology**

611 East Wells Street  
Milwaukee, WI 53202

[www.aaaai.org](http://www.aaaai.org)

800-822-2762/414-272-6071

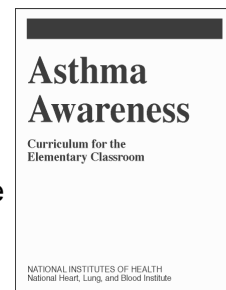
Find an allergist/immunologist, pollen counts, medication guide, patient newsletter and much more.

**National Heart Lung and Blood Institute  
National Institutes of Health**

**[www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)  
301-592-8573**

The Institute plans, conducts, fosters, and supports an integrated and coordinated program of basic research, clinical investigations and trials, observational studies, and demonstration and education projects. For health professionals and the public, the NHLBI conducts educational activities, including development and dissemination of materials in the above areas, with an emphasis on prevention. Excellent online resources available to download:

- [How Asthma-Friendly Is Your School?](#)
- [How Asthma-Friendly Is Your Child Care Setting?](#)
- [National Asthma Education and Prevention Program Resolution on Asthma Management at School](#)
- [Asthma and Physical Activity in the School](#)
- [Students with Chronic Illnesses: Guidance for Families, Schools and Students](#) - This Guidance Sheet presents positive actions schools and families can take to address multiple chronic diseases at once using the same action steps. The guidance sheet is brief-a one-page document front and back-and the suggestions given are both practical and low cost. It is designed for possible use as a checklist for those who wish to rate their current level of activity or to monitor progress toward achieving a higher level of activity. This resource should help schools design a more coordinated approach in meeting the needs of students with chronic illnesses and can facilitate school efforts for attaining compliance with applicable Federal laws.
- [Asthma Awareness Curriculum](#) - This is a program for the elementary school teacher making it easy to integrate asthma lessons into your regular curriculum on body systems. The lessons are easily integrated into a comprehensive health education curriculum, science, and social sciences with suggestions for math, art and language arts activities.
- [When Should Students With Asthma or Allergies Carry and Self-Administer Emergency Medications at School?](#) - Asthma care providers and school health teams (parents/guardians, students, school nurses and school staff) will find the following resource useful in assessing a student's maturity, disease knowledge and management skills, and appropriateness to carry and self-administer prescribed emergency medications while at school according to his/her personal disease management plan.
- [School Health Index](#) – A Self-Assessment and Planning Guide Schools can use the SHI to improve their health and safety policies and programs. It's easy to use and completely confidential.



**National Association of School Nurses**

**[www.nasn.org](http://www.nasn.org)**

The National Association of School Nurses improves the health and educational success of children and youth by developing and providing leadership to advance school nursing practice. Access papers, reports, consensus statements and resolutions relative to school nursing, asthma and allergies at school.

**U. S. Environmental Protection Agency**

[www.epa.gov/iaq/schools](http://www.epa.gov/iaq/schools)

**Indoor Air Quality Information**

800-438-4318

EPA developed the *Indoor Air Quality (IAQ) Tools for Schools (TfS)* Program to reduce exposures to indoor environmental contaminants in schools through the voluntary adoption of sound indoor air quality management practices.



The *IAQ Tools for Schools* Program is a comprehensive resource to help schools maintain a healthy environment in school buildings by identifying, correcting, and preventing IAQ problems. Poor indoor air quality can impact the comfort and health of students and staff, which, in turn, can affect concentration, attendance, and student performance. In addition, if schools fail to respond promptly to poor IAQ, students and staff are at an increased risk of short-term health problems, such as fatigue and nausea, as well as long-term problems like asthma.

Since its release in 1995, the *IAQ TfS Action Kit* has been implemented in hundreds of schools across the country. School districts that have implemented *IAQ TfS* find that there are common elements to successfully implementing the program.

1. **Organizing** a program with a committed group of individuals dedicated to ensuring good IAQ and with clear support from senior management
2. **Assessing** current IAQ conditions and issues
3. **Creating a Plan** outlining a strategic approach to identifying, resolving, and preventing IAQ problems
4. **Taking Actions** to improve IAQ in the school that lead to increased student and staff health and productivity
5. **Evaluating** the IAQ management program by tracking and assessing results
6. **Communicating** the intent, results, and next steps of the IAQ management program

The *IAQ TfS* Program assists school districts in identifying the actions they can take to successfully plan and implement an effective IAQ management Program.



The *IAQ Tools for Schools* Program provides a variety of products, materials, and tools at **no cost** to help schools implement an indoor air quality management program. In addition to the *IAQ TfS Action Kit*, specialized fact sheets, brochures, and software programs are available to provide in-depth information on environmental topics.

**American College of Allergy, Asthma and Immunology**

[www.acaai.org](http://www.acaai.org)

85 West Algonquin Road, Suite 550  
Arlington Heights, IL 60005

800-842-7777/847-427-1200

Find an allergist, interactive quizzes, nationwide asthma screening program, validated asthma and allergy screening questionnaire for students and much more.

**American Academy of Pediatrics**

141 Northwest Point Blvd  
Elk Grove Village, IL 60007

[www.aap.org](http://www.aap.org)

800-433-9016/847-228-5005

Provides policy statements, clinical reports, clinical practice guidelines, technical reports and parent information pages. Check out:

- Self-injectable Epinephrine for First-Aid Management of Anaphylaxis  
<http://aappolicy.aappublications.org/cgi/content/full/pediatrics;119/3/638?eaf>

**The American Latex Allergy Association**

PO Box 198  
Slinger, WI 53086

[www.latexallergyresources.org](http://www.latexallergyresources.org)

888-972-5378/262-677-9707

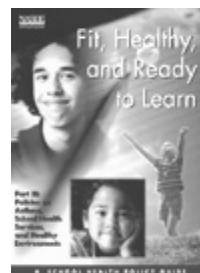
The American Latex Allergy Association is a national non-profit, tax-exempt organization that creates awareness of latex allergy through education, and provides support to individuals who have been diagnosed with latex allergy. This website is designed to provide educational materials, publications and product information to assist you with your understanding of natural rubber latex allergy.

**National Association of State Boards of Education**

[www.nasbe.org](http://www.nasbe.org)

Click on “Healthy Schools” - Since 1987 NASBE has partnered with the Division of Adolescent and School Health (DASH) of the Centers for Disease Control and Prevention (CDC) to provide guidance and assistance to state and local education policymakers and practitioners. Our goal is to encourage safe, healthy, and nurturing school environments for all of the nation's children and youth.

- *Fit, Healthy, and Ready to Learn* is organized around model policies that reflect best practice and can be adapted by states, school districts, public schools, and private schools to fit local circumstances. The points they address were suggested by the CDC school health guidelines, actual state and local policies, and reviewers' comments. NASBE offers the model policy language free of copyright; courtesy attribution is requested. This can be ordered or downloaded as a .PDF.
- Part III – Policies on Asthma, School Health Services, and Healthy Environments. This installment provides information and policies that can be integrated into a coordinated policy framework.





**[www.schoolasthmaallergy.com](http://www.schoolasthmaallergy.com)**

This site is run by Schering-Plough and has a LOT of information. A lot of the information is geared towards school nurses and physicians, but there are categories for everyone – teachers, coaches, parents, etc. A wealth of information can be found here!

**[www.winningwithasthma.org](http://www.winningwithasthma.org)**

An interactive program so coaches can learn about asthma, how it affects an athlete's ability to compete, and how the coach can help athletes manage their symptoms while playing their very best. The coach's program was designed primarily for coaches working with young athletes, but is appropriate for all age groups.

This 30-minute online educational program focuses on what coaches, referees, and physical education teachers should know about asthma, including:

- Asthma basics
- What medications are used and when
- Ways to prevent exercise-induced asthma
- Steps to take when athletes are experiencing asthma attacks, including suggestions for cold-weather sports

Those who complete the program receive a booklet with additional asthma information and a coach's clipboard with "*What to do during an asthma attack*" printed on the back, and a laminated card to put inside the first aid kit.

This program has been developed through a collaborative effort between the Minnesota Department of Health Asthma Program (MDH) and the Utah Department of Health Asthma Program (UDOH).

**[www.starlight.org/asthma](http://www.starlight.org/asthma)**

Starlight Starbright Children's Foundation has made its interactive educational asthma game, **Quest for the Code®**, formerly only on CD-ROM, available online. Featuring voiceover talent of Cuba Gooding Jr., Whoopi Goldberg, Kelsey Grammer, Gwyneth Paltrow, Glenn Close, Shaquille O'Neal and other celebrities, Quest for the Code is a fun and engaging way for children, and their parents, to learn to manage a child's asthma, find coping tips and get advice. Anecdotal evidence from school nurses indicates that children's use of this game, a psycho-educational intervention, can reduce school absenteeism.

Quest for the Code helps kids and teens ages 7 to 15 find out more about:

- Early warning signs and symptoms
- Identifying and avoiding asthma triggers
- Myths about asthma
- How asthma affects the lungs
- Proper use of asthma medication devices
- Long-term control medicine and quick-relief medicine
- Measuring and monitoring peak flow
- How to answer questions from peers about asthma

## **FIELD TRIP TIPS**

In accordance with Rule 59, the protocol supplies and medications are to be available while school is in session. Some schools may elect to provide emergency coverage in addition to the school day requirement, i.e. coaches bags for sporting events. Any student who has already been diagnosed with an asthma or allergy condition should have an action plan and medications at school. The student's own medications and personal action plan need to go with them on a field trip. Unless a student is authorized to self-carry, his/her medications are to be managed by a medication aide certified staff member. Following are suggestions to help get ready for your next field trip.

