Oral Cancer Control: Policies to Address a Complex Health Burden

CHARLES W LEHEW, PHD
COLLEGE OF DENTISTRY
UNIVERSITY OF ILLINOIS AT CHICAGO

Learning Objectives

Attendees will be familiarized with:

- U.S. Oral Cancer Control Research Findings (1996-2016)
- The Status of Oral Cancer in Comprehensive Cancer Control Programming in the U.S.
- Policy Options for Improving Oral Cancer Control in the U.S.

No Conflicts of Interest to Declare

What can we make of the information presented by my colleagues?

Oral cancer incidence and survival rates vary

- By head and neck sub-site
- By race/ethnicity/sex
- Over time

Reducing risk is challenging because

- There are many risk factors
- They are often interactive
- Most are poorly understood
- Different populations have different risk profiles
- Risk profiles vary over time within the same populations

Defining Cancer Control

"Cancer control aims to
- **reduce** the **incidence** and **mortality** of cancer,
- and to **enhance the quality of life** of those affected by cancer,
- through an **integrated and coordinated approach** directed to
- primary prevention,
- early detection,
- treatment,
- rehabilitation and
- palliation."

- Elwood JM, Sutcliffe S. "Cancer control and the burden of cancer," in Elwood JM and Sutcliffe SB, *Cancer Control*. Oxford: Oxford University Press, 2010.

The Focus of this Talk is on Public Health and Policy Alternatives for Oral Cancer Control

Prevention
- Risk Reduction

Early Detection
- Self Exams
- Clinical Exams

Comprehensive, Coordinated, Inter-Disciplinary Care Delivery
- The Real Key

Published Reports on Interventions 1996-2016: PubMed Searches (U.S. only)

Mouth neoplasms

And

Oropharyngeal neoplasms

Paired with:

- Health services accessibility
- Health status disparities
- Healthcare disparities
- Minority health
- Risk reduction behavior
- Risk assessment
- Preventive health services
- Early detection of cancer

Summary of Reported Research Findings

Studies of population awareness
- Limited Knowledge (1-14)

Studies of health education resources
- Poor Quality (15-19)

Studies of educational interventions
- Intensive campaigns can increase knowledge and demand for services (20, 21)

Studies of provider behavior
- Not consistently counseling or examining (22-39)

Studies of interventions to change provider behavior
- Easy to change intentions (26; 40)
- Difficult to change behavior in the long term (41)

National Comprehensive Cancer Control Program (NCCCP)

Create coalitions.

Look at the cancer burden in their area.

Prioritize proven strategies for cancer control.

Create cancer control plans and put them into action.

https://www.cdc.gov/cancer/ncccp/about.htm

Priorities Specified by CDC

Emphasizing *primary prevention* of cancer
- Quitting smoking
- Eating a healthy diet
- Keeping a healthy weight

Promoting early detection
Post-diagnostic support
Promoting cancer control policies in populations where most needed
Promoting access to quality health care for all people, including those in communities with a higher burden of cancer.
Evaluating policies and programs to see if they work well.

https://www.cdc.gov/cancer/ncccp/about.htm

The Plans

50 States

District of Columbia

8 Territories

7 Tribal Organizations

Expirations 2007-2022

38 Plans either expired or rolled over (still checking)

NCCCP Priorities for Oral Cancer

56 Plans specifically mention oral/mouth cancers
12 Plans specifically mention head and neck cancers
47 Plans specifically mention oropharyngeal/pharynx cancers
Also mentioned:

- Lip (8)
- Tongue (7)
- Throat (14)
- Cheek/Buccal Mucosa (3)
- Gums/Gingiva (3)
- Floor of Mouth (2)
- Palate (1)

22 Plans specify oral cancer is a priority

Objectives Adopted to Reduce Oral Cancer Burden

Tobacco control—37 plans

Alcohol—11 plans

HPV Awareness/Vaccination—16 plans

Betel/Areca Nut use—2 plans

Goal Setting

Surveillance (Incidence/Mortality) Rates Reported—27 Plans

Targets for Reduction in Risk or Outcomes—18 Plans

Maryland's CCCP: 2016-2020

Identifies Oral Cancer as a Priority

Identifies Tobacco as a Cause of Oral Cancer

Identifies Alcohol as Increasing Risk for Oral Cancer

Identifies HPV as linked to Oropharyngeal Cancer

Targets Sex and Race Disparities in Incidence and Mortality

Provides Baseline Data on:

- Oral Cancer Incidence and Mortality Rates
- Screening Rates

Maryland CCCP Specifies Goals for 2020

Reduce Incidence Rate from 10.5 to 9.6 per 100,000

Reduce Mortality from 2.1 to 1.8 per 100,000

Goals for Reducing Disparities

- Stop upward trend in oropharynx cancers for whites
- Reduce Black oral cancer rate from 8.3 to 5.5
- Reduce White mortality rate from 2.0 to 1.7 per 100,000
- Reduce Black mortality rate from 2.7 to 2.0 per 100,000

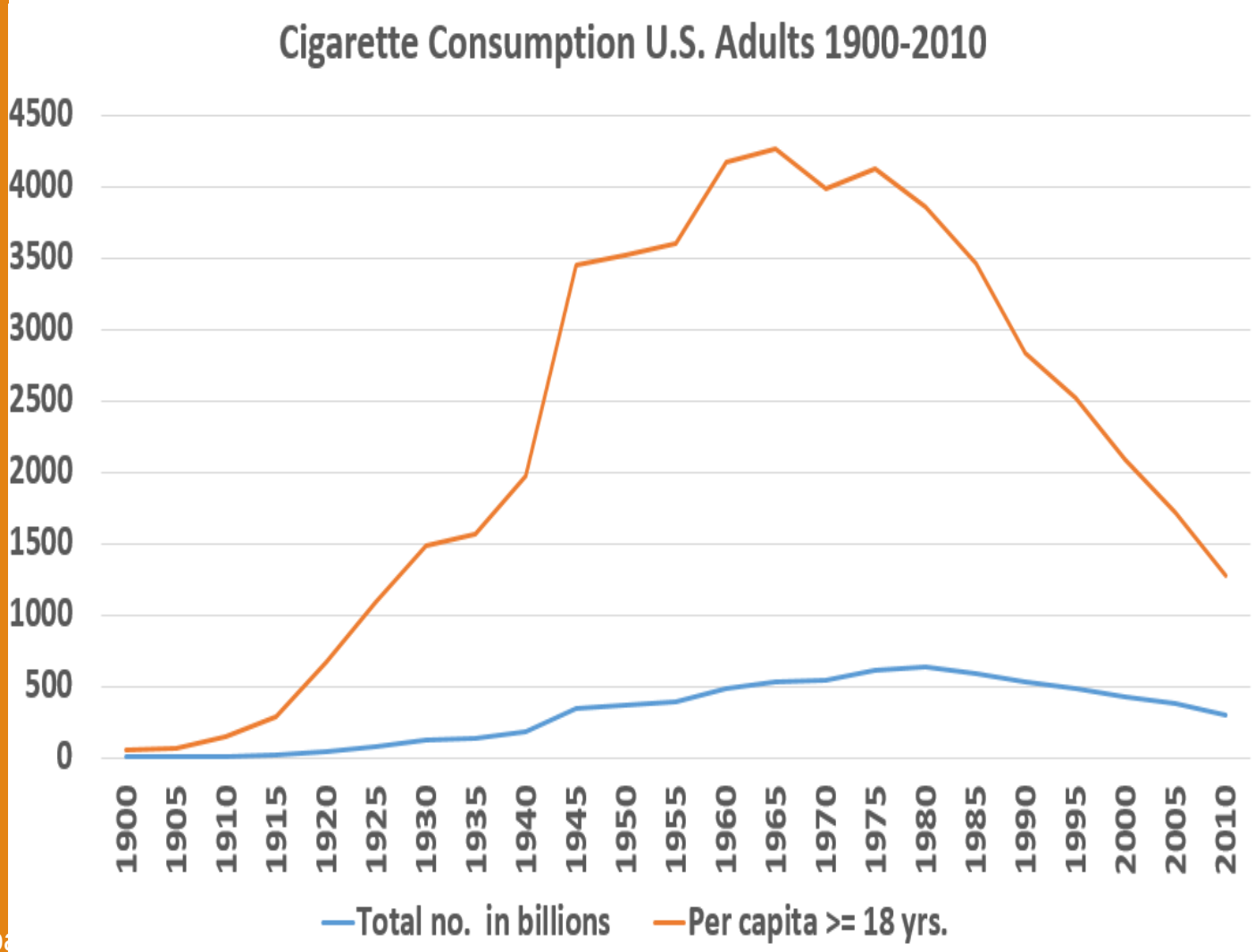
Maryland Strategies for Accomplishing Goals (Not Explicitly Tied to Oral Cancer)

