

**March 2016**

**May is Asthma Awareness Month**

**May 3, 2016 is World Asthma Day**

The U.S. Environmental Protection Agency (EPA) has developed an Event Planning Kit to equip state and local asthma programs to hold community-based asthma awareness and action events during Asthma Awareness Month. Inside, you will find ideas and helpful tips for planning and running powerful community asthma events in schools, hospitals, clinics, and state capitols. You will also find sample materials and a resource order form to help prepare for your events. It's not too early to start planning!

<http://www.epa.gov/asthma/asthma-awareness-month-event-planning-kit>

Asthma, a lung disease, affects over 22 million people living in the United States, including 1 in 12 children. It causes 3 in 5 people living with asthma to limit their physical activity or miss days at school and work. Asthma is also expensive, costing the nation \$56 billion each year.

On World Asthma Day (Tuesday, May 3) and throughout May, people with asthma and organizations dedicated to asthma control and education join together to increase awareness about asthma and improve the lives of all people with asthma.

Also, check out the Centers for Disease Control & Prevention (CDC) Asthma Awareness Toolkit located below to help take control of asthma & bring awareness to your community!

[http://www.cdc.gov/asthma/world\\_asthma\\_day.htm](http://www.cdc.gov/asthma/world_asthma_day.htm)

## **Call for AE-C Research Proposals**

The NAECB Research Committee has an exciting and novel opportunity for all AE-Cs. As a part of our charge, we have designed and funded a research grant opportunity for 2016 which proposes to validate the role of certified asthma educators (AE-Cs). We recognize that quality research is the cornerstone of evidence-based medicine and that evidence-based asthma education optimizes patient outcomes. The mission of the NAECB is to promote optimal asthma management and quality of life among individuals with asthma by advancing excellence in asthma education through the certified asthma educator (AE-C) process. There exists a great need for validating the beneficial role of AE-Cs within asthma education programs through the research process and this grant opportunity focuses on that validation role.

We invite you to apply for the **2016 AE-C Research Grant Award** (please apply online at [www.naecb.org](http://www.naecb.org)). The grant recipient(s) will be awarded up to \$10,000 in order to conduct their research project. The grant application is due by **11:59 p.m. on Friday, April 1, 2016**. The Research Committee will then review applications and grant recipient(s) will be notified no later

than Friday, July 1, 2016.

We welcome your questions and appreciate your partnership in advancing our collective goals.

## **Asthma Camps**

**Free Weekend Respiratory camps** are available thru Camp Soaring Eagle in Cornville, Arizona, for children ages 6-15 years with asthma.

- Apply at: [www.campsoaringeagle.org](http://www.campsoaringeagle.org) or contact Anna Viviano, Camper Recruiter at 480-253-9924.

Here is a **great resource** to share with parents of a child or teenager with asthma, interested in **finding an asthma camp** in their community:

- The Consortium on Children's Asthma Camps - <http://asthmacamps.org/>

## **Asthma in the News**

### **Asthma symptoms linked to increased stress, anxiety levels in teens**

A Henry Ford Hospital study has found that common asthma symptoms like waking up in the middle of the night and shortness of breath are associated with increased levels of stress and anxiety in teens with asthma.

<http://bit.ly/1ptUXZS>

### **Omalizumab decreases colds in inner-city children with asthma, NIH study reports**

Researchers do not yet know how omalizumab decreases colds in this specific population, but omalizumab targets and reduces levels of IgE, and data from previous studies indicate that lower IgE levels are associated with higher interferon responses, which are known to be important in protecting against viruses, such as those that cause cold symptoms.

<http://bit.ly/1X6AQLF>

### **Antifungal therapy may benefit patients with asthma, chronic sinusitis**

There is indication that antifungals are effective in treating severe asthmatics - specifically for patients with allergic bronchopulmonary aspergillosis and severe asthma with fungal sensitization.

<http://bit.ly/1LLHaI2>

### **Fertility treatment may not work as well for women with asthma**

Asthma causes systemic inflammation in the lungs and it's possible this irritation may affect other organs and mucus surfaces of the body such as the inside of the uterus. More research is needed to determine whether asthma might affect the development of ovum, or egg cells, in the early stages of reproduction.

<http://reut.rs/1nr914B>

### **Studies Show Paths to Asthma Severity in Low-Income Kids**

Allergen sensitization, exposure to tobacco smoke, and rhinitis severity were among the key drivers of worse outcomes among inner-city children with both asthma and rhinitis treated with

conventional therapies, researchers reported.

<http://bit.ly/1W34pNZ>

### **Potential Target for Severe Asthma Identified**

Researchers have discovered that the platelet-derived protein Dickkopf-1 contributes to chronic inflammation, which may represent a new target for conditions such as asthma.

<http://bit.ly/1T49IyI>

### **New Research Links Children Who Wheeze To Asthma Development Later In Life**

Researchers found a link between the number the children who wheezed as babies and the likelihood of the child having asthma as teenagers, and even children who wheezed only occasionally appeared to have lung troubles.

<http://bit.ly/1LPWdel>

### **World's first 3D-printed 'sneezometer' could make asthma diagnosis faster, cheaper and more accurate**

Researchers have created a portable, highly sensitive and accurate spirometer using simple 3D printing technology that can catch the speed of a sneeze; could be in clinical service by 2018.

<http://bit.ly/1QLFni2>

### **Air pollution linked to higher risk of preterm birth for mothers with asthma**

Pregnant women with asthma may be at greater risk of preterm birth when exposed to high levels

of certain traffic-related air pollutants, according to an NIH study.

