A Review of Adult Asthma Morbidity and Mortality Louisiana, 2006-2010

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Asthma, an obstructive lung disorder characterized by wheezing and shortness of breath, is commonly caused or exacerbated by exposure to airborne allergens. In the U.S., at least 18.7 million adults currently have asthma. Allergens or asthmagens include particulates, chemicals or biological agents. As people become sensitized to asthmagens, they may develop asthma or exacerbate pre-existing asthma. An estimated 10 to 20 percent of new-onset adult asthma cases and 40 percent of pre-existing asthma episodes may be attributed to workplace exposures, designating asthma as the most prevalent, yet preventable, work-related disease. Common work-related asthmagens include: environmental tobacco smoke, wood dusts, natural rubber latex, fungi, chemicals, cleaning agents, fumes and animal by-products.

Approximately 11 million workers are regularly exposed to at least one asthmagen. Industries where asthmagens are prevalent nationally, and in Louisiana, include: refineries, chemical and petrochemical production, construction, bakeries and restaurants, agriculture, beauty care (hair and nail salons), fishing, mining and janitorial services. The Louisiana Asthma Callback Survey 2009-2010, a component of the Behavioral Risk Factor Surveillance Survey, found that 211 of 501 Louisiana participants reported that their asthma was exacerbated or related to work. It is difficult to distinguish work-related asthma (WRA) from non-WRA, but typically symptoms associated with WRA worsen during the workweek and may be alleviated during the weekend.

Methods:

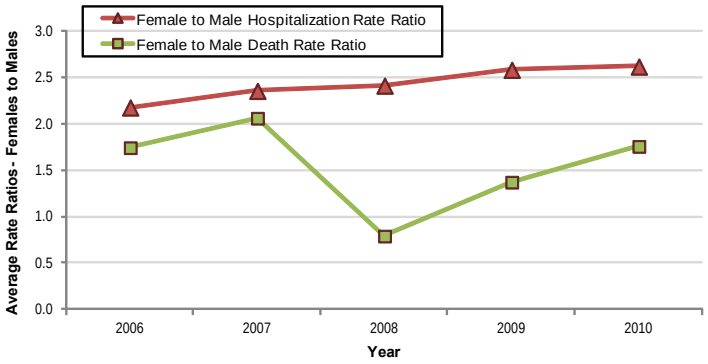
Asthma hospitalization data from 2006 to 2010 were extracted retrospectively from the Louisiana Hospital Inpatient Discharge Data (LAHIDD), and were limited to Louisiana residents aged 15 years and older with a primary diagnosis of asthma (International Classification of Diseases, 9th revision, Code 493). Data were stratified by: 1) 10-year age groups; 2) race - African-American/Black and Caucasian/White; 3) sex; 4) parish of residence. Mortality data were included for the period from 2006 to 2010 from the Louisiana Department of Health and Hospitals (DHH) Vital Records death file. Records were selected for primary Cause of Death (ICD-10) asthma code (J459). Two-sample t tests for sex and race were conducted with SPSS. Statistical significance was set at $p < .05$.

Results/Discussion:

In Louisiana, average annual age-adjusted asthma morbidity and mortality counts were 3,609 hospitalizations and 34 deaths. The age-adjusted rates per 100,000 were 103 hospitalizations and 1.0 mortality compared with national rates of 137 and 1.4, respectively. Hospitalization rates fluctuated slightly for the five-year period, with a peak rate of 111 hospitalizations in 2009. Age-adjusted death rates per 100,000 Louisiana residents predictably increased with age. Age groups 45-years and older had the highest hospitalization (185) and death (3) rates.