### **Parent Responsibilities:**

- Review the student's plan on file and note any updated information.

### **School Responsibilities:**

- Check expiration dates on medications to allow time for prescription renewal, if necessary.
- Brief the staff and chaperones that will be supervising students during the event or trip. Identify the student; explain the signs and symptoms specific to that student for an asthma episode or allergic reaction. Review the student's asthma/allergy action plan and discuss asthma triggers or what allergen must be avoided.
- If student is food allergic, designate a staff member to check the safety of any food served to this student.
- The day of the event or trip, carry the student's medications wherever the student goes. Keep all staff and chaperones informed as to who will have the student's medications in case of emergency.
- Carry a cell phone. Keep all staff and chaperones informed as to who will have the cell phone.
- Take all complaints seriously. If the student notifies the staff that he or she is not feeling well, compare the symptoms with those listed on that student's asthma action plan.

### **Student Responsibilities**

- Not sharing food with other students.
- Notify a staff member immediately if they feel they are having an asthma episode or allergic reaction.

***Remember – if epinephrine is administered, and then found to be unnecessary, the student may experience increased heart rate and nervousness. If epinephrine is not administered, and then found to be necessary, the student may experience a severe or fatal allergic reaction.***

***Rule 59 emergency medications and equipment stay at the school.***

## **LOOKS LIKE ASTHMA – SOUNDS LIKE ASTHMA**

If a person presents with signs and symptoms that resemble a life-threatening breathing emergency, then the protocol is to be administered.

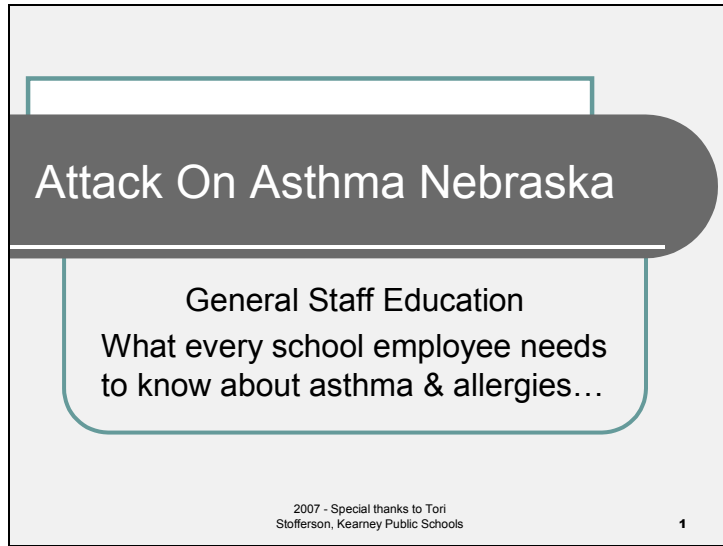
There are at least two conditions that have been known to look and sound like asthma – hyperventilation and vocal cord dysfunction. Additional information about these conditions can be found at [www.attackonasthma.org](http://www.attackonasthma.org). It is extremely important to note that these conditions need to be evaluated and diagnosed by a health care professional. If you have a student and/or staff member diagnosed with one of these conditions there should be an individual action plan directing their care and treatment while at school.

If a person presents with signs and symptoms that resemble a life-threatening breathing emergency, Emergency Response Team members must administer the protocol.

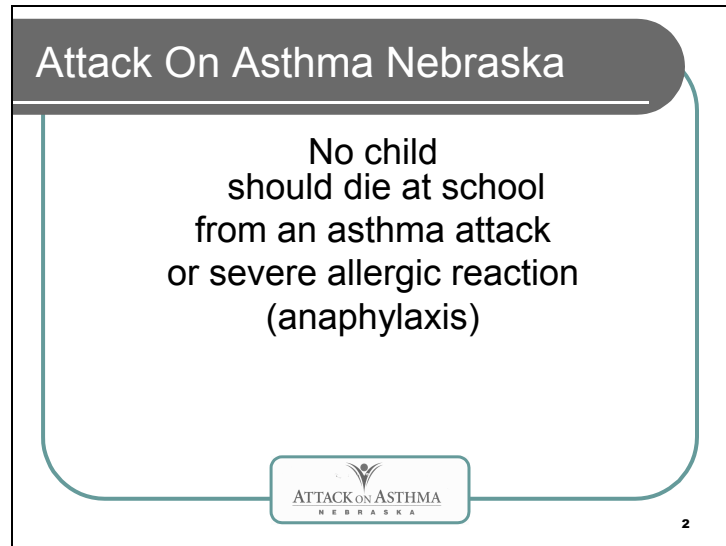
**Appendix E: POWERPOINT PRESENTATION NOTES PAGES**

Slide 1

**General Staff Education**



## Slide 2



AOAN is a non-profit organization receiving no state or federal funding. This organization exists solely with individual and corporate donations.

In 1998 two students died in NE from an asthma attack – it was from those tragedies that the idea of an emergency breathing protocol arose. In May 2003, the NE State Board of Education mandated that every school in the state of NE be prepared to deal with a life-threatening breathing emergency due to asthma or severe allergic reaction (anaphylaxis).

AOAN partners with the NE Dept of Education and is committed to increasing public awareness of asthma and allergies in meeting its mission to ensure that all NE schools have the education, training and medications to respond to life-threatening breathing emergencies at school.

Slide 3

**Learning Objectives**  
At the end of this module, the participant will:

1. Know what is in YOUR classroom that may cause an allergy or asthma attack
2. Recognize when an allergy or asthma emergency is happening
3. Know how to activate your school's Emergency Response Team

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3

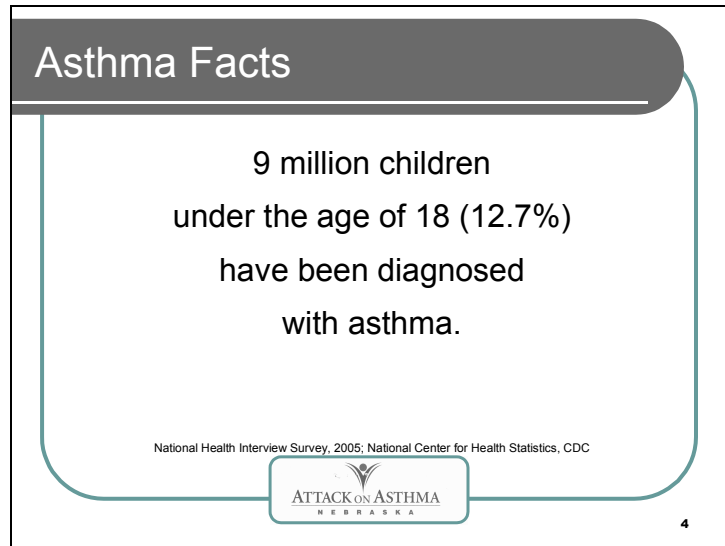
Introduce your school's Emergency Response Team (ERT) members, if present.

Post ERT member list and inform all staff of list location(s).

Give names of ERT members.

Discuss how the ERT is activated in your school.

Slide 4



Asthma Facts

9 million children  
under the age of 18 (12.7%)  
have been diagnosed  
with asthma.

National Health Interview Survey, 2005; National Center for Health Statistics, CDC

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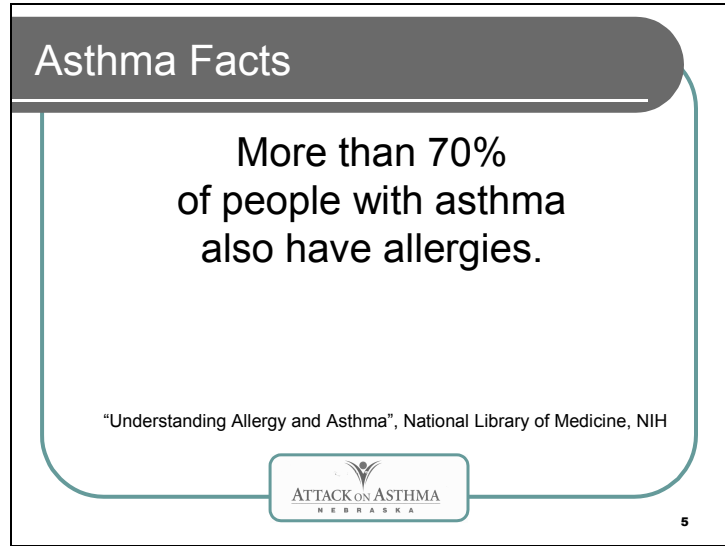
4

Asthma is the most common chronic childhood disease and accounts for most of student absences.

In a classroom of 30, two or more children are likely to have asthma.

According to the 2005 Youth Risk Behavior Study, 19.2% of high school students have been told by a doctor or nurse that they have asthma.

Slide 5



Asthma Facts

More than 70%  
of people with asthma  
also have allergies.