<http://1.usa.gov/1QKKGhu>

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## **Increasing Medication Possession at Discharge for Patients with Asthma: The Meds-in-Hand Project**

Hatoun J, Bair

-Merritt M, Cabral H, Moses J.

March 2016

### **Background and objectives:**

Many patients recently discharged from an asthma admission do not fill discharge prescriptions. If unable to adhere to a discharge plan, patients with asthma are at risk for re-presentation to care. We sought to increase the proportion of patients discharged from an asthma admission in possession of their medications (meds in hand) from a baseline of 0% to >75%.

### **Methods:**

A multidisciplinary improvement team performed 3 plan-do-study-act cycles over 2 years and, using a statistical process control chart, tracked the proportion of patients admitted with asthma discharged with meds in hand as the primary outcome. An exploratory, retrospective analysis of insurance data was conducted with a convenience sample of Medicaid-insured patients, comparing post discharge utilization between patients discharged with meds in hand and usual care. Generalized estimating equations accounted for nonindependence in the data.

**Results:**

Changes to the discharge process culminated in the development of a discharge medication delivery service. Outpatient pharmacist delivery of discharge medications to patient rooms achieved the project aim of 75% of patients discharged with meds in hand. In a subset of patients for whom all insurance claims were available, those discharged with meds in hand had lower odds of all-cause re-presentation to the emergency department within 30 days of discharge, compared with patients discharged with usual care (odds ratio, 0.22; 95% confidence interval, 0.05-0.99).

**Conclusions:**

Our initiative led to several discharge process improvements, including the creation of a medication delivery service that increased the proportion of patients discharged in possession of their medications and may have decreased unplanned visits after discharge.

<http://pediatrics.aappublications.org/content/early/2016/02/22/peds.2015-0461>

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**Inner-city asthma: Special considerations for management**

Dutmer CM, McGraw MD, Liu AH.

April 2016

Asthma is prevalent in inner-city populations, exhibiting significant morbidity and mortality. This review focuses on the consequential findings of recent literature, providing insight into onset of asthma, complicating factors, prediction of exacerbations, and novel treatment strategies.

**Recent findings:**

Analyses of environmental influence on inner-city children demonstrated novel interactions, implicating potentially protective benefits from early life exposures to pests and pets and isolating detrimental effects of air pollution on asthma morbidity. Through detailed characterization of inner-city asthmatics, predictors of seasonal exacerbations surfaced. Focused, season-specific treatment of inner-city asthmatics with omalizumab identified those most likely to benefit from season-tailored therapy. Comparative studies of urban and rural populations revealed that race and household income, rather than location of residence, impose the greatest risk for increased asthma prevalence and morbidity.

**Summary:**

Challenging previously conceived exposure-disease relationships, recent literature has elucidated new avenues in the complex interplay between immunologically active exposures and their effects on inner-city asthma. These findings, and improved understanding of other relevant exposures, could steer the direction of primary (and secondary) disease prevention research. Moreover, careful identification of asthma characteristics has effectively established predictors of exacerbations, highlighting individuals for which additional therapies are warranted and for whom such treatments are most likely to be effective.

<http://www.ncbi.nlm.nih.gov/pubmed/26859370>

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**Asthma management programs for primary care providers: increasing adherence to asthma guidelines**

Cloutier MM.  
January 2016

This article reviews new approaches, facilitators, barriers, and opportunities to increasing guideline-adherent care for children with asthma by primary care clinicians.

**Recent findings:**

Primary care clinicians are challenged by the volume of guidelines and want transparent guidelines that are easy to use and that can be used in complex patients with multiple comorbidities. Programs that use decision support tools and electronic technologies and provide support from individuals new to the medical home such as panel management assistants, community health workers, patient advocates, practice facilitators, school nurses, and pharmacists may enhance use of guidelines by primary care clinicians and reduce asthma morbidity. Primary care clinician burnout and difficulty incorporating electronic asthma decision tools into current workflow are recently recognized barriers to guideline integration and improved asthma outcomes. In addition, many of these interventions are labor intensive, costly and may not be capable of being widely disseminated.

**Summary:**

Programs that simplify guidelines, provide decision support tools and use electronic technologies and an expanded medical team may improve the quality of asthma care provided by the primary care community to children and their families with asthma.

<http://www.ncbi.nlm.nih.gov/pubmed/26849166>

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## **Influences of asthma on reported health indicators and access to health care among children**

Kodjebacheva GD, Sabo T, Parker S.  
February 2016

### **Background:**

Studies on the influences of pediatric asthma on health and access to health care were conducted in limited geographic areas or age groups.

### **Objective:**

To investigate associations of asthma with health, use of medical care, mental health or educational services, activity limitations, problems in paying bills, and frustrations in obtaining health care among children in the United States. Caregivers reported children's conditions.

### **Methods:**

Logistic regression models were adjusted for sociodemographic factors in the nationally representative 2011/2012 National Survey of Children's Health.

### **Results:**

Of the 91,116 children 0 to 17 years old, 14.6% had reported asthma. Of children 0 to 17 years old with asthma, 21.2% were non-Hispanic black. Of children 0 to 17 years old without asthma, 12.2% were non-Hispanic black. In children 0 to 17 years old, compared with children without asthma, children with asthma had an increased odds to have reported fair or poor health, receive more medical care, mental health, and educational services than usual, have activity limitations, have medical bills that the family had problems paying (odds ratio 1.5, 95%

confidence interval 1.3-1.7), and have caregivers who were frustrated in obtaining care (odds ratio 1.5, 95% confidence interval 1.2-1.7). The odds ratios for the associations between asthma and all outcomes were higher in the 0- to 5-year-old compared with the 6- to 17-year-old group.

