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HPV Global Action
In partnership with the
Consortium for Infectious Disease Control
Presents

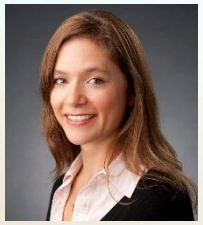
www.CIDCgroup.org

HPV head and neck cancers: We need a control strategy now!

The case for better clinical awareness and a stronger preventive agenda

Presenter: Dr. Ian Witterick, MD

President, Canadian Society of Otolaryngology-Head & Neck Surgeons
Professor and Chair, Department of Otolaryngology-Head & Neck Surgery, Sinai Health Systems



Presenter: Dr. Melissa Henry, PhD

Associate Professor, Gerald Bronfman Department of Oncology, McGill University
Co-Director, Quebec Research Group in Palliative and End-of-Life Care (RQSPAL) Axis I
Board member, International Psycho-Oncology Society (IPOS)

Moderator: Dr. Marc Steben MD, CCFM, FCFM

Chair of the Canadian Network on HPV Prevention
Family Physician, Family Medicine Group, Montreal, QC
Board Member, International Papillomavirus Society

November 10, 2021

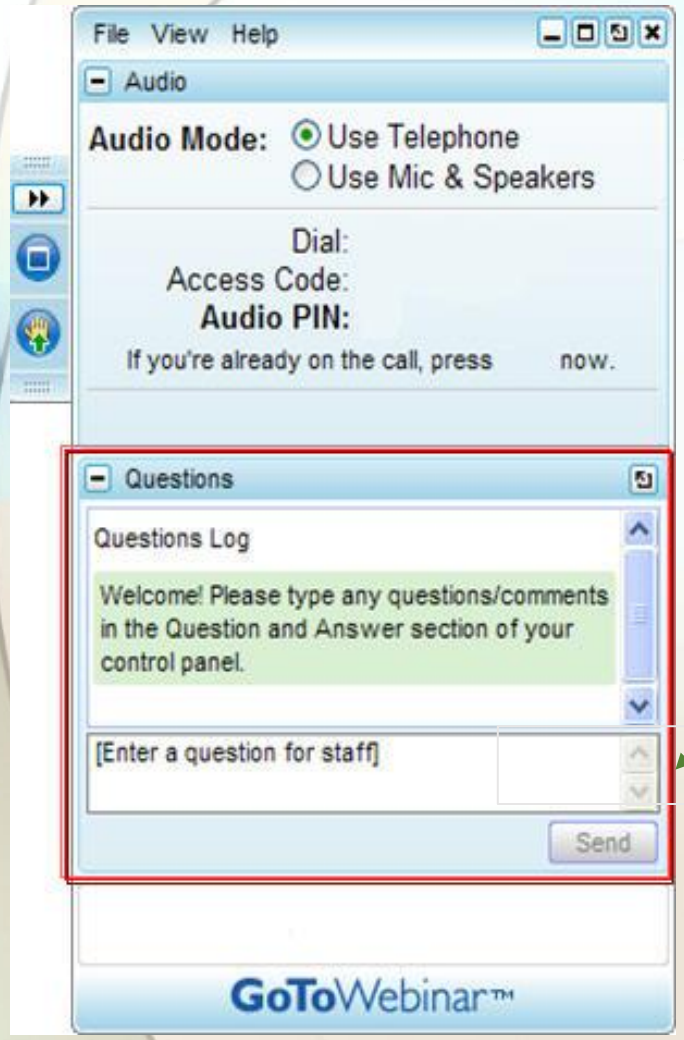
This educational program is made possible through the support of **Bristol Myers Squibb Canada** and **Roche Diagnostics Canada**

Webinar Objectives

At the end of the presentation, the participants will be better informed about head and neck cancers:

- Their clinical burden
- Their natural clinical history
- Their early and late-stage signs and symptoms
- Psychological burden on patients and their families; difficulty going back to work

Administrative Information



How to participate:

- You can hear the audio for today's webinar via your computer by selecting "Use Mic & Speakers"
- Or, to join by phone, select "Use Telephone" in your Audio window. Info for dial in then will be displayed
- Submit your text question using the Questions pane & click 'Send' button
- Questions will be answered at the end of the presentation

- Submit at any time by typing in the "Questions" pane on the control panel

NOTE: For mobile device users:
- To open the questions pane, tap on the "?" or "Questions"
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Note: A recording of the presentation will be made available at www.CIDCgroup.org and www.hpvglobalaction.org

Evaluation

Complete the Evaluation Survey at:
https://www.surveymonkey.com/r/93GRWDT

Completion of survey is requested to receive a certificate of participation

– all registered participants will receive an email with this link

Slides and Video Recording

The webinar **Slides and Recording** will be archived at:

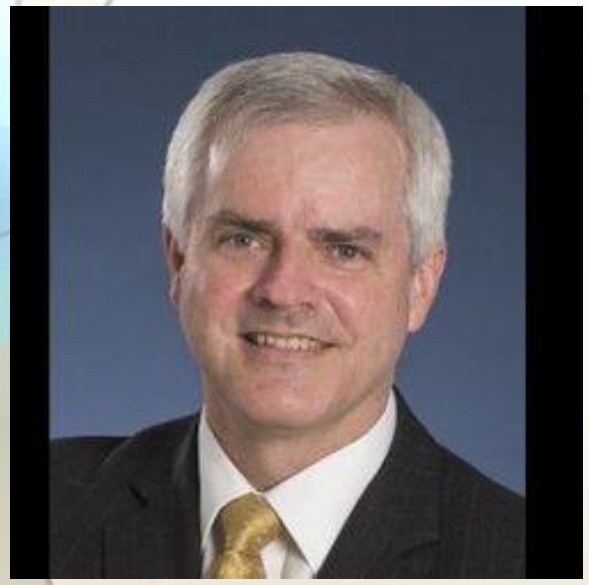
www.hpvglobalaction.org and https://www.CIDCgroup.org

Moderator

Dr. Marc Steben, MD

- Co-President, HPV Global Action
- Chair, Canadian Network on HPV Prevention
- Family Physician, Family Medicine Group La Cité du Parc Lafontaine, Montreal, QC
- Board Member and Chair of the Education Committee, International Papillomavirus Society

Presenter



Dr. Ian J. Witterick MD, MSc, FRCSC

- George and Helen Vari Chair in Otolaryngology – Head & Neck Surgery, Temerty Faculty of Medicine, University of Toronto
- Otolaryngologist-in-Chief, Sinai Health
- Past President, Canadian Society of Otolaryngology – Head & Neck Surgery

HPV Head & Neck Cancers: We Need a Control Strategy Now

Ian Witterick MD, MSc, FRCSC

George and Helen Vari Professor & Chair

Department of Otolaryngology – Head & Neck Surgery, University of Toronto

Otolaryngologist-in-Chief, Sinai Health, Toronto

Disclosures

- Advisory Boards
  - GlaxoSmithKline
  - Medtronic Canada
  - Sanofi Genzyme
- Shares
  - Proteocyte Diagnostics

Objectives

- HPV related head & neck cancers
  - Clinical burden
  - Natural clinical history
  - Early and late stage signs and symptoms
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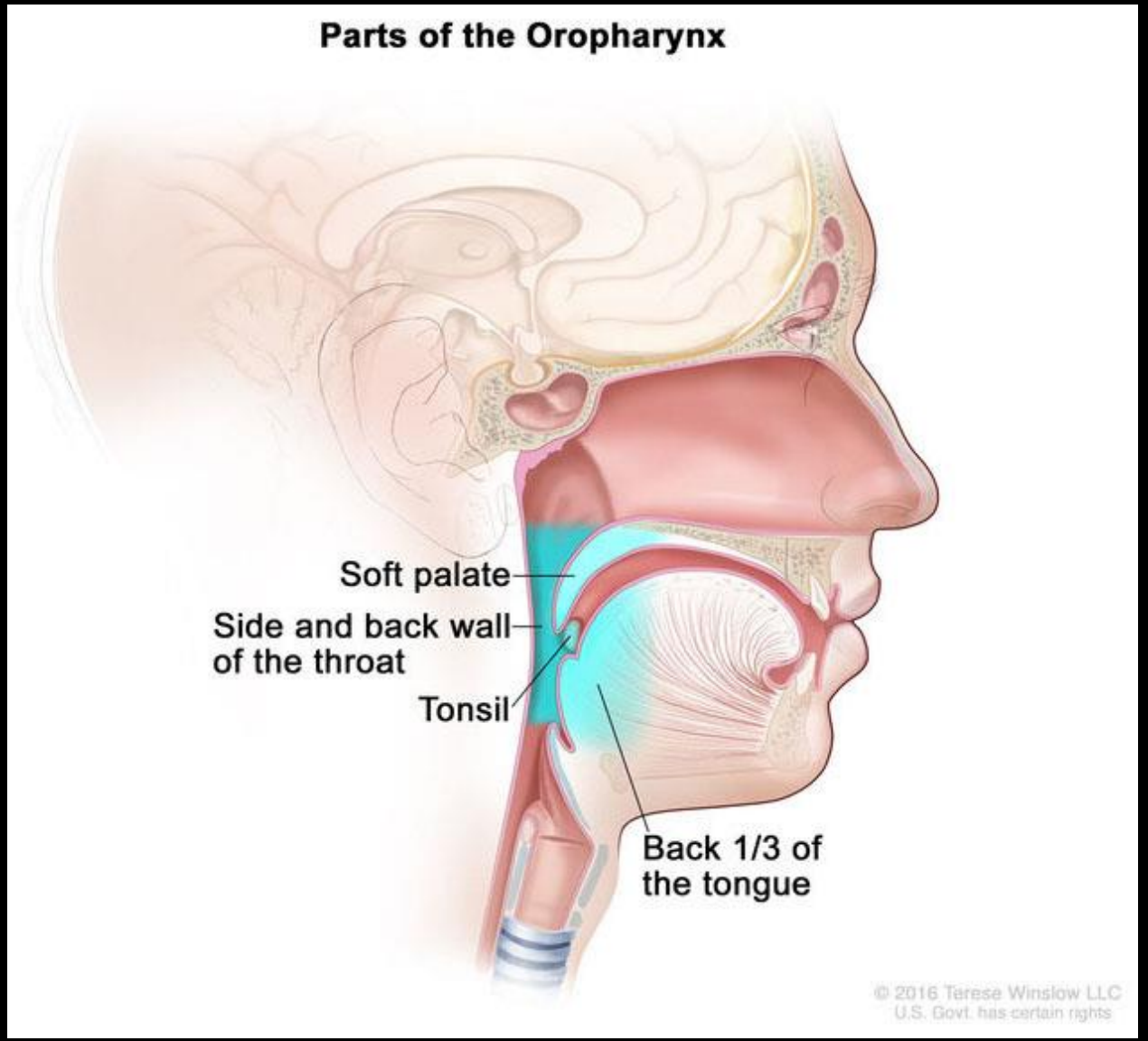
Parts of the Oropharynx
Soft palate
Side and back wall of the throat
Tonsil
Back 1/3 of the tongue
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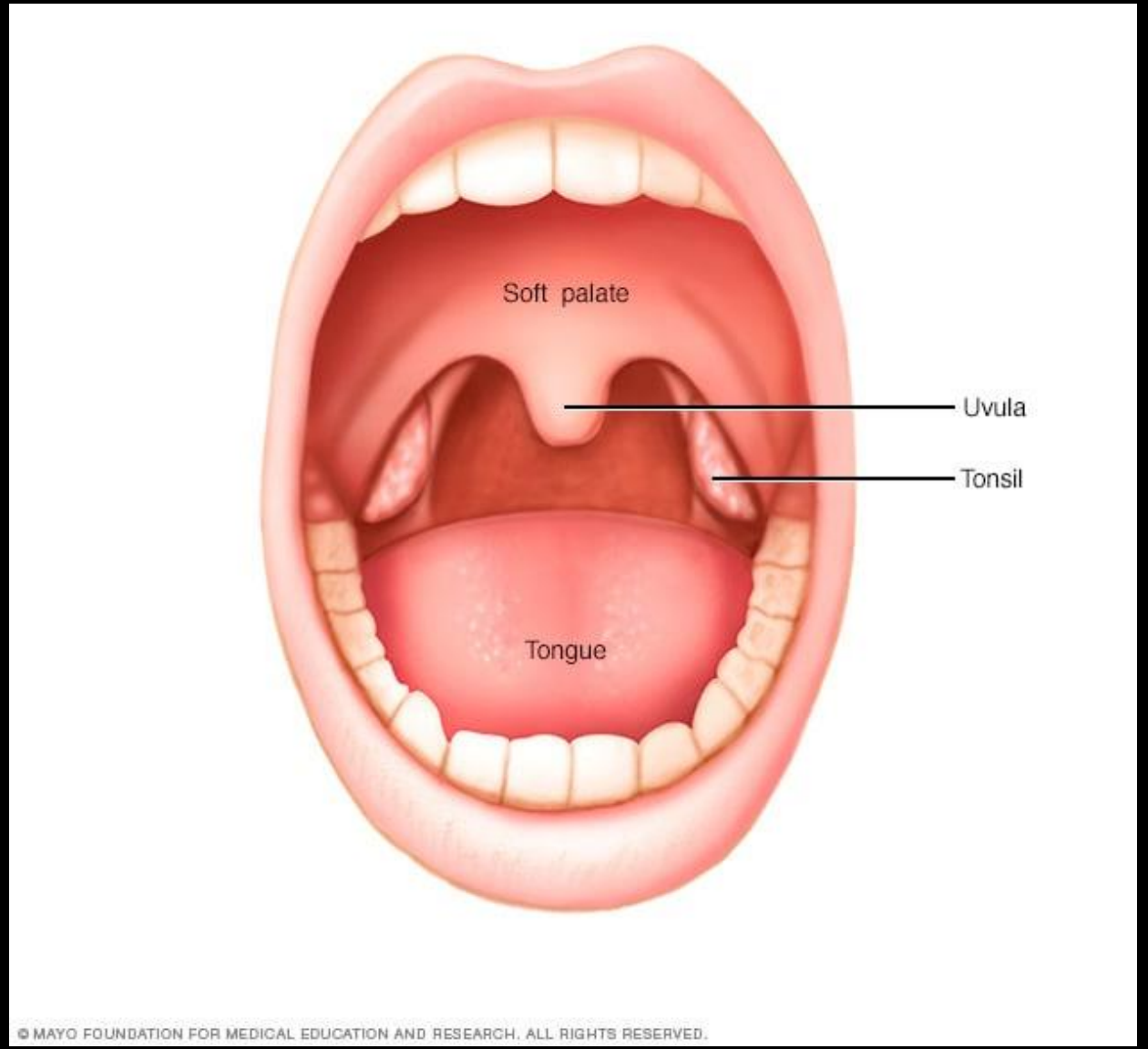
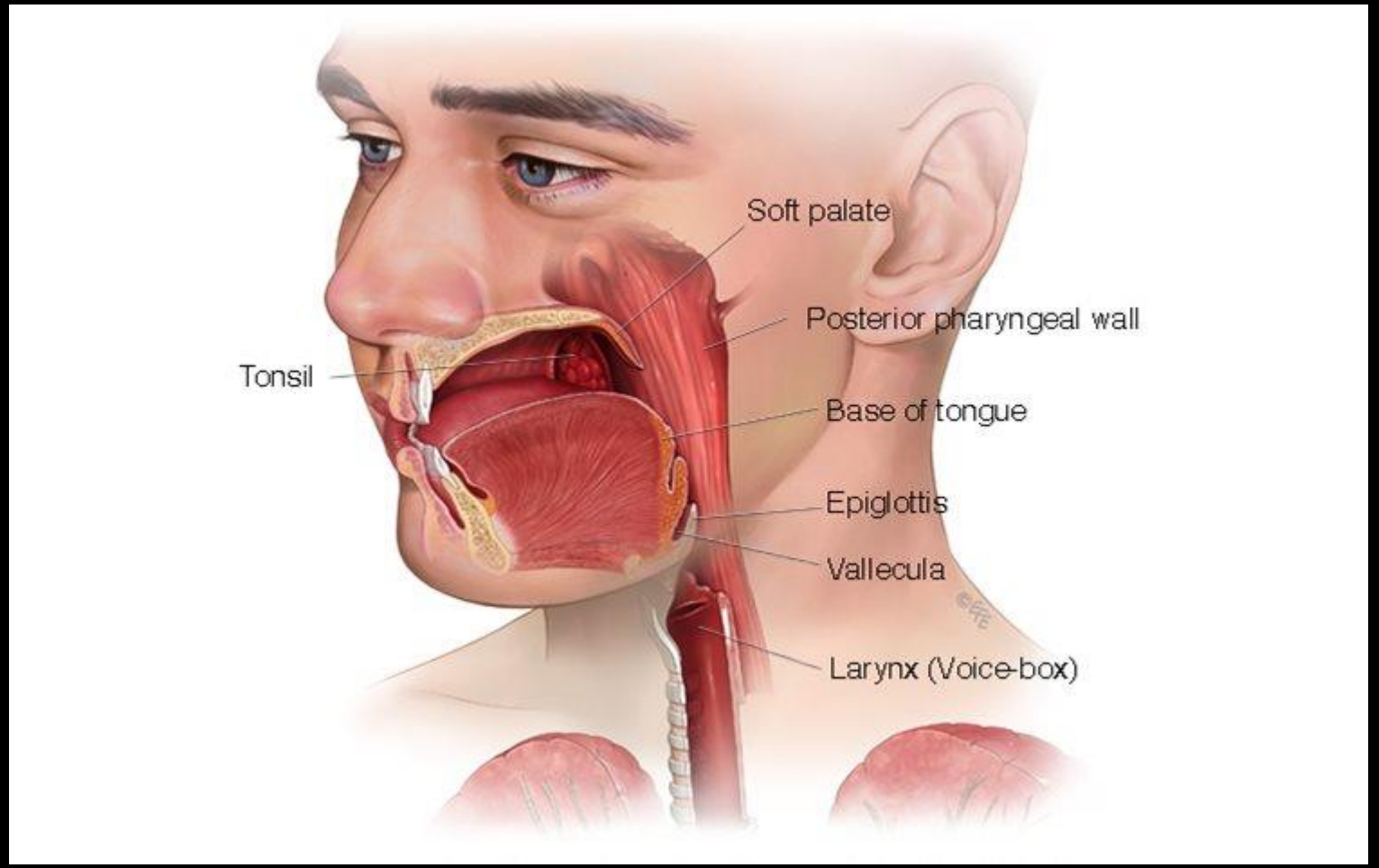
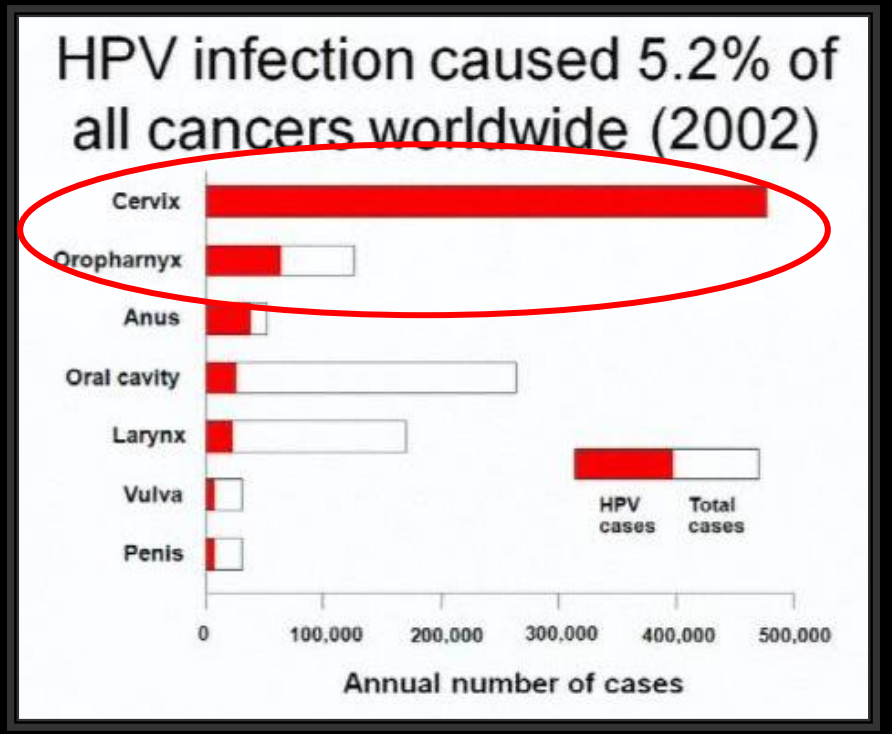


