Chronic Respiratory Disease in the United States

Key Facts

In the United States...
- 1 in 11 children and 1 in 12 adults have asthma
- Asthma medications have more than doubled in cost in the past decade

In Duval County, Florida...
- Asthma hospitalizations for children <5 cost $2.1 million and ER visits cost $1.4 million (2011)
- School age children have the most ER visits for asthma many of which are charged to Medicaid (68%) or uninsured (10%)
- Fewer high school students are smoking now (12.4%) than two years ago (15.4%)

Respiratory diseases are conditions that affect the respiratory tract and other structures of the lung. They can be caused by infection, chronic conditions, genetic or prenatal conditions, and/or due to environmental exposures or behaviors. This report will focus on the common chronic respiratory diseases asthma, chronic obstructive pulmonary disease (COPD), and lung cancer which are significant public health burdens in the U.S, Florida, and Duval County.

Asthma

Asthma makes breathing difficult and is a chronic disease that can have serious health consequences and even cause death. Asthma is a long term inflammation of the airways with reversible episodes of obstruction caused by the narrowing of airways. There is no known cure for asthma but it can be controlled with self-management, medical care, medications and the avoidance of triggers in the environment.

The CDC’s 2010 National Health Interview Survey rated asthma as one of the most common chronic disorders. Asthma affects 1 in 11 children <18 years old (7 million/9.5%) and 1 in 12 adults (18.7 million/7.7%) in the U.S. \(^1\)

The cost of asthma medications to prevent attacks has doubled in the past decade. \(^2\) In 2010, 3 in 5 children in the U.S. with asthma had an attack. \(^2\)

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Average annual per user expenditures on major types of asthma medications among adults (18 years and older) with reported treatment for asthma, United States 1998-1999 and 2008-2009

- $603 (1998-1999) vs. $566 (2008-2009) for all therapeutic classes

**Chronic Respiratory Disease**

### Duval County Report Card

**OBJECTIVES**

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<td><strong>RD 1</strong> Reduce asthma deaths per 1,000,000</td>
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<td>RD-1.1 Children and adults under age 35 years</td>
<td>DSU</td>
<td>7.0 (2009-2011)</td>
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<td>RD-1.2 Adults aged 35 to 64 years old</td>
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<td>RD-1.3 Adults aged 65 years and older</td>
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**RD 2** Reduce hospitalizations for asthma per 10,000

| RD-2.1 Children under age 5 years | | | | | |
| RD-2.2 Children and adults aged 5 to 64 years | | | | | |
| RD-2.3 Adults aged 65 years and older | | | | | |

**RD 3** Reduce emergency department visits for asthma per 10,000

| RD-3.1 Children under age 5 years | | | | | |
| RD-3.2 Children and adults aged 5 to 64 years | | | | | |
| RD-3.3 Adults aged 65 years and older | | | | | |

**RD 10, 11 & 12** Chronic Obstructive Pulmonary Disease (COPD)

| RD-10 Reduce deaths among adults age 45+ (age adjusted per 100,000) | | | | | |
| RD-11 Reduce hospitalizations among adults age 45-64 (per 10,000) | | | | | |
| RD-11 Reduce hospitalizations among adults age 65+ (per 10,000) | | | | | |
| RD-12 Reduce hospital emergency department visits among adults age 45-64 (per 10,000) | | | | | |
| RD-12 Reduce hospital emergency department visits among adults age 65+ (per 10,000) | | | | | |

**C-2 Lung Cancer**

| C-2 Reduce the lung cancer death rate (age adjusted per 100,000) | | | | | |

**TU-1, 2 & 9 Tobacco Use**

| TU-1 Reduce cigarette smoking among adults | | | | | |
| TU-2 Reduce tobacco use by adolescents (grades 9-12) in the past 30 days | | | | | |
| TU-9 Increase tobacco screening in office based care settings | N/A | N/A | N/A | 62.4% (2007) | 68.6% |

*Healthy People 2020 Target for COPD Deaths was based on a different definition than current data collection.*
Duval County Report Card

The data report card provides a comparison between national, state, and local data for Healthy People 2020 objectives related to respiratory diseases. Healthy People 2020 publishes health goals for the United States to achieve for a ten year period.\textsuperscript{12} The health and well-being of a community can be measured against these goals with program, policy, and funding targeted to meet changing needs. The report card for Duval County compared to Florida and the United States demonstrates the growing needs within our community.

