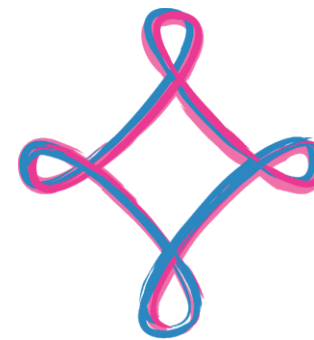


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Cancer Cops

## **Cancer Cops Head & Neck Cancer**



# **BREAST CANCER HUB<sup>SM</sup>**

**Age Group - 10-13 years**

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## Abstract

**Background:** Head and Neck cancers include cancers in the larynx, throat, lips, mouth, nose, and salivary glands. Tobacco use, heavy alcohol use, and infection with Human Papillomavirus (HPV) increase the risk of head and neck cancers.

**Aim:** Our aim for the research is to help people understand the risks and causes of Head and Neck cancer.

**Methods:** We used various reputed websites for our research. American Cancer Society <sup>1</sup> has been one of our team's favorite. **Our team members have created all their own graphs and diagrams using Google Sheets and Google Drawings.**

**Discussion & Conclusion:** The group did very well as a team over the course of our project. Our team worked very hard to create the graphs and diagrams. While researching we found out that in head and neck cancer, the most common place to get it is the larynx also known as the voice box. Race and ethnicity also plays a big role. Head and neck cancer survival mostly depends on the stage. But, treatments vary on the stage, race and if the cancer has come back/recurred. In conclusion, our group is very proud of what we have completed and look forward to helping in a bigger and better cause.

## Causes of Head and Neck Cancer

There are many causes of Head and Neck cancer, but 75% of it is caused by heavy alcohol use and tobacco. These mainly cause cancer in the oral cavity, oropharynx, hypopharynx, and larynx. People who use alcohol and tobacco have the highest chance of getting cancer. Oral cancer can also be caused by poor oral hygiene or possibly using mouthwash with a high alcohol content.<sup>2</sup> All tobacco products, including cigarettes, cigars, pipes, and smokeless tobacco (chewing tobacco, snuff, or a type of chewing tobacco or paan (betel quid)) are linked to head and neck cancer (except for salivary gland cancers). Drinking any type of alcohol, such as beer, wine, or liquor, also raises the risk of getting cancers of the mouth, throat, or voice box. <sup>3</sup>

# Cancer in the Larynx

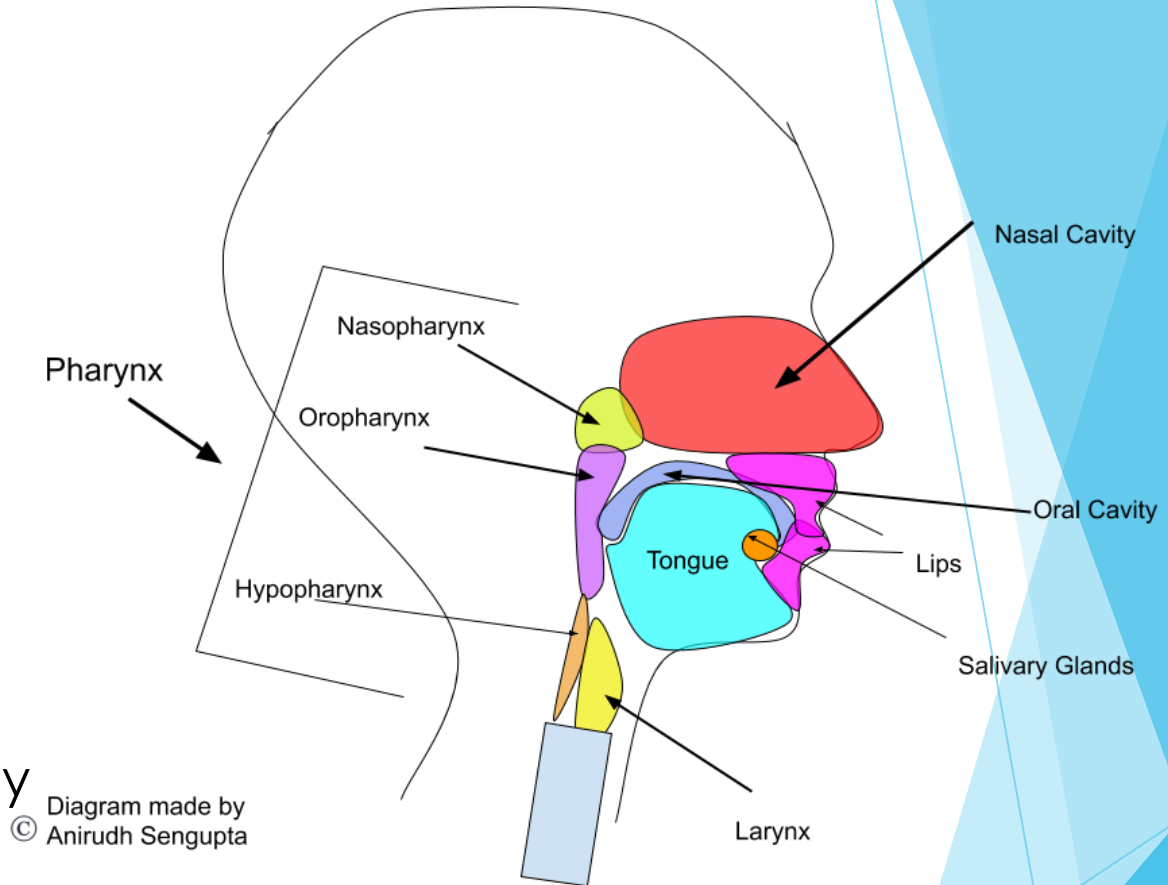
This is a diagram (to the right) of some of the places that you can get head and neck cancer. The diagram shows where all these locations are inside your body. The next few paragraphs you will be reading will be focused specifically on the most common area, the larynx.