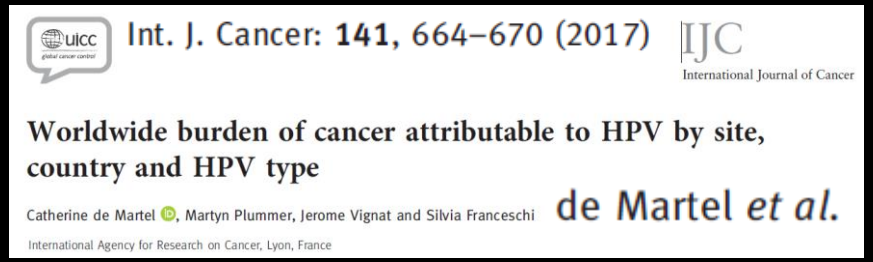

Soft palate
Posterior pharyngeal wall
Tonsil
Base of tongue
Epiglottis
Vallecula
Larynx (Voice-box)

Clinical Burden

Prevalence of HPV-related Cancer

- Magnitude of Problem:
  - Causes 4.5% of all new cancer cases worldwide in 2012
    - Cervix: >95%
    - Oropharynx: >50%
    - Vagina: 60-90%
    - Anus: 60-90%
    - Vulva: ~50%
    - Others




Int. J. Cancer: 141, 664–670 (2017)
IJC
International Journal of Cancer

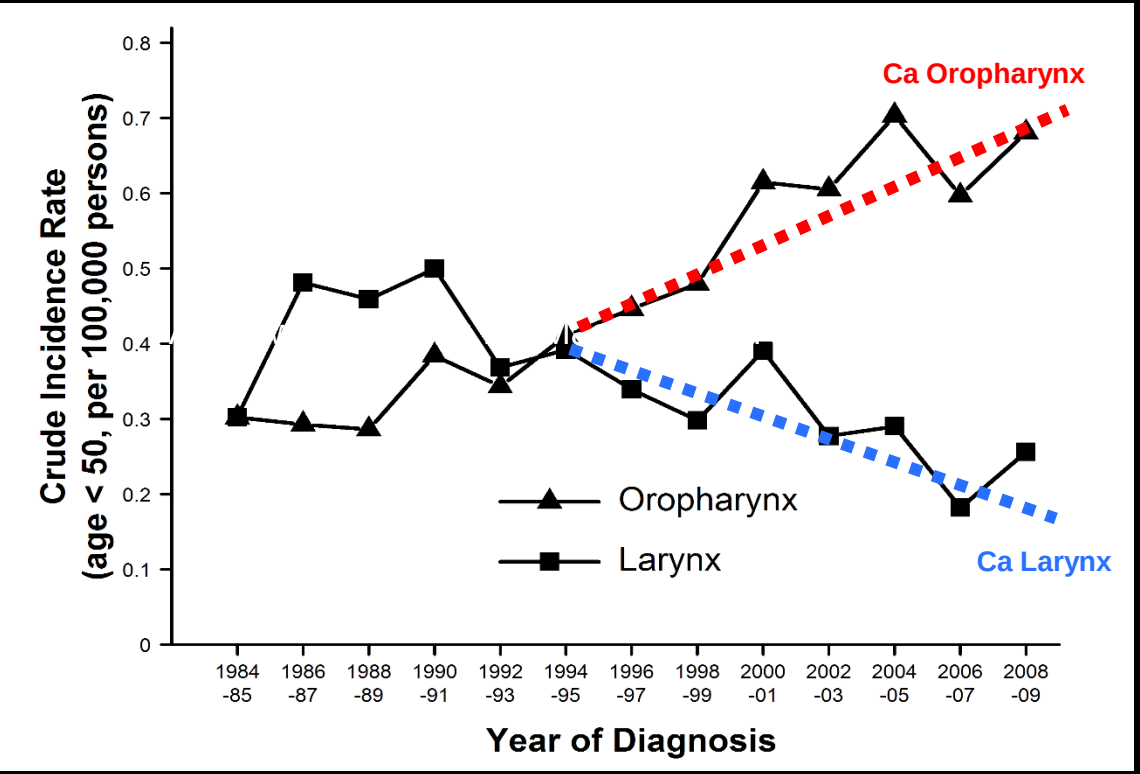
Worldwide burden of cancer attributable to HPV by site, country and HPV type

Catherine de Martel, Martyn Plummer, Jerome Vignat and Silvia Franceschi
International Agency for Research on Cancer, Lyon, France

de Martel *et al.*

Evolving Head and Neck Cancer Landscape

Incidence Rates of Laryngeal vs Oropharyngeal Cancer In Ontarians *under 50 Years* (per 100,000)



HPV-associated head and neck cancer: a virus-related cancer epidemic

THE LANCET Oncology FULL-TEXT ARTICLE

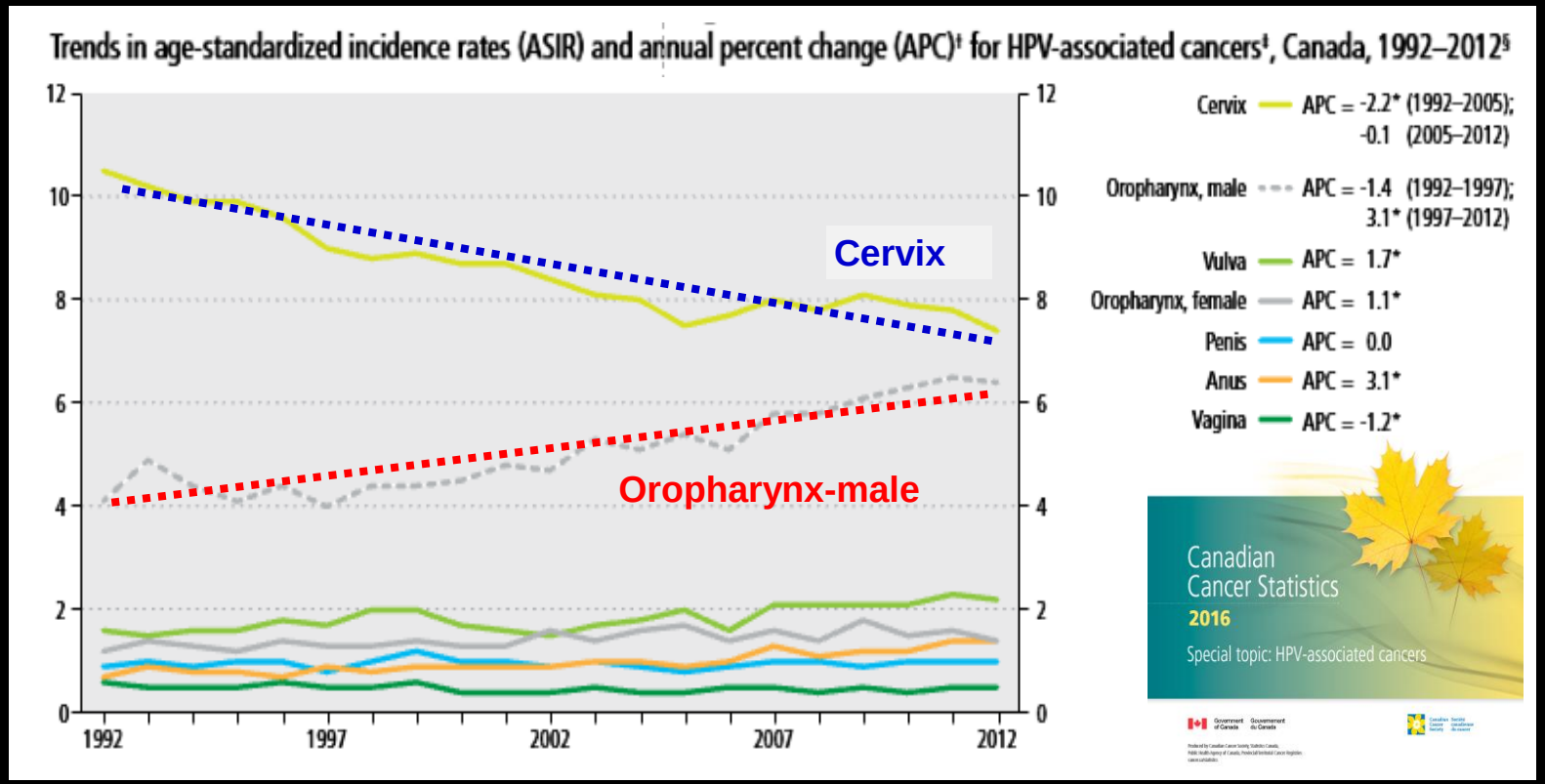
Lancet Oncol 2010; 11: 781–89

Shanthi Marur, Gypsyamber D'Souza, William H Westra, Arlene A Forastiere

Courtesy Ms. Sophie (Shao Hui) Huang

HPV Mediated Cancer in Canada:

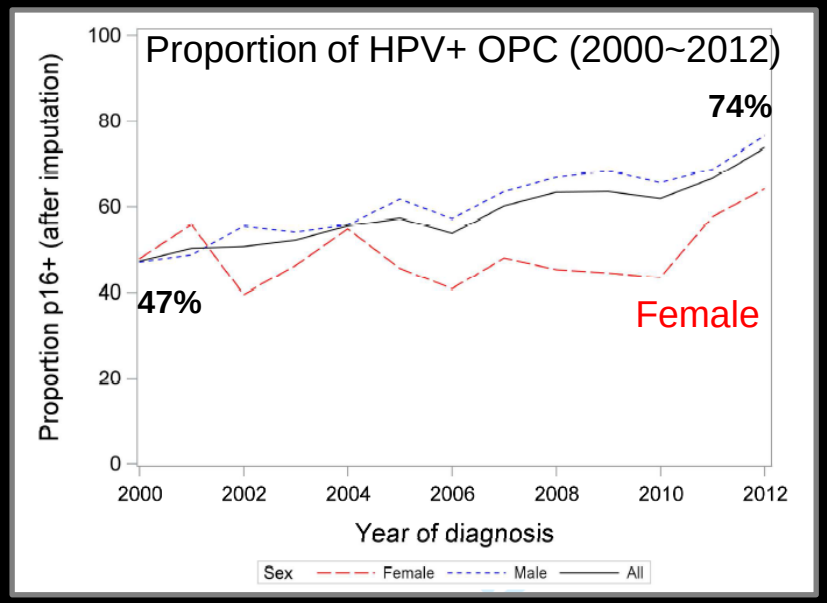
Canadian Cancer Statistics 2016

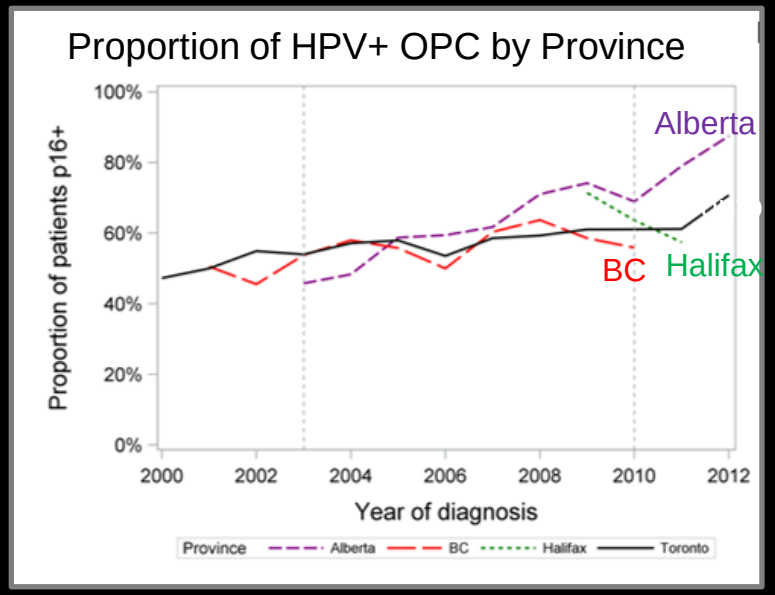


- The incidence of cervical cancer is declining
- The incidence of male with oropharyngeal cancer (OPC) is rising

Liu, Huang, O'Sullivan et al. CMAJ 2017

Multi-provincial Time-trends Study of Incidence of HPV+ OPC (2000~2012) *[Liu, Huang, O'Sullivan et al. 2017]*





- Data of 3643 OPC patients in 4 Canadian Provinces*:
  - Proportion of HPV+ OPC increased significantly in males
- The estimate proportion of HPV+ OPC
  - Had risen from approximately **47%** in 2000 to **74%** in 2012

Data from 4 Canadian Provinces:

- *Ontario (Toronto)*
- *Alberta (Edmonton, Calgary)*
- *BC (6 regional cancer centres)*
- *Nova Scotia (Halifax)*

Courtesy Ms. Sophie (Shao Hui) Huang

Liu, Huang, et al. CMAJ 2017

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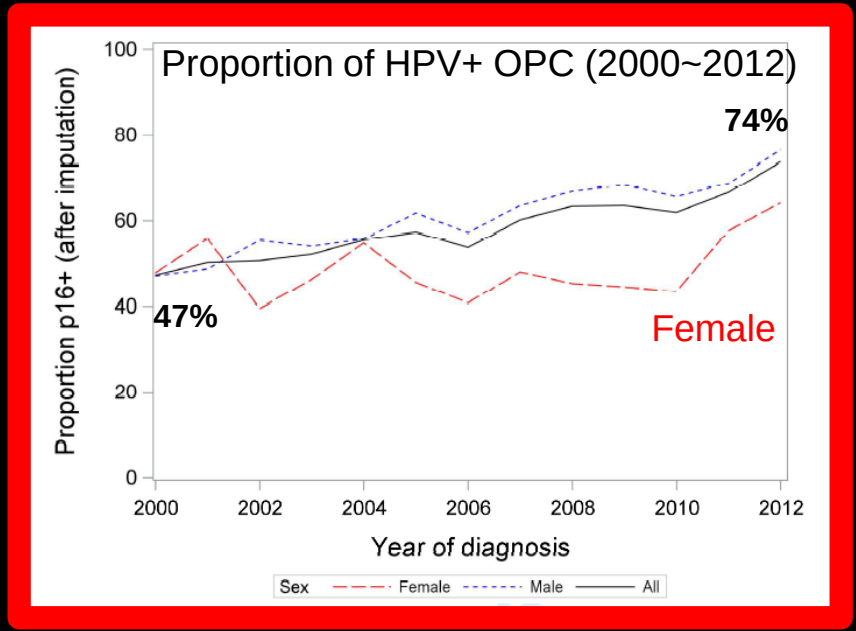

