OROPHARYNGEAL CANCER

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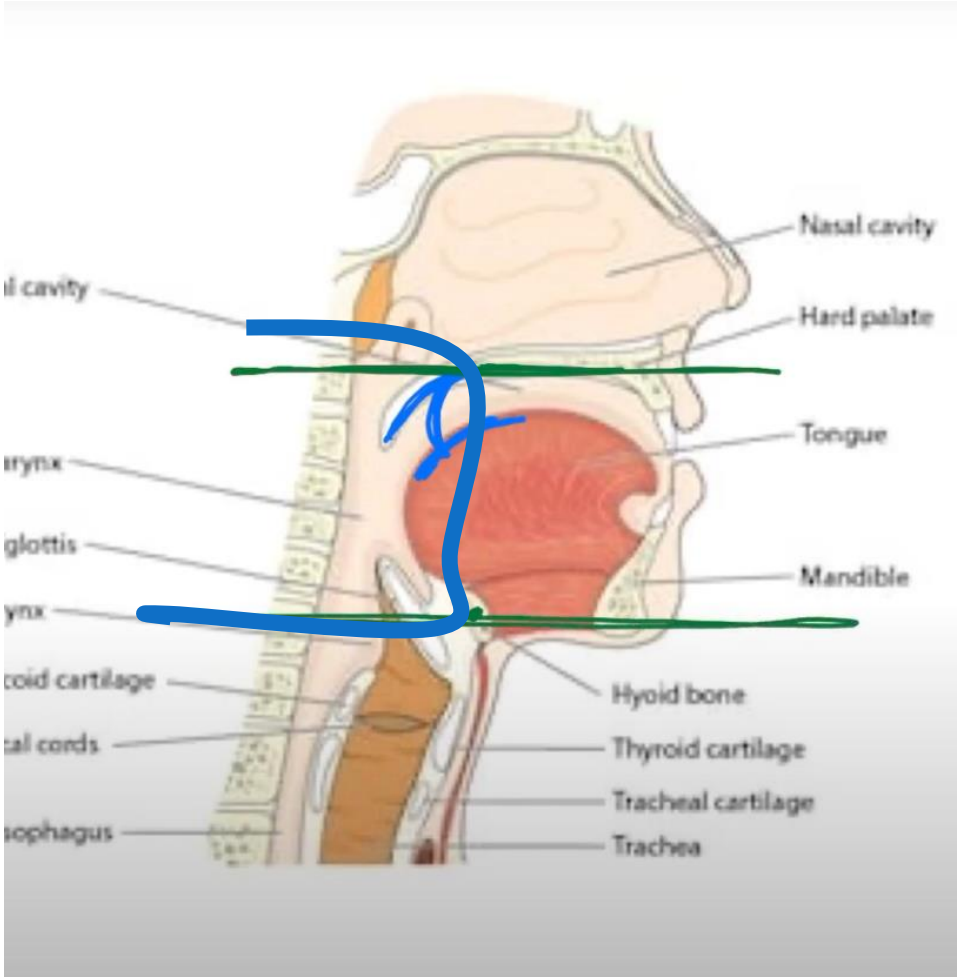
Disclosure:

Nothing to disclose

Topics We'll Cover

- Background: Anatomy & context
- Epidemiology & Recognition
- HPV and its role
- Prevention & Public Health
- Q&A

Background

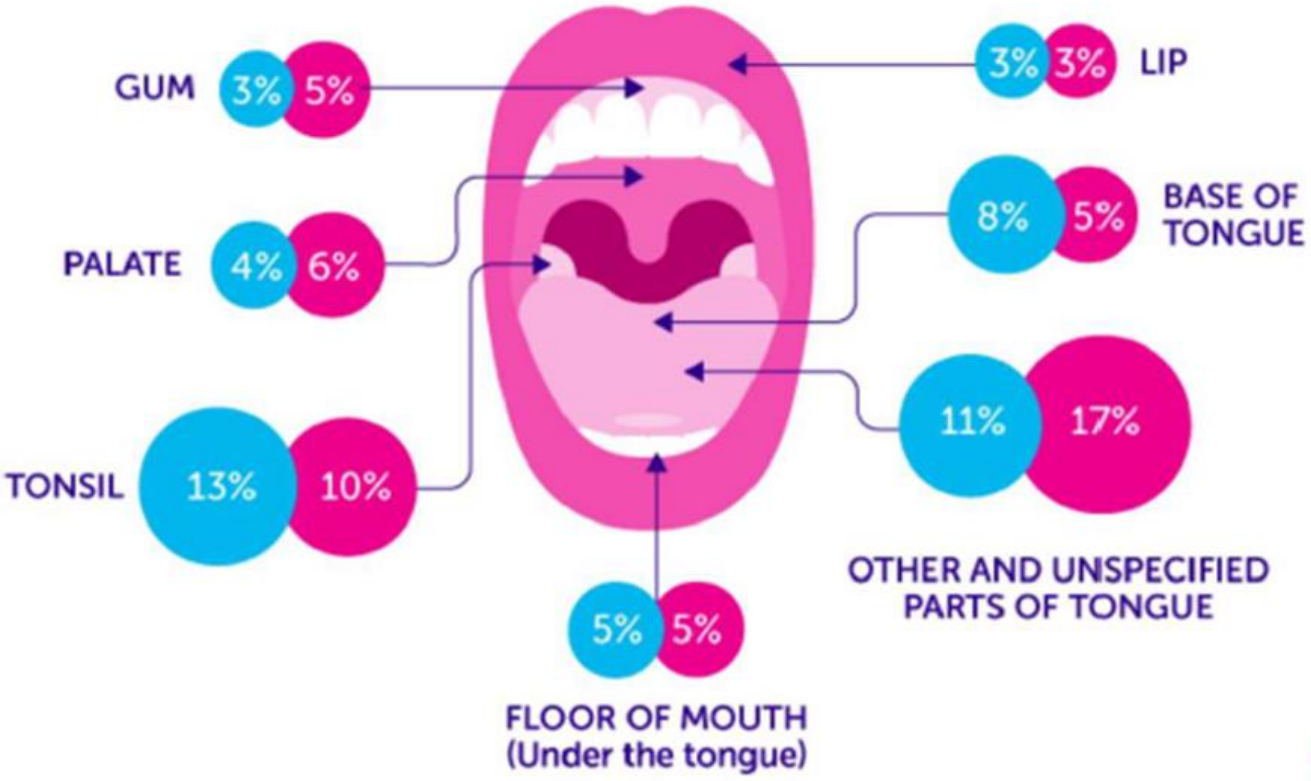


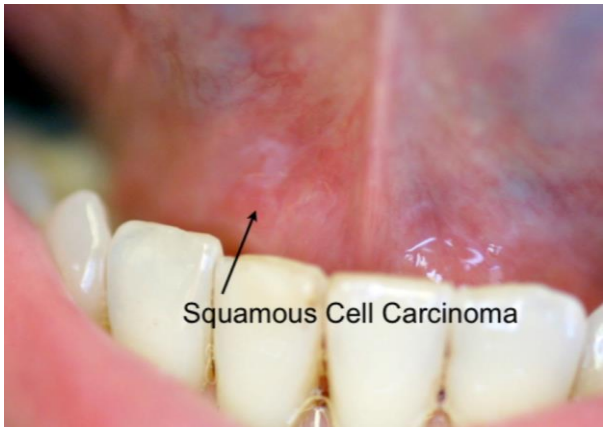
Oropharynx includes base of tongue, tonsils, soft palate

Boundaries: nasopharynx (above), hypopharynx (below)

