**Asthma in Schools & Sports**

Sarah Winters MSN, RN
President of TASN
Director of Health & Homebound Services
Rutherford County Schools

**Objectives**
- Review prevalence of childhood asthma, impact, need for asthma management in schools and sports
- Review state and federal laws that affect school health
- Identify resources in TN for the families and schools
- Discuss school asthma team and school health models
- Examine NIA web site - elements of a solid AAP process for completion
- Discuss Physical Activity Management in Pediatric Asthma – CO, HACAA

**2015 National Ambulatory Medical Care Survey**

- Asthma is a condition that affects 6.2% of all ambulatory office visits.
- Albuterol was prescribed with 59 million visits.
- Asthma was the 16th top reason for ED visits with 2,024,000 visits, 1.4% of all ED visits.
- Asthma was the cause of 3,615 deaths.

**Children with Asthma**

- Asthma is most frequently developed in childhood.
- Children who often wheeze or have respiratory infections are at the highest risk for developing asthma that will continue after age 4.
- Children who also have allergies, eczema, or parents with asthma are at a higher risk for developing asthma.
- Allergic asthma, which is triggered by inhaling allergens, is the most common form of asthma and impacts over 2.5 million children under 18.
Children with Asthma

- 6.2 million children under age 18 years currently have asthma
- 8.4% of all children under age 18 years
- 9.3% of Boys
- 6.9% of Girls

9.5% of children in TN in 2010 had asthma

Parent's education
- 8.5% have less than high school diploma
- 10.1% have a high school diploma or GED
- 7.8% have more than high school education

Family income
- 10.5% make less than $35,000
- 7.6% make $35,000 or more
- 9.1% make $35,000-$49,999
- 7.1% make $50,000-$99,999
- 7.5% make $75,000-$99,999
- 7.2% make $100,000 or more

Asthma Severity

Asthma severity refers to the inherent intensity of the disease process.

- Nearly 60% of children (nationally) with current asthma have "persistent asthma".
- 40% have intermittent asthma

Inhaler use

Using inhaled short-acting beta-agonist medications provides quick relief for asthma attacks. (Albuterol, AccuNeb, Proventil HFA, ProAir HFA, Ventolin HFA) and leukotriene.

Frequent use (>2 days/week) of quick-relief medications may indicate inadequate asthma control.

18.7% of children with uncontrolled quick-relief medications frequently in the past 3 months.
Absences from School

- Asthma-related school absenteeism affects 59% of school-aged children with asthma.
- Asthma exacerbations
- Poor asthma control
- Poor health care access ($)
- Poor access to school
- Poor health care access (EF)
- Reduced school days
- Reduced learning time
- Reduced academic performance
- Reduced physical activity

Chronic absenteeism

- One of the most powerful predictors of a student's academic success.
- Asthma is associated with poor academic outcomes.
- Both prolonged and multiple, intermittent asthma-related absences contribute negatively to a child's academic performance:
  - Learning disabilities
  - Reading problems
  - Behavior problems
  - High school dropout rates
- Increased school absences among students with asthma are also likely to contribute to:
  - Strained peer relationships
  - Reduced involvement in physical activities

Impact on Schools, Families and Community

- Missing substantial amounts of elementary or intermediate school increases the likelihood of the child dropping out of high school, which can impact the future of that individual, and may also negatively impact a community's economic sustainability.
- Schools, parents, and caregivers are also impacted by a child's asthma.
- Schools experience economic impact for absences since funding/accreditation are tied to attendance rates and school achievement measures.
- Parents often face economic hardship when their child is out from school as they are forced to miss work and other activities.

