2018 Asthma Symposium
Guidelines-Based Asthma Care for Children and Adults

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Senior Medical Director
Superior HealthPlan
Sponsors

superior healthplan™

Texas Health and Human Services
Texas Department of State Health Services
Agenda

- My Background
- Symposium Schedule
- Setting the Stage
- Prevalence and Other Statistics
My Background
**Symposium Schedule**

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 a.m. – 8:00 a.m.</td>
<td>Continental Breakfast/Welcome</td>
<td>Wm Brendle Glomb, M.D., FCCP, FAAP&lt;br&gt;Pediatric Pulmonologist&lt;br&gt;Senior Medical Director, Superior HealthPlan</td>
</tr>
<tr>
<td>8:00 a.m. – 8:30 a.m.</td>
<td>Introduction to the Asthma Issue</td>
<td>Wm Brendle Glomb, M.D., FCCP, FAAP</td>
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<tr>
<td>8:30 a.m. – 9:30 a.m.</td>
<td>Asthma Guidelines for Children</td>
<td>Wm Brendle Glomb, M.D., FCCP, FAAP</td>
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<tr>
<td>9:30 a.m. – 9:40 a.m.</td>
<td>Break</td>
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<tr>
<td>9:40 a.m. – 10:40 a.m.</td>
<td>Asthma in Adults: Pathophysiology and Treatment</td>
<td>Bharat Prakash, M.D., Assistant Professor&lt;br&gt;Pulmonary and Critical Care Medicine&lt;br&gt;Texas Tech University Health Science Center&lt;br&gt;Transmountain Campus, El Paso</td>
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<tr>
<td>10:40 a.m. – 10:50 a.m.</td>
<td>Break</td>
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<tr>
<td>10:50 a.m. – 11:50 a.m.</td>
<td>Asthma and Allergic Disease Diagnosis &amp; Management</td>
<td>Luis Antonio Gonzalez, M.D.&lt;br&gt;The Allergy, Asthma and Immunology Office, El Paso</td>
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<tr>
<td>12:00 p.m. – 1:00 p.m.</td>
<td>Working Lunch&lt;br&gt;Superior Quality Projects Example</td>
<td>Wm Brendle Glomb, M.D., FCCP, FAAP</td>
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<tr>
<td>1:00 p.m. – 1:30 p.m.</td>
<td>Asthma – Panel Discussion</td>
<td>All Faculty</td>
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<tr>
<td>1:30 p.m. – 2:00 p.m.</td>
<td>Asthma Wrap-Up and Conclusion</td>
<td>Wm Brendle Glomb, M.D., FCCP, FAAP</td>
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</tbody>
</table>
• “Asthma is a chronic lung disease that inflames and narrows the airways. Asthma causes recurring periods of wheezing (a whistling sound when you breathe), chest tightness, shortness of breath, and coughing. The coughing often occurs at night or early in the morning.”

- National Heart, Lung, and Blood Institute
“…[He] presents with a distressing sense of want of breath and a feeling of great oppression in the chest. Soon the respiratory efforts become violent, and all of the accessory muscles are brought into play. In a few minutes the patient is in a paroxysm of the most intense dyspnea.”

- Sir William Osler
Asthma Overview

A - Normal Airway
- Airways
- Lungs

B - Normal Airway
- Muscle
- Airway wall

C - During Asthma Symptoms
- Narrowed airway (limited air flow)
- Tightened muscles constrict airway
- Inflamed/thickened airway wall
- Mucus

Muscle
Airway x-section
Thickened airway wall
Muscle
Mucus
Symptoms

Airflow obstruction
Bronchial hyperresponsiveness
Airway inflammation
Prevalence and Other Statistics
Prevalence

Current Asthma Prevalence Percent by Age, Sex, and Race/Ethnicity, United States, 2016

Source: National Health Interview Survey, National Center for Health Statistics, Centers for Disease Control and Prevention
Prevalence

Asthma Prevalence in Children Aged 0-17 Years

- 4.4% to 7.8%
- 7.9% to 8.5%
- 8.6% to 9.7%
- ≥9.8%
- Data unreliable

Note: Based on the annual average for 2001-2005.
Source: Centers for Disease Control and Prevention
Texas 2015 “Current Asthma”

- The Centers for Disease Control:
  - 1,528,177 affected; 7.6%
Asthma prevalence increased from 2001 to 2010 and is now at its highest level.