"Understanding Allergy and Asthma", National Library of Medicine, NIH

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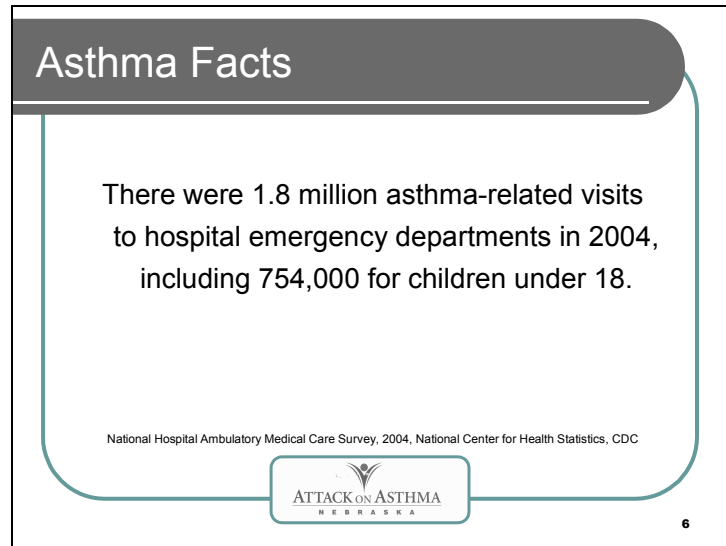
5

The slide features a dark grey header with the title 'Asthma Facts' in white. The main content is enclosed in a light blue rounded rectangle with a thin border. The text is centered and uses a clean, sans-serif font. At the bottom center is the 'ATTACK ON ASTHMA NEBRASKA' logo, which includes a stylized bird or leaf icon above the text. A small number '5' is located in the bottom right corner of the slide frame.

This is why it is so important for you to recognize the things in a student's environment that may be triggering their asthma as a result of an allergic reaction.



Slide 6

A slide graphic with a dark grey header containing the text "Asthma Facts". The main content area is white with a teal border. It contains the text: "There were 1.8 million asthma-related visits to hospital emergency departments in 2004, including 754,000 for children under 18." Below this text is a small citation: "National Hospital Ambulatory Medical Care Survey, 2004, National Center for Health Statistics, CDC". At the bottom center is a logo for "ATTACK ON ASTHMA NEBRASKA" and a small number "6" in the bottom right corner.

**Asthma Facts**

There were 1.8 million asthma-related visits to hospital emergency departments in 2004, including 754,000 for children under 18.

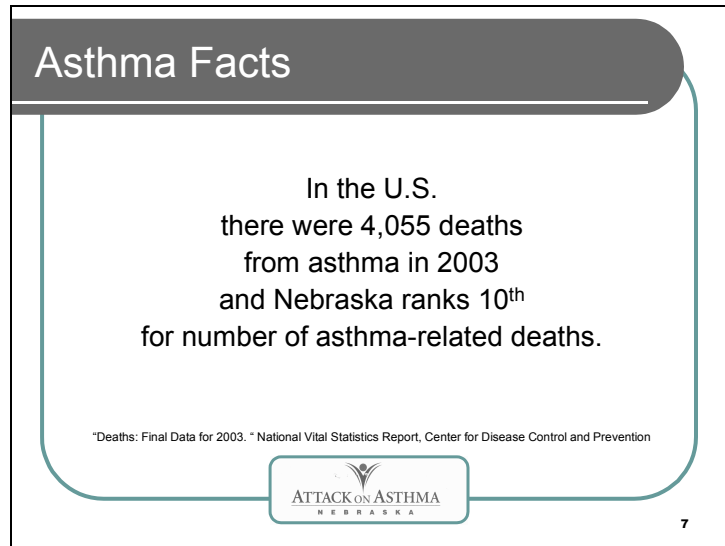
National Hospital Ambulatory Medical Care Survey, 2004, National Center for Health Statistics, CDC

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6

Although there is no cure for asthma, it is a disease that can be well-controlled with treatment.

Slide 7



Asthma Facts

In the U.S.  
there were 4,055 deaths  
from asthma in 2003  
and Nebraska ranks 10<sup>th</sup>  
for number of asthma-related deaths.

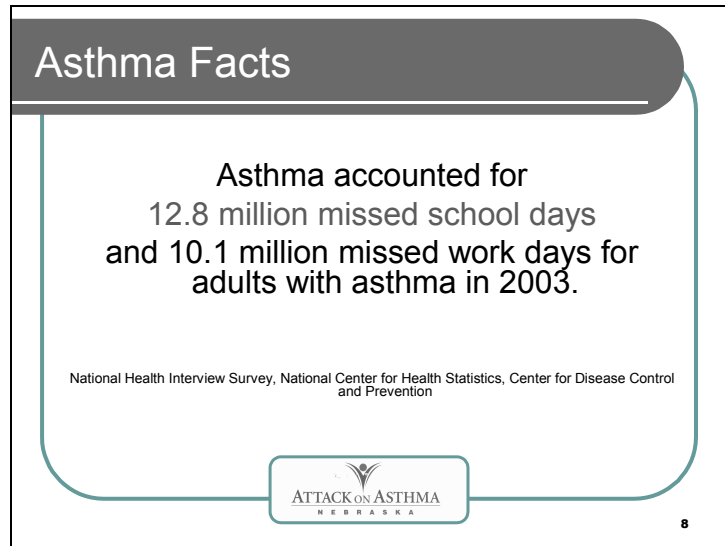
\*Deaths: Final Data for 2003. \* National Vital Statistics Report, Center for Disease Control and Prevention

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NEBRASKA

7

We don't want any statistics from your school to be added to these numbers.

Slide 8



**Asthma Facts**

Asthma accounted for  
12.8 million missed school days  
and 10.1 million missed work days for  
adults with asthma in 2003.

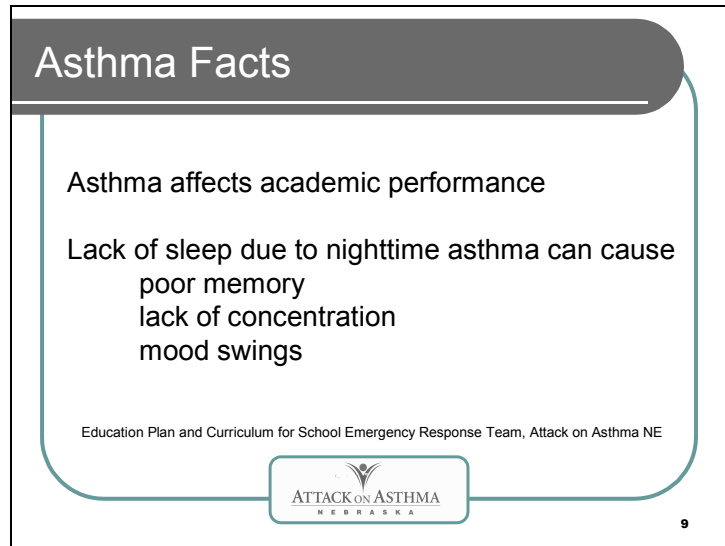
National Health Interview Survey, National Center for Health Statistics, Center for Disease Control  
and Prevention

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8

An estimated 12.8 million school days are lost per year nationwide because of asthma. The child with mild-moderate asthma misses an average of 10 days per school year and the child with severe asthma misses 30 days per year.

Slide 9




**Asthma Facts**

Asthma affects academic performance

Lack of sleep due to nighttime asthma can cause

- poor memory
- lack of concentration
- mood swings

Education Plan and Curriculum for School Emergency Response Team, Attack on Asthma NE

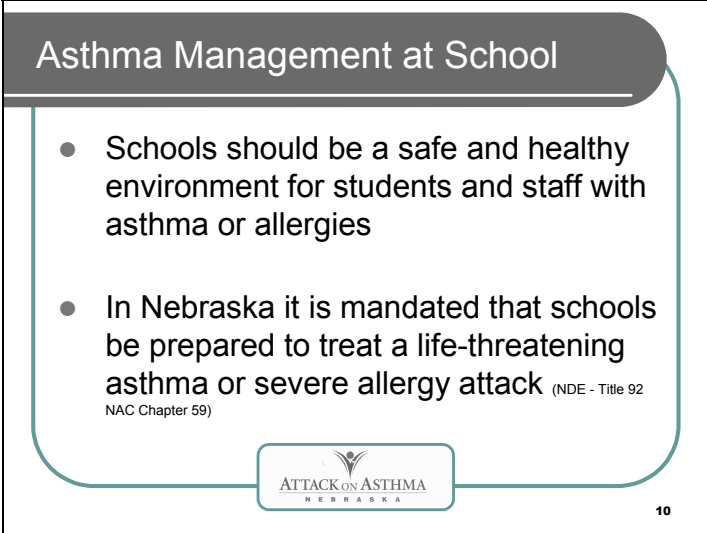
 **ATTACK ON ASTHMA**  
NEBRASKA

9

Lost school days affect the child’s self-esteem, grades, sport activities and relationships.

Asthma also causes parents to miss work and be less productive due to sleepless nights.

Slide 10



**Asthma Management at School**

- Schools should be a safe and healthy environment for students and staff with asthma or allergies
- In Nebraska it is mandated that schools be prepared to treat a life-threatening asthma or severe allergy attack (NDE - Title 92 NAC Chapter 59)

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10

All Accredited Schools, Approved Schools, and Approved Early Childhood Education Programs shall adopt and implement the Emergency Response to Life-Threatening Asthma or Systemic Allergic Reactions (Anaphylaxis) Protocol.

Slide 11

**What Is Asthma?**

- Asthma is a lung disease caused by increased reaction of airways to stimuli, and can be life threatening
- Asthma is a chronic (life-long) disease, with symptoms that may come and go and is often related to allergies

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11

Children do not usually “outgrow” asthma. They may be symptom free for long periods of time, but the tendency for and asthma attack is always there.


According to the 2005 Youth Risk Behavior Survey in Nebraska, among the students with asthma, the percentage who had an episode or attack in the previous 12 months: 40.4%

Slide 12


### What is happening during an asthma attack?

- **Airway inflammation** – the airway lining becomes red, swollen and narrow
- **Bronchoconstriction** – the muscles that encircle the airway tighten/spasm
- **Airway obstruction** – as the airway tightens and narrows, it can be very difficult to get air in and out of the lungs

Normal bronchiole




Asthmatic bronchiole



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- **Airway hyperresponsiveness** – the muscles that encircle the airway respond more vigorously and quickly to smaller amounts of allergens and irritants
- **Secretions** (mucus production) within the airway lining increases



12


In asthma, the airways of the lung become narrow and obstructed.

