



Asthmatic Hospitalizations in Washington

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Approach

As we examined WTN's data between **Asthma hospitalizations** and **populations (aged 19-64) without health insurance**, we found a shocking negative correlation between the two topics.

Washington counties with a *higher* percentage of individuals without health insurance, had a *smaller* percentage of asthmatic hospitalizations.

As we walked through this project, we sought to focus on the various *socioeconomic* factors that may impact asthma rates and hospitalization amongst the population.

Impactful Data and Information

Asthma is a chronic disease that develops over time

More than 600,000 people in Washington have asthma

More than 5,000 people are hospitalized every year

About 1 in 8 women and 1 in 14 men have asthma

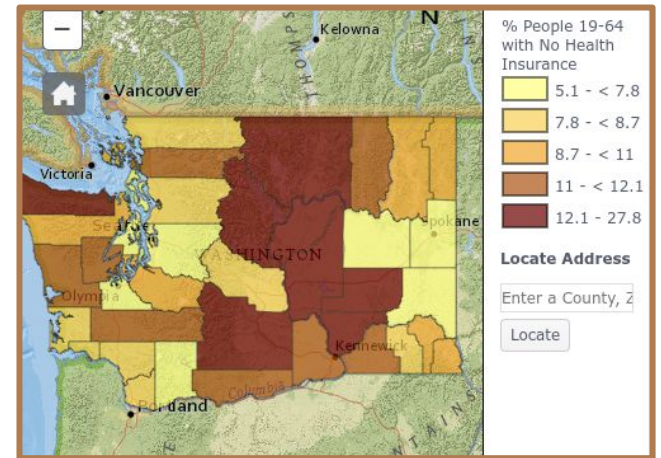
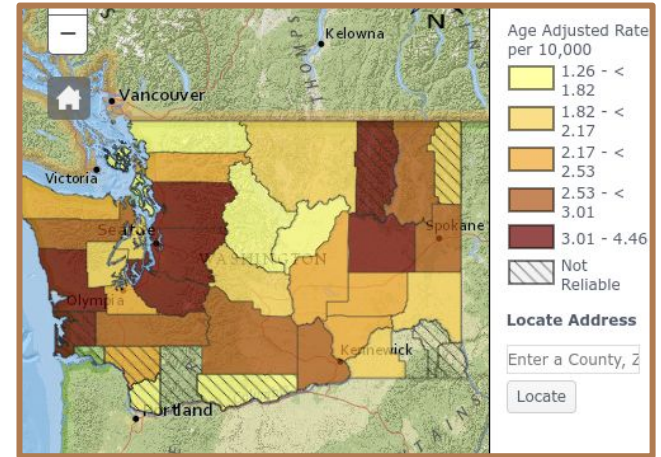
The map on top displays percentage of asthma hospitalizations in Washington counties.

The map on the bottom displays percentage of people aged 19 to 64 with no health insurance.

As we can see, counties such as: Okanogan, Chelan, Douglas, Grant, and others. have a high percentage of people without health insurance while having a low percentage of asthma hospitalizations. These counties also tend to have *poorer socioeconomic conditions*.

Vice versa for counties such as: King, Snohomish, Pierce, to name a few.

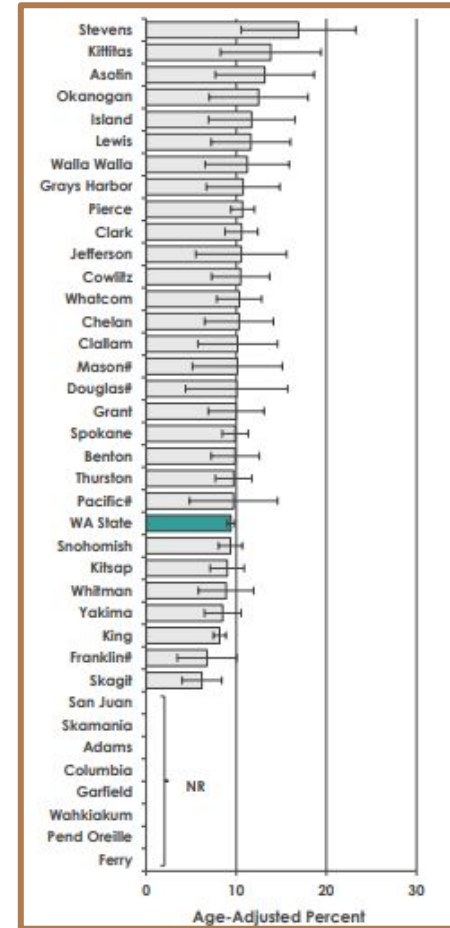
Question now, is the low percentage of asthma hospitalization due to a low rate of asthma in general?