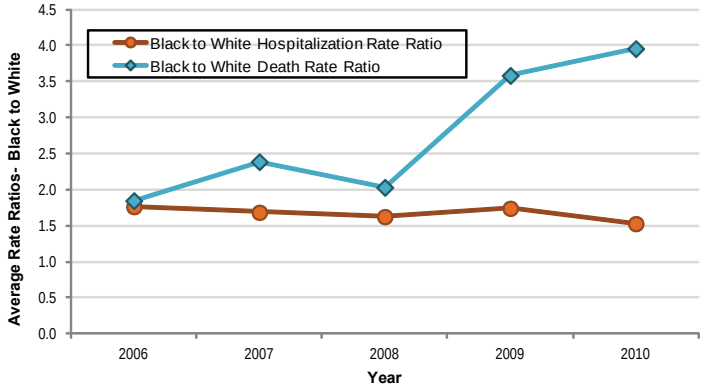
Females were hospitalized for asthma twice as often as males, with a slight increase in rates during 2009 and 2010. Females also died from asthma more often than males, with the exception of 2008, when males had asthma listed as the primary cause of death 1.2 times as often. Sex-specific hospitalization rates were significantly different, but the death rates were not (Figure 1).

Figure 1: Asthma Morbidity and Mortality Sex Rate Ratios - Females to Males – Louisiana, 2006-2010



In Louisiana, age-adjusted race hospitalization and death rates were significantly higher among Blacks than Whites throughout the five-year period. Although the asthma-related death rates for both races declined in 2008, the sudden spike in the death rate ratio was because of a sharper decline in White deaths (by half from 2008 to 2009) compared to Blacks (Figure 2).

Figure 2: Asthma Morbidity and Mortality Race Rate Ratios- Blacks to Whites – Louisiana, 2006-2010



Asthma varied by geography within the state. LaSalle and Concordia parishes in Department of Health and Hospitals, Office of

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(Wildlife and Agricultural ... Continued from Page 1)

- Hunters should bone out the meat and minimize handling of brain and spinal tissue. Never eat brain, spinal cord, eyes, spleen, tonsils or lymph nodes of wild game.
- Never kill or eat wild game that appears ill prior to harvest.
- Of course, all wild game should be cooked thoroughly.

Hunters should consider consulting with a medical care provider if an illness occurs, especially a febrile illness, within 30 days of processing an animal carcass for consumption. Hunters should inform the physician of contact with an animal.

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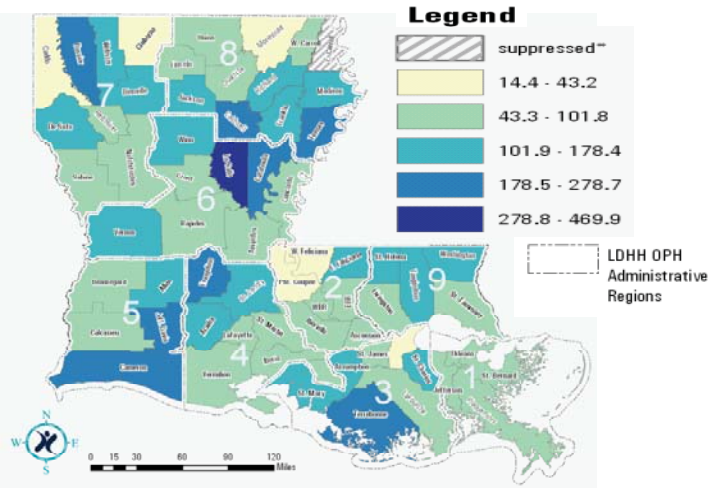
Public Health Region 6 had the highest hospitalization (470) and death (7.4) rates, respectively, per 100,000 residents. Region 6 had both the highest average annual hospitalization (189) and death (13.1) rates (Figure 3).

Figure 3: Average Annual Age-adjusted Asthma Morbidity Rate by Parish per 100,000 Population - Louisiana, 2006-2010



Note: Map prepared January 10, 2013 by the Louisiana DHH which cannot guarantee the accuracy of the information contained on this map and expressly disclaims liability for errors and omissions in its contents.

Conclusion:

Asthma hospitalization and death rates for Louisiana residents predictably increased with age. Sex and race-specific data were consistent with the Centers for Disease Control and Prevention's National Asthma Surveillance data, with females and Blacks generally having the highest hospitalization and death rates.