Lesions often hidden → late detection

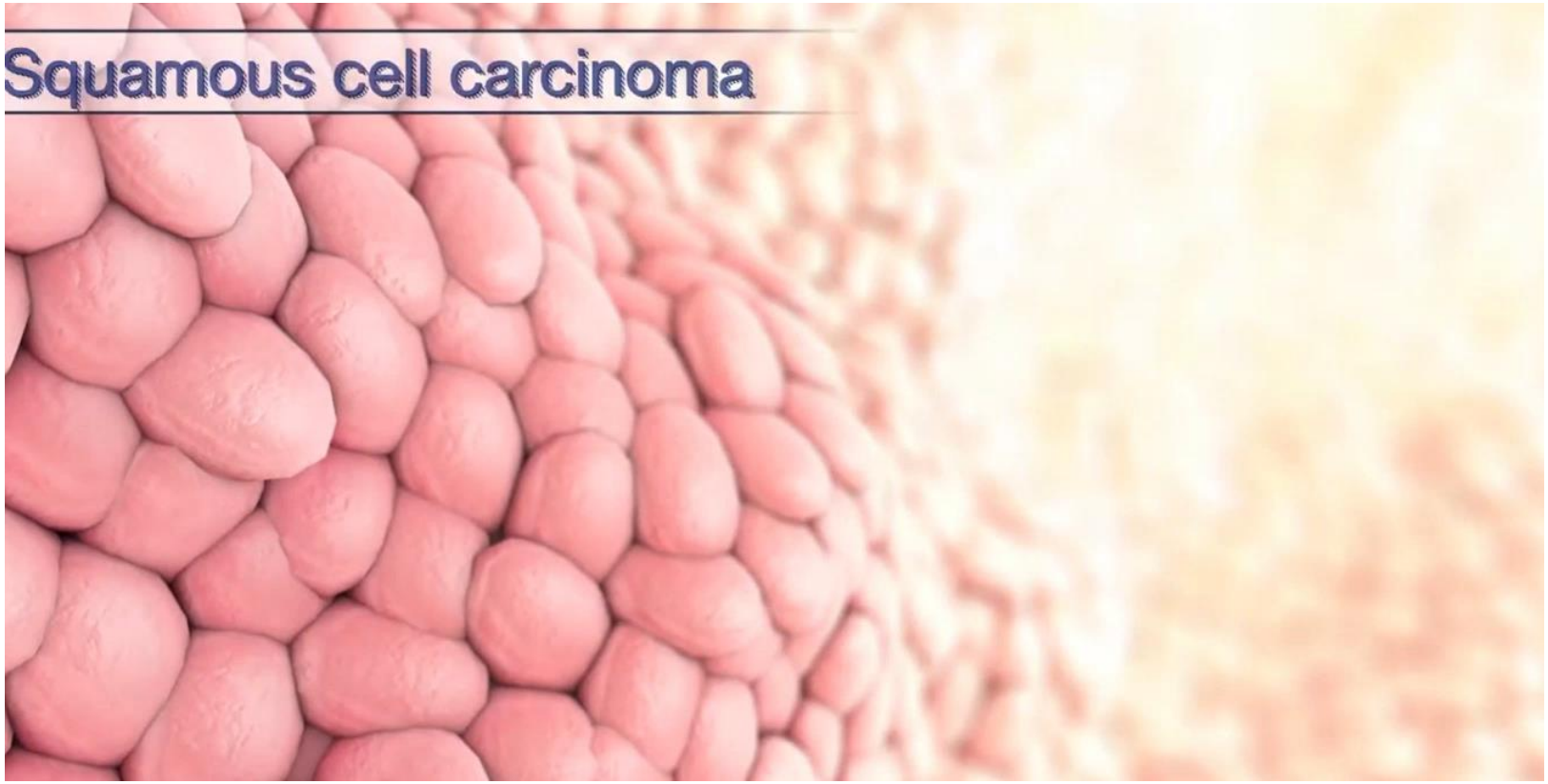
HEAD AND NECK CANCER CASES: PERCENTAGE DISTRIBUTION BY ANATOMICAL SITE




Squamous Cell Carcinoma

Types of Oropharyngeal Cancers

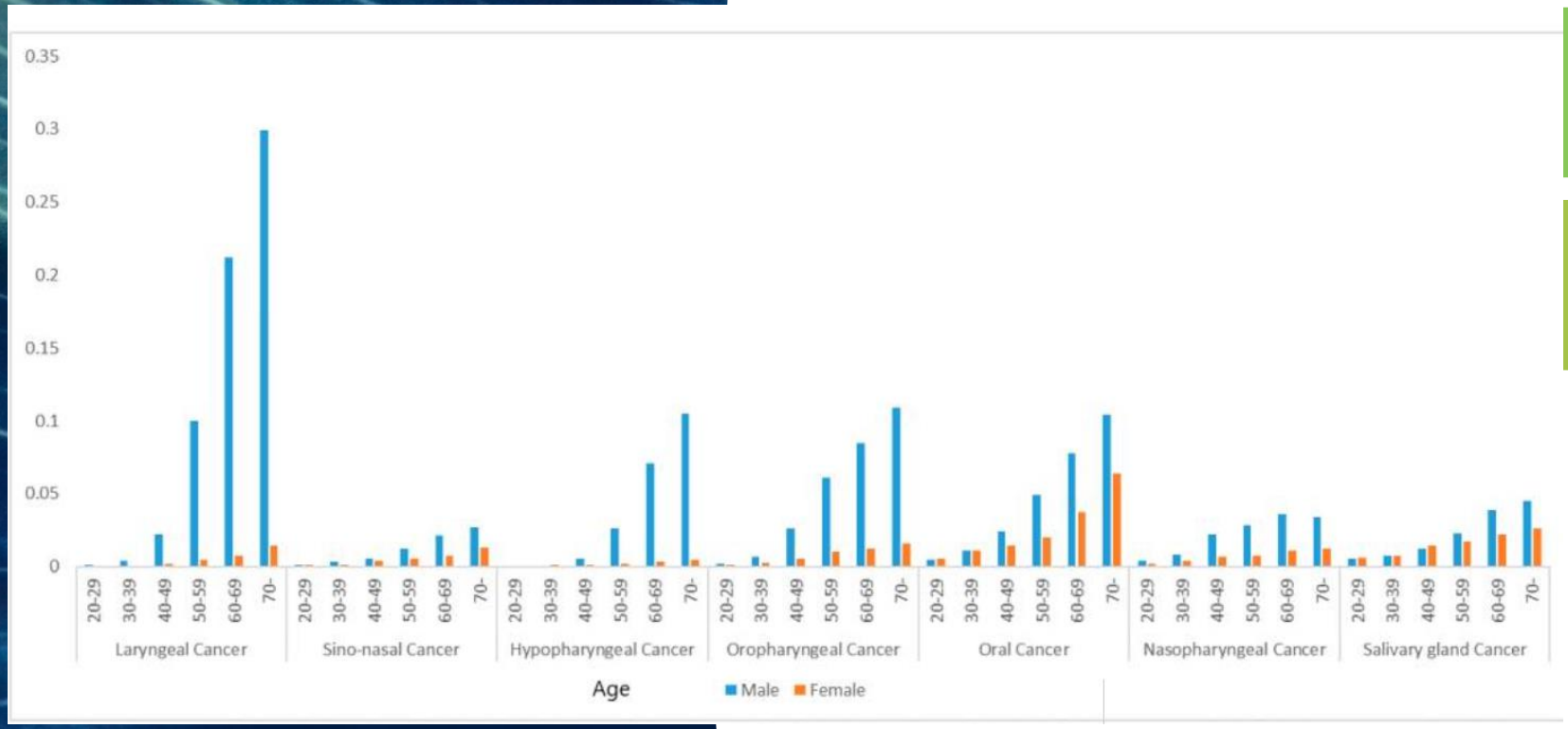
90% Squamous Cell Carcinoma (SCC)	Minor salivary gland carcinoma	Lymphoma
Plasmacytoma	Sarcoma	Melanoma


