Pima County Stock Inhaler for Schools Program

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What Is Asthma?

A chronic condition that:

- produces sudden episodes of breathing difficulty (exacerbations)
- episodes reoccur over time
- is potentially life-threatening
- cannot be cured, but can be controlled
Asthma in Schools

• 10% of all school-age children have asthma
• Leading cause of hospitalization
• Leading cause of health-related school absences
• Inability to participate fully, missed class time, increased absenteeism

On average, 3 children in a classroom of 30 will have asthma.
Asthma Related Emergencies

• Every child with asthma should have access to quick relief medication while at school:
  – at school and school-sanctioned events
  – transportation to and from such events

• Encourage older students to self-carry and parents of younger children to obtain a second inhaler for school use.

• Respiratory distress is the leading cause of 9-1-1 calls and EMS transports from schools
“Where is your inhaler?”

- Few children have a personal inhaler at school
  - may be empty, expired or lost
  - obtaining inhalers from parents and Asthma Action Plans (AAPs) from providers are difficult
  - obtaining a 2nd inhaler can be costly

*Gerald JK. (2012). Pediatric Allergy, Asthma, and Immunology
Stock Inhaler For Schools Program

Schools can implement a stock inhaler program for respiratory distress

1. Single, short acting beta agonist (SABA) inhaler
2. Supply of disposable valved holding chambers (e.g., LiteAire®)
3. Standing medical order and protocol

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollment</td>
<td>17,313</td>
<td>16,784</td>
</tr>
<tr>
<td>Asthma Prevalence</td>
<td>8.6%</td>
<td>8.9%</td>
</tr>
<tr>
<td>Personal Inhaler Carry Rate</td>
<td>29%</td>
<td>26%</td>
</tr>
<tr>
<td>Stock Inhaler Use</td>
<td>0</td>
<td>222</td>
</tr>
<tr>
<td>911 Calls (per 100 w/asthma)</td>
<td>2.43</td>
<td>1.95</td>
</tr>
<tr>
<td>EMS Transports (per 100 w/asthma)</td>
<td>1.21</td>
<td>0.74</td>
</tr>
</tbody>
</table>

Stock Albuterol in SUSD

- Pilot program implemented in single public school district in Tucson, AZ.
  - school nurses in each school
  - 22 schools; 17,000 students
  - 85% free/reduced lunch

- 20% reduction in 9-1-1 calls
- 40% reduction in EMS transports

SUSD Evaluation

1. Relieved school-nurse stress

2. Demonstrated to parents the benefit of having quick-relief inhaler at school, encouraged some to seek diagnosis

3. Provided students with immediate relief of symptoms and anxiety

4. Easier to carry 1 stock inhaler and a few disposable holding chambers during fire drills

Translating Research into Health Policy: HB2208

- HB2208 “Stock Inhalers for Schools” signed into law on March 27th, 2017.
  - allows schools to purchase, store and administer albuterol
  - indemnifies personnel for their good faith use

- Albuterol can be given by trained personnel to any student who experiences respiratory distress at school or school-sanctioned event.
Stock Inhailer Laws

• Currently, 15 states have stock albuterol laws.
  – single inhaler shared among many students using disposable spacer

• Limited implementation
  – Lack of funding for supplies
  – Lack of technical support

Arizona legislation passed in 2017!
Pima County Stock Inhaler for Schools Program

• County-wide implementation during 2017-2018

• Collaboration between University of Arizona, Pima County Health Department, Banner University Medical Center-Tucson, Thayer Medical Corporation

• Provided schools with resources to implement the program
Program Materials

- Welcome Letter
- Program Instructions & Checklist
- Instructions for accessing the online training curriculum
- Template Letter to Parents / Guardians
  - (English & Spanish)
- R7-2-810 “Emergency Administration of Inhalers”
- Signed Standing Medical Order
- Stock Inhaler Protocol & Action Plan
- Stock Albuterol Documentation Logs
- Staff Acknowledgement Form
- USB Drive containing template forms
  - (1) 60-dose
  - (5) LiteAire® Valved holding chambers
Stock Inhaler Implementation

- Policies, procedures and approval at state, county and district.
  - having school nurses is ideal, but Unlicensed Assistive Personnel (UAP) can safely administer
- Physician consultant or Medical Director
  - prescription for inhaler and spacers
  - medical order for school nurses, nurses may be able to delegate to UAP
- Education and training for school health personnel
  - web-based program is available (https://moodle.publichealth.arizona.edu)
- Written protocol and documentation of medical administration
Pre-Implementation

- **HB2208 “Stock Inhalers for Schools”**
- Met with stakeholders
- Letters & flyers sent out to every school in Pima County, Arizona
- Conducted community engagement
- Presented at district health meetings
- Outreach to schools via cold-calling
- Created template forms & resources
Implementation

1. Enrolled schools into the program
2. Identified the school’s medical consultant
3. Created the school’s program kit
4. Labeled medication - Specific to school
Maintenance

