Oral cancer: knowledge, practices and opinions of dentists in Ireland

Précis
A cross-sectional survey of Irish dentists assessing the knowledge of risk factors, diagnostic concepts and training needs with regard to oral cancer.

Abstract
Purpose of the study: Early detection of oral cancer improves prognosis, but the malignancy is often detected at advanced stages, when more aggressive therapies, often with poor and devastating outcomes for the patient, are needed. Oral cancer can be detected by opportunistic screening of oral mucosa without need of sophisticated equipment. Dentists are important in primary and secondary prevention of oral cancer; therefore, assessing their knowledge, opinions and practices is crucial.

Materials and methods: A questionnaire survey of dentists was conducted regarding knowledge of risk factors and diagnostic concepts of oral cancer, practices of primary and secondary prevention, and opinions of the effectiveness of formal undergraduate training for early detection and prevention of this disease. The survey explored dentists’ potential training needs.

Results: Dentists appear to be generally knowledgeable regarding diagnostic concepts and risk factors. A total of 89% reported providing screening of intra- and extra-oral soft tissue to adult patients (18+) to exclude oral cancer. A total of 27% always provide tobacco use cessation counselling, and 12% provide alcohol moderation/cessation assistance. A total of 54% felt adequately trained to palpate the lymphatic nodes associated with oral cancer. Over half of dentists reported that their knowledge of and training on oral cancer was current; however, 74% reported lack of patient education materials regarding prevention and early detection of oral cancer.

Conclusions: The survey findings suggest that dentists are underutilised in the prevention and early detection of oral cancer, and one of the barriers is lack of training. Dentists’ knowledge and skills must be reinforced and systematically updated by continuing professional education. Greater emphasis should be placed on the fact that dentists have a larger role to play in the prevention and detection of this malignancy at its early, curable stages.

Introduction
Ongoing training regarding the prevention and early detection of oral cancer may impact on dentists’ opinions, knowledge and clinical practice and is essential, as incidence is increasing, with more than 419,000 new cases diagnosed annually worldwide. Despite advances in treatment, the five-year survival rate is 50%, mostly because of the advanced stage at diagnosis. Epidemiologic studies estimated that early detected disease has a relative survival rate of 82%, but this reduces to only 54% and 32%, respectively, for regional and distant spread. Alcohol and tobacco are important contributors to the malignancy, and involvement of human papillomavirus (HPV) has been suggested as a co-factor, particularly in the development of
to evaluate the knowledge of practising dentists regarding oral cancer. With this background the research aim was:

- to evaluate the knowledge of practising dentists regarding oral cancer risk factors and diagnostic concepts;
- to evaluate cessation strategies provided by dentists for patients who use tobacco products and alcohol excessively;
- to investigate dentists’ opinions regarding the adequacy of formal undergraduate training towards primary and secondary prevention of oral cancer; and,
- to explore potential educational needs, if any, with regard to the prevention and early detection of oral cancer.

The survey findings may be useful for planning undergraduate and continuing professional education programmes regarding prevention of oral cancer and diagnosis of early disease.

Method
A 25-item online survey was constructed using the following subheadings: general information; oral cancer risk factors; oral cancer diagnostic concepts; and, dentists’ opinions. The survey was developed using previously published tools2,25 with modifications and additions for the Irish context. The survey was distributed to 1,400 dentists practising in Ireland during October-November 2010. The online survey was sent out by the Irish Dental Association to members of the Association using email contact addresses. Ethical approval was sought and received from the Trinity College Board of Ethics prior to commencement of the study.

Each correct answer (similar to the study carried out by Yellowitz and colleagues2) was marked with a score of ‘1’. The scores were added to create an index score (low, medium, high) for risk factors, ranging from 0-9, and diagnostic concepts ranging from 0-11. The dentists were classified into three groups in accordance with the scores received in order to create a characteristic (gender, timing of graduation and continuing education course, experience, perceived knowledge) of dentists’ knowledge of both risk factors and diagnostic concepts associated with oral cancer.7 Statistical software SPSS v18 was used to evaluate the association between dentists’ background (gender, timing of graduation and continuing education course, experience) and the knowledge of both risk factors and diagnostic concepts. Dentists’ perceived knowledge (‘my knowledge is current’) and actual knowledge was also evaluated. A level of P<0.05 was considered statistically significant.

Results
A total of 254 dentists participated in the study, of which 105 (41%) were female, with the time of graduation ranging from before 1980 to 2010. Over 60% of participants had practised for more than 15 years as a dentist. Risk factor knowledge is summarised in Figure 1.

Oral cancer awareness and preventive interventions
Over 90% (n=211) of the respondents assess current smoking status, with nearly 60% (n=135) assessing previous smoking status. However, only 59% (n=134) of dentists assess current alcohol status, with less than 30% (n=68) asking about past alcohol use. Nearly 70% (n=160) ask about previous head and neck cancer.