Squamous cell carcinoma

Epidemiology

Rising incidence globally

Higher prevalence in men



OROPHARYNX

Incidence

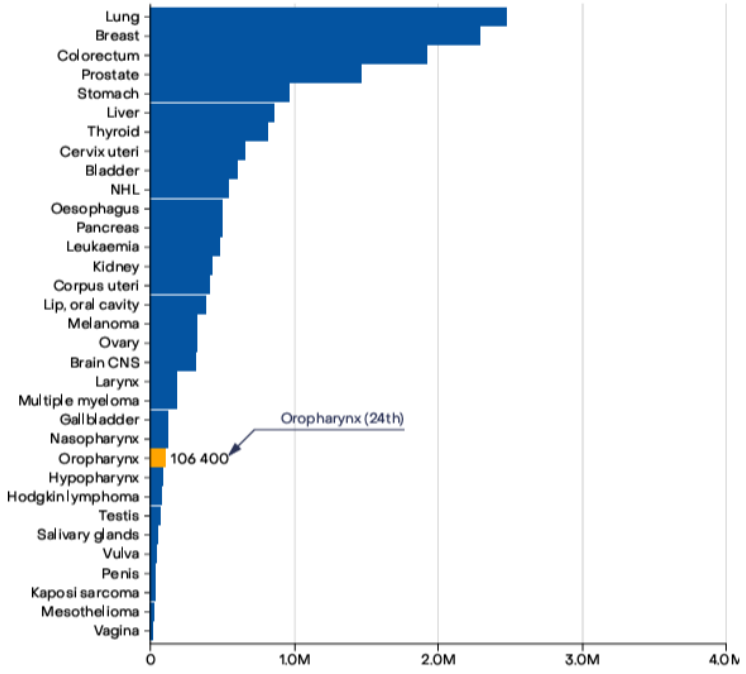
Rank	Cases	ASR (World)
24	106 400	1.1

Mortality

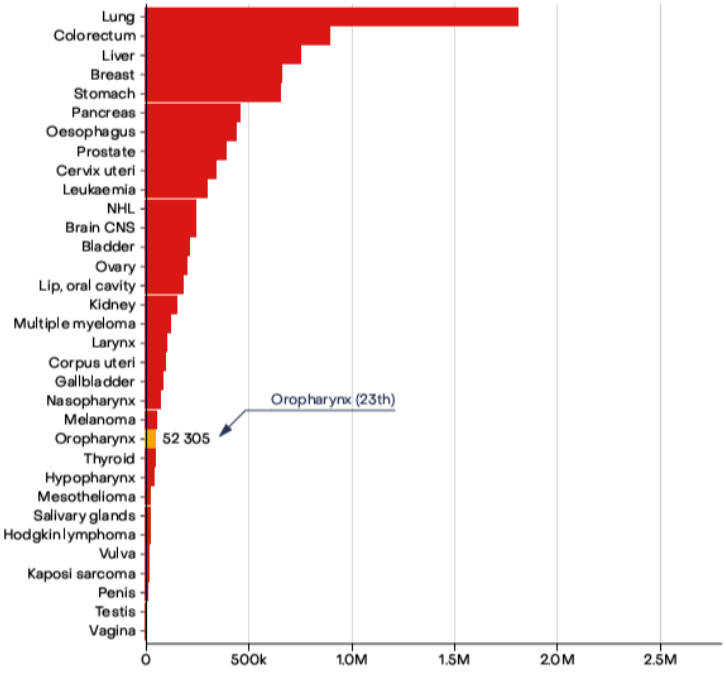
Rank	Deaths	ASR (World)
23	52 305	0.53

Cancer site ranking

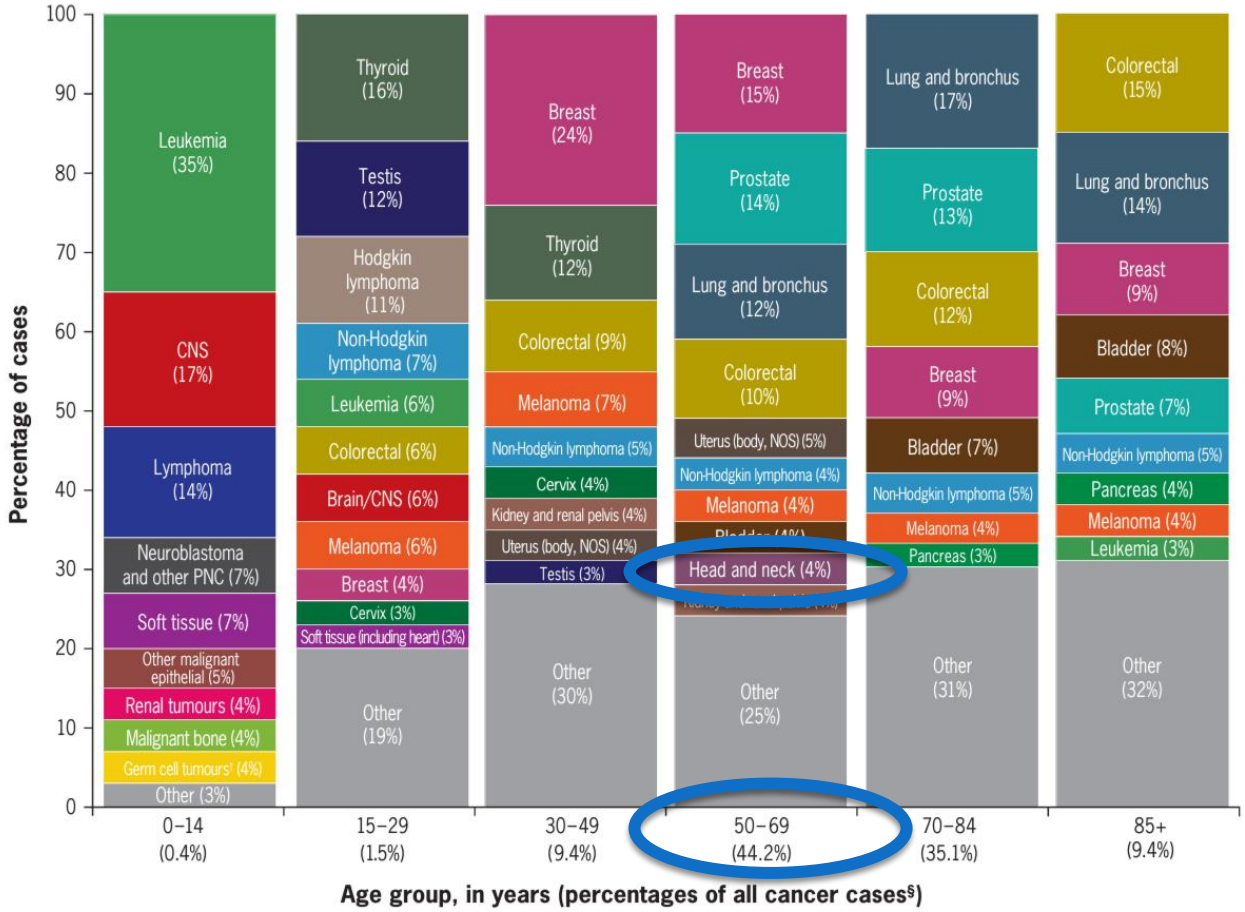
Incidence



Mortality



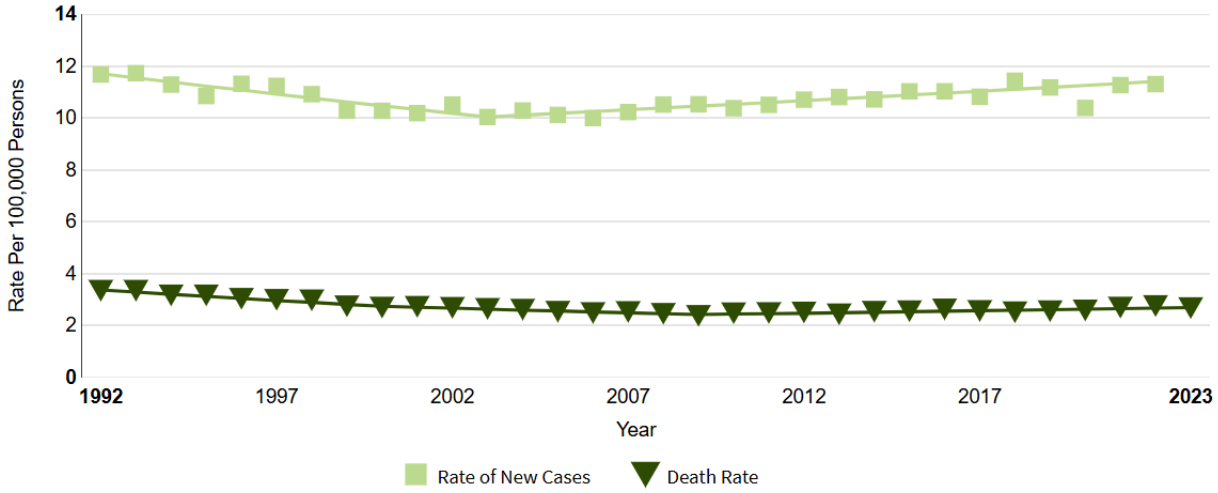
The most commonly diagnosed types of cancers vary between age groups.



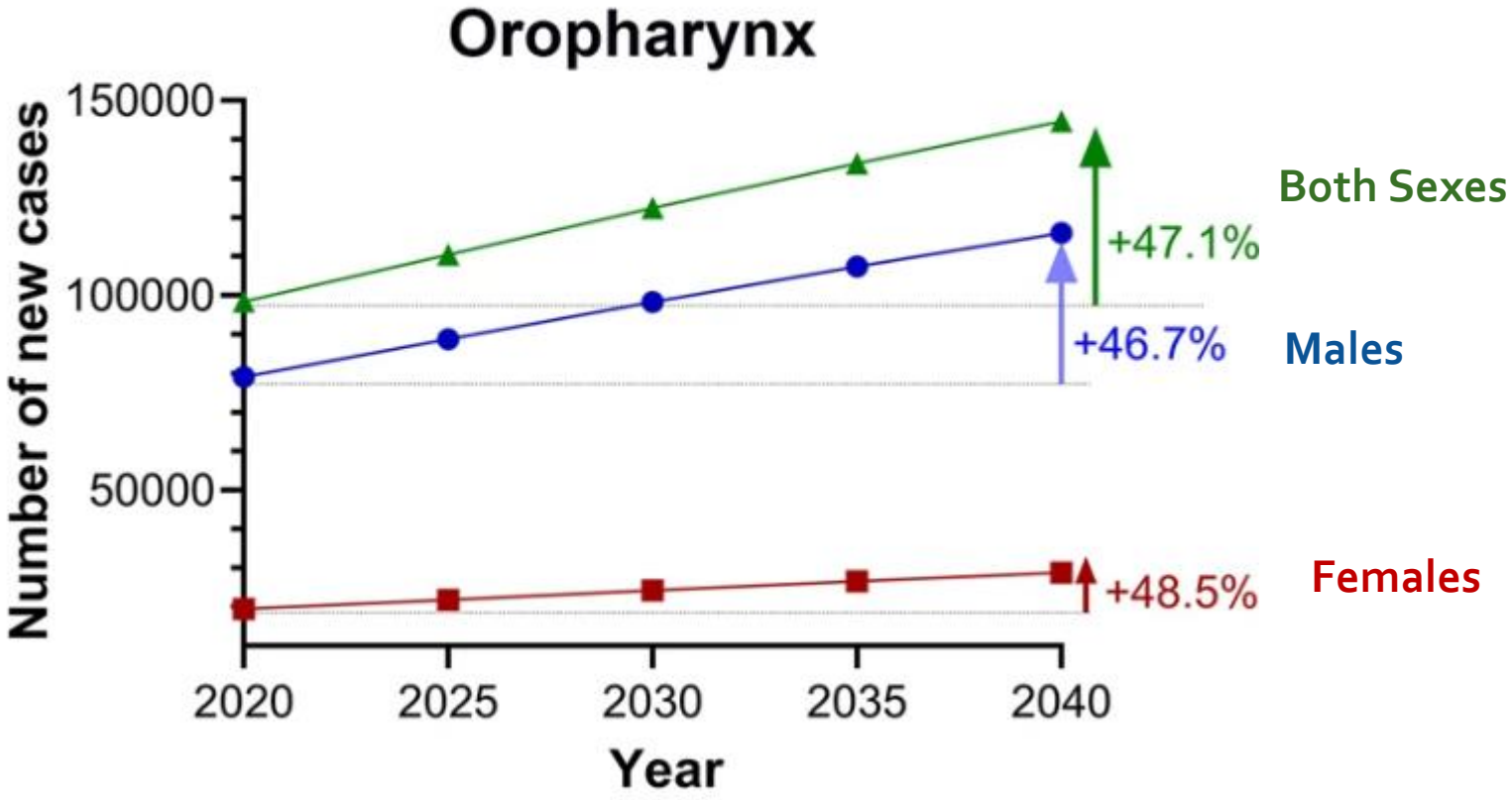
Estimated New Cases in 2025	59,660
% of All New Cancer Cases	2.9%