Not necessarily.

This chart shows the population percentage of asthma within every Washington county.

It is shown here how those counties with a low percentage of asthma hospitalizations, tend to have higher rates of asthma, well above the Washington state average.

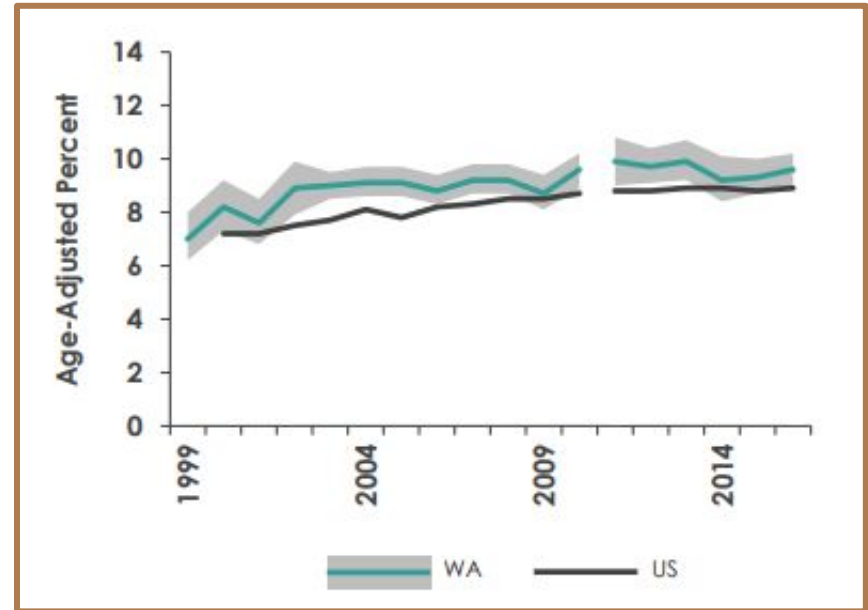


We can also see here that asthma rates are steadily rising in WA, greater than the nationwide average.

So we know that there's also a negative correlation between asthma rates and hospitalization. High asthma rates *does not mean* high hospitalization, in fact, the opposite is true in some counties.

Does the lack of health insurance impact that?

Let us first look at the various socioeconomic factors that may contribute to asthma development.



Key Factors to Asthma Development

Smoking and exposure to
secondhand smoke

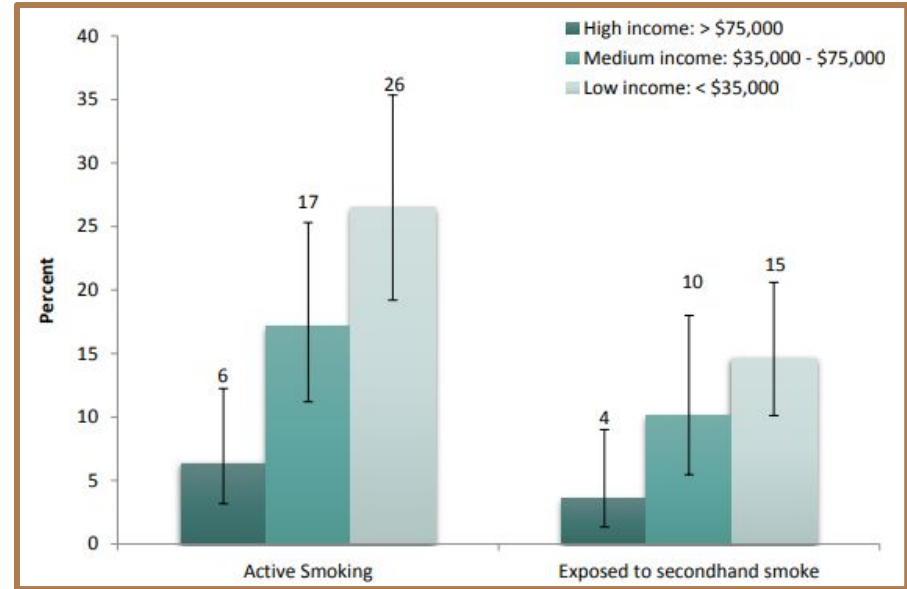
Presence of environmental
triggers indoors

