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School-based **A**<sup>Asthma  
Allergy  
Anaphylaxis</sup> **M**anagement **PRO**gram<sup>TM</sup>  
(SA<sup>3</sup>M**PRO**<sup>TM</sup>) Toolkit



School of Medicine  
and Public Health  
UNIVERSITY OF WISCONSIN-MADISON



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## Use of the Toolkit



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The SA<sup>3</sup>MPRO™ Toolkit exists for the benefit of the health care community. These materials are available free of charge and can be used without permission; however, we ask that you register with HIPxChange prior to using the toolkit so that we may provide information on usage to our funders. It is acceptable to link to this Web site without expressed permission. If you decide to use these materials, we ask that you please credit the American Academy of Allergy Asthma & Immunology (AAAAI) and the UW Health Innovation Program.

### Citations:

Lemanske, Jr RF, Kakumanu S, Shanovich K, Antos N, Cloutier MM, Mazyck D, et al. Creation and implementation of SAMPRO™: A school-based asthma management program. *J Allergy Clin Immunol* 2016 [In Press]. doi: 10.1016/j.jaci.2016.06.015.

SA<sup>3</sup>MPRO™ Toolkit. American Academy of Asthma Allergy & Immunology, University of Wisconsin – Madison Department of Medicine; 2016. Available at: <https://hipxchange.org/SAMPRO>.

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## Background

Childhood asthma is a common, chronic pediatric condition, affecting 6.3 million children. Morbidity from childhood asthma adversely affects school performance, with 1 in 2 children reporting school absences due to asthma each year. These asthma related absences influence academic achievement, leading to decreased levels of reading proficiency and increased risk of learning disabilities. Improving health and school-related outcomes for children with asthma requires the use of school-based partnerships that focus on integrated care coordination amongst families, clinicians, and school nurses.

For asthma care, School-Based Allergy, Asthma and Anaphylaxis Management Program ([SA<sup>3</sup>MPRO™](#)) advocates four components to integrate schools, and specifically school nurses, within the asthma care team. These components are:

1. The creation of a **Circle of Support** amongst the families, clinicians, and school nurses centered around the child with asthma.
2. The creation and transmission of Asthma Management Plans to schools. This includes an **Asthma Emergency Treatment Plan** for emergency management of asthma symptoms and an individualized **Asthma Action Plan (AAP)** for each child with asthma. A standardized AAP is available.
3. A comprehensive **Asthma Education Plan** for school personnel.
4. A comprehensive **Environmental Asthma Plan** to assess and remediate asthma triggers at home and in school.

### CIRCLE of SUPPORT



SA<sup>3</sup>MPRO™ standardizes recommendations for school based asthma management, and provides websites and resources useful for the care of children with asthma in the school setting.

### Who should use this toolkit?

This toolkit is intended for school nurses, education administrators, clinicians, or healthcare administrators who are interested in implementing the School-Based Allergy, Asthma and Anaphylaxis Management Program at their school or organization.

### What does the toolkit contain?

The SA<sup>3</sup>MPRO™ Toolkit contains several tools to help you implement the key components of SA<sup>3</sup>MPRO™:

- 
- Establishing the Circle of Support: Tools for engaging clinicians, school nurses, and families, and how to foster good communication between them.
  - Using and transmitting the Asthma Emergency Treatment Plan and an Asthma Action Plan
  - Tools for the school nurse to provide asthma education to school personnel
  - Additional resources to support effective school-based management of asthma

## How should these tools be used?

The enclosed tools will provide information for feasible implementation of SA<sup>3</sup>MPRO™ into local communities.

We encourage users to complete the free registration process to allow for full downloads of available material. We will use the information requested during the registration to update users on toolkit updates and to study usage patterns of the toolkits by school nurses and clinicians.

After registering on the SA<sup>3</sup>MPRO™ Toolkit site, you will be able to download all of the materials in a ZIP file, including this toolkit and several supplementary files.

## Development of this toolkit

The SA<sup>3</sup>MPRO™ Toolkit was developed by the stakeholders in the SA<sup>3</sup>MPRO™ Summit Stakeholder Workforce, listed below.

This project was supported by funding from the American Academy of Allergy, Asthma and Immunology (AAAAI) and the National Association of School Nurses (NASN). Additional support was provided by the University of Wisconsin School of Medicine and Public Health's Health Innovation Program (HIP), the Wisconsin Partnership Program, and the Community-Academic Partnerships core of the University of Wisconsin Institute for Clinical and Translational Research (UW ICTR), grant 9 U54 TR000021 from the National Center for Advancing Translational Sciences (previously grant 1 UL1 RR025011 from the National Center for Research Resources). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health or other funders.

### SA<sup>3</sup>MPRO™ Summit Stakeholder Workforce

- Allergy & Asthma Network\*
- American Academy of Allergy, Asthma & Immunology\*
- American Academy of Family Physicians
- American Academy of Pediatrics\*
- American Association of School Administrators
- American College of Allergy, Asthma and Immunology\*
- American Lung Association
- American Public Health Association
- American Thoracic Society\*
- Asthma and Allergy Foundation of America
- Asthma Initiative of Michigan
- Boston Children's Hospital

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- Centers for Disease Control and Prevention
  - Children’s Health Alliance of Wisconsin
  - Children’s Hospital of Colorado Breathing Institute
  - Children’s Hospital of Wisconsin
  - Connecticut Children’s Asthma Center
  - Denver Public Schools, Department of Nursing & Student Health Services
  - Harvard Medical School
  - Kennett Public Schools, Missouri
  - Minneapolis Public Schools
  - Montgomery County Department of Health and Human Services
  - National Association of Chronic Disease Directors
  - National Association of Pediatric Nurse Practitioners
  - National Association for the Advancement of Colored People
  - National Association of School Nurses\*
  - National Education Association
  - National Heart, Lung and Blood Institute
  - National Institute of Allergy and Infectious Disease
  - Olmsted County Public Health Services
  - St. Louis Children’s Hospital
  - St. Louis University
  - State of Wisconsin, Department of Public Instruction
  - The Rush University Prevention Center
  - The University of Texas at Austin, School of Nursing
  - University of Connecticut
  - University of Rochester, New York
  - University of Wisconsin School of Medicine and Public Health
  - University of Wisconsin School of Pharmacy
  - US Environmental Protection Agency

\* Denotes organizations that have endorsed the SA<sup>3</sup>M<sup>PRO</sup>™ whitepaper

Please send questions, comments and suggestions to [HIPxChange@hip.wisc.edu](mailto:HIPxChange@hip.wisc.edu).