Estimated Deaths in 2025	12,770
% of All Cancer Deaths	2.1%

5-Year Relative Survival
69.5%
2015–2021

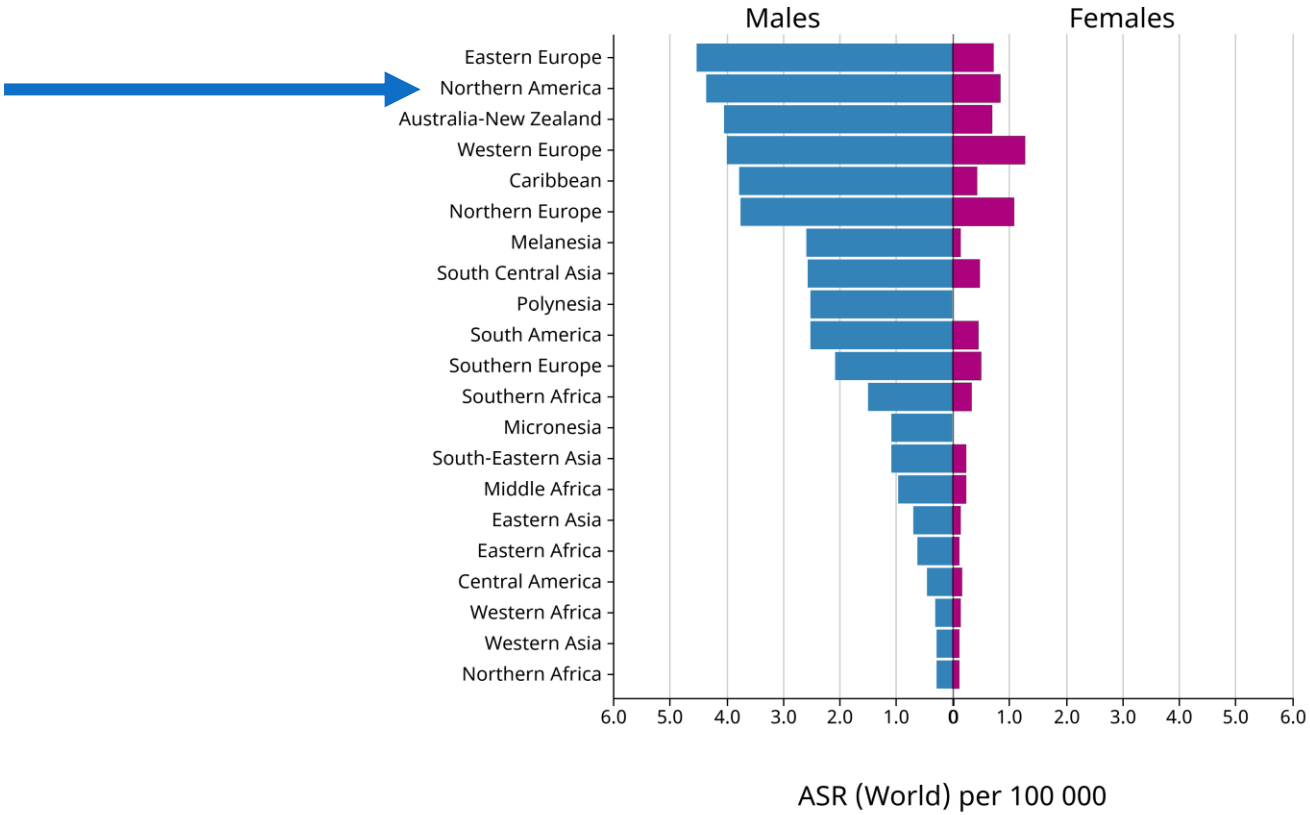


- Increased incidence
- Trend for survival rates is unchanged



1: Comparison of oropharyngeal and oral cavity cancers. | Oncogene

Age-Standardized Rate (World) per 100 000, Incidence, Males and Females, in 2022
Oropharynx
UN Regions



International Agency for Research on Cancer
World Health Organization

Risk Factors of Oral Cancer

Dhull AK, Atri R, Dhankhar R, Chauhan AK, Kaushal V. Major Risk Factors in Head and Neck Cancer: A Retrospective Analysis of 12-Year Experiences. World J Oncol. 2018 Jun;9(3):80-84.

HPV Attribution in Head & Neck Cancers:
United States

The Centers for Disease Control and Prevention (CDC) estimates that **~70% of oropharyngeal cancer cases overall** are probably caused by HPV

of oropharyngeal **cancer cases in males** are probably caused by HPV

of oropharyngeal **cancer cases in females** are probably caused by HPV

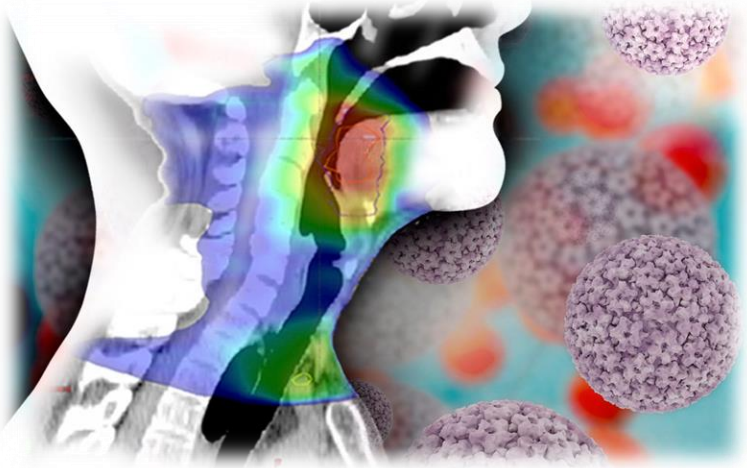
CDC. 2018 HPV & Cancer. How Many Cancers are Linked to HPV Each Year? https://www.cdc.gov/cancer/hpv/statistics/cases.htm

