



The Ethnic & Socioeconomic Imprints of Asthma: A Health Disparity in Massachusetts

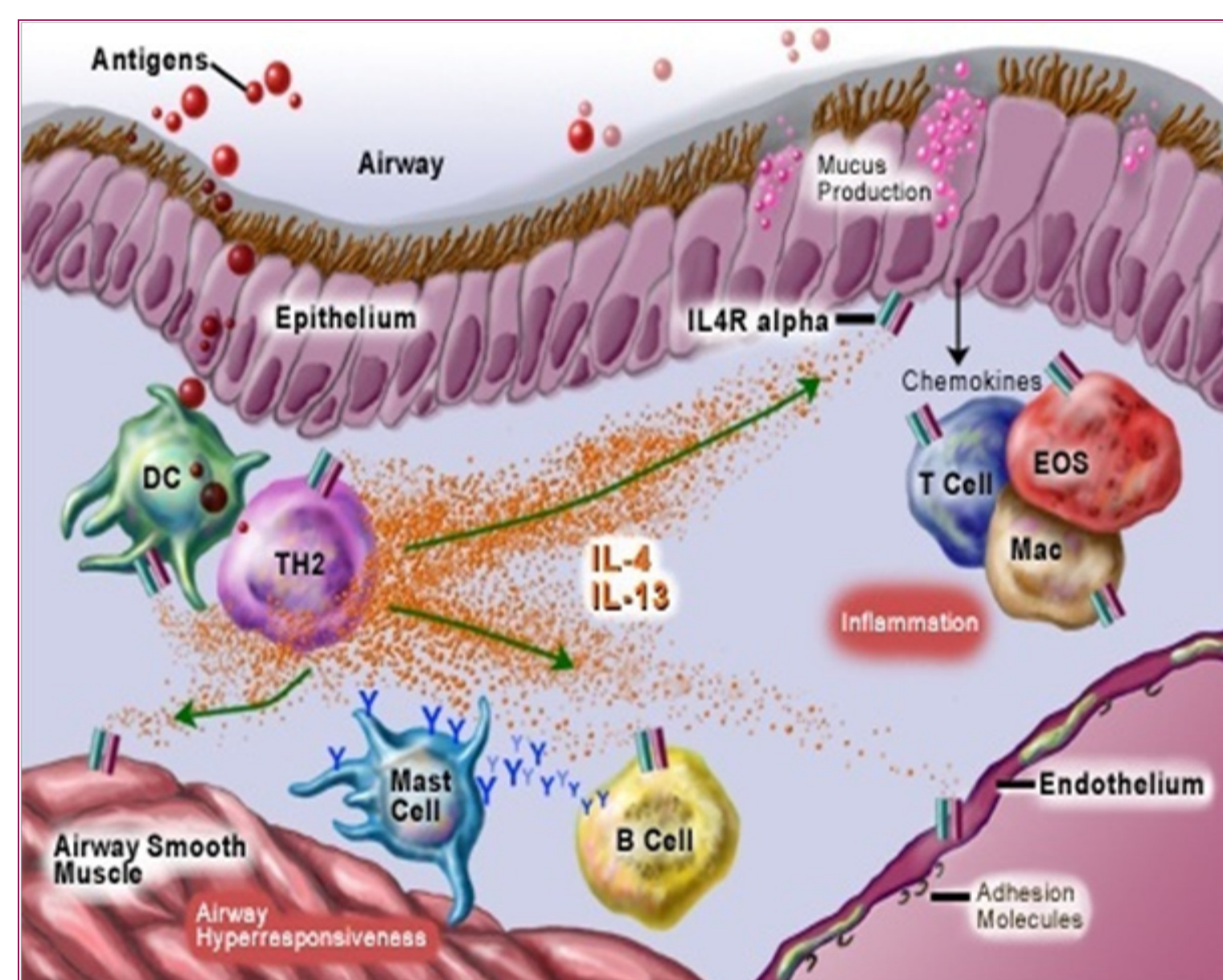
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What is Bronchial Asthma & Its Common Symptoms?