These are some of the Diagnosis:

- Operative endoscopy and biopsy
- Imaging tests for staging

Treatment options depend on the following:

- The stage of the disease.
- The location and size of the tumor.
- Keeping the patient's ability to talk, eat, and breathe as normal as possible.
- Whether the cancer has come back (recurred) <sup>4</sup>



# Head and Neck cancer in the Larynx

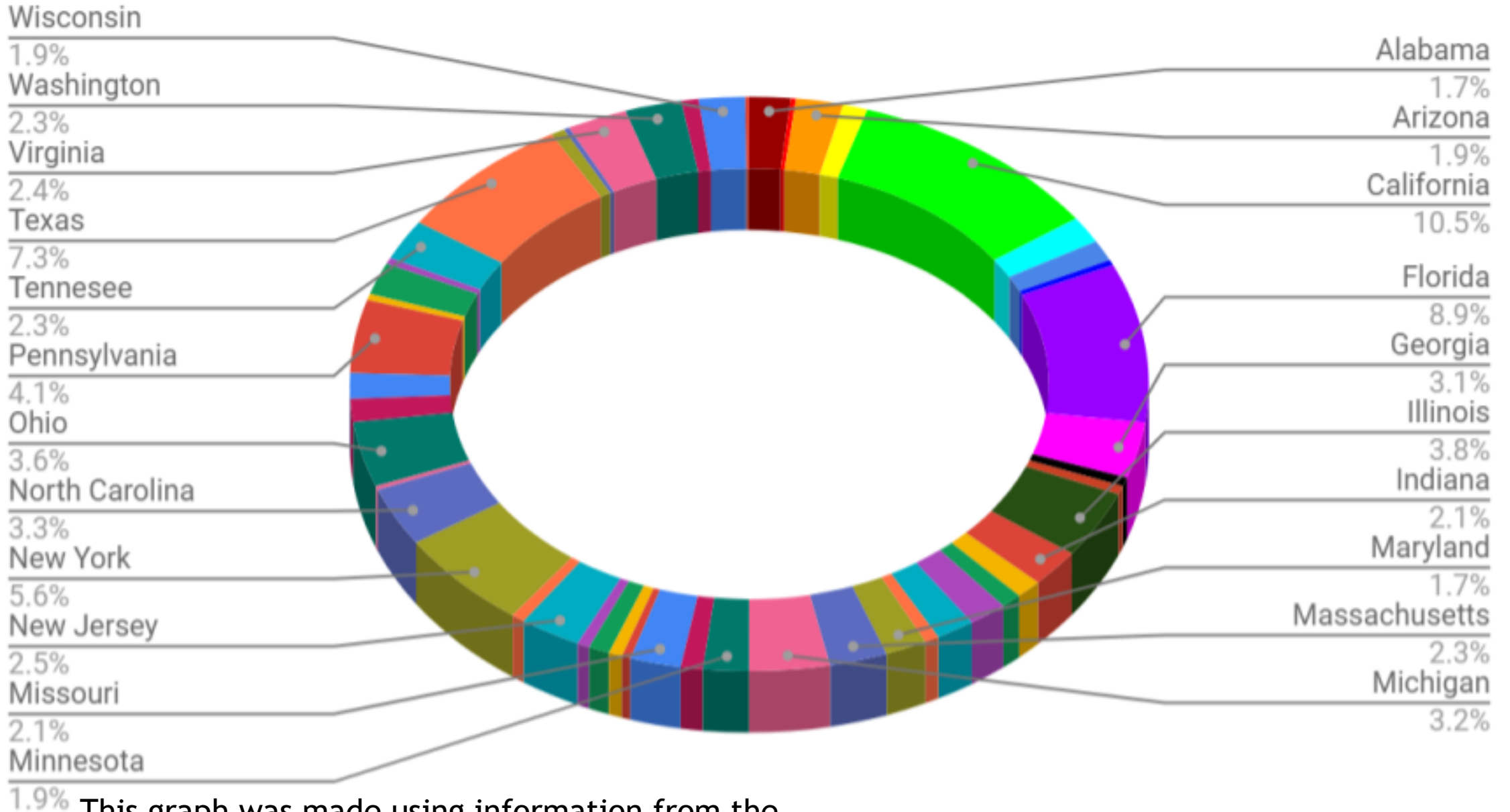
The most common place where you can get head and neck cancer is in the larynx. In this paragraph you will read about how and why you can get cancer in the larynx.