**Conclusion:**

When adjusting for sociodemographic variables, caregivers have problems paying bills and obtaining health care services for their child. To develop age-appropriate interventions, more research is needed to understand why families have difficulties accessing health care.

<http://www.ncbi.nlm.nih.gov/pubmed/26815705>

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**Predictors of asthma exacerbation among patients with poorly controlled asthma despite inhaled corticosteroid treatment**

Quezada W, Kwak ES, Reibman J, Rogers L, Mastronarde J, Teague WG, Wei C, Holbrook JT, Dimango E.

February 2016

Asthma exacerbations are associated with decreased quality of life and increased health care usage. Identification of characteristics that predict increased risk of future exacerbations in patients with suboptimal control of asthma could guide treatment decisions.

**Objective:**

To examine patient characteristics associated with risk of asthma exacerbations in patients with uncontrolled persistent asthma.

**Methods:**

A retrospective analysis of adults and children with inadequately controlled asthma despite asthma controller therapy and enrolled in 2 randomized trials was conducted. Baseline characteristics of subjects who experienced an asthma exacerbation during the treatment period were compared with those of subjects who did not experience an exacerbation.

**Results:**

Of 718 subjects (402 adults and 295 children), 108 adults (27%) and 110 children (37%) experienced an asthma exacerbation during the study period. Unscheduled health care visits for asthma or use of oral corticosteroids in the previous year were significantly associated with asthma exacerbation during the study period ( $P < .01$ ). Adult subjects who experienced an exacerbation had significantly lower forced expiratory volume in 1 second compared with those who did not (2.3 vs 2.5 L, respectively,  $P = .02$ ). Children who experienced an exacerbation had lower baseline pre- and post-bronchodilator ratios of forced expiratory volume in 1 second to forced vital capacity (77% vs 81%,  $P < .01$ ; 82% vs 86%,  $P < .001$ , respectively). Symptom scores on validated questionnaires were significantly worse in adults but not in children who developed an exacerbation.

**Conclusion:**

Spirometric measurements can help identify adults and children at increased risk for asthma exacerbation. Symptom scores could be helpful in identifying adults who are at high risk for

exacerbations but could be less helpful in children.

<http://www.ncbi.nlm.nih.gov/pubmed/26712474>

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## **Asthma is harder on children after school holidays**

12/22/16

Children with asthma tend to have worse symptoms at the same times each year: when school starts in the fall and after school holidays in the spring.

Researchers previously thought that environmental factors such as air quality in schools might be to blame, but a new study confirms that the primary driver of seasonal waves of worsening asthma symptoms, which can lead to hospitalizations, is the common cold.

"This work can improve public health strategies to keep asthmatic children healthy. For example, at the riskiest times of year, doctors could encourage patient adherence to preventative medications, and schools could take measures to reduce cold transmission," says Lauren Meyers, professor of integrative biology and statistics and data sciences at the University of Texas at Austin.

Exacerbations, the medical term for worsening asthma symptoms, result in millions of missed work and school days and \$50 billion in direct health care costs in the United States each year, researchers say.

Earlier studies into the cause of exacerbations involved swabbing individual patients to detect viruses, but Meyers, a mathematical biologist, and her team investigated population-wide patterns of how common colds circulate among adults and children throughout the year to learn about the role of the viruses.

The researchers built a computer model that incorporated possible drivers of asthma exacerbations and compared the output of the model to a large set of real-world health data: the timing and locations of about 66,000 asthma hospitalizations from cities across Texas during a seven-year period. By testing each driver independently, the researchers could determine the relative impact of each and find the weighted combination of factors that best fit the data.

The findings, published in the Proceedings of the National Academy of Sciences, show that the spread of cold viruses, which is heavily influenced by the school calendar, is the primary driver of asthma exacerbations.

"The school calendar predicts common cold transmission, and the common cold predicts asthma exacerbations," says Meyers. "And this study provides a quantitative relationship between those things."

The authors speculate on the mechanism behind this relationship: When children are out of school, they tend to spend less time with other children and are exposed to fewer viruses. As a result, their viral immunity decreases. When they return to school, they are exposed to viruses at much higher rates, and this is also the time when they are most susceptible.

The researchers also found that for adults, unlike children, the primary driver of asthma

exacerbations is prevalence of the flu virus.

The study also developed more accurate rates of transmission of cold viruses than have been produced by previous studies-information that might help shed light on how common colds spread, and how we can protect people who are most vulnerable to them.

Researchers from Yale University and from the London School of Hygiene & Tropical Medicine are coauthors of the study.

The National Institute of General Medical Sciences funded the work.

<http://northdallasgazette.com/2016/02/22/asthma-is-harder-on-children-after-school-holidays/>

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### **Fighting asthma with farm dust**

By Tom Beal  
2/20/16

In an Amish farm community in Indiana, the childhood asthma rate is 5 percent.

In a community of genetically similar farmers in North Dakota, the rate is 15 percent.

That has University of Arizona researchers hopeful that they can create drugs that will prevent and treat the disease by studying the dust that collects in the homes and barns of those farms.

"I am very convinced that this area of research is going to produce significant results in asthma prevention and treatment. In the next 10-to-20 years, I can see some spectacular developments out of this," said Dr. Fernando Martinez, director of the Arizona Respiratory Center.

Martinez, along with biologist Dr. Donata Vercelli and chemist and toxicologist Shane Snyder, head a team at the UA's Bio5 Institute that is working to identify the substances that may afford protection from asthma for those Amish children.