Asthma is a chronic inflammatory disease of the airways. Inflammation is a non-specific response to antigen or allergen that breach through the first line of defense, the skin and mucous membrane, involving the innate immune system (Kindt, 2007). Common allergens associated with asthma include House Dust Mites, mold pollen, animal dander, foods (i.e. nuts). Recall the hallmark symptoms of inflammation, but here dolor means pain and refers to trouble breathing; and if you cannot breathe you cannot live. Asthma leads to airway obstruction and hyper-responsiveness (Bousquet, 2000). An asthmatic reaction is characterized by the mast cells' release of histamines and leukotrienes which results in hoarseness and wheezing. The histamine released by the mast cell attaches to H_1 receptors present on smooth bronchial muscles. Inducing contraction of the muscle and causing the airways to narrow. This results in the physical manifestation of wheezing. Similarly, swelling of the throat and lungs leads to hoarseness. Moreover, the binding of histamine to the H_1 receptor increases the permeability of the venules, and increases mucus secretion by goblet cells. This leads to bronchoconstriction, which serves as another factor attributed to hoarseness and wheezing. Furthermore, leukotrienes promote inflammations (swelling of tissue), and mediates bronchoconstriction, increased vascular permeability, and mucus production.

Molecular Overview:



Treatment:

In an episode the first drug of defense is epinephrine because it prevents further asthmatic obstruction of the airways and it stimulates the heart to keep beating; meaning it relieves and helps in breathing and overall circulation. Specifically, epinephrine function on the Beta-2 adrenergic receptors in the lungs by opening the airways, thus alleviating the histamine induced bronchoconstriction. Two other drugs that are common and in the epinephrine family are aerosolized solution of 0.15 ml of albuterol, and an injection of susphrine. The two drugs are part of the epinephrine family because they too function in the opening the airways and help with sustaining overall circulation. Another set of drugs function as controllers of the asthmatic condition and they are classified as inhaled glucocorticosteroids.

Central Aim / Concern:

A thorough analysis of asthma deems it a selective disease for it is triggered via exposure to a set-class of allergens that are most prevalent in lower socio-economic communities in Massachusetts. Consequently, asthma is a health disparity in Massachusetts. This report proclaims that a disparity in asthma is of great importance because it highlights environmental and social stresses on economically disadvantaged youth of the Commonwealth. This in turns predispose them to a greater chance of mortality and thus marks injustice in the highest regard.

Quick Statistics Highlight Asthma's Significance:

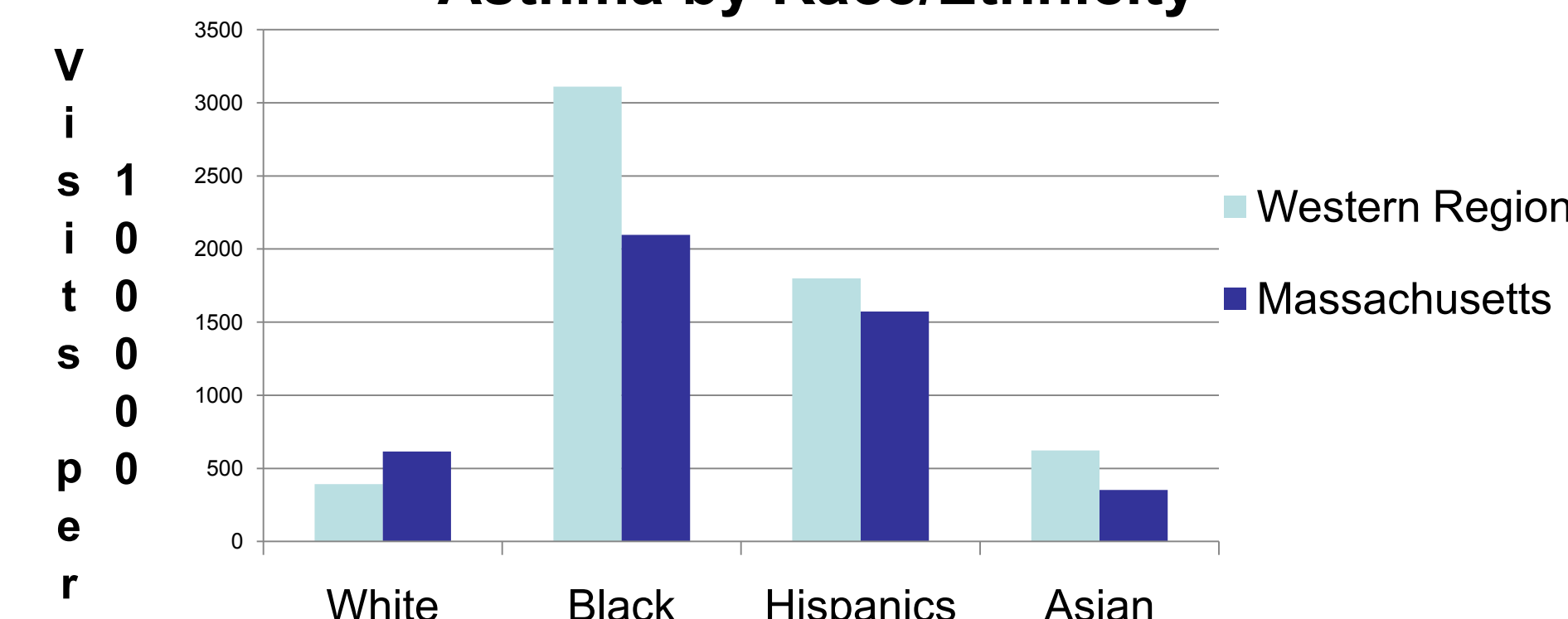
- 20 million Americans have asthma
- Responsible for 1/4 of ER visit in United States
- 44% of ER visit are children
- 70% of people with asthma also suffer other diseases
- Predominant in inner cities

Data & Analysis:

Race and Ethnic Breakdown of Population Largest Communities, Western Region and Massachusetts: 2005 (In %)