Access to healthcare

Cost of healthcare services

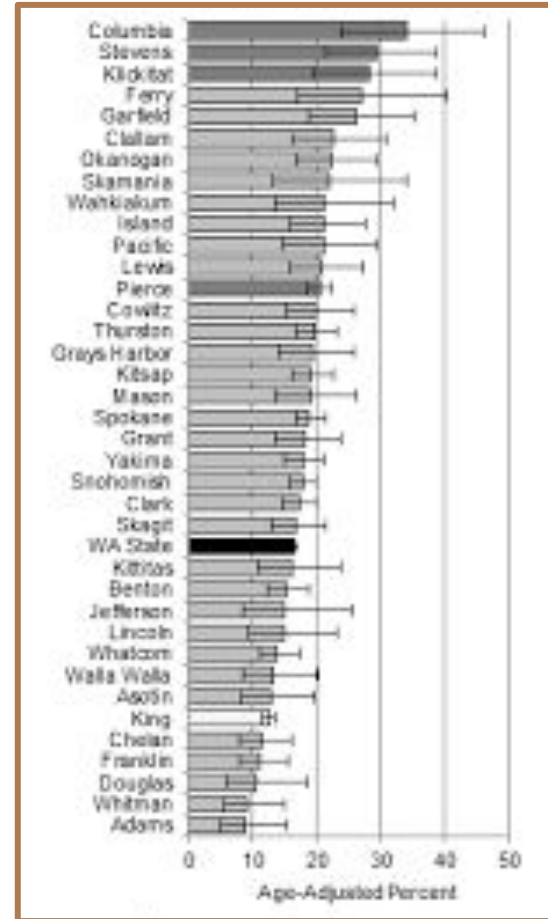
Smoking is a common factor that can increase asthma symptoms, leading to more frequent asthma episodes. It also decreases the effect of asthma medication, restricting levels of activity. Exposure to smoking is also a trigger to those with asthma.

We can see here that a lower socioeconomic status is associated with smoking, with *more than 25* percent of low income americans being **active smokers** compared to a *combined 23* percent of those with high and medium income.



As shown in this chart, we can also see that poorer counties, especially those with a low insured population, tend to have higher population rate who smoke or use tobacco products.

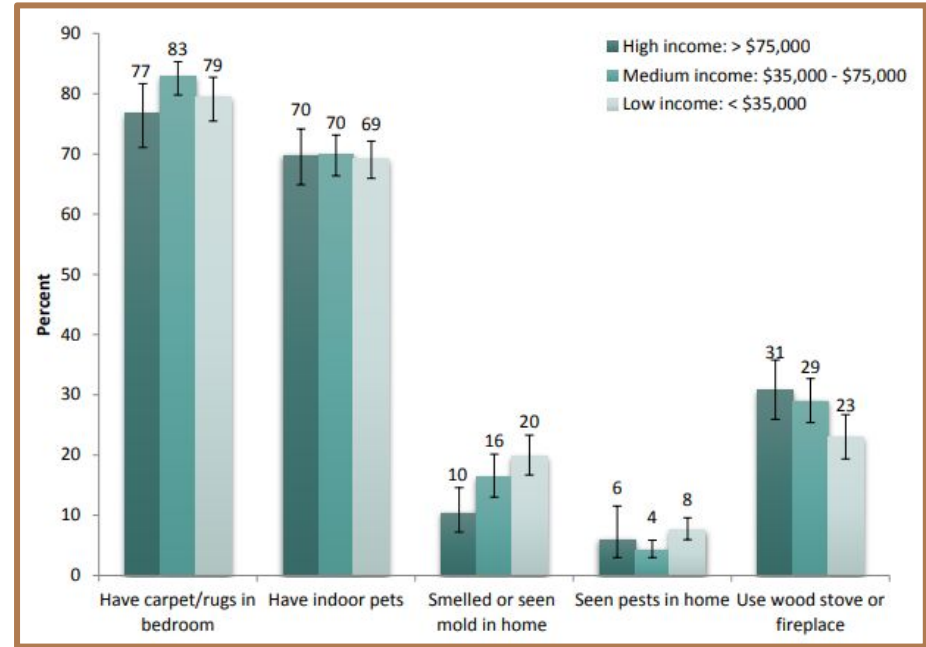
In comparison, wealthier counties tend to have a lower population rate, lower than the state average.



