Integrated Pest Management (IPM) in Health Care Facilities Project

Fall 2013 Newsletter

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Welcome to the fall edition of the ***IPM in Health Care Facilities newsletter***, published by the **IPM in Health Care Facilities Project**—a partnership of the Maryland Pesticide Network and Beyond Pesticides in collaboration with the Maryland chapter of Hospitals for a Healthy Environment (MD H2E). The Project enables and facilitates transition to safe pest management practices at Maryland health care facilities. This newsletter is part of the Project's outreach effort to share information with Maryland health care facilities interested in effective pest management that protects patients, residents, staff and visitors from unnecessary exposure to pesticides.

Facilities participating in the Project's Partnership Program agree that IPM prioritizes pest prevention and non-chemical interventions as key components to ***greening*** their facilities. Under an IPM approach, only least-toxic pesticides are used as a last resort for pest management. This approach is especially important for patient and long-term care populations, which are especially vulnerable to chemical-intensive pest control methods that can cause or exacerbate the very diseases and conditions for which they are being treated.

Feel free to contact us to learn more about how you can improve patient, staff and visitor safety by reducing pest complaints and toxic chemicals in your facility—with no increase in cost.

SAVE THE DATE!

IPM in Health Care Facilities Project Award Presentation and the Health Care Sustainability Leadership Council meeting

6820 Deerpath Road, Elkridge, MD

See page 9 for RSVP information

- December 12, 2013 -

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Questions? Comments? Please contact Ruth Berlin at 1.410 849.3909, ext. 1

The Asthma Epidemic and Its Impact on the Health Care Industry

Asthma is a serious chronic disorder of the lungs characterized by recurrent attacks of bronchial constriction, which cause breathlessness, wheezing, and coughing. According to the Centers for Disease Control and Prevention and the American Lung Association, asthma rates among children have reached epidemic proportions, with rates of children in the United States suffering from the illness doubling over the past two decades. Asthma is a dangerous, and in some cases life-threatening disease. In addition to traffic exhaust, industrial air emissions, mold and mildew, poor indoor ventilation of cooking and heating equipment, and dirty indoor conditions, researchers have found that exposure to certain pests and pesticides can induce a poisoning effect linked to asthma. This is important because researches believe that pesticides are the most preventable causes of asthma in children.[1]

Asthma Facts:

- Up to 26 million people suffer from asthma in the United States; including more than nine million children under the age of 18.[2]
- Asthma is the number one chronic health condition among children with nearly 1 in 8 school-aged children having asthma. [3]
- About 3,500 people die from asthma attacks in the county every year.[4]
- The number of children dying from asthma increased almost threefold from 1979 to 1996.[5]
- Asthma accounts for 14.2 million lost work days by adults each year.[6]
- Asthma accounts for 14 million lost days of school annually.[7]
- Indirect asthma costs accounts for approximately $5.9 billion in lost productivity.[8]
- Adult asthma rates in Maryland are the 5th highest in the country.[9]

Impact on Health Care Facilities

Asthma imposes a heavy burden on health care facility staff that have to treat a constant influx of asthma victims.

- Close to 2.1 million emergency room visits were attributed to asthma in 2009.[10]
- Asthma is the leading cause of hospital admission among urban children, with over 200,000 hospitalizations every year.[11]
- The American Lung Association reports that asthma is the third leading cause of hospitalizations among children under the age of 15 and is a leading cause of school absences from chronic disease.[12]
- The Baltimore City Health Department reports that Baltimore has the highest rate in the state for pediatric asthma hospitalizations, which is one of the highest rates in the nation.[13]
- In Maryland alone, hospital charges for inpatient asthma treatment exceeds $66 million, plus an additional $26 million for treatment in an emergency department.[14]
- The annual direct health care cost of asthma is approximately $50.1 billion.[15]
- Cost savings associated with emergency room visits and hospitalizations would be matched by reductions in asthma-related school absenteeism.[16]

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The role of the health care industry in preventing pest & pesticide-induced asthma

