

Implementation and Analysis of the 2010 PACNJ School Nurse Survey: An Overview

Justine Krell, MPH and Stanley H. Weiss, MD, FACP
UMDNJ – New Jersey Medical School and
UMDNJ – School of Public Health

August 2011

The Pediatric / Adult Asthma Coalition of New Jersey (PACNJ):

*For detailed information
and forms visit:*

www.pacnj.org

Introduction

- 7.1 million children under 17 in US have asthma (9.6 %)
- Asthma is the 3rd ranking cause of hospitalizations for children under age 15
- Issues: Missed school days, ED visits, hospitalizations, medications, office visits, caretaker time
- >14 million school days lost per year
- Direct medical costs for asthma in New Jersey exceed \$100 Million per year

Background on ATPs: from Published Literature

- Use of a written action [treatment] plan [ATP or AAP] significantly reduced acute care visits per child as compared with control subjects in numerous randomized controlled trials.
- Children using action plans also missed less school, had less nocturnal awakening, and had lessened severity of symptoms.

GOALS of the 2010 PACNJ School Nurse Survey

- Assess current usage of PACNJ ATP
- Identify areas for improvement on PACNJ ATP
- Identify barriers to usage of ATP's
- Identify areas to improve asthma control in the schools
- Examine changes from 2005 to 2010

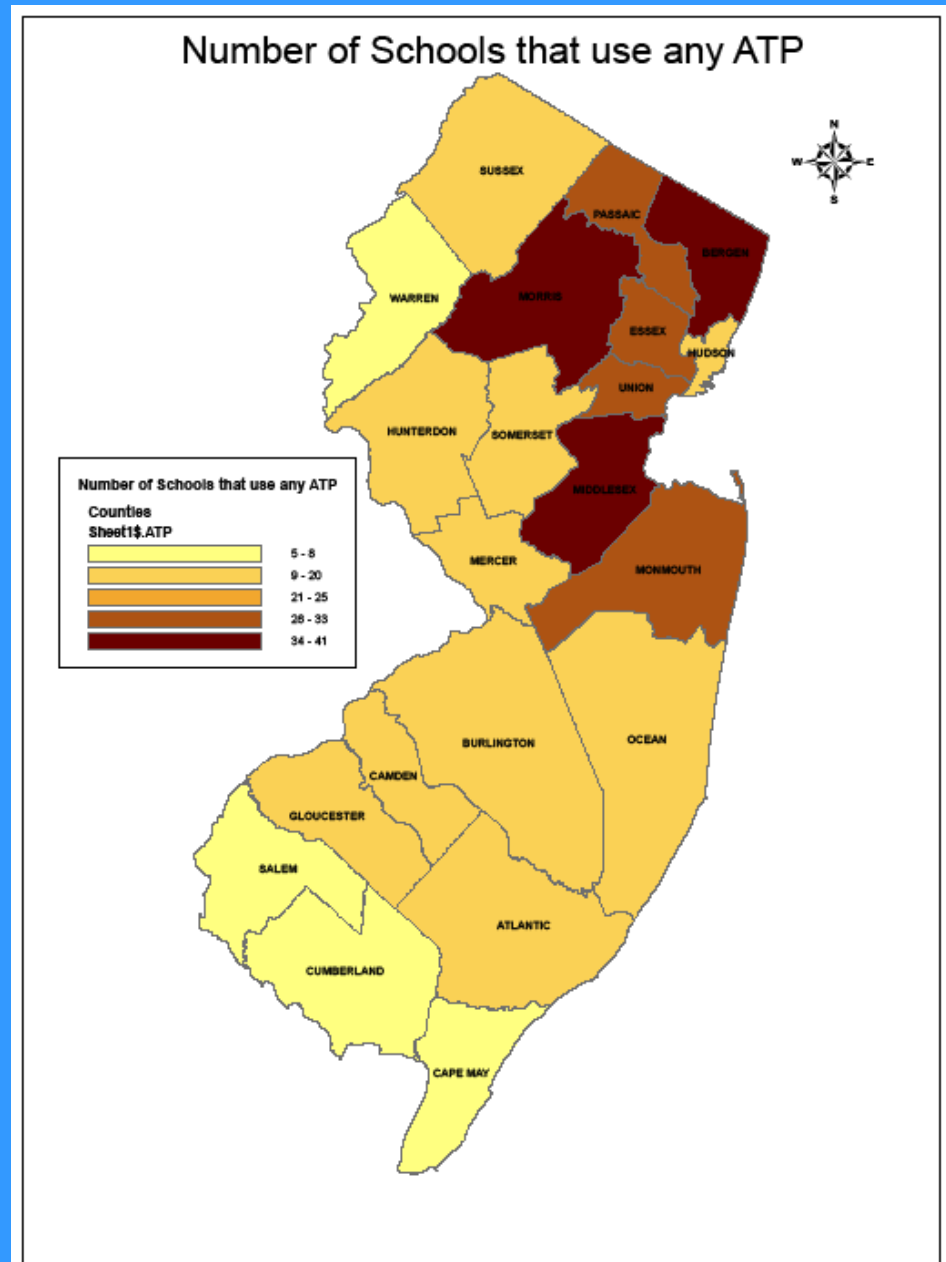
RESULTS

- Educational programs and the Asthma Friendly School Award improved local use of PACNJ ATP
- Successful in improving certain aspects of the implementation of the plan, such as health care provider compliance
- Increased use of PACNJ ATP in 2010 as compared to 2005