Indoor environmental triggers such as; carpets, pets, mold, fireplaces, etc., can also trigger frequent asthma episodes especially since Americans spend *90 percent* of their time indoors.

Airborne irritants, especially as air circulation tends to be poorer indoors, are the most common factors in worsening asthma symptoms.

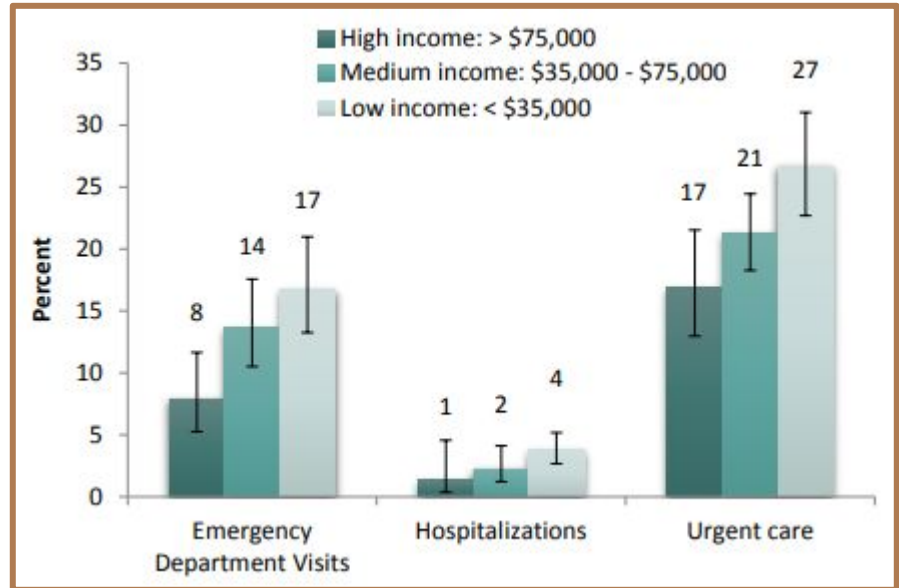
Regardless of income, environmental triggers are *prevalent to all* with asthma. The only significant factor is **mold**, which is much more common in low income households due to a shortage of healthy housing in poorer neighborhoods.



Access to healthcare and costs of healthcare services are also major obstacles for many, especially those without health insurance.

Trips to Urgent Care for asthma are more common as they are *convenient* and somewhat more affordable, averaging between **\$100** to **\$200** per visit, however the quality of treatment may *not be as effective*.