Federal Laws that affect School Health

- IDEA – the Individuals with Disabilities Education Act (1974)
  - Ensures that children with disabilities have the opportunity to receive a free appropriate public education (FAPE), just like other children, in the least restrictive environment.
  - Students who qualify for IDEA receive Special Education services through an IEP (Individualized Educational Plan).
  - Congress reauthorized the IDEA in 2004 and most recently amended the IDEA through Public Law 114-95, the Every Student Succeeds Act (ESSA), in December 2015.
IDEA covers 13 disability categories

- Autism
- Deaf-blindness
- Deafness
- Emotional disturbance
- Hearing impairment
- Intellectual disability
- Multiple disabilities
- Orthopedic impairment
- Other health impairment
- Speech or language impairment
- Traumatic brain injury
- Visual impairment, including blindness

Individualized Educational Plan - IEP

- The IEP is meant to address each child's unique learning issues and include specific educational goals.
- Accommodations and modifications are put in place to help the student learn the general education curriculum.
- Accommodations are changes in how a child shows what he has learned. They can help the child work around his learning issues.

Federal Laws that Affect School Health

- Section 504 of the 1973 Rehabilitation Act
  - Prohibits discrimination against people with disabilities in programs that receive federal financial assistance (public but not private schools).
  - Set the stage for enactment of the Americans with Disabilities Act (ADA).
  - A federal civil rights law which protects a qualified student with disability regardless of whether the student needs special education.

Section 504 asks the question does the student have a physical or mental impairment which substantially limits one or more major life activities?
504 Plan

- A 504 Plan is not part of special education, so it doesn’t provide individualized instruction, Baron EP.
- 504 plans are designed to give students with disabilities access to the same education in their classrooms as are getting.
- Accommodations can include changes to the environment, changes to instruction, or changes to how curriculum is presented.
- Accommodations don’t change what kids learn, just how they learn it.
- The goal is to remove barriers and give kids access to learning.

TN State Laws Pertaining to Asthma

TCA 49-50-102. Possession and self-administration of asthma-reliever inhalers
(a) An LEA needs permission and self-administration of a prescription, aerosol inhaler, asthma-reliever inhaler by any asthma student if the student’s parent or guardian:
(i) Provides to the school written authorization for student possession and self-administration of the inhaler;
(ii) Provides a written statement from the prescribing health care provider that the student suffers from asthma and has been included in the inhaler action plan, asthma-reliever inhaler.

The statements must include the following information:
- The name and prescription of the medication,
- Prescribed dosage,
- Routes of administration,
- Asthma circumstances under which the inhaler must be administered, and
- The target of use for which the inhaler is administered.

TCA 49-50-103. Department of health website – Links to asthma prevention protocols
(a) Department of health website shall include a link to asthma prevention protocols.

- (1) Includes asthma treatment and prevention protocols, written instructions, treatment-related information, management, and education.
- (2) Includes asthma treatment and prevention protocols that are published or approved by the department and are disseminated through the department’s website.
- (3) Includes asthma treatment and prevention protocols that are posted on the website of the National Heart, Lung, and Blood Institute of the National Institutes of Health and related federal agencies in accordance with Federal regulations.

- (4) Includes asthma treatment and prevention protocols that are posted on the website of the American Lung Association and other relevant organizations.

- (5) Includes asthma treatment and prevention protocols that are published or approved by the department and are disseminated through the department’s website.

- (6) Includes asthma treatment and prevention protocols that are posted on the website of the National Heart, Lung, and Blood Institute of the National Institutes of Health and related federal agencies in accordance with Federal regulations.
TN DOH Website Links

TN DOH Environmental Health Tracking
- Interactive Dashboard for Asthma Data

TN Asthma Coalition
- Non-profit group in its infancy
- Members from TDOH, Nursing schools across state, TN Chapter of the American Association of Pediatric, CH, Tennessee Association of School Nurses, TenCare/Blue Care, Vanderbilt Pediatric Pulmonary Medicine, many more groups.
- Web site in developmental stage

American Lung Association Website
- Basics of Asthma: videos
- Symptoms, Causes, Risk Factors
- Diagnosis, Treatment
- Living with Asthma
- Questions for your Doctor
- Asthma Initiatives
  - Asthma in Schools
    1. Asthma-Friendly Schools
    2. Asthma Medications in Schools