They are collaborating with Johnson & Johnson Consumer & Personal Products and Janssen Biotech Inc. to turn that research into methods of treating or preventing asthma.

About 8 percent of Americans suffer from some form of asthma, with higher rates among children. There is treatment but no cure.

Vercelli, a professor of cellular and molecular medicine and associate director of the Arizona Respiratory Center, said she has already seen enough results with laboratory mice in this study to convince her she is on the right track.

"I'm a biologist and a mechanism seeker. For over a decade, I have been distrustful, intellectually, of studies that showed products from farms were protective against asthma."

"Now we have a control and we are actually delivering results already. The impression we all have is one of extreme robustness."

Scientists are always concerned with reproducing results. "This works every time," she said.

The results are from mice who aspirate a cocktail of substances in that Amish farm dust that has proven protective.

The "control" is the dust gathered from a Hutterite farm community in North Dakota. It doesn't produce a beneficial effect.

The Hutterites are genetically similar to the Amish group. Both migrated from Alpine Europe and live in closed communities where they intermarry and preserve their genetic similarities.

Unlike the Amish, however, the Hutterites use modern mechanized farming techniques that keep mothers and children out of the barns and in their more sanitary homes. They don't live and work in proximity to their farm animals as the Amish do. Childhood asthma rates are three times higher among the Hutterites.

"The Hutterites are obsessively clean," said Vercelli. "They wash their walls once a month. During pregnancy the women don't go close to the animals. The Amish do; the women work until a couple days before childbirth."

Health researchers have debated the "hygiene hypothesis" for years. It posits that a modern uptick in asthma and allergies is related to the increasingly sterile environment into which children are born and in which they develop.

Early exposure to bacteria and other organic substances in the environment, it is thought, help children build immunity to disease.

That hypothesis was bolstered in the 1990s when scientists in Europe found widely divergent rates of asthma in genetically similar groups in Switzerland. Urban children were far more likely to develop asthma than their country cousins.

Dr. Mark Holbreich, an Indianapolis allergist who downplays his role in the current study as its Amish "dust collector," had observed the same phenomenon 25 years ago when he volunteered his services to Amish farm communities about 150 miles north of Indianapolis.

When the farm families came to his free clinics to find out which allergens were causing their sniffles and rashes, he found them nearly allergy free.

The basic scratch tests used to discover allergy triggers usually yield positive results for 45 percent of the tested triggers, he said. Among the Amish, it was 7 percent.

Holbreich suspended his clinics. He wasn't needed. This population, for all intents and purposes, didn't have allergies.

He continued to accompany his wife, Dr. Amy Shapiro, a pediatric hematologist who worked within the community to treat a genetic disposition toward hemophilia.

The couple cultivated friendships that enable Holbreich to visit and collect dust.

Holbreich said the Amish have as little contact as possible with the outside world, but told him: "If there is something within our community that can better the world in some way, we're happy to do it."

The dust samples, gathered from homes and barns in both communities, are analyzed in a lab run by Snyder at the UA's Keating Bio5 Research Building.

Snyder is a professor in the UA Department of Chemical and Environmental Engineering.

He devotes much of his research time to finding "emerging contaminants" in wastewater - remnants of prescription and over-the-counter drugs that enter the wastewater stream undetected.

He said the dust study is a nice "twist" for his team, which is usually "looking for negative things."

"The students are excited. They're working on a remedy for asthma," he said.

Snyder has a personal interest in the research. His own asthma improved when he moved West, but he still packs an inhaler when he returns to his childhood home in Pennsylvania.

Snyder describes his lab as "the funnel" for Vercelli's work. He concentrates the farm dust and provides her lab with blindly labeled samples for testing with mice.

He can also selectively remove substances, using an array of sophisticated and customized mass spectrometers to separate molecules by mass. That allows the team to narrow in on the protective elements in the farm dust, said Snyder.

Fernandez said Vercelli is looking for a "pin in a very big haystack" - there are thousands of different substances in the dust and tens of thousands of protein-coding genes in the human genome.

But the task is not as huge as it otherwise would be. Having a genetically similar control group narrows the search, Vercelli said.

The answers, when they come, will not be simple, said Vercelli and Fernandez.

In decades of study, following asthma sufferers through their lives since 1980, Martinez has come to think of asthma as a variety of diseases, not a single malady. The causes, he said, are a mix of genetic disposition and environmental influences.

He doesn't expect to find a silver bullet that will cure all forms of asthma, but an arsenal of remedies that can be applied on a case-by-case basis in a coming age of personalized medicine.

[http://tucson.com/news/science/environment/fighting-asthma-with-farm-dust/article\\_e7ab2014-8825-55ea-98a5-38e757a639f7.html](http://tucson.com/news/science/environment/fighting-asthma-with-farm-dust/article_e7ab2014-8825-55ea-98a5-38e757a639f7.html)

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**Parent and child independent report of emotional responses to asthma-specific vignettes: The relationship between emotional states, self-management behaviors, and symptoms**

Conn KM, Fisher SG. Rhee H  
March 2016

Little is known about the emotional intelligence (EI) of parents and their children with asthma. Objectives of this study were to assess:

- 1) parent's and children's report of emotions in response to an asthma vignette (proxy for EI) and
- 2) the relationship between emotions, self-management behaviors, and symptoms.