Swelling and increased mucus in the airway lining causes the airway to become rigid and interferes with airflow.


As the airways become obstructed, it becomes harder to breathe out and the lungs get filled up with air. This causes chest tightness and shortness of breath.

Slide 13


## Asthma Triggers




Pollen



Mold




Dust mites



Pet dander

- Tobacco smoke
- Mold and mildew
- Pollutants resulting from poor ventilation
- Pets with fur or feathers
- Cockroach or mouse droppings
- Strong Odors (chemicals, cleaning agents, paint, air fresheners, perfumes, dry erase markers, magic markers, glue/paste, fumes from soldering or welding)
- Cold / damp weather
- Exercise
- Extreme emotional expression (stress, anxiety, anger or crying)
- Mechanical responses such as prolonged sneezing, yelling or laughing
- Common cold, influenza or other respiratory infections
- Certain foods –peanuts, milk, soy, shellfish, eggs



13

Check out this list and think about your classroom – you have the ability to control student exposure to many but not all triggers.

Upper respiratory infections are the most common cause of asthma attacks in children.

Crying or laughing can trigger asthma symptoms.

Weather conditions, such as cold weather can also make asthma worse



## Slide 14

**What YOU can do to reduce and/or eliminate triggers...**

- Establish smoke-free policy that prohibits tobacco use on all school property
- Provide adequate ventilation, low humidity, and good air circulation
- Clean the classroom regularly, avoiding sprays and harsh cleaning solutions
- Remove or cover volatile materials in arts and science areas
- Avoid using products that have strong fumes/odors or dust residue (certain pens, glues, paints, candles, air fresheners, perfumes, and chalk)
- Keep classrooms free from pets and plants

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14

There should be no tobacco products allowed on school property, including after-school hours sporting events,

The use of chemicals or cleaning agents that have strong odors should be limited to times when the students are not present

Use of scented candles, room air fresheners or wearing of perfumes or body sprays by staff or students should be discouraged.

There should be no pets with fur or feathers (except service animals) inside the school building.

Children can bring animal dander to school on their clothing which can then be transferred via carpets, clothes hanging together or even just close proximity and cause an allergic/asthmatic reaction to another student.

Damp and wet areas can be ideal places for mold growth.

Slide 15

### Signs and Symptoms of an Asthma Attack

- Coughing
- Wheezing
- Difficulty breathing or shortness of breath
- Chest pain, heaviness or feeling of tightness
- Rapid breathing
- Tired, no energy, "hitting the wall"
- May feel or act anxious
- Blue or grayish tinge to lips or nailbeds

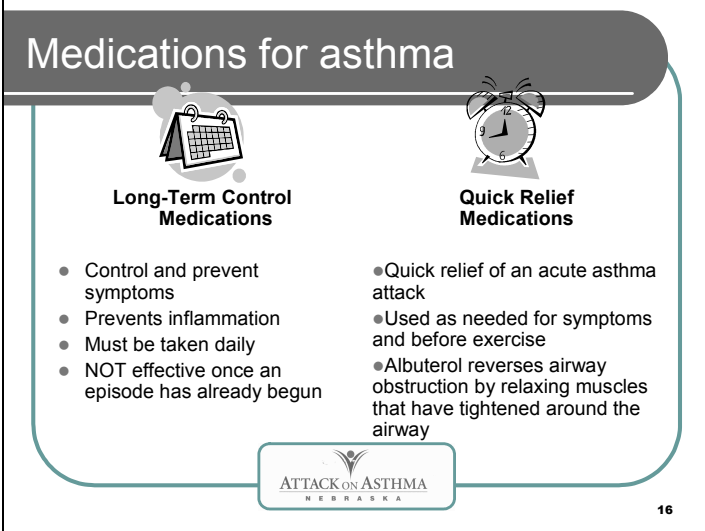
Gallagher 2002

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15

Not every person will display every symptom, for instance some asthmatics cough constantly during an attack but never wheeze. Some wheeze but never cough.

## Slide 16




**Medications for asthma**



**Long-Term Control Medications**

- Control and prevent symptoms
- Prevents inflammation
- Must be taken daily
- NOT effective once an episode has already begun



**Quick Relief Medications**

- Quick relief of an acute asthma attack
- Used as needed for symptoms and before exercise
- Albuterol reverses airway obstruction by relaxing muscles that have tightened around the airway

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16

Every child with asthma should have an asthma action plan that tells what medications are to be taken and when.

**Long term control medications** are anti-inflammatory medications that reduce and prevent airway inflammation (swelling), the quiet part of asthma that's always there but not always noticed. These medications are taken daily and NOT effective once an episode has begun. Generally speaking, long term control medication would be given daily at home.

Some examples of long-term medications are: Advair, Flovent, Pulmicort, etc.

**Quick relief medications** are short-acting bronchodilators that relax the muscles around the airways and treat the noisy part of asthma: coughing, wheezing and shortness of breath.

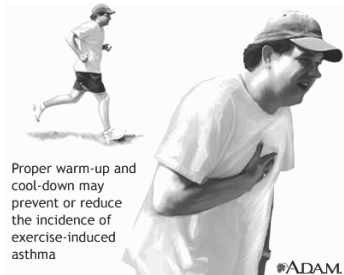
They should be used at the first sign of symptoms and prior to exercise if directed by a physician.

The school needs to have the student's quick relief medications available to give in the event of an attack.

Some examples of quick relief medications are: Albuterol, Pro-Air, Ventolin and MaxAir.

Slide 17

## Exercise Induced Asthma (EIA) Symptoms Include:



Proper warm-up and cool-down may prevent or reduce the incidence of exercise-induced asthma

- Coughing
- Wheezing
- Chest tightness
- Breathlessness
- Occurs within 5 – 10 minutes after starting exercise
- Last for 20-30 minutes

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Exercise induced asthma is not a reason or excuse to be excluded from physical activity.


A good asthma action plan will minimize symptoms, allowing the student to participate in physical activities without limitations.

Slide 18

## Management of EIA

Many physicians recommend the following routine before exercise or competition:

- **Make sure the child has an asthma action plan on file**
- **Pre-medicate with quick relief inhaler as directed by physician**
- **Warm up with 10-15 minutes of stretching**
- **Begin aerobic exercise to raise heart rate and sustain for 5 -10 minutes before planned activity**
- **If full activity is not possible, modify the activity**
- **The quick relief inhaler may be used more frequently as directed by a physician**



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18


Without physician orders or an asthma action plan, activities may need to be modified for a student whose asthma is not under good control.

Presenter: Consider showing an example of the action plan your school uses.

Slide 19

**Severe Allergic Reaction  
(Anaphylaxis)**

- **Anaphylaxis is a medical emergency caused by an acute systemic (whole body) allergic reaction characterized by bronchial inflammation and constriction, and vascular collapse**
- **Epinephrine or Adrenaline is the medication of choice for handling an anaphylactic reaction**
- **Anaphylaxis can be caused by a number of things including food allergy, insect stings, medication and latex**



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This person may DIE without treatment.

Symptoms occur within minutes or up to 2 hours post-exposure, rarely – up to 4 hours later.

Can occur with no previous allergic reaction.

Greater risk for individuals with asthma, hayfever, or eczema

Slide 20

**Food Reactions**

- Approximately 2.2 million school-aged children have food allergy
- It is estimated that between 150-200 people die annually from anaphylaxis to foods
- Most individuals who had a reaction ate a food they “thought” was safe

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NEBRASKA

Food Allergy And Anaphylaxis Network, 2007

20

Food allergic reactions result in over 30,000 emergency room visits each year.

Teens and young adults with peanut or tree nut allergy and asthma appear to be at an increased risk for fatal allergic reactions.

Slide 21

## Food Reactions

- Some foods that commonly produce life-threatening reactions are tree nuts (walnuts, almonds, cashews, etc.), peanuts, fish, shellfish, eggs, milk, soy and wheat



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NEBRASKA

21

Some allergies are so severe that the food does not have to be eaten to cause a reaction. Some reactions are triggered by touching the allergen or surfaces where the allergen has had contact.



There is no cure. The only way to prevent a reaction for a food allergy is strict avoidance.



## Slide 22

## Insect / Bee / Wasp Stings

- Local Reaction: swelling, pain, redness at the site of the sting/bite
  - Treatment: wash with soap and water and apply ice pack
- Anaphylactic Reaction: difficulty breathing, swelling of face/neck/tongue, and rapidly dropping blood pressure
  - Treatment: Activate Emergency Response Team for EpiPen injection



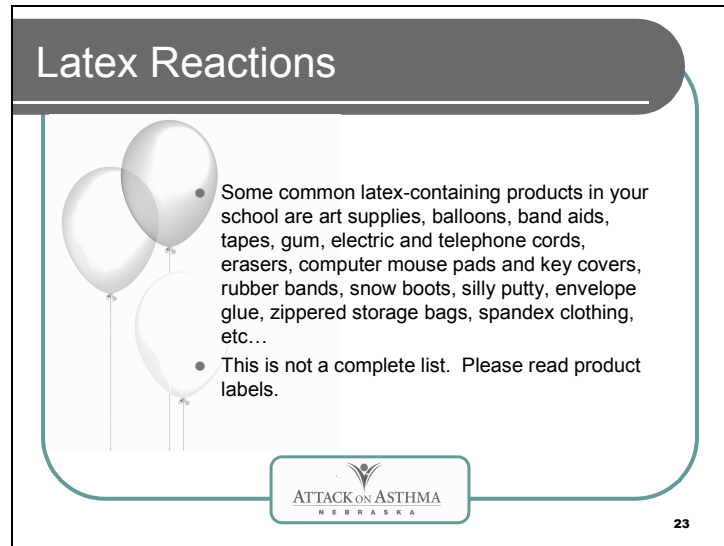
22

Symptoms usually occur within minutes of the sting.