Figure 1. Asthma prevalence in the United States, 2001–2010

NOTES: Asthma prevalence refers to percentage of people who have ever been diagnosed with asthma and still have asthma. Data are age-adjusted to the 2000 U.S. standard population. Access data table for Figure 1 at: http://www.cdc.gov/nchs/data/databriefs/db94_tables.pdf#1.

SOURCE: CDC/NCHS, National Health Interview Survey.
Prevalence

Figure 2. Asthma prevalence, by selected demographic characteristics: United States, average annual 2008–2010

- Total
- Child
- Adult
- Male
- Female
- White
- Black
- American Indian or Alaska Native
- Asian
- Multiple race
- Total Hispanic
- Puerto Rican
- Mexican
- Less than 100% poverty
- 100% to less than 200% poverty
- 200% or more of poverty

95% confidence interval.

NOTES: Asthma prevalence refers to percentage of people who have ever been diagnosed with asthma and still have asthma. Access data table for Figure 2 at: http://www.cdc.gov/nchs/data/databriefs/db94_tables.pdf#2.

SOURCES: CDC/NCHS. Health Data Interactive and National Health Interview Survey.
Prevalence

Current Asthma Prevalence Among Children (0 to 17 years), By Sex, Race/Ethnicity, and Age Group

Texas, 2013

Prevalence (%)

<table>
<thead>
<tr>
<th>Category</th>
<th>Prevalence (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>9.1 (8.3, 9.9)</td>
</tr>
<tr>
<td>Male</td>
<td>10.4 (9.4, 11.4)</td>
</tr>
<tr>
<td>Female</td>
<td>7.4 (6.4, 8.4)</td>
</tr>
<tr>
<td>White</td>
<td>8.5 (7.6, 9.4)</td>
</tr>
<tr>
<td>Black</td>
<td>19.2 (18.0, 20.5)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>7.5 (6.5, 8.5)</td>
</tr>
<tr>
<td>0 to 4</td>
<td>4.5 (3.5, 5.5)</td>
</tr>
<tr>
<td>5 to 9</td>
<td>10.8 (9.8, 11.8)</td>
</tr>
<tr>
<td>10 to 14</td>
<td>10.7 (9.7, 11.7)</td>
</tr>
<tr>
<td>15 to 17</td>
<td>9.8 (8.8, 10.8)</td>
</tr>
</tbody>
</table>

Data Source: 2013 Texas Behavioral Risk Factor Surveillance System (BRFSS), Texas Department of State Health Services, Center for Health Statistics.

Survey Questions: "Has a doctor, nurse, or other health professional ever said that the child has asthma?" and "Does the child still have asthma?"

*Race/ethnicity is categorized differently in 2013 as: White = White only, non-Hispanic; Black = Black only, non-Hispanic; Hispanic = Hispanic; Other (not shown) = Other race only, non-Hispanic; Multiracial
Asthma in Children
Asthma in Children

Asthma Hospitalization Rates
Per 10,000 Persons Per Year Among Children (0-17 years) by County, Texas, 2012

Hospitalization Rates per 10,000 children
- 5.9 - 10.5
- 10.6 - 14.0
- 14.1 - 16.8
- 16.9 - 22.8
- 22.9 - 58.8

Excluded County
Texas = 14.9 per 10,000 children

Data Classification: Quantiles
Data Source: Inpatient Hospital Discharge Public Use Data File, 2012
Center for Health Statistics, Texas Department of State Health Services.
An asthma hospitalization is a hospital record listing ICD-9 Codes 439.0-439.9 as the principal diagnosis.