While it is essential that hospitals maintain a clean environment free of pests, it is also important that patients, staff, and visitors are protected from exposure to pesticides that can trigger respiratory problems such as asthma. A patient hospitalized for a severe asthma attack can unknowingly be exposed to a pesticide that exacerbates asthma. Hospital patients who have compromised immune and nervous systems, the elderly, infants and children, and those who have an allergy or sensitivity to pesticides are particularly vulnerable to their toxic effects. Patients taking certain medications may also have heightened reactions to pesticides. Given these known risks associated with pesticides, ensuring patient safety must include reducing toxic exposures to pesticides used for pest control.

Both pests and pesticides can trigger and cause asthma attacks. A *trigger* is something that causes an asthma attack to occur in someone already suffering from the disease, while a *cause* is an underlying reason why a person gets asthma or other diseases. Pesticides have been shown to both *cause* asthma and *trigger* asthma attacks.[17] Hospitals that practice a high level of integrated pest management will successfully manage pests without exposing their patients to harmful pesticides. For example, allergens may be found in cockroach skin, feces, whole-body extracts, and nest debris. Other causes include rodent hair, urine, and feces. To deal with these pests, people often use toxic pesticides. However, using pesticides may only make conditions worse for someone suffering from asthma.

Tips for Preventing Pests and Asthma

- Remove all food waste and keep food in airtight containers
- Eliminate potential water sources, such as leaky faucets and pipes
- Caulk and seal all cracks and crevices
- Vacuum frequently and intensively to remove pest hair, feces, and other pest-derived materials
- Keep food and garbage in closed, tight-lidded containers
- Monitor populations using sticky-traps and snap traps
- For insects such as cockroaches, use a least-toxic bait such as boric acid. Boric acid does not volatilize so it will never evaporate or disperse in the air and will not contribute to asthma, as more toxic pesticides will.

Pesticides Can Cause Asthma and Trigger an Asthma Attack

There are consistent links between pesticide exposure and serious illnesses such as asthma.[18] People with asthma are especially sensitive to pesticides and are at risk of attacks when exposed to even small amounts. Pesticides can exacerbate or aggravate asthma symptoms and trigger asthma attacks by increasing airway hyper-reactivity, which makes the airway very sensitive to any allergen or other stimulus. Hyper-reactive, or hypersensitive, lungs are a trademark feature of asthmatics. Subsequent exposure to pesticides can cause an extreme reaction in a hyper-reactive airway. In these situations, researchers at Johns Hopkins believe that pesticides alter the nerve function controlling the smooth muscle lining of the airway, causing the airway to contract and restrain airflow, which is exactly what occurs during an asthma attack.[19] Pesticides can also trigger asthma attacks by damaging lung epithelial cells directly.[20]

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Pesticides Can Cause Asthma and Trigger an Asthma Attack, *continued…*

CHILDREN ARE MORE SUSCEPTIBLE:

- The National Academy of Sciences has found that children face higher risks than adults from pesticide exposure and are more susceptible to environmental toxins than adults.[21] This is because children take in more pesticides and toxic chemicals relative to body weight.[22] Children also have a more rapid respiratory rate and take in a greater volume of air per body weight than adults.[23]
- Researchers find that children exposed to pesticides during their first year of life are four and a half times more likely to be diagnosed with asthma before the age of five; toddlers exposed to pesticides are over two times more likely to get asthma.[24]
- Children's organ systems are still developing and so are more vulnerable and less able to detoxify hazardous chemicals; their developing organs create "early windows of great vulnerability" during which exposure to toxins can cause great damage.[25] Human lungs and airways do not fully develop until the sixth to eighth year of life, making a young child more vulnerable to the effects of pesticides and other pollutants on the respiratory system.
- Exposures during pregnancy may also be significant for children later in life; fetuses can become sensitized to contaminants while still in the womb, resulting in a child being born with a strong predisposition to asthma and allergies.[26]