Reduce Prevalence of Tobacco Use
Reduce Exposures to Secondhand Smoke in High School Children
Reduce Obesity Rates
Increase Fruit and Vegetable Consumption
Increase Physical Activity
Decrease Alcohol Consumption
Increase HPV Vaccinations
- Girls
- Boys

Reduce UV Exposures
None of these strategies is directly tied to Oral Cancers, but to cancers generally.

NCCCP Current Plan Strategies to Reduce the Oral Cancer Burden (Tobacco Control)

TOBACCO CONTROL STRATEGIES			ORAL HEALTH PROVIDERS IDENTIFIED IN STRATEGY
Smoked Tobacco	n = 7	78%	No
Smokeless Tobacco	n = 4	44%	Yes (n = 1)
E Cigarettes	n = 2	22%	No
Hookah	n = 1	11%	No
Youth Tobacco Use	n = 7	78%	No



Adapted from: http://www.Infoplease.Com/ipa
A0908700.Html

Historical Adult Smoking Rates in the U.S.

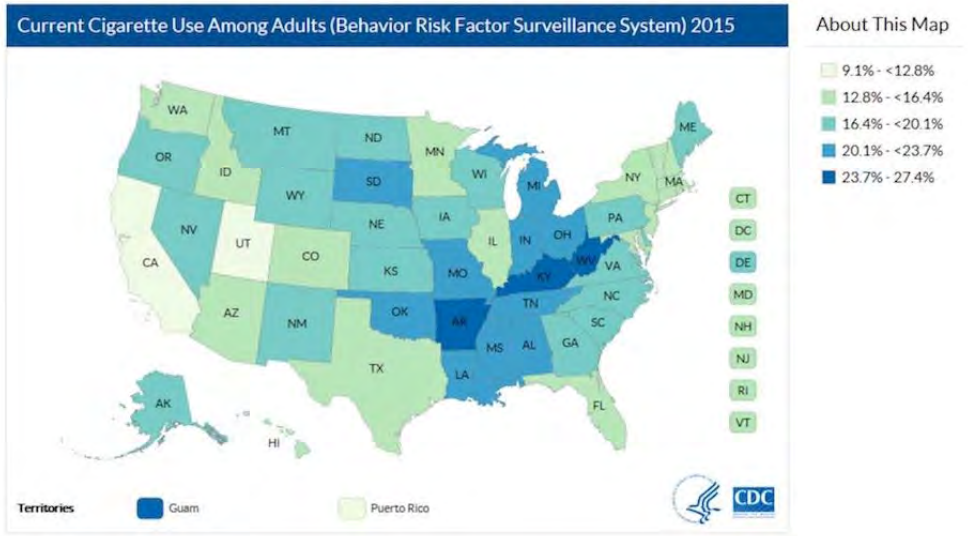
1964		2015	
Males:	52.9%	Males:	16.7%
Females:	31.5%	Females:	13.6%

CDC data. 1964 = National Clearinghouse for Smoking and Health; 2015 data, MMWR 65(44) Nov 11, 2016.