Asthma causes significant morbidity and mortality with approximately 46 deaths reported in Duval County between 2009-2011.\textsuperscript{11} Asthma death rates for each age group are more than double those of the state and well above those for the U.S.\textsuperscript{11} Further, there has been little change in these rates over the past five years. Asthma deaths represent only the worst case scenarios for children and adults and overall, are rare with the rates measured per million. Hospitalizations and emergency room visits are measured per 10,000 people living in Duval County and represent both a large number of overall visits and a significant cost. In Duval County, asthma hospitalizations and ER visits are increasing for all age categories and are higher than the state and national rates. In 2011, there were 52 hospitalizations and 148 emergency room visits per 10,000 children 0-4 years old where the primary reason they were seeking care was asthma.\textsuperscript{10} Hospitalizations alone for this age group cost $2.1 million in 2011 and ER visits $1.4 million.\textsuperscript{10}

Chronic Obstructive Pulmonary Disease (COPD) deaths have remained steady among adults during the past five years. In 2009, Duval County reported fewer deaths than Florida or the nation. Unfortunately, in 2011 the rate of hospitalizations was higher for Duval County than for the state or nation with almost 45 per 10,000 adults 45-64 and almost 128 per 10,000 adults 65 and older being admitted for COPD. ER visits were only slightly higher for Duval County than Florida and were lower than the nation. COPD represents a significant public health burden both in terms of decreased quality of life and costly hospitalizations. In 2011 in Duval County, hospitalizations for this age group cost $3.6 million and ER visits cost $7 million.\textsuperscript{10}

Lung Cancer deaths in Duval County are slowly falling from a decade ago when they were 69.2/100,000 to a current rates of 54.5/100,000. Duval County’s lung cancer death rate is higher than the state and the nation. In the past decade, lung cancer deaths have significantly decreased for men (87.7 to 67.8/100,000) and to a smaller extent for women (56.3 to 44.7/100,000). Lung cancer caused by secondhand smoke exposure is on the rise. The use of tobacco products is an important indicator of what is to come with regard to COPD, lung cancer, and asthma. The Healthy People 2020 goal is for only 12% of the adult population to smoke, down from 17.3% in 2008. In 2010, in Duval County 18.6% of adults smoked; higher than the state and national numbers. Better news is that fewer high school students are smoking in Duval County with only 12.4% reporting smoking a cigarette in the 30 days prior to the survey.\textsuperscript{13} This is lower than the state and nation and Duval County teens have met the 2020 objective. Although fewer new smokers is best for a healthy future, it will take decades before we see a reduced rate of Lung Cancer and COPD due to past decades of smoking behaviors.

References and Data and Statistical Information included on page 11
From 2001 to 2009 primary care visits for asthma declined and emergency department visits remained stable\(^1\), but asthma rates are at their highest. \(^1\) The risk of death due to asthma increases with age. In the U.S. in 2007-2009, asthma caused 58 deaths per 100,000 adults age 65 or older who had asthma.\(^1\)

Higher rates of asthma also occur in people living in urban areas (high density population) because of the concentration of environmental triggers (i.e., cockroach, dust mites, air pollution) in these areas.\(^14\)

Often minorities and low income families live in urban areas. People reporting their race as Multi-racial (14.1%) or African American (11.2%) have higher rates of asthma than those reporting their race as White (7.7%).\(^1\) People living below poverty (11.2%) have higher rates than others (7.3%).\(^1\)

**Chronic Obstructive Lung Disease (COPD)**

COPD also known as emphysema, chronic bronchitis, or chronic lower respiratory disease (excluding asthma) is another severe respiratory disease that causes breathing difficulties due to airway obstruction. Approximately 85 to 90 percent of COPD deaths are caused by smoking and quitting is found to slow disease progression.\(^4\)

Environmental exposures (such as those in the workplace) and genetic factors may also contribute to COPD.