The larynx is the organ forming an air passage to your lungs and holds the vocal cords in a mammal A.K.A the voice box. Laryngeal cancer is a type of throat cancer that forms in squamous cells, the flat, thin cells alongside the inside of the larynx. Your larynx contains cartilage and muscles that enable you to talk. This type of cancer damages your voice box and can also spread to other parts of your body quickly.

Here are some of the causes:

- Heavy Alcohol use
- Poor Nutrition
- Immune System Problems
- Workplace exposure to Toxins, such as Asbestos<sup>4</sup>

# Estimated Cases of Oral Cavity and Pharynx Cancer in the U.S. 2019



This graph was made using information from the American Cancer Society Statistics Center <sup>1</sup>

# Prevention

- Don't smoke or drink alcohol often and if possible do not do it at all
- Make sure you get daily exercise
- Do not eat things like tobacco and paan (betel quid)
- Maintain a healthy weight, not too high and not too low
- Get regular cancer screenings
- Try not to get too close to harmful chemicals
- Do not consume many heart pills
- Check your family history, see if anybody in your family has had cancer
- Get immunized
- Get regular check-ups
- Limit consumption of red meats <sup>6</sup>

## 7 Cancer Prevention Tips In Your Kitchen

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## Diet and Risk of Head and Neck Cancer

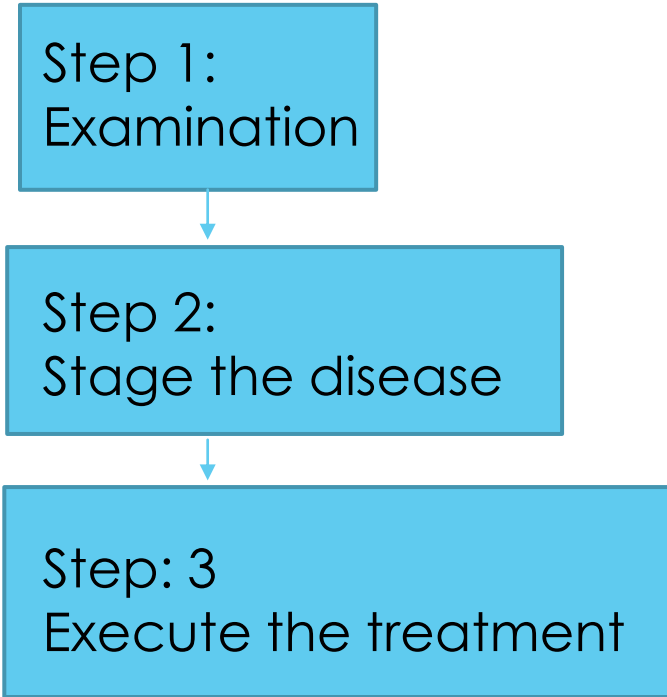
Head and Neck Cancer (HNC) is the sixth most common cancer in the world. Tobacco smoking and alcohol drinking are the two most important risk factors for HNC, contributing to over 70% HNC cases. Other important risk factors include Low body index and family history of cancer. The association of fruits and vegetables against HNC have been reported in many studies. Meat consumption was suggested to be a risk factor for several cancers including HNC but the evidence was not consistent. Dairy products were positively associated with HNC in American study, but the association was not observed in the international study. The recent World Cancer Research Fund (WCRF) report into diet and cancer summarized that the evidence was strong enough to support a probable cause relationship for a decreased HNC risk with non-starchy vegetables, fruits, and food containing carotenoids. However, the evidence of the role of the other food groups and the risk of HNC is inconsistent <sup>6</sup>.



