Examining the public health burden of COPD, the third leading cause of death: What population-based data tell us

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Presenter Disclosures

Winston Liao

No relationships to disclose

Objective

- Describe the public health burden of COPD from a data perspective
- Present epidemiologic and economic data to support the need for targeting preventive and control efforts for COPD
- Present two examples of using population-based data to support community-based programs
What is COPD?

- Progressive lung diseases
- Chronic bronchitis, emphysema, refractory asthma, some forms of bronchiectasis
- Airways partially blocked
- Hard to get air in and out
- When severe: shortness of breath, other symptoms
- Affects activities of daily living
- 3rd leading cause of death in U.S.
- A leading cause of disability

Data Sources

- Behavioral Risk Factor Surveillance System (BRFSS): prevalence and co-morbidities
- Mortality
- ED visits
- Hospitalizations
- Healthcare costs

Prevalence

- US: 6.1%
- PR: 3.7%
- KY: 10.4%
- NC: 7.0%

Selected Demographic Characteristics
North Carolina

<table>
<thead>
<tr>
<th>Demographics</th>
<th>With COPD</th>
<th>Without COPD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>284</td>
<td>6.8</td>
</tr>
<tr>
<td>Female</td>
<td>553</td>
<td>8.0</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-34</td>
<td>46</td>
<td>3.4</td>
</tr>
<tr>
<td>35-44</td>
<td>55</td>
<td>4.4</td>
</tr>
<tr>
<td>45-54</td>
<td>117</td>
<td>6.9</td>
</tr>
<tr>
<td>55-64</td>
<td>222</td>
<td>11.5</td>
</tr>
<tr>
<td>65-74</td>
<td>225</td>
<td>14.1</td>
</tr>
<tr>
<td>75+</td>
<td>163</td>
<td>12.3</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>610</td>
<td>8.3</td>
</tr>
<tr>
<td>African American</td>
<td>129</td>
<td>6.3</td>
</tr>
<tr>
<td>Native American</td>
<td>58</td>
<td>16.0</td>
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<tr>
<td>Other Minorities</td>
<td>19</td>
<td>2.4</td>
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</table>

NC SCHS. Behavioral Risk Factor Surveillance System, 2013

Leading Causes of Death

<table>
<thead>
<tr>
<th>Cause of Death</th>
<th>NCHS Rate</th>
<th>NC SCHS Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Disease</td>
<td>3.2</td>
<td>3.6</td>
</tr>
<tr>
<td>Cancer</td>
<td>1.0</td>
<td>1.4</td>
</tr>
<tr>
<td>Stroke</td>
<td>1.4</td>
<td>1.7</td>
</tr>
<tr>
<td>CHD</td>
<td>1.2</td>
<td>1.4</td>
</tr>
<tr>
<td>CLRD</td>
<td>1.1</td>
<td>1.2</td>
</tr>
<tr>
<td>Diabetes</td>
<td>0.9</td>
<td>1.1</td>
</tr>
<tr>
<td>Emergency Room</td>
<td>1.7</td>
<td>2.0</td>
</tr>
</tbody>
</table>

* Not age-adjusted
** Includes 423.9 deaths per 100,000 population from CHD (dark bar)
*** Includes 423.9 deaths per 100,000 population from COPD and asthma

Based on the average remaining years of life up to age 78.7 years (life expectancy at birth in 2010).

Note: Causes shown in bold are those addressed in Institute programs.
Source: Vital Statistics of the United States, NC SCHS.

COPD Mortality

- US: 42.1/100,000 (2013)
- NC: 46.1/100,000 (2013)
COPD Healthcare Utilization among Adults >45 years

Emergency Room Visits
- US: 1st - 78.1/10,000
- Any - 193.2/10,000

Hospitalizations
- US: 1st - 5.5/1,000
- Any - 32.7/1,000


Multiple Chronic Conditions among Adults with/without COPD, North Carolina

Financial Burden
- 2010 US COPD-attributable costs ~$36 billion
  - Total medical costs ~$32.1 billion
    - Private insurance – 18%
    - Medicare – 51%
    - Medicaid – 25%
  - Absenteeism costs ~ $ 3.9 billion
  - Work days lost ~ 16.4 million
- 2020 US projected medical costs ~$49 billion

Chest. 2015: 147(1):31-45
Impact on Healthcare Costs

- COPD patient costs ~ $6000 higher than non-COPD patients
- COPD patients with hospital readmissions: 13-14%
  - 41-49% had readmission within 60 days
- Treatments for COPD-related exacerbations: lower COPD-related medical costs
- Preventing complications and hospitalizations: avoid 40% of COPD costs

COPD Foundation, 2012

Smoking and COPD
North Carolina

<table>
<thead>
<tr>
<th></th>
<th>With COPD</th>
<th>Without COPD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>95% C.I.</td>
</tr>
<tr>
<td>Former smoker</td>
<td>35.9</td>
<td>31.5-40.5</td>
</tr>
<tr>
<td>Current smoker</td>
<td>38.9</td>
<td>34.3-43.7</td>
</tr>
<tr>
<td>Secondhand smoke</td>
<td>26.7</td>
<td>22.2-31.8</td>
</tr>
</tbody>
</table>

NC SCHIS. Behavioral Risk Factor Surveillance System, 2013

Two Community-based Programs

- Davidson County: NC County with highest COPD prevalence (12.1%, twice state average)
  - Community- and provider-based programs
- Targeting COPD and Tobacco in Free Clinics in NC, VA, SC
  - Clinic-based screening of at-risk patients for COPD
Legislative Actions for Addressing Smoking and Chronic Diseases in North Carolina

- NC General Statute 130A-497: North Carolina's Smoke-Free Restaurants and Bars Law
  - ED visits for myocardial infarctions decreased by 21% during first year after law passage
  - Relative risk of visiting ED for asthma decreased by 7% between 2010-2011 vs. 2008-2009
- N.C. Session Law 2013-207 House Bill 459: DHHS to Coordinate Chronic Disease Care
  - Chronic lung disease includes asthma and COPD

Healthy People 2020 COPD Objectives

- Reduce activity limitations among adults with COPD
- Reduce deaths from COPD among adults
- Reduce hospitalizations for COPD
- Reduce emergency department (ED) visits for COPD
- Increase the proportion of adults with abnormal lung function whose underlying obstructive disease has been diagnosed

Next Steps

- Increase awareness
- Educate patients, healthcare providers, caregivers, policy makers
- Increase funding for outreach and community-based programs
- Apply frameworks from government initiatives
- Promote collaborative efforts
Leonard Nimroy (Mr. Spock, Star Trek)
March 26, 1931 - February 27, 2015

I quit smoking 30 yrs ago. Not soon enough. I have COPD. Grandpa says, quit now!! LLAP
6:44 PM - 29 Jan 2014

Thank You!

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North Carolina COPD Taskforce
(www.nccopd.org)