Figure 2 summarises tobacco and alcohol counselling interventions provided by dentists for patients who use tobacco products and alcohol excessively. Some 83% (n=175) and 49% (n=103) of participants,
retted, it is their professional duty to provide tobacco use and alcohol cessation assistance to their patients. A high proportion of dentists reported performing oral screening to exclude oral cancer in all adult patients (18+) regardless of their tobacco and/or alcohol status, and 97% (n=202) provide this examination for edentulous patients. Some 74% (n=155) reported a lack of patient education materials (brochures, leaflets, posters) regarding prevention and early detection.

Knowledge of diagnostic concepts
Although a majority of dentists surveyed (99%, n=221) agreed that early detection of oral cancer improves its five-year survival rate, and around 95% (n=211) knew that a patient is usually asymptomatic during the initial stages of the disease, a lower proportion of participants (86%, n=188) were aware that most oral cancer is diagnosed at advanced stages. Similarly, 87% (n=192) of respondents knew that the ventral lateral border of the tongue is the most common site of tongue lesions.

Over 80% of dentists identified erythroplakia and leukoplakia as the most common types of lesions associated with oral cancer. However, a higher proportion of dentists identified leukoplakia (87%, n=193) than erythroplakia (82% n=181), a fact that will be addressed in the discussion section. Moreover, only 72% (n=159) of respondents identified both lesions. In addition, 11% (n=25) of participants incorrectly identified nicotine stomatitis and frictional keratosis as the most common lesions associated with oral neoplasia. Over 70% (n=162) identified the tongue, and 86% (n=190) identified the floor of the mouth, as the two most common sites for intra-oral lesions. However, only 64% (n=141) correctly identified both sites.

Oral cancer knowledge and dentists’ demographics
The relationship between the time of graduation and the knowledge of risk factors indicated a weak correlation (Spearman correlation = 0.124, p=0.04) between the two variables, with higher risk factor scores associated with more recent graduation. Similarly, more recent graduation was associated with higher score in diagnostic concepts (Spearman Correlation = 0.212, p=0.001). In addition, completion of a more recent continuing education course was associated with higher scores in both diagnostic concepts (p<0.001, r=0.298) and risk factor knowledge (p=0.03, r=0.146).

Dentists’ training
The self-reported level of training is shown in Figure 3. The vast majority of dentists identified that they were not adequately trained to provide tobacco and alcohol cessation advice; however, they did feel adequately trained with regard to screening and identifying suspicious lesions and nodes. The dentists who stated adequate training appeared to have a better knowledge of diagnostic concepts (p<0.001). A total of 42% (n=87) of participants attended a continuing education course (seminar, conference, study day) regarding oral cancer in the last two years, and 34% (n=71) in the last five years, while 6% (n=13) attended a course more than 10 years ago and 8% (n=18) never received such an education update.

When asked about dentists’ training needs, the most common response was for the “recognition of suspicious lesions” and on “suspicious lesions referral guidelines” (more than 95% of respondents chose these). Alcohol (74%) and tobacco (79%) cessation education were the least selected of the answer options.

Discussion
Knowledge of oral cancer risk factors and diagnostic concepts
The results of the present study show that dentists practising in Ireland are generally knowledgeable regarding oral cancer risk factors and diagnostic concepts; however, similar to other studies, there is variability in their knowledge.

Although the vast majority of dentists identified alcohol and tobacco as the main risk factors, similar to other studies previously carried out in the US, Canada and Europe, a smaller proportion of dentists were aware that HPV, low consumption of fruit and vegetables, prior oral cancer lesion and sun exposure in the case of lip cancer are also potential risk factors.
There is an increased incidence in patients under 45 years of age, however, the majority of cases occur in patients 45 years or older, with most patients at the time of diagnosis being in their sixties. Only 55% of dentists identified older age as a potential risk factor for development of oral neoplasia. This figure is low in comparison to similar studies carried out in the US and Spain. Participants were more knowledgeable regarding risk factors that are not scientifically proven to be associated with oral cancer, as a significantly lower proportion of participants in comparison to other studies identified hot beverages and spicy food as risk factors for oral neoplasia.

Nearly all participants identified squamous cell carcinoma as the most common type of oral cancer, and over 80% of dentists knew that erythroplakia and leukoplakia are the main precancerous lesions associated with oral neoplasia. However, leukoplakia was identified by a slightly higher percentage of dentists in comparison to erythroplakia. Although both lesions have malignant potential, erythroplakia, and the red component of erythroleukoplakia, known as speckled erythroplakia, have a greater chance to progress to oral cancer. In addition, it has been reported that on histopathological examination over half of erythroplakias were invasive carcinoma, and 40% showed carcinoma in situ.