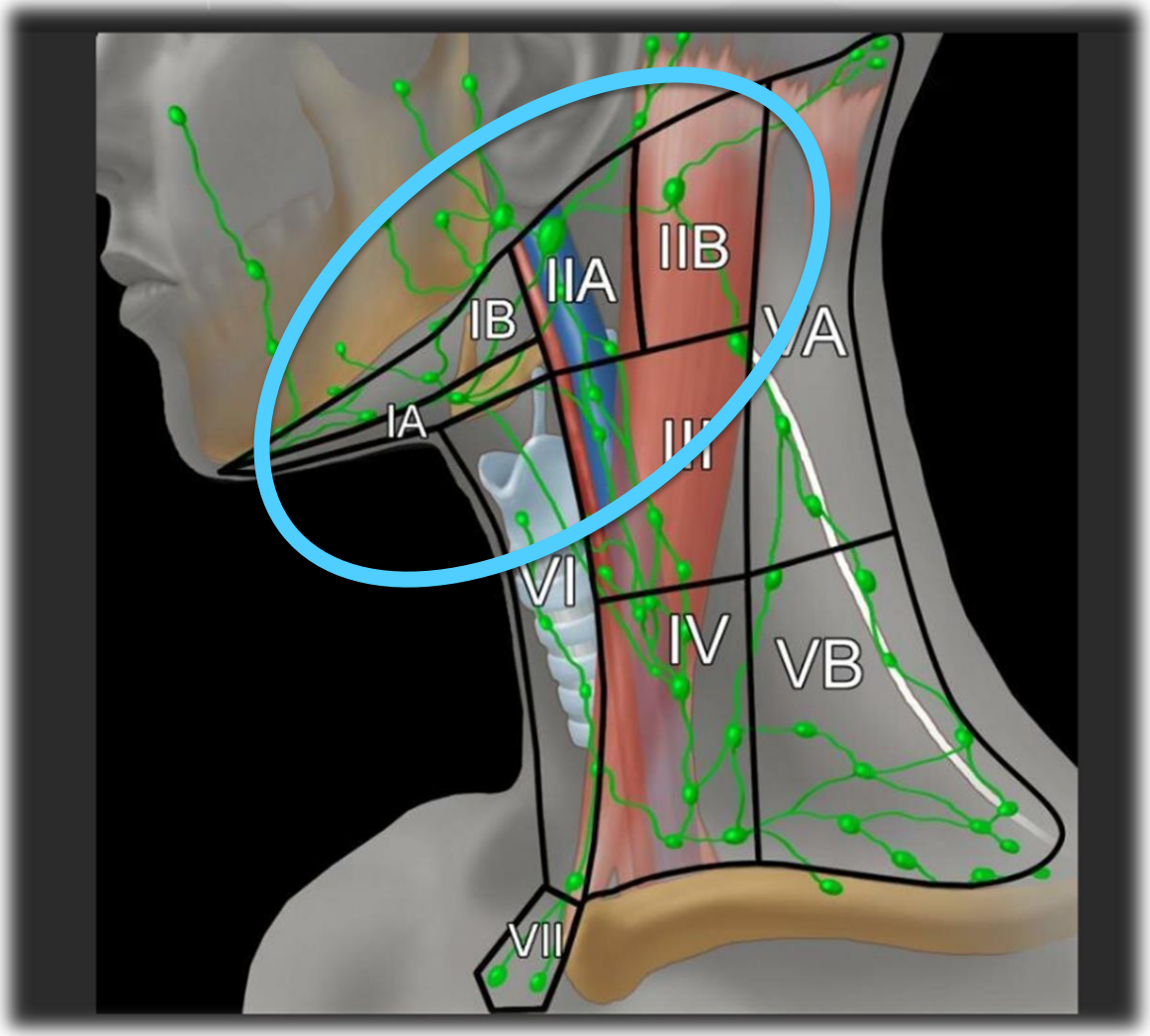
Recent Changes in Epidemiology

Non-drinkers

Young non-smokers
Asymptomatic

6-7 times more common in M > F

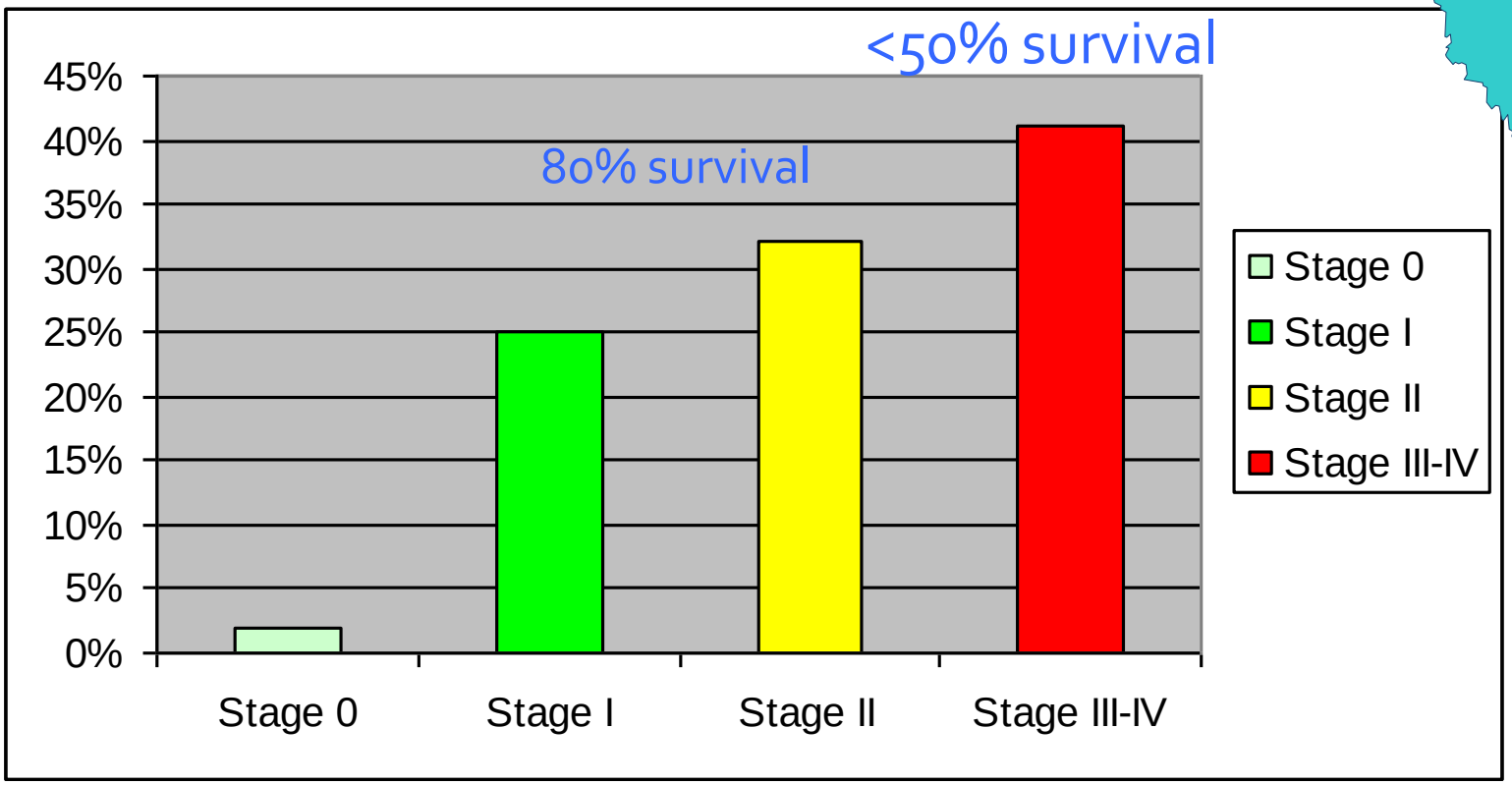




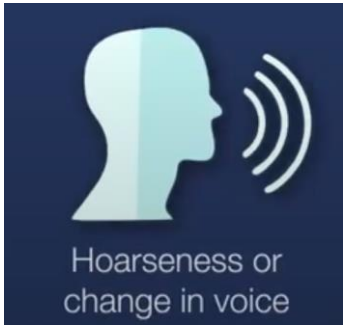
Level I/**II**/III

Oral Cancer in B.C.

42% were diagnosed in an advanced stage



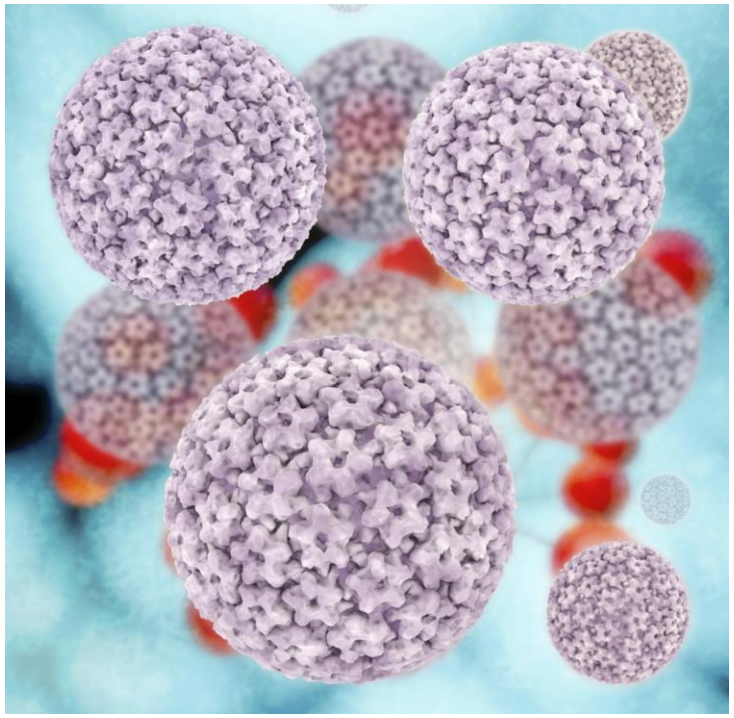
Clinical Presentation



Examination & Recognition

- Lack of response to treatment of clinical treatment
- Risk factor assessment
- Inspection & palpation
- Early referral critical – ENT referral
  - * consider ordering CT contrast
- Flexible nasopharyngoscopy
- Multidisciplinary teamwork

HPV & Oropharyngeal Cancer



HPV-16 = dominant strain

E6/E7 oncogenes disrupt p53/Rb

Better prognosis for HPV+ cancers

Major epidemiologic shift

HPV Transmission

Spread via intimate contact (oral sex)

Most infections resolve naturally

Persistent infection = cancer risk

HPV Vaccination

Prevents high-risk strains (HPV-16, 18)

Boys & girls should be vaccinated

Strong evidence of effectiveness

What about my partner?