### **Design and Methods:**

We conducted a descriptive, mixed methods study of children 7-12 years old with asthma. Parent-Child dyads (n = 104) responded to an asthma vignette to gain insight into emotions, symptoms, and self-management behaviors. Additional questions assessed confidence and worry using a 5-point Likert scale. Thematic analyses and descriptive statistics were used to assess qualitative and quantitative outcomes.

### **Results:**

Children were predominantly male (58%), 7-9 (58%), and White (46%). The most common negative emotions reported by children were scared and sad. Children who sought help from an adult were less likely to report using medications compared to children who did not seek help (39.5% vs. 62.3%,  $p = .029$ ). Children with low worry and high confidence had fewer symptoms compared to children reporting high worry and low confidence (symptoms: days 3.24 vs. 6.77,  $p = .012$ , nights 2.71 vs. 5.36,  $p = .004$ ).

### **Conclusions:**

Children provided appropriate emotional responses to the asthma vignette; emotions were related to self-management behaviors and symptoms. More studies are needed to specifically assess EI in this population.

### **Practice Implications:**

Parents and children with greater EI may be better able to understand their needs, engage in self-management behaviors, and communicate with their nurses, to improve their support network and

ability to access services.

<http://www.ncbi.nlm.nih.gov/pubmed/26711704>

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## **Association of insurance status with severity and management in ED patients with asthma exacerbation**

Hasegawa K, Stoll DJ, Ahn J, Kysia RF, Sullivan AF, Camargo CA.  
March 2016

### **Introduction:**

Previous studies have demonstrated an association of low socioeconomic status with frequent asthma exacerbations. However, there have been no recent multicenter efforts to examine the relationship of insurance status - a proxy for socioeconomic status - with asthma severity and management in adults.

### **Objective:**

The objective is to investigate chronic and acute asthma management disparities by insurance status among adults requiring emergency department (ED) treatment in the United States.

### **Methods:**

We conducted a multicenter chart review study (48 EDs in 23 U.S. states) on ED patients, aged 18-54 years, with acute asthma between 2011 and 2012. Each site underwent training (lecture, practice charts, certification) before reviewing randomly selected charts. We categorized patients into three groups based on their primary health insurance: private, public, and no insurance.

Outcome measures were chronic asthma severity (as measured by  $\geq 2$  ED visits in one-year period) and management prior to the index ED visit, acute asthma management in the ED, and prescription at ED discharge.

**Results:**

The analytic cohort comprised 1,928 ED patients with acute asthma. Among these, 33% had private insurance, 40% had public insurance, and 27% had no insurance. Compared to patients with private insurance, those with public insurance or no insurance were more likely to have  $\geq 2$  ED visits during the preceding year (35%, 49%, and 45%, respectively;  $p < 0.001$ ). Despite the higher chronic severity, those with no insurance were less likely to have guideline-recommended chronic asthma care - i.e., lower use of inhaled corticosteroids (ICS [41%, 41%, and 29%;  $p < 0.001$ ]) and asthma specialist care (9%, 10%, and 4%;  $p < 0.001$ ). By contrast, there were no significant differences in acute asthma management in the ED - e.g., use of systemic corticosteroids (75%, 79%, and 78%;  $p = 0.08$ ) or initiation of ICS at ED discharge (12%, 12%, and 14%;  $p = 0.57$ ) - by insurance status.

**Conclusion:**

In this multicenter observational study of ED patients with acute asthma, we found significant discrepancies in chronic asthma severity and management by insurance status. By contrast, there were no differences in acute asthma management among the insurance groups.

<http://pediatrics.aappublications.org/content/early/2016/02/22/peds.2015-0461>

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## **Mom's Smoking May Put Kids at Higher Risk of COPD in Adulthood**

By Alan Mozes

3/11/16

The children of mothers who smoke heavily may face a much higher risk for developing chronic obstructive pulmonary disease (COPD) as adults, new research suggests.

The finding is based on the tracking of COPD risk among nearly 1,400 adults, and it suggests that heavy maternal smoking -- more than 20 cigarettes per day -- increases a child's long-term COPD risk nearly threefold.

"The findings were not surprising to us," said study author Jennifer Perret. She is a postdoctoral fellow with the Centre for Air Quality and Evaluation in the Melbourne School of Population & Global Health at the University of Melbourne in Australia.

"Smoking in later life can result in deficits in lung function by middle age. So it was not unexpected to see that mothers' smoking . . . could also adversely influence the growing lungs of [their children]," Perret said. And, "reduced lung function potential in childhood predisposes an individual to having reduced lung function as an adult," she added.

However, the study did not prove that a mother's heavy smoking habit caused her children to have an increased risk for COPD later in life; the researchers only found an association.

Perret and her colleagues reported their findings in the March 10 issue of the journal *Respirology*.

According to the U.S. National Heart, Lung, and Blood Institute, COPD is a progressively worsening illness that greatly compromises a person's ability to breathe. Smoking is the leading cause of COPD, which is now the third leading cause of death around the world, the researchers said.

To see how COPD risk related to parental smoking patterns, the authors reviewed surveys completed in 2004 by more than 5,700 men and women (average age of 45) who had been participating in a long-running study that began in 1968.

Nearly 40 percent said that when they were 7 years old they lived with a mother who smoked, and 17 percent of this group said their mothers were heavy smokers. Nearly 60 percent grew up with smoking fathers, 34 percent of whom were heavy smokers.

Twelve percent said they grew up in households where both parents were heavy smokers. Only 8 percent grew up in a household where the mom was the sole smoker.

About two-thirds of the study participants said they had a history of asthma, and one-quarter said they still had the respiratory condition. More than four in 10 said they had never smoked themselves.