Created by Erin Wickerham, 3/13/14
Asthma in Children

Asthma Hospital Discharges Among Children (0 to 17 years) by Intended Payer
Texas, 2012

- Medicaid: 5,459
- Commercial: 4,052
- Self-pay or Charity: 511

There were 10,075 reported asthma hospital discharges among children.

Data Source: Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2012.
Population Data Source: Center for Health Statistics, Texas Department of State Health Services, 2012.
Records listing asthma (ICD-9: 493.0 - 493.9) as the primary diagnosis.
Hospital discharges not shown: Medicare, 3, 0.03%; Other, 43, 0.4%; Missing, 7, 0.07%.
Asthma in Children

Hospital Charges for Asthma Among Children (0 to 17 years) by Intended Payer
Texas, 2012

- Medicaid: $104,101,232.61
- Commercial: $75,862,483.75
- Self-pay or Charity: $10,183,660.42

Hospital charges for asthma among children totaled $190,822,467.41. The average hospital charge was $18,940.20.

Data Source: Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2012.
Population Data Source: Center for Health Statistics, Texas Department of State Health Services, 2012.
Records listing asthma (ICD-9: 493.0 - 493.9) as the primary diagnosis.
Hospital charges not shown: Medicare, $18,262.80 total, 0.01%; Other, $547,558.4, 0.3%; Missing, $109,269.42, 0.1%.
Current Asthma Prevalence Among Adults (18+ years), By Sex, Race/Ethnicity, and Age Group

Texas, 2013

Prevalence (%)

- **All**: 7.3
- **Sex**: Male 4.6, Female 9.9
- **Race/Ethnicity**: White 8.6, Black 11.8, Hispanic 4.2, Other 7.2
- **Age Group (years)**: 18 to 44 7.0, 45 to 64 7.0, 65+ 8.3

Data Source: 2013 Texas Behavioral Risk Factor Surveillance System (BRFSS), Texas Department of State Health Services, Center for Health Statistics.
Survey Questions: 'Has a doctor, nurse, or other health professional ever told you that you had asthma?' and 'Do you still have asthma?'

*Race/ethnicity is categorized differently in 2013 as: White = White only, non-Hispanic; Black = Black only, non-Hispanic; Hispanic = Hispanic; Other = Other race only, non-Hispanic; Multiracial.
Asthma in Adults

Adult Current Asthma Prevalence by Health Service Region (HSR), Texas, 2013

Prevalence (%)
- 4.8 - 5.3
- 5.4 - 8.0
- 8.1 - 9.3
- 9.4 - 14.0

Adult Current Asthma Prevalence in Texas = 7.3% (95% Confidence Interval: 6.6-8.0)
Asthma in Adults

Asthma Hospitalization Rates
Per 10,000 Persons Per Year Among Adults
(18+ years) by County, Texas, 2012

Crude Hospitalization Rates per 10,000 adults

- 2.6 - 6.0
- 6.1 - 7.2
- 7.3 - 9.1
- 9.2 - 11.6
- 11.7 - 27.0
- Excluded County

Texas = 7.7 per 10,000 adults

Data Source: Inpatient Hospital Discharge Public Use Data File, 2012.
Center for Health Statistics, Texas Department of State Health Services.
An asthma hospitalization is a hospital record listing ICD-9 Codes 438.0-439.9
as the principal diagnosis.

Created by Erin Wickersham, 3/13/14
There were 15,083 reported asthma hospital discharges among adults.
Asthma in Adults

Hospital Charges for Asthma Among Adults (18+ years) by Intended Payer
Texas, 2012

- Medicare: $198,870,571.08
- Medicaid: $42,994,115.67
- Self-pay or Charity: $54,153,759.84
- Commercial: $159,815,803.41

Hospital charges for asthma among adults totaled $461,697,014.41. The average hospital charge was $30,610.42.