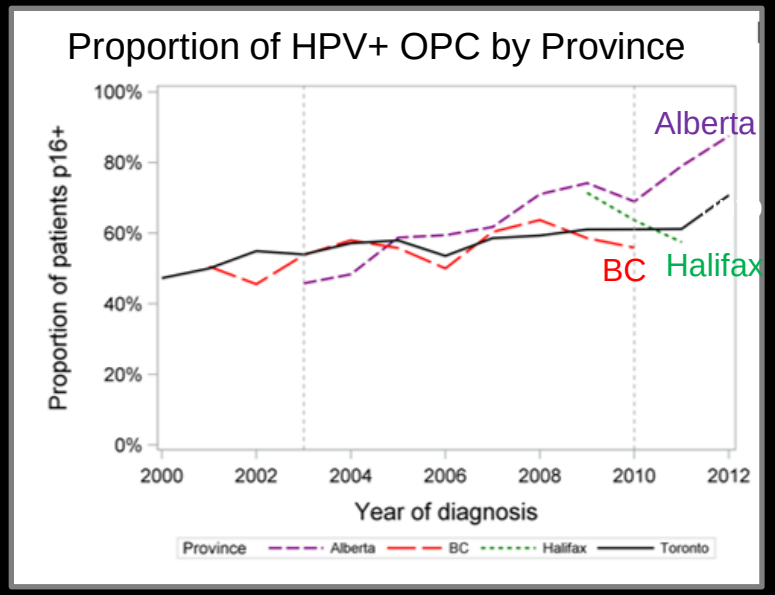

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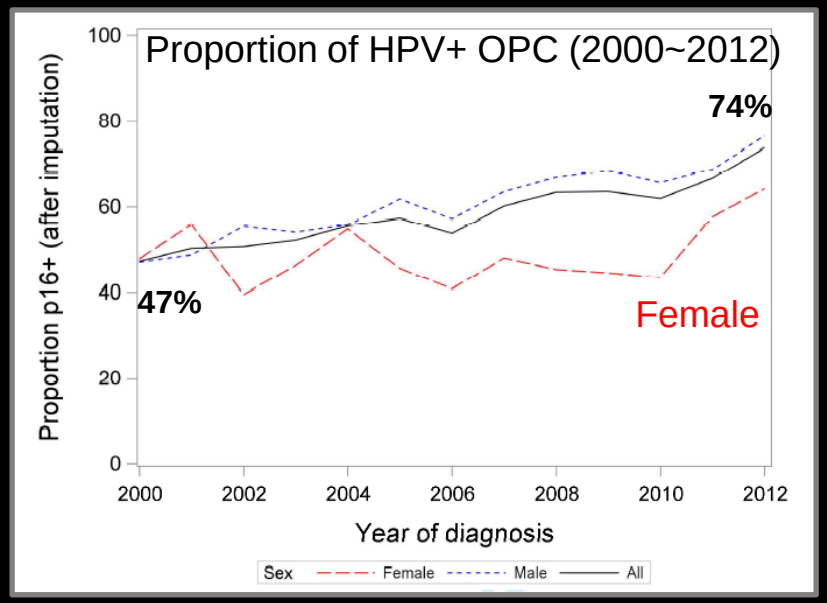

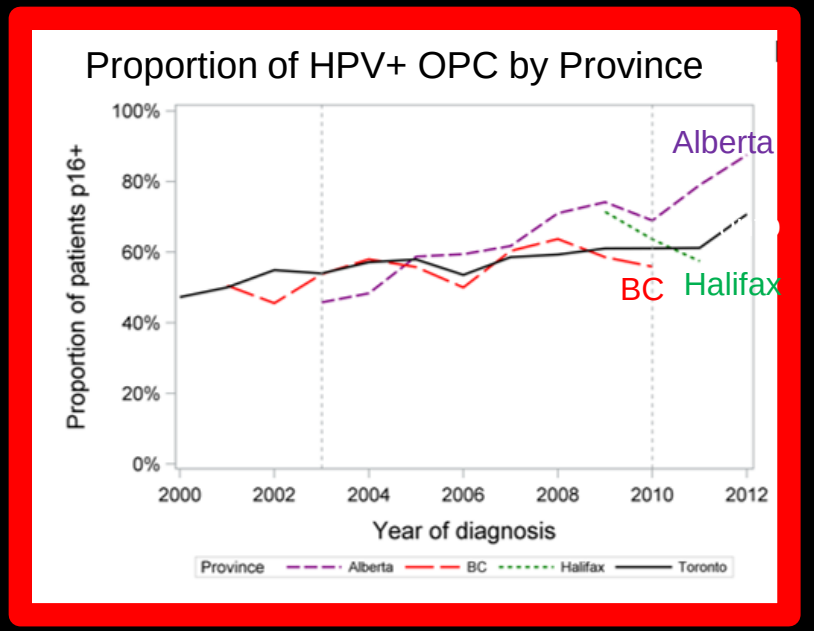

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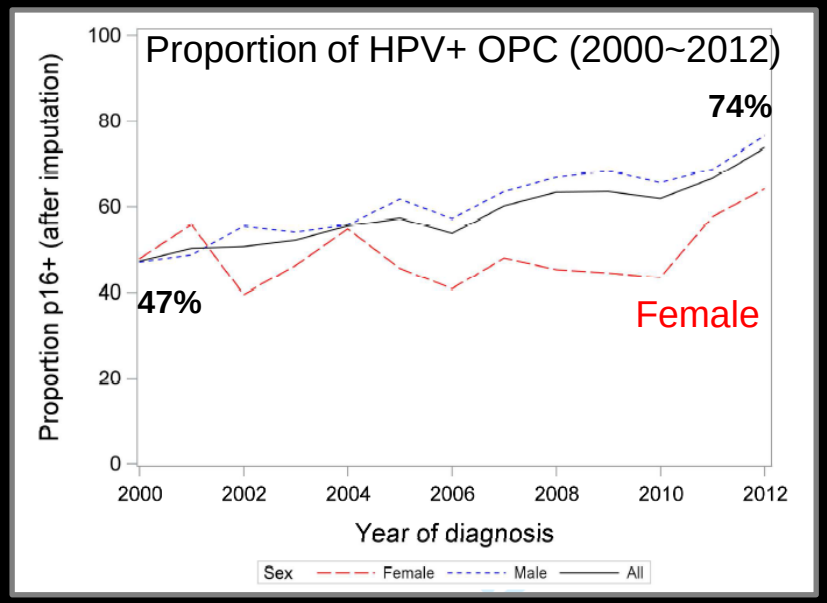

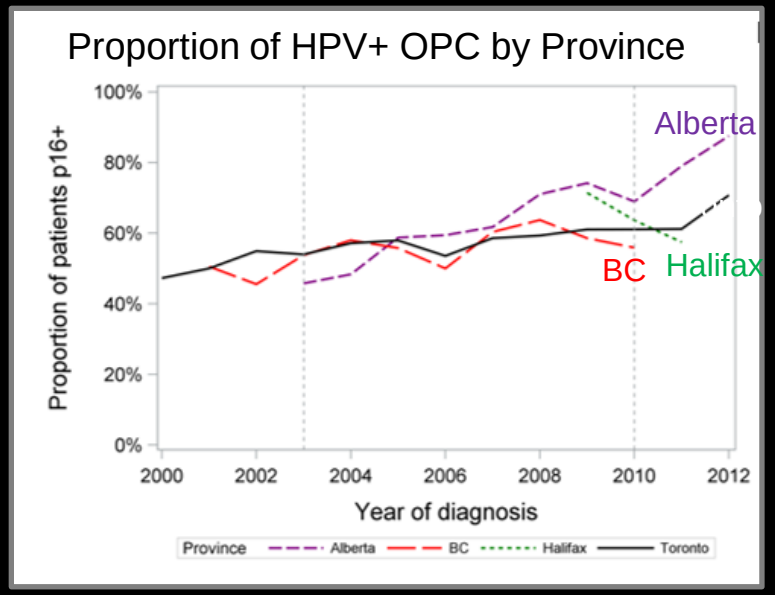

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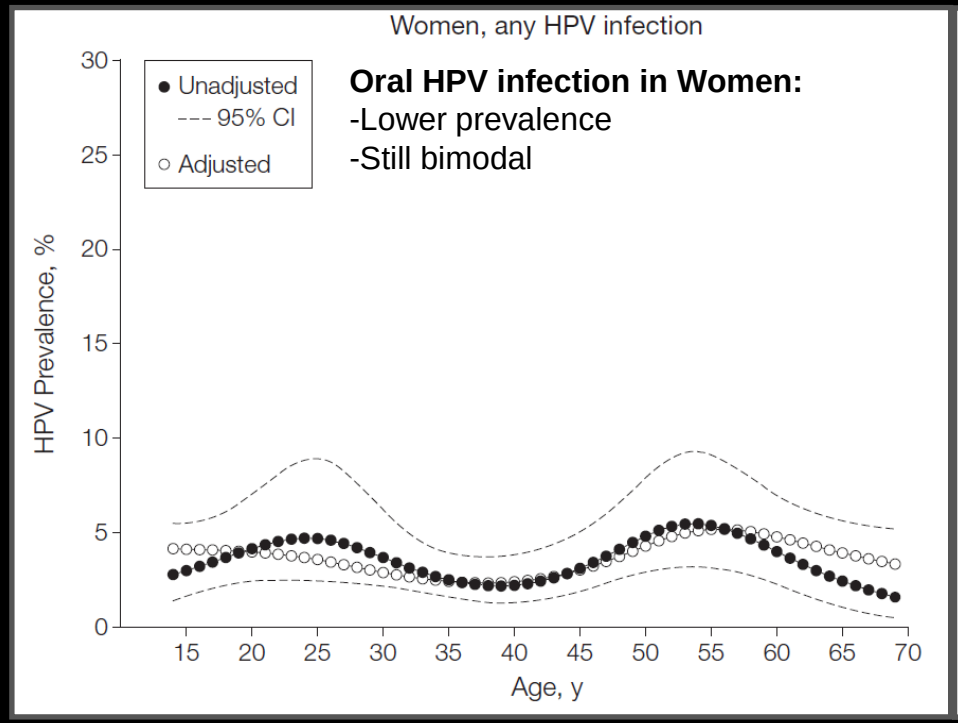
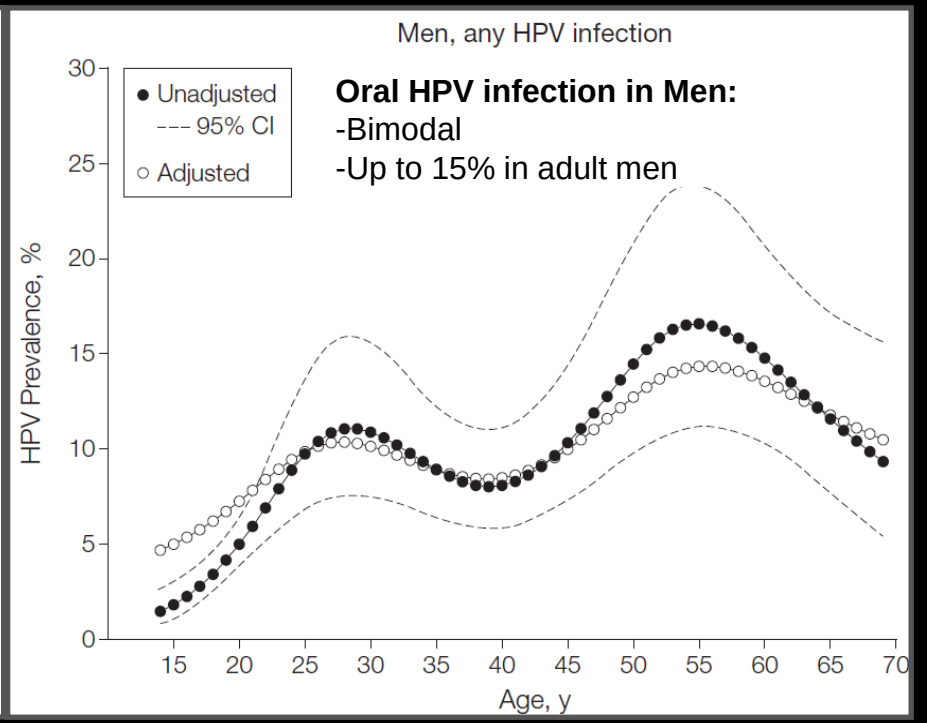
Liu, Huang, et al. CMAJ 2017

Gillison *et al JAMA 2012 (US population 2009-2010)*





- The prevalence of oral HPV infection is **5-10 fold lower** than genital mucosa
- 2-3 fold higher prevalence among men vs women
- **No decline with age, peak prevalence at 30-34 & 60-64 years**
- Most common high risk HPV subtypes is HPV16

** High-risk HPV load ↑ with older age and current smoking status (Charturvedi et al 2014)*

Natural Clinical History

Difference of HPV+

H&N Cancer vs. Cervical Cancer

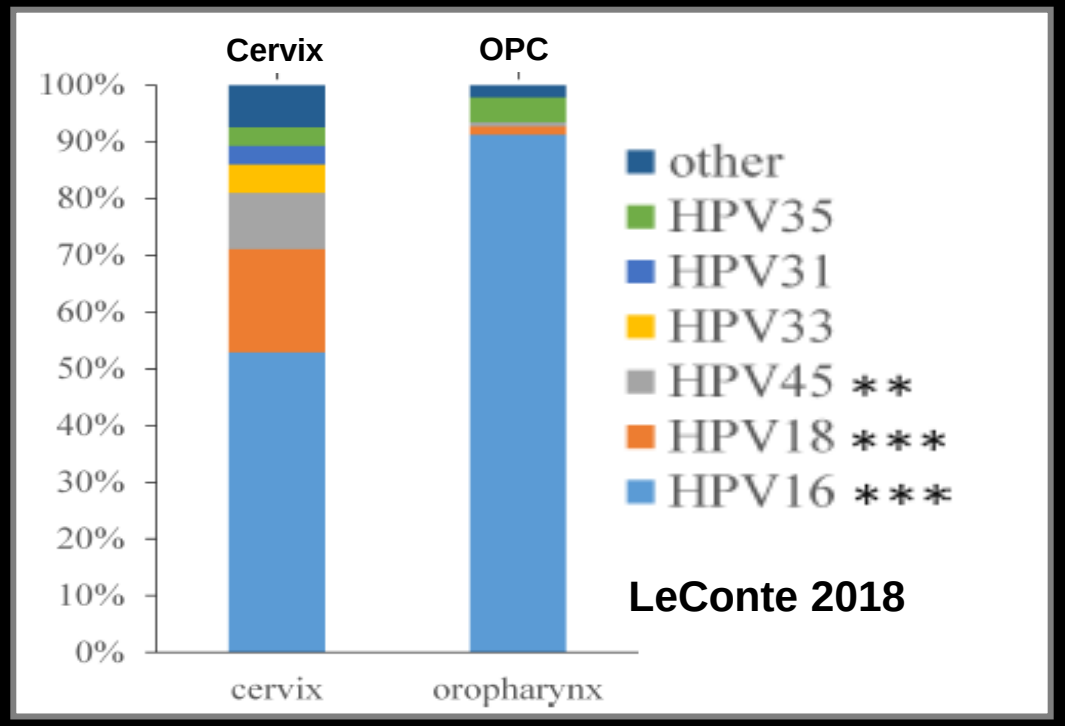
High-risk HPV Subtypes: Ca Cervix vs OPC

Eurogin Roadmap: Comparative epidemiology of HPV infection and associated cancers of the head and neck and cervix

Int. J. Cancer: **134**, 497–507 (2014) © 2013 UICC

Maura L. Gillison[1], Xavier Castellsagué[2], Anil Chaturvedi[3], Marc T. Goodman[4], Peter Snijders[5], Massimo Tommasino[6], Marc Arbyn[7,8] and Silvia Franceschi[6]

	Cervical Cancer	Oropharyngeal Cancer
HPV as Etiology	~100%	26%
HPV 16	~55%	>90%
HPV18	~10%	2%



LeConte 2018

Summary: Similarity and Differences

	Cervical Cancer	Oropharyngeal cancer
% of HPV+ cancer	>95%	>70% in US and Canada
Epidemiology	Developing countries	Developed countries
Viral transmission	Sexual Intercourse	Oral Sex
Age	Relatively younger (peak: 45 years in China)	Relatively older (peak: 55 years)
Gender	Females	Male dominant (>80%)
Screening program	Yes	None
Prevention	HPV vaccine (Approved in 2009 in US; 2016 in China)	HPV vaccine (approved for use in both boys and girls in 2012)

HPV Transmission to Head and Neck

Oral-genital (direct & indirect)	Yes
Oral-anal	Yes
Vertical (mother-baby)	*Likely*
Oral-oral (“French kissing”)	*Unclear*
Kissing on the cheek	No
Hugging / touching	No
Other non-sexual route	*Unclear*
Marijuana Use	*Unclear*

Cervical Cancer Route of Spread

Cervical Cancer

- Direct local extension
  - Main route of spread
- Lymphatic
  - obtruae LN→ pelvic side of common illiac → paraortic
- Haematogenous: rare
  - Lung, liver, and bone
  - Less frequent: bowel, adrenal glands, spleen and brain

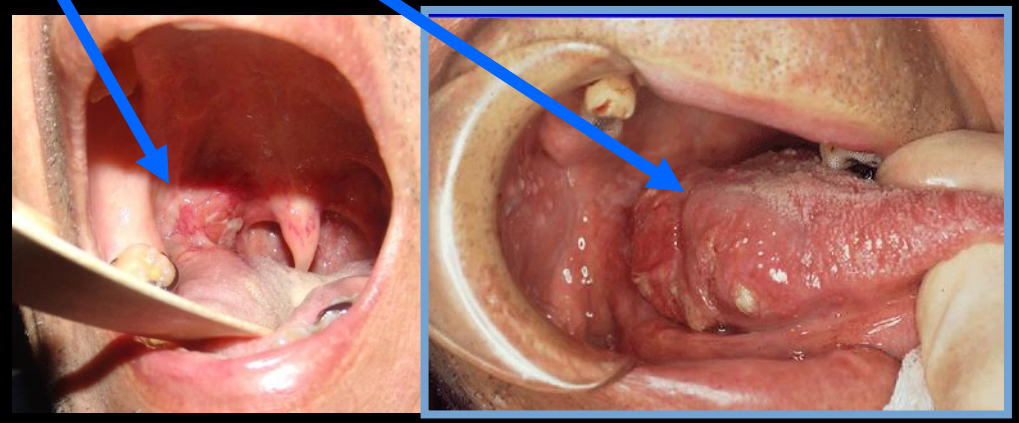
Oropharyngeal Cancer

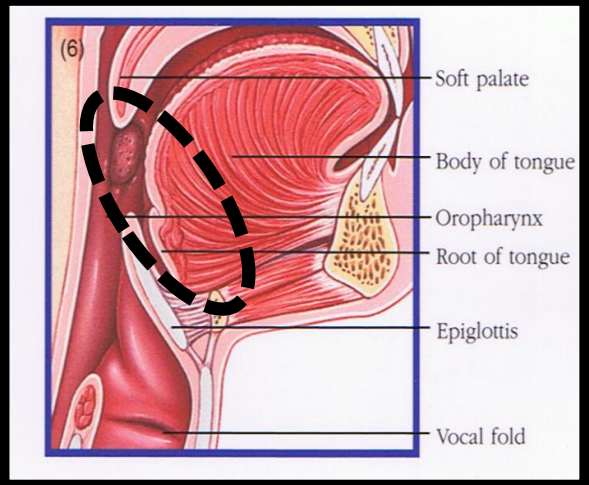
- Nodal involvement:
  - Early – often before detectable primary tumor
  - Early cN+: less prognostic
- Local extension:
  - Size of primary: prognostic
- Distant metastasis:
  - Unique pattern of DM
  - Lung, bone, liver
  - Also: bowel, intra-abdom LNs, brain, adrenal glands