Use of PACNJ Asthma Treatment Plan and Outcomes

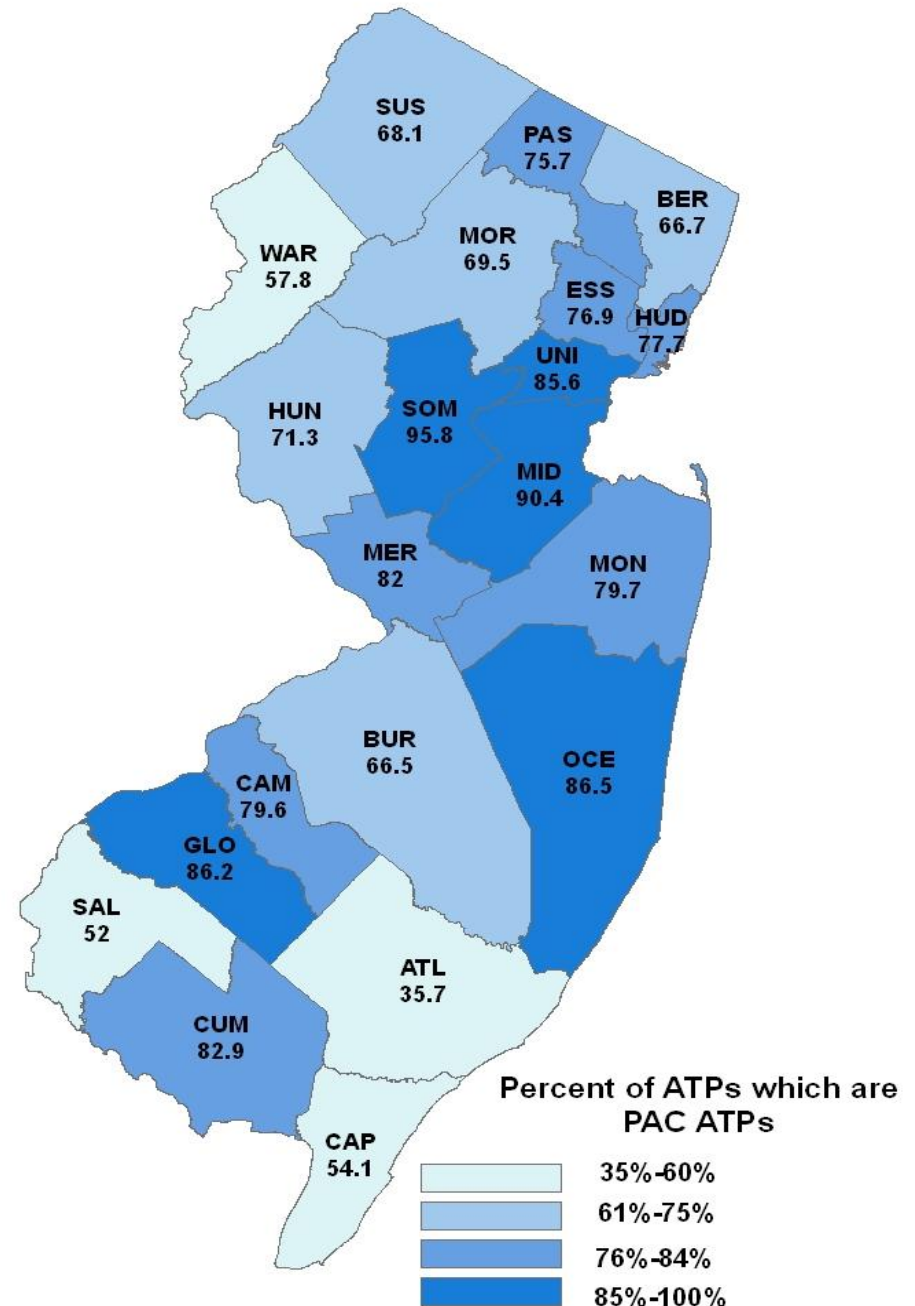
- Percent of school nurses reporting the PACNJ ATP was used in their school rose from 69.3% in 2005 to 92.3% in 2010
- This increase was statistically significant ($p < 10^{-7}$)

Among just the 420 schools that responded to the PACNJ survey in 2010, the number of schools that use any ATP are enumerated by county.



Use of PACNJ ATP by NJ County

- Highest usage rates for the PACNJ ATP clustered in Somerset, Union, and Middlesex counties
- The PACNJ is located in Bridgewater in Somerset
- There was a PACNJ presentation on asthma, asthma treatment plans to school nurses in Gloucester County
- There was a PACNJ presentation on Indoor Air Quality to school nurses in Ocean County



Compliance with NJ law

(NJSA 18A:40-12.8NJ)

- 93% of the respondents (384) have at least 1 PACNJ ATP on file for students with Reactive Airway Disease (RAD) or Asthma
- 88% of this group (335) accept the PACNJ ATP as a physician's order

Results – Issues Raised by School Nurses in 2010

- Lack of space for a liability disclaimer by the school
- Barriers to good control of asthma
 - at least half of the school nurses responded that if they are not informed of students' asthma history, this poses a barrier to good asthma control
 - at least half responded that if parents do not understand the asthma treatment plan, this is a barrier to good asthma control