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## SA<sup>3</sup>MPRO™ Component 1: Establishing a Circle of Support

The Circle of Support is a communication network centered around the child, consisting of clinicians, school nurses, and families. This communication network allows for patient centered education and improved asthma management by all members of the circle of support.

### CIRCLE of SUPPORT



### Role of the Clinician

Clinicians who care for children with asthma have a unique obligation to coordinate asthma care with the schools. Aside from routine clinical care of asthma, health care providers must educate the family and child about the need for an Asthma Action Plan (AAP) in school, and should support the school nurse that is providing school-based asthma care.

### Asthma Action Plan

A key step in coordinating asthma care is the creation of the **Asthma Action Plan** and transmitting it to schools. A recommended AAP is provided in this toolkit, in both English and Spanish versions. Two versions of each AAP are available for download online: one with the AAAAI logo, and one without a logo so that you can brand it as needed for your organization.

For clinicians who wish to adapt their existing forms for use, we have provided the **Essential Features of a School-related Asthma Action Plan** and an **Asthma Action Plan with Essential Features Highlighted**. If needed, the **School Supplementary Treatment Orders Form** can be sent with the Asthma Action Plan.

To further recommend that clinicians engage in bidirectional communication with patients, families, and school nurses we recommend utilizing the **Asthma Visit Checklist for the Provider**.

### Communication with Patients, Families, and School Staff

Ideal communication between providers and school nurses should be accessible, bi-directional, and use simple standardized processes that are customizable for individual students (see the Essential Features of a School-related Asthma Action Plan).

In addition to completing and transmitting an AAP with associated authorization forms, prescriptions and education regarding school based asthma care need to be provided to the patient and school nurse (see the School Supplementary Treatment Orders Form). By integrating the school nurse in the circle of communication and asthma care, the clinician should strive to actively involve the school nurse as part of the asthma care team.

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We encourage clinicians and school nurses to engage local resources such as breathmobile programs, school based health centers, and mobile clinics as important conduits of communication amongst clinicians, patient, families and school nurses.



The tools in bold above are depicted on the following pages and are available for download in the toolkit ZIP file.

## Asthma Action Plan: English



## Asthma Action Plan for Home & School

Name: \_\_\_\_\_

Birthdate: \_\_\_\_\_

Asthma Severity:  Intermittent  Mild Persistent  Moderate Persistent  Severe Persistent  
 He/she has had many or severe asthma attacks/exacerbations

<p> <b>Green Zone</b> Have the child take these medicines every day, even when the child feels well.</p> <p>Always use a spacer with inhalers as directed.</p> <p>Controller Medicine(s): _____</p> <p>Controller Medicine(s) Given in School: _____</p> <p>Rescue Medicine: Albuterol/Levalbuterol _____ puffs every four hours as needed</p> <p>Exercise Medicine: Albuterol/Levalbuterol _____ puffs 15 minutes before activity as needed</p>
<p> <b>Yellow Zone</b> Begin the sick treatment plan if the child has a cough, wheeze, shortness of breath, or tight chest. Have the child take all of these medicines when sick.</p> <p>Rescue Medicine: Albuterol/Levalbuterol _____ puffs every 4 hours as needed</p> <p>Controller Medicine(s):</p> <p><input type="checkbox"/> Continue Green Zone medicines: _____</p> <p><input type="checkbox"/> Add: _____</p> <p><input type="checkbox"/> Change: _____</p> <p>If the child is in the <b>yellow</b> zone more than <b>24</b> hours or is getting worse, follow <b>red</b> zone and call the doctor right away!</p>
<p> <b>Red Zone</b> If breathing is hard and fast, ribs sticking out, trouble walking, talking, or sleeping. <b>Get Help Now</b></p> <p><b>Take rescue medicine(s) now</b></p> <p>Rescue Medicine: Albuterol/Levalbuterol _____ puffs every _____</p> <p>Take: _____</p> <p><b>If the child is not better right away, call 911</b> Please call the doctor any time the child is in the red zone.</p>

### Asthma Triggers: (List)

**School Staff:** Follow the Yellow and Red Zone plans for rescue medicines according to asthma symptoms. Unless otherwise noted, the only controllers to be administered in school are those listed as "given in school" in the green zone.

- Both the asthma provider and the parent feel that the child may carry and self-administer their inhalers  
 School nurse agrees with student self-administering the inhalers

Asthma Provider Printed Name and Contact Information:

Asthma Provider Signature:

Date:

**Parent/Guardian:** I give written authorization for the medications listed in the action plan to be administered in school by the nurse or other school members as appropriate. I consent to communication between the prescribing health care provider/clinic, the school nurse, the school medical advisor and school-based health clinic providers necessary for asthma management and administration of this medication.

Parent/guardian signature:

School Nurse Reviewed:

Date:

Date:

Please send a signed copy back to the provider listed above.

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## Asthma Action Plan: Spanish



## Plan de acción para el asma en el hogar y en la escuela

Nombre:

Fecha de nacimiento:

Gravedad del asma:  Intermittente  Persistente suave  Persistente moderada  Persistente grave  
 Él/ella ha tenido muchos o graves ataques de asma/exacerbaciones

<p> <b>Zona Verde</b> El niño debe tomar estos medicamentos todos los días, incluso cuando se siente bien.</p> <p>Siempre use espaciador con los inhaladores según las instrucciones.</p> <p>Medicamento(s) de control: _____</p> <p>Medicamento(s) de control dado en la escuela: _____</p> <p>Medicamento de rescate: Albuterol/Levalbuterol _____ puffs cada cuatro horas según sea necesario</p> <p>Medicamento de ejercicio: Albuterol/Levalbuterol _____ puffs 15 minutos antes de la actividad según sea necesario</p>
<p> <b>Zona Amarilla</b> Comience el plan de tratamiento para enfermedad si el niño tiene tos, sibilancias, falta de aire u opresión en el pecho. El niño debe tomar todos estos medicamentos cuando está enfermo.</p> <p>Medicamento de rescate: Albuterol/Levalbuterol _____ puffs cada 4 horas según sea necesario</p> <p>Medicamento(s) de control</p> <p><input type="checkbox"/> Pasar a medicamentos de Zona Verde: _____</p> <p><input type="checkbox"/> Agregar: _____</p> <p><input type="checkbox"/> Cambia: _____</p> <p>Si el niño está en la Zona Amarilla más de 24 horas o si empeora, pase a la Zona Roja y <b>LLAME AL MÉDICO DE INMEDIATO</b></p>
<p> <b>Zona Roja</b> Si la respiración es dificultosa y rápida, sobresalen las costillas, hay dificultad para caminar, hablar o dormir. <b>Pida ayuda ya mismo</b></p> <p><b>Tomar medicamento(s) de rescate ahora</b></p> <p>Medicamento de rescate: Albuterol/Levalbuterol _____ puffs cada _____</p> <p>Tomar: _____</p> <p><b>Si el niño no mejora de inmediato, llame al 911</b></p> <p>Por favor, llame al doctor en cualquier momento si el niño está en la Zona Roja.</p>

Disparadores de asma: (Lista)

**Personal escolar:** Siga los planes de la Zona Amarilla y de la Zona Roja para medicamentos de rescate según los síntomas del asma. A menos que se estipule otra cosa, los únicos controles que se darán en la escuela son los listados en la Zona Verde como "dados en la escuela".