The Continuing Need for Tobacco Control

Current Smoking Among Adults in 2015 (States)

- In 2015, current smoking ranged from about 9 of every 100 adults in Utah (9.1%) to nearly 26 of every 100 adults in Kentucky (25.9%).[3]



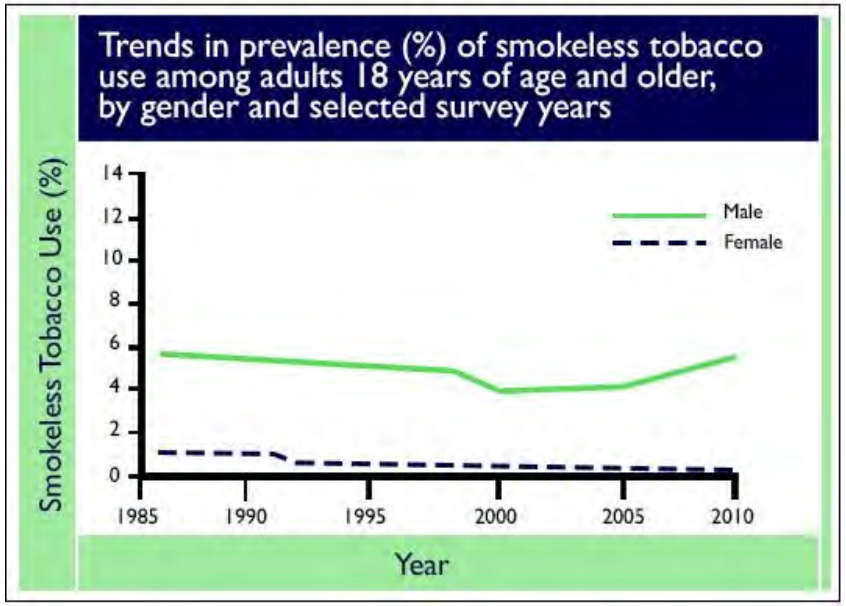
The figure presents the percentage of adults in each state who were current smokers in 2015.[3]

https://www.cdc.gov/tobacco/data_statistics/fact_sheets/adult_data/cig_smoking/

The Need for Smokeless Tobacco Control

Adult Smokeless Tobacco Use (National)

As shown in the graph below, smokeless tobacco use among females has remained low throughout the years. Among males, use decreased during 1986-2000 but has been increasing since then.[1]



https://www.cdc.gov/tobacco/data_statistics/fact_sheets/smokeless/use_us/

NCCCP Current Plan Strategies to Reduce the Oral Cancer Burden (Alcohol Use Reduction)

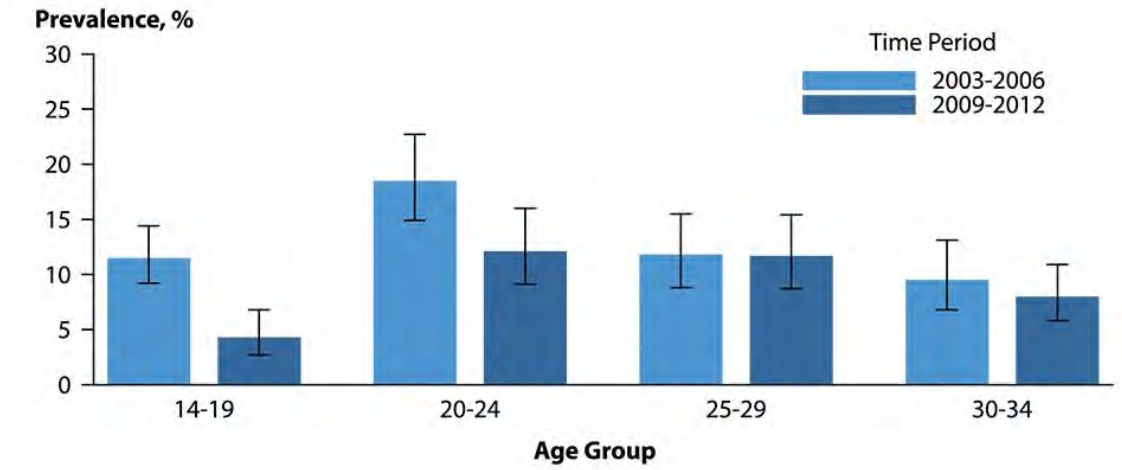
ALCOHOL REDUCTION STRATEGIES			ORAL HEALTH PROVIDERS IDENTIFIED IN STRATEGY
Provider Counselling	n = 3	33%	No
Mass Media	n = 4	44%	No
Other	n = 3	33%	No