The CDC’s National Center for Health Statistics (NCHS) estimated that in the U.S., 11.8 million adults (5.1%) have COPD.\(^5\) It is also estimated that 24 million Americans have impaired lung function and that COPD is under-diagnosed.\(^4\)

In the U.S., NCHS ranked COPD as the third leading cause of death.\(^5\) COPD prevalence increases with age and was highest among women 65-74 (10.4%) and men 75-84 (11.2%).\(^5\) In 2011, COPD was responsible for 140,071 deaths.\(^5\)

People with COPD report that their condition limits their ability to work (51%), normal physical exertion (70%), performing household chores (56%), participating in social activities (53%), sleeping (50%) or family activities (46%).\(^4\)

**Lung Cancer**

Lung cancer is a cancer that forms in the tissues of the lungs, usually in the cells lining the air passages. More people die in the U.S. from lung cancer than from breast, prostate, pancreatic and colon cancers combined. Male smokers are 23 times more likely to develop lung cancer than male non-smokers.\(^8\) About 90% of lung cancer deaths in men and 80% of lung cancer deaths in women are due to smoking.\(^7,8\)

In 2012, lung cancer was estimated to cause 160,340 deaths.\(^8\)
Asthma in Duval County and Florida

Laureen Husband, DCHD Asthma Coalition and Lynn Sherman, Director of Community Health, Baptist Health

Asthma is a chronic inflammatory disorder of the airways characterized by episodes of reversible breathing problems due to airway narrowing and obstruction. These episodes can range in severity from mild to life threatening. Symptoms of asthma include wheezing, coughing, chest tightness, and shortness of breath.

Asthma makes breathing difficult for more than 24 million Americans including more than 7 million children. It is a leading cause of hospitalizations and school absences. Despite advances in medical treatment and decreasing death rates, asthma prevalence has been increasing nationwide.

Reducing the prevalence and impact of asthma is an important priority for the Duval County Health Department (DCHD) and local providers. According to the 2011 Youth Risk Behavior Survey (YRBS), the percentage of high school students ever told they had asthma was higher in Duval County (24.1%) than Florida (21.7%) and the U.S. (22.0%). In addition, 35.4% of middle school students in Duval County with asthma reported going to an emergency room or urgent care center during the previous 12 months.

The Jacksonville Community Asthma Workgroup, convened by Lynn Sherman of Baptist Health, has been building a multi-sectorial group consisting of health practitioners, Duval County Public Schools, faith-based organizations, and private citizens. The goal of the workgroup is to address this critical issue by developing actionable steps to improve our asthma outcomes through a seamless, coordinated system of care throughout the lifespan.

Although asthma cannot be cured and the causes are complex, the symptoms can be managed through a combination of long-term control and short-term, quick relief medications. Wolfson Children’s Hospital and DCHD have teamed up to improve asthma diagnosis and management through the clinically-proven Easy Breathing© Program. This program enables primary care providers to quickly assess, treat, and re-evaluate a child with asthma symptoms.

Easy Breathing’s© success lies in its simple design. During one office visit, the health care provider uses:

- A survey filled out by the child and family
- A standardized assessment categorizing the child's asthma as mild, mild persistent, moderate persistent, or severe persistent
- A guidebook to the course of treatment based on the asthma's severity and the National Institute of Health's evidence-based guidelines
- An asthma management plan, which the child and family take home

Poor asthma management is a problem in Duval County. According to the YRBS, only 9.3% of middle school and 10.4% of high school students in Duval county with asthma said they had an asthma management plan. Poor management leads to crisis events requiring medical care.

A recent evaluation of the Easy Breathing© program demonstrated a decrease in the number of ER visits (by 58.3%) for children in Duval County from before program participation.

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COPD is characterized by a worsening chronic, productive cough. As the disease progresses the person experiences wheezing, shortness of breath, and can produce large amounts of sputum. As lung function diminishes, the person will experience hypoxia (lack of oxygen) and many require and upright sleep position. Smoking is a strong predictor of COPD mortality. Mortality Data shows that COPD deaths across HZs are not significantly different.

Lung cancer deaths are double in Health Zone 5 compared to Health Zone 3.

Lung cancer is primarily caused by smoking tobacco or being around someone who smokes tobacco. People who smoke are 15-30 times more likely to develop lung cancer. Two out of five adults who do not smoke and half of all children are exposed to secondhand smoke. Each year, 3,000 of people will die of lung cancer due to exposure to secondhand smoke.