- Tanto la persona a cargo de cuidar el asma como el padre/la madre creen que el niño puede llevar y autoadministrarse sus inhaladores
- La enfermera escolar está de acuerdo en que el alumno se autoadministre los inhaladores

Nombre en imprenta e información de contacto de quien atiende el asma: \_\_\_\_\_ Firma de quien atiende el asma: \_\_\_\_\_

Fecha: \_\_\_\_\_

**Madre o padre/Tutor:** Autorizo por escrito para que los medicamentos listados en el plan de acción sean dados en la escuela por la enfermera u otro personal escolar según sea apropiado. Autorizo la comunicación entre el profesional médico que prescriba el tratamiento/la clínica, la enfermera escolar, el asesor médico escolar y los proveedores de cuidados médicos que estén en la escuela necesarios para el tratamiento del asma y la administración de este medicamento.

Firma de padre-madre/tutor: \_\_\_\_\_

Revisado por enfermera escolar: \_\_\_\_\_

Fecha: \_\_\_\_\_

Fecha: \_\_\_\_\_

Por favor, envíe una copia firmada al proveedor antes detallado.

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## Supplementary School Treatment Form



## School Supplementary Treatment Orders

(To be Sent with the Asthma Action Plan)

Student Name:

Birthdate:

### Asthma Rescue Medications:

See attached **Asthma Action Plan**:

Please follow the treatment plan detailed in the Green zone for activity/exercise treatment and rescue medication plan for Green, Yellow & Red zones, according to asthma symptoms.

Common side effects of albuterol/levalbuterol include increased heart and respiratory rate and jitteriness.

The student may carry and self-administer their inhalers

**Pre-activity treatment, including before physical education/recess, should be given:**

With all activity    Only when the child or school staff feels he/she needs it

If a Student is in the Red Zone, immediately give their rescue treatment and call 911.

Please follow school emergency plans, according to school/school system policy.

### Controller Medications:

Only the following controller or steroid medications should be administered in school:

	AM Dose	PM Dose
_____		
_____		
_____		

### If not listed on the Asthma Action Plan:

#### Triggers:

School specific triggers include: \_\_\_\_\_

**Asthma Severity:**    Intermittent    Mild Persistent    Moderate Persistent    Severe Persistent

He/she has had many or severe asthma attacks/exacerbations

Please Contact the Asthma Provider listed here with any questions or concerns regarding these orders, or if the student does not have adequate/correct medications in the school.

### Asthma Provider Printed Name & Contact Information:

Asthma Provider Signature:

Date:

**Parent/Guardian Permission:** I give permission for the medications listed in the Asthma Action Plan to be administered in the school by the nurse or other school members in accordance with school policy. I consent to sharing health information between the prescribing health care provider/clinic, the school nurse, and the school medical advisor necessary for asthma management and administration of this medication.

Parent/guardian signature:

Date:

**For School Use:**    School nurse agrees with student self-administering the inhalers

School nurse received/Signature:

Date:

Please send a signed copy back to the provider at the contact listed above.

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## Asthma Visit Checklist for the Provider

### Control

- Establish the patient's and family's concerns, goals and needs
- Update asthma history and level of control from prior year
  - How has asthma affected the child's activity level, attendance and school performance?
- Assess asthma severity and current level of asthma control
  - Identify barriers to medication adherence

### Rescue

- Does the patient/family understand the AAP and how to track their symptoms?
  - Have they recognized changes over certain times of the year?
- Discuss when and how frequently prophylactic albuterol should be used
  - Routinely or only for certain activities such as exercise?
- Establish good inhaler technique with a spacer
- Evaluate/discuss child's readiness to self-carry asthma medication
  - Establish barriers at school to self- carry and administer medications
  - Propose solutions if barriers identified
- Identify the resources at school to support a child with asthma:
  - If known, document the name, contact information and school resource person responsible for dealing with an asthma flare
- Is there an emergency plan in place to manage severe asthma exacerbations?

### School and Environment

- Identify asthma triggers and potential exposures at school (pets, irritants, allergens)
- Encourage parents to meet with the school nurse and discuss child's asthma management
- Identify barriers to the child seeking help with asthma management at school
- Consider establishing direct communication with the school nurse, especially for poorly controlled or non-adherent asthmatics

### Forms and Supplies

- Transmit Asthma Action Plan and medication authorization form
  - Transmit authorization for health care providers and school nurses to exchange health information
  - Transmit authorization to have medication administered and self-carried at school
- Provide/prescribe for school:
- Additional quick relief inhaler
  - Valved-holding device (spacer) for school use.

## Essential Features of a School-related Asthma Action Plan

The **Essential Features of a School-Related Asthma Action Plan** are listed in the table below, followed by the SA<sup>3</sup>M<sup>PRO</sup>™ **Asthma Action Plan with Essential Features Highlighted**.