Reactions can vary from mild and localized to systemic (whole body) and life-threatening.

Strategies to avoid insect stings at school include: keeping garbage covered at all times and avoid drinking sweetened liquids outdoors.

## Slide 23



## Latex Reactions

- Some common latex-containing products in your school are art supplies, balloons, band aids, tapes, gum, electric and telephone cords, erasers, computer mouse pads and key covers, rubber bands, snow boots, silly putty, envelope glue, zippered storage bags, spandex clothing, etc...
- This is not a complete list. Please read product labels.

ATTACK ON ASTHMA  
NEBRASKA

23

Latex allergies are common among children and adults with frequent exposure to latex products, primarily those with chronic health problems.

The only treatment is avoidance of latex products.



For those individuals who are allergic to latex, they may have symptoms when they eat certain foods: Bananas, chestnuts, passion fruit, avocado, kiwi, celery, and melon.

For more references to specific allergic conditions, please check on-line.

Slide 24

## Food-Dependent Exercise-Induced Anaphylaxis

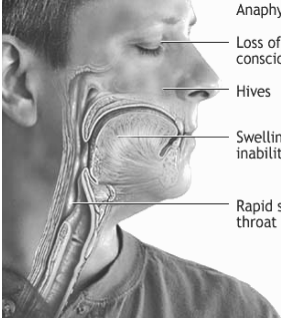
- A rare condition that occurs when an individual eats a specific food and then exercises within 3-4 hours after eating
- Foods commonly reported to cause such a reaction are: wheat, shellfish, fruit, milk, celery and fish



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Slide 25

### Symptoms of Anaphylaxis



Anaphylaxis

- Loss of consciousness
- Hives
- Swelling of tongue, inability to swallow
- Rapid swelling of throat tissues

- Hives; Swelling of tissue around the face/lips/eyes
- Itching: skin, mouth, throat
- Anxiety
- Difficulty swallowing
- Shortness of breath / wheezing
- Nausea / vomiting / diarrhea
- Sneezing and coughing
- Low blood pressure

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Symptoms of a reaction can vary from person to person.

Symptoms can also vary from one reaction to another, even for the same person.

Left unattended, these symptoms can lead to death.

Slide 26

**What Should I Do?**

If you think someone is having a severe asthma attack or anaphylaxis, **seek assistance immediately.**

- Stay calm. Call 911
- Notify the school nurse and/or activate the school's Emergency Response Team
- Do not hesitate and do **not** leave the student unattended

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The 3 R's of an emergency plan are:

Recognize symptoms early

React quickly


Review what caused the reaction after things calm down

## Slide 27

**Managing & Controlling Asthma or Allergies:**  
How to Avoid a Breathing Emergency (It takes a village)

**PARENT RESPONSIBILITIES:**

- Notify school of student's allergies/asthma
- Provide written medical documentation, instructions, and medications as directed by a physician.
- Participate in the development of the asthma/allergy action plan. Provide written authorization if student self-carries medication (Neb. Rev. Stat. 79-224)
- Provide the school with instructions for contacting parents or other responsible adult in case of emergency

 27

For a student diagnosed with asthma or potential severe allergic reactions, management requires a teamwork approach.

Parents, student, school and physician each play a part in making sure the student is safe at school.


Parents need to communicate with school staff about their child's condition and what their reaction or attack typically looks like.

Slide 28

**Managing & Controlling Asthma or Allergies**

**STUDENT RESPONSIBILITIES:**

- Avoid known triggers for allergies/asthma
- Learn to recognize and respond to their own symptoms, as appropriate for age and ability
- Report symptoms to teacher / nurse  
Notify the school nurse and/or activate the school's Emergency Response Team
- Actively participate in the development of an asthma / allergy action plan and management of their condition



"I stopped to smell the flowers.  
Where's my inhaler?"

ATTACK ON ASTHMA  
NEBRASKA

28


The student needs to know who to tell at school when they are having an attack or reaction and have their medication available at school.

Slide 29

**Managing & Controlling Asthma or Allergies**  
( More village people )

**SCHOOL RESPONSIBILITIES:**

- Participate in the development of an asthma/allergy action plan
- Implement environmental guidelines that promote safe and healthy indoor air quality
- Ensure that there is an Emergency Response Team available to administer emergency medications in the event of a life-threatening breathing emergency
- Provide basic asthma and anaphylaxis education to all staff

 29

Having an asthma/allergy action plan and medications for the student who is already diagnosed is paramount in allowing the school to safely accommodate the student.




Slide 30

**Managing & Controlling Asthma or Allergies**

**PHYSICIAN RESPONSIBILITIES:**

- Provide a diagnosis and prescribe proper medication for school use
- Actively participate in the development of an asthma/allergy action plan
- Monitor student's health status regularly and communicate need for accommodation of the action plan

 30

Finally, it is only possible to manage asthma and allergies when the physician has diagnosed the condition and written prescriptions for medication for treatment.

Slide 31

REMEMBER...

No child  
should die at school  
from an asthma attack  
or severe allergic reaction

ATTACK ON ASTHMA  
NEBRASKA

31

By increasing your knowledge of asthma and severe allergies it is our hope that you never have to use the Rule 59 emergency breathing protocol.

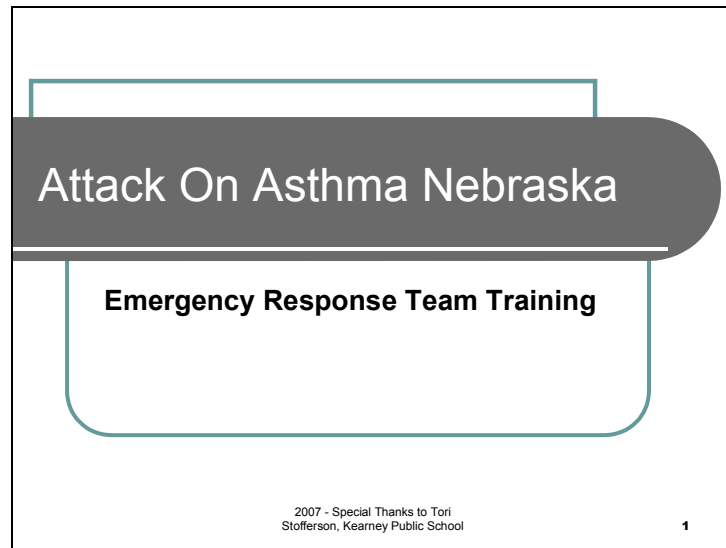
With increased education and awareness it is proven that life-threatening reactions will decrease.

Thank you for your commitment to the students of Nebraska as part of the education community.

Attack On Asthma Nebraska Board of Directors

Slide 1

## Emergency Response Team



The slide features a dark grey rounded rectangular banner with the text "Attack On Asthma Nebraska" in white. Below this banner, the text "Emergency Response Team Training" is displayed in bold black font. At the bottom of the slide, there is a small line of text: "2007 - Special Thanks to Tori Stofferson, Kearney Public School" and a page number "1".

**Attack On Asthma Nebraska**

**Emergency Response Team Training**


2007 - Special Thanks to Tori  
Stofferson, Kearney Public School

1

Slide 2

## Emergency Response Team Training

- Every Nebraska school is mandated by the Rule 59 Protocol to be prepared to deal with a life-threatening breathing emergency due to asthma or anaphylaxis
- It is recommended that there be 3 CPR and ERT certified staff in each building where students are present to carry out the *Emergency Response to Life-Threatening Asthma or Systemic Allergic Reaction (Anaphylaxis)* protocol
- Civil liability immunity is provided by Neb.Rev.Stat. 25-21, 280 which states that staff members responding to a breathing emergency will not be liable for civil damages *when following the steps of the protocol*




2

Slide 3

At the conclusion of this training  
ERT members will be able to:

- Define life-threatening asthma and anaphylaxis
- Describe the signs/symptoms of life-threatening asthma and anaphylaxis
- List the steps to be taken in an emergency as outlined in the protocol
- Identify the Nebraska medication administration competencies
- Demonstrate how to use an EpiPen®
- Demonstrate how to administer a nebulized albuterol treatment
- Document pertinent information on the Emergency Report Form
- Complete written test and Documentation of Competencies form





3

Slide 4

## What Is Asthma?

- Asthma is a lung disease caused by increased reaction of airways to stimuli, and can be life threatening.
- Asthma is a chronic (life-long) disease, with symptoms that may come and go and is often related to allergies.



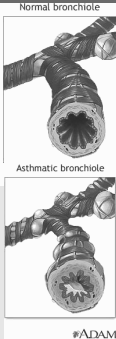
4

Children do not “outgrow” asthma. They may be symptom free for long periods of time, but the tendency for an asthma attack is always there.

Slide 5

### What is happening during an asthma attack?

- **Airway inflammation** – the airway lining becomes red, swollen and narrow
- **Bronchoconstriction** – the muscles that encircle the airway tighten/spasm
- **Airway obstruction** – as the airway tightens and narrows, it can be very difficult to get air in and out of the lungs



- **Airway hyperresponsiveness** – the muscles that encircle the airway respond more vigorously and quickly to smaller amounts of allergens and irritants
- **Secretions** (mucus production) within the airway lining increases

#ADAM

ATTACK ON ASTHMA  
NEBRASKA

5

In asthma, the airways of the lung become narrow and obstructed.