- Although incidence of HPV+ cancers has increased, incidence of HPV infection in long-term sex partners has not increased when compared to the general population

- Study of 164 OPC patients :
  - 40% had oral HPV and 37% found to have HPV16 strain.
  - Long-term partners: 4% had oral HPV and only 1% had HPV16

* Most partners cleared any active infection that they were exposed to

J Clin Oncol. 2014;32(23):2408

Oral oncogenic HPV infection prevalence was shown to **peak at ages 25 to 30 years and 55 to 60 years**, and the median age at oropharyngeal cancer diagnosis was 63 years; 58 years for HPV-positive cases

From this, the authors estimated an **average latency period** for HPV-positive oropharyngeal cancer of **approximately 10 to 30 years**, assuming either peak in prevalence could contribute to risk

The **disease relevance of either of the two peaks** for oral oncogenic HPV infection, however, **is unknown**

Gillison ML, Chaturvedi AK, Anderson WF, Fakhry C. Epidemiology of Human Papillomavirus-Positive Head and Neck Squamous Cell Carcinoma. *J Clin Oncol*. 2015;33(29):3235–3242. https://www.ncbi.nlm.nih.gov/pubmed/26351338

How did I get this?

- HPV is transmitted to mouth by oral sex but also possible by other ways
- Having multiple oral sex partners increases risk if HPV infection but you can have only few oral sex partners
  - Having oral HPV is not indicative of unfaithful and/or promiscuous partner

Can I casually transmit to my friends and family?

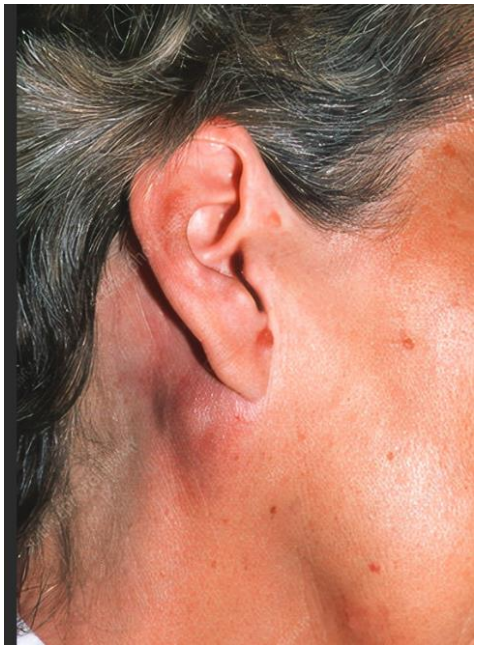
- Oral HPV is not casually transmitted by sharing drinks or kissing on cheek
- Partner has likely shared whatever infection you have and most likely cleared the infection
- If partner is female, recommend regular cervical Pap screening

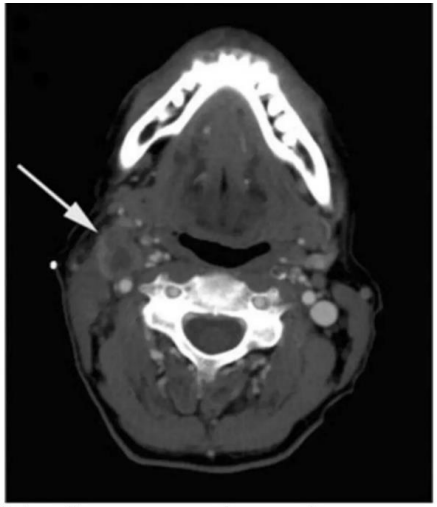
Screening & Early Detection

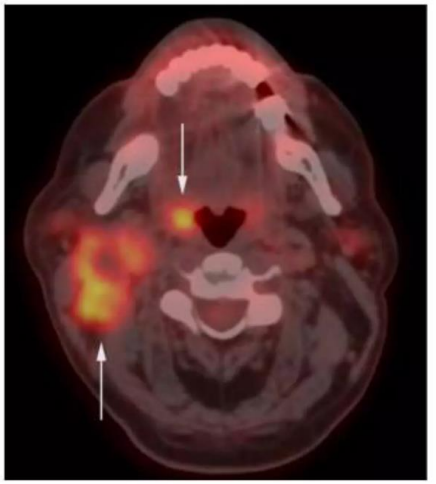
- No universal program yet
- Dentists & PCPs crucial in recognition
- Biomarkers under study (saliva/serum)

Diagnostic Tools

- Imaging: CT, MRI, PET-CT
- Fine Needle Aspiraton Biopsy
- Tissue Biopsy
- HPV Status determination





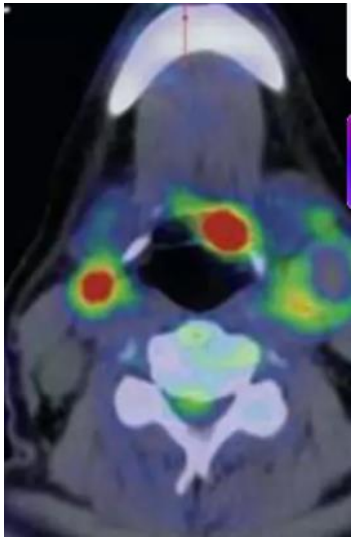


CT = large cystic node metastases PET = large neck mass with small primary in tonsil