NCCCP Current Plan Strategies to Reduce the Oral Cancer Burden (HPV)

HUMAN PAPILLOMAVIRUS CONTROL			ORAL HEALTH PROVIDERS IDENTIFIED IN STRATEGY
Public Awareness Campaign	n = 8	89%	No
Provider Counselling	n = 6	67%	No

HPV Prevalence in the U.S. by Age Group

Figure 46. Human Papillomavirus — Cervicovaginal Prevalence of Types 6, 11, 16 and 18 Among Women Aged 14–34 Years by Age Group and Time Period, National Health and Nutrition Examination Survey, 2003–2006 and 2009–2012



NOTE: Error bars indicate 95% confidence interval.

SOURCE: Markowitz LE, Liu G, Hariri S, et al. Prevalence of HPV after introduction of the vaccination program in the United States. Pediatrics 2016;137(3):e20151968.

https://www.cdc.gov/std/stats15/figures/46.htm

HPV Vaccination, U.S. Adolescents, Ages 13-17 (2015)

Females

- At least 1 dose 63%
- At least 2 doses 52%
- At least 3 doses 42%

Males

- At least 1 dose 50%
- At least 2 doses 39%
- At least 3 doses 28%

- www.cdc.gov/mmwr/volumes/65/wr/mm6533a4.htm

NCCCP Current Plan Strategies to Reduce the Oral Cancer Burden (Early Detection)

EARLY DETECTION STRATEGIES			ORAL HEALTH PROVIDERS IDENTIFIED IN STRATEGY
Patient Self Examination	n = 1	11%	No
Access to Care Promoted	n = 2	22%	Yes
Providers to Do Exams	n = 3	33%	Yes
Oral Health Provider Training	n = 4	44%	Yes
Non-Dental Provider Training	n = 1	11%	Not specified

Adult (18-64) Access to Oral Health Care: Dental Visit Past Year 2014

Males	58.1%
Females	65.8%
Whites	63.3%
Blacks	54.8%

Source: Centers for Disease Control and Prevention, Health in the United States, 2015.

Theories of Health Behavior and Behavior Change: What is Required?

Information
- Knowledge of Risks/Opportunities for Improvement

Motivation to change
- To Pursue Opportunities
- Perception of Advantage in Change
- Norms Supporting Change

Belief that change is possible
- Perceived Ability to Take Action

The ability to execute planned change
- Tools and Supports for Action Available

Sustaining change
- Continuous Support

Challenges in Prevention Campaigns

Many different risk factors

Emerging risk factors

Different population risk profiles

- These challenges spread resources thin
- It is difficult to focus sustainably on one thing

Risks associated with pleasurable activities

- The struggle to reduce tobacco use has gone on since 1964

Risks associated with private activities

Provider reluctance to counsel

Challenges in Early Detection Campaigns

Lack of Awareness of Need

Lack of Access to Clinical Services

Provider Skills Limited

Lack of Policy Support

The Healthcare Delivery System

Dentists are best able to identify and manage early lesions

Most people don't visit a dentist regularly

- Don't view it as a priority
- Lack access

The highest risk populations are among those least likely to visit a dentist

Oral health care remains segregated from the rest of the health care system

Envisioning a Health Care System Designed to Reduce the Oral Cancer Burden

Oral health is viewed as systemic health

Healthcare is delivered in an integrated, inter-disciplinary system which includes oral health providers

Access to primary oral health care is widespread and utilization rates are high

Referral from oral health care to tertiary specialty cancer care is seamless

Cancer patients return to primary care settings where oral health providers are informed and prepared to manage cancer treatment sequelae

THANK YOU!