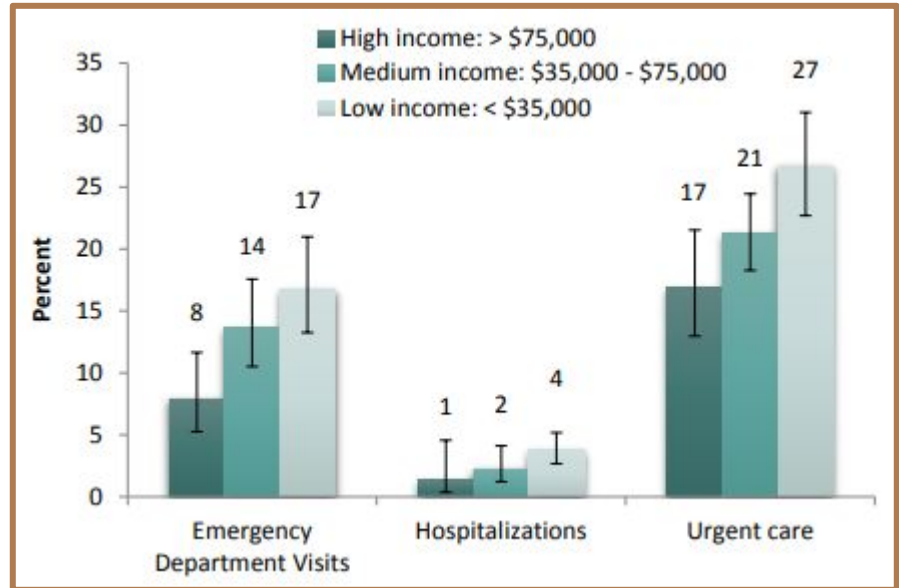
ED visits are much more costly however, usually around **\$1200**. And for hospitalized asthma patients, the cost is beyond **\$3000** for an average stay of 3 to 4 days.



That price rises dramatically for those uninsured. The average ED visit cost without insurance in WA state is around **\$1800 to \$2000**.

Which is why most patients usually wait for symptoms to deteriorate before actually caring due to fear of the financial burdens from these costly healthcare services.

As shown here, low-income individuals faced more prevalent and more serious asthma impacts leading to more Urgent Care and ED visits because of those previous medical avoidances.



Local Health Jurisdictions (LHJ) Funds

Each county receives healthcare funds from 3 main sources:

- Local
- State
- Federal

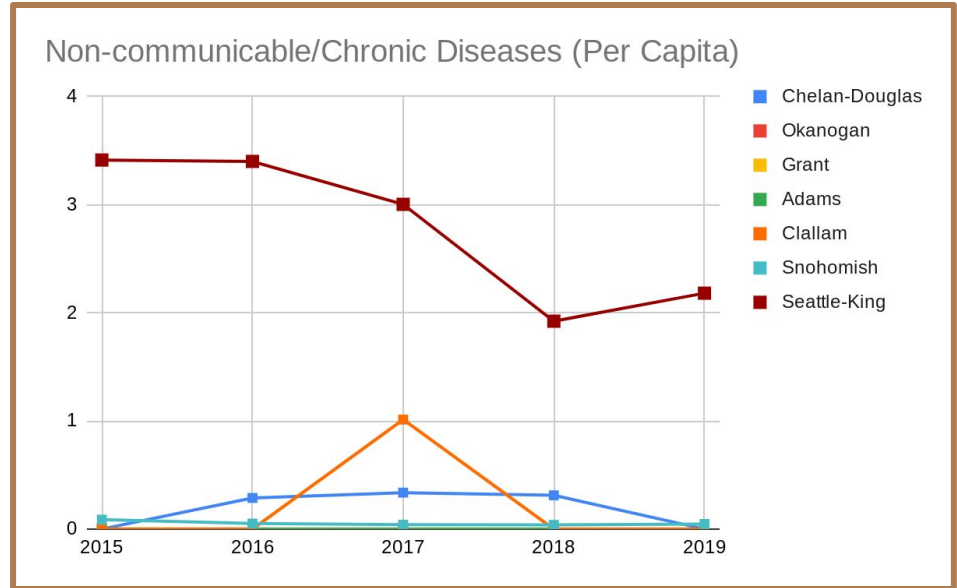
As of now, the Department of Health doesn't have *asthma-specific* funding to make statewide policy, environmental and systems changes in order to sufficiently and equitably support those with asthma.

We decided to focus on expenditures that may relate to asthma development, specifically counties with poorly insured, low asthma hospitalization populations., in comparison to wealthier counties.

BARS (Budgeting, Accounting, Reporting System) revenue code 562.49 is categorized for funds directed to non-communicable diseases and chronic illnesses, promoting prevention and control services and activities.

We can see that the poorer counties receive little, most times no funding at all, despite having a high population rate of asthma.

In comparison, Seattle-King county receives one of the highest per capita funding for BARS 562.49.