# Current Treatments

There are 4 stages of head and neck cancer each with a similar treatment.

There are three main types of head and neck cancer treatments:



## Radiation Therapy

- Used to kill malignant (bad) cells

## Surgery

- Doctors perform surgery to try to remove tumor

## Chemotherapy

- Targets cells that grow and divide quickly (like cancer cells)
- Works throughout body, can affect healthy cells <sup>7</sup>

# Survival Rates

The most important factors related to survival are the tumor site, the clinical stage at diagnosis, and proper timely treatment. <sup>8</sup>

Over the last 30 years, survival rates have not increased at the same pace and therefore differ across ethnicities

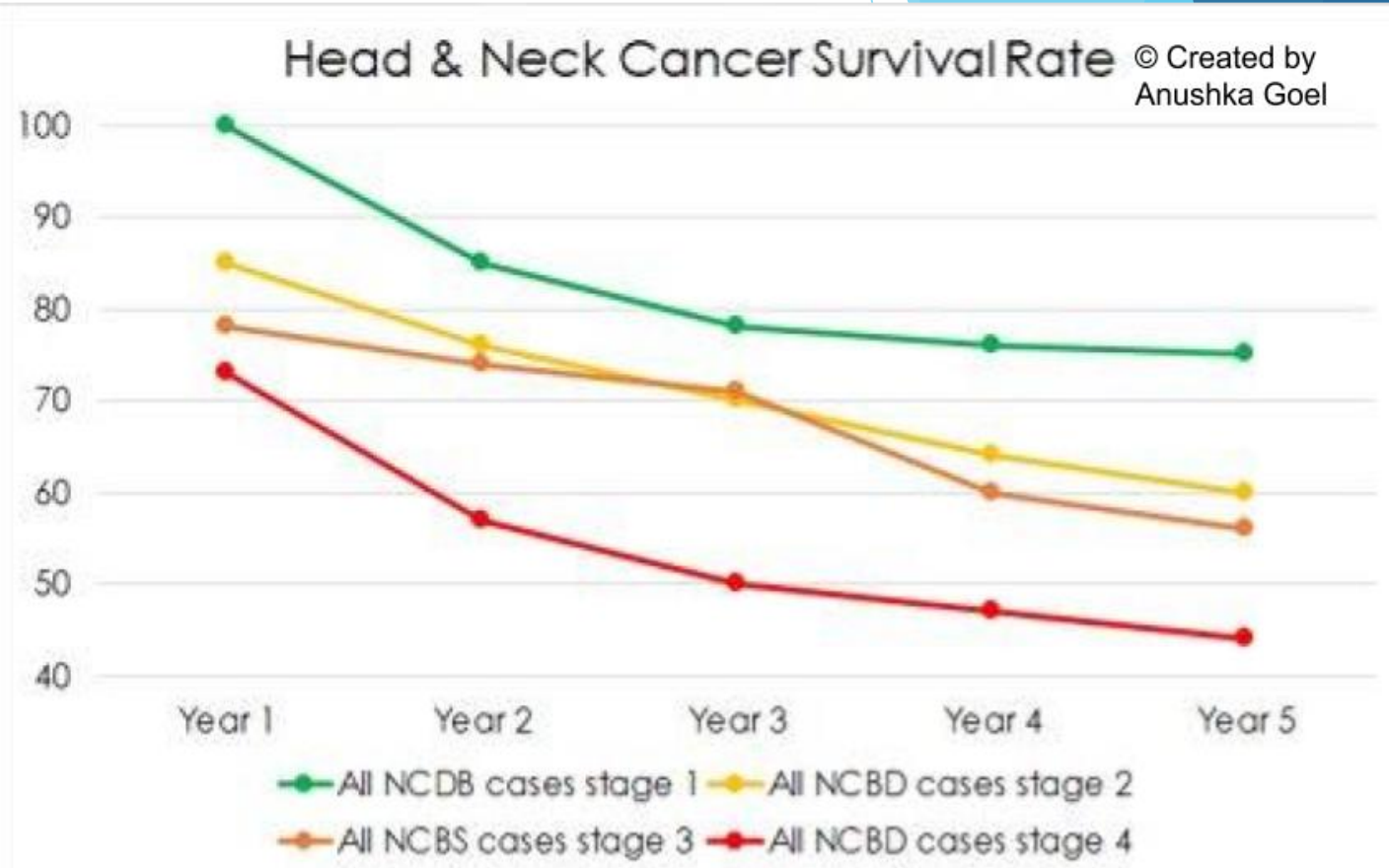
Compared to the Caucasians, more Africans, Hispanics, and Asians die due to HNC.

Africans in particular show a 20% higher risk of dying from cancer than Caucasians.

