ASTHMA ON THE RISE
By Martin Espinoza (Sonoma County report looks at ER visits by young patients)
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A recent report from the Sonoma County Asthma Coalition found children 4 and under had the highest rate of asthma-related visits to local emergency rooms and hospitals, 114.6 visits per 10,000 residents in 2006.

AVOIDING PROBLEMS – Tips for protecting asthma sufferers:

1) Do not allow smoking in the home or car.
2) For dust, vacuum weekly with a high efficiency filter or central vacuum. Make sure people with asthma are not home when vacuuming.
3) Remove carpet if possible. Wet before removing and then dry floor completely.
4) Wash bedding and stuffed toys in hot water every one to two weeks.
5) Store food in airtight containers, and don’t leave pet food or garbage out uncovered where it can attract pests such as cockroaches. Their droppings and body parts are potential asthma triggers.
6) To battle mold, use exhaust fans or open windows for cross ventilation when showering or cooking.
7) Clean mold off hard surfaces with 10 percent bleach, then water and detergent and dry completely. Absorbent materials with mold may need to be replaced.
8) Fix leaky plumbing or other sources of water or moisture.
9) Consider not having pets. Keep pets out of your child’s bedroom.
10) Avoid using strongly scented products, such as home deodorizers and incense, laundry products and perfumed personal care products.

Source: Sonoma County Asthma Coalition

Healdsburg mom Cheryl Cobb said her son Jesse’s first respiratory attack was two years ago, when the then 2-year-old boy suddenly started rocking back and forth and grunting.

“He was having an asthma attack, and we didn’t even know,” Cobb said, reflecting on the mystery that often shrouds the disease and the frustration that results.

“As a parent, you worry so much about choking, and here he was choking on nothing,” she said.

Accounts such as these have become all too commonplace in Sonoma County, which has seen a rapid increase in the number of asthma diagnoses in recent years. Though there’s no cure, asthma can be managed and controlled with proper treatment.
But for parents of infants and young children, the first steps toward diagnosis and treatment can be gut-wrenching and frightening.

A recent report from the Sonoma County Asthma Coalition found that children 4 and under had the highest rate of asthma-related visits to local emergency rooms and hospitals, 114.6 visits per 10,000 residents in 2006, the most recent data available.

That’s more than double the rate for Sonoma County children 5-17, 45.6 per 10,000. The coalition’s report marks the first time local asthma advocates have analyzed state data on local asthma-related emergency room visits.

Statewide, the rate of asthma-related ER visits for children 4 and under was 103.1 per 10,000 residents, and 55.2 per 10,000 for children 5-17.

According to the American Lung Association, asthma is the leading serious chronic illness of children in the United States. Almost 1.4 million under age 5 and 6.5 million children under age 18 had asthma in 2005.

Asthma is a condition in which the airways occasionally constrict, become inflamed and lined with excessive amounts of mucus, making breathing difficult. Attacks are often in response to one or more triggers.

For many children, the illness is undiagnosed.

“Sixty percent of asthma cases begin at (a young) age,” said Dr. Michael Martin, an asthma and allergy specialist in Santa Rosa.

“During the first episode, families are often not prepared to deal with it,” he said.

In Sonoma County, more than one in five children 5 to 17 have been diagnosed with asthma. That’s an alarming statistic to older adults who can scarcely remember the one or two kids in grade school who carried an inhaler in their book bags.

The asthma coalition’s report, released this spring, found that the highest rates of ER and hospital visits among children 5 to 17 (77.9 per 10,000 residents) were found in the west county, “a region with high mold counts and more poverty than other areas in the county.”

The next highest rates were found in the Cotati-Rohnert Park area, where 54.1 hospital and ER visits per 10,000 residents were logged for 2006. Santa Rosa had a rate of 49.5 per 10,000.

Shan Magnuson, asthma project director for the Sonoma County Asthma Coalition, said it’s unclear why Rohnert Park and Cotati had such higher rates and that the findings are likely to spark new lines of inquiry for local asthma advocates and environmental officials.

“These emergency room rate findings are important for us as a county to know because it helps us direct the necessary resources to do our work,” Magnuson said.