Charles W LeHew
Department of Pediatric Dentistry
College of Dentistry
University of Illinois at Chicago
801 S Paulina
MC 850
Chicago, IL 60612
312 996 1983
lehew@uic.edu

Special thanks to Ghazala Jarani, BDS, research volunteer
and
Abigail Goben, MLS, Medical Research Librarian

References

1. Horowitz A, Canto MT, Child WL. Maryland adults' perspectives on oral cancer prevention and early detection. J Am Dent Assoc. 2002;133(8):1058–1063.
2. Horowitz AM, Nourjah P, Gift HC. US adult knowledge of risk factors and signs of oral cancers: 1990. J Am Dent Assoc. 1995;126(1):39–45.
3. Horowitz AM, Goodman HS, Yellowitz JA, et al. The need for health promotion in oral cancer prevention and early detection. J Public Health Dent. 1996;56(6): 319–330.
4. Tomar SL, Logan HL. Florida adults' oral cancer knowledge and examination experiences. J Public Health Dent. 2005; 65(4):221–230.
5. Ling H, Gadalla S, Israel E, et al. Oral cancer exams among cigarette smokers in Maryland. Cancer Detect Prev. 2006; 30(6):499–506.
6. Macek MD, Reid BC, Yellowitz JA. Oral cancer examinations among adults at high risk: findings from the 1998 National Health Interview Survey. J Public Health Dent. 003;63(2):119–125.
7. Klassen AC, Juon HS, Alberg AJ, et al. Opportunities for oral cancer screening among older African-American women. Prev Med. 2003;37(5):499–506.
8. Howell JL, Shepperd JA, Logan H. Barriers to oral cancer screening: a focus group study of rural Black American adults: barriers to oral cancer screening. Psychooncology. 2013;22(6):1306–1311.
9. Shepperd JA, Howell JL, Logan H. A survey of barriers to screening for oral cancer among rural Black Americans: barriers to oral cancer screening. Psychooncology. 2014; 23(3):276–282.
10. Gonzalez YM, Lozier EB. Oral cancer screening, dental needs assessment and risk factors literacy in Hispanic population of western New York. NY State Dent J. 2007; 73(6):32–35.
11. Cruz GD, Le Geros RZ, Ostroff JS, et al. Oral cancer knowledge, risk factors and characteristics of subjects in a large oral cancer screening program. J Am Dent Assoc. 2002; 12(8):1064–1071.
12. Riley JL, Pomery EA, Dodd VJ, et al. Disparities in knowledge of mouth or throat cancer among rural Floridians. J Rural Health. 2013;29(3):294–303.
13. Riley JL III, Dodd VJ, Muller KE, et al. Psychosocial factors associated with mouth and throat cancer examinations in rural Florida. Am J Public Health. 2012;102(2):e7–e14.
14. Reiter PL, Wee AG, Lehman A, et al. Oral cancer screening and dental care use among women from Ohio Appalachia. Rural Remote Health. 2012;12:2184.
15. Canto MT, Kawaguchi Y, Horowitz AM. Coverage and quality of oral cancer information in the popular press: 1987–98. J Public Health Dent. 1998;58(3):241–247.
16. Baysac MA, Horowitz AM, Ma DS. Oral cancer information in health education textbooks. J Cancer Educ. 2004;19(1): 12–16.
17. Mongeau SW, Horowitz A. Assessment of reading level and content adequacy of oral cancer educational materials from USAF dental clinics. J Cancer Educ. 2004;19(1):29–36.
18. Graham JA, Horowitz AM, Canto MT. Coverage and quality of oral cancer information in selected popular press: May 1998 to July 2003. J Public Health Dent. 2004;64(4): 231–236.
19. Maurizio SJ, Lukes SM, DeMattei R. An assessment of printed oral cancer materials from local health departments in Illinois. J Dent Hyg. 2005;79(1):10.
20. Ismail AI, Jedele JM, Lim S, et al. A marketing campaign to promote screening for oral cancer. J Am Dent Assoc. 2012; 143(9):e57–e66.
21. Jedele JM, Ismail AI. Evaluation of a multifaceted social marketing campaign to increase awareness of and screening for oral cancer in African Americans: mass media and oral cancer screening. Community Dent Oral Epidemiol. 2010; 38(4):371–382.