Our study also shows that race/ethnicity plays an important role in HNC survival rates.

Investments in HNC early detection and timely receipt of treatment decreases excess death risk by roughly half for all races/ethnicities.

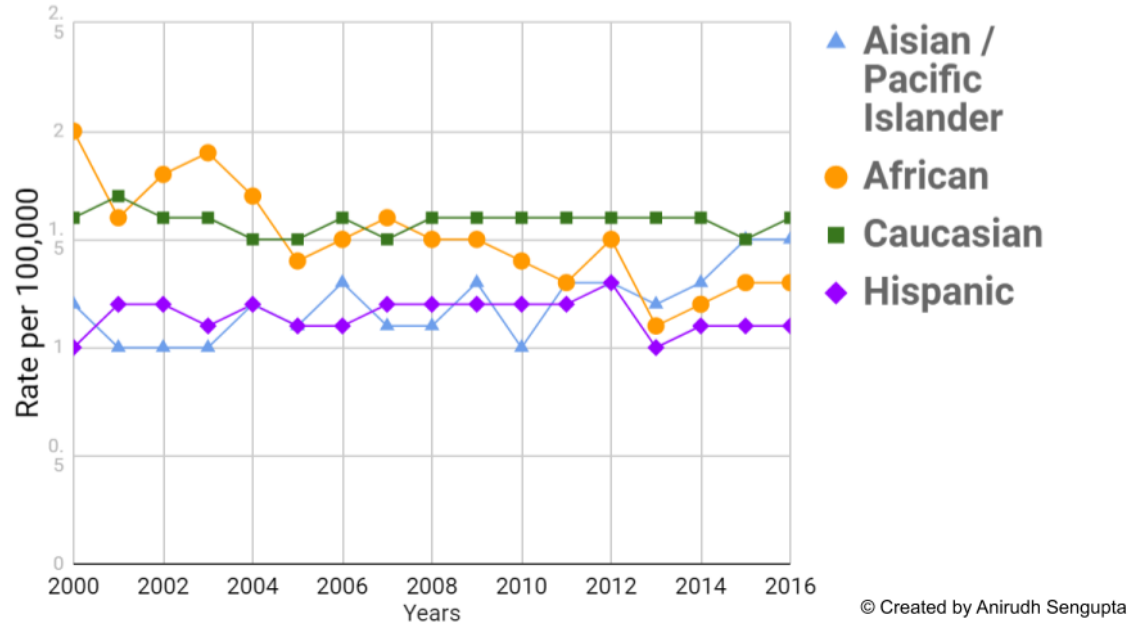
Investments in clinical care, health care and policies related to socioeconomic factors increases survival rate for HNC across all ethnicities.



This graph is based on numbers from the Seattle Cancer Care Alliance. <sup>8</sup>

# Head & Neck Cancer Rates by Ethnicity

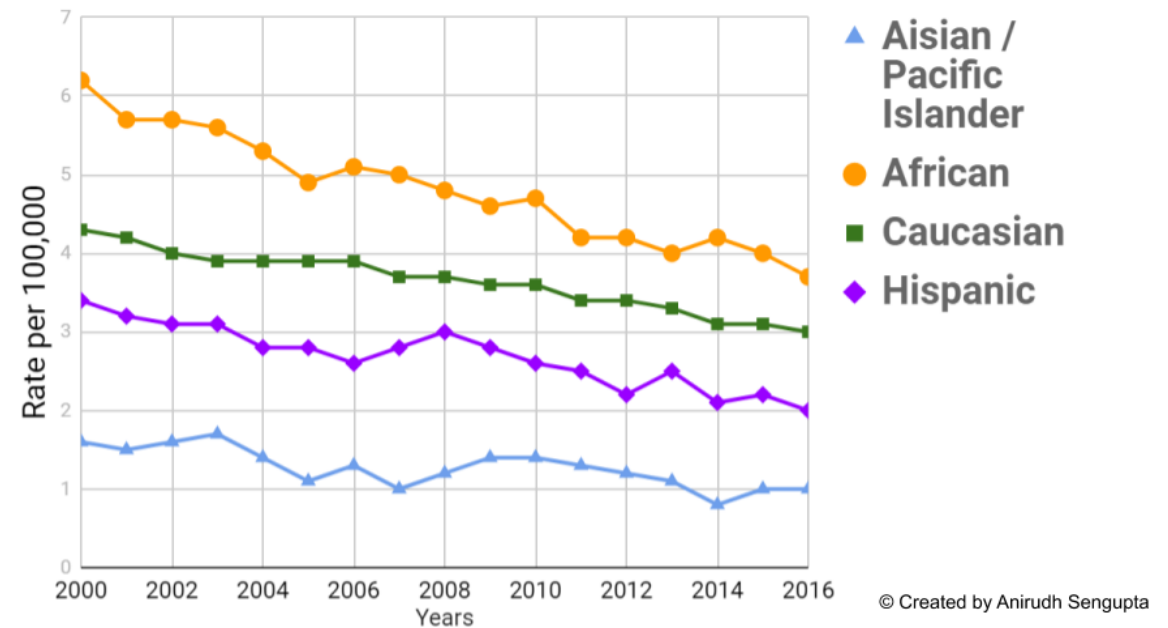
## Gum and Other Mouth Cancers Rates per 100,000