Nearly 1,400 of the survey respondents underwent lung-function tests between 2006 and 2008. The investigators uncovered no evidence of elevated COPD risk among those who had grown up with smoking dads, or moms who smoked less than 20 cigarettes a day.

But those who grew up with mothers who smoked heavily were 2.7 times more likely than others to have a kind of lung impairment that is indicative of COPD. Additional testing revealed that the

already elevated risk for COPD seen among offspring who smoked themselves was driven even higher if they had grown up with a mom who smoked heavily.

There were indications that boys might be somewhat more vulnerable to the negative impact of maternal smoking than girls. Perret suggested this could be due to a range of gender-based "biological differences" that unfold throughout childhood development.

Regardless, the team said the findings should bolster current recommendations that pregnant women and young mothers should avoid smoking altogether.

Meanwhile, for those whose moms smoked heavily, what can be done to minimize their COPD risk?

"If there are concerns or symptoms such as breathlessness on exertion, cough or phlegm, they may wish to seek the advice of a doctor who could measure their lung function," Perret advised.

And, she suggested, "as there may be a combined effect with other smoking and environmental exposures, it would be advisable for them not to smoke, and avoid smoky, dusty and polluted environments where possible."

[http://www.philly.com/philly/health/topics/HealthDay708862\\_20160311\\_Mom\\_s\\_Smoking\\_May\\_Put\\_Kids\\_at\\_Higher\\_Risk\\_of\\_COPD\\_in\\_Adulthood.html](http://www.philly.com/philly/health/topics/HealthDay708862_20160311_Mom_s_Smoking_May_Put_Kids_at_Higher_Risk_of_COPD_in_Adulthood.html)

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## **Children Can Accurately Self-Report The Effectiveness Of Asthma Medications, Study Says**

By Chery Cheng  
3/7/16

A child's self-report when it comes to rating the effectiveness of asthma medications can be reliable, a new study is reporting.

According to the research, children were more accurate than their caregivers at determining whether or not an asthma treatment was working. For this study, the team compared the efficacy of an intranasal allergy spray, MP-AzeFlu (Dymista), to a placebo spray. MP-AzeFlu is made from a combination of an antihistamine, azelastine, and steroid, fluticasone, that work together to reduce inflammation and prevent symptoms such as sneezing and watery eyes.

As a part of the study, the researchers also examined a caregiver's ability to gauge how the children were responding to either treatment.

The researchers recruited 304 children between the ages of 6 and 11 to participate in the 14-day long study. The children had a history of moderate to severe seasonal allergic rhinitis (SAR), which is also known as hay fever.

The effectiveness of the nasal spray was measured using three scoring systems: the reflective total nasal symptom score, the reflective total ocular symptom score and the efficacy scores that were reported by the children and their caregivers. The researchers also used the total scores from the Pediatric Rhinitis Quality of Life Questionnaire when comparing the results from both

groups.

The team found that MP-AzeFlu helped alleviate the symptoms of SAR more effectively than the placebo spray did. The children from the MP-AzeFlu group also self-reported higher levels of relief after using the spray. Their caregivers, however, could not tell the difference between how MP-AzeFlu and the placebo affected the children's symptoms.

"Symptom severity assessment by caregivers and children cannot be assumed to be the same. In fact, caregivers are less sensitive than children in assessing response to treatment, at least with available tools," the study's lead author, Dr. William Berger, said in a press release. "In this regard children, and not caregivers, appear to know best!"

The researchers noted that doctors might be better off asking children how they feel after taking asthma medications instead of relying on caregivers. The team reasoned that since the tools that are available now are not helping caregivers when it comes to assessing a child's response to an asthma treatment, health experts should consider modifying them.

The study's findings were published in the journal, *Pediatric Allergy and Immunology*.

<http://www.hngn.com/articles/185986/20160307/children-can-accurately-self-report-the-effectiveness-of-asthma-medications.htm>

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## **Asthma and chronic obstructive pulmonary disease overlap syndrome (ACOS): Structured literature review and physician insights**

Ding B, Enstone A  
January 20, 2016

### **Objectives:**

To understand the key characteristics of Asthma and Chronic Obstructive Pulmonary Disease Overlap Syndrome (ACOS) and to identify evidence gaps relating to the identification, treatment and management of ACOS patients.

### **Methods:**

A structured literature review and 1-hour telephone interviews with specialist respiratory physicians were conducted (n=10; China, France, Germany, Japan and the USA). Results: All 10 physicians used the term ACOS in clinical practice. ACOS was not clearly defined in the literature. Prevalence of ACOS among adult patients with COPD or asthma ranged from 12-55%. ACOS patients had severe disease, with increased exacerbations and hospitalisations compared to some asthma and COPD patients. ACOS represented a clinical challenge due to a lack of evidence-based guidelines distinguishing between asthma, COPD and ACOS. Published data quantifying ACOS costs were limited.

### **Conclusions:**

There is a need for consensus evidence-based guidance to facilitate earlier diagnosis and to optimise the management of ACOS patients.

<http://www.tandfonline.com/doi/full/10.1586/17476348.2016.1144476>

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## **Practice pattern variation in the care of children with acute asthma**

Chamberlain JM, Teach SJ, Hayes KL, Badolato G, Goyal MK  
February 23, 2016

### **Objectives:**

Pediatric asthma is a highly prevalent disease, affecting over 7 million U.S. children and accounting for 750,000 annual emergency department (ED) visits. Guidelines from the National Asthma Education and Prevention Program recommend limited use of chest radiography (CXR), complete blood counts (CBCs), and antibiotics when managing acute exacerbations of asthma. However, studies suggest frequent overutilization of these resources. The objective was to evaluate differences between pediatric and general EDs in rates of CXRs, CBCs, and use of antibiotics for pediatric asthma exacerbations.