Decline in Barriers to Using PACNJ Form From 2005 to 2010

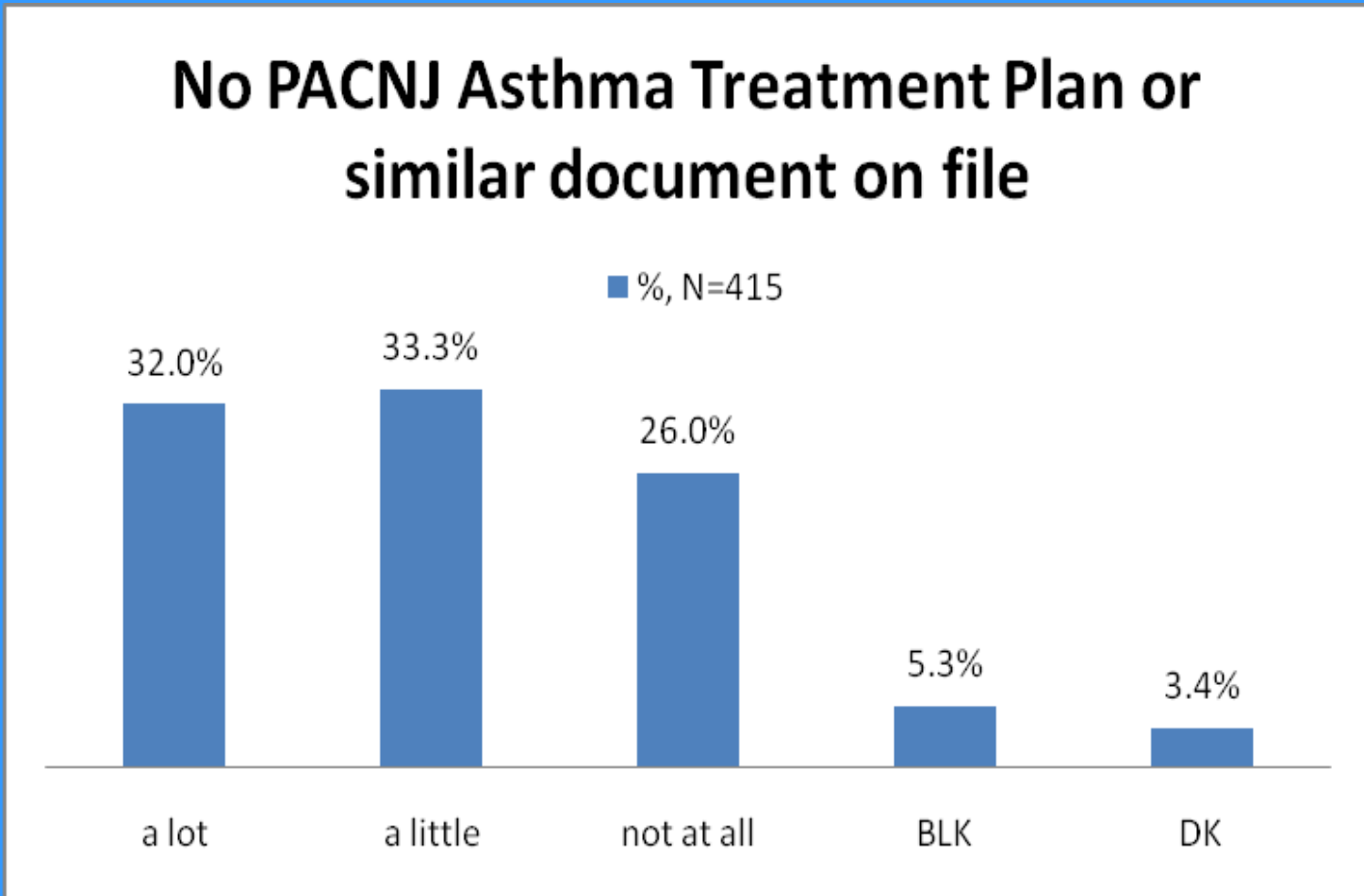
- Among the schools using the PACNJ:
 - the problem of physician refusal to use the PACNJ ATP form decreased from 62.5% to 40.1% ($p < 10^{-7}$)
 - The problem of physicians not completing the form (other than peak flow) decreased from 70.8% to 37.8% ($p < 10^{-7}$)
- Several other barriers also declined

Decline in Barriers to Using PACNJ ATP from 2005 to 2010

Problems encountered with the use of PACNJ ATP	Overall (%)		Using PACNJ ATP/ Not using PACNJ ATP (%)	
	2005	2010	2005	2010
HCPs refuse to complete the ATP	55.0	40.7	62.5 / 40.9	40.1 / 51.7
HCP complete the form illegibly	28.2	23.0	33.3 / 17.7	23.4 / 20.7
HCP charge a fee to fill out	28.3	34.2	30.1 / 25.1	35.7 / 17.2
Other than peak flow, ATP not completed by HCP*	61.6	36.1	70.8 / 43.8	37.8 / 20.7
ATP not signed by the HCP*	*	17.7	*	17.2 / 24.1
Parents do not hand the ATP to HCP	56.6	56.2	60.6 / 47.3	56.3 / 60.0
ATPs are not received back	73.8	65.1	80.6 / 60.1	65.4 / 65.5
ATP is inconvenient to use	12.5	3.8	11.3 / 14.8	3.4 / 10.3
Other:	31.9	21.8	33.8 / 30.0	23.2 / 3.3