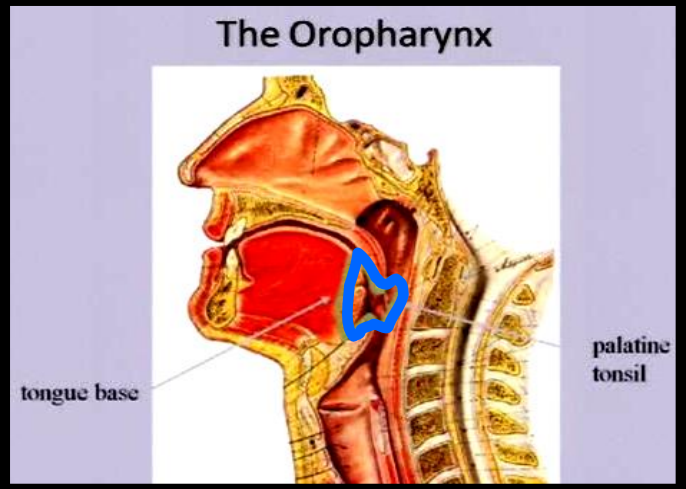
Early & Late
Symptoms and Signs

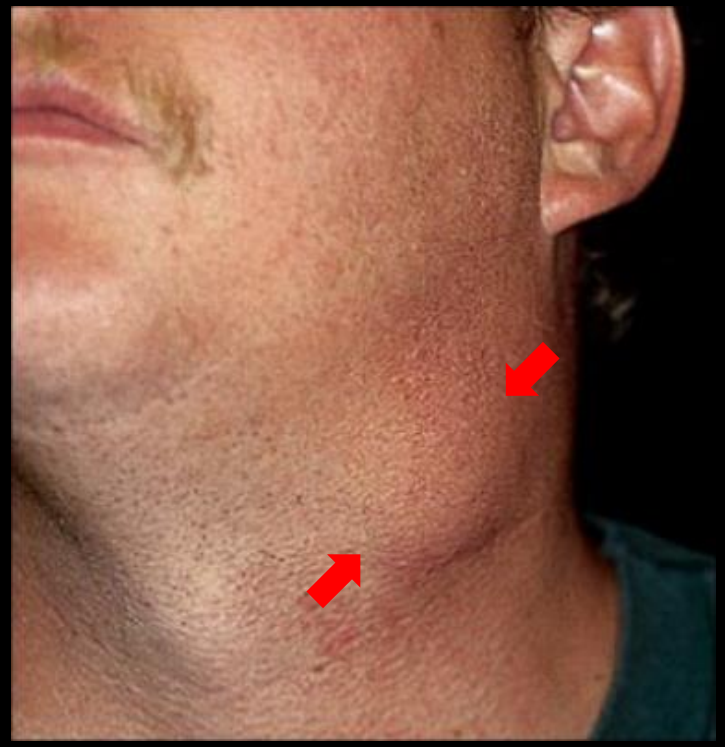
Site of HPV-related Head & Neck Cancer

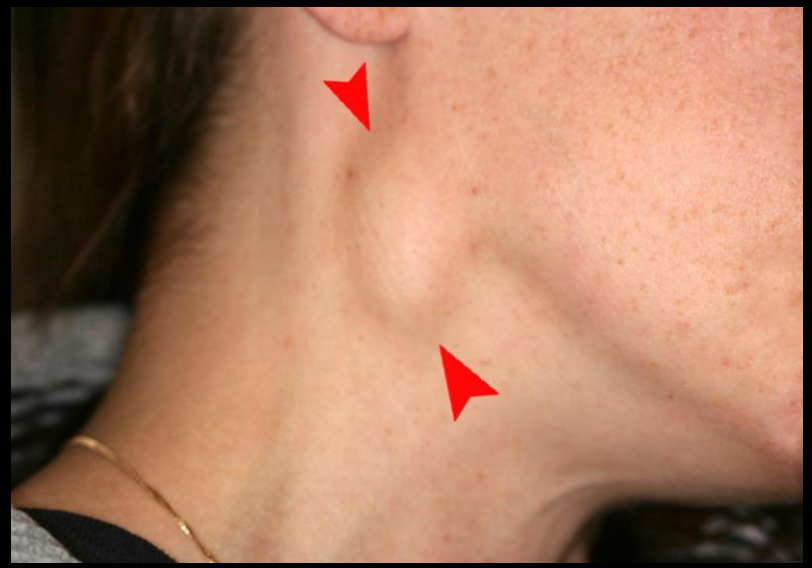
- Predominantly occur at **Tonsil / Base of Tongue (BOT)**
- NPC (emerging)
- Nasal cavity: some
- Larynx: <5%
- Oral cavity (oral tongue)
  - <5%

