Introduction

Asthma is a chronic respiratory condition that affects the airways in your lungs, making it difficult to breathe. It's portrayed by repeating episodes of windedness, wheezing (a whistling sound during breathing), coughing, and chest tightness. These side effects happen when the airways become kindled and limited, confining the progression of air all through the lungs. Triggers for asthma side effects can shift, including allergens like dust, pet dander (tiny flakes of the pets), or residue vermin, as well as irritants like smoke, strong odors, or cold air. Exercise, respiratory infections, and emotional factors can also play a role in triggering symptoms.

According to the **Centers for Disease Control and Prevention (CDC)**, asthma remains a huge general wellbeing worry in the US, and hospitalization rates because of asthma continue to be a matter of focus. While advances in asthma management have further developed results for the vast majority, certain factors still contribute to an increased risk of hospitalization among individuals with asthma. The CDC reports that kids and grown-ups with ineffectively controlled asthma are more vulnerable to hospitalization. Factors, for example, deficient admittance to medical services, absence of adherence to endorsed meds and asthma activity plans, as well as exposure to environmental triggers, play a role in the likelihood of hospitalization. It is crucial to note that asthma hospitalization rates can disproportionately affect specific demographics and communities.

Financial variations, absence of admittance to quality medical services, and exposure to allergens and irritants in certain living environments can contribute to higher rates of hospitalization in vulnerable populations. Efforts are being made by the CDC, healthcare providers, and local area associations to address these inconsistencies and diminish asthma-related hospitalizations. Education campaigns, access to affordable medications, and proper asthma management guidance are essential components of these initiatives. Understanding the risk factors related with asthma-related hospitalization, as framed by the CDC, empowers individuals and caregivers to take proactive measures in managing asthma effectively. By sticking to endorsed prescriptions, creating asthma-friendly environments, and seeking prompt medical attention for worsening symptoms, individuals can contribute to lowering the risk of hospitalization and improving their overall quality of life.

Research Problem Definition

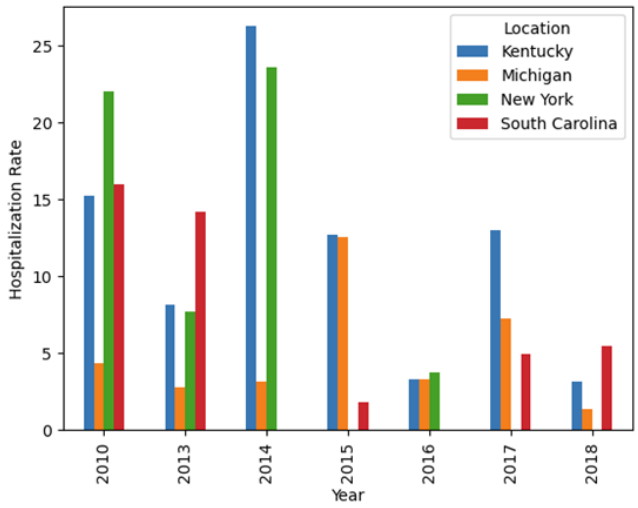
Exploring discrepancy in Asthma, the executives and Hospitalization Rates among Financially Weak Populations in Accordance with CDC Guidelines; Asthma keeps on being a critical general wellbeing worry in the US, affecting individuals of various demographics. However, certain groups, particularly those from socioeconomically vulnerable backgrounds, experience higher rates of asthma-related hospitalization and inadequate asthma management. One of the states in the United States of America, that has the highest rate of being prone to hospitalization due to asthma through out the year was the state of **Kentucky**, back in **2014**. The Data Source can be found at this website called **Centers for Disease Control and Prevention**. This is a **National Public Health Agency** in the United States. They operate under the Department of Health and Human Services and is headquartered in Atlanta, Georgia. The exploration issue fixates on understanding the reason why people from low-pay networks face an unbalanced weight of asthma-related hospitalizations, intensifications, and less than ideal management. By analyzing the effectiveness of CDC-recommended asthma management strategies within these populations, the study seeks to identify barriers to proper asthma care, including limited access to healthcare, lack of adherence to prescribed medications, and exposure to environmental triggers. And from the articles that I have read, it tells us that Kentucky is one of the **highest rates of poverty** in the United States.

The general objective is to acquire knowledge in the difficulties faced by financially Weak Populations while attempting to deal with their asthma. This research problem aligns with the CDC's mission to promote health equity and improve the health and well-being of all individuals, particularly those facing social and economic challenges. Through a comprehensive analysis of data, including hospitalization rates, adherence to asthma action plans, and access to healthcare resources, this research aims to provide evidence-based recommendations that can inform policy initiatives and healthcare interventions. Eventually, the objective is to add to the advancement of designated systems that line up with CDC rules and address the special requirements of financially weak populaces, prompting further developed asthma the board, decreased hospitalization rates, and improved in general wellbeing results.