ADULTS AND THE ELDERLY

- Research by the National Institute of Aging has found that asthma in the elderly is underdiagnosed and undertreated. Asthma seen later in life creates a lower quality, poor general health, symptoms of depression, limitation of activities of daily living, as well as an increased rate of morbidity.[27]

PESTICIDES AND ASHTMA

- While certain people are genetically predisposed to asthma and allergies, the rapid increase in asthma rates in recent years cannot be explained by genetic causes alone. Numerous studies have found compelling evidence that exposure to pesticides is correlated with higher rates of asthma.
- Numerous studies have documented the association of pesticides and asthma incidence for adults and children. A scientific review found evidence lending support to the concept that either acute or chronic low-level inhalation of pesticides may trigger asthma attacks, worsen asthma, or increase the risk of developing asthma.[28]

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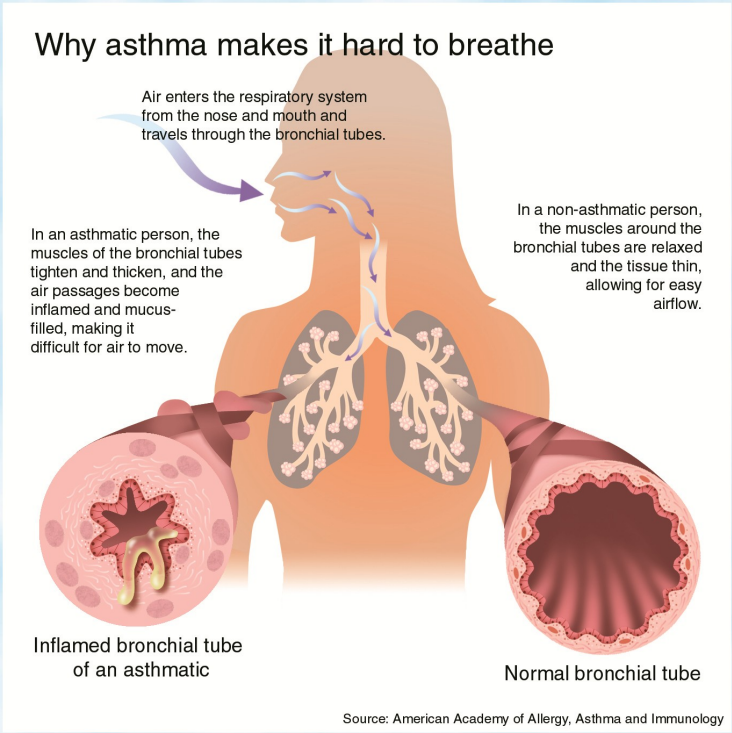
Pesticides Can Cause Asthma and Trigger an Asthma Attack, *continued*

Asthma is a serious epidemic that is not going to disappear on its own. Health care institutions can do their part by practicing IPM to limit their exposures of pesticides throughout their facilities. This is especially imperative due to the number of people who have been diagnosed with asthma and other respiratory problems that rely on health care facilities to treat their illness.

There are easy steps that can be taken to avoid known pesticide asthma triggers and reduce the risk of getting asthma.

Do not apply volatilizing pesticides:
INDOORS: Use preventive treatments, biological controls, and least-toxic baits instead of resorting to pesticides.
LAND CARE: Building healthy soil allows for grasses and plants to naturally crowd out weeds and prevent pests.



Lower Asthma Rates in Boston Attributed to IPM in Public Housing

Boston health officials say new city data indicate that asthma incidences have dropped nearly by half since 2005. This is attributed to Boston Housing Authority (BHA) and Boston Public Health Commission implementation of an integrated pest management (IPM) program in low-income housing to reduce the number of cockroaches and rodents, while reducing the use of pesticides, which, along with cockroach and rodent droppings, can aggravate asthma symptoms.

The data, covering 2006 through 2010, show the rate of adults who reported having asthma symptoms in the authority's units dropped from 23.6 percent in 2006 to 13 percent in 2010, the latest year available. At the same time, asthma rates in other low-income housing in Boston, not run by BHA, remained relatively unchanged.