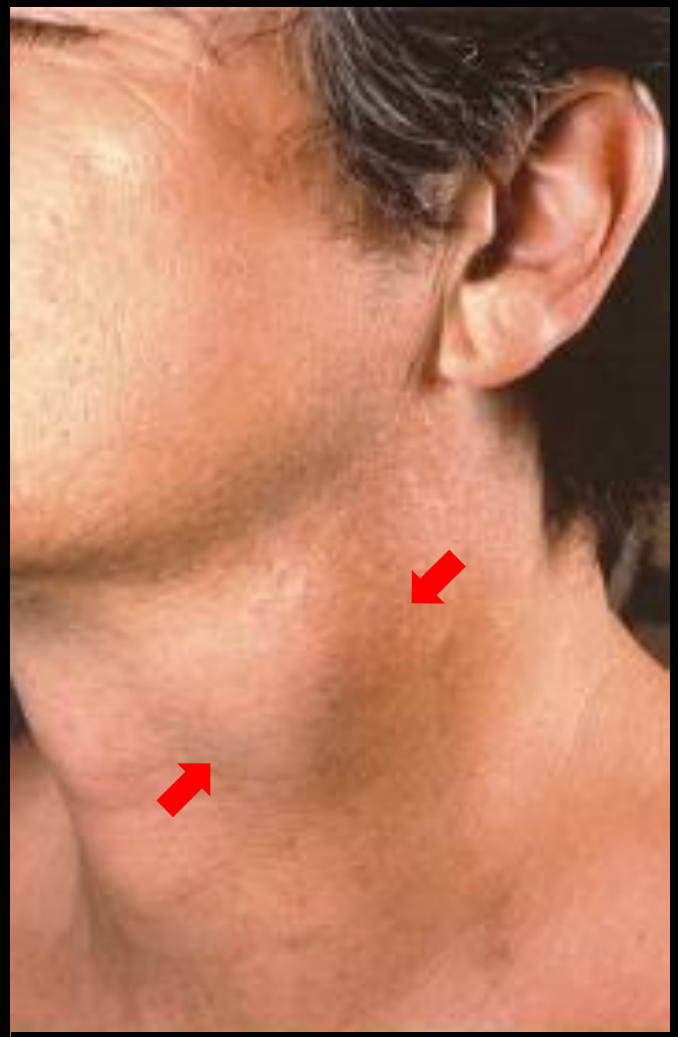


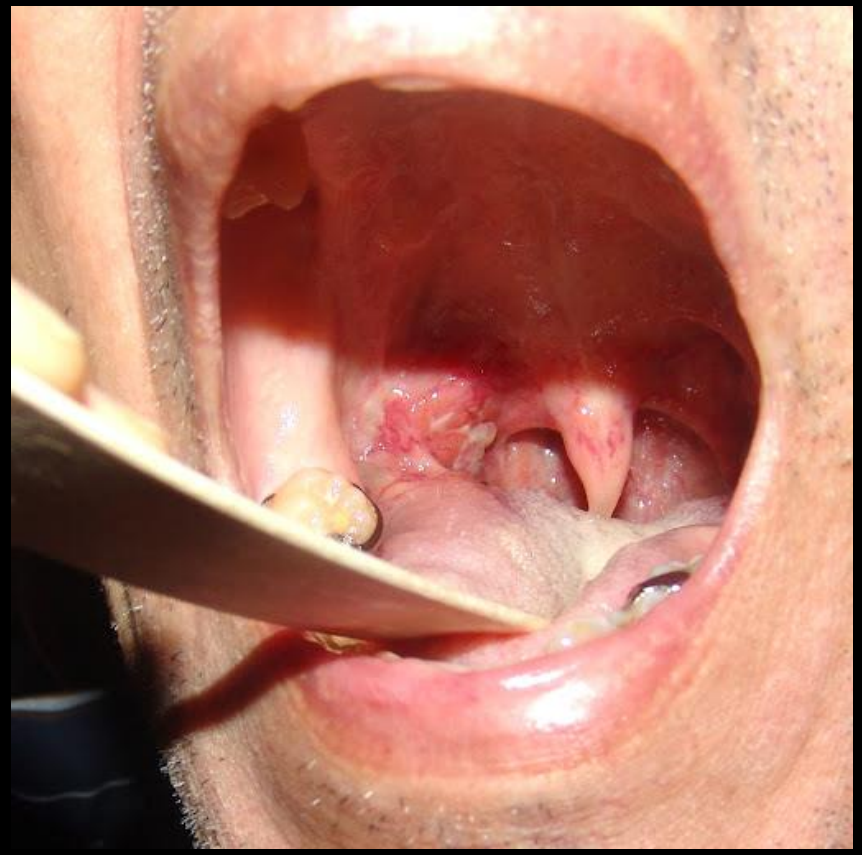


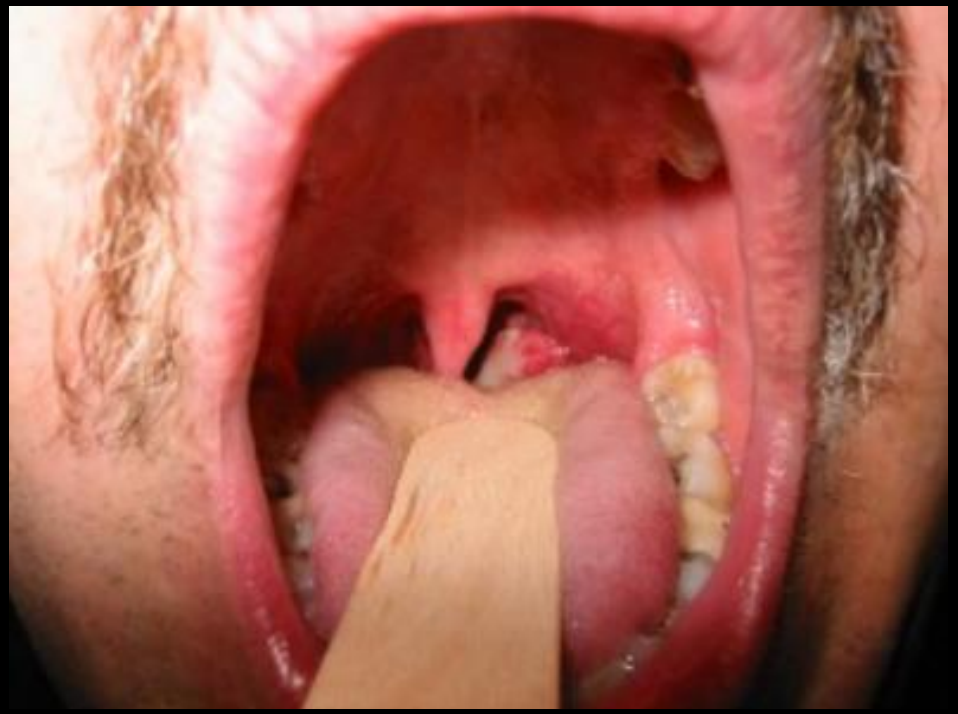


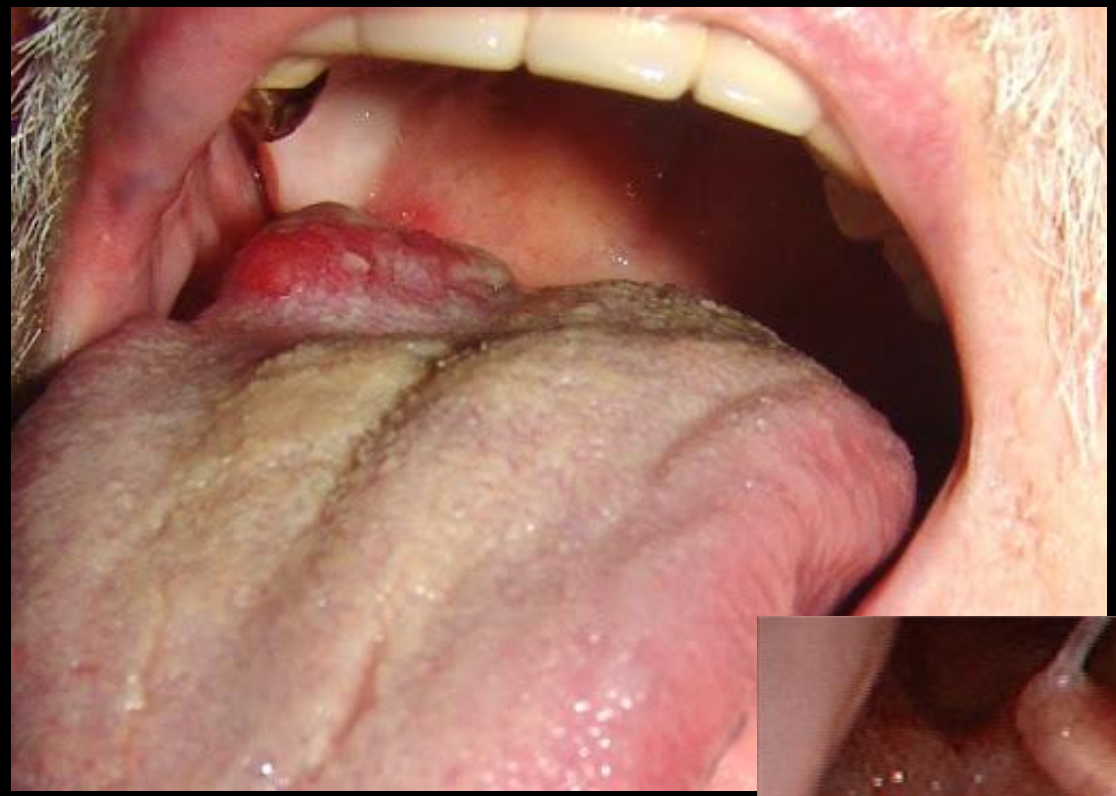


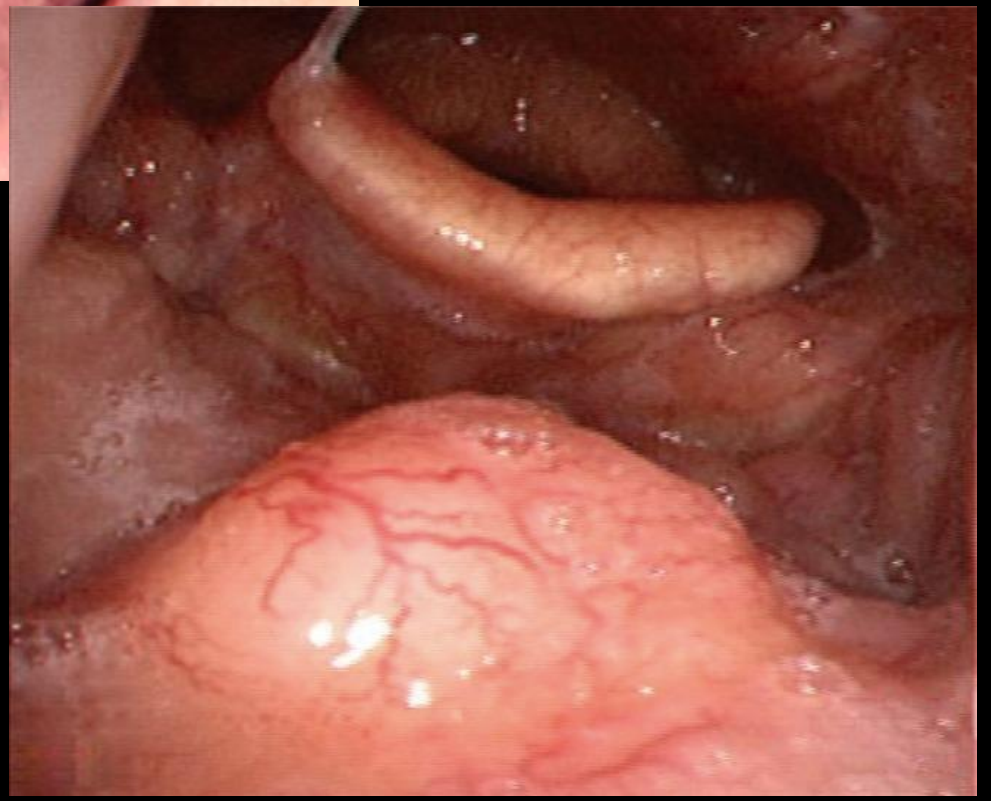


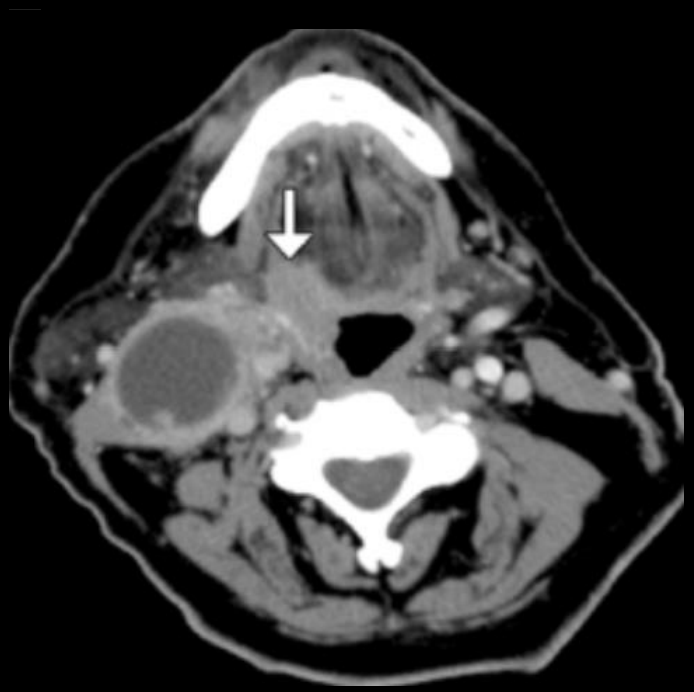




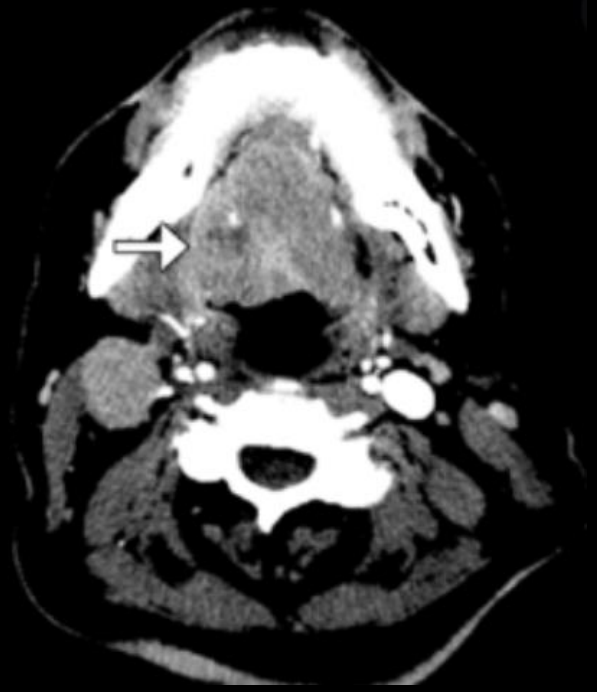








HPV+



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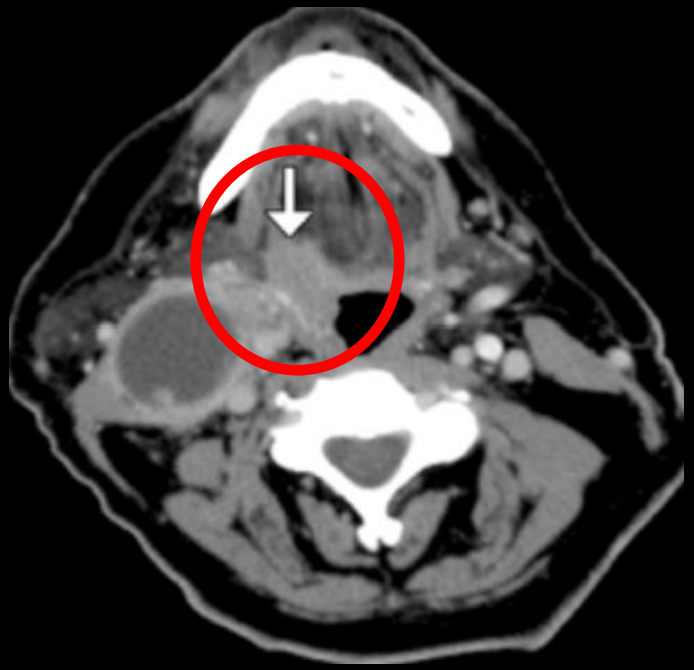

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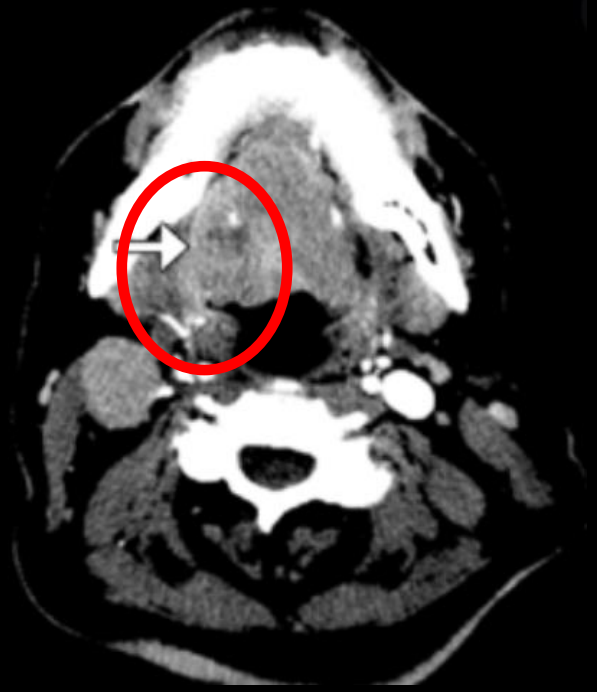

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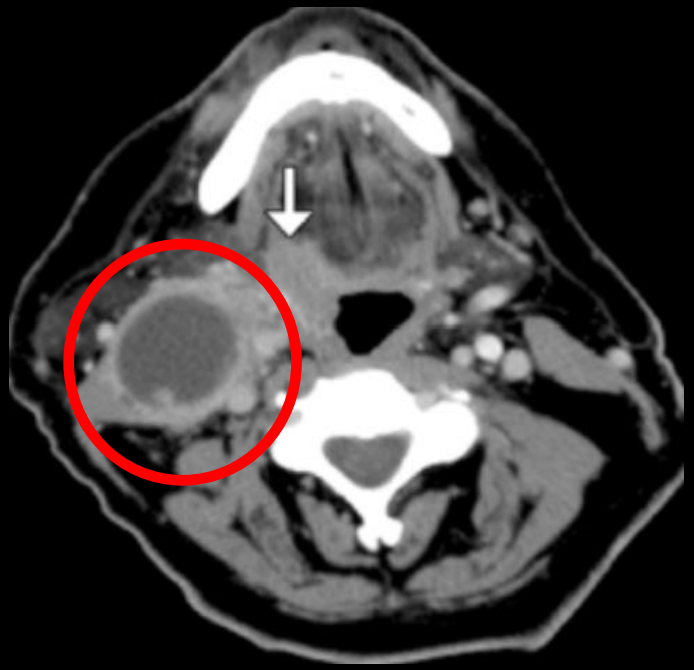

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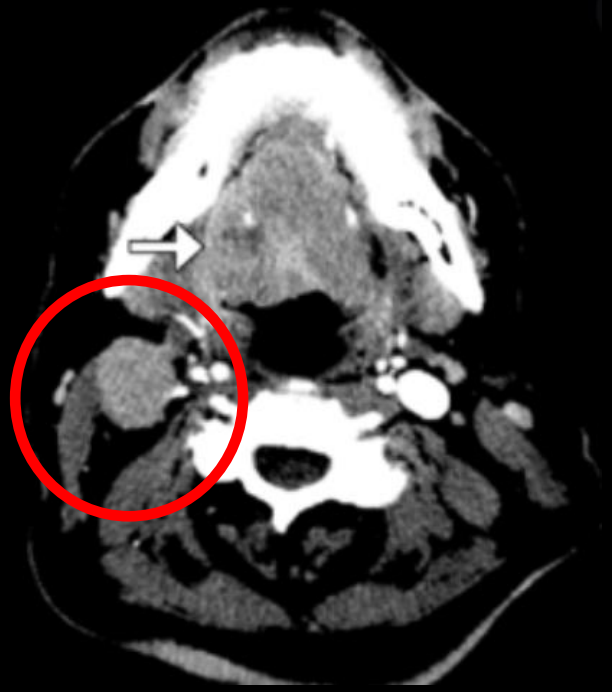
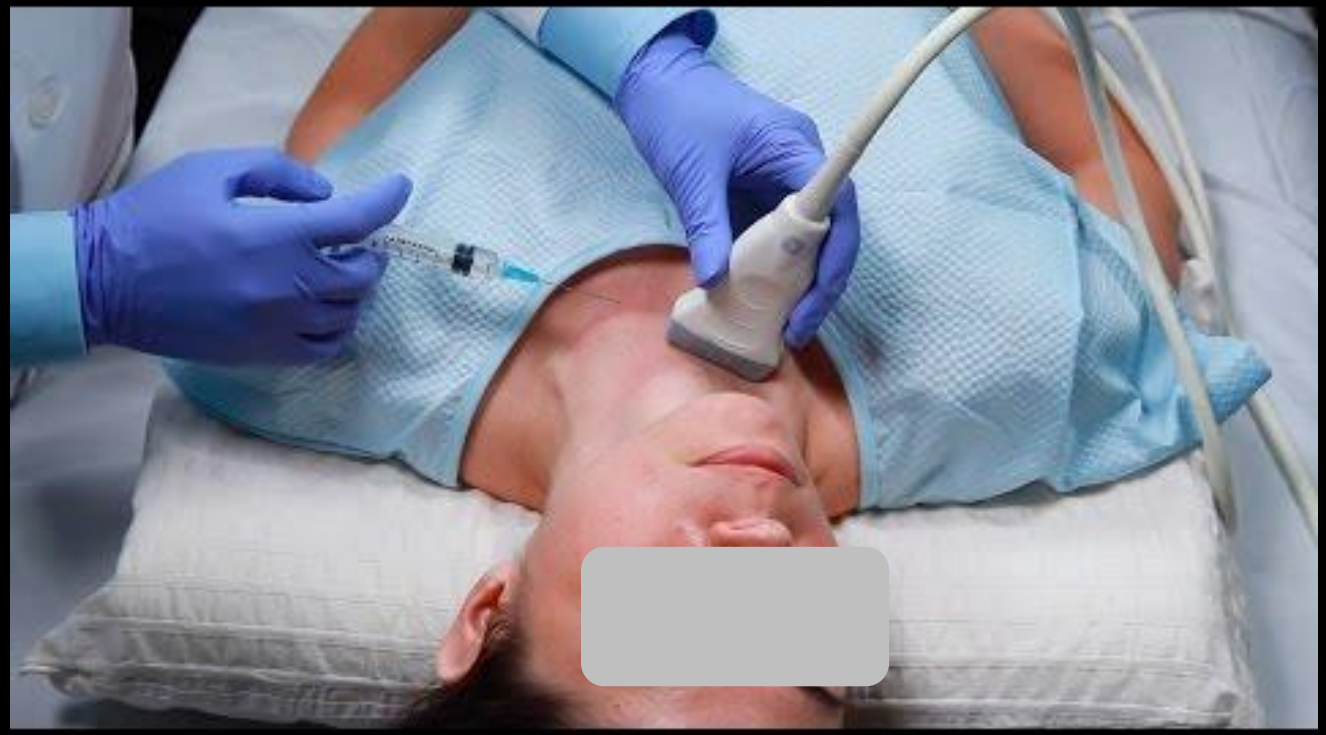
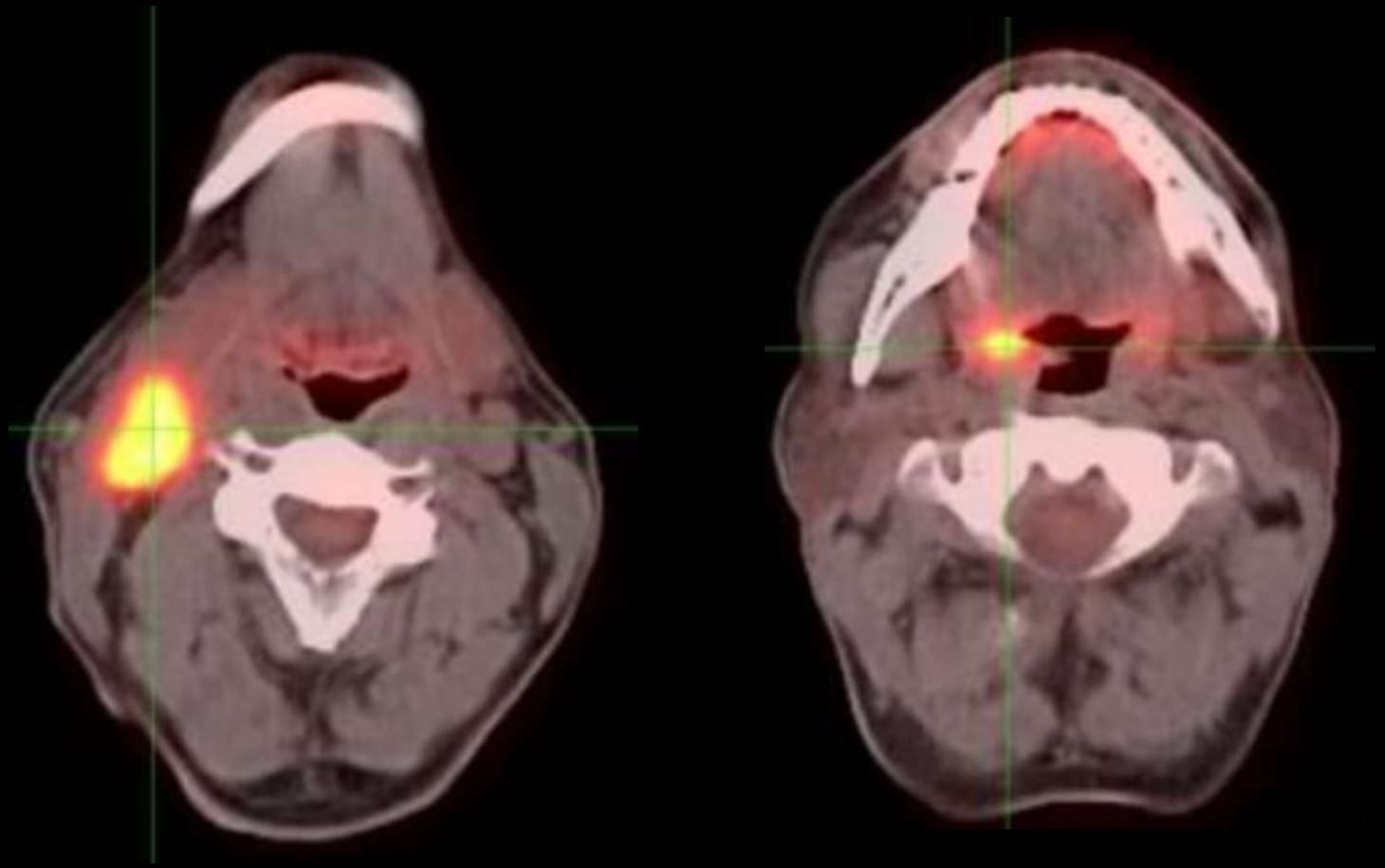
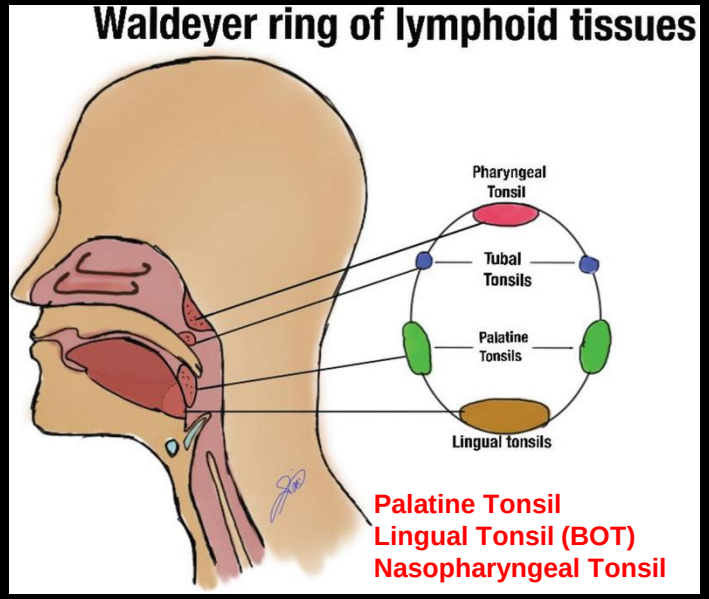


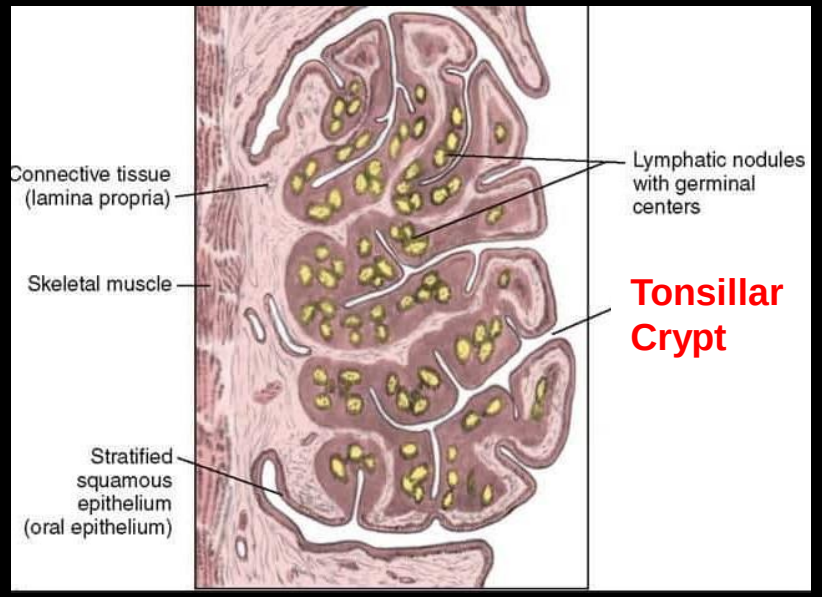
HPV –





Why HPV+ HNC mainly occurring in Tonsillar Tissue of Waldeyer's Ring?





