

Clearing the Air



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The month of May marks peak season for asthma and allergies. Coincidentally, May is also Asthma and Allergy Awareness and Clean Air month. Seems a perfect match, don't you agree? Air quality plays a menacing role in the manifestation of asthma and allergies. Let's take a closer look at that synergy of poor air quality and respiratory sequelae and discuss approaches to mitigate these problems.

Clean air has a natural balance of gases (ie, oxygen, nitrogen, carbon dioxide) and does not contain pollutants or allergens.¹ The Environmental Protection Agency (EPA), whose mission is to protect human health and the environment, identifies six common air pollutants: particulate matter (eg, dust, dirt, soot, smoke), photochemical oxidants (including ozone), carbon monoxide, sulfur dioxide, nitrogen dioxide, and lead.² The EPA has five goals in their strategic plan, the first of which is "Addressing Climate Change and Improving Air Quality."³ The agency is working with a multitude of stakeholders to achieve its mission of reducing air pollution. One major way we can contribute to this goal is to use public transportation, walk, or ride a bike instead of driving a car.

As we know, pollutants have detrimental consequences not only on air quality, but the environment as a whole. Pollutants infiltrate our lakes and rivers and can also damage plants and trees. Recall from your early science classes the role that plants and trees have as natural air cleaners—scrubbers, if you will. They rid the air of carbon dioxide and can also remove formaldehyde, benzene, and a host of other toxins. Trees can eradicate gaseous pollutants and airborne particles.⁴ But these natural air scrubbers are slowly being destroyed by the overwhelming amount of pollutants—and our short- and long-term health will ultimately pay the price. These pollutants contribute to the risk for cardiovascular and respiratory diseases, primarily asthma.⁵

Surveillance data show the deadly, disruptive, and costly impact asthma has on the nation.⁶ Asthma is a serious, potentially life-threatening chronic respiratory disease that affects quality of life in more than 24 million Americans, including an estimated six million children.⁷ Moreover, it is one of the most common diseases associated with poor air quality. Environmental asthma triggers include pollen, chemicals, extreme weather changes, and smoke. Educating patients with asthma on how to avoid these triggers will help them manage their disease and lessen the disruption it can cause. Additionally, a concerted effort to minimize our contribution to air pollution will assist in reducing the incidence of asthma caused by external factors.

Creating an "asthma-friendly environment" is recommended by the American Lung Association. Some might view this as a major undertaking, but simple steps such as avoiding use of aerosol products, changing the air filter in HVAC units, and dusting and vacuuming the house frequently are low-cost, effective approaches to clean the air. Avoiding perfumes and perfumed products is another way to reduce indoor triggers.

In addition to trigger avoidance, proper management of asthma is essential. Vigilance in screening for early indicators of asthma and prompt initiation of treatment



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can decrease or eliminate the development of long-term consequences, such as COPD and asthma-COPD overlap syndrome.⁸

Allergies, which affect more than 50 million people in the US, can also result from poor air quality.⁹ In some cases, allergies are food-based and therefore fairly easy to evade. But others are induced by pollen, pet dander, and other air-based allergens. How

► In order for a house to be allergen-free, it should also be plant-free, right? Not at all!

do we manage these pesky allergens so we can breathe easy? While the field of allergy research continues to grow, we rely heavily on allergen-specific immunotherapy as a potentially curative treatment. But at times, we narrow our sights too closely on treatment and forget to emphasize the importance of prevention. Again, avoidance is key. The same approaches used to prevent asthma can be also applied to allergens.

In order for a house to be allergen-free, it should also be plant-free, right? Contrary to popular belief, this is not the case! Not all plants are problematic. A houseplant can remove formaldehyde, benzene, and a multitude of other toxins that typically reside in indoor air. Plants such as areca palm, pothos (known as *Mother-in-Law's Tongue*), and the Money Plant have been shown to improve air quality.¹⁰ Additionally, decreasing or eliminating the use of room deodorizers and other allergen-containing products can reduce flare-ups. More and more frequently, we see notices in offices and at

conferences to avoid the use of perfumes; this is an effective measure for the safety and comfort of those with allergies.

Alas, outdoor allergens are a bit more difficult to manage. Airborne allergens exist in such high quantities that they are nearly impossible to elude when in season.¹¹ Keeping windows closed, wiping down surfaces where pollen and dust collects, and avoiding flowering plants can help reduce contact with allergens.

Lowering the incidence of air pollution and the symptoms of allergies and asthma can improve quality of life. By implementing these approaches to contribute to cleaner air and reduce triggers, we can help our patients and ourselves. **CR**

REFERENCES

1. Clean air month 2017. www.whatthehealth.com/awareness/event/cleanairmonth.html. Accessed April 4, 2017.
2. United States Environmental Protection Agency (EPA). Particulate matter (PM) pollution. www.epa.gov/pm-pollution. Accessed April 19, 2017.
3. United States Environmental Protection Agency (EPA). EPA strategic plan. www.epa.gov/planandbudget/strategicplan. Accessed April 4, 2017.
4. Downing A. Air: what's a tree got to do with it? www.ecology.com/2011/09/02/air-and-trees. Accessed April 4, 2017.
5. World Health Organization. Ambient (outdoor) air quality and health. www.who.int/mediacentre/factsheets/fs313/en. Accessed April 4, 2017.
6. CDC. Asthma's impact on the nation. www.cdc.gov/asthma/impacts_nation/default.htm. Accessed April 4, 2017.
7. CDC. Asthma. www.cdc.gov/asthma/default.htm. Accessed April 4, 2017.
8. Bui DS, Burgess JA, Lowe AJ, et al. Childhood lung function predicts adult COPD and asthma-COPD overlap syndrome (ACOS). *Am J Respir Crit Care Med*. 2017 Feb 1. [Epub ahead of print]
9. Doheny K. Living with severe allergies. www.webmd.com/allergies/features/severe-allergies#1. Accessed April 4, 2017.
10. Gromicko N, Tarasenko K. Plants and indoor air quality. www.nachi.org/plants-indoor-air-quality.htm. Accessed April 4, 2017.
11. Asthma and Allergy Foundation of America. Fight the cause of allergy. <http://fightthecauseofallergy.org/page/fight>. Accessed April 4, 2017.