NODULE----CT----PET

Neck Nodule

Flexible Nasolaryngoscopy



PET: uptake Vallecula & bilateral neck nodes

Staging

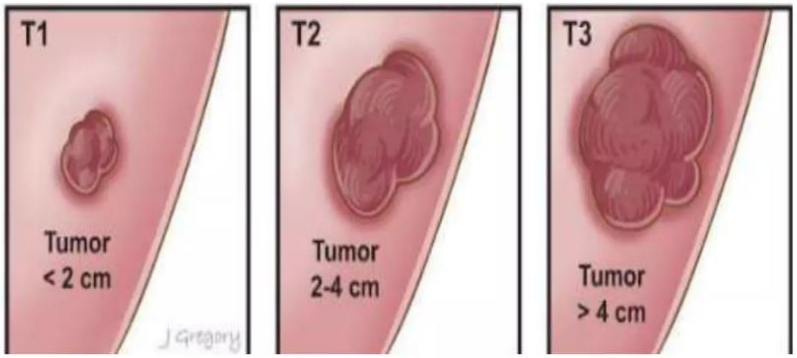
TNM system

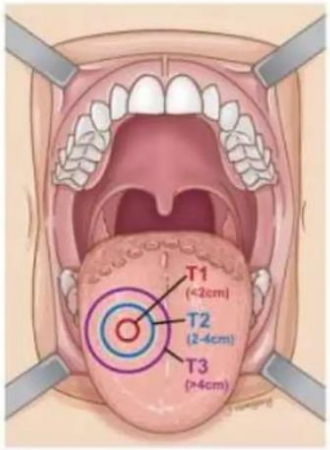
HPV+ vs. HPV– staging differences

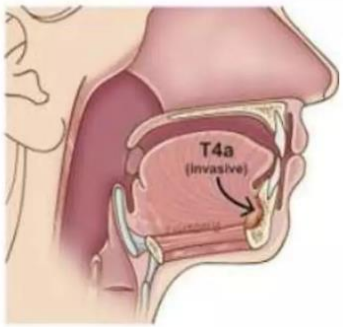
Staging = guides treatment

= guides prognosis

Staging: T





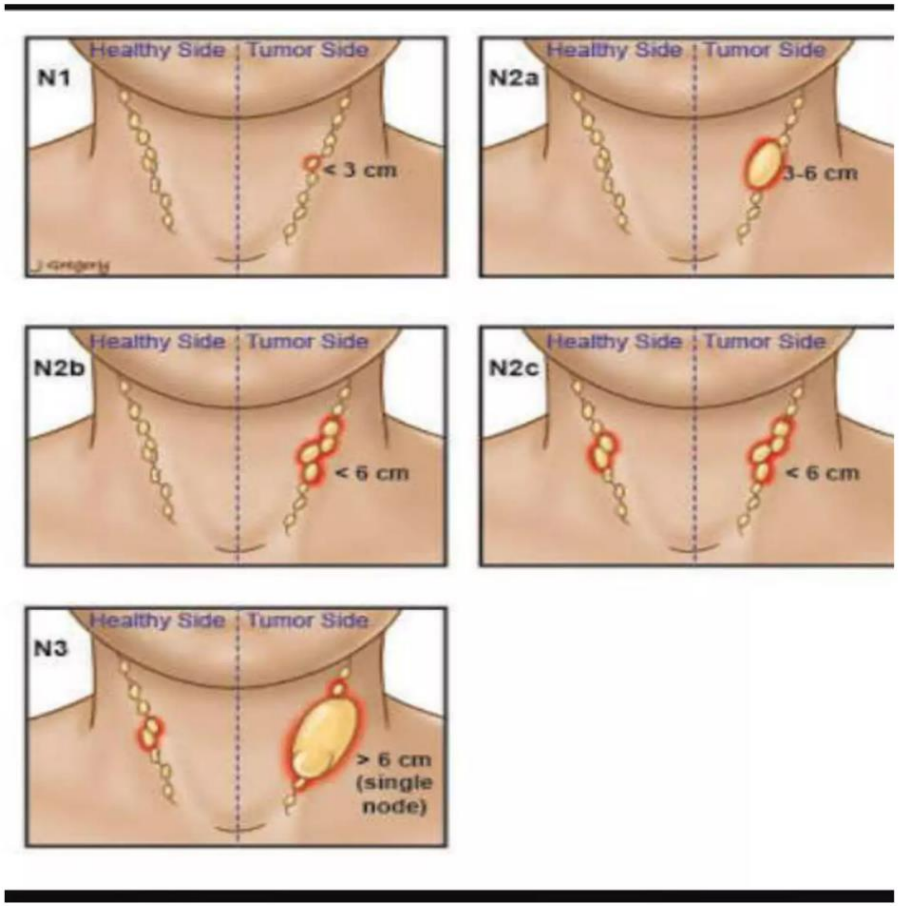


T4a: lesion invades through cortical bone…

T4b: lesion invades masticatory space, pterygoid plates, skull/encase carotid artery

Source: Amin, M. B., Edge, S., Greene, F., Byrd, D. R., Brookland, R. K., Washington, M. K., ... & Compton, C. C. (2017). AJCC Cancer Staging Manual (8th ed.). Springer.

Stage N



Source:Amin, M. B., Edge, S., Greene, F., Byrd, D. R., Brookland, R. K., Washington, M. K., ... & Compton, C. C. (2017). AJCC Cancer Staging Manual (8th ed.). Springer.

Stage: M

- MX — Distant Mets can't be confirmed
- MO — No distant mets
- M1 — distant mets present

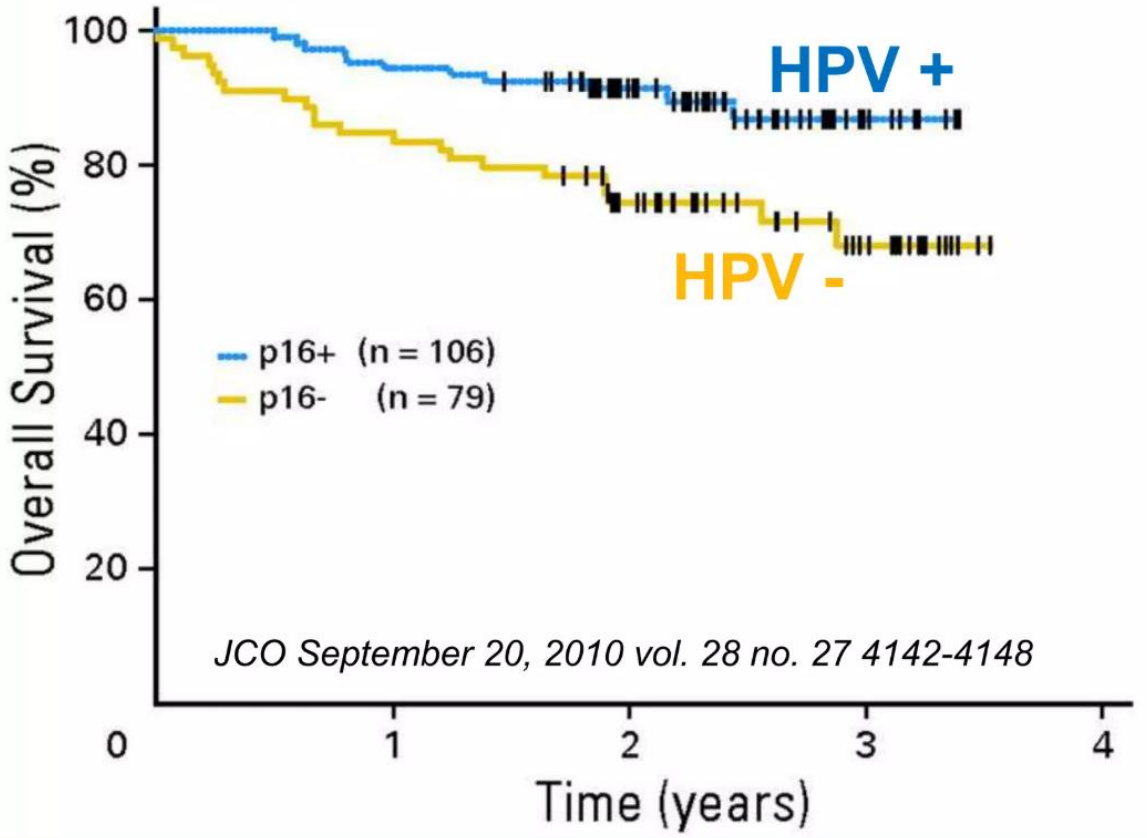
Source:Amin, M. B., Edge, S., Greene, F., Byrd, D. R., Brookland, R. K., Washington, M. K., ... & Compton, C. C. (2017). AJCC Cancer Staging Manual (8th ed.). Springer.

Treatment

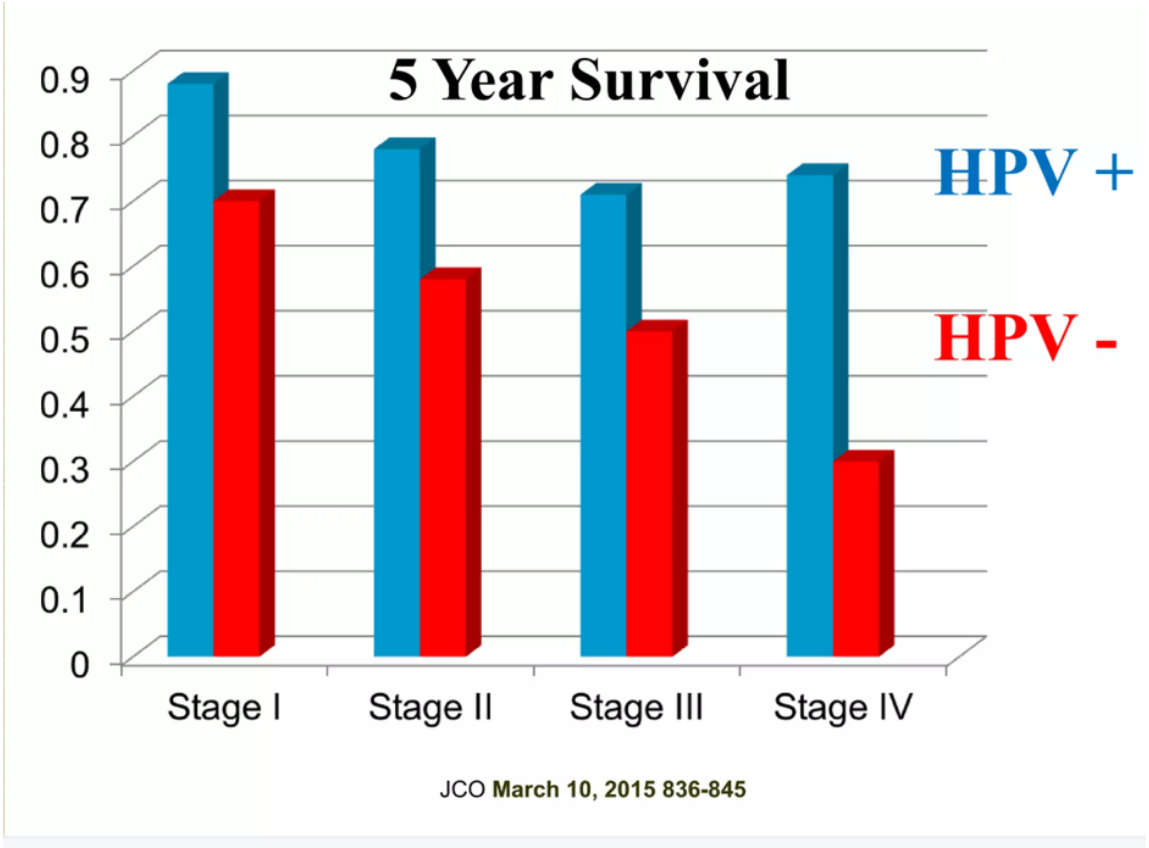
1. Surgery
2. Radiation
3. Chemoradiation
4. Chemotherapy
5. Others