- Unique microenvironment:
  - **Deep recess (*crypts*)**: may facilitate viral access to basal cells of tonsillar mucosa
  - **Rich lymphoid tissue**: presence of lymphokines may affect HPV transcription and cellular transformation

Hafkamp 2003 Int. J. Cancer. 107:394-400

Could tonsillectomy prevent it?

Published OnlineFirst April 20, 2015; DOI: 10.1158/1940-6207.CAPR-15-0101

Research Article

Cancer Prevention Research

The Impact of Tonsillectomy upon the Risk of Oropharyngeal Carcinoma Diagnosis and Prognosis in the Danish Cancer Registry

Carole Fakhry[1,2], Klaus K. Andersen[3], Jane Christensen[3], Nishant Agrawal[1], and David W. Eisele[1]

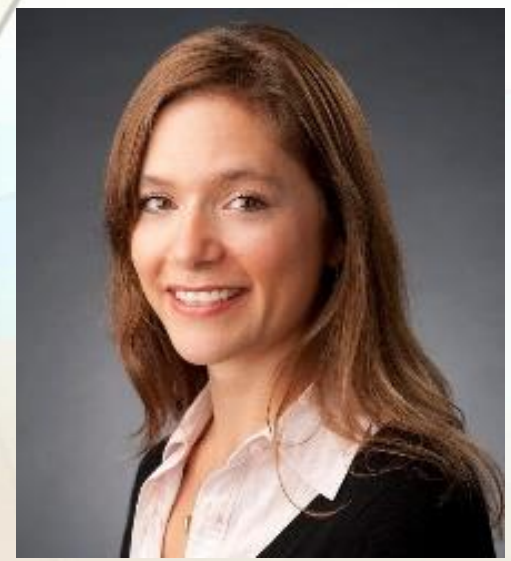
	Tonsil Carcinoma (Relative Risk)*	BOT Carcinoma (Relative Risk)*
No tonsillectomy	1.0	1.0
Tonsillectomy <1 year before OPC	**252.2 (210.3-302.3)**	**117.4 (71.5-192.8)**
Tonsillectomy >=1 year before OPC	**0.4 (0.2-0.7)**	1.1 (0.6-2.1)

** Adjusted for age, calendar period, education, and gender*

Remote tonsillectomy reduces the risk of diagnosis with tonsillar carcinoma but has no impact on risk of BOT carcinoma

Psychological Burden

Presenter



Dr. Melissa Henry, PhD

Associate Professor, Gerald Bronfman Department of Oncology, McGill University

Co-Director, Quebec Research Group in Palliative and End-of-Life Care (RQSPAL) Axis I

Board member, International Psycho-Oncology Society (IPOS)

Head and Neck Cancer: Psychological Considerations as Key to Treatment Success

Dr. Melissa Henry

Associate Professor, Department of Oncology

McGill University

McGill

Hôpital général juif
Jewish General Hospital

Centre universitaire de santé McGill
McGill University Health Centre

Fonds de recherche Santé Québec

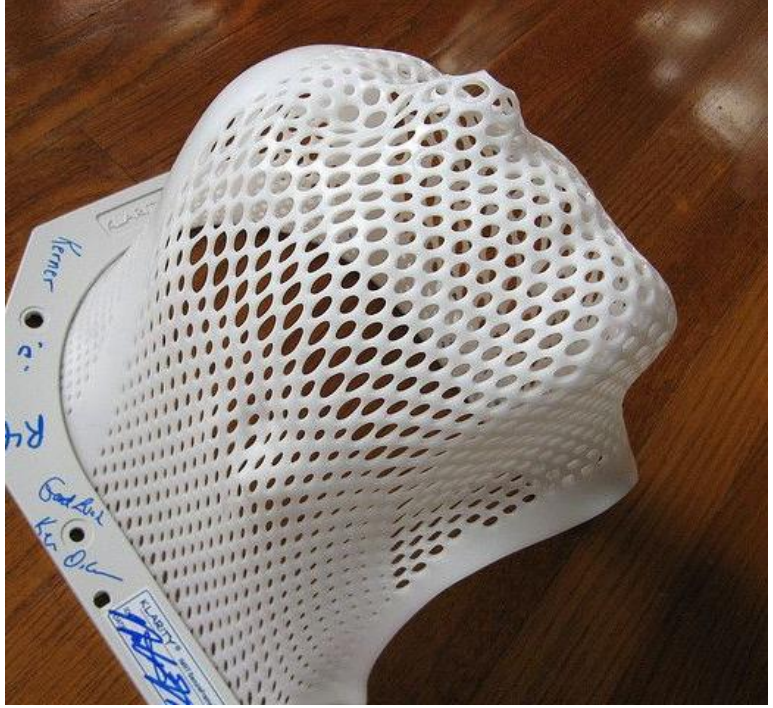
CIHR IRSC

Cancer Statistics

While HNC represent only 3% of newly diagnosed cancers, they generally have a poorer prognosis

- Mean age at diagnosis is 63 years; 74% male
- 60-70% newly diagnosed in advanced disease
- Longest survival: glottic laryngeal ca – shortest: hypopharyngeal
- 80% Surgery; 15% w/ microvascular free-flap reconstruction
- 70% radiotherapy, w/ or without chemo

Tiwana et al., 2014



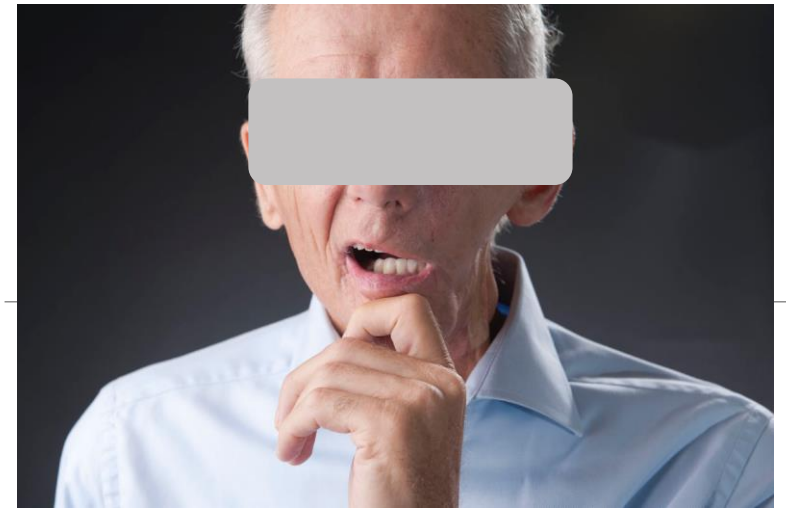
HNC-P → at-risk for social disparities, psychological distress, and suicide

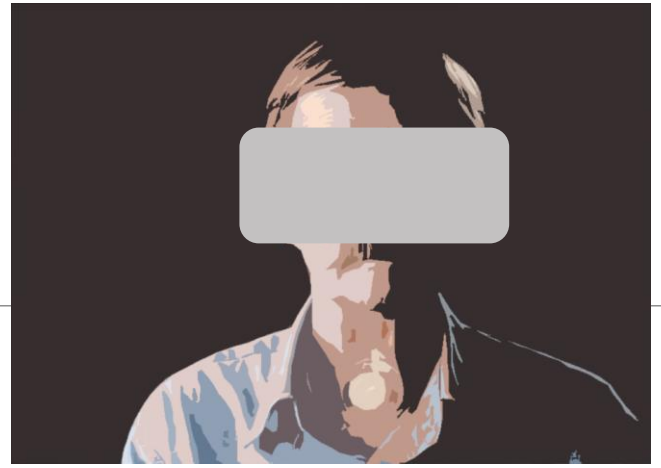
Invasive treatments involving pain, disfigurement, and compromised function in vital and visible areas of eating, speech, and breathing.

- Particularly affecting the social/interpersonal domain

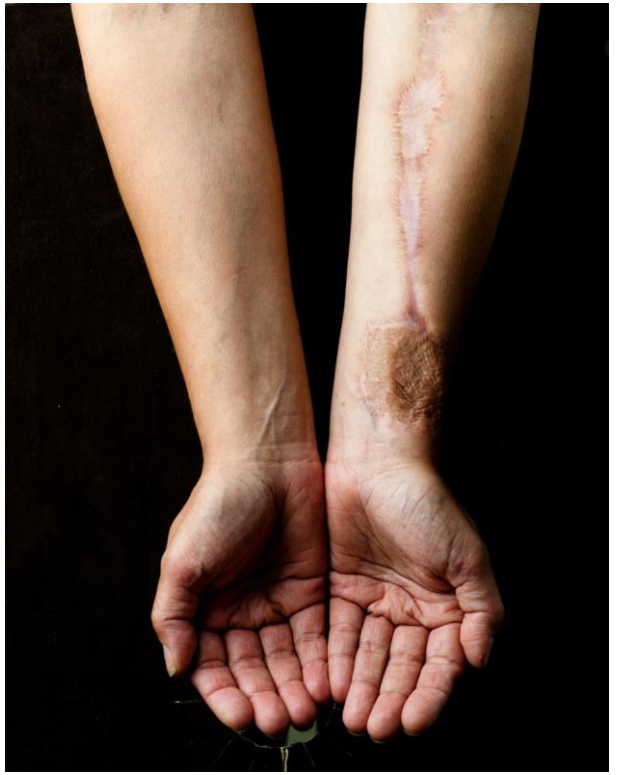
Treatment recovery takes on average 12-36 months

Long term sequalae

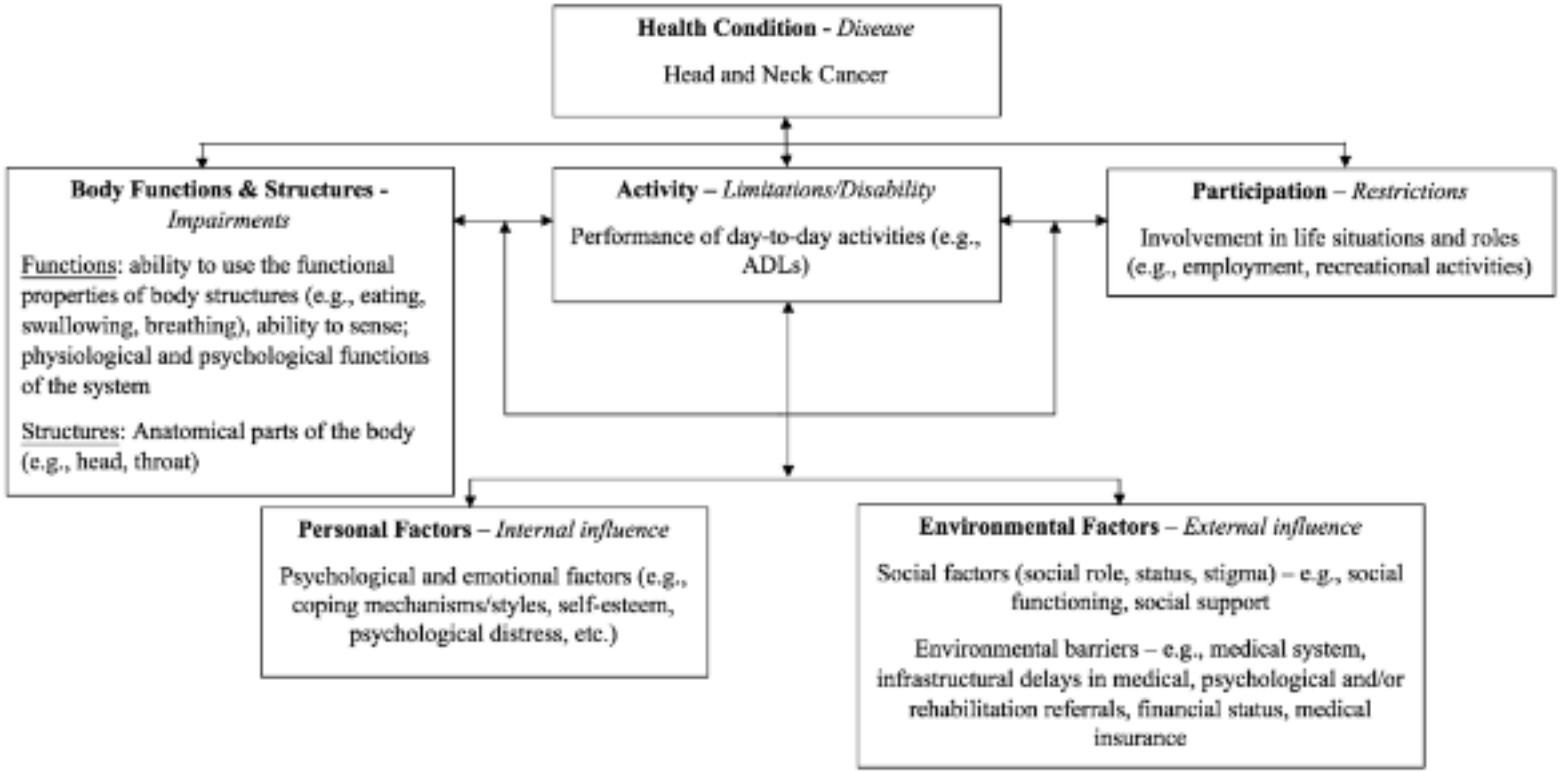




↓survival, disease free status, post operative function, nutritional status/weight loss, tx compliance, ↑recurrence, medical expenditures, narcotics, tobacco/alcohol



What is function?



Adapted with permission, from the World Health Organization (WHO), *Towards a common language for functioning, disability and health: ICF (The International Classification of Functioning, Disability and Health)*, p.9, Retrieved January 4, 2018 from http://www.who.int/classifications/icf/training/icfbeginnersguide.pdf.

Cancer Care Continuum

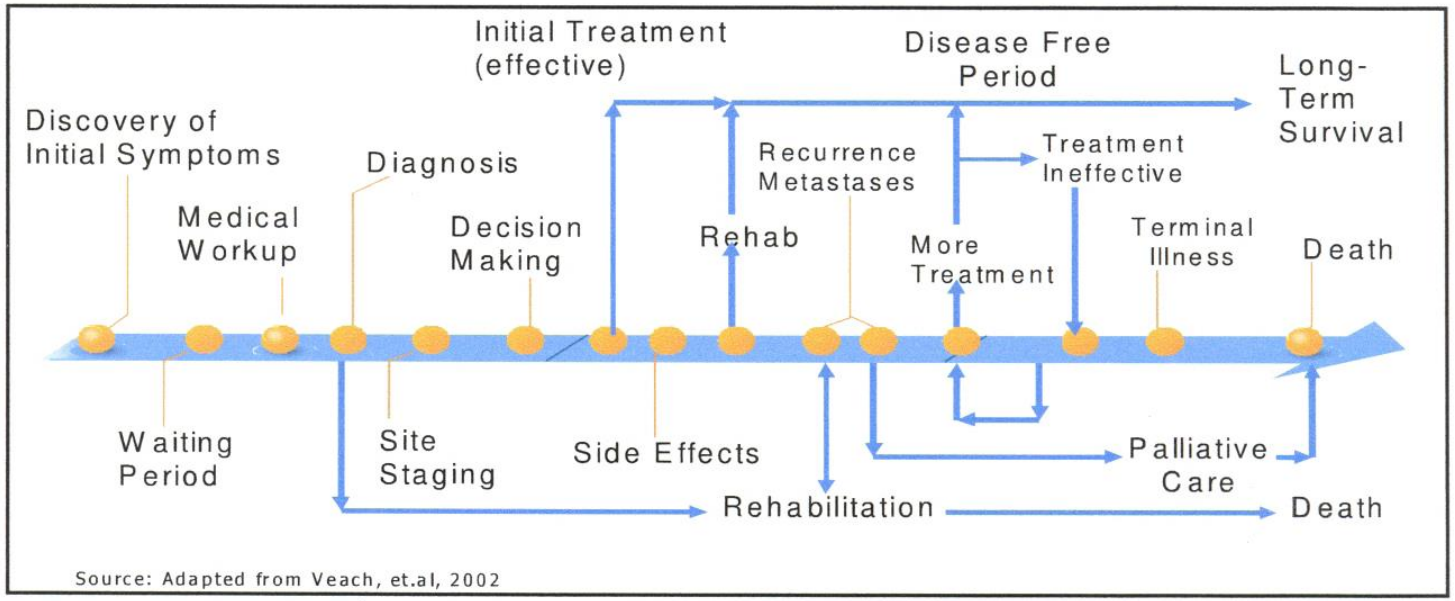


Figure 1: Cancer Care Continuum: Points of Assessment

A research program to identify and better conceptualize early determinants of mental health in patients with head and neck cancer

McGill

Hôpital général juif
Jewish General Hospital

Centre universitaire de santé McGill
McGill University Health Centre

Douglas
INSTITUT UNIVERSITAIRE EN SANTÉ MENTALE
MENTAL HEALTH UNIVERSITY INSTITUTE

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- Lawrence Chen, Thi Thu Thao Nguyen, Han-Tin Kao, Raphaelle Harvey, Emily Arnovitz, Eleonora Sargi, Ali Alias, Maria Cherba, Claudia Woronko, Fabienne Fuehrmann, Justin Desroches, Avina De Simone, Clara Bolster-Foucault, Lia Bertrand, Christina Klassen, Alexandra Cohen, Lola Ianovski, Kelly Chang, Ala Bdira, Laura Anne Habib, Mathew Morrison, Ji Wei Yang, Xuejiao Joanna Li, Shiru Lin, Angela Ho, Sonalia Amarasekera, Cassie Chaloux, Maria Cherba, Clara-Bolster Foucault, Judy Fung, Goda Galinyte, Deniz Keskinel, Dr. Marco Mascarella, Camille Texier, Nabila Zuberi

