Asthma Control in Puerto Rico, 2011-2012

Puerto Rico Asthma Program
Division for the Control and Prevention of Chronic Diseases
Puerto Rico Department of Health
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Puerto Rico

THE CARIBBEAN

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Objectives

- Compare asthma prevalence among adults by covariates in Puerto Rico and United States
- Use NAEPP guidelines’ control algorithm to establish and identify uncontrolled asthma among asthma patients
- Compare of Asthma Call-Back variables with NAEPP guidelines
- Present data related to uncontrolled asthma among adults in Puerto Rico
Asthma

- Is a complex chronic disorder characterized by episodes of airflow obstruction, bronchial hyper-responsiveness, and an underlying inflammation, which are often reversible either spontaneously or with treatment (NAEPP, 2007).
- Represents a load to government, health care systems, caregivers, and patients (Masoli, 2004)
- Patients with asthma have impaired quality of life (Ford, 2003)
Puerto Rico Behavioral Risk Factor Surveillance Survey (BRFSS)

- World’s largest Random Dial Telephone Survey
- Complex Sampling Survey for extrapolation
- More than 7,000 interviews per state/territory per year
BRFSS: Asthma Call-Back

- Comprehensive asthma health survey in adult’s with lifetime and current asthma
- 2011-2012 data aggregation
- 800 participants in Puerto Rico for the aggregated period
Health Measures

**Current asthma prevalence:** Do you still have asthma?
**Asthma control:** Classified as uncontrolled asthma
National Asthma Education and Prevention Program (NAEPP) is a national organization that establishes baseline treatment and interventions to patients with asthma.

Expert Panel Review 3 (EPR-3) was developed by an expert panel commissioned by the NAEPP.

The EPR-3 organized the literature review and final guidelines report around four essential components of asthma care:

- assessment and monitoring
- patient education
- control of factors contributing to asthma severity
- pharmacology treatment

An algorithm to identify patients with different levels of asthma control was established in these guidelines.
### NAEPP EPR-3 asthma control algorithm

<table>
<thead>
<tr>
<th>Components of Control</th>
<th>Well Controlled</th>
<th>Not Well Controlled</th>
<th>Very Poorly Controlled</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Symptom</strong></td>
<td>≤ 2 days/week</td>
<td>&gt; 2 days/week but not through the day</td>
<td>Every day in the past 30 days and throughout the day</td>
</tr>
<tr>
<td><strong>Nighttime awakenings</strong></td>
<td>≤ 2 days/month</td>
<td>1-3 days/week</td>
<td>≥ 4 days/week</td>
</tr>
<tr>
<td><strong>Rescue medication use</strong></td>
<td>≤ 2 days/week</td>
<td>&gt; 2 days/week</td>
<td>≥ 2 uses per day</td>
</tr>
<tr>
<td><strong>Forced Expiratory Volume (FEV₁)</strong></td>
<td>&gt; 80% predicted</td>
<td>60%-80% predicted</td>
<td>&lt; 60% predicted</td>
</tr>
<tr>
<td><strong>Asthma Control Test (ACT)</strong></td>
<td>≥ 20</td>
<td>16-19</td>
<td>≤ 15</td>
</tr>
</tbody>
</table>
ACB variables

- Extract the symptom category from SYMP_30D and DUR_30D
- Nighttime awakenings was obtained from ASLEEP30
- Short-Acting Beta Agonists (SABA) usage was calculated using all the SABA medications from the ILP08_# list
  - Divided weekly usage by 7 to get daily usage
  - Calculated daily usage was added to the original daily usage (now we have ”the” daily usage)
  - Instead of evaluating a days/week variable, a times/day variable was evaluated
- \( \text{FEV}_1 \) and \( \text{ACT} \) variables are not available in ACBs
## Asthma Call-back asthma control algorithm

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</thead>
<tbody>
<tr>
<td>Symptom (SYMP_30D and DUR_30D)</td>
<td>$\leq$ 8 days in past 30 days</td>
<td>$&gt; 8$ days in the past 30 days but not through the day</td>
<td>Every day in the past 30 days and throughout the day</td>
</tr>
<tr>
<td>Nighttime awakenings (ASLEEP30)</td>
<td>$\leq$ 3 times in past 30 days</td>
<td>$\geq$ 3 and $\leq$ 12 times in the past 30 days</td>
<td>$\geq$ 13 times in the past 30 days</td>
</tr>
<tr>
<td>Rescue medication use (ILP08_#)</td>
<td>$\leq$ 0.29 uses per day</td>
<td>$&gt; 0.29$ and $&lt; 2.00$ uses per day</td>
<td>$\geq$ 2.00 uses per day</td>
</tr>
</tbody>
</table>
Current Asthma Prevalence
Current Asthma Prevalence

Country
PR
USA

Survey Year
Prevalence * 100
2005 8.8
2006 8.3
2007 8.2
2008 8.5
2009 8.4
2010 8.6
2011 10.1
2012 8.9
2013 10.3

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Current Asthma Prevalence by Gender and Country, 2011-2012

Puerto Rico vs USA comparison

Asthma Control

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Current Asthma Prevalence by Age Group, 2011-2012

Puerto Rico vs USA comparison

Asthma Control

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Asthma Control
Overall Asthma Control Distribution, 2011-2012
Uncontrolled asthma

For a better analysis and comprehension of the asthma control, we have aggregated those within the "Not Well Controlled" category with the "Very Poorly Controlled" and called this the "Uncontrolled" Asthma.
Uncontrolled Asthma Prevalence by Gender, 2011-2013
Uncontrolled Asthma Prevalence by Age, 2011-2013
Uncontrolled Asthma Prevalence by BMI category, 2011-2013

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Puerto Rico vs USA comparison

Asthma Control
Uncontrolled Asthma Prevalence by Education Level, 2011-2013
Uncontrolled Asthma Prevalence by Employment Level, 2011-2013

- Employed
- Unemployed
- Homemaker
- Student
- Retired
- Unable to work

Prevalence * 100

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Uncontrolled Asthma Prevalence by Annual Income, 2011-2013

![Graph showing uncontrolled asthma prevalence by annual income]

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Uncontrolled Asthma Prevalence by Marital Status, 2011-2013

- Living Together
- Divorced
- Widowed
- Separated
- Never Married

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Results

- Asthma prevalence in Puerto Rico is higher than in the mainland
- 48% of the adults living with asthma in Puerto Rico, have their condition uncontrolled
- Socioeconomic factors, such as annual income, marital status, and employment status, are a trigger for uncontrolled asthma
Strengths

- A populational asthma control indicator can be obtained
- Results are consistent with literature
- Sample size provides stratification by covariates
- It is cost-effective

Weakness

- The information is self-reported
- Not all the variables used by NAEPP to determine the level of asthma control are collected in the survey
Next steps

- Continue the analysis of asthma control health outcomes with other data sets
- Compare and validate the information with other populational surveys
- Promote the use of Asthma Call-back survey for more comprehension use of the condition
- Disseminate the results
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### PR-BRFSS
- Dr. Ruby Serrano

### More information on our website:
www.proyectoasmapr.com