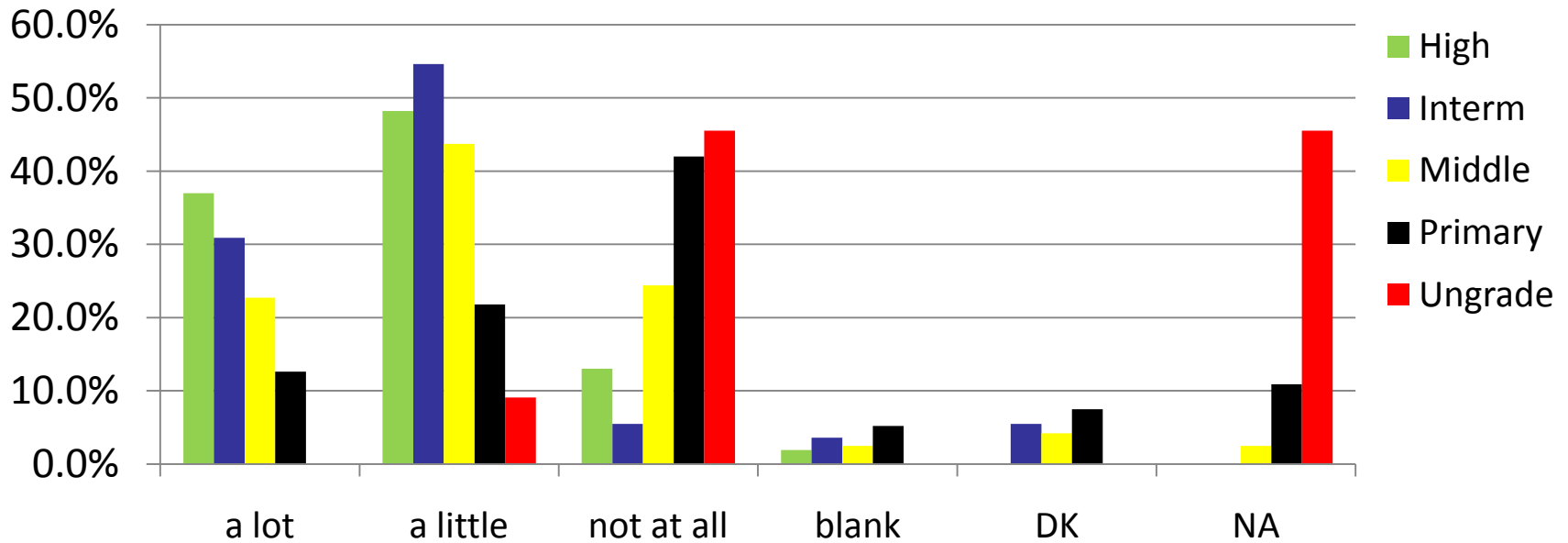
*In 2005, "Other than peak flow, the ATP not completed by HCP" and "ATP not signed by the HCP" were combined into one question, "AAP form not completely filled in and/or not signed by a physician."

To what degree do the following act as barriers to good asthma control for your students?



To what degree do the following act as barriers to good asthma control –by grade level

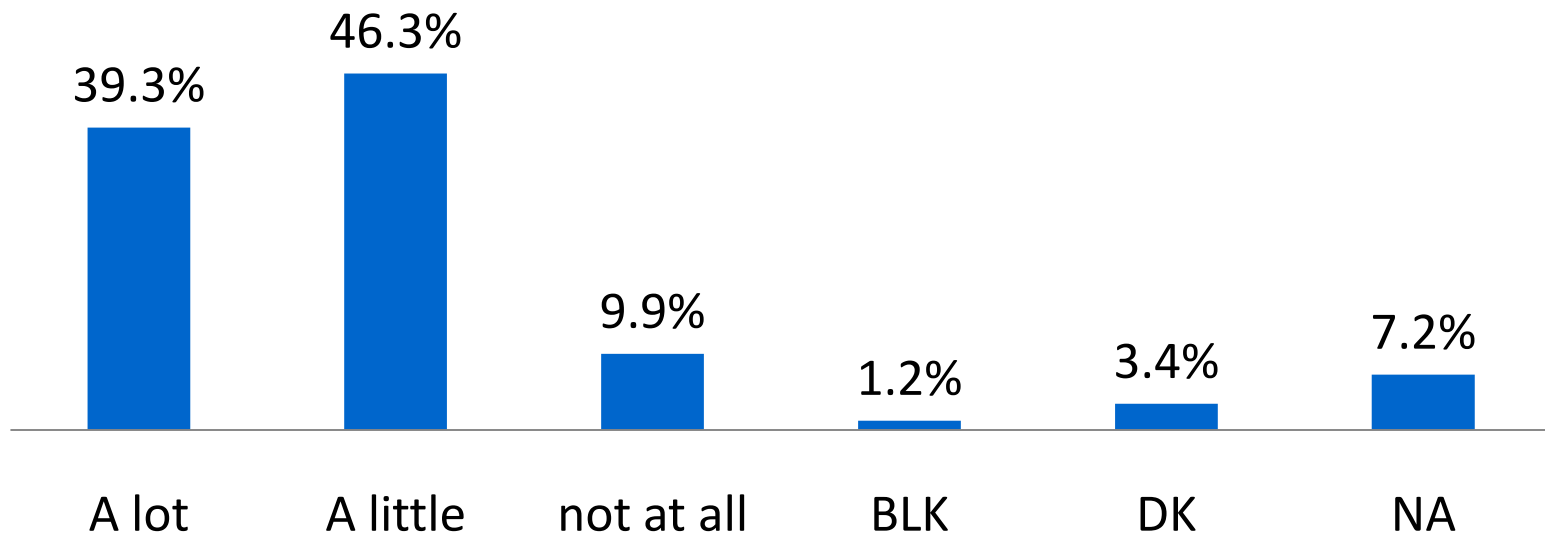
Students permitted to carry inhalers in school do not bring them