Graph 1

Graph 1 shows that highest decline in Gum and Mouth Cancer Rates have been for the African ethnicity in the last decade.

## Larynx Cancer Rates per 100,000



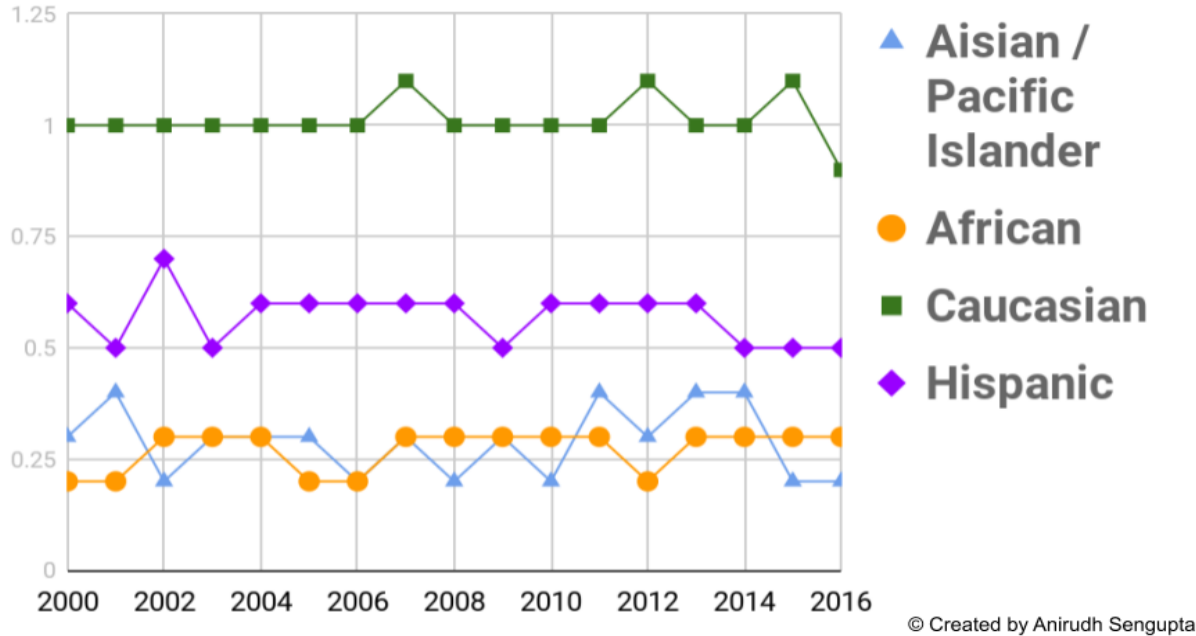
Graph 2

Graph 2 shows that Larynx Cancer Rates are at a steady decline across different ethnicities

Graph 1 & 2- Based on numbers from the S.E.E.R. Program<sup>9</sup> done by the National Cancer Institute