In the late 1990s and early 2000s, health authorities found extremely high infestations of roaches and rodents in BHA buildings, and equally concerning, housing leaders were seeing desperate residents resorting to the use of powerful, toxic pesticides to try to rid their apartments of the pests. In 2005, the housing authority and health officials launched a new Integrated Pest Management (IPM) approach to dealing with pests.

Instead of using BHA contractors to apply pesticides, the new preventive IPM approach was used that emphasized removing the food, water, and shelter that the pests need to survive. Strategies included promptly removing trash, fixing holes and preventing leaks. New residents also received a brochure and viewed a video about IPM methods that they can practice in their homes. Similarly, contractors were required to aggressively pinpoint problem areas that need fixing. The Boston Public Health Commission says pest-related violations have also decreased since the program was launched.

A version of this story appeared in the Beyond Pesticides Daily News Blog on January 9, 2013.

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Chemical Profile: Pesticide Asthma Triggers

What pesticides can cause or trigger asthma?

Thirty commonly used lawn pesticides and thirty-nine pesticides used for indoor pest management are sensitizers or irritants, and therefore have the potential to trigger asthma attacks, exacerbate asthma, or lead to a higher risk of developing asthma. The following are some commonly used pesticides and how they contribute to asthma:

Pyrethrum/Pyrethrins

The active ingredients in 565 Plus XLO, P.I. Contact, and Drion are synthetic pyrethrins. Not only do these pesticides contribute to asthma but they are also known neurotoxicants, associated with kidney and liver damage, are possible endocrine disruptors and can increase the risk of breast cancer.

Pyrethrum is an insecticide made from crude extracts from plants of the Compositae family, which includes daisies and chrysanthemums. Crude extracts contain impurities, sometimes in significant amounts, which can be allergenic or otherwise irritating. Pyrethrum has been known since the 1930s to cause allergies, asthma, and respiratory irritation. Sensitization to pyrethrum extracts can occur. Pyrethrin insecticides are also prepared from pyrethrum flowers, but pyrethrin extracts are more purified than pyrethrum. However, they still contain small amounts of impurities that may cause allergic reactions, asthma symptoms, and sensitization in individuals exposed. One of the most well-known instances of allergic reactions to pyrethrin is an 11 year old girl with asthma who, after giving her pet dog using a shampoo containing pyrethrin, had a severe asthma attack and died within a few hours. Pyrethrum and pyrethrin products are often formulated with piperonyl butoxide (PBO). PBO is a pesticide synergist, used to make active ingredients more toxic. Inhaling PBO can cause labored breathing and an accumulation of fluids in the lungs. Asthmatics should take care to avoid products containing pyrethrum, pyrethrins, and PBO.[29]

Synthetic pyrethroids (Permethrin, Cypermethrin, Cyfluthrin, Sumithrin)

The active ingredients in Temprid, Demon WP and Steri-Fab are Cyfluthrin, Cypermethrin, and Sumithrin respectively. Not only do this pesticides contribute to asthma, but they are known neurotoxicants and reproductive toxicants, endrocrine disrupters, and are toxic to honey bees.

Synthetic pyrethroids are synthetic versions of pyrethrum/pyrethrin, which are designed to be more toxic and longer lasting. They are a heavily used class of insecticides, used for control of cockroaches, termites, mosquitoes, fleas, and scabies. Because of their similarity to pyrethrum/pyrethrins, synthetic pyrethroids can also have allergenic properties. Numerous cases of people exposed to synthetic pyrethroids have reported symptoms of irritation of the throat and respiratory tract, shortness of breath, coughing, and other asthmatic symptoms.[30] People with a history of asthma should avoid these chemicals; the material safety data sheets often warn that, "persons with a history of asthma, emphysema, or hyperactive airways disease may be more susceptible to overexposure." As with pyrethrum and pyrethrins, synthetic pyrethroids are often formulated with PBO.