Swelling and increased mucus in the airway lining causes the airway to become rigid and interferes with airflow.

As the airways become obstructed, it becomes harder to breathe out and the lungs get filled up with air. This causes chest tightness and shortness of breath.

Slide 6

**Signs and Symptoms of an Asthma Attack**

- Coughing
- Wheezing
- Difficulty breathing or shortness of breath
- Chest pain, heaviness or feeling of tightness
- Rapid breathing
- Tired, no energy, "hitting the wall"
- May feel or act anxious
- Blue or grayish tinge to lips or nailbeds

Gallagher 2002

ATTACK ON ASTHMA  
NEBRASKA

6

Not every person will display every symptom, for instance some asthmatics cough constantly during an attack but never wheeze. Some wheeze but never cough.



Slide 7

**Severe Allergic Reaction  
(Anaphylaxis)**

- Anaphylaxis is a medical emergency caused by an acute systemic (whole body) allergic reaction characterized by bronchial inflammation and constriction, and vascular collapse
- Symptoms occur within minutes or up to 2 hours post-exposure; rarely—up to 4 hours later
- Can occur with no previous allergic reaction
- Greater risk for individuals with asthma, hayfever, or eczema

ATTACK ON ASTHMA  
NEBRASKA

7

This person may DIE without treatment.

Symptoms occur within minutes or up to 2 hours post-exposure, rarely – up to 4 hours later.


Can occur with no previous allergic reaction.


Greater risk for individuals with asthma, hayfever, or eczema.

Slide 8

## Symptoms of Anaphylaxis

- Hives; Swelling of tissue around the face / lips / eyes
- Itching: skin, mouth, throat
- Anxiety
- Nausea / vomiting / diarrhea
- Sneezing and coughing
- Difficulty swallowing
- Shortness of breath / wheezing
- Low blood pressure



 **ATTACK ON ASTHMA**  
NEBRASKA


8

Left unattended, these symptoms can lead to death.

## Slide 9

**We already know this student has asthma/allergies  
– but he’s having difficulty**

- Does this student have an asthma/allergy action plan?
- Does this student have medication at school as part of the asthma/allergy action plan?
- Are the symptoms relieved by following the action plan?
- If the student has no plan OR following the plan does not relieve symptoms:



9

When a diagnosed student with a plan and medications is having breathing difficulty – follow the student’s plan and use their personal medications first.

If the student’s plan and medications do not relieve student’s difficulty, then the Rule 59 protocol comes in as the back-up. It is appropriate to begin the emergency protocol with the epinephrine even if the student’s personal dose has already been given.

If an undiagnosed student/staff member has a first-time reaction, thus with NO plan or medications at school, you proceed directly to the Rule 59 protocol.

Slide 10

**It's an EMERGENCY!**  
**What Now?**

Follow the steps of the protocol:

1. **Call 911**
2. Summon school nurse if available. If not, summon designated ERT to implement emergency protocol
3. Check airway patency, breathing, respiratory rate, and pulse
4. Administer medications (EpiPen and albuterol) per standing order
5. Determine cause as quickly as possible
6. Monitor vital signs (pulse, respiration, etc)
7. Contact parents immediately and physician as soon as possible
8. Any individual treated for symptoms with epinephrine at school will be transferred to medical facility

ATTACK ON ASTHMA  
NEBRASKA

10

Presenter: If questions on “airway patency”, please refer to the ABC’s or CPR, i.e. airway, breathing, circulation.

Presenter: Signs of circulation include pulse, movement and conscious behavior.

Slide 11

Step 1 of Protocol: Call 911


Do not hesitate!  
Advise 911 that you are administering  
epinephrine and albuterol.

11

Slide 12

**Step 2 of Protocol:**  
Summon Nurse or ERT

- ✚ Each building needs to have a plan in place for alerting the nurse or ERT
- ✚ Each staff member in the building needs to know how to alert the nurse or ERT
- ✚ Each member of the ERT needs to know their role in responding (who is going to get the bag? who is going to manage the phone? who is going to document?)

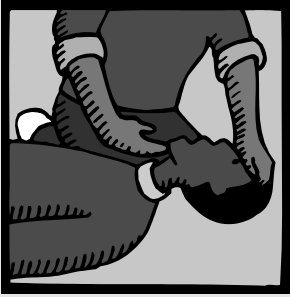
 12


**WALK THE TALK** - Just as we all have periodic fire drills and discuss the proper action to take in the unlikely event that a fire occurs, periodic drills for the Emergency Response Team are essential to work out the team member's responsibilities and make sure that a timely response is possible and then discussing any changes that might need to be made.

Slide 13

**Step 3 of Protocol:**  
Check ABC's

- A. **Airway** – Is airway open or obstructed?
- B. **Breathing** – Are they still breathing? Look, listen and feel. How fast are they breathing?
- C. **Circulation** – Can you find a pulse, body movement? Are they conscious?







 13

Slide 14

**Step 4 of Protocol:**  
Administer EpiPen & Albuterol

- Administer an IM EpiPen® Jr. for a child less than 50 pounds or an adult EpiPen® for any individual over 50 pounds
- Follow with nebulized albuterol (premixed) while awaiting EMS. If not better, may repeat times two, back-to-back
- Administer CPR if indicated



14




Slide 15

**Medication Administration Competencies**

**The competencies include recognition of:**

1. Recipient's right to privacy and confidentiality;
2. Recipient's right to refuse;
3. Hygiene and infection control standards;
4. Appropriate policies/procedures for medication storage and handling;
5. General unsafe conditions;
6. Accurate documentation standards;
7. The five rights of medication administration;
8. Specialty needs of recipients;
9. Adverse reactions;
10. Safe medication provision for the oral, topical, inhaled or instilled routes;
11. The legal limits of the medication aide role;
12. Reporting responsibility for suspected adult abuse;
13. Reporting responsibility for suspected child neglect or abuse; and
14. The Recipient's property rights and physical boundaries.

  
ATTACK ON ASTHMA  
NEBRASKA

15

The training for ERT does not require medication aide administration certification, but does presuppose the minimum competencies referenced in Rule 59.

Slide 16



The slide is titled "Medication Administration Competencies" in a dark grey header. The main content is centered and reads: "The ERT is responsible to give the **Right** drug to the **Right** recipient in the **Right** dosage by the **Right** route at the **Right** time". At the bottom center is the "ATTACK ON ASTHMA NEBRASKA" logo, and the number "16" is in the bottom right corner.

Medications are given correctly when they are given according to the five rights.


An acronym that may be helpful for remembering the five rights:

MR. STD = Medication, Route, Student, Time, & Dose


OR

MRS TD (touchdown) = Medications, Route, Student, Time & Dose

Slide 17

**Administer EpiPen®** 

- Epinephrine is the medication of choice for treatment of anaphylaxis and life-threatening asthma.
- It reverses the body's reaction and reduces swelling and congestion in the lungs
- Quick treatment with epinephrine is the safest approach, even if it may have been unnecessary
- An unnecessary dose of epinephrine should have no prolonged or significant ill effects on an adult or child
- An EpiPen® is a disposable, pre-filled automatic injection device designed to deliver a single dose of epinephrine

 **ATTACK ON ASTHMA**  
NEBRASKA

17

Slide 18

**Administer EpiPen®**  
Directions for Administration of an EpiPen®

- Never put thumb, fingers or hand over the black tip
- Grasp unit, with the black tip pointing downward
- Form a fist around the auto-injector (black tip down)
- Hold black tip near outer thigh
- Swing and jab firmly into outer thigh so that auto-injector is perpendicular (at a 90° angle to the thigh)
- Hold firmly in thigh for several seconds
- Remove unit, massage injection area for several seconds
- Carefully place the used auto-injector, needle-end first, into the storage tube of the carrying case that provides built-in needle protection after use. Then screw the cap of the storage tube back on completely
- Note the time the dose is injected and place auto-injector in storage tube to give to EMS
- Continue steps of protocol by following EpiPen® injection with Albuterol treatment

ATTACK ON ASTHMA  
NEBRASKA


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Presenter: A good time to use the EpiPen® trainer(s).

Slide 19

**Administer EpiPen®**  
Things To Know

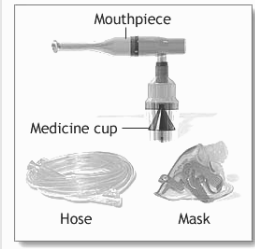

- One of the most common errors is not leaving the auto-injector in long enough for all the medication to be dispensed. Count to ten before removing unit
- The auto-injectors are designed to be administered through clothing (including jeans)
- Apply to thigh, regardless of what body part is affected
- In the unlikely event of a "needle-stick" to the individual administering an EpiPen®, consult and follow the school's exposure control plan


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Slide 20

### Administration of Nebulized Albuterol

- Albuterol relaxes the bronchi, helps open the airway, and moves the mucus out of the lungs.
- A nebulizer is a machine (compressor) that mixes the medication with air to provide a fine mist (aerosol) for breathing in through a mask or mouthpiece. This is the most efficient way to get the medication into the lungs during an emergency (better than a metered-dose inhaler).




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Albuterol relaxes the bronchi, helps open the airway, and moves the mucus out of the lungs.