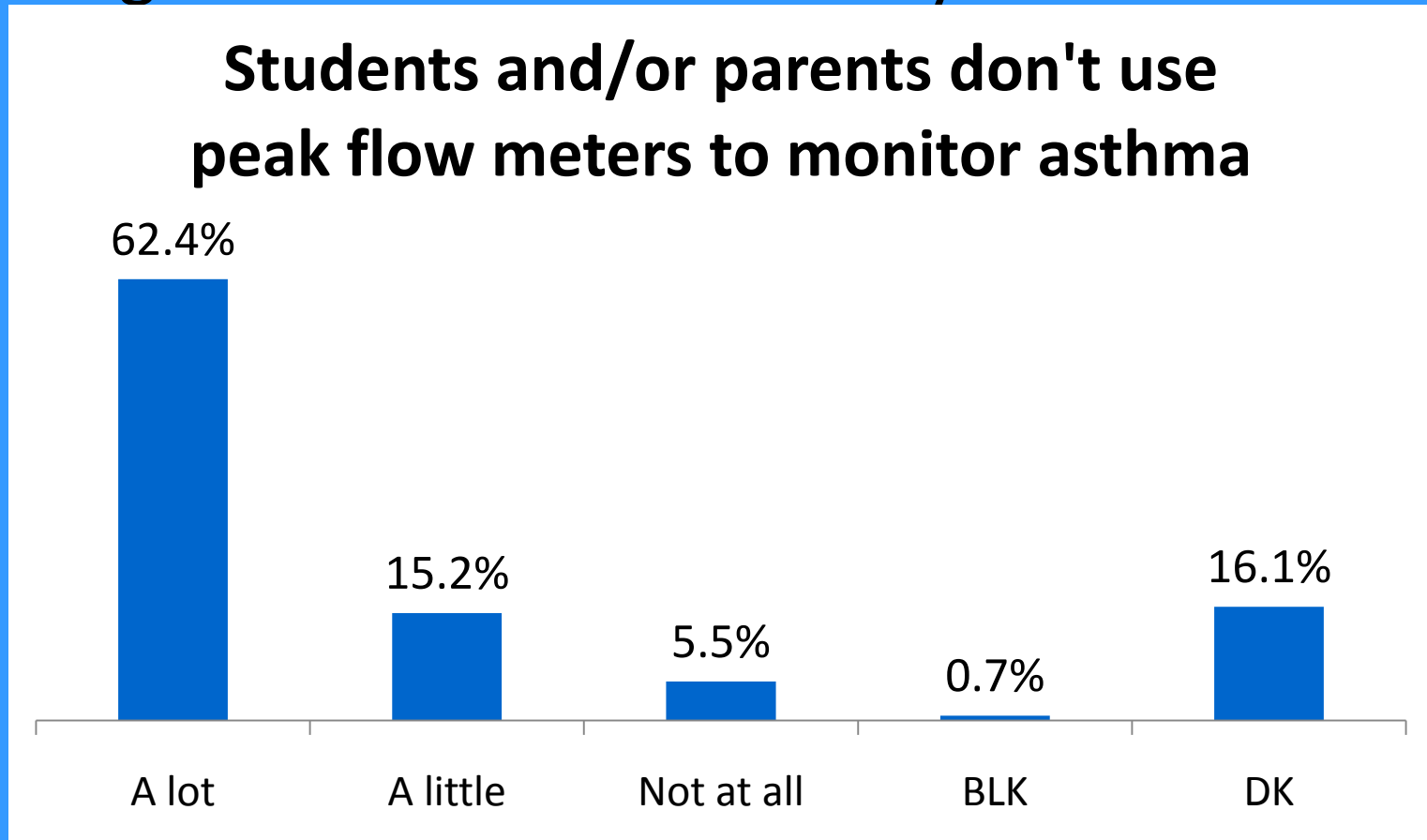
To what degree do the following act as barriers to good asthma control for your students?