There are significant differences in lung cancer deaths between Health Zones. People living in HZs 2 & 3 had the fewest deaths due to lung cancer while people living in HZ 1 & 5 had the most deaths. There are concerns that differences in lung cancer death rates may be based on differences in tobacco use and secondhand smoke exposure.
Asthma Emergency Room Visit Rate for Children Age <5 by Health Zone, Duval County, FL 2011

Asthma disproportionately affects children living in urban areas. Columbia University found a strong association between asthma and cockroaches (more so than dust mites, mouse and rat allergens also known to trigger asthma). Based on these new findings, all children in urban settings (or where exposure to cockroaches is prevalent) are at an increased risk for asthma. ER visits for asthma are higher in the urban core of Duval County.

COPD was the fourth leading cause of hospitalizations (excluding births) in Duval County. In 2011, over 4,000 people were hospitalized with COPD, accounting for 3.26% of all hospitalizations. Older adults are especially at risk for COPD hospitalizations. There is considerable variation in older adults being hospitalized for COPD, with Health Zone 1 having a rate almost twice as high as Health Zone 3. The CDC advises that COPD hospitalizations are often avoidable if the person has access to medical care, can afford and take their medications as directed, and develop a plan with their physician for staying healthy. Smoking cessation is crucial to slowing the progression of disease.

Asthma ER visits are almost 7 times higher in Health Zone 1 than Health Zone 3 for children <5 years old.
The Tobacco Prevention Program (TPP) of the Duval County Health Department (DCHD) provides a variety of services and recommends anti-tobacco initiatives in conjunction with the Tobacco-Free Jacksonville Coalition, Inc. (http://www.tobaccofreejacksonville.org/) and its community partners. The mission of the TPP is to reduce and eliminate the hazards associated with tobacco products through public health prevention programs. The TPP is funded by the Bureau of Tobacco Free Florida Program and strictly adhere to Florida Statute 381.84, Comprehensive Statewide Tobacco Education and Use Prevention Program. TPP is actively engaged in the abatement of chronic diseases such as asthma, chronic obstructive pulmonary disease (COPD) and lung cancer. The TPP focuses its efforts on 1) youth education, 2) policy development, and 3) community education.

TPP provides information to local colleges who wish to initiate polices to have smoke-free campuses. Youth education is primarily provided through the Students Working Against Tobacco (SWAT). SWAT educates on the physical, social, and economic effects of tobacco use. It allows youth a voice in the city and with stakeholders.

One of the most ardent SWAT clubs is located in zip code 32210 and has produced positive results. A survey conducted by TPP’s Tobacco-Free Campus Coordinator identified the zip code 32210 as an area with a high asthma rate. TPP, UNF and other partners used data on prescription purchases to geographically map and identify area of need. It was found that 32210 also has a preponderance of stores that advertise and sell tobacco products.

Chronic Obstructive Pulmonary Disease (COPD) and Lung Cancer are diseases that can be directly attributed to long-term cigarette smoking. The TPP approach to reducing these illnesses and their associated expenditures is to collaborate with its community partners to guide Floridians to services tailored for individual, group, and employer cessation services.

The Florida Quitline (1-877-U-CAN-NOW) offers cessation services along with online assistance, initiates nicotine replacement therapy (NRT), and complements local cessation education. There are many resources in the area including the Northeast Florida Area Health Education Centers (AHEC). They provide education regarding tobacco treatment, cessation, and prevention.

Other community programs include:
- Healthy Start through the Duval County Health Department for pregnant women or families with infants.
- Baptist, St. Vincent’s, UF & Shands Medical Centers each offer free or low cost cessation programs for smokers.

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Tobacco Prevention Program ...continued from previous page

- Naval Air Station (NAS) also offers cessation classes to active duty military and eligible Tricare beneficiaries.

The program also works to reduce exposure to secondhand and third-hand smoke exposures. Secondhand smoke is smoke inhaled by those around the smoker. Third-hand smoke includes the toxins left from smoking on clothes, flooring, furniture, and other materials which present a serious health threat, especially to infants and children. One focus to reduce exposure is TPP’s efforts to educate apartment managers and condominium associations on the effect of second and third-hand smoke through multi-housing units. Because smoke can enter other units through lighting fixtures, cracks, around plumbing, and through shared ventilation, exposures can occur even if family members do not smoke (a neighbor smoking). This can adversely affect the health of other, non-smoking tenants, including children with asthma. Meeting with building managers and associations serve to illustrate to each the costs associated with second and third-hand smoke and to offer information via tenant surveys and presentations on the benefits of establishing smoke-free multi housing units.

