Oral Cavity and Oropharynx Cancer Trends

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Objectives

• Provide an overview of the common characteristics of oral cavity and oropharynx cancers in the U.S.
• Describe recent incidence and survival epidemiological trends for oral cavity and oropharynx cancers in the U.S.
• Describe disparities observed in oral cavity and oropharyngeal cancers in the U.S.
**Oral Cavity and Pharynx Cancer Overview**

<table>
<thead>
<tr>
<th>Estimated New Cases in 2016</th>
<th>48,330</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of All New Cancer Cases</td>
<td>2.9%</td>
</tr>
<tr>
<td>Estimated Deaths in 2016</td>
<td>9,570</td>
</tr>
<tr>
<td>% of All Cancer Deaths</td>
<td>1.6%</td>
</tr>
</tbody>
</table>

*Source: SEER Cancer Fast Stats: Oral Cavity and Pharynx Cancer*
Oral Cavity and Pharynx Cancer Overview

Source: American Cancer Society, Cancer Facts and Figures 2017

8th most incident cancer type in U.S. males
6th most incident cancer type globally
• Morbidity associated with oral cavity and pharynx cancers:
  – Pain in mouth/throat
  – Difficulty chewing
  – Difficulty swallowing
  – Difficulty moving tongue/jaw
  – Disfigurement with treatment
• Mortality
Oral Cavity and Pharynx Cancer Overview

- Approximately 90% are squamous cell carcinomas (SCCs)
- Risk factors tend to vary by anatomic location
- Racial/ethnic disparities in incidence, mortality, and survival
- Distinct epidemiological trends based on anatomic location and demographic subgroups
Terminology: What is “Oral Cancer?”

• Nomenclature
  – Oral Cancer
  – Oral and Pharyngeal Cancer
  – Head and Neck Cancer
  – Oral Cavity Cancer
  – Oropharynx Cancer

• Terminology is important when describing epidemiological trends and etiologies
Oral Cavity and Oropharynx Anatomy

• Oral Cavity (OC)
  – anterior 2/3 of tongue, gingiva, floor of the mouth, hard palate, buccal mucosa

• Oropharynx (OPC)
  – posterior 1/3 of tongue (base of tongue), tonsils, soft palate, “other” oropharyngeal sites
Epidemiological Trends: Methods

- Targeted literature review
- English
- U.S.-based studies
- MeSH terms: mouth neoplasms, oropharyngeal neoplasms, incidence, survival, health status disparities, healthcare disparities, minority health
Trend Data Sources

- National Cancer Institute - Surveillance Epidemiology End Results (SEER)
- American College of Surgeons/American Cancer Society - National Cancer Database
- Centers for Disease Control and Prevention (CDC) - Program of Cancer Registries
- State Cancer Registries
- International Classification of Disease Oncology codes (ICD-O-3)
  - Describe tumor’s anatomical site of origin
Incidence Trends for OC and OPC

• Diverging epidemiological trends:
  – Incidence of Oral Cavity (OC) and Oropharynx (OPC) Cancers

• Significant Increase in the age-adjusted incidence of OPC from 1970’s - 2000’s
  – Annual Percentage Change and joinpoint analyses
  – Greater rate increases in more recent years

• Significant Decrease in the age-adjusted incidence of OC from 1980’s -2000’s
  – Annual Percentage Change and joinpoint analyses

• Consistent across:
  – SEER, State Cancer Registries, National Cancer Database
Incidence Trends for OC and OPC: SEER


Incidence Trends for OC and OPC: State Registry

Source: McGorray et al.
Risk Factors Related to Incidence Trends for OC and OPC

- HPV prevalence in OPC has significantly increased
- Decreased tobacco use and alcohol consumption due to public health efforts

Disparities in OC and OPC Incidence

- Men total OC and OPC incidence rates 2-4x women
- Increased incidence of OPC seen among more recent birth cohorts (younger individuals)
- African Americans showed significant decrease in both OC and OPC cancer incidence beginning in the mid-80’s
- White men displayed increase in OPC incidence since the 1990’s, in contrast to more stable or declining rates in other race/ethnic-gender groups
- Significant increasing trend in oral tongue cancer (non HPV-related) incidence in White women < 45 yrs of age
Disparities in OC and OPC Incidence

Disparities in OC and OPC Incidence

<table>
<thead>
<tr>
<th></th>
<th>All races</th>
<th>White</th>
<th>Black</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975-1977</td>
<td>53</td>
<td>54</td>
<td>36</td>
</tr>
<tr>
<td>1987-1989</td>
<td>54</td>
<td>56</td>
<td>34</td>
</tr>
<tr>
<td>2006-2012</td>
<td>67</td>
<td>69</td>
<td>47</td>
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</tbody>
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Disparities persist if stratified by stage at diagnosis
Survival: HPV-positive vs HPV-negative Head and Neck SCCs

- Patients with HPV-positive Head and Neck SCCs display higher survival rates than patients with HPV-negative Head and Neck SCCs

- Better response to chemotherapy and radiotherapy in HPV-positive vs HPV-negative Head and Neck SCCs
Survival: Hazard Ratios HPV-positive vs HPV-negative OPC Patients

Summary of Epidemiological Trends

• Decreasing incidence of OC
• Increasing incidence of OPC
• Disparities in incidence for OC and OPC by race/ethnicity, gender, age
  – Men OC and OPC incidence rates 2-4x Women
  – White males greater increase in OPC incidence
  – Increased incidence of OPC seen among more recent birth cohorts
• Disparities in 5 yr. relative survival rates for OC and OPC by race/ethnicity
  – African Americans display significantly lower survival rates
• Higher HNSCC survival rates for HPV-pos. vs HPV-neg.
References