Parent Asthma Toolkit
- Back to school checklist
- Childhood Asthma Control Test
  - 0-20: Your child's asthma symptoms may not be well controlled
  - 20-27: Your child's asthma symptoms may be well controlled
- Asthma Control Test for persons 12 or older

Healthy Homes - Asthma

The Healthy Student
- Establishing healthy behaviors during childhood is easier and more effective than trying to change unhealthy behaviors during adulthood.
- Schools play a critical role in promoting the health and safety of young people and helping them establish lifelong healthy behavior patterns.
Members of the School Team - Classroom Teachers

Classroom teachers play an important role in facilitating asthma management in school. In the absence of a school nurse, several barriers can contribute to suboptimal in-school asthma management:
- Process of identifying students with asthma
- Poor familiarity and general knowledge of school policies on asthma management
- Lack of competency in recognizing and managing an acute asthma attack in the classroom
- Lack of confidence in dealing with an asthma attack in the classroom
- Lack of quick access to asthma medication in school
- Limited communication between school staff

Members of the School Team – School Nurses

Uniquely positioned to provide direct care, adherence counseling, and education for asthmatic patients.

- Coordinating care for students with chronic conditions
- Improvements in health services, school attendance, medication adherence, and quality of life for students with asthma
- Oversee the appropriate use of medications in the school setting
  - Can review and reinforce proper inhaler technique
  - Share the most-encountered data of quick-relief medication use— one of the hallmarks of asthma control

School Nurses

- Emerging research shows that school nurses have a positive impact on student health and academic outcomes
- Higher nurse-to-student ratios have been associated with significant increases in referrals and follow-up care for students with asthma, diabetes, vision problems, psychosocial problems, and injury prevention and reporting
- Also associated with fewer school absences and emergency room visits, in particular for students diagnosed with asthma

School Health Management Plans

- Adopting evidence-based, multi-sector interventions can help address the issue of asthma in schools.
- Several models exist:
  - Asthma 411 Initiative
  - School-based Asthma Management Program (SAMP®)
  - Coordinated School Health Model
  - A+ Health Schools
Asthma 411 – St. Louis, MO

**Asthma 411** is a community-based, multi-organizational, and multi-institutional project designed and evaluated to reduce asthma morbidity among African American children and adolescents in Saint Louis, MO. The anchors of key strategies are to develop and enhance school capacity, the most critical of which is the utilization of a consulting physician to enhance the role of the school nurse.

Schools using Asthma 411 have seen a statistically significant:
- Increase in identification of students with asthma
- Decrease in children sent home due to asthma
- Increase in physician written Asthma Action Plans
- Decrease in 911 Calls
- Decrease in absences due to asthma

**SAMPRO™ (School-based Asthma Management programs) - 4 components**

1. A circle of support that facilitates communication among the child, the family, clinicians, schools, and the community.
2. Asthma Management Plans:
   - Asthma Emergency Treatment Plan (AETP): details an emergency management plan for all students with asthma, including stock albuterol and ways to deliver the medication.
   - Asthma Action Plan (AAP): includes medical authorization for self-carried and administered asthma medications, along with parental release of information.
3. A comprehensive education plan for all school personnel.
4. A plan for assessment of the school environment and remediation of school-based asthma triggers.

**Coordinated School Health Model**

- In 1987, CDC developed the Coordinated School Health (CSH) model to encourage a comprehensive approach to school health.
- Blueprint for integrating health-promoting practices in the school setting.
- A national, wellness-based model that connects physical, emotional, and social health with education through 8 interrelated components.
- This coordinated approach improves students’ health and their capacity to learn through the support of families, communities, and schools working together.

**8 Components of CSH**

- Health education
- Physical education/physical activity
- Health services
- Mental health/social services
- Nutrition services
- Healthy and safe environment
- Staff wellness
- Family/community partnerships
CSH Background & History

- In 2000, the Coordinated School Health Improvement Act, T.C.A. 49-6-1001, was passed and authorizing and funding CSH in TN. State funding provided support for 10 pilots.
- In 2001, the Office of CSH was established by the TN Dept. of Education, with the primary mission to improve student health outcomes as well as support the connection between good health practice, academic achievement, and lifelong wellness.
- In 2006, Public Chapter 1001, the CSH Expansion and Physical Activity Law, established authority and funding ($15 million) toward CSH statewide. The law created a Physical Education Specialist and a Coordinator of School Health position within the TN Dept. of Ed. and mandated 90 minutes of physical activity in grades K-12.
- By the 2007-2008 school year, all Tennessee public school systems had implemented CSH programs.