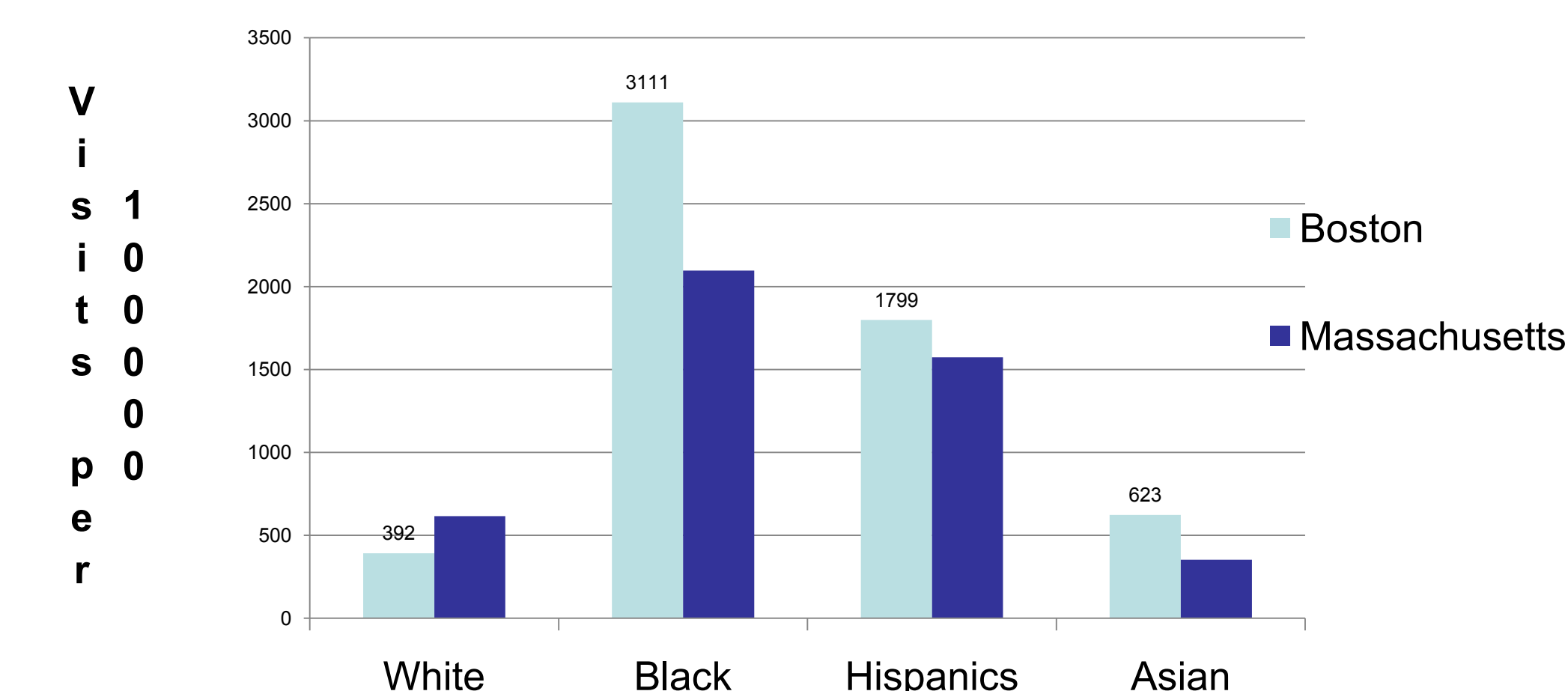
	Western Region	Holyoke	Springfield	MA Total
White	81.3	49.3	45	81.0
Black Non-Hispanic	5.5	2.7	21.3	6.0
Hispanic	11.0	46.7	31.0	7.9
Asian Non-Hispanic	2.0	1.0	2.4	4.9
American Indian	0.2	0.1	0.3	0.2

Emergency Department Visit Rates for Asthma by Race/Ethnicity



The data projects an explicit health disparity amongst the numerous ethnic groups. The source of the graphs states that the two categories and their respective subgroups are statistically different ($p < 0.05$) meaning that the Western region and Boston have a higher emergency room visit rate then Massachusetts on average. Leading experts have affirmed that cities have a higher concentration of allergen exposure, which is directly correlated with asthmatic episodes. We can thus infer that Blacks and Hispanics in Western Massachusetts live in poor health conditions. This is further highlighted by looking closely at the demographics of Western Massachusetts. We see that in a few cities, especially Springfield, there is a strong representation of Blacks and Hispanics, and for that area alone to have such a huge impact on the whole region strongly indicates the health disparity. Moreover, the unequal emergency room visits indicates that Hispanics and Blacks perceive emergency room as their primary choice of treatment. Other determining factors may be lack health insurance, or that allergens that are directly correlated with asthmatic reactions are highly concentrated in their poor living sectors. The following data on Boston and Massachusetts respectively delineates a health disparity that is ethnic and socio-economically based. Children with asthma that live in Boston, the inner city, are twice as likely to visit the emergency room than children in the overall state on average. In conclusion, environmental stresses and allergen exposure are experienced at a higher rate in the inner city and thus, reflects, in due degree, the asthmatic health disparity in Massachusetts.

Emergency Department Visit Rates for Asthma, Children Ages 0-14, by Race/Ethnicity



Recommendation:

- > Improve access to and quality of asthma health care services
- > Enhance the depth of asthma knowledge via the public health sector
- > Ensure asthma friendly schools and neighborhoods
- > Stimulate innovations in asthma prevention and management

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