A very high proportion of dentists reported performing oral examinations to exclude cancer in all adults and edentulous patients during routine visits, and although 86% identified floor of the mouth and 73% identified the tongue, only 64% identified both sites as high risk. Similarly, some dentists were not aware that the ventral and lateral border of the tongue is a high-risk area for suspicious lesions in the case of tongue carcinoma.

Part of the examination to exclude oral cancer is palpation of the cervical lymphatic nodes. A total of 46% of respondents did not agree with the statement that they were adequately trained to palpate lymphatic nodes and identify the associated lymphadenopathies (28% disagree and 18% undecided). However, 80% correctly answered the knowledge questions about this subject.

The survey revealed that only 53% agreed that their oral cancer knowledge is current. Furthermore, statistical analysis indicates that dentists who stated that their knowledge is current actually have a lower level of knowledge regarding the diagnostic concepts and risk factors. It has been reported that the knowledge acquired in medical schools tends to decrease with time, and that the half-life of this knowledge is approximately five years. As oral cancer incidence, although rising, is still low in comparison to other malignancies, dentists may not frequently encounter this malignancy. This highlights the need for continuing professional education with a focus on both risk factors and clinical diagnostic concepts.

Tobacco and alcohol cessation

More than half of dentists never provide counselling in alcohol moderation/cessation for patients who abuse alcohol. A relatively small proportion of dentists provide counselling in tobacco cessation for patients who smoke. These findings are similar to other surveys and suggest that dentists find providing tobacco and alcohol cessation assistance to their patients challenging.

In line with other studies, dentists in Ireland reported being unprepared to offer tobacco and alcohol cessation assistance, as 54% and 76% of respondents, respectively, felt inadequately trained to provide tobacco and alcohol cessation education to their patients. A review of 149 dental schools reported that 69% taught tobacco interventions in their undergraduate curricula. However, Davis and colleagues in 2010 suggested that schools provide only “basic knowledge-curricula that rarely incorporate effective, behaviourally-based components affecting long-term change,” and emphasised the importance of and need for new strategies regarding tobacco preventive activities.

A high proportion of dentists reported that they have a role to play in providing patients with tobacco cessation counselling, but less than half felt that alcohol abuse counselling is part of their professional duty. This is in line with the results from Figure 4 regarding specific training needs. Dentists ranked tobacco and alcohol cessation at the lower end of the spectrum, with between 70 and 80% of dentists specifying a need for further training in these areas.

Conclusion

The response rate to the survey was approximately 18%; therefore, the results have to be interpreted with care, as it may not describe the knowledge, opinions and practices of all practising dentists in Ireland. Furthermore, the dentists who participated in the study are a self-
selected group and may be more interested in the subject, and as a consequence may be more knowledgeable than non-respondents. In addition, a general limiting characteristic of self-reporting surveys is the probability of socially acceptable responding, and therefore the results may not necessarily fully reflect dentists' daily professional practice.

Similar to studies in other countries, the findings of this survey suggest that dentists practising in Ireland are generally knowledgeable of oral cancer risk factors and diagnostic concepts. Recent graduation and continuing education were associated with better knowledge of risk factors and diagnostic concepts. Dentists find providing tobacco and alcohol cessation assistance to their patients challenging, and a high proportion felt insufficiently trained to incorporate these interventions in their practices. However, dentists feel confident to provide oral screening examinations for adults, including edentulous patients, although not all dentists are aware of high-risk sites.

Dentists’ knowledge and skills must be updated by continuing professional education regarding recognition and prevention of premalignant and malignant oral lesions. Only half of participants indicated that their knowledge and training regarding this malignancy was current and a large majority of respondents expressed their desire to attend continuing education courses.

Silverman and his team recently suggested that dentists’ knowledge, attitudes and practices can be positively influenced by continuing education courses. Furthermore, Robertson and his colleagues argued that "CE which is ongoing, interactive, contextually relevant, and based on need assessment can improve knowledge, skills, attitudes, behaviour and patient health outcome."44 In order to design effective educational strategies that would benefit both future and practising dentists and their patients, it is crucial to evaluate dentists’ knowledge, opinion and practices. Dentists are capable of and have an excellent opportunity to bring about positive change in reducing the rising incidence of oral cancer and ultimately saving lives.

It appears that the study is the first in Ireland to evaluate the readiness of dentists to be involved in oral cancer prevention and early detection. Further studies that focus in more depth on tobacco and alcohol cessation interventions, and dentists’ ability to recognise premalignant and malignant lesions, are much needed.

Declaration

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References


Appendix 1 – Questionnaire
The full questionnaire is available at www.dentist.ie/resources/jida