School nurse not informed of asthma history

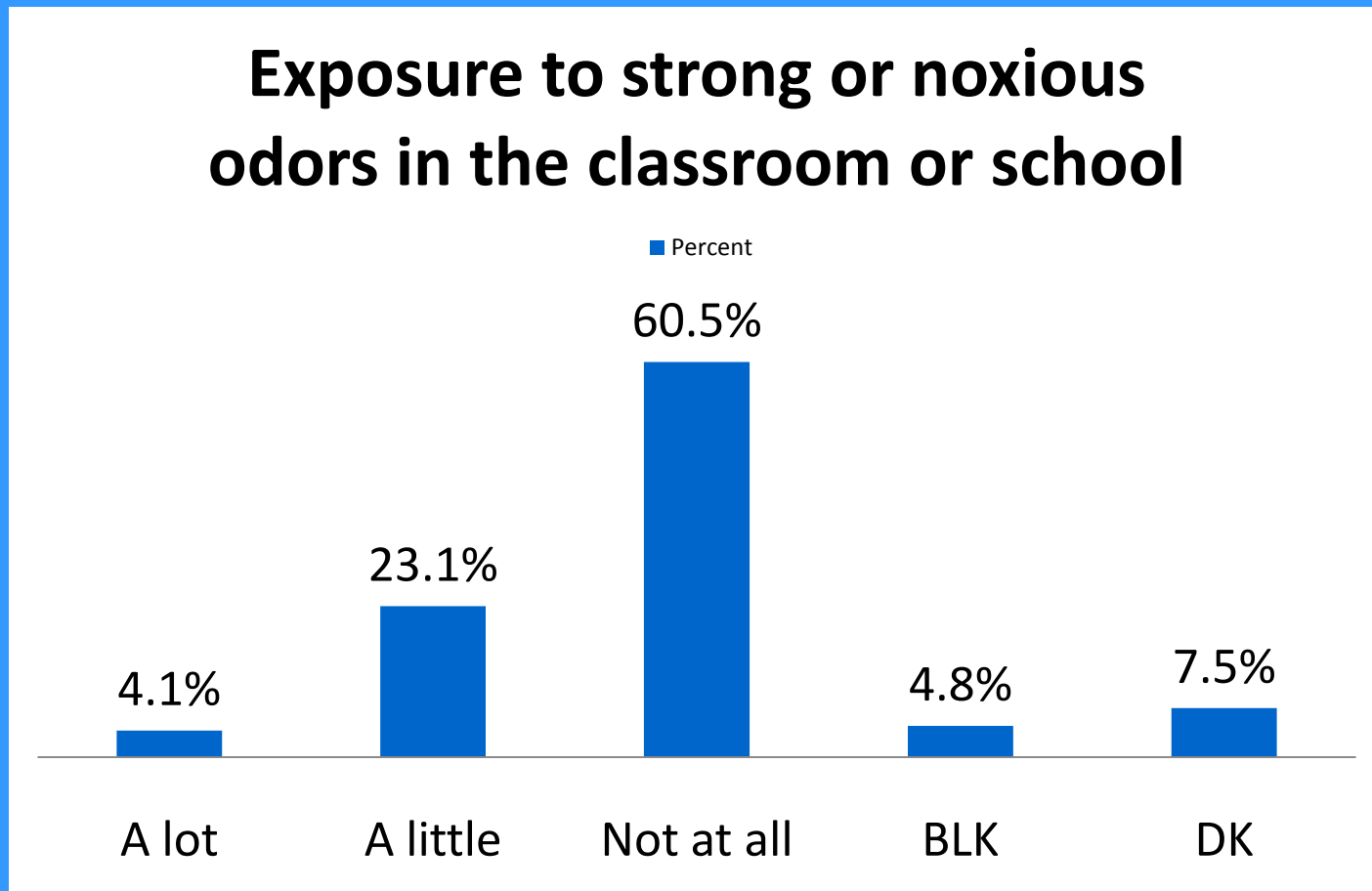
■ %, N=415



To what degree do the following act as barriers to good asthma control for your students?



To what degree do the following act as barriers to good asthma control for your students?



What factors, in your experience, contribute to better control of asthma for your students during school hours?
(top 5 responses are listed below)

Factors Contributing to Better Control of Asthma in Schools	Frequency	% of Respondents
Education of parents, students, teachers, administration, HCP	162	38.6%
Proper use of Rx at home and school; following prescribed regimen	110	26.2%
Availability of Rx at home and school (including having an extra inhaler to keep at school)	89	21.2%
Communication and support between parent, student, teacher, HCP and school nurse	87	20.7%
Preventive use of Rx	70	16.7%

Limitations

- Survey response rate low (11.8%)
 - Survey was mailed in May, only 3-7 weeks left in the school year
 - At that time, many other issues were confronting the school nurses such as budget cutbacks and nonrenewal of contracts
- If those schools more actively involved with the PACNJ selectively chose to respond, there could be Respondent Bias issues

Conclusions

- Asthma rates among schools responding to this study consistent with other estimates of asthma in NJ
 - The responding group, although small, is fairly representative of the public, private, and parochial schools in New Jersey
- Further surveys may be of value to further evaluate the awareness and usage of the PACNJ asthma treatment plan, especially among the non-responders to this survey

Recommendations

- Examine other AAPs for best features, and consider incorporating them into the PACNJ ATP
- Increase outreach to lower responding counties
- Improve education of, and communications between, health care providers, school nurses, students and parents
- Develop appropriate new tools

Asthma Treatment Plan

(This asthma action plan meets NJ Law N.J.S.A. 18A:40-12.8) (Physician's Orders)



(Please Print)

Name _____		Date of Birth _____	Effective Date _____
Doctor _____		Parent/Guardian (if applicable) _____	Emergency Contact _____
Phone _____		Phone _____	Phone _____

HEALTHY



You have **all** of these:

- Breathing is good
- No cough or wheeze
- Sleep through the night
- Can work, exercise, and play

And/or Peak flow above _____

Take daily medicine(s). Some metered dose inhalers may be more effective with a "spacer" – use if directed.

MEDICINE	HOW MUCH to take and HOW OFTEN to take it
<input type="checkbox"/> Advair® <input type="checkbox"/> 100, <input type="checkbox"/> 250, <input type="checkbox"/> 500	_____ 1 inhalation twice a day
<input type="checkbox"/> Advair® HFA <input type="checkbox"/> 45, <input type="checkbox"/> 115, <input type="checkbox"/> 230	_____ 2 puffs MDI twice a day
<input type="checkbox"/> Alvesco® <input type="checkbox"/> 80, <input type="checkbox"/> 160	_____ 1 <input type="checkbox"/> 2 puffs MDI twice a day
<input type="checkbox"/> Asmanex® Twisthaler® <input type="checkbox"/> 110, <input type="checkbox"/> 220	_____ 1 <input type="checkbox"/> 2 inhalations <input type="checkbox"/> once <input type="checkbox"/> twice a day
<input type="checkbox"/> Flovent® <input type="checkbox"/> 44, <input type="checkbox"/> 110, <input type="checkbox"/> 220	_____ 2 puffs MDI twice a day
<input type="checkbox"/> Flovent® Diskus® <input type="checkbox"/> 50 <input type="checkbox"/> 100 <input type="checkbox"/> 250	_____ 1 inhalation twice a day
<input type="checkbox"/> Pulmicort Flexhaler® <input type="checkbox"/> 90, <input type="checkbox"/> 180	_____ 1 <input type="checkbox"/> 2 inhalations <input type="checkbox"/> once <input type="checkbox"/> twice a day
<input type="checkbox"/> Pulmicort Respules® <input type="checkbox"/> 0.25, <input type="checkbox"/> 0.5, <input type="checkbox"/> 1.0	_____ 1 unit nebulized <input type="checkbox"/> once <input type="checkbox"/> twice a day
<input type="checkbox"/> Qvar® <input type="checkbox"/> 40, <input type="checkbox"/> 80	_____ 1 <input type="checkbox"/> 2 puffs MDI twice a day
<input type="checkbox"/> Singulair® <input type="checkbox"/> 4, <input type="checkbox"/> 5, <input type="checkbox"/> 10 mg	_____ 1 tablet daily
<input type="checkbox"/> Symbicort® <input type="checkbox"/> 80, <input type="checkbox"/> 160	_____ 1 <input type="checkbox"/> 2 puffs MDI twice a day
<input type="checkbox"/> Other _____	
<input type="checkbox"/> None	

Remember to rinse your mouth after taking inhaled medicine.