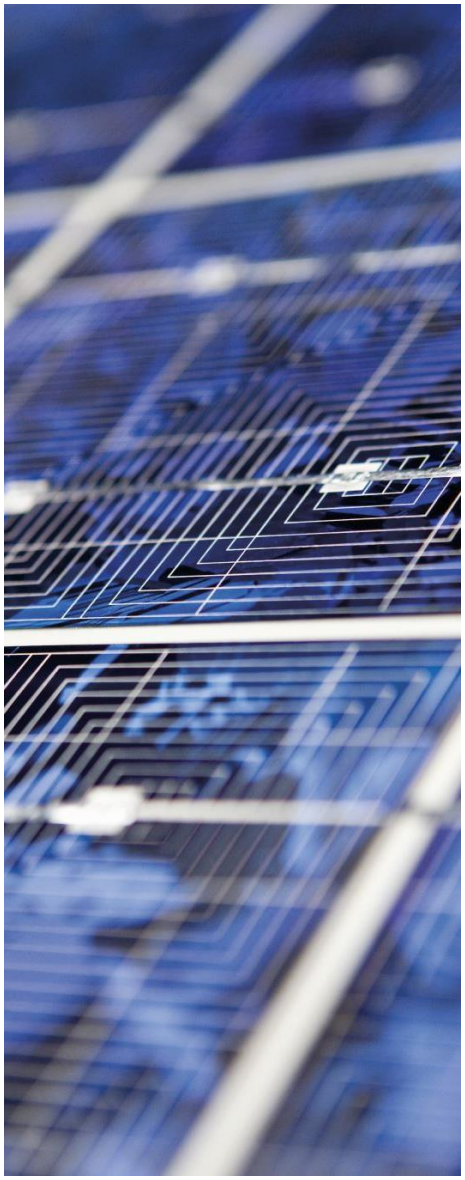
Source:Amin, M. B., Edge, S., Greene, F., Byrd, D. R., Brookland, R. K., Washington, M. K., ... & Compton, C. C. (2017). AJCC Cancer Staging Manual (8th ed.). Springer.

Chemoradiation



Prognosis


5 Year Survival
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
HPV +
HPV -
Stage I
Stage II
Stage III
Stage IV
JCO March 10, 2015 836-845



Survivorship Issues

Long-term side effects: swallowing, speech, xerostomia

Role of SLP, nutrition, psychosocial care

Survivorship planning is key

Risk of Suicide for Head & Neck Cancer Survivors: United States

An analysis of SEER data for over 4 million cancer survivors from 2000-2014 found that for survivors of head & neck cancers :

- There was a **27% increase in the risk of suicide** in 2010-2014 compared with 2000-2004
- Suicide rates were **twice as high** (63.4/100,000) as for other cancers (23.6/100,000)

- Sources of distress unique to head & neck cancer survivors that may result from treatment:

- facial disfigurement
- difficulty swallowing
- loss of taste or smell

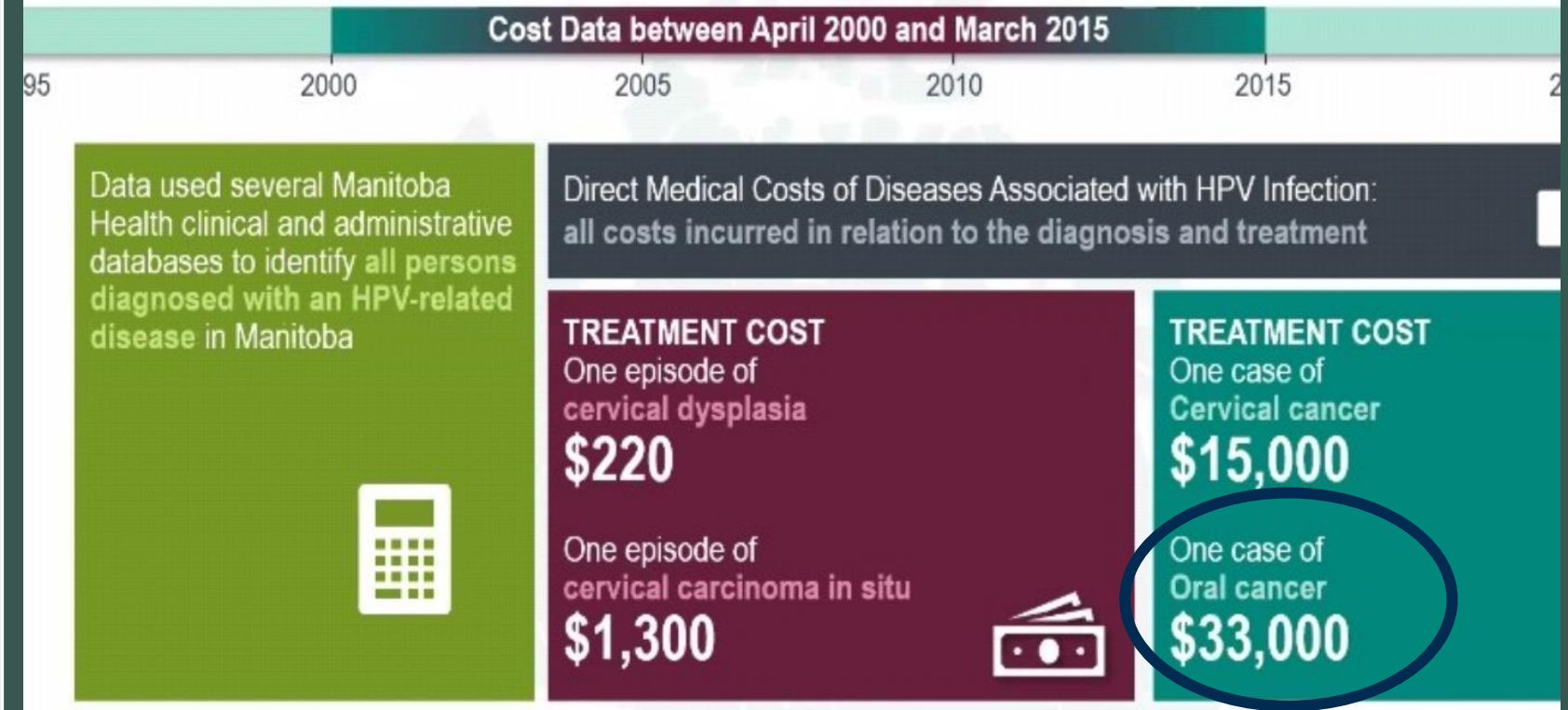
- difficulty speaking
- depression

Osazuwa-Peters N, Simpson MC, Zhao L, et al. Suicide risk among cancer survivors: Head and neck versus other cancers. *Cancer*. 2018;124(20):4072-4079. https://www.ncbi.nlm.nih.gov/pubmed/30335190

Prevention Beyond Vaccination

- Quit tobacco/alcohol
- Maintain oral hygiene
- Public awareness & destigmatization
- Report Symptoms

Socioeconomic Burden of HPV-Related Head & Neck Cancers: Canada



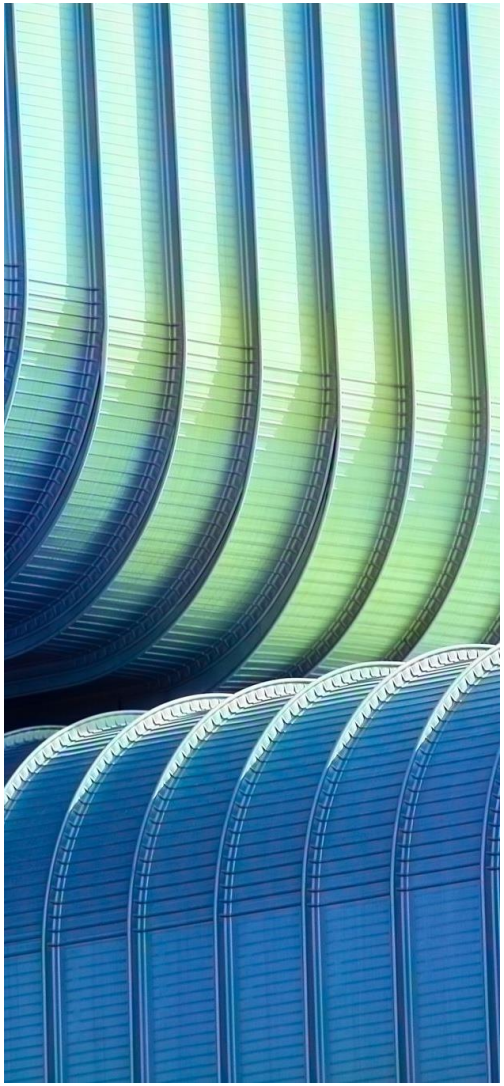
gholt C H et al. (2018) The Direct Medical Costs of Diseases Associated with Human Papillomavirus Infection in Manitoba, Canada. Appl Health Econ Health Policy. https://doi.org/10.1007/s40258-017-0367-1

Public Health Impact

- Rising burden on healthcare systems – can be prevented
- Vaccination = cost-effective
- Equity in access matters

Key Takeaways

- HPV drives rising incidence
- Early recognition saves lives
- Vaccination = powerful prevention
- Multidisciplinary care = best outcomes



Questions?