



Community & Hospital Letter

Volume 27, Issue 6 January 2007

Prevalence of Asthma

The word asthma comes from the Greek, *aazein*, which translates as “to breathe with open mouth or to pant”. It first appeared in Homer’s *Iliad* meaning short of breath, and probably was first used in a medical sense by Hippocrates. Today the general consensus that is emerging is that asthma is unlikely to be a single disease entity, but rather a clinical manifestation of several distinct diseases. Therefore, it has been proposed that the term asthma should be abolished altogether (*Lancet* 2006;368:705).

Asthma is a chronic lung condition. It is characterized by difficulty in breathing. For the United States, there are three different asthma prevalence estimates: current asthma prevalence (7.7% in 2005); asthma attack prevalence (4.2% in 2005), and lifetime asthma diagnosis (11.2%) (www.cdc.gov/nchs). Both the current asthma prevalence and the asthma attack prevalence rates decrease with age.

Nationally, the current asthma prevalence rate for children (0-17 y old) is 8.9%, with the prevalence in boys (10%) higher than that in girls (7.8%). Overall, however, the rate among females is 40% higher than for males. American Indians, Alaskan Natives, and blacks have prevalence rates about 25% higher than whites. And, similarly, for asthma attack prevalence children have a higher rate than adults (5.2% vs 3.9%), boys have a higher rate than girls (5.9% vs 4.5%), overall women have a 50% higher prevalence than men, and American Indians and Alaskan Natives have a 40% higher prevalence than whites. For lifetime asthma diagnosis, blacks were 20% more likely to have been diagnosed than whites, females 20% more likely than males, except among children, among whom males (14.6%) had a higher prevalence than females (10.6%).



A 2004 telephone survey commissioned by the Kansas City Health Department found a 12.5% prevalence rate for asthma among

respondents. Earlier estimates of the prevalence of asthma in the Kansas City metropolitan area were compiled by American Lung Association (ALA) for 1996. The ALA estimated there were 34,743 adults and 14,195 adolescents and children (<18 y of age) with asthma in Clay, Jackson, and Platte counties. There were 15 asthma related deaths that year, 14 in Jackson County and 1 in Clay County. Of those persons with asthma, approximately 24,300 individuals lived in Kansas City (15,900 adult and 8,400 adolescents and children).

About 60% of persons with asthma suffer from allergic asthma. For these individuals, Kansas City is not the worst environment, but it is far from the best. Rankings of metropolitan areas across the nation for 2006 by the Asthma and Allergy Foundation of America place Kansas City as the 25th leading “US Spring Allergy Capital” out of 100 communities with a rating of worst than average (www.aafa.org). Kansas City was 37th in the 2004 ranking. In 2006, St Louis City ranked 33rd, compared to 10th in 2005. When the Asthma and Allergy Foundation of America ranked communities for asthma, however, in 2006 Kansas City was the 56th leading “US Asthma Capital” out of 100 communities with a rating of average. Kansas City was 52nd in 2005. St Louis City ranked 6th in 2005 and 9th in 2006.

Nationally, in 2003, 4,055 people died from asthma, or 1.4 persons per 100,000 population. Among children, asthma deaths are rare (195 in 2003) and the fatality rate is well below that for adults, 0.3 per 100,000 children vs 1.4 deaths per 100,000 adults. For the period 2000-2004, the death rate in Missouri from asthma was 1.4 per 100,000, while in Kansas City the rate was 1.9 compared to 3.4 in St Louis City. Nationally, non-Hispanic blacks have an asthma fatality rate 200% higher than non-Hispanic whites and the death rate for females is 45% higher than that of males. Of the 40 asthma deaths between 2000-2004 in Kansas City, 25 were among blacks

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and 14 among whites.

Among children, blacks are more likely to experience emergency department visits for asthma than whites (*Pediatrics* 2006;117:e868-e877). Initiation of maintenance anti-inflammatory medication in asthmatic children seen in emergency departments has been shown to be beneficial in getting the children into routine maintenance of their asthma (*Pediatrics* 2006;118:2394-2401).

In Kansas City, emergency department visits and hospital admissions for asthma peak in May and October.