If exercise triggers your asthma, take this medicine _____ minutes before exercise.

CAUTION



You have **any** of these:

- Exposure to known trigger
- Cough
- Mild wheeze
- Tight chest
- Coughing at night
- Other: _____

And/or Peak flow from _____ to _____

Continue daily medicine(s) and add fast-acting medicine(s).

MEDICINE	HOW MUCH to take and HOW OFTEN to take it
<input type="checkbox"/> Accuneb® <input type="checkbox"/> 0.63, <input type="checkbox"/> 1.25 mg	_____ 1 unit nebulized every 4 hours as needed
<input type="checkbox"/> Albuterol <input type="checkbox"/> 1.25, <input type="checkbox"/> 2.5 mg	_____ 1 unit nebulized every 4 hours as needed
<input type="checkbox"/> Albuterol <input type="checkbox"/> Pro-Air <input type="checkbox"/> Proventil®	_____ 2 puffs MDI every 4 hours as needed
<input type="checkbox"/> Ventolin® <input type="checkbox"/> Maxair <input type="checkbox"/> Xopenex®	_____ 2 puffs MDI every 4 hours as needed
<input type="checkbox"/> Xopenex® <input type="checkbox"/> 0.31, <input type="checkbox"/> 0.63, <input type="checkbox"/> 1.25 mg	_____ 1 unit nebulized every 4 hours as needed
<input type="checkbox"/> Increase the dose of, or add: _____	
<input type="checkbox"/> Other _____	

➡ If fast-acting medicine is needed more than 2 times a week, except before exercise, then call your doctor.

EMERGENCY



Your asthma is getting worse fast:

- Fast-acting medicine did not help within 15-20 minutes
- Breathing is hard and fast
- Nose opens wide
- Ribs show
- Trouble walking and talking
- Lips blue • Fingernails blue

And/or Peak flow below _____

Take these medicines NOW and call 911. Asthma can be a life-threatening illness. Do not wait!

<input type="checkbox"/> Accuneb® <input type="checkbox"/> 0.63, <input type="checkbox"/> 1.25 mg	_____ 1 unit nebulized every 20 minutes
<input type="checkbox"/> Albuterol <input type="checkbox"/> 1.25, <input type="checkbox"/> 2.5 mg	_____ 1 unit nebulized every 20 minutes
<input type="checkbox"/> Albuterol <input type="checkbox"/> Pro-Air <input type="checkbox"/> Proventil®	_____ 2 puffs MDI every 20 minutes
<input type="checkbox"/> Ventolin® <input type="checkbox"/> Maxair <input type="checkbox"/> Xopenex®	_____ 2 puffs MDI every 20 minutes
<input type="checkbox"/> Xopenex® <input type="checkbox"/> 0.31, <input type="checkbox"/> 0.63, <input type="checkbox"/> 1.25 mg	_____ 1 unit nebulized every 20 minutes
<input type="checkbox"/> Other _____	

Triggers

Check all items that trigger patient's asthma:

- Chalk dust
- Cigarette Smoke & second hand smoke
- Colds/Flu
- Dust mites, dust, stuffed animals, carpet
- Exercise
- Mold
- Ozone alert days
- Pests - rodents & cockroaches
- Pets - animal dander
- Plants, flowers, cut grass, pollen
- Strong odors, perfumes, cleaning products, scented products
- Sudden temperature change
- Wood Smoke
- Foods: _____
- Other: _____

This asthma treatment plan is meant to assist, not replace, the clinical decision-making required to meet individual patient needs.

The medication advice contained on this plan is intended to assist you in understanding your asthma and how to manage it. It is not intended to be used as a substitute for medical advice from your doctor. If you have any questions about this plan, please contact your doctor. This plan is not intended to be used as a substitute for medical advice from your doctor. If you have any questions about this plan, please contact your doctor.

REVISED MAY 2008
Permission to reproduce blank form
www.pawc.org

FOR MINORS ONLY:

- This student is capable and has been instructed in the proper method of self-administering of the non-nebulized inhaled medications named above in accordance with NJ Law.
- This student is **not** approved to self-medicate.

Make a copy for patient and for physician file. For children under 18, send original to school nurse or child care provider.

PHYSICIAN/AP/WPA SIGNATURE _____ DATE _____

PARENT/GUARDIAN SIGNATURE _____

PHYSICIAN STAMP

Save

Print

Asthma Treatment Plan Patient/Parent Instructions



The **PACNJ Asthma Treatment Plan** is designed to help everyone understand the steps necessary for the individual patient to achieve the goal of controlled asthma.