Based on national estimates, the work environment is an important contributor to the development and exacerbation of asthma. Work history should be routinely collected by health care providers (HCPs) as part of the demographic history. It is imperative that HCPs receive adequate training in recognizing WRA cases and obtaining a thorough environmental exposure/work history for all patients. Workers must be educated about the exposure risks for known asthmagens in the constantly evolving list of high-risk industries and occupations. Asthmatics who smoke typically have worsened and more frequent symptoms than non-smokers. Early diagnosis of potentially work-related respiratory symptoms may prevent further development of asthma and help detect those with other pre-existing health conditions who may be at risk. Early assessments would also assist in identifying more WRA cases.

The Louisiana Occupational Health and Injury Surveillance Program, housed in DHH Office of Public Health's Section of Environmental Epidemiology and Toxicology, focuses on identifying workers at high risk for occupational morbidity or mortality and providing the data to reduce occupational injuries and diseases through targeted preventive measures. This report reflects a first step in addressing the burden of work-related asthma in Louisiana. It has several limitations: inclusion of all asthma hospitalizations, not individuals; difficulty identifying work-related cases; and incomplete reporting by hospitals to LAHIDD. Approximately 80 percent of licensed, acute-care hospitals provided data to LAHIDD between 2006 and 2010. In addition, inconsistencies and errors in both coding and reporting may introduce data gaps. Such data limitations should be noted if conducting exploratory ecological studies with these data. Next steps include analyzing data by combined sex and race and co-morbidities, and partnering with the Louisiana Asthma Management and Prevention Program to identify strategies targeting occupational asthma.

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to 84 years. Fifty percent of the cases were from Region 3*, the remaining cases were from Regions 1, 4, 7 and 9. Over half of the cases were hospitalized (57%). Two cases were wound infections; the remaining 12 were gastroenteritis cases. Symptoms reported by gastroenteritis cases were diarrhea (92%), nausea (75%), abdominal cramps (75%), vomiting (58%), bloody stools (33%), and fever (33%). Over half (57%) of the cases had at least one more pathogen isolated from the same source as *V. fluvialis*. Other pathogens isolated were *Plesiomonas shigelloides* (2), *Aeromonas* (2), MRSA, Group B Streptococcus, *Proteus mirabilis, Edwardsiella, Clostridium difficile* and Algea.

Exposure information was obtained on nine of the 14 cases. Of the gastroenteritis cases with known exposure, 70 percent reported consuming raw oysters either alone or with other seafood prior to onset, and 30 percent reported consuming seafood other than oysters.

Non-cholera Vibrio is a Class C disease and should be reported to the State Health Department within five business days. In the laboratory setting, *V. fluvialis* exhibits a similar characteristic to *Aeromonas*. There is a potential to misidentify *V. fluvialis* as *Aeromonas*, or vice versa. Hospital and private laboratories are encouraged to send suspect *V. fluvialis* isolates to the DHH State Public Health Laboratory for confirmation.

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* *Map of Regions on Page 7*

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The best way to protect children is to prevent lead exposure in the first place. The source of most lead poisoning in children is dust and chips from deteriorating lead paint on interior surfaces. The U.S. Department of Housing and Urban Development, Office of Healthy Homes and Lead Hazard Control recently released an updated version of the pamphlet "Protect Your Family from Lead in Your Home". The new pamphlet is available at *http://www.hud.gov/offices/lead/library/enforcement/pyf_eng.pdf*.

Children can be exposed to lead via take-home exposure, which occurs when workers transport lead on shoes and work clothes into their homes or automobiles. Most adult exposure to lead occurs in the workplace. The Department of Health and Hospitals, Office of Public Health, Section of Environmental Epidemiology and Toxicology's Adult Lead Program, has developed several fact sheets addressing adult lead exposure. These fact sheets can be downloaded from *http://www.dhh.louisiana.gov/biomonitoring*.

To learn more about preventing lead exposure, visit CDC's Web site at *http://www.cdc.gov/nceh/lead/*.

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