Evolution of CSH Model

- In 2012, the CDC and the Association of Supervision and Curriculum Development began to explore ways to more fully engage both the education and health sectors to improve student health.
- They created the “Whole School, Whole Community, Whole Child (WSCC)” model.

The WSCC model responded to the call for greater alignment, integration, and collaboration between health and education to improve each child’s cognitive, physical, social, and emotional development.

WSCC Model

- 10 components
- CSH components of Healthy and Safe School Environment & Family and Community Involvement are expanded into 4 distinct components

CSH – WSCC Comparison

<table>
<thead>
<tr>
<th>CSH</th>
<th>WSCC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>Health</td>
</tr>
<tr>
<td>Nutrition</td>
<td>Nutrition</td>
</tr>
<tr>
<td>Physical</td>
<td>Physical</td>
</tr>
<tr>
<td>Safety</td>
<td>Safety</td>
</tr>
<tr>
<td>Environment</td>
<td>Environment</td>
</tr>
<tr>
<td>Family</td>
<td>Family</td>
</tr>
<tr>
<td>Community</td>
<td>Community</td>
</tr>
</tbody>
</table>

The WSCC model expands the CSH model to create a comprehensive approach to health and learning, engaging policies, processes, and practices in many areas to improve student health and well-being.
Coordinated School Health in TN

- The office of Coordinated School Health (CSH) with the TN Dept. of Education surveys public and private school systems annually to monitor compliance with state school health laws and to assess the scope of school health services provided to Tennessee public school students as mandated in T.C.A § 49-5-1602.
- 142 local education agencies (LEAs) and 57 private schools.
- 2016-2017 annual CSH report:
  [https://www.tn.gov/content/tn/education/csh/csh_health_services_report_2016-17.pdf](https://www.tn.gov/content/tn/education/csh/csh_health_services_report_2016-17.pdf)

CSH Report 2016-2017

- 213,235 students in Tennessee public schools had asthma or disability diagnosis.
- This represents 2.2 percent of all Tennessee public school students statewide.
- The most common chronic illnesses or disability diagnoses of the public schools were:
  - Asthma (44%) - approx. 71,880 students
  - ADHD/ADD (29%)
  - Severe allergies (17%)
- Asthma continues to be the number one chronic illness causing student absences.

Issues Identified

- Of the 71,880 public school students identified as having asthma, only 31,852 students or 45% of all students identified as having asthma were provided an individualized action treatment plan (IAP).
- Only 27% of all schools identified as having asthma were provided an asthma action treatment plan.
- Only 27% of all students with asthma in public schools received asthma education training.
- Only 45% of the schools systems do not have a school nurse present daily to assess students who might be having an asthma emergency.

ALA Asthma-Friendly Schools

Schools that make the effort to create safe and supportive learning environments for students with asthma.

Policies and procedures that allow students to successfully manage their asthma.
Asthma-Friendly Schools – 4 Key Components

4 Key Components

<table>
<thead>
<tr>
<th>Health &amp; Mental Health Services</th>
<th>Asthma Education</th>
<th>Healthy Environments</th>
<th>Physical Education and Activity</th>
</tr>
</thead>
</table>

Key Components

41 Health & Mental Health Services—

- Individuals with asthma must have appropriate and immediate access to healthcare.
- Within the school, this includes access to:
  - trained school health services staff with required resources,
  - Asthma Action Plans,
  - medical emergency protocols,
  - immediate access to prescribed medications
  - referrals as needed to community and medical resources.

42 Asthma Education—

- Educational efforts to increase knowledge about asthma and its management among:
  - students with asthma,
  - classrooms of students with asthma,
  - parents, and
  - school staff.