1. Patients/Parents/Guardians: Before taking this form to your Health Care Provider:

Complete the top left section with:

- Patient's name
- Patient's date of birth
- Patient's doctor's name & phone number
- Parent/Guardian's name & phone number
- An Emergency Contact person's name & phone number

2. Your Health Care Provider will:

Complete the following areas:

- The effective date of this plan
- The medicine information for the Healthy, Caution and Emergency sections
- Your Health Care Provider will check the box next to the medication and check how much and how often to take it
- Your Health Care Provider may check "OTHER" and:
 - ◆ Write in asthma medications not listed on the form
 - ◆ Write in additional medications that will control your asthma
 - ◆ Write in generic medications in place of the name brand on the form
- Together you and your Health Care Provider will decide what asthma treatment is best for you or your child to follow.

3. Patients/Parents/Guardians & Health Care Providers together:

Discuss and then complete the following areas:

- Patient's peak flow range in the Healthy, Caution and Emergency sections on the left side of the form
- Patient's asthma triggers on the right side of the form
- For Minors Only section at the bottom of the form: Discuss your child's ability to self-administer the inhaled medications, check the appropriate box, and then both you and your Health Care Provider must sign and date the form

4. Parents/Guardians: After completing the form with your Health Care Provider:

- Make copies of the Asthma Treatment Plan and give the signed original to your child's school nurse or child care provider
- Keep a copy easily available at home to help manage your child's asthma
- Give copies of the Asthma Treatment Plan to everyone who provides care for your child, for example: babysitters, before/after school program staff, coaches, scout leaders

**This Asthma Treatment Plan is meant to assist, not replace, the clinical decision-making required to meet individual patient needs.
Not all asthma medications are listed and the generic names are not listed.**

Disclaimers:

The use of this Website/PACNJ Asthma Treatment Plan and its content is at your own risk. The content is provided on an "as is" basis. The American Lung Association of the Mid-Atlantic (ALAM-A), the Pediatric/Adult Asthma Coalition of New Jersey and all affiliates disclaim all warranties, express or implied, statutory or otherwise, including but not limited to the implied warranties or merchantability, non-infringement of third parties' rights, and fitness for a particular purpose.

ALAM-A makes no representations or warranties about the accuracy, reliability, completeness, currency, or timeliness of the content. ALAM-A makes no warranty, representation or guaranty that the information will be uninterrupted or error free or that any defects can be corrected.

In no event shall ALAM-A be liable for any damages (including, without limitation, incidental and consequential damages, personal injury/wrongful death, lost profits, or damages resulting from data or business interruption) resulting from the use or inability to use the content of this Asthma Treatment Plan whether based on warranty, contract, tort or any other legal theory, and whether or not ALAM-A is advised of the possibility of such damages. ALAM-A and its affiliates are not liable for any claim, whatsoever, caused by your use or misuse of the Asthma Treatment Plan, nor of this website.

The Pediatric/Adult Asthma Coalition of New Jersey, sponsored by the American Lung Association of New Jersey, and this publication are supported by a grant from the New Jersey Department of Health and Senior Services (NJHSS), with funds provided by the U.S. Centers for Disease Control and Prevention (CDC/OP) under Cooperative Agreement #2004-000006-3. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the NJHSS or the CDC/OP. Although this document has been funded wholly or in part by the United States Environmental Protection Agency under Agreement #X00725-07-2 to the American Lung Association of New Jersey, it has not gone through the Agency's publication review process and therefore, may not necessarily reflect the views of the Agency and no official endorsement should be inferred. Information in this publication is not intended to diagnose health problems or take the place of medical advice. For asthma or any medical condition, seek medical advice from your child's or your health care professional.

Bibliography

- Dean AG, Arner TG, Sunki GG, Friedman R, Lantinga M, Sangam S, Zubieta JC, Sullivan KM, Brendel KA, Gao Z, Fontaine N, Shu M, Fuller G, Smith DC, Nitschke DA, and Fagan RF. Epi Info™, a database and statistics program for public health professionals. Centers for Disease Control and Prevention, Atlanta, Georgia, USA, 2007. Dean AG, Sullivan KM, Soe MM.
- Dean AG, Sullivan KM, Soe MM. OpenEpi: Open Source Epidemiologic Statistics for Public Health, Version 2.3.1. www.OpenEpi.com, updated 2010/19/09, accessed 2010/11/10.
- SAS software, Version 9.2 of the SAS System for Windows. Copyright © 2002-2008 SAS Institute Inc. SAS and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc., Cary, NC, USA
- Bloom B, Cohen RA. Summary health statistics for U.S. Children: National Health Interview Survey, 2009. National Center for Health Statistics. Vital Health Stat 10(247). 2010.
- Respiratory Health Association of Metropolitan Chicago. *National Pediatric Asthma Epidemic*. Chicago: Respiratory Health Association of Metropolitan Chicago, 2009. Print.
- Zemek RL, Bhogal SK, Ducharme FM. Systematic review of randomized controlled trials examining written action plans in children: what is the plan? Arch Pediatr Adolesc Med. 2008 Feb;162(2):157-63.
- NJ Law, NJSA 18A:40-12.8NJ, Regulations for use of nebulizer in schools.
- The New PACNJ Asthma Treatment Plan. *The Pediatric/Adult Asthma Coalition of New Jersey*. The Pediatric/Adult Asthma Coalition of New Jersey, n.d. Web. 27 July 2010.
- Ducharme FM, Bhogal SK. The role of written action plans in childhood asthma. Curr Opin Allergy Clin Immunol. 2008 Apr;8(2):177-88.

Acknowledgments

- Dan Rosenblum, PhD - UMDNJ
- Joshua Parks, BA - UMDNJ
- Maris Chavenson, PACNJ
- Teresa Lampmann, PACNJ

For further information, contact:

Professor Stanley H. Weiss, MD

weiss@umdnj.edu