Martin said several theories have been proposed to explain the dramatic increase in childhood asthma diagnoses, including the increased exposure to air pollutants, as well as an increased exposure to allergens — such as animal dander and house dust mites — due to living in more hermetically sealed homes.

He said one theory, the hygiene hypothesis, contends that people are living in increasingly sterile environments, and that their immune systems are not being challenged by common infectious organisms.
“Each of the theories has sound support, but they don’t explain all the situations,” Martin said. “It’s probably a combination of those.”

Local advocates say that in Sonoma County asthmatic triggers include high levels of pollen, molds and fungus, wood-burning stoves, fireplaces, agricultural burning and pesticides.

And in a high-danger fire season like the one the region is currently experiencing, children with asthma are at particular risk of respiratory problems. “A lot of parents I’ve talked to were keeping their kids indoors” these past couple weeks, Martin said.

A lot more research has been done on the relationship between outdoor air quality and asthma than on the asthmatic effects of indoor air quality, Magnuson noted.

Aside from the obvious culprits of mold and second-hand smoke, another source of indoor air pollutants comes from household products that “off-gas,” emitting volatile organic compounds, or VOCs, chemicals that evaporate easily at room temperature.

Products that off-gasinclude new carpeting, glues, paints, varnishes, fire retardants and plastics.

“We know that children are so vulnerable to these exposures, and if parents do not know what exposures exist, they can’t create a condition that will minimize that hazard,” said Sonoma County Environmental Health Director Walt Kruse.

Kruse said his department is trying to educate county code enforcement agents on what to look for when they enter people’s homes.

“We’re increasing our own knowledge base and capacity to assist enforcement agencies and others who enter homes,” Kruse said.

Kruse and others say much of the local awareness around asthma issues is a result of the work of the Sonoma County Asthma Coalition, which was formed in 2002 with the help of the Redwood Empire branch of the American Lung Association of California.

In Rohnert Park, the coalition is working with the city building department to educate and encourage homeowners and landlords to use "environmentally preferable" products when remodeling their properties. The information is disseminated to Rohnert Park residents and business owners through a single-sheet handout that’s being sent out with utility bills and new business licenses and renewals.

The city’s Green Building Ordinance, adopted in 2007, requires residential additions that are 500 square feet or more to satisfy at least one item on a green building checklist.

“In a kitchen remodel for instance, where paint and flooring is involved, they could use no VOC paints. That would take care of the requirement,” said Sonia Espino, community development assistant for the Rohnert Park Building Department.

Another option, she said, might be to choose bamboo or linoleum flooring over hardwood flooring, because “there are a lot of chemicals that get into the wood when it’s processed.”

Asthma advocates said more municipal and county policies such as these are needed to reduce the number of children who are being taken to emergency rooms because they cannot breathe.

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"Public Health and Aircraft Emissions":

"Ultimately, EPA's principal concern in evaluating and controlling (jet fuel) emissions is the preservation of human health and, secondarily, the protection of public welfare (including protection against damage to crops, vegetation, animals, and buildings)...In particular, they have significant concerns regarding the effect of NOx on local and regional environments. Tropospheric NOx has multiple environmental quality impacts...contributing to ground-level O3 and PM, but also air toxic concentrations, excess nitrogen loads to sensitive water bodies, and acidification of sensitive ecosystems (EPA 1997a)." (PM = Particulate Matter)

"Table 1.1 Representative health effects of air pollutants.” Jet Emission Pollutants:

'Ozone - Lung function impairment, effects on exercise performance, increased airway responsiveness, increased susceptibility to respiratory infection, increased hospital admissions and emergency room visits, and pulmonary inflammation, lung structure damage. (Examples of these effects are chronic inflammation and structural damage to lung tissue and accelerated decline in baseline lung function.)"

“Carbon Monoxide - Cardiovascular effects, especially in those persons with heart conditions...Similar health effects on animals as on humans.”

“Nitrogen Oxides - Lung irritation and lower resistance to respiratory infections. Premature mortality, aggravation of respiratory and cardiovascular disease, changes in lung function and increased respiratory symptoms, changes to lung tissues and structure, and altered respiratory defense mechanisms...” (Asthmatics are especially sensitive.)