- Schools requested additional supplies through e-mail (stockinhaler@email.arizona.edu)
  - Additional supplies were either mailed or delivered in-person

- Program manager sent quarterly correspondence to schools through e-mail

- Questions & online training curriculum technical issues were handled by the program manager & Western Region Public Health Training Center
Program Enrollment = 230/340 (67%)

- 197 Public schools
  - 10 school districts
- 13 Charter schools
- 20 Private schools
- 82% of children covered
STOCK INHALER EVENTS

- 152 (66%) schools reported using
- 1032 stock inhaler events
- 82% of events were in children with a known diagnosis of asthma

DISPOSITION STATUS OF STOCK INHALER EVENTS

- Returned to class: 84%
- Sent home: 16%
- Called 9-1-1 and no transport: 0%
- Called 9-1-1 and transported: 0%
STOCK INHALER EVENTS

• There were 8.9 events per 1000 students in the 2017-2018 school year
  – Event rates were not higher among any age group or any type of school (public, private, charter)
  – Younger children were more likely to be sent home after use
Pima County Evaluation

Conducted interviews with trained health personnel

- E-mail surveys (post)
  - $n = 267$ surveys (78% response rate)
  - 96% female
  - 95% public school employee
  - 71% unlicensed personnel
  - 42% 5 years or less experience in school health

- One-on-one phone interviews
  - $n = 15$
Key Program Barriers

- Accessing the online training curriculum
- Identifying a second person to be designated & trained
- Community education & outreach necessary
Key Program Facilitators

On-going support
Delivery of program supplies
Backing of the school district
Relieved Stress

**Relieved stress for school personnel**
- Protocol was clear & easy-to-follow
- Didn’t worry about children without an AAP or inhaler
- Didn’t have to wait for parent response

**Relieved stress for parents & children**
- Parents didn’t have to leave work
- Children felt immediate relief & often went back to class
Provided Education

- Using the inhaler gave an opportunity for the school nurse to speak with the children’s family

- Older children (e.g., middle or high school) did not always use a spacer or understand why it was necessary
- Trained staff could verify child’s inhaler technique
## 2017-2018 Program Costs

<table>
<thead>
<tr>
<th>Supplies</th>
<th>Quantity</th>
<th>Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albuterol*</td>
<td>275</td>
<td>$22.00</td>
<td>$6050.00</td>
</tr>
<tr>
<td>LiteAires®*</td>
<td>2500</td>
<td>$2.95</td>
<td>$7375.00</td>
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<td>Marketing Materials</td>
<td>450</td>
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<td>$150.00</td>
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<tr>
<td>Business Cards</td>
<td>1 box</td>
<td>$11.00</td>
<td>$11.00</td>
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<tr>
<td>Travel Reimbursement/Mileage</td>
<td>400 miles</td>
<td>$0.545</td>
<td>$218.00</td>
</tr>
<tr>
<td>Postage</td>
<td></td>
<td>$400.00</td>
<td>$400.00</td>
</tr>
<tr>
<td>School Kits</td>
<td>250</td>
<td>$19.50</td>
<td>$4875.00</td>
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<tr>
<td>Staff Position</td>
<td>0.5 FTE + 30$ ERE</td>
<td>$23,400.00</td>
<td>$23,400.00</td>
</tr>
</tbody>
</table>

**TOTAL PROGRAM COST**     $42,479.50

* Supplies donated by Banner University Medical Center and Thayer Medical Corporation
Estimated Statewide Cost Savings

- Approximately 16,500 severe respiratory events per year
- 2700 9-1-1- calls
- 50% result in ambulance transports to ED
- Reduce 911 calls by 20% and ambulance transports by 40%
- Using Medicaid reimbursement for these events
  - save $150,000 per year in 911 calls
  - save $250,000 in EMS transports
  - Save $500,000 in ED visits
- Total estimated savings = $900,000 per year
- Total estimated savings Pima County only = $130,000 per year
- Does not include parental missed work time or child’s missed school time
Maricopa County Department of Public Health

- Currently enrolled 68 schools

- Providing medication and LiteAire® spacers to schools who enroll and complete the MCDPH School Surveillance and Medication Program (SSMP)

- MCDPH Medical Director, Dr. Rebecca Sunenshine, is writing medical orders for schools

- Contact Kimberly Ivich, BSN, RN for more information
  – Kimberly.Ivich@Maricopa.gov
Acknowledgements

- Ashley Lowe, BS, MSPH
- Francisco Garcia, MD, MPH
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- Elena Cozine
- Samantha Cozine
- Rachel Abraham, BS
- Kayleigh Lawson-Michod, BS
- Haley Chen
Questions?
Stock Inhalers – Personal Experience

• Hey! Band Mom, I can’t breathe!!

• Band Booster Co-President and lead chaperone for largest marching band in Arizona
  – asthma and allergy-related health events are important health issues
  – medication management is a common activity at school-sanctioned events

Catalina Foothills High School Falcon Marching Band