	School Significance	Patient Effect
<b>A</b> Asthma severity	<ul style="list-style-type: none"> <li>Recognize and provide direct patient care to patients with severe asthma.</li> <li>Monitor controller medication use.</li> </ul>	<ul style="list-style-type: none"> <li>Student-centered care.</li> <li>Improves medication adherence.</li> </ul>
<b>B</b> Recurrent/severe exacerbations	<ul style="list-style-type: none"> <li>Recognize high risk students and step-up asthma care if needed.</li> </ul>	<ul style="list-style-type: none"> <li>Provides symptom directed step-up care.</li> <li>Earlier transfer to higher level of care.</li> </ul>
<b>C</b> Prophylactic albuterol prior to exercise	<ul style="list-style-type: none"> <li>Recognize which students require scheduled albuterol prior to activity vs students who can self-carry albuterol.</li> </ul>	<ul style="list-style-type: none"> <li>Minimizes class absences for school nurse visits.</li> </ul>
<b>D-F</b> Stoplight zones	<ul style="list-style-type: none"> <li>Provide chronic, acute, and emergency treatment plan</li> </ul>	<ul style="list-style-type: none"> <li>Allows for patient-centered treatment</li> </ul>
<b>G</b> Triggers	<ul style="list-style-type: none"> <li>Identify asthma triggers in the school.</li> <li>Educate patient about these triggers and avoidance.</li> </ul>	<ul style="list-style-type: none"> <li>Decreases/avoids exposures to triggers.</li> <li>Improves asthma control.</li> </ul>
<b>H</b> Self-administer approval and nurse agreement	<ul style="list-style-type: none"> <li>Designates children who can self-carry medications</li> </ul>	<ul style="list-style-type: none"> <li>Allows early administration in acute need.</li> </ul>
<b>I</b> Contact information	<ul style="list-style-type: none"> <li>Provides easily accessible and accurate provider contact information.</li> </ul>	<ul style="list-style-type: none"> <li>Improves care coordination.</li> </ul>
<b>J</b> Parent release	<ul style="list-style-type: none"> <li>Authorizes providers and nurses to communicate in accordance with HIPPA and FERPA privacy laws.</li> </ul>	<ul style="list-style-type: none"> <li>Ensures patient privacy and continued care coordination.</li> </ul>
<b>K</b> Nurse acknowledgement	<ul style="list-style-type: none"> <li>Acknowledges receipt and school agreement plan outlined in the AAP.</li> </ul>	<ul style="list-style-type: none"> <li>Improves circle of communication between providers and school nurses.</li> </ul>

## Asthma Action Plan with Essential Features Highlighted

### Asthma Action Plan for Home & School

Name:

Birthdate:

Asthma Severity: **A**  Intermittent  Mild Persistent  Moderate Persistent  Severe Persistent  
 He/she has had many or severe asthma attacks/exacerbations **B**

<p><b>Green Zone</b>  Have the child take these medicines every day, even when the child feels well.</p> <p>Always use a spacer with inhalers as directed.</p> <p>Controller Medicine(s): _____</p> <p>Controller Medicine(s) Given in School: _____ <b>D</b></p> <p>Rescue Medicine: Albuterol/Levalbuterol _____ puffs every four hours as needed</p> <p>Exercise Medicine: Albuterol/Levalbuterol _____ puffs 15 minutes before activity as needed <b>C</b></p>
<p><b>Yellow Zone</b>  Begin the sick treatment plan if the child has a cough, wheeze, shortness of breath, or tight chest. Have the child take all of these medicines when sick.</p> <p>Rescue Medicine: Albuterol/Levalbuterol _____ puffs every 4 hours as needed <b>E</b></p> <p>Controller Medicine(s): _____</p> <p><input type="checkbox"/> Continue Green Zone medicines: _____</p> <p><input type="checkbox"/> Add: _____</p> <p><input type="checkbox"/> Change: _____</p> <p>If the child is in the <b>yellow</b> zone more than <b>24</b> hours or is getting worse, follow <b>red</b> zone and call the doctor right away!</p>
<p><b>Red Zone</b>  If breathing is hard and fast, ribs sticking out, trouble walking, talking, or sleeping. <b>Get Help Now</b></p> <p><b>Take rescue medicine(s) now</b></p> <p>Rescue Medicine: Albuterol/Levalbuterol _____ puffs every _____ <b>F</b></p> <p>Take: _____</p> <p><b>If the child is not better right away, call 911</b> Please call the doctor any time the child is in the red zone.</p>

Asthma Triggers: (List) **G**

**School Staff:** Follow the Yellow and Red Zone plans for rescue medicines according to asthma symptoms. Unless otherwise noted, the only controllers to be administered in school are those listed as "given in school" in the green zone.

- Both the asthma provider and the parent feel that the child may carry and self-administer their inhalers **H**
- School nurse agrees with student self-administering the inhalers

Asthma Provider Printed Name and Contact Information:

**I**

Asthma Provider Signature:

Date:

**Parent/Guardian:** I give written authorization for the medications listed in the action plan to be administered in school by the nurse or other school members as appropriate. I consent to communication between the prescribing health care provider/clinic, the school nurse, the school medical advisor and school-based health clinic providers necessary for asthma management and administration of this medication.

Parent/guardian signature:

**J**

School Nurse Reviewed:

Date:

Date:

**K**

Please send a signed copy back to the provider listed above.

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## Role of the School Nurse

School nurses are an essential part of the health care team since they often coordinate care for students with asthma. School nurses are uniquely positioned to provide direct care, adherence counseling, and education, and can provide an important link to community based care for children with asthma.

We encourage school nurses to use the **School Nurse Asthma Care Checklist** to ensure care coordination for asthma care in school is complete.



The School Nurse Asthma Care Checklist is depicted on the next page and is available for download in the toolkit ZIP file.

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## School Nurse Asthma Care Checklist (National Association of School Nurses\*)

### Assessment

- Review intake/registration form to identify students with asthma.
- Contact caregiver for further information, student history, triggers, caregiver concerns, health release form, and primary care provider (PCP)/asthma care specialist (ACS) contact information.
- Assess financial needs, and language or culture beliefs.
- Contact PCP/ACS to validate medical diagnoses and obtain list of current medications, treatments, etc.
- Assess student's knowledge, ability to self-manage, with consideration of language and developmental needs.
- Collect baseline student data; such as last PCP/ACS visit, exacerbations, hospital/ED visits, vital signs, inhaler use, attendance.
- Assess if specific triggers are present in the school for students with a known current diagnosis.

### Diagnosis

- Establish nursing diagnoses based on assessment data.

### Outcome

- Identify appropriate short, intermediate and long term goals and outcomes with student, caregiver, and PCP/ACS.
- Outcomes should be measurable and include an expected time frame. Can include academic, psychosocial, quality of life, health.

### Planning

- Verify that each student has a current (within 12 months) Asthma Action Plan (AAP) to manage episodic exacerbations.
- In addition to AAP, develop, if needed, an evidence-based individualized healthcare plan (IHP) in coordination with the student, family, and need-to-know school staff. The IHP should promote continuity, be culturally sensitive, and include a strategy for evaluation.
- Develop a plan for emergencies/disasters, field trips and when the school nurse is not available.
- Participate in the IEP or 504 process if accommodations are needed.