“Volatile Organic Compounds - Eye and respiratory tract irritation, headaches, dizziness, visual disorders, and memory impairment.”

"Table 1.2 Representative Environmental Effects:

Ozone - Crop damage, damage to trees and decreased resistance to disease for both crops and other plants. (Ground-level ozone interferes with the ability of plants to produce and store food so that growth, reproduction and overall plant health are compromised. By weakening trees and other plants, ozone can make plants more susceptible to disease, insect attacks, and harsh weather...Ground level ozone can also kill or damage leaves so that they fall off the plants too soon or become spotted and brown...”)

“Nitrogen Oxides - Acid rain, visibility degradation, particle formation, contribution towards ozone formation. NO2 is an important precursor to both ozone and acidic precipitation, which harms both terrestrial and aquatic ecosystems...NOx also plays a role in the formation of acid rain. Acid rain causes surface water acidification and damages trees...NOx contributes to the formation of particles in the atmosphere, with the resulting health and visibility effects...)”

“Particulate Matter - Visibility degradation and...safety effects for aircraft from reduced visibility. (PM is the generic term for a broad class of chemically and physically diverse substances that exist as discrete particles...over a wide range of sizes...PM may either be emitted directly or formed in the atmosphere by the transformations of gaseous emissions of compounds including NOx, VOCs, and sulfur oxides SOx...In addition to the evidence found for health effects associated with aggravation of asthma and increased respiratory
illness, and that they may be chronic health effects associated with long-term exposure to high concentrations of coarse particles (FR, July 18, 1997)"

"...the nature of the effects that have been reported to be associated with ambient PM, including premature mortality, aggravation of respiratory and cardiovascular disease...change in lung function and increased respiratory symptoms, changes to lung tissues and structure, and altered respiratory defense mechanisms; and sensitive sub-populations that appear to be at greater risk to such effects, specifically individuals with respiratory disease, cardiovascular disease and the elderly...children, asthmatic children and adults..."

“Volatile Organic Compounds - Contribution towards ozone formation, odors, and some direct effect on buildings and plants." (...They can arise from evaporation or incomplete fuel combustion. As a class, VOCs react with NOx in the atmosphere to form ozone, but individual VOCs may have additional health effects. Some VOCs have little or no known direct health effect, while other VOCs, such as benzene, are carcinogens...Eye and respiratory tract irritation, headaches, dizziness, visual disorders, and memory impairment are among the immediate symptoms that some people have experienced soon after exposure to some organics...At high levels, VOCs can have a damaging effect on plants...VOCs that contain chlorine can also contribute to stratospheric ozone depletion.)"

Intergovernmental Panel on Climate Change - IPCC Special Report - Aviation and the Global Atmosphere - Summary for Policymakers – 1999:

"2. How Do Aircraft Affect Climate and Ozone? Aircraft emit gases and particles directly into the upper troposphere and lower stratosphere where they have an impact on atmospheric composition. These gases and particles...trigger formation of condensation trails (contrails)...

"4.6 Cirrus Clouds. Extensive cirrus clouds have been observed to develop after the formation of persistent contrails. Increases in cirrus cloud cover (beyond those identified as line-shaped contrails) are found to be positively correlated with aircraft emissions..."

*Note: The full report is available online at: http://www.epa.gov/oms/regs/nonroad/aviation/r99013.pdf or on the EPA Website.

ADDITIONAL QUESTIONS

1. If JP-4 or JP-8 Jet Fuel consists of a complex mixture of hydrocarbons, including poly aromatic hydrocarbons (PAHs), naphthalene and benzene (a known carcinogen), how will increasing jet fuel emissions impact public health?

2. When will our elected officials direct our local air pollution districts to start testing our air for barium (salts), aluminum (oxides), perchlorate, cadmium, manganese, magnesium, lead, iron, tungsten, and carcinogenic poly aromatic hydrocarbons like naphthalene and benzene?

3. Are fine particles of aluminum oxide and other highly refractive metals being released by jets over our state along with aluminum coated fiberglass (Chaff)?