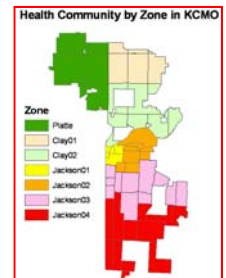
Asthma was the 3rd leading cause of visits to Kansas City emergency departments in 2003, with 4,424 visits. Among blacks and Hispanics it was the 3rd leading cause, but it was only the 5th leading cause for whites. This racial and ethnic disparity was consistent with the national data. It was the 8th overall cause of hospitalization that

New on Health Department Website

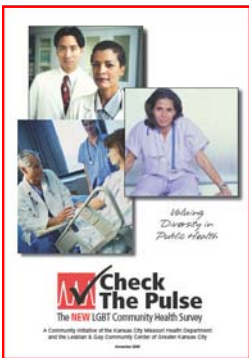
The Office of Epidemiology & Community Health Monitoring has posted two new reports on the Health Department's website (www.kcmo.org/health).

grams within the Kansas City Health Department. It is only available from the website.

The Health Zone report was updated utilizing 2005 data. Initiated in 2005, the Health Zone report divides the City into 7 zones and provides selected measures for 20 health indicators for each zone and for the City overall. The zones are defined by zip codes and each zone was established based on a variety of community parameters. The reports for the zones are not meant for comparative purposes between the different areas of the City, but were intended to provide residents of each zone with information about their area and how their health zone compared to city-



THE PULSE 2006 is a community health assessment report on the lesbian, gay, bisexual, and transgendered (LGBT) community in the Kansas City metropolitan area. It is the 2nd report on this community; the 1st one was released in 2004. The assessment was a collaborative process involving the LGBT community, the Lesbian and Gay Community Center of Greater Kansas City, and various pro-



Bacteria in the Air

For four years, the Department of Homeland Security has funded the BioWatch Program. This is a system of air monitoring devices in more than 30 urban areas to detect the release of pathogens into the air in order to provide warning to the government and public health community of a potential bioterrorism event. In Missouri, St Louis is a BioWatch community, but not Kansas City.

bioterrorism attacks. Although tularemia can be transmitted in the air to people, the detection of it above BioWatch cities was not associated with human cases of the disease.

Since the inception of BioWatch, cities such as Houston, Washington, and St Louis have reported, on occasion, the presence of "*Francisella tularensis*" or tularemia the air. But the interpretation of these findings has been that the findings were false positives and that there had been no

These findings, however, have led to more expansive testing of the air above San Antonio and Austin, TX (*Proc Natl Acad Sci* 2006; 10.1073/pnas.0608255104). Using a novel microarray known as the PhyloChip, researchers have demonstrated the presence of some 1,800 different bacterial species, including relatives of some bioterrorism pathogens. The composition of the species varied with meteorological conditions. Included in the mix, were *F*

tularensis and *Bacillus anthracis*, two potential bioterrorism agents. Given the technique used in the PhyloChip, even these impressive bacterial counts, however,

may represent a gross underestimate of the number of bacterial species found in the air.

New Blood Lead Screening Recommendations

Blood lead levels in children in the US have declined dramatically over the past 20 years. However, there are segments of the population that remain at increased for elevated blood lead levels. Even relatively low blood lead levels are associated with neurotoxic effects in children.

During 2005, the Kansas City Health Department screened 5,142 children <6 y of age for elevated blood levels and 3.6% had elevated levels.

In 1996, the US Preventive Services Task Force (USPSTF) provided recommendations for routine screening of asymptomatic children and pregnant women for elevated

blood lead levels. Since that time, however, no persuasive evidence has been forthcoming that screening asymptomatic children will improve clinical outcomes (*Pediatrics* 2006;118:e1867-e1895). A recently released interim report by USPSTF concludes that the evidence is insufficient to recommend for or against routine screening in asymptomatic children 1-5 years old who are at increased risk for elevated blood lead levels, and recommends against screening those asymptomatic children who are at average risk (*Pediatrics* 2006; 118:2514-2518). The USPSTF also is now recommending against routine screening of asymptomatic pregnant women.

Polio Eradication

The eradication of poliovirus 1 and 3 has been stalled in a few countries – India, Nigeria, Pakistan, and Afghanistan, although occasional cases crop up elsewhere. The last case of type 2 polio anywhere in the world was in 1999.

In northern India, the oral polio vaccine is significantly less effective than it is elsewhere with each dose reducing a child's chance of getting infection by only 9%, compared with 21% elsewhere in India, and 65% in the developed world (*Science* 2006;314:1150-1153).