### **Methods:**

This was a repeated cross-sectional analysis of data from the National Hospital Ambulatory Medical Care Survey from 2000 through 2010 of CXR, CBCs, and antibiotics during ED visits for pediatric acute asthma exacerbations. Multivariable logistic regression was performed to identify differences in asthma management by ED type (pediatric vs. general) after adjusting for demographic covariates.

### **Results:**

There were 3,313 observations, representing an estimated 10.9 million (95% confidence interval

[CI] = 9.7 to 12.1 million) ED visits for acute asthma without bacterial coinfection. Of these, 17.4% occurred in pediatric EDs. Multivariable logistic regression revealed that visits to pediatric EDs were less likely to include CXRs (adjusted odds ratio [AOR] = 0.39; 95% CI = 0.25 to 0.60), CBCs (AOR = 0.42; 95% CI = 0.22 to 0.80), and antibiotics (AOR = 0.50; 95% CI = 0.31 to 0.82) after adjustment for race/ethnicity, triage level, academic ED, metropolitan statistical area, and geographic region.

**Conclusions:**

There are substantial differences in diagnostic testing and antibiotic usage for management of acute exacerbations of asthma by ED type, suggesting potential resource overuse in general EDs. Future studies should focus on evaluating the effect of quality improvement efforts for ED asthma management.

<http://www.ncbi.nlm.nih.gov/pubmed/26766222>

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**Differences in spirometry values between US children 6-11 years and adolescents 12-19 years with current asthma, 2007-2010**

Kit BK, Simon AE, Tilert T, Okelo S, Akinbami LJ  
March 2016

**Background:**

National Asthma Education and Prevention Program (NAEPP) guidelines recommend that periodic spirometry be performed in youth with asthma. NAEPP uses different spirometry criteria to define

uncontrolled asthma for children(6-11 years) and adolescents (12+ years).

**Objective:**

To describe differences in spirometry between US children and adolescents with current asthma.

**Methods:**

We examined cross-sectional spirometry data from 453 US youth with current asthma age 6-19 years from the 2007-2010 National Health and Nutrition Examination Surveys. The main outcomes were percentage predicted forced expiratory volume at 1 sec (FEV1%)  $\leq 80$  and the ratio of FEV1 to forced vital capacity (FEV1/FVC)  $\leq 0.80$ . We also examined the prevalence of youth with spirometry values consistent with uncontrolled asthma, using NAEPP age-specific criteria, defined for children aged 6-11 years as FEV1%  $\leq 80$  or FEV1/FVC  $\leq 0.80$ , and for adolescents aged 12-19 years as FEV1%  $\leq 80$ .

**Results:**

Children 6-11 years and adolescents 12-19 years did not differ in prevalence of FEV1%  $\leq 80$  (10.1% vs. 9.0%) or FEV1/FVC  $\leq 0.80$  (30.6% vs. 29.8%). However, based on the NAEPP age-specific criteria, 33.0% of children 6-11 years and 9.0% of adolescents 12-19 years had spirometry values consistent with uncontrolled asthma (P < 0.001).

**Conclusions:**

Children 6-11 years and adolescents 12-19 years with current asthma did not differ in the percentage with FEV1%  $\leq 80$  or FEV1/FVC  $\leq 0.80$ . However, the percent of children and adolescents with spirometry values consistent with uncontrolled asthma did differ. The difference appears to stem mainly from the different spirometry criteria for the two age groups.

<http://onlinelibrary.wiley.com/doi/10.1002/ppul.23238/abstract>

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**Ambient air pollution and emergency department visits for asthma: A multi-city assessment of effect modification by age**

Alhanti BA, Chang HH, Winqvist A, Darrow LA, Sarnat SE  
March/April 2016

Previous studies have found strong associations between asthma morbidity and major ambient air pollutants. Relatively little research has been conducted to assess whether age is a factor conferring susceptibility to air pollution-related asthma morbidity. We investigated the short-term relationships between asthma emergency department (ED) visits and ambient ozone (O<sub>3</sub>), carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), and fine particulate matter (PM<sub>2.5</sub>) in Atlanta (1993-2009), Dallas (2006-2009), and St. Louis (2001-2007).

City-specific daily time-series analyses were conducted to estimate associations by age group (0-4, 5-18, 19-39, 40-64, and 65+ years). Sub-analyses were performed stratified by race and sex. City-specific rate ratios (RRs) were combined by inverse-variance weighting to provide an overall association for each strata. The overall RRs differed across age groups, with associations for all pollutants consistently strongest for children aged 5-18 years. The patterns of association across age groups remained generally consistent when models were stratified by sex and race, although the strong observed associations among 5-18 year olds appeared to be partially driven by non-white and male patients.

Our findings suggest that age is a susceptibility factor for asthma exacerbations in response to air pollution, with school-age children having the highest susceptibility.

<http://www.nature.com/jes/index.html>

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### **Childhood wheeze raises asthma risk in adolescence**

By Jeff Craven  
March 1, 2016

Participants in a pediatric asthma prevention study who developed transient early, late onset or persistent wheeze in childhood were more likely to develop asthma and airway hyperresponsiveness at age 15 years, according to recent research.