# Head & Neck Cancer Rates by Ethnicity

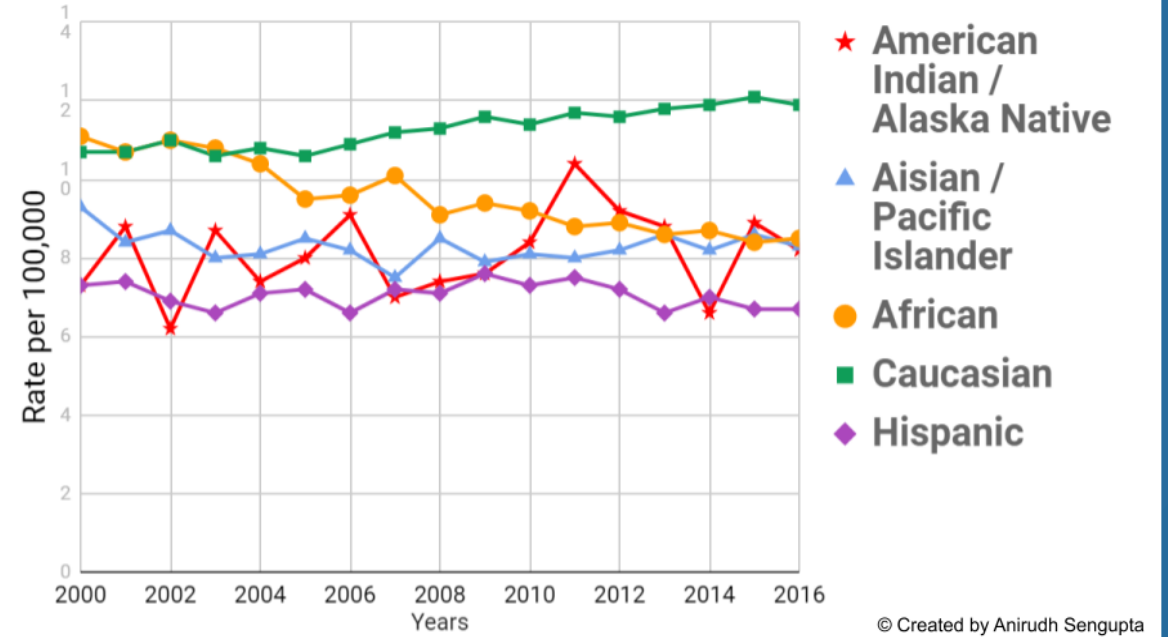
## Eye and Orbit Cancers Rates per 100,000



Graph 3

Graph 3 shows that Eye and Orbit Cancer Rate is highest among Caucasians

## Oral and Pharyngeal Cancer Rates per 100,000

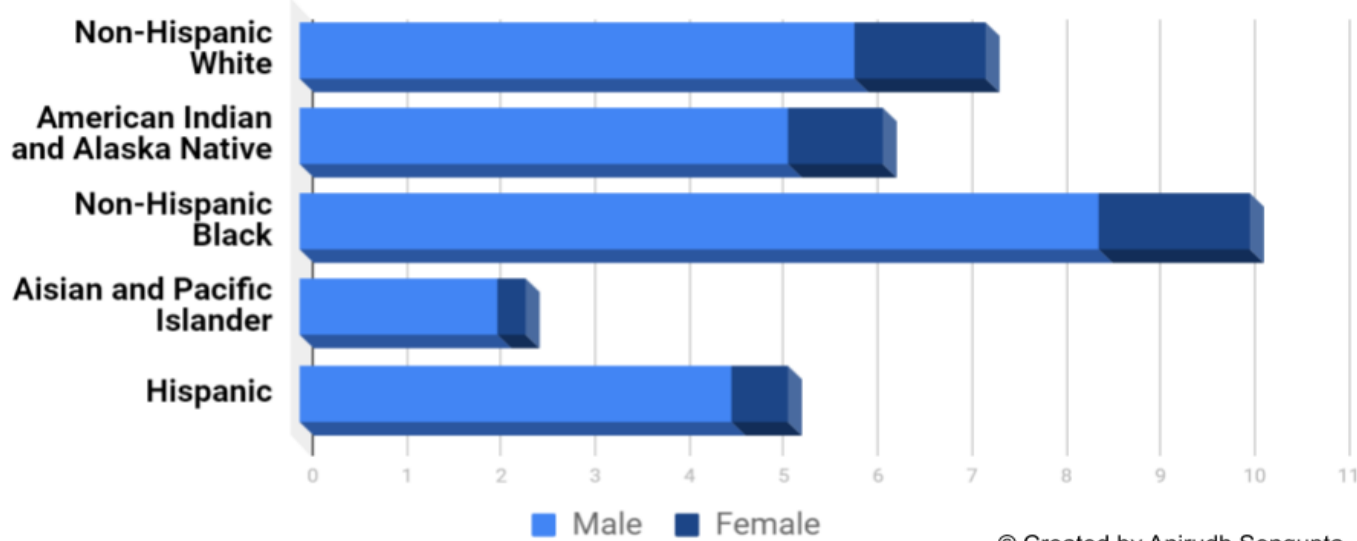


Graph 4

Graph 4 shows that cancer rate in the Oral Cavity and Pharynx is fluctuating among the Native Americans

Graph 3 & 4- Based on numbers from the S.E.E.R. Program <sup>9</sup> done by the National Cancer Institute, Caucasians have a higher average occurrence of Head & Neck Cancer