Cancer Care Continuum

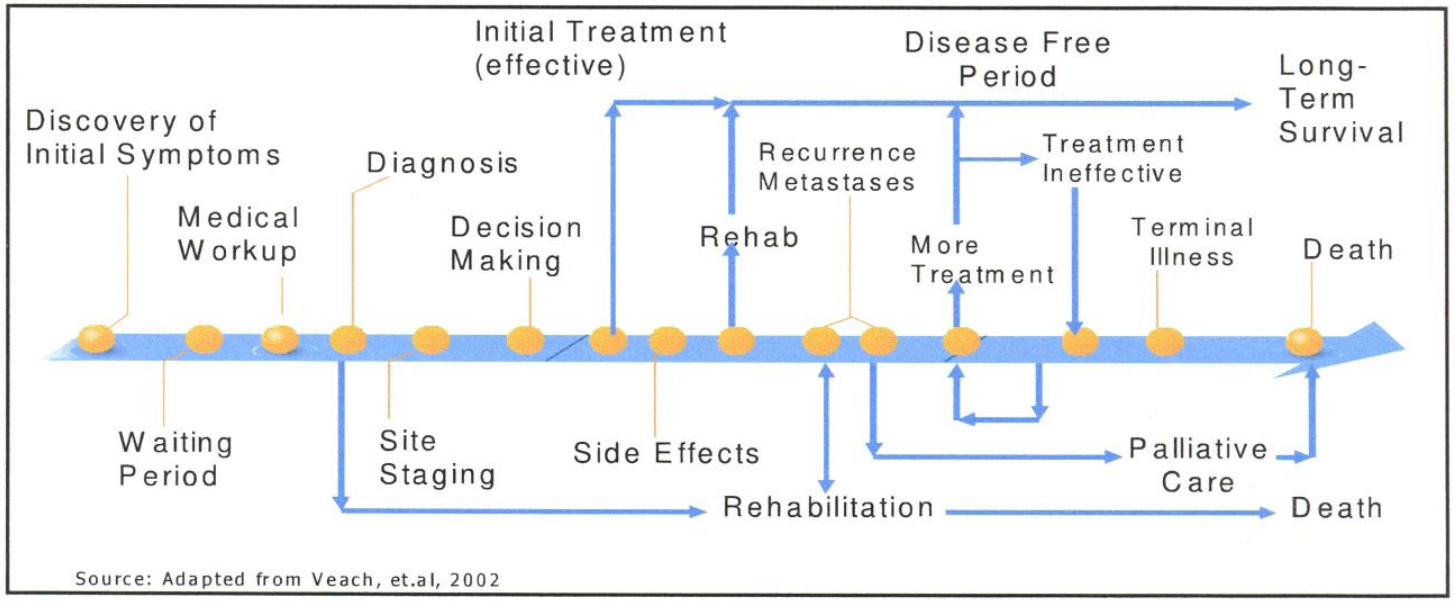
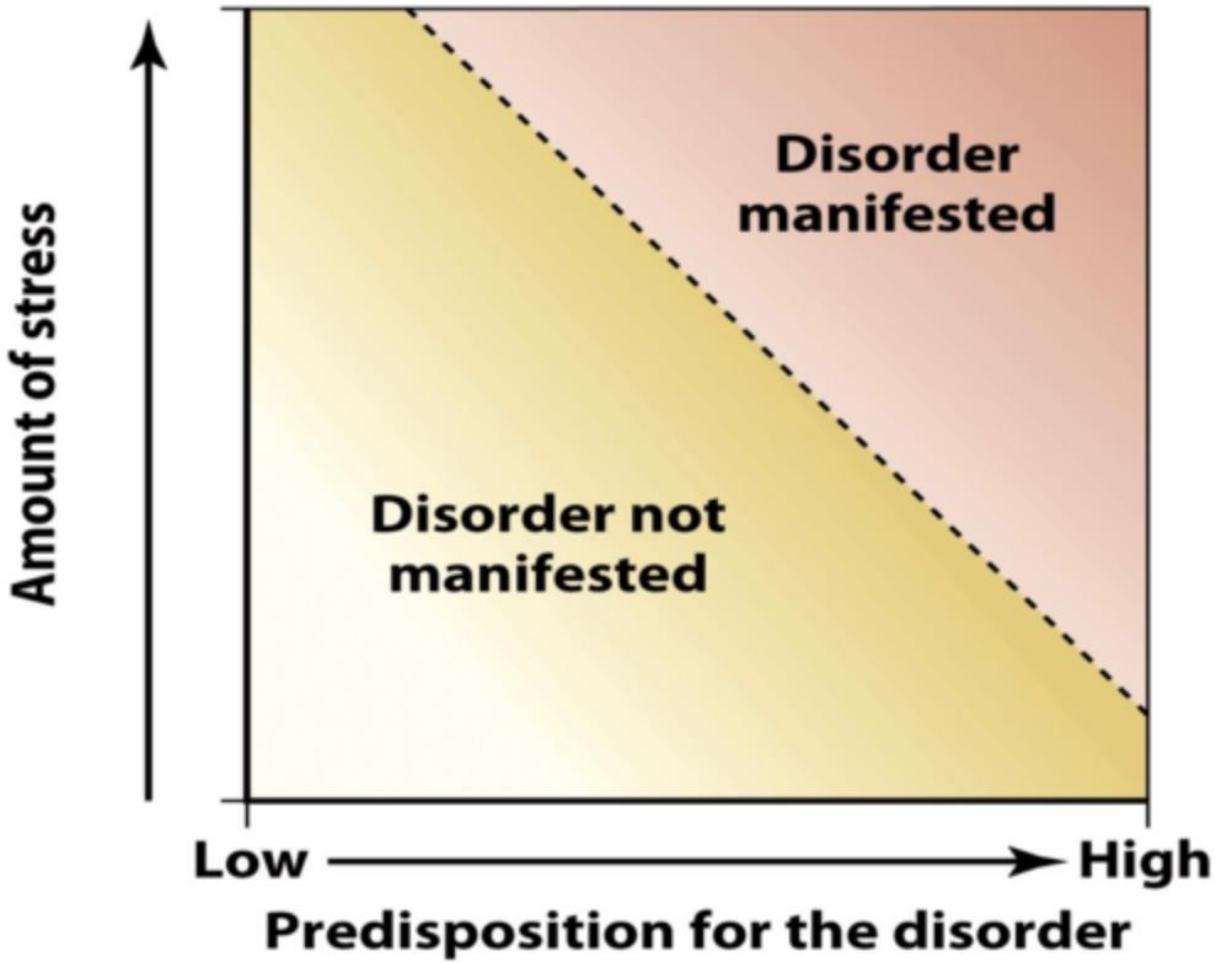


Figure 1: Cancer Care Continuum: Points of Assessment

Diathesis-Stress Model, Wilson and Cleary QoL Model and Life Course Approach

Stress-Diathesis Model



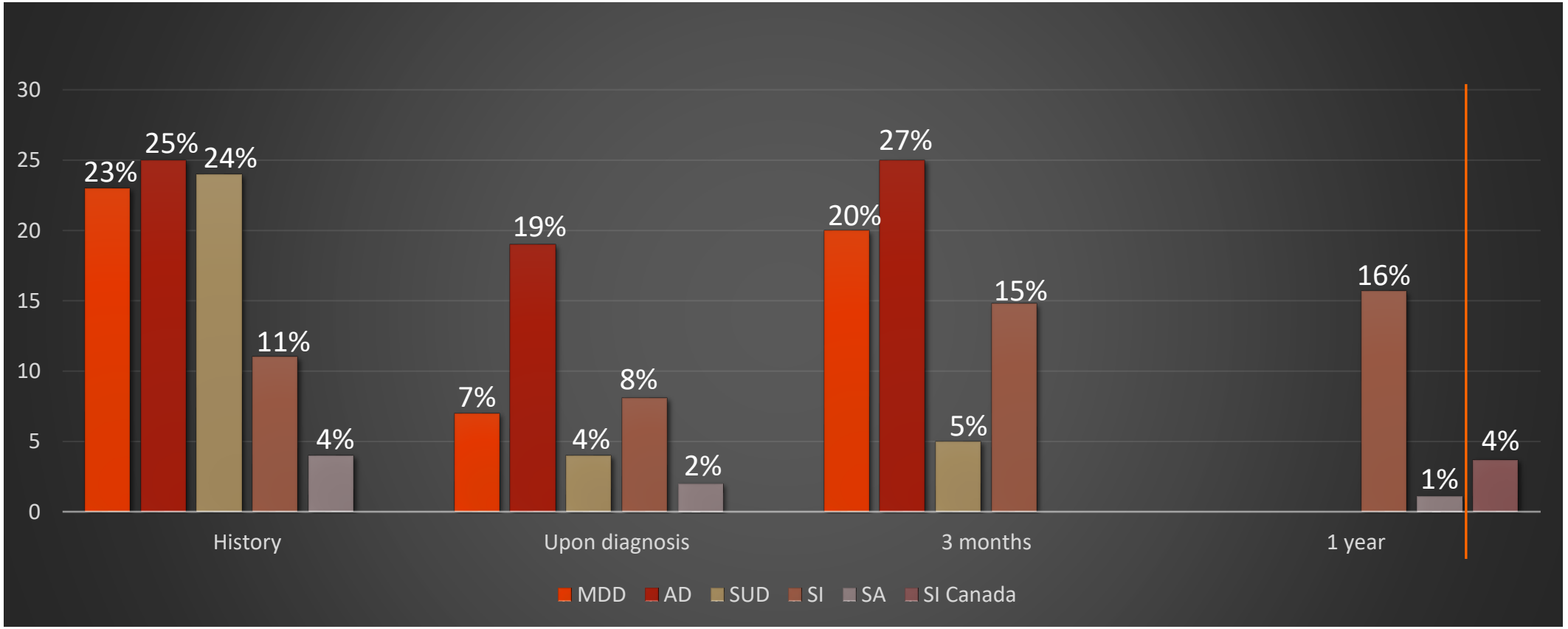
Methods

Prospective longitudinal study of 223 patients newly diagnosed with HNC.

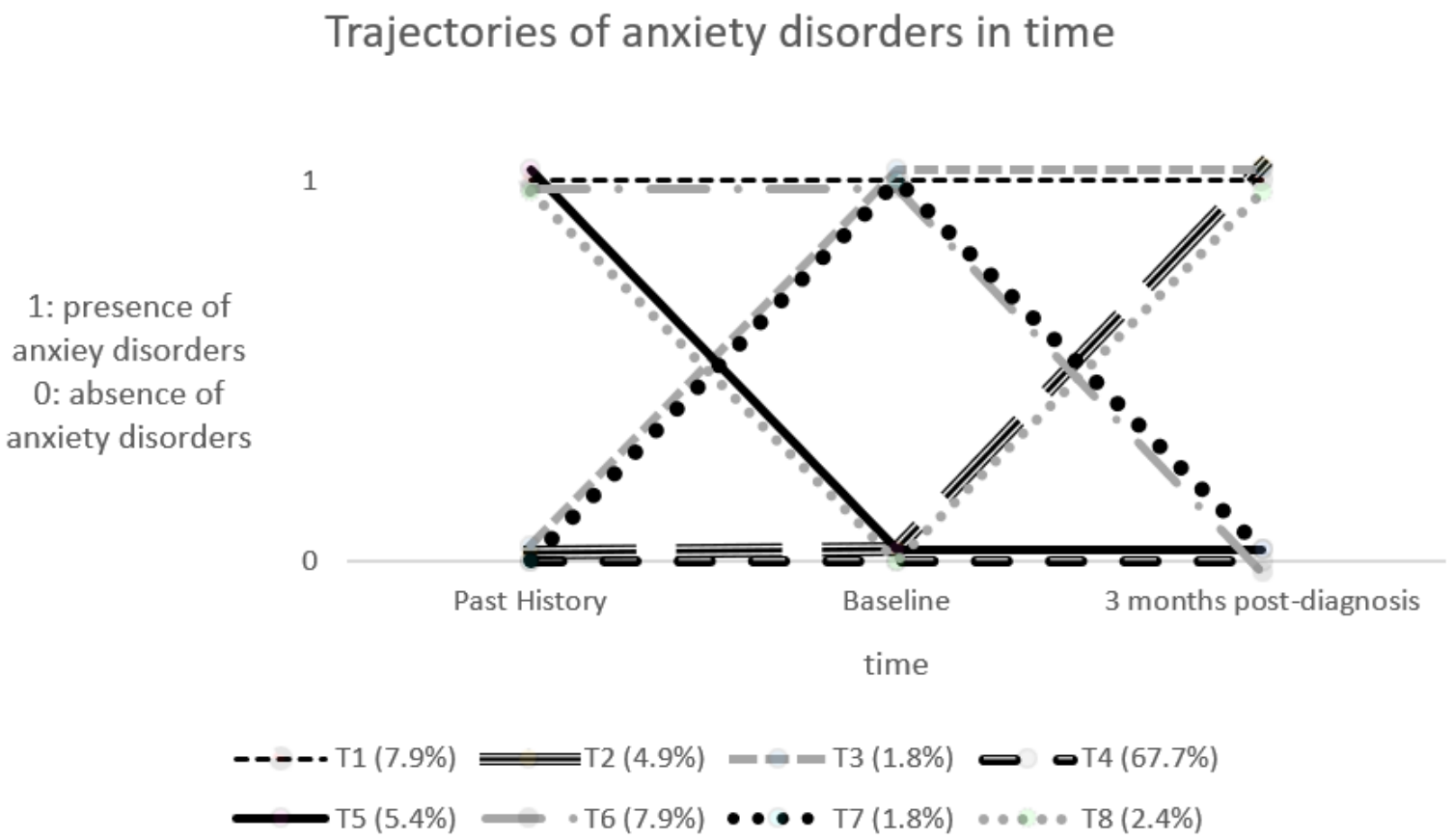
- Structured Clinical Interviews
- Psychometric measures
- Medical chart reviews
- Saliva sample for genetic testing

Prevalence of mental health conditions in HNC

-Different trajectories
-Historical variables: Lifetime MH, stressful life events, childhood abuse



Anxiety Disorders in HNC



50% Past AD → 66% upon HNC diagnosis → 50% persist immediately post-tx

No AD in the past → 4% developed AD upon HNC dx → 50% remained stable immediately post-tx

The role of genetic predispositions

Genetic predisposition to depression

ARTICLES
https://doi.org/10.1038/s41588-018-0090-3
nature genetics

Genome-wide association analyses identify 44 risk variants and refine the genetic architecture of major depression

Major depressive disorder (MDD) is a common illness accompanied by considerable morbidity, mortality, costs, and heightened risk of suicide. We conducted a genome-wide association meta-analysis based in 135,458 cases and 344,901 controls and identified 44 independent and significant loci. The genetic findings were associated with clinical features of major depression and implicated brain regions exhibiting anatomical differences in cases. Targets of antidepressant medications and genes involved in gene splicing were enriched for smaller association signal. We found important relationships of genetic risk for major depression with educational attainment, body mass, and schizophrenia: lower educational attainment and higher body mass were putatively causal, whereas major depression and schizophrenia reflected a partly shared biological etiology. All humans carry lesser or greater numbers of genetic risk factors for major depression. These findings help refine the basis of major depression and imply that a continuous measure of risk underlies the clinical phenotype.

MDD is a notably complex and common illness[1]. It is often chronic or recurrent and is thus accompanied by considerable morbidity, disability, excess mortality, substantial costs, and heightened risk of suicide[2–8]. Twin studies attribute approximately 40% of the variation in liability to MDD to additive genetic effects (phenotype heritability, h^2)[9], and h^2 may be greater for recurrent, early-onset, and postpartum MDD[10,11]. Genome-wide association studies (GWAS) of MDD have had notable difficulties in identifying individual associated loci[12]. For example, there were no significant findings in the initial Psychiatric Genomics Consortium (PGC) MDD mega-analysis (9,240 cases)[13] or in the CHARGE meta-analysis of depressive symptoms ($n = 34,549$)[14]. More recent studies have proven modestly successful. A study of Han Chinese women (5,303 recurrent MDD cases) identified significant loci[15], a meta-analysis of depressive symptoms (161,460 individuals) identified 2 loci[16], and an analysis of self-reported major depression identified 15 loci (75,607 cases).

There are many reasons why identifying causal loci for MDD has proven difficult[12]. MDD is probably influenced by many genetic loci, each with small effects[17], as are most common diseases[18], including psychiatric disorders[19,20]. Estimates of the proportion of variance attributable to genome-wide SNPs (SNP heritability, h^2_{SNP}) indicate that around

depression (Table 1 and Supplementary Tables 1–3). The methods used by these cohorts were thoroughly reviewed, drawing on the breadth of expertise in the PGC, and we assessed the comparability of the cohorts using genomic data. We use 'MDD' to refer to directly evaluated subjects meeting standard criteria for major depressive disorder and use 'major depression' where case status was determined using alternative methods as well as to the phenotype from the full meta-analysis.

We evaluated the comparability of the seven cohorts by estimating the common variant genetic correlations (r_g) between them. These analyses supported the comparability of the seven cohorts (Supplementary Table 3), as the weighted mean r_g was 0.76 (s.e. = 0.03). The high genetic correlations between the 23andMe and other cohorts are notable. While there was no statistical evidence of heterogeneity in the r_g estimates for pairs of cohorts ($P = 0.13$), the estimate was statistically different from 1, which may reflect etiological heterogeneity. This estimate can be benchmarked against the slightly larger weighted mean r_g between schizophrenia cohorts of 0.84 (s.e. = 0.05)[11].