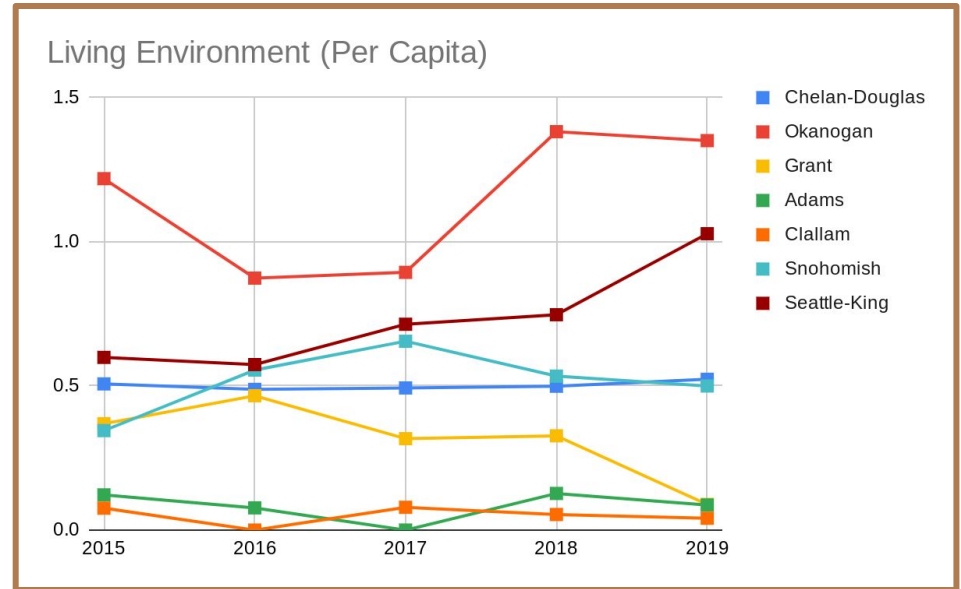


BARS revenue code 562.58 is categorized for funds directed towards the county's living environment. Services and activities, including inspections of housing, shelters, schools, etc, are carried out to ensure physical health and social well-being.

Since mold is a prevalent factor in low-income households, we wanted to see how counties dealt with that issue.

As the average funding per capita for living environment floats around 0.5 for wealthier counties like Seattle-King and Snohomish, we see that poorer counties like Adams and Clallam received little to no funding.

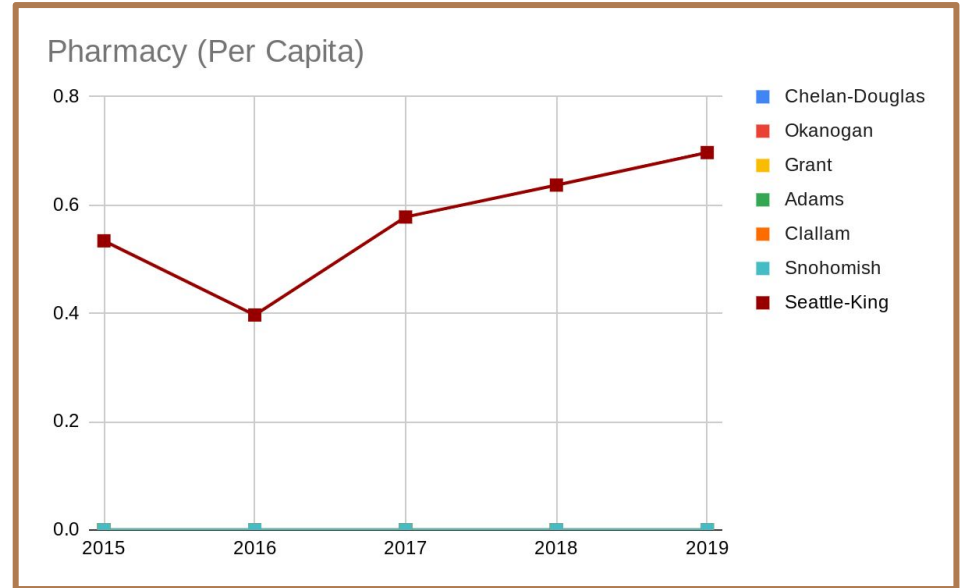
It is worth noting that Okanogan receives a lot more funding than the rest, which may potentially contribute to a healthier living environment.