The TPP, along with the Tobacco Free Jacksonville Coalition form a multi-pronged approach to assist the citizens of Duval County with tobacco addiction. The Tobacco Prevention Program of the Duval County Health Department supports policy initiatives, education, and community involvement aimed at the reduction and elimination of tobacco-related addiction in Duval County.

Chronic Respiratory Disease in the US ...continued from page 4

The National Cancer Institute estimated that there will be 226,160 new cases of lung cancer diagnosed in 2012. More men develop (76.4 per 100,000) and more die from lung cancer (65.7 per 100,000) than women (52.7 per 100,000 & 39.6 per 100,000 respectively). African American men have the highest rates of both incidence (99.9 per 100,000) and death (82.6 per 100,000) due to lung cancer.  Between 2002-2008, the five year survival for lung cancer was 15.9% overall, lower than many other cancers, as most lung cancer is diagnosed after it has spread to other areas of the body (distant metastasis).

References & Data and Statistical Information included on page 11

Asthma in Duval County and Florida ...continued from page 5

Clinic visits increased 28.4%, demonstrating great use of asthma management in primary care leads to fewer emergency room visits.

Easy Breathing© at DCHD health centers has screened more than 7,000 children for asthma with 24.8% new diagnoses of asthma. Easy Breathing© and other programs focusing on asthma management should be expanded to significantly reduce the burden of asthma in our community.

For more information on the Easy Breathing© program contact Laureen_Husband@doh.state.fl.us Or Lynn.Sherman@bmcjax.com
As discussed previously, asthma continues to be a significant health problem. Asthma does not affect everyone or every area equally. Emergency room visits are more frequent in Health Zone (HZ) 1 and are more frequent for people stating they are Black than for those stating other races (95% CI HZ1; 152.1, 169.2). This significant disparity holds true for people living in each HZ. Environmental triggers (i.e. cockroaches, dust mites, air quality, etc.) are more prevalent in urban areas, increasing asthma in these areas. Asthma is considered an Ambulatory Care Sensitive Condition (ACSC) best treated in the primary care setting. When the ER is used by people with asthma it is considered a failure of the primary care system. Factors increasing ER visits can include medication costs, transportation, health literacy/regimen adherence, lack of culturally and linguistically competent care, access to and quality of primary care, and cost of abatement of triggers.

ER visits are highest among school age children 5–14 years old. Sixty eight percent (68%) of these ER visits are charged to Medicaid; in addition 10% of children seen were uninsured. Most children become ineligible for Medicaid at 18 years of age. ER visits then increase for uninsured young adults 18-24, peaking for 25-34 year olds.

Policy and funding priorities should be given to proven programs like Easy Breathing© that have been shown to reduce ER visits. In Duval County, 90% of middle and high school students with asthma report not having an asthma management plan. Management plans along with programs aimed at the control of environmental triggers, both at school and at home, are needed to reduce acute episodes.
References and Data & Statistical Information

Chronic Respiratory Diseases in the U.S.

Duval County Report Card
10 Hospital and Emergency Department Data (2011): Florida Agency for Health Care Administration.

Chronic Respiratory Diseases in Duval County

Data & Statistical Information

Age Adjusted Rate is a way to examine geographic areas which may have different demographics (i.e., FL has an older and larger population than Duval County). Age Adjusting standardizes the rates to the 2000 U.S. standard population (11 age groups, Census P25–1130) for more accurate comparisons.

Incidence Rate is the risk of developing a specific disease during a given period. It is created by dividing the number of new cases by the number of people who could get the disease (the population at risk).

Prevalence Rate is the number of people in a population with a specific disease during a given period. It is created by dividing the total number of cases by the total population at risk.

DSU: Data is Statistically Unreliable (DSU) is provided when numbers are <25 within a geographic area.

Trend Data: Data that are presented as points over time or as an increase or decrease (as in the Report Card) is Trend Data. Trends in the Report Card are for the past five years. Trend tests for significance were not included and therefore statistical significance should not be assumed.

Suggested citation for this report
Percent of High School Students by Health Zone of Residence who Currently Smoke Cigarettes, Duval County, FL 2011