Given the positive evidence of the genetic comparability of these cohorts, we completed a genome-wide association meta-analysis

Gut-Brain Axis

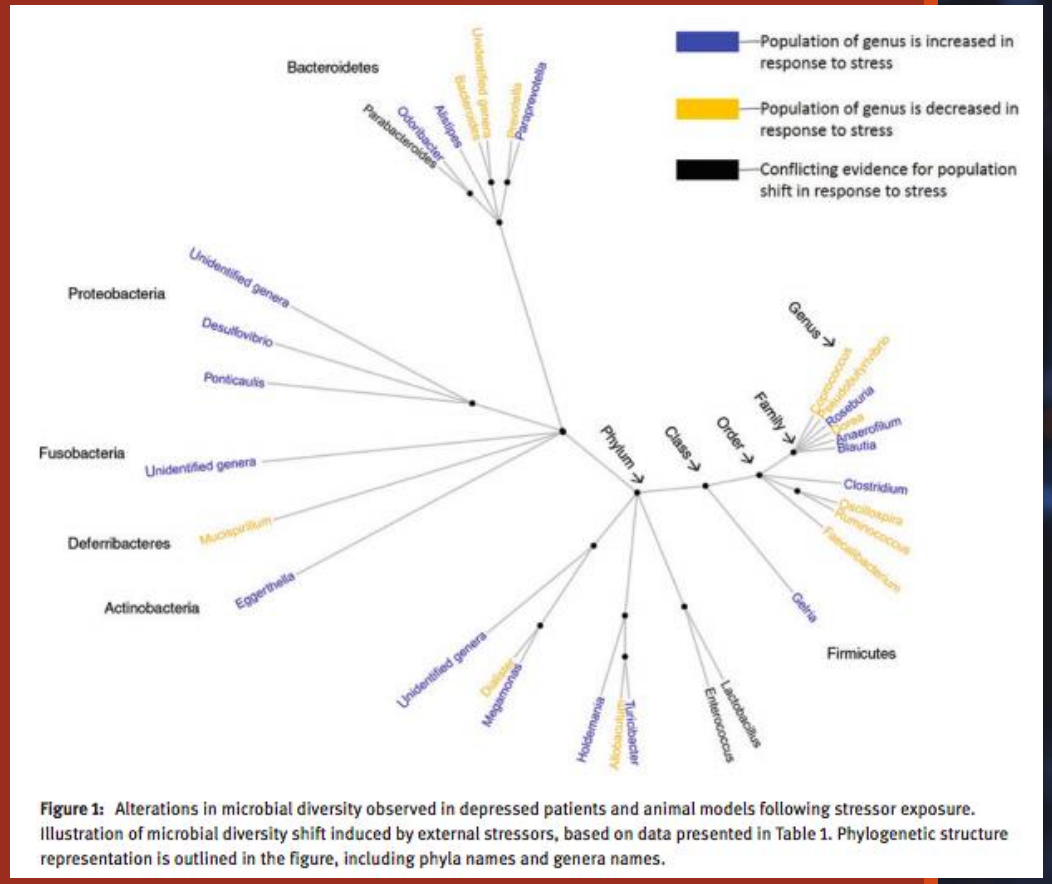


Figure 1: Alterations in microbial diversity observed in depressed patients and animal models following stressor exposure. Illustration of microbial diversity shift induced by external stressors, based on data presented in Table 1. Phylogenetic structure representation is outlined in the figure, including phyla names and genera names.

Multiple linear regression of SB Total

Variable	Unstandardized coefficients	Standardized coefficients	95% confidence interval	*t*	*p*
Age in years	-0.002	-0.006	-0.06 | 0.05	-0.07	0.94
Cancer stage	-0.74	-0.10	-2.37 | -0.90	-0.90	0.37
HPV-status	0.12	0.02	-1.10 | 1.35	0.20	0.84
Anti-cancer treatment	0.08	0.08	-0.15 | 0.32	0.69	0.49
Total dose of radiotherapy	0.002	0.46	0.001 | 0.003	4.00	<0.001***
Chemotherapy type	-0.41	-0.06	-1.13 | 1.95	0.53	0.60
Comorbidities	0.57	0.16	-0.07 | 1.21	1.78	0.08†
Anti-inflammatory medication	0.18	0.02	-1.40 | 1.76	0.23	0.82
Diagnosis of AD	1.69	0.23	0.43 | 2.94	2.67	<0.001***
HADS Anxiety	0.20	0.29	0.07 | 0.34	3.04	0.003**
PRS Inflammation	-0.51	-0.16	-1.06 | 0.05	-1.81	0.07†
PRS Depression – 2018	0.66	0.18	0.003 | 1.32	2.00	0.049*
SB-total	0.32	0.24	0.07 | 0.57	2.52	0.01*

†trend, ***p<0.001, **p<0.01, *p<0.05; AD=Anxiety Disorder; HADS=Hospital Anxiety and Depression Scale; PRS=Polygenic Risk Score; SB=Sickness Behavior.

HPV- vs. non-HPV related head and neck cancers

Psycho-Oncology (2021)

Study Objectives

a) psychological distress (primary outcome), quality of life and sexuality needs;

b) sociodemographic, psychological, and social profiles; and

c) contribution of HPV status on outcomes

- Sociodemographics: Age, sex, education, living alone
- Medical: Cancer stage and site, HPV status, treatment, time since last treatment
- Smoking and alcohol misuse
- Lifetime and upon HNC diagnosis suicidal ideation, MDD, SUD
- Upon cancer diagnosis MDD, anxiety and depression
- Parental care in childhood, childhood abuse, stressful life events <1 yr, neuroticism, social support

Table 1. Variables associated with anxiety and depression immediately post-HNC diagnosis and immediately post-treatment.

Variable	Unstandardized coefficient B	Standard coefficient Beta	p-value	95% Confidence Interval (CI) for B
Variables associated with anxiety and depression immediately post-HNC diagnosis				
Sex (female)	2.76	0.17	0.07†	-0.23 | 5.74
HPV status	-14.44	-0.92	<0.001***	-20.01 | -8.87
SCID past history of MDD x HPV	3.41	0.37	0.006**	1.02 | 5.81
SCID <2 weeks of HNC diagnosis MDD x HPV	6.35	0.57	<0.001***	3.07 | 9.63
Variables associated with anxiety and depression immediately post-treatment				
Tumor site hypopharyngeal	15.73	0.19	0.009**	4.04 | 27.43
Lifetime pre-cancer history of suicidal ideation	3.51	0.14	0.07†	-0.33 | 7.35
Anxiety and depression <2 weeks of HNC diagnosis (HADS)	0.78	0.80	<0.001***	0.37 | 1.19

* p<0.05; ** p<0.01; ***p<0.001; † 0.05 > p < 0.10; HPV=Human papilloma virus; RAPS4-QF = Rapid Alcohol Problems Screen – Quantity Frequency; SCID=Structured Clinical Interview for DSM; MDD=Major Depressive Disorder;

Table 2. Variables associated with quality of life immediately post-HNC diagnosis and immediately post-treatment.

Variable	Unstandardized coefficient B	Standard coefficient. Beta	p-value	95% Confidence Interval (CI) for B
Variables associated with quality of life immediately post-HNC diagnosis				
Education (university)	-0.04	-0.13	0.02*	-0.07 | -0.006
Advanced cancer stage (stages III/IV)	-5.62	-0.11	0.07	-11.70 | 0.45
Tumor site hypopharyngeal	-15.95	-0.11	0.06	-32.68 | 0.77
HPV status	19.12	0.43	0.001**	7.70 | 30.53
SCID <2 weeks of HNC diagnosis MDD x HPV	-8.77	-0.28	0.01**	-15.49 | 2.05
Level of anxiety (HADS)	-2.51	-0.52	<0.001***	-3.13 | -1.88
Variables associated with quality of life immediately post-treatment				
Tumor site hypopharyngeal	-40.42	-0.16	0.04*	-79.61 | -1.22
Smoked cigarettes <30 days of HNC	-9.82	-0.16	0.049*	-19.61 | -0.02
Lifetime pre-cancer history of suicidal ideation	-15.71	-0.19	0.02*	-28.75 |-2.66
Level of anxiety (HADS)	-1.44	-0.28	0.008**	-2.49 | -0.39
Quality of life <2 weeks of HNC diagnosis (FACT-G + HN Module)	0.35	0.31	0.002***	0.13 | 0.57

* p<0.05; ** p<0.01; ***p<0.001; † 0.05 > p < 0.10; HPV=Human papilloma virus; HADS=Hospital Anxiety and Depression Scale; RAPS4-QF = Rapid Alcohol Problems Screen – Quantity Frequency; SCID=Structured Clinical Interview for DSM; MDD=Major Depressive Disorder; SUD=Substance Use Disorder; HNC=head and neck cancer.

Table 3. Predictors of levels of sexuality needs immediately post-treatment in patients with HNC.

Variable	Unstandardized coefficient B	Standard coefficient Beta	Sign.	95% CI for B
Tumor site oral cancer	-0.75	-0.32	0.008**	-1.31 | -0.20
Lifetime pre-cancer history of suicidal ideation	0.52	0.17	0.07†	-0.05 | 1.08
SCID past history of MDD x HPV	0.28	0.26	0.08†	-0.04 | 0.59
Level of anxiety (HADS)	0.07	0.36	<0.001***	0.03 | 0.11
Feeling close to one's partner immediately post-HNC diagnosis	0.29	0.40	<0.001***	0.13 | 0.45

* p<0.05; ** p<0.01; ***p<0.001; † 0.05 > p < 0.10; HPV=Human papilloma virus; RAPS4-QF = Rapid Alcohol Problems Screen – Quantity Frequency; SCID=Structured Clinical Interview for DSM; MDD=Major Depressive Disorder; SUD=Substance Use Disorder; HNC=head and neck cancer.

Take home points

Clear psychological profiles based on HPV status
- immediately post-treatment

One needs to screen for MDD (lifetime and upon diagnosis) in patients with HPV+ , as well as screen for distress for all

SI & Anxiety → QoL

Relationship quality → sexuality need
- 17% need to address changes in sexual relationships, 14% need to be given information about sexual relationship

Paying attention to sexual aspects

Descriptive studies have found concerns related to the sexually transmitted nature of HPV persisting in long-term survivorship (40%):

- Concerns about infecting one's partner (43%)
- Worry about the causes of infection (17%)
- Reduction in sexual intimacy (28%)
- Effects on intimate relationship (20%)
- HPV status being kept secret for fear of embarrassment or stigma (14%)

D'Souza et al., 2016; Milbury et al., 2013

Clinical practice guidelines

- Recommend that the physician:
  - assess the impact of an HPV diagnosis
  - help the patient understand the diagnosis (why, how, when), and
  - proactively discuss sexuality issues with patients (and refer if needed)

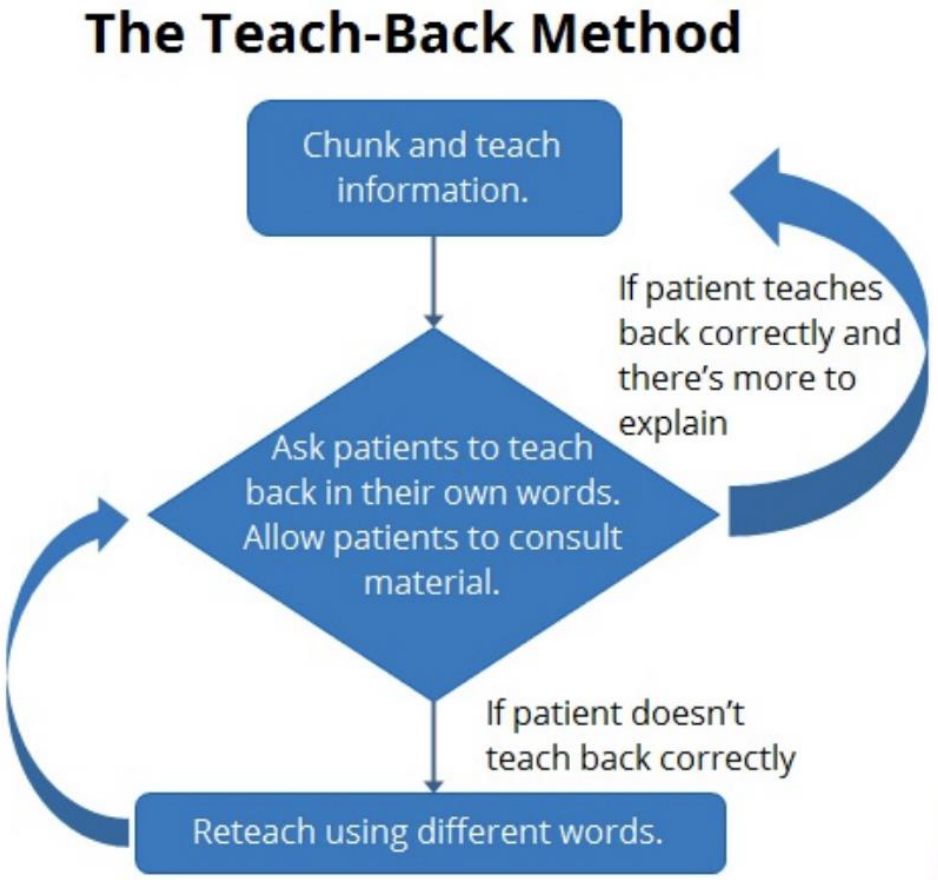
Money DM, Roy M, Scrivener J, Allen L, Brewer M et al. (2007). Canadian consensus guidelines on human papillomavirus. Journal of Obstetrics and Gynaecology Canada, 29(8), S1.

Teach-Back Method (TBM)

Major challenge →

- Physicians over-estimate their capacity to communicate
- In HNC, they may have a priority list → survival, function, appearance
- Recall of information

Systematic Review → TBM effective in 19 of the 20 studies → learning-related outcomes (e.g. knowledge recall and retention) & objective HR outcomes (e.g. self-care abilities).



Rehabilitation and social reintegration

- Body changes
  - Appearance
  - Function (speech; swallowing; neck, shoulder and arm movement)
  - Symptoms (pain, fatigue)

→ Compounded by psychological distress (anxiety, depression, body image)

- Interfere with Social reintegration & RTW
  - 2/3 affected in RTW/income; 49-59% RTW
  - In addition to comorbidities and socio-economic status
  - Self-employment, private health insurance, tumour site and tx

Miller, 2020

Barriers	Facilitators
• treatment side effects e.g. difficulties eating, sleeping, breathing, speech or mobility changes affecting job performance and energy levels • concerns about work performance and relationships • uncertainty about judging readiness to return • perceived worries about interactions with others at work especially concerning ongoing treatment effects	• meaning of work ''I'm normal because I can work'' • negative feelings associated with not working e.g. guilt or embarrassment • fear of job loss • personal attitudes allowing e.g. a sense of control of their experience • flexibility in workplace adjustments, hours or duties • maintaining income

Prehabilitation

Pre-treatment or treatment-concurrent

Targets function to reduce incidence and severity of current and future impairments

In general: Diet, exercise, psychosocial wellbeing

In HNC:

- Mental health
- Exercise (i.e., dysphagia/motion exercises/trismus/swallowing specific (neuromuscular plasticity)
- Alcohol, nicotine, and drug cessation

Health care cost

Loewen et al., 2021

Conclusion

- Health disparities and inequalities in HNC → mental health
- Screening for distress → routine clinical intake in HNC clinics
- Develop prehabilitation protocols
- Implement collaborative models of care
- Train staff in crisis evaluation & doctor-patient communication
- Keep in mind the MH and PSO diathesis in treatment-response

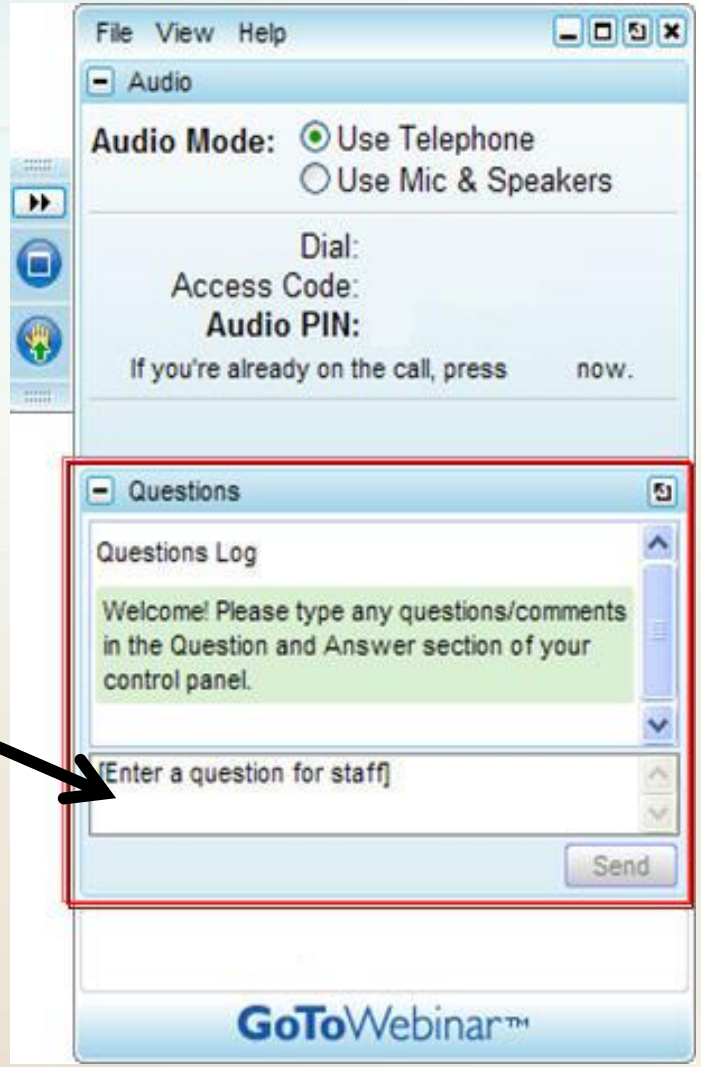
Thank you!

FLUX Exhibition, International Museum of Surgical Science (IMSS) in Chicago

Question & Answer Period

On a computer, submit your text question using the Questions pane

NOTE: On a mobile device, tap on the “?” to open the questions pane



HPV head and neck cancers: We need a control strategy now!

The case for better clinical awareness and a stronger preventive agenda

- **Evaluation:** https://www.surveymonkey.com/r/93GRWDT

- **Slide Set, Video recording, HPV documents at:**
  www.hpvglobalaction.org & **www.CIDCgroup.org**

Thank you for participating!

This educational program is made possible through the support of **Bristol Myers Squibb Canada** and **Roche Diagnostics Canada**