## Slide 21

Directions for Administration of Nebulized Albuterol

- Set up nebulizer as demonstrated by your instructor
- Instruct/assist student to assume seated position
- Place mask over mouth and nose. As aerosol begins to flow, instruct to inhale deeply and slowly through mouth, then exhale slowly
- If coughing occurs during treatment, remove mask. Allow individual to clear secretions completely; resume treatment
- Monitor individual for changes in respiratory rate, effort, and vocal ability
- If individual continues to have difficulty breathing, administer two more treatments



The composite image on the right side of the slide contains five parts: 1. A photograph of a person wearing a nebulizer mask over their mouth and nose. 2. A diagram of a mouthpiece. 3. A diagram of a medicine cup. 4. A diagram of a hose. 5. A diagram of a mask.

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NEBRASKA

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The mask is the most effective, and therefore, the preferred method to deliver nebulized albuterol in an emergency.


The emergency container should include both pediatric and adult-sized masks to ensure that a proper fit and seal can be attained.

If the student is distressed by the mask a mouthpiece can be used.

Slide 22

**Step 5 of the Protocol:**  
Determine cause as quickly as possible

- ✚ You may not know the exact cause of a sudden allergic reaction or asthma attack, but this should not keep you from providing care
- ✚ Ask questions. Any information you get can be passed on to the rescue unit
- ✚ Always be aware the victim's condition can worsen rapidly – do not leave victim alone or unobserved at any time

 22

You do not need to know the cause of the life-threatening breathing emergency to give life-saving care.


Clues at the scene and witnesses may provide valuable evidence to the cause of the emergency.



Slide 23

**Step 6 of the Protocol:**  
Monitor Vital Signs

- ✚ Continue to monitor breathing – is person still breathing? Look, listen and feel. How fast are they breathing?
- ✚ Continue to monitor for signs of circulation-such as pulse, movement and conscious behavior
- ✚ Administer rescue breathing or CPR, if indicated

 23

Slide 24

Step 7 of the Protocol:  
Contact parent immediately

✚ ERT member responsible for communications should:

- call 911- age, gender of victim, location, nature of emergency, medications administered, is victim conscious
- call the parent/guardian

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NEBRASKA


24

If staffing is available, one person should be sent to meet the Emergency Medical Services (EMS) to assist them with locating the student.  
Another person should remain on the phone with 911 until instructed by emergency services to hang up.

Slide 25

**Step 8 of the Protocol:**  
Any individual treated for symptoms with epinephrine at school will be transferred to medical facility

- Effects of epinephrine will last only 15-20 minutes
- To avoid relapse without additional epinephrine available, person should seek medical care
- To return to school environment, person should have medical clearance, current signed asthma/allergy action plan and medication


 25

Slide 26

## Supplies

The following medical supplies are required for each building:

- Container for emergency supplies (labeled "Emergency Use Only")
- EpiPen® and/or EpiPen® Jr. per weight
- Nebulizer compressor with masks and tubing
- Albuterol(premixed) - three vials per building




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Slide 27

## Supplies

**The following supplies are recommended to be included in the emergency bag:**

- Pen and paper
- Incident report form
- Protocol and CPR skills cards
- Gloves
- CPR face shield
- 4 x 4 Gauze squares
- Student health alert information
- Monthly medication monitor sheet




27

Slide 28

## Care, Storage & Disposal of Medication

- Medication must be monitored, kept current and disposed of appropriately
- Medication should be stored in a safe area that is also accessible to ERT
- EpiPen® and Albuterol must be kept at a controlled room temperature (59-86°F), protected from light, freezing or extreme heat. Do not refrigerate
- Check for color of drug:  
**EpiPen®** – do not use if solution is brown, pink or contains precipitate  
**Albuterol** – do not use solution if it is brown, pinkish, darker than slightly yellow or contains precipitate (particles in solution)
- Monitor medication monthly for expiration date and appearance
- Expired medications must be disposed of properly. Never place medications in the regular trash. All expired medications should be disposed of in sharps container. If none available, take to medical facility for proper disposal




28

Slide 29

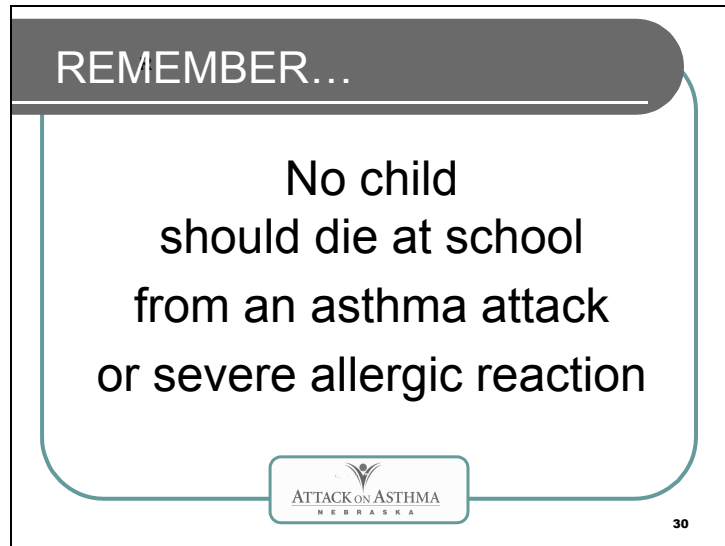
## Documentation

- Designate ERT member to complete documentation
- Emergency Report Form to be completed whenever the emergency protocol is implemented
- Responding emergency medical service should receive a copy at the time of the incident with as much information included as possible
- Send completed copies to the supervisor of the school's health services program and district administration, physician (with written parental consent), student's school health record and Attack On Asthma Nebraska (To protect confidentiality, the copy sent to AOAN *will not* contain the student's name or birth date.)



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Slide 30



By increasing your knowledge of asthma and severe allergies it is our hope that you never have to use the Rule 59 emergency breathing protocol.

With increased education and awareness it is proven that life-threatening reactions will decrease.

Thank you for your commitment to the students of Nebraska as part of the education community.

**Attack On Asthma Nebraska Board of Directors**



## Appendix F: ASTHMA & ANAPHYLAXIS: A Primer for Schools



### *Asthma & Anaphylaxis: A Primer for Schools*

#### INTRODUCTION

*Attack on Asthma Nebraska is committed to increasing public awareness of asthma and allergies in meeting its mission to ensure that all Nebraska schools have the education, training and medications to respond to anyone experiencing a life-threatening asthma or anaphylaxis emergency at school. Through its partnership with the Nebraska Department of Education, Attack on Asthma Nebraska provides this introduction to asthma and anaphylaxis. Studies have shown the incidence of life-threatening emergencies decreases with better knowledge of what causes the disease or condition and what can be done to manage or control the symptoms. It is our hope that the information contained in this brochure will prepare everyone in the school setting to help keep our children safe.*

ELEANOR KITTELSON, EXECUTIVE DIRECTOR

#### ASTHMA

**Definition:** Asthma is a lung disease caused by increased reaction of airways to stimuli, and can be life threatening. Asthma is a chronic disease, with symptoms that may come and go and is often related to allergies. Symptoms occur when the airways become inflamed, mucous production obstructs the airways and the muscles around the airways become constricted. The most dangerous symptoms may include: marked chest tightness, wheezing, persistent coughing, shortness of breath, difficulty speaking, changes in mental status, chest retractions and cyanosis (blue color).

Asthma is the most common chronic childhood disease.

- Nearly one in 13 school-aged children have asthma.
- Asthma is one of the leading causes of school absenteeism and hospitalizations for children.
- Asthma affects academic performance. Missed sleep due to nighttime asthma can cause poor memory recall, lack of concentration and mood swings.

Although asthma cannot be cured, it can be controlled. Schools can help students manage their asthma by being “asthma-friendly”; that is, by being more supportive of students and staff with asthma, adopting asthma-friendly policies and procedures, coordinating services to serve students with asthma, and providing asthma education for students and staff.

**Noisy asthma:** Most people know about noisy asthma; it receives all of the attention. Symptoms include coughing that persists all season, frequent waking during the night, breathlessness after walking a short distance or climbing a flight of stairs, and wheezing.

**Quiet asthma:** Most people are not aware of the quiet but ever present inflammation of asthma. Even though symptoms may not be apparent, the airways of people with asthma remain inflamed and irritable, flaring occasionally with an infection or irritant. The inflammation is so subtle that it can worsen over a period of hours or days, without being noticed until it is widespread and severe.

Some asthmatics have become so accustomed to living with inflammation, that they aren’t aware their breathing could improve. Asthma moves from quiet to noisy when exposed to triggers that irritate the airways and produce symptoms.

**Exercise-Induced Asthma:** For some people, physical activity is the only trigger necessary to cause an asthma episode. Exercise-induced bronchospasm occurs when the airways become narrow and constricted within a few minutes after beginning exercise. The episode usually reaches its peak of severity about 5 to 10 minutes after starting exercise, and may continue for another 20 to 30 minutes.

The goal of treatment for exercise-induced asthma is to allow participation in physical activities without experiencing symptoms. A treatment plan will include: proper use of medication and an activity assessment. Encourage the student to assess his/her ability to participate in an activity without symptoms. Accommodate the student’s needs by allowing time to take medication, warm up, cool down and rest as needed.

**“Triggers”** are the stimuli that can make a person’s asthma worse, potentially leading to an asthma episode, and include:

- Tobacco smoke.
- Mold and mildew – indoor and outdoors.
- Pollutants resulting from poor ventilation.
- Pets with fur or feathers – birds, hamsters, rabbits, guinea pigs, dogs, cats.
- Cockroach or mouse droppings.
- Strong odors such as perfumes, air fresheners, cleaning chemicals, hair spray, aerosol sprays, candles, clay, paints, solvents, chemicals and fumes from soldering or welding.
  - Cold, damp weather.
  - Exercise.
  - Extreme emotional expression – stress, anxiety, anger, or crying.
- Mechanical responses such as prolonged sneezing, hypertension, yelling or laughing.
- Common cold, influenza, or other respiratory illnesses.
- Certain foods such as peanuts, milk, soy, shellfish, and eggs.