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Chemical Profile: Pesticide Asthma Triggers

What pesticides can cause or contribute to asthma? *Continued...*

Organophosphates (chlorpyrifos, diazinon, malathion, methyl parathion)

Organophosphates are a large, widely used class of pesticides, used for termite control, for mosquito spraying, and on lawns and landscapes. Together, this class accounts for around half of all insecticides sold in the US. Organophosphates act as cholinesterase inhibitors, which means that exposure to these pesticides can cause weakness of the respiratory muscles, bronchoconstriction, bronchial secretions, wheezing, and general respiratory distress. Children are especially vulnerable to the effects of organophosphates and an allergic reaction can occur at very low concentrations. Exposure to organophosphates causes both short-term and long-term respiratory health effects, and their widespread use may be an underlying cause of high asthma rates.[31]

Carbamate Insecticides (Carbaryl, Bendiocarb, Aldicarb, Carbofuran, Methomyl)

Carbamates, also known as N-Methyl Carbamate insecticides, are a class of insecticides that are also widely used. Carbaryl (Sevin) is the most common carbamate and one of the most heavily used pesticides in the country. A study on hazardous air pollutants labeled carbaryl as an asthmagen, defined as "a compound that evokes asthma symptoms and has documented case reports in the medical literature associating exposure with asthma." Similar to organophosphates, carbamate exposure causes cholinesterase inhibition, which causes airway constriction and respiratory distress, although the effects are short-term.[32]

What herbicides and fungicides can cause or contribute to asthma?

Glyphosate (Round-up): Glyphosate is one of the most commonly used pesticides on lawns and landscapes. Exposure to glyphosate can cause asthma-like symptoms and breathing difficulty. A Japanese study on poisoning victims discovered that "inert" ingredients included in Round-up, one of the most common forms of glyphosate, caused pneumonia and an accumulation of excess fluid in the lungs. Another inert ingredient common in glyphosate products causes damage to the mucous membrane tissue and the upper respiratory tract.[33]

2,4-D and Chlorophenoxy Herbicides: According to EPA, 2,4-D, is the most commonly used herbicide in homes and gardens in the United States. Chlorophenoxy compounds, such as 2,4-D, are moderately irritating to respiratory linings and may cause coughing in those exposed to it.[34] For people with asthma, exposure to 2,4-D should be avoided, as it may aggravate the condition and trigger an asthma attack. 2,4-D products are often formulated with the herbicides mecoprop and dicamba, which are also chlorophenoxy herbicides, and thus respiratory irritants. Products that use all three of these active ingredients often contain the warning, "Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis."

Atrazine: Atrazine is used on lawns, landscapes, golf courses, and agriculture. Use of atrazine by a large group of pesticide applicators was correlated with wheezing. In addition to wheezing, exposure to atrazine may cause an increased respiratory rate and lung congestion.[35]

Fungicides: A number of different fungicides have been shown to cause cases of occupational asthma among workers, including the fungicides chlorothalonil, fluazinam, and captafol. The fungicides caused hypersensitivity responses in the workers, causing their airways to be highly sensitive and reactive to the inhaled fungicides, resulting in wheezing and breathlessness.[36]

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Legislative Update:

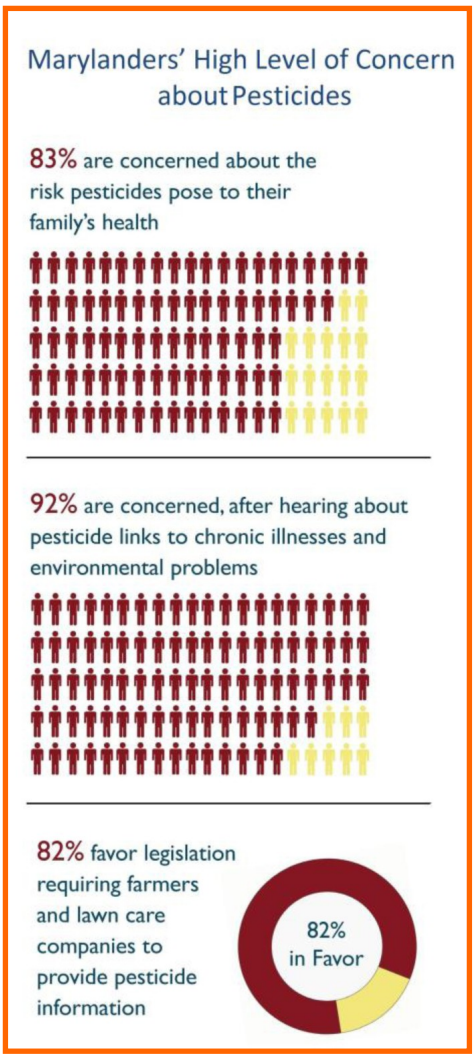
NEED FOR A PESTICIDE-USE DATABASE TO ASSESS PUBLIC HEALTH IMPACTS CONFIRMED

Maryland needs to pass a Mandatory Pesticide Use Reporting bill in 2014!

The Pesticide Reporting and Information Workgroup law, passed in 2013, established a stakeholder work group to assess the need for a pesticide use-reporting database and the best format for a database to assist public health and environmental researchers assess possible links of certain pesticides to impacts on human health, our waterways and honeybees.

Without a comprehensive database, our experts cannot track possible links to for example, cancer or asthma clusters, intersex fish in the Bay, or to the alarming 50% death rate of Maryland's beehives this past year. The state-legislated workgroup began meeting monthly in July and has confirmed that pesticide use data gaps exist.

Over the past five months, federal and state government scientists, public health experts and beekeepers have told the workgroup that a comprehensive, **mandatory** pesticide-reporting database is needed to provide the much-needed information about how pesticides affect public health and our environment. The work group will provide a preliminary report of their findings and recommendations to the legislature by December 31, 2013.



HOW YOU CAN HELP:

Tell Governor O'Malley that we need basic information on commercial pesticide use in order to protect our health, clean waters and honeybees. Tell him you're counting on him to stand up for Maryland's most vulnerable citizens.

In the 2013 Maryland legislative session, one hundred and forty health care providers and health care facility managers signed on to a letter in support the Pesticide Reporting and Information Act that was amended and passed to create the current Pesticide Reporting and Information Workgroup. The original Pesticide Reporting and Information Act was supported by health care related organizations including MedChi, MD Nurses Association, the Academy of Pediatrics–MD, the MD Public Health Association, and Chesapeake Physicians for Social Responsibility.

ONCE AGAIN THE HEALTH CARE INDUSTRY'S VOICE NEEDS TO BE HEARD AT THIS CRITICAL MOMENT!

Very powerful agriculture industry lobbyists and chemical industry representatives are fighting any kind of mandatory pesticide use reporting by applicators in agriculture, lawn care and pest control industries.

Please contact Governor O'Malley today and ask him to support this much-needed database
Go to http://www.mdpestnet.org/take-action/ to add your voice to this important public health campaign.

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SAVE THE DATE:

Maryland Health Care Sustainability Leadership Council meeting and IPM in Health Care Facilities Project Award Presentation

Date: December 12, 2013

Time: 8:00am—10:00am

Location: 6820 Deerpath Road, Elkridge, Maryland

The event, hosted by Maryland Health Care Sustainability Leadership Council, will feature Delegate Morhaim (District 20—Montgomery) and Delegate Hucker (District 11—Baltimore County). The Delegates will discuss how hospitals can play an effective role in supporting sound policy on sustainability and healthcare.

During the meeting, the IPM in Health Care Facilities Project will present its fourth annual Sustainable Pest Management Award to a Maryland health care facility for its adoption of pest management practices that focus on preventive practices that eliminate the need for pesticides, protecting the health of patients, staff, and the environment.

Past recipients of the award: Springfield Hospital Center in 2010; Johns Hopkins Bayview in 2011, and University of Maryland Medical Center in 2012.

This meeting is free but for hospitals and health care providers only.

To register, please contact Charlotte Wallace, Chair of the HCSLC, at cwallace@aahs.org.

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