BARS revenue code 562.78 is categorized for funds directed towards services and activities related to acquisition and dispensing of prescription medications, and general pharmaceutical items.

A common treatment for asthma are prescribed inhalers, therefore we wanted to see how well funded were pharmacies in these counties.

We can see that pharmacies in Seattle-King county are very well-funded while pharmacies in the other counties received no funding at all, which may be a concern to pharmaceutical accessibility and distribution for patients.



Equity Impact

Our project reveals a concerning **economic disparity** in healthcare access and outcomes, as Washington counties with a high uninsured population rate show lower asthma hospitalizations, *despite* having an elevated asthma prevalence.

Along with **poorer socioeconomic conditions**, the lack of **asthma-specific** funding and the disproportionate funding of other healthcare expenditures contribute to a growing issue of **asthma development** and **healthcare accessibility**.

Potential Solutions

The FDA approved this **Airsupra Inhalation Aerosol** in 2023 for people with asthma ages 18 and up. It is the first inhaler that uses both an inhaled corticosteroid (budesonide) and a short-acting beta agonist (albuterol) to be approved in the US. When inhaled, these work to relax the muscles and reduce inflammation in the lung airways. This heavily reduces the risk of severe asthma attacks.

When using the Airsupra in tests based on time to first severe asthma attack, the Airsupra showed a strong efficacy of a **28% reduction** in risk of severe asthma attacks. This is in comparison to regular alternative options like albuterol.

Airsupra is still a *relatively new* product, therefore it is understandably more costly at the moment. However over time, we expect the price to be *reduced* as Airsupra becomes more widespread to all.



More Solutions

The **CDC's National Asthma Control Program** is an initiative that exists to support and improve quality of life for people with asthma. They fund communities, schools, non-profits etc. so that people with asthma that need financial aid can get the support they need. They also use the funds to help with the tracking of asthma rates and trends. They are backed by a \$1 million grant from the CDC.

The **Washington Asthma Initiative** is a mix of a group of health care providers, government agencies, and individuals around Washington state. They are helpful in diagnosing, treating, and managing asthma. They also help to educate people about asthma and, in some cases, help with the financial support end of treating asthma.

Significance

As we continue to find ways to alleviate symptoms and the impact of asthma, it is *critical to recognize* that when it comes to the accessibility of healthcare, it also comes with a **financial investment**. Many people out there would rather avoid seeking necessary treatment, than to pay off hospital bills that may bury them in medical debt for years. That situation is even more difficult for individuals that are uninsured, as that debt would be many times more costly.

The success of the Airsupra inhaler demonstrates the *potential* of future asthma treatment, implementing new scientific findings to help improve the effects of alleviation medication. Uninsured patients do not want ineffective solutions because they do not want to invest too much resources on something that doesn't work. The goal is to continue to build on and improve such scientific research, such as Airsupra, to help meet their needs.

Significance

Initiatives such as CDC's National Asthma Control Program and Washington Asthma Initiative, can also help further improve the quality of life for individuals with asthma. Both play a crucial role in addressing the needs of the uninsured population by offering resources and support for asthma prevention and management.

They help to provide education and affordable healthcare services, aiming to reduce the burden of asthma amongst the uninsured.



Reflection

Asthma is a word that gets thrown around quite frequently. It *is* a common chronic illness, but it seems that we are beginning to forget what it really is.

As athletes, we've seen the health and performance of other athletes become inhibited due to asthma. We also have seen family members having to deal with asthma interrupting their daily lives. *So common* that we don't really pay much attention to it anymore.

We decided to focus on asthma in this project because we wanted to dive deeper and learn more beyond the surface level. We thought it was important to learn about its scientific and socioeconomic significance, and why it continues to grow and remain so common within our society.

Reflection (Continued)

The main challenge throughout this project was deciding the extent of our research and data. Since we focused a lot on the various socioeconomic factors that may contribute to asthma, we really had to limit ourselves to what we thought was the most important and most critical information, to avoid overflowing and overextending our project. We also wanted to provide an in-depth analysis of our research rather than skimming over everything. So it was a constant battle, trying to balance the quality and quantity of our information.

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