22. LeHew CW, Kaste LM. Oral cancer prevention and early detection knowledge and practices of Illinois dentists—a brief communication. J Public Health Dent. 2007;67(2):89–93.
23. McCunniff MD, Barker GJ, Barker BE, et al. Health professionals' baseline knowledge of oral/pharyngeal cancers. J Cancer Educ. 2000;15(2):79–81.
24. Sohn W, Ismail AI, Kolker JL. Knowledge of oral cancer and screening practices of primary care providers at federally qualified health centers. J Public Health Dent. 2005;65(3): 160–165.
25. Alonge OK, Narendran S. Opinions about oral cancer prevention and early detection among dentists practicing along the Texas-Mexico border. Oral Dis. 2003;9(1): 41–45.
26. Mahalaha SA, Cheruvu VK, Smyth KA. Oral cancer screening: practices, knowledge, and opinions of dentists working in Ohio nursing homes. Spec Care Dentist. 2009; 29(6):237–243.
27. Applebaum E, Ruhlen TN, Kronenberg FR, et al. Oral cancer knowledge, attitudes and practices: a survey of dentists and primary care physicians in Massachusetts. J Am Dent Assoc. 2009;140(4):461–467.
28. Reed SG, Cartmell KB, Duffy NG, et al. Oral cancer preventive practices of South Carolina dentists and physicians. J Cancer Educ. 2010;25(2):166–173.
29. Maybury C, Horowitz AM, Yan AF, et al. Maryland dentists' knowledge of oral cancer prevention and early detection. J Calif Dent Assoc. 2012;40(4):341–350.
30. Daley E, Dodd V, DeBate R, et al. Prevention of HPVrelated oral cancer: assessing dentists' readiness. Public Health. 2014;128(3):231–238.
31. Cruz GD, Ostroff JS, Kumar JV, et al. Preventing and detecting oral cancer: oral health care providers' readiness to provide health behavior counseling and oral cancer examinations. J Am Dent Assoc. 2005;136(5):594–601.
32. Ashe TE, Elter JR, Southerland JH, et al. North Carolina dental hygienists' oral cancer knowledge and opinions: implications for education. J Cancer Educ. 2006;21(3): 151–156.
33. Bigelow C, Patton LL, Strauss RP, et al. North Carolina dental hygienists' view on oral cancer control. J Dent Hyg. 2007;81(4):83.
34. Cotter JC, McCann AL, Schneiderman ED, et al. Factors affecting the performance of oral cancer screenings by Texas dental hygienists. J Dent Hyg. 2011;85(4):326–334.
35. Syme SE, Drury TF, Horowitz AM. Maryland dental hygienists' assessment of patients' risk behaviors for oral cancer. J Dent Hyg JDH Am Dent Hyg Assoc. 2001;75(1): 25–38.
36. Thacker KK, Kaste LM, Homsi KD, et al. An assessment of oral cancer curricula in dental hygiene programmes: implications for cancer control. Int J Dent Hyg. 2016;14(4): 307–313.
37. Patton LL, Ashe TE, Elter JR, et al. Adequacy of training in oral cancer prevention and screening as self-assessed by physicians, nurse practitioners, and dental health professionals. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2006;102(6):758–764.
38. Siriphant P, Drury TF, Horowitz AM, et al. Oral cancer knowledge and opinions among Maryland nurse practitioners. J Public Health Dent. 2001;61(3):138–144.
39. Siriphant P, Horowitz AM, Child WL. Perspectives of Maryland adult and family practice nurse practitioners on oral cancer. J Public Health Dent. 2001;61(3):145–149.
40. LeHew CW, Epstein JB, Koerber A, et al. Training in the primary prevention and early detection of oral cancer: pilot study of its impact on clinicians' perceptions and intentions. Ear Nose Throat J. 2009;88(1):748–753.
41. LeHew CW, Epstein JB, Kaste LM, et al. Assessing oral cancer early detection: clarifying dentists' practices. J Public Health Dent. 2010;70:93–100.