### Implementation

- Complete actions as outlined in the AAP and IHP, to include: Episodic care, coordination of care, health teaching, health promotion, consultation, communication, and documentation.
- Ensure materials provided to teachers and other staff is written appropriately for the audience.

### Evaluation

- Regularly evaluate to determine if nursing goals and student outcomes are being met.
- Periodically evaluate the plan, including what is going well, barriers, concerns, and what would student/caregiver/staff like changed.
- Evaluation of school support staff for additional educational needs.
- Address emotional, cultural, developmental and language needs,
- Evaluate student adherence to the plan at each episodic visit to the school nurse.
- Revise plan and implementation of care accordingly in response to evaluation results to improve outcomes.
- At least once a year, review overall impact of plan and any changes needed in collaboration with the student.

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## Role of the Family

Families play an essential role in implementing the Asthma Action Plan at home. In addition, they continue to play an important role in advocating for the child and communicating the needs of the child effectively to both school nurses and clinicians.

We recommend using the **Asthma Visit Checklist for the Child and Family** to ensure patients and families receive important patient education and are empowered to become advocates for their health care.



The Asthma Visit Checklist for the Child and Family is depicted below and is available for download in the toolkit ZIP file.

### Asthma Visit Checklist for the Child and Family

#### Asthma Control:

- How well has the child's asthma been controlled during the past school year?
  - Has the child had an asthma flare or attack?
  - Has the child missed school due to asthma?
- Has the child's play been limited because of asthma?
- What triggers the child's asthma?
- Are there triggers at school that worsen the child's asthma?

#### Asthma Medicines at School:

- Does the child have rescue medicine to be given at school?
  - Does the child need to have a spacer at school to use with their inhaler?
  - Does the child need albuterol before physical education or gym class?
- Would it be helpful to have the child take their daily asthma inhaler ("controller medicine") at school?
- Can the child carry and use their own rescue inhaler?
- Is the child comfortable using their inhaler (with spacer if needed)?

#### Asthma Action Plan:

- Does the child have an Asthma Action Plan from their asthma care provider or doctor at home and at school?
- Does the child and family know how to use the asthma action plan to help when the child has asthma symptoms?

#### Forms and Contacts:

- Have you given the school nurse the name of the child's asthma care provider and their clinic phone number and address?
- Have you given the school the following forms:
  - A copy of the child's Asthma Action Plan
  - Orders from the child's clinic to give asthma medicines at school.
  - Orders from the child's clinic for the child to self-carry and use their rescue inhaler
  - A signed release of information so that the school nurse may talk with the child's clinic

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## Role of the Community

In addition to the clinicians, school nurses, and families directly involved in supporting the child with asthma, the health system and school play an important role in the success of the School-Based Allergy, Asthma and Anaphylaxis Management Program.

Buy-in from health system and school leadership will help ensure that adequate support and resources are provided to the program to help ensure its success.

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## SA<sup>3</sup>MPRO™ Component 2: Asthma Emergency Treatment Plan & Asthma Action Plan

A school asthma management program should consist of Asthma Management Plans (AMP) that include:

- A school-based **Asthma Emergency Treatment Plan (AEP)** that would apply to all students who present with troublesome asthma symptoms but do not have a documented and updated AAP available for access by the school nurse.
- An individualized **Asthma Action Plan (AAP)** for individual students with a diagnosis of asthma.

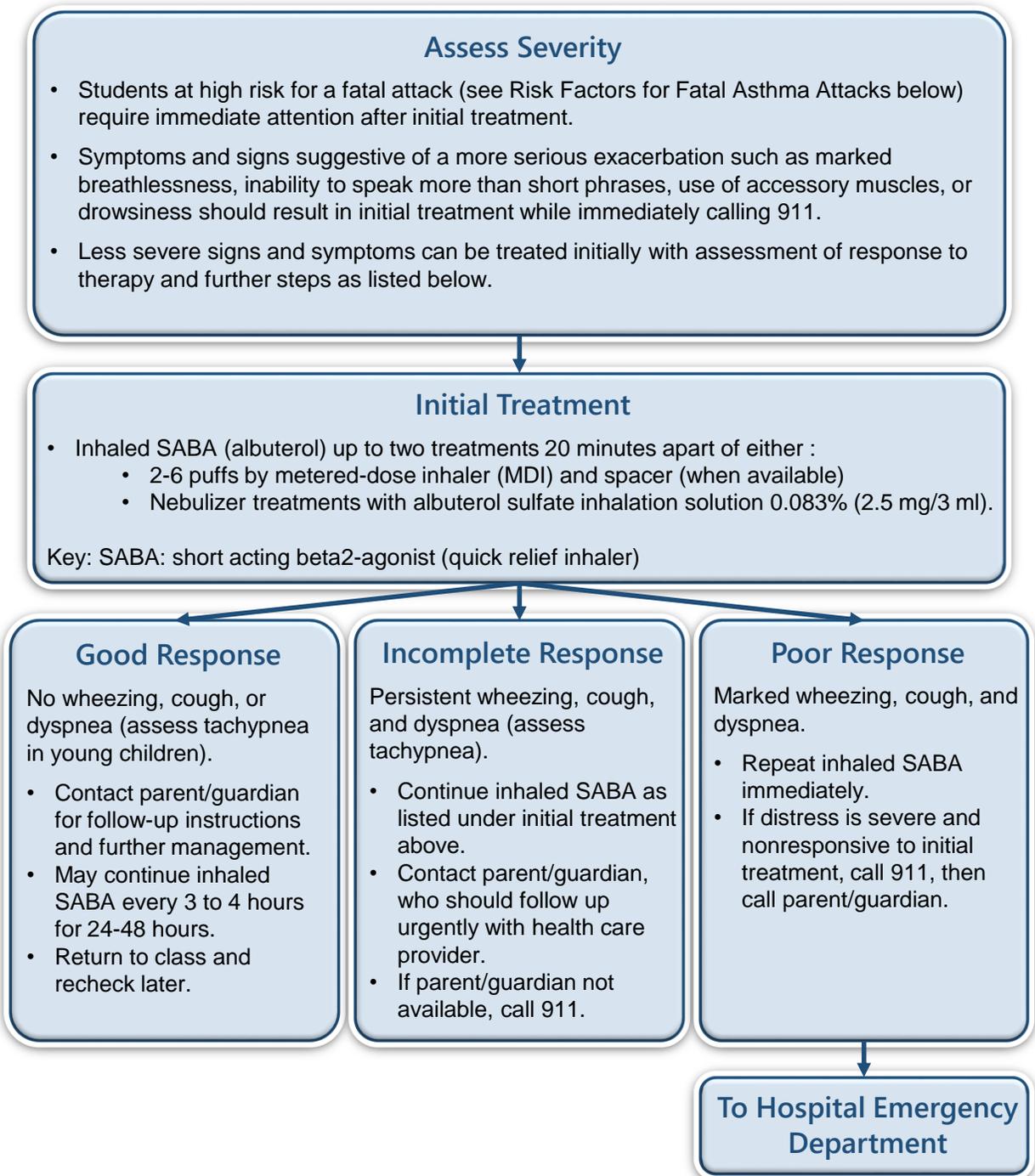
Ideally, the AEP and AAP would be complementary and result in a comprehensive approach to the management of asthma (both acute and chronic) within the school setting.