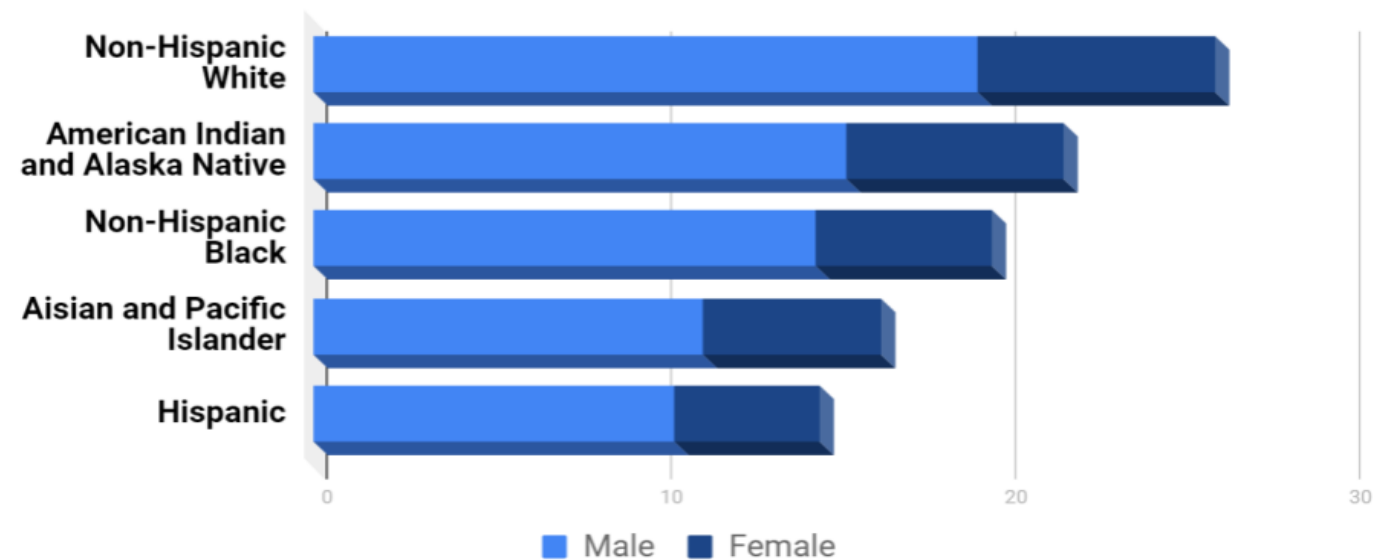
## Larynx Cancer Incidence Rates per 100,000 from 2011-2015 by Gender & Ethnicity



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## Head and Neck Cancer Incidence Rate Graphs

### Oral Cavity and Pharynx Cancer Incidence Rates per 100,000 from 2011-2015 by Gender & Ethnicity



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These graphs were made using information from the American Cancer Society Statistics Center <sup>1</sup>.

## Interesting Facts

- It is estimated that there will be 53,000 cases and 10,860 deaths of Oral and Pharyngeal Cancer in 2019. That is about 4,417 new cases and 905 deaths a month. This means that there is approximately 145 cases and 30 deaths a day. 6 new cases and 1 death every hour.<sup>1</sup>
- Oral and Pharyngeal Cancer are estimated to have the 12th most amount of cases in 2019.
- Head and neck cancer are about 4% of all cancers in the USA.
- Head and neck cancer is the worst in India, Brazil, Parts of Africa and Europe along with Papua New Guinea.
- In 2018 scientists studied how the race of human beings affected how common it is. The final sample size included 59,853 head and neck cancer patients. Majority of the patients were Caucasians (76.4%), followed by Africans (11.2%), Hispanics (7.7%), Asian or Pacific Islanders (4.2%), and American Indians/Alaska Natives (0.5%).<sup>10</sup>

## Conclusion

The group did very well as a team over the course of our project. Our team worked very hard to create the graphs and diagrams. While researching we found out that in head and neck cancer, the most common place to get it is the larynx also known as the voice box. Race and ethnicity also plays a big role. Head and neck cancer survival mostly depends on the stage. But, treatments vary on the stage, race and if the cancer has come back/recurred. In conclusion, our group is very proud of what we have completed and look forward to helping in a bigger and better cause.

## References

1. <https://www.cancer.org/>
2. <https://www.cancer.gov/types/head-and-neck/head-neck-fact-sheet>
3. <https://www.cdc.gov/cancer/headneck/index.htm>
4. <https://gis.cdc.gov/Cancer/USCS/DataViz.html>
5. <https://www.cancer.net/cancer-types/head-and-neck-cancer/risk-factors-and-prevention>
6. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3654401/>
7. <https://www.breastcancer.org/treatment/chemotherapy>
8. <https://www.seattlecca.org/diseases/head-neck-cancers/head-neck-cancers-overview/survival-rates>
9. <https://seer.cancer.gov/>
10. <https://cancerstatisticscenter.cancer.org/#!/>