In India, children in the northern states of Uttar Pradesh and Bihar are still being paralyzed by type 1 polio despite receiving up to 15 doses of oral polio vaccine, compared to 10 doses for the rest of India and 3 doses in developed countries. It appears that diarrhea and other competing intestinal viruses, which are particularly common in the two northern states, cause each dose of polio virus to be significantly less effective than it should be. And, this does not even take into account competition between the three polio viruses in the oral vaccine.

To improve efficacy of vaccination, children in Bihar last year started to receive only a monovalent oral polio virus

containing just the type 1 virus. Preliminary evidence suggests that this vaccine is at least 3 times as effective as the trivalent vaccine and new cases of polio have been declining.

As a result of these findings, children in Uttar Pradesh will begin receiving the monovalent vaccine. Also, for those few areas where type 3 polio persists, children will receive a monovalent vaccine containing that strain.

The World Health Organization's Global Polio Eradication Initiative hopes to eradicate type 1 polio from India during the first 6 months of 2007 and then turn its attention to the eradication of type 3 polio virus. Within 24 months, it hoped that all polio will have been eradicated in India.

Working against the eradication initiative are Muslim activists who are targeting communities with pamphlets claiming that polio vaccine causes sterility or cancer. However, anyone from India wishing to travel to Saudi Arabia, including for the Hajj pilgrimage, must be vaccinated before arriving in Saudi Arabia and will receive a trivalent booster dose upon arrival.

Potpourri

RATES OF *Salmonella* infection are highest in infants, but little is known about the potential sources of infection. A recent case control study of sporadic *Salmonella* infections in infants found that infected infants were less likely to have been breastfed and more likely to have exposure to reptiles, to have ridden in a shopping cart next to meat or poultry, or to have consumed concentrated liquid infant formula during the 5-day exposure period (*Pediatrics* 2006;118:2380-2387). Travel outside the US was associated with illness in infants 3+ months of age and attending day care with a child with diarrhea was associated with salmonellosis in infants >6 months old.

SWORD SWALLOWERS run a higher risk of injury when they are distracted or adding embellishments, such as swallowing multiple swords, to their performance, or when previous injury is present (*Brit Med J* 2006;333:1285-1287). Perforations mainly involve the esophagus and usually have a good prognosis; injured performers have a better prognosis than patients who suffer iatrogenic perforation. Sore throats are common, particularly while the skill is being learned or when performances are too frequent. Major gastrointestinal bleeding sometimes occurs, and occasional chest pains tend to be treated without medical advice.

WHEN BREEDING is in its full swing in summer, song sparrows will ignore bacterial infections and continue to fend off territorial invaders as well as keeping up a constant weight. In winter, however, sick sparrows eat less and burn fat reserves to fight off the disease, while paying little attention to defending their territory. These observations are the first documentation of seasonal "sickness behavior" in free-living wild animals (*J Exper Biol* 2006;209:3062-3070).

AMOEBAS LIVING IN cooling towers are about 16 times as likely to host bacteria as those in ponds and lakes (*Environ Sci Technol* 2006;40:7440-7444). This

finding suggests that cooling towers could be evolutionary hotspots for new respiratory diseases. Many species of bacteria, including *Legionella pneumophila*, are thought to have evolved in association with an amoebic host. The warm, wet conditions found in cooling towers make them a perfect spot for amoebas and bacteria to thrive, increasing the chances of new strains of pathogenic bacteria emerging.

Genetic tests conducted at Texas A&M University have identified several unknown strains of bacteria, including some that were similar to *L pneumophila*. And, since aerosols from cooling towers have been associated with outbreaks of *L pneumophila* pneumonias, possibly cooling towers should be monitored for emerging respiratory pathogens.

DEVELOPMENT OF community-based quarantine protocols that consider the role of domestic animals in transmission of disease remains a gap in current preparedness planning activities (*Emerg Infect Dis* 2006;12:1029-1030). The potential role of household pets, however, should be considered. This would include evaluating the susceptibility of pets of various species to clinical disease and subclinical infection and assessing the possibility of bidirectional disease transmission between the animals and humans. Community quarantine measures need to include whether pets should be quarantined, what types of unprotected human-animal contact should be allowed, what types of outdoor access by pets should be allowed (if any), what infection control measures should be implemented in the household to decrease the risk of pathogen transmission, how pet fecal material should be handled in the household, outdoors and in community settings, and what measures should be taken when and if veterinary care is required.

Sixty-three percent of households own a pet and 45% of households own multiple pets. Excluding fish, cats are the most common pet followed by dogs, small animals, birds, and reptiles.

Healthy People, Healthy Communities

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