The Asthma Emergency Treatment Plan is depicted on the next 3 pages and is available for download in the toolkit ZIP file. The other files mentioned in this section are depicted earlier in this toolkit and are also available in the toolkit ZIP file.

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## Asthma Emergency Treatment Plan



Modified by Robert Lemanske, MD and Kathleen Shanovich, RN, CPNP from Guidelines for the Diagnosis and Management of Asthma, National Asthma Education and Prevention Program, Expert Panel Report 3, U.S. Department of Health and Human Services, National Institutes of Health, and National Heart, Lung and Blood Institutes of Health, and National Heart, Lung and Blood Institute, October 2007, page 382.

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## Risk Factors for Fatal Asthma Attacks

### Asthma History

- Previous severe exacerbation (e.g., intubation or intensive care unit admission for asthma)
- Two or more hospitalizations for asthma in the past year
- Three or more emergency department visits for asthma in the past year
- Hospitalization or emergency department visit for asthma in the past month
- Using > 2 canisters of short-acting beta2-agonist (SABA) per month
- Difficulty perceiving asthma symptoms or severity of exacerbations
- Other risk factors: lack of a written asthma action plan, sensitivity to *Alternaria*

### Social History

- Low socioeconomic status or inner-city residence
- Illicit drug use
- Major psychosocial problems

### Co-morbidities

- Cardiovascular disease
- Other chronic lung disease
- Chronic psychiatric disease

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From Guidelines for the Diagnosis and Management of Asthma, National Asthma Education and Prevention Program, Expert Panel Report 3, U. S. Department of Health and Human Services, National Institutes of Health, and National Heart, Lung and Blood Institute, October 2007, p. 377

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## Asthma Action Plan (AAP)

The Asthma Action Plan (AAP) developed by the SA<sup>3</sup>M<sup>PRO</sup>™ Workforce is an individualized treatment plan for the chronic and acute management of asthma at home and at school. For users who wish to modify existing plans, we advocate including the **Essential Features of a School-related Asthma Action Plan** and, if needed, include the **School Supplementary Treatment Orders Form**.



The Essential Components of the Asthma Action Plan and the School Supplementary Treatment Orders form are depicted earlier in this toolkit and are also available in the toolkit ZIP file.

Transmitting the AAP to schools directly from the clinician's office is strongly encouraged, as manual transmission of the AAP by the patient can be inconsistent. Electronic sharing capabilities, both within the electronic health record (EHR) and beyond, have created a variety of options for easy transmission of information, including to local schools. The most common mode of transmission via the EHR is by electronic fax (e-fax). If direct fax is not available, then traditional fax methods can be utilized. It is important that clinicians are aware that the fax machine at schools is often shared with the main school office. It is important to include cover sheets and protect the bi-directional flow of health information in compliance with the HIPAA and FERPA privacy laws.

Having easily accessible and accurate school contact information can also be challenging. This process can be improved by developing a partnership whereby area schools provide local health care providers with a list of school contact information (and vice versa), preferably with similar lists being built into the EHR. As health information exchanges grow in use, we encourage clinicians and school nurses to work with EHR vendors to integrate the AAP into the EHR. Methods of transmission are summarized below.

### Transmission of the AAP

Transmission	Advantages	Barriers
Manual	<ul style="list-style-type: none"><li>Universally available</li></ul>	<ul style="list-style-type: none"><li>Unreliable</li><li>No direct communication from the provider to the RN</li></ul>
Telephone or Electronic Fax	<ul style="list-style-type: none"><li>Available to most schools and clinics</li><li>EHR integration feasible</li></ul>	<ul style="list-style-type: none"><li>Need correct contact information</li><li>May require manual faxing</li><li>Concerns for patient confidentiality and readability</li></ul>
Direct electronic messaging and/or web portals	<ul style="list-style-type: none"><li>Direct, secure transmission</li><li>May offer bi-directional messaging</li><li>Automatic uploads of documents</li></ul>	<ul style="list-style-type: none"><li>Schools must have access to web portal and/or EHR</li><li>Not widely available</li><li>Requires IT support</li></ul>

## SA<sup>3</sup>MPRO™ Component 3: Education for School Personnel and Students

The school nurse has an instrumental role in addressing the components of asthma education via interactions with students, school staff, and families. Below are several **educational resources for school nurses and health aides**, followed by **educational resources for PE teachers/coaches**.

### Educational Resources for School Nurses and Health Aides

Program	Materials/Content	Notes
<a href="#">Asthma Education Curriculum for School Nurses and Other Elementary-Middle School Professionals</a>	Downloadable 258-page manual	<ul style="list-style-type: none"> <li>• Comprehensive</li> <li>• Individual modules with pre- and post-tests</li> </ul>
<a href="#">What is Asthma?</a>	Online education	<ul style="list-style-type: none"> <li>• English and Spanish</li> <li>• Updated August, 2014</li> <li>• Comprehensive education</li> <li>• Not specific for school nurses, some information may not be needed</li> </ul>
<a href="#">Know How to Use Your Asthma Inhaler</a>	Online video/PDF files	<ul style="list-style-type: none"> <li>• Various inhaler techniques, including use of spacers</li> <li>• English and Spanish</li> </ul>

### Educational Resources for PE Teachers/Coaches

Program	Materials/Content	Notes
<a href="#">Asthma and Physical Activity in the Schools</a>	29 page booklet	<ul style="list-style-type: none"> <li>• Asthma basic education</li> <li>• Specific information on exercise and asthma</li> <li>• Treatment</li> <li>• Alternatives for ill students</li> </ul>
<a href="#">Treatment of Asthma Symptoms</a>	Web/HTML or pdf poster	<ul style="list-style-type: none"> <li>• Poster that outlines steps to manage an asthma episode when no school nurse is present</li> </ul>
<a href="#">Air quality information</a>	Interactive map	<ul style="list-style-type: none"> <li>• Identify air quality for locale</li> <li>• Help to determine whether outdoor activities should be restricted for students with asthma</li> </ul>
<a href="#">Know How to Use Your Asthma Inhaler</a>	Online video/PDF files	<ul style="list-style-type: none"> <li>• Various inhaler techniques, including use of spacers</li> <li>• English and Spanish</li> </ul>

The school nurse is in a unique position to identify gaps in asthma care and knowledge and to address these needs through referral and education. Opportunities for asthma education occur in

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the school setting through both formal education programs and also through informal “teachable moments” with the student, staff, and parent/guardian.