Data Source: Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2012.
Population Data Source: Center for Health Statistics, Texas Department of State Health Services, 2012.
Records listing asthma (ICD-9: 493.0 - 493.9) as the primary diagnosis.
Hospital charges and percents are not shown: Other, $4,468,933.73, 1.0%; Missing, $1,393,830.68, 0.1%.
*Average hospital charge per hospital discharge among children in which asthma was the primary diagnosis.
But, of course, the dollars and numbers don’t tell the whole story…
Mortality

Age-Adjusted Asthma Mortality Rates By Year, All Ages
Texas, 2002 to 2012

Data Source: 2006-2012 Vital Statistics Unit, Center for Health Statistics, Texas Department of State Health Services. Mortality based on ICD-10 codes for asthma (J45 and J46). Asthma mortality rates are age-adjusted to the 2000 U.S. Census Population.
Mortality

Number and rate of asthma deaths by year, United States: 2001-2016

Source: Centers for Disease Control
**Mortality**

**Age-Adjusted Asthma Mortality Rates Among All Ages by Sex, Race/Ethnicity, and Age Group**

Texas, 2006 to 2012

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Male</th>
<th>Female</th>
<th>White</th>
<th>Black</th>
<th>Hispanic</th>
<th>Other</th>
<th>0 to 17</th>
<th>18 to 44</th>
<th>45 to 64</th>
<th>65+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortality Rate per 1,000,000</td>
<td>9.1</td>
<td>7.1</td>
<td>10.6</td>
<td>8.8</td>
<td>19.7</td>
<td>5.6</td>
<td>11.1</td>
<td>2.3</td>
<td>3.5</td>
<td>11.3</td>
<td>35.0</td>
</tr>
</tbody>
</table>

Data Source: 2006-2012 Vital Statistics Unit, Center for Health Statistics, Texas Department of State Health Services. Mortality based on ICD-10 codes for asthma (J45 and J46). Asthma mortality rates overall, by sex, and by race/ethnicity are age-adjusted to the 2000 U.S. Census Population. Asthma mortality rates by age-group cannot be age-adjusted.
Suboptimal Asthma Care’s Impact

• Definitions of Terms
  – Clinical Risk Group (CRG)
    • 3M groups patients with like-condition based on claim history data.
  – Potentially Preventable Visits (PPV)*
    • Emergency department visits for diagnosis that could have been treated in outpatient/provider office setting.

* Essentially, ALL non-scheduled visits for asthma are “potentially preventable,” irrespective of location.
Top 5 Dx for PPV’s of Asthma CRG Patients

<table>
<thead>
<tr>
<th>Rank</th>
<th>Primary Diagnosis</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Acute upper respiratory infection, unspecified</td>
<td>8.13%</td>
</tr>
<tr>
<td>2</td>
<td>Unspecified asthma with (acute) exacerbation</td>
<td>5.64%</td>
</tr>
<tr>
<td>3</td>
<td>Viral infection, unspecified</td>
<td>3.03%</td>
</tr>
<tr>
<td>4</td>
<td>Acute pharyngitis, unspecified</td>
<td>2.89%</td>
</tr>
<tr>
<td>5</td>
<td>Unspecified asthma, uncomplicated</td>
<td>2.89%</td>
</tr>
</tbody>
</table>

Asthma = 8.5%
Potentially Preventable Visits (PPV's) by Asthma CRG as Percent of Total PPV's by all CRG's
El Paso County compared to State of Texas
(Jan 2017 - Dec 2017)

Data source: 3M
Data reflect paid claims Aug 16 – Jul 17
Members with CRG=Asthma
Prevalence of Missed School Days Among Children (0 to 17 years) and Missed Work Days Among Adults (18+ years) Due to Their Asthma

Texas, 2012

Data Source: 2012 Adult and Child Asthma Callback Surveys, Texas Behavioral Risk Factor Surveillance System (BRFSS), Texas Department of State Health Services, Center for Health Statistics.

Results are among children and adults with current asthma.

Survey Questions: "During the past 12 months, about how many days of school did [he/she] miss because of his/her asthma?" "During the past 12 months, how many days were you unable to work or carry out your usual activities because of your asthma?"
Asthma

And now…On with the show!