43 Healthy Environments—

- Managing air quality in schools.
  - Students and staff who spend their days in a healthy environment with well-managed facilities and good air quality should suffer fewer asthma episodes and other short- and long-term health effects from environmental causes.
  - Schools should manage indoor air quality and implement a procedure for managing students’ exposure on high outdoor pollution days.
  - Air Quality Index basics: [airnow.gov/index.cfm?action=aqibasics.aqi]
  - Alerts for school staff on unhealthy days.
Key Components

Physical Education and Activity:
- Students with asthma can participate fully in physical activity when they are symptom-free.
- But they may need to make modifications when their asthma is not fully controlled.
- School staff must be prepared to work with students individually to ensure their ability to participate and to provide appropriate physical activity when needed.

ALA Asthma Medications in Schools
- All 50 states and the District of Columbia have passed a law allowing students to carry and use inhalers at school.
- Only seven states have laws allowing schools to stock bronchodilators for students with asthma.
- Two others stock bronchodilators in school guidelines.

Access to Bronchodilators
- Even without a state law, school districts can put a Stock Bronchodilator Policy in place to provide immediate access to asthma medication in school.
- The ALA encourages all school districts to implement a Model Policy to provide students with asthma access to quick-relief medicine during the school day.
- Having a model policy that allows standing orders can save the life of a child.
- Model Policy on Stock Bronchodilators:
  [http://www.lung.org/assets/documents/asthma/model-policy-for-school.pdf](http://www.lung.org/assets/documents/asthma/model-policy-for-school.pdf)

Ready to Self-Carry?
- Tool to help you identify a student’s capabilities and areas that need improvement.
- Done after the student, parent, and provider have agreed that the student is ready to self-carry.
Asthma Action Plan

- Serves as both treatment plan and medication orders.
- Green – Breathing is good.
- Yellow – Some problems breathing – treatment is as follows.
- Red – Lots of problems breathing. Get help now. Do these things NOW.
- Self-carry authorization
- Release to communicate with HCP

Individualized Health Care Plans (IHPs)

- Each student with an active diagnosis of asthma needs an IHP that includes:
  - Signs and symptoms
  - Triggers
  - Medication taken at home
  - Orders for fast-acting relief meds

Process for Exchange of Health Information in Schools

- School sends health forms for parent to complete.
- Teacher gets completed health form back.
- Teacher sends health forms to nurse.
- Nurse reviews health forms, notes asthma, other conditions.
- Nurse sends homeAAP for parent to complete.
- Nurse gets AAP back from parent.
- Nurse sends AAP to Dr. For orders, and asks parents to bring in inhaler.
- Nurse gets AAP back from Dr.
- Nurse sends IHP to all teachers/coaches via email/paper copies.

TN Asthma Toolkit

The TN State School Nurse Consultant, Christie Watson, is working to develop an Asthma Toolkit, available online, geared towards the non-medical staff in schools.

- Triggers
- Pathology of Asthma
- Signs and symptoms of an asthma attack
- Steps to follow in an asthma attack
- Lots of great links to resources
- Sample Asthma Action Plan -- in conjunction with members of the TN Asthma Coalition
Physical Activity in Pediatric Asthma Management

- 2014 study explored elementary students’ perceptions of the impact of school asthma management on their physical activity.
- Results indicated inappropriate in-school management of asthma symptoms (setting out of PE, drinking water), poor asthma control, lack of accessible medication, and stigma around publicly using asthma medication.
- Need:
  - Well-defined asthma policies
  - Easy access to medicines
  - A supportive environment

Asthma and the Student Athlete

- At least 15% to 25% of athletes may have signs and symptoms suggestive of asthma, including exercise-induced asthma (EI A).
- Recent data in literature describe a prevalence of 10% of EIA in school-aged children.
- Physical activity is the second leading cause of acute airway obstruction, behind only viral upper respiratory tract infections.