*A critical component of this education is recognizing worsening asthma symptoms and/or lack of asthma control. This awareness of warning signs, including when and where to get help, should be provided to all school staff and students.*

Knowledge and understanding of the AAP and/or AEP are also necessary components of the asthma care of the student and education of the staff. **Educational Resources for Students with Asthma** can be found below.

## Educational Resources for Students with Asthma

Program	Age	Language	Training	Time	Notes
<a href="#">Fight Asthma Now®</a>	Two separate programs: 1. Youth (3 <sup>rd</sup> -6 <sup>th</sup> grade) 2. Teen (7 <sup>th</sup> -12 <sup>th</sup> grade)	English	2 day in-person instructor training course required (\$300 per person)	Four 45 minute sessions OR three 60 minute sessions	<ul style="list-style-type: none"> <li>Validated in Chicago (2011) showing significant increases in asthma knowledge and spacer technique competency,</li> <li>Other outcomes not evaluated due to the lack of access to data including school absences and asthma related healthcare utilization.</li> </ul>
<a href="#">Iggy and the Inhalers©</a>	Ages 7-12	English	Not required – should be health professional. Validated using asthma nurse	One 30 minute session	<ul style="list-style-type: none"> <li>Validated 2015 through program evaluation performed in urban school district (results in process of being published); showing significant increase in child's asthma knowledge with persistent retention at one month follow-up testing</li> <li>Program includes video and posters for teaching; child takes home comic book, trading cards and stickers to review with parent/guardian</li> </ul>
Kickin' Asthma© Email for program information: <a href="mailto:KickinAsthma@lung.org">KickinAsthma@lung.org</a>	Middle-high school	English	Training required though self-explanatory – no cost (school nurses, RTs used in Chicago)	Four 50 minute sessions	<ul style="list-style-type: none"> <li>ALA program validated in Oakland, CA 2003-08 with continued use by local ALA groups (such as Chicago)</li> <li>Students experienced significantly fewer days with activity limitations &amp; fewer nights of sleep disturbance along with less healthcare utilization (ED visits/hospitalizations per student report)</li> <li>Culturally sensitive/appropriate</li> </ul>
<a href="#">Kids Health®</a> (Nemours)	All ages	English Spanish	Web-based	On line	<ul style="list-style-type: none"> <li>Web-based education for parents/teens/"kids"</li> <li>A variety of health issues addressed</li> <li>Not a formal education program</li> <li>Able to read along with audio</li> </ul>
<a href="#">Lungtropolis™®</a> (American Lung Association)	Ages 5-10  Children with or without Asthma  Lungtropolis Parents: companion site for parent education	English	Web-based		<ul style="list-style-type: none"> <li>Limited validity: Suggests children who use the program have significantly better asthma control tests, learn more, and are more confident in asthma self-management</li> <li>On-line, interactive video game format</li> <li>Produced 2010</li> <li>Goal: to engage and empower kids to manage their own asthma through increased asthma knowledge</li> <li>Site also has resources for parents featuring comprehensive tips on caring for a child with asthma</li> </ul>

<a href="#">Open Airways for Schools®</a> (American Lung Association)	Ages 8-11	English Spanish	Certified Facilitator (4 hours training required)	Six 40 minute sessions	<ul style="list-style-type: none"> <li>Validated program last updated in 2008 (facilitator training updated 2012)</li> <li>Provides an interactive approach to asthma self-management education covering warning signs, trigger avoidance &amp; decision making skills</li> </ul>
<a href="#">SHARP or Staying Healthy – Asthma Responsible &amp; Prepared©</a>	Ages 9-14	English		Ten 50 minute workbook-guided sessions	<ul style="list-style-type: none"> <li>An academic asthma health education &amp; counseling program</li> <li>Complements existing school curricula</li> <li>Program teachers provide general asthma health information &amp; counseling</li> <li>Retired teachers trained by asthma nurses to provide the program</li> <li>Students demonstrated significant improvement in (a) asthma knowledge, (b) reasoning about asthma management, (c) acceptance in taking control of the condition, vigilance in self-monitoring, openness to learning and sharing with others, and connectedness with teachers, (d) use of effective asthma risk reduction and episode management behaviors, and (e) participation in life activities (quality of life)</li> </ul>
<a href="#">Quest for the Code®</a> (Starlight Children’s Foundation)	Ages 7-15  Children with or without asthma	English Spanish  Future State: French Japanese	None: web based	7 minutes on-line	<ul style="list-style-type: none"> <li>Limited validity data: improvements in asthma self-efficacy, quality of life and knowledge</li> <li>On-line interactive learning game</li> <li>For auditory learners</li> <li>Originated in 2002</li> <li>Focuses on asthma management, how to avoid asthmatic triggers, how to use medication devices, and discover early warning signs of an attack.</li> </ul>

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## SA<sup>3</sup>MPRO™ Component 4: Environmental Asthma Plan

SA<sup>3</sup>MPRO™ recommends that school personnel develop an Indoor Air Quality (IAQ) management program, consistent with EPA recommendations, in their school or district that includes asthma management strategies.

Using the [Framework for Effective School IAQ Management](#) can improve the school environment by reducing exposure to pesticides, promote pest control, and decrease exposures to asthma triggers including mold, dust mites, and diesel exhaust.

Using the [School IAQ Assessment Mobile App](#) can help to identify, solve, and prevent IAQ problems that may exacerbate asthma symptoms. Conducting a walkthrough of school buildings using the [IAQ Tools for Schools Action Kit](#), and the [EPA Walk-through Inspection Checklist](#) to determine whether asthma triggers exist, is also recommended.

Components of a **comprehensive school environment assessment & monitoring program** can be found below, as well as **resources for custodial staff**.