**How to reduce and/or eliminate triggers:**

- Establish a smoke-free policy that prohibits tobacco use on all school property.
- Provide adequate ventilation, low humidity, and good air circulation.
- Clean the classroom regularly, avoiding sprays and harsh cleaning solutions.
- Remove or cover volatile materials in arts and science areas.
- Avoid using products that have strong fumes/odors or dust residue (certain pens, glues, paints, candles, air fresheners/perfumes, and chalk).
  - Check regularly for pests.
  - Keep classrooms free from pets and plants.

**Asthma Attack Warning Signs**

- Wheezing, difficulty breathing or shortness of breath causing speech to be in one to two word sentences or inability to speak.
- Coughing.
- Breathing by stooping over or leaning, inability to move around normally.
- Chest retractions (chest sucked in).
- Changes in face color/dark circles under the eyes, lips and nail beds blue or grayish in color.
- Change in mental status.
- Nausea.

## ASTHMA MANAGEMENT

- ✓ Experts recommend that each asthmatic student have a written “asthma action plan” on file at school. This plan is a collaboration of parents, student, school nurse and physician. Specific information related to triggers, medication and activity are included. School personnel must be informed and supportive of the action plan.
- ✓ Prescribed asthma medication must be available at school.
- ✓ Metered Dose Inhalers (MDI) work to decrease symptoms of asthma. MDI’s are prescribed by physicians as either a maintenance (long-term) inhaler or a rescue (quick-relief) inhaler. Rescue inhalers are used to treat “acute” asthma attacks that may happen suddenly and with great severity. Students carrying rescue inhalers may use them as prescribed; however, overuse of a rescue inhaler indicates the need for an evaluation by a physician (the asthma is not under control or other problems may exist).
- ✓ School personnel must be able to recognize symptoms of an acute asthma episode and make appropriate referrals to designated healthcare providers immediately. Always refer to the “asthma action plan” for direction.

## ANAPHYLAXIS

Definition: Anaphylaxis is a sudden, severe, potentially fatal, systemic allergic reaction that can involve various areas of the body (such as the skin, respiratory tract, gastrointestinal tract, and cardiovascular system). Symptoms occur within minutes to two hours after contact with the allergy-causing substance, but in rare instances may occur up to four hours later. Anaphylactic reactions can be mild to life threatening. The annual incidence of anaphylactic reactions is about 30 per 100,000 persons, and individuals with asthma, eczema, or hay fever are at greater relative risk of experiencing anaphylaxis. This life threatening allergic condition can occur with exposure to foods, stinging insects (bees, wasps), medications, and latex rubber and also in association with exercise.

- Insect sting and food reactions are more likely to occur away from the victim’s home despite the person’s best efforts to avoid exposure.
- The most important aspect of the management of life threatening allergies is avoidance of the offending allergen.
- Designated school personnel must be trained to identify life threatening allergic reactions and follow the protocol in prompt administration of EpiPen®.

A common misconception is that anaphylaxis will not occur unless a previous and milder allergic reaction has already taken place. Milder reactions do not necessarily precede a fatal or near fatal reaction, and some reactions will progress so rapidly that there will not be enough time to obtain medical attention.

**Food Allergies**

It is estimated that up to 2 million, or 8%, of U.S. children are affected by a food allergy. Some allergies are so severe that even cleaning a tabletop contaminated by the allergen, or touching the allergen without ingestion could trigger a severe allergic reaction. The foods that commonly produce allergy problems may include: peanuts and other tree nuts (cashews, almonds, Brazil nuts), shellfish, eggs, wheat, milk and soy, legumes, whitefish, and celery.

**Insect/Bee/Wasp Stings**

The incidence of insect sting anaphylaxis in the U.S. is 0.5-3%. Any reaction to a previous sting that resulted in a local skin reaction (hive or wheal), or worse is reason to consider a student at risk for anaphylaxis in the future. If the student and family are unsure as to allergy status, a referral to an allergist for evaluation should be made.

Avoidance of insect stings is difficult to achieve but certain precautions can help to reduce the risk of stings to allergic students:

- Removal of all insect nests on or near school property.
- Proper storage of garbage in covered containers.
- Restriction of eating areas to inside; avoidance of open soft drink cans outside.

**Latex**

Latex allergies are a relatively new and increasingly frequent problem. Children who are exposed to latex products early and repeatedly, usually children with severe chronic health disorders (spina bifida), can have a risk of latex allergy that approaches 50%. Students with latex allergies should avoid certain foods as well such as bananas, avocados, kiwi fruit, and European chestnuts.

There is no known cure for latex allergy. The best way to prevent reactions is to avoid latex products as much as possible: minimize exposure to latex by providing all non-latex gloves (vinyl) and latex free Band-Aids for use at school.

**Medications**

Aspirin and non-steroidal anti-inflammatory agents can cause anaphylactic reactions as can penicillin and other prescribed medications.

**Food-dependent Exercise Induced Anaphylaxis**

Food-dependent exercise-induced anaphylaxis is very rare and occurs only when an individual eats a specific food and exercises within three to four hours after eating. Individuals experiencing this type of reaction typically have asthma and other allergic conditions. Although any food may contribute to this form of anaphylaxis, foods that have been reported include wheat, shellfish, fruit, milk, celery, and fish.

Food-dependent exercise-induced anaphylaxis appears to be twice as common in females than in males and is common in individuals who are in their late teens to thirties.

**MANAGING & CONTROLLING ASTHMA OR ALLERGIES: How to Avoid a Breathing Emergency**

**PARENT RESPONSIBILITIES:**

- Notify school of student’s allergies/asthma.
- Provide written medical documentation, instructions, and medications as directed by a physician. Participate in the development of the asthma/allergy action plan.
- Provide the school with instructions for contacting parents or other responsible adult in case of emergency.

**STUDENT RESPONSIBILITIES:**

- Avoid known triggers for allergies/asthma.
- Recognize the need for carrying asthma medication (inhaler) and allergy medication (Benedryl, EpiPen®, etc.) while at school. Understand and demonstrate proper use of medications.
  - Report symptoms to teacher/nurse.
- Actively participate in the development of an asthma/allergy action plan.

**SCHOOL RESPONSIBILITIES:**

- Participate in the development of an asthma/allergy action plan to accommodate student’s health needs while at school.
  - Implement environmental guidelines that promote safe and healthy indoor air quality.
- Ensure that there is a staff member (response team) available who is trained to administer emergency medications and provide for emergency care.
- Provide basic, general education to the staff regarding asthma and anaphylaxis.

**PHYSICIAN RESPONSIBILITIES:**

- Provide a diagnosis and prescribe proper medication for school use.
- Actively participate in the development of an asthma/allergy action plan.
- Monitor student’s health status regularly and communicate need for accommodation of the action plan.

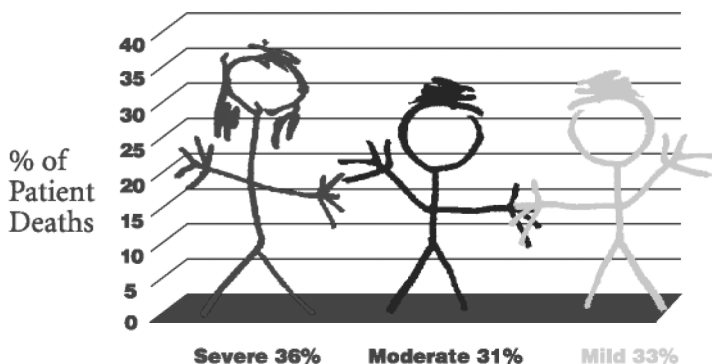
**WHAT TO DO IN A BREATHING EMERGENCY**

Signs of a life-threatening asthma attack or anaphylaxis may be any one or a combination of the following: difficulty breathing/breathlessness, inability to speak normally, difficulty swallowing, wheezing, coughing, hives, skin rash, flushed face, cyanosis (blue or gray skin, lips or nail beds), feeling of apprehension, swelling or itching of any body part, nausea/vomiting.

Do not hesitate and do not leave the student alone. Seek assistance immediately.

- Refer to the student’s asthma/allergy action plan for proper treatment.
- Implement the *Emergency Response to Life- Threatening Asthma or Systemic Allergic Reactions Protocol* by contacting your school’s emergency response team and calling 911.

**Asthma Severity**



Source: Robertson Colin, et al. *Pediatric Pulmonology*. 1992. 13:95-100.

*All asthma is serious. Even in children whose asthma is diagnosed as mild, symptoms can suddenly become severe. That’s why every child needs a written asthma management plan with instructions to prevent and treat asthma emergencies.*



## RESOURCES

- American Lung Association® of Nebraska, [www.lungnebraska.org](http://www.lungnebraska.org) 800-586-4872
- Allergy & Asthma Network Mothers of Asthmatics, [www.breatherville.org](http://www.breatherville.org) 800-878-4403
- The Food Allergy & Anaphylaxis Network, [www.foodallergy.org](http://www.foodallergy.org) 800-929-4040
- National Education Association Health Information Network, [www.asthmaandschools.org](http://www.asthmaandschools.org)
- US Environmental Protection Agency, [www.epa.gov/iaq](http://www.epa.gov/iaq) 800-438-4318

**Attack on Asthma Nebraska**  
P.O. Box 194, Malcolm, NE 68402  
402-616-9600  
[www.attackonasthma.org](http://www.attackonasthma.org)

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