Exercise-Induced Asthma (EIA)

- A temporary narrowing of the airway induced by exercise in which the patient has asthma symptoms.
- Commonly seen in athletes in all levels of athletic competition.
- Can occur in patients who do not otherwise have asthma.

National Athletic Trainers’ Association

- ATs in a unique position to recognize breathing difficulties caused by undiagnosed or uncontrolled asthma, particularly when asthma follows exercise.
NATA Position Statement

Athletic training assistants should be educated to recognize asthma symptoms in order to identify patients who might benefit from better management and who should understand the management of asthma, especially exercise-induced asthma. They should participate as active members of the asthma care team.

The athletic trainer should also be familiar with vocal cord dysfunction and other upper airway diseases, which can sometimes be confused with asthma.

The athletic trainer should be aware of the resources and websites that provide general information and frequently asked questions on asthma and EIA.

NATA Recommendations

All athletes must receive preparticipation screening evaluations sufficient to identify the possible presence of asthma.

In most situations, this evaluation includes obtaining a thorough history from the athlete, pulmonary function testing, and exercise challenge test for athletes who have symptoms suggestive of asthma.

Students with a history of asthma, those taking medication used to treat asthma, those suspected of having asthma, should consult a physician.

NATA Recommendations

Athletes should be properly educated about asthma, especially EIA.

- Recognizing the signs and symptoms of uncontrolled asthma
- Using spirometry recording devices to monitor lung function
- Methods of limiting exposure to primary and secondary smoke and other asthma triggers (e.g., pollens, animal dander, lung, dust)
- The need for increased asthma medication as a sign of an asthma flare
- The proper techniques for using MDI's, nebulizers, and spacers to control asthma symptoms and treat exacerbations.

Athletic trainers and coaches should consider alternative practice sites for athletes with asthma triggered by airborne allergens.

- Indoor practice facilities with good ventilation and air conditioning for at least part of the practice if possible
- Schedule practices when pollen counts are low (e.g., in the evening during the ragweed pollen season). Pollen count information can be accessed from the National Allergy Bureau at http://www.naaab.org

Proper warm-up before exercise may lead to a refractory period of as long as 2 hours, which may result in decreased reliance on medications by some patients with asthma.
NATA Recommendations

- Athletic trainers should have pulmonary function measuring devices (such as peak expiratory flow meters or portable spirometers) at all athletic venues. For athletes for whom such devices have been prescribed and should be familiar with how to use these devices.
- All students with asthma should have a rescue inhaler available during games and practices, and the AT should have an extra rescue inhaler for each athlete for emergencies.
- In case of emergencies, an ambulance should also be available.

Athletic Trainer Asthma Algorithm

NATA Recommendations Summarized

1. All athletes with asthma should have a rescue inhaler available during games and practices.
2. Athletic trainers should have an extra rescue inhaler for each athlete to administer during emergencies.
3. Athletes with asthma should have examinations at regular intervals, as determined by the FCP or specialist.
4. Proper warm-up may lead to a refractory period of as long as 2 hours, and may result in increased reliance on medications.
National Asthma Education & Prevention Program (NAEPP)

- One goal is to enable students to participate in any activity they choose without experiencing asthma symptoms.
- Exercise-induced bronchospasm (EIB) should not limit either participation or success in vigorous activities.
- Recommended Treatments for EIB include:
  - Beta-agonists will limit EIB in more than 80 percent of patients. Short-acting inhaled beta-agonists used shortly before exercise (or as close to exercise as possible) may be helpful for 2 to 3 hours.
  - Lengthened warm-up periods before exercise may benefit students who are unable to continue exercise with minimal symptoms & may reduce need for repeated medications.

Summary

- Asthma remains one of the most prevalent medical conditions in children and causes significant absenteeism.
- Federal and state laws are in place to give schools guidance, direction, authority
- A plethora of resources available
- School Asthma/School Nurse are vital
- AAP – make sure the process is completed
- Asthma in student athletes/SAE – manageable with training and education

References

Questions?

Sarah Winters, MSN RN
Rutherford County Schools
winterssx@rcschools.net
615-893-5882, ext. 22077