### Recommendations to Create a Healthy School Environment

<input type="checkbox"/> Assessment of environmental factors including lighting, ventilation, temperature, noise, and sanitation facilities.
<input type="checkbox"/> Assessment of environmental factors that may be harmful to health of a child with asthma, including tobacco smoke, cockroaches, mold, pollen, dust mites, animal dander, mice droppings, chalk dust, cleaning agents, scented and unscented personal care products, volatile organic compounds (VOCs), laboratory chemicals, unvented fumes, and vehicle exhaust.
<input type="checkbox"/> Reduce exposure to mites. Dust mites may be found in schools in carpeting, upholstered furniture, stuffed animals or toys, and pillows. Stuffed animals or toys, as well as pillows for taking naps, are used mostly in the primary grade.
<input type="checkbox"/> Clean up mold and control moisture by reducing indoor humidity, responding promptly when signs of moisture and/or mold are sighted, or when leaks or spills occur.
<input type="checkbox"/> Establish procedures to ensure the schools' compliance with maintenance schedules of heating, ventilation, and plumbing systems.
<input type="checkbox"/> Establish procedures to minimize human exposure to the exhaust of school buses and other vehicles. School bus drivers should turn off diesel school bus engines as soon as they arrive at a loading or unloading area and not restart until ready to depart, and park at a sufficient distance from school buildings.
<input type="checkbox"/> Ensure that all school construction or renovation projects provide minimum exposure to indoor and outdoor allergens, irritants, hazardous chemicals, pollutants, and sunlight. Live animals with fur or feathers should not be kept inside classroom buildings with the exception of assistive animals such as seeing-eye dogs.
<input type="checkbox"/> Create a smoke-free environment. No student, staff member, or school visitor should be permitted to smoke, inhale, dip, or chew tobacco at any time on school grounds, including non-school hours. No use of electronic cigarettes should be allowed in and around any school properties or at any school event.
<input type="checkbox"/> The school/district office should be responsible for daily monitoring of Air Quality Index (AQI). School officials should make decisions about reducing students' exposure to air pollution based on individual risk factors. Provide indoor alternatives for student physical activity on days with poor air quality.
<input type="checkbox"/> Integrated pest management (IPM) and control programs should be designed and implemented to prevent pest infestations and minimize human exposure to pesticides in all school buildings and on all school grounds.

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## Resources for Custodial Staff

Program	Materials/Content	Notes
<a href="#">EPA Managing Pests in Schools</a>	Web based educational material	<ul style="list-style-type: none"> <li>• Basic education about IPM</li> <li>• Listing of pests of concern</li> <li>• How to establish an IPM program</li> <li>• Training and certification opportunities</li> </ul>
<a href="#">Integrated Pest Management Webinars</a>	Listing of Webinars on various topics	<ul style="list-style-type: none"> <li>• EPA Center of Expertise for School IPM</li> </ul>
<a href="#">How to Clean and Disinfect Schools</a>	Online education, links, PDF files	<ul style="list-style-type: none"> <li>• Specific for Flu</li> <li>• Updated 2014</li> <li>• English and Spanish</li> </ul>
<a href="#">Protecting Students and Staff with Green Cleaning</a>	Online education	<ul style="list-style-type: none"> <li>• Defines Green Cleaning</li> <li>• Recommended products, practices</li> <li>• Benefits</li> <li>• Build a Green Cleaning Program</li> </ul>
<a href="#">Indoor Air Quality Tools for Schools Action Kit</a>	Online education/Printable material/Listing of hard copy materials	<ul style="list-style-type: none"> <li>• Reference guides</li> <li>• Checklists</li> <li>• Fact Sheets</li> </ul>
<a href="#">Mold Remediation in Schools and Commercial Buildings</a>	56 page online document, published September 2008	<ul style="list-style-type: none"> <li>• Investigating, Evaluating and Remediation</li> <li>• Checklist</li> <li>• Introduction to molds, volatile organic compounds</li> </ul>

## Additional Resources

### Spanish Asthma Education Materials:

- [CDC: Asthma FAQs in Spanish](#)
- [AAAAI: Information about Asthma in Spanish](#)

### Environmental Asthma Resources

- [CDC: Creating an Asthma-Friendly School](#)
- [Wisconsin Asthma Coalition: School Walkthrough Guidebook](#)

### HIPAA and FERPA

- [Information about HIPAA](#)
- [Information about FERPA](#)

### School Absenteeism

- [Recommendations for State Education and Health Departments to Address Student Absenteeism](#)

### Comprehensive Resources for SA<sup>3</sup>M<sup>PRO</sup><sup>™</sup>

Program	Materials/Content	Notes
<a href="#">Managing Asthma and Allergies in DC Schools</a>	228 page downloadable pdf file/Comprehensive manual for all school staff, parents and students	<ul style="list-style-type: none"> <li>• Comprehensive Asthma Education</li> <li>• Anaphylaxis</li> <li>• Emergency Management of Asthma and Anaphylaxis</li> <li>• Federal legislation and guidance</li> <li>• Action checklists and tools for each staff member</li> <li>• Creating an Asthma Friendly School</li> <li>• Education plans</li> </ul>
<a href="#">Michigan Asthma Resource Kit (MARK)</a>	Group of pdf files covering specific aspects of asthma and asthma management	<ul style="list-style-type: none"> <li>• Concise 1 or 2 page summaries</li> <li>• Asthma education checklist</li> <li>• Basic asthma information</li> <li>• Inhaler, peak flow technique</li> <li>• Asthma triggers</li> </ul>
<a href="#">Managing Asthma in Minnesota Schools</a>	Downloadable 192 pg. manual, or individual sections, PowerPoint presentations, sample forms, handouts and posters	<ul style="list-style-type: none"> <li>• Individual sections for each school staff members that covers education, checklists, relevant legislation</li> <li>• PowerPoint presentations on asthma, asthma meds, asthma control</li> <li>• Many sample forms, letters</li> <li>• Some material outdated</li> </ul>
<a href="#">Managing Asthma: A Guide for Schools</a>	Online education	<ul style="list-style-type: none"> <li>• Comprehensive program</li> <li>• Material for all school personnel</li> <li>• Action items, tools, sample forms</li> </ul>

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		<ul style="list-style-type: none"><li>• Key references for recommendations</li></ul>
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## Selected References

[Indoor Air Quality Tools for Schools Coordinator's Guide: A guide to implementing an IAQ program.](#) US Environmental Protection Agency.

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