Data Preparation Steps

With the use of basic python coding and Jupyter Notebook; I imported some library functions of python, and these are - Pandas, and matplotlib. Before I approached and analyzed the data, I searched up some other related topics of Asthma throughout the internet and found out that Asthma is a well-known disease throughout the world. I then identify some reliable sources for my data which I can be used for this research. One of them would be the **Centers for Disease Control and Prevention** (CDC). After identifying some reliable sources, I then started my data collection with the use of the dataset uploaded by CDC at their website. During the process, I made sure that I had collected all the data throughout the years. I then removed some of the duplicated data and some unwanted data with the use of the simple python coding commands that were thought to us. With regards to the missing values, I chose to exclude them from my computation of the data and standardized the data format. The chart below shows us the actual data about the top 4 highest possible rate of being prone to hospitalization due to Asthma.

	Year	Location	Theme	Disease Type	Value
13724	2010	South Carolina	Hospitalizations for asthma	Crude Rate	16.03
18797	2013	New York	Hospitalizations for asthma	Crude Rate	7.73
24071	2014	Michigan	Hospitalizations for asthma	Crude Rate	3.19
20127	2015	Michigan	Hospitalizations for asthma	Crude Rate	12.56
10574	2016	Michigan	Hospitalizations for asthma	Crude Rate	3.33
11260	2017	South Carolina	Hospitalizations for asthma	Crude Rate	4.92
23701	2018	Kentucky	Hospitalizations for asthma	Crude Rate	3.12



Findings and Recommendations

The high rate of asthma hospitalization in New York City during 2010 can be attributed to several factors, including a higher prevalence of asthma, disproportionate share of pollution sources, environmental and social factors, consistently higher rates of asthma hospitalization, higher percentage of children hospitalized, and economic impact. Some of the possibilities of having Asthma are **Influenza Disease** and **Pneumococcal disease**. And because of this situation, it then started to spread towards another states, and that leads to the highest impact of asthma hospitalization the Kentucky. According to the CDC, the **age-adjusted** asthma hospitalization rate in Kentucky was 153.6/100,000 persons in 2014, which was higher than the U.S. rate of 144/100,000 persons. This massive increase in rate was because of having a lower level of income compared to others. And in the following years (2015 – 2018), it all started to go down because of the development of different types of technology, and vaccines, to support the clients.

Samples of vaccines would be the **Influenza (Flu)** and **Pneumococcal Vaccines**. These vaccines have shown a positive **impact on minimizing asthma hospitalizations**. And some recommendations of the problem are to **Develop an Asthma management plan**, **Avoiding Triggers** like dust, smokes and cold airs. **Always take the medication** that was prescribed by the doctor, **stay active**, and **avoid smoking**. Dust can irritate the airways and trigger inflammation in individuals with asthma. Smokes/Smoking whether from tobacco, wood, or other sources, contains particles and chemicals that can irritate the airways and trigger inflammation. And lastly would be the cold air which can cause the airways to constrict and become more sensitive in individuals with asthma.

Conclusion

In conclusion, asthma remains a significant public health concern in the United States, affecting individuals across various demographics. In any case, certain gatherings, especially those from socioeconomically vulnerable backgrounds, experience disproportionate rates of asthma-related hospitalization and inadequate asthma management. This research delved into the challenges faced by financially weak populations in managing their asthma, with a specific focus on the disparities observed in the state of Kentucky.

The discoveries of this study highlighted the diverse ideas of contributions to elevated asthma hospitalization rates, including a higher prevalence of asthma, exposure to environmental triggers, limited access to healthcare, and economic disparities. By analyzing data from reliable sources, including the Centers for Disease Control and Prevention (CDC), this research highlighted the impact of interventions such as vaccination campaigns in mitigating asthma-related hospitalizations.

To address the challenges faced by financially weak populations in managing asthma, it is imperative to develop comprehensive asthma management plans tailored to individual needs. Strategies should encompass avoiding triggers, consistent medication adherence, and promoting a healthy lifestyle. By incorporating these suggestions into public health initiatives and policy frameworks, we can aspire to achieve health equity and improved well-being for all individuals, irrespective of their socioeconomic background.

Generally, this research contributes to the ongoing efforts of organizations like the CDC in promoting equitable healthcare access and enhancing asthma management outcomes. By revealing insight into the difficulties faced by financially vulnerable populations, this study provides a foundation for targeted interventions that can ultimately lead to a reduction in asthma-related hospitalizations and an enhancement in overall health outcomes.

As the efforts of the CDC, healthcare providers, and local area associations keep on tending to variations in asthma care, it is basic to perceive the headway made and the continuous difficulties demand attention. By focusing on comprehensive approaches that consider social, economic, and environmental factors, we can move closer to accomplishing impartial asthma care for all, and to improve the health outcomes and a higher quality of life for individuals living with this chronic condition.

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