"Although we could not classify more recently defined phenotypes requiring data between ages 2 years and 7 years, our results are consistent with other cohorts where children experiencing intermediate, late-onset, and persistent wheeze were more likely to develop asthma and bronchial hyperreactivity by middle childhood," Meghan B. Azad, PhD, of the department of pediatrics and child health at University of Manitoba in Winnipeg, Canada, and colleagues wrote. "Our study extends these findings through adolescence in a high-risk cohort and demonstrates that asthma-associated deficits in lung function are already present at a young age. Collectively, these data show that early wheezing patterns provide clinically meaningful information and suggest that strategies to reduce early-life wheezing and atopic sensitization could have long-term health benefits."

Azad and colleagues evaluated 320 participants aged 15 years from the Canadian Asthma Primary Prevention Study. They analyzed wheeze phenotypes from data previously collected in the study at 4-month follow-up points between ages 4 months and 2 years and again at age 7 years. Researchers established three phenotypes for wheeze: transient early wheeze (wheezing before age 3, but not at age 6), late onset wheeze (wheezing at age 6, but not before age 3) and persistent wheeze (wheezing before age 3 and at age 6).

Fifty-one percent of participants were categorized as never developed wheeze, 27.7% had transient early wheeze, 8.9% had late onset wheeze and 12.9% had persistent wheeze. Researchers observed a strong association between atopy prior to age 2 years and persistent wheeze ( $P < .001$ ). Participants who never had wheeze had significantly higher rates of FEV1 compared with participants with transient early wheeze (-219 mL;  $P = .007$ ), late onset wheeze (-304 mL;  $P = .01$ ) and persistent wheeze (-335 mL;  $P = .001$ ).

The prevalence of asthma was greater among participants with wheeze, with 5% of participants who never developed wheeze, 19% of participants who had transient early wheeze (OR = 3.94; 95% CI, 1.59-9.78), 27% of participants with late onset wheeze (OR = 6.01; 95% CI, 1.96-18.39) and 42% of participants with persistent wheeze (OR = 11.81; 95% CI, 4.45-31.35) developing asthma at age 15 years.

Additionally, food allergy carried an elevated risk for late onset wheeze (adjusted OR = 5.58; 95% CI, 1.56-19.96) but not transient early wheeze. Researchers also observed an increased risk for wheeze and airway hyperresponsiveness at age 15 years for those participants with late onset and persistent wheeze, but not early transient wheeze.

Azad and colleagues reported no associations between wheeze and atopic dermatitis or allergic rhinitis. - by Jeff Craven

Disclosure: The researchers report no relevant financial disclosures.

<http://www.healio.com/allergy-immunology/asthma-lower-airway-diseases/news/online/%7B2a5c54c3-c43c-423a-a5ef-716a551f23b9%7D/childhood-wheeze-raises-asthma-risk-in-adolescence>

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### **Asthma medications at discharge may prevent future ED visits**

By David Costill  
March 2, 2016

An intervention that increased the proportion of patients discharged with asthma medications decreased the amount of unplanned ED visits after discharge, according to recent research in Pediatrics.

"A discharge medication delivery [Meds-in-Hand] service created in partnership with the hospital-owned outpatient pharmacy was most successful at ensuring that a high proportion of patients were discharged in possession of their prescribed outpatient medications," Jonathan Hatoun, MD, MPH, of Boston University School of Medicine and Boston Medical Center, and colleagues wrote.

The researchers developed and completed three interventions with the primary outcome of

increasing the proportion of pediatric patients discharged with asthma medications. The first intervention required residents to write prescriptions faster (at least 1 day before discharge) and recommended that parents pick up medications at a local pharmacy or the hospital outpatient pharmacy. The second intervention implemented special fax coversheets for pharmacists, to expedite the distribution of pediatric asthma medication at the in-hospital pharmacy. The third intervention established a system of delivering prescriptions from the hospital outpatient pharmacy to the patient's room, where co-pays were accepted via cash or a mobile payment system. This study was conducted in the pediatric ward of Boston Medical Center during a 2 year period.

Each intervention cycle was developed based on feedback from the previously completed intervention. The researchers found that parents were uncomfortable leaving the hospital to visit an unfamiliar pharmacy and therefore developed the second intervention, through which participants would not have to leave the hospital. The researchers then noted that parents were uncomfortable leaving the room of their sick child and preferred picking up medication after discharge to avoid this scenario. The in-room delivery intervention yielded the best results, and also allowed pharmacists and doctors to educate patients and parents on proper medication use in the patient's room.

Each intervention increased the proportion of patients discharged with medications in hand: the first intervention achieved this in 40% of participants, the second in 59% and the third in 75%. Of the 124 pediatric patients studied, 77 were discharged with medications in-hand.

The researchers found that patients discharged with medications were significantly less likely to return to the ED within 30 days of discharge (OR= 0.22; 95% CI, 0.05-0.99). However, there was no statistically significant impact on the likelihood of readmission (OR = 0.41; 95% CI, 0.08-2.1)

or visits to primary care soon after discharge (OR = 0.81; 95% CI, 0.38-1.71).

"Although more evidence on the impact of being discharged in possession of discharge medications is needed, a service that provides admitted patients with their outpatient medications before they leave the hospital has many potential benefits," Hatoun and colleagues wrote.

"Additional areas of exploration could include how the Meds-in-Hand service affects the patient experience, hospital finances, and clinical outcomes for other medical conditions." - by David Costill

Disclosure: The researchers report no relevant financial disclosures.

<http://www.healio.com/pediatrics/allergy-asthma-immunology/news/online/%7B575ff4cf-85d6-48a2-bf2c-ee6d63449cff%7D/asthma-medications-at-discharge-may-prevent-future-ed-visits>

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