

## The challenge of the approach to oral cancer in primary health care

O desafio da abordagem do câncer de boca na atenção primária em saúde

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**Abstract** *The aim of this study was to understand the performance of dentists in public health about mouth cancer. A cross-sectional study was performed with 121 dentists from Fortaleza Health Department, interviewed through a semi-structured questionnaire. The study did not identify statistically significant difference regarding the ability to perform biopsy by gender, year of graduation, expertise or time of public service. Only 22 professionals (18.2%) reported being able to perform biopsies and 13 (10.7%) would do so at the Family Health Unit. The reference and counter-reference system, by including another stage in patient care, increase the possibility of absenteeism from patient to health service. Although clearly identify the relevance of oral cancer mortality in the population, the vast majority of dentists is not equipped to perform the biopsy as a routine activity. Whereas the vast majority of biopsies of the oral tissues is performed as an outpatient, low technological complexity to perform the procedure and the effectiveness of biopsy in the early diagnosis of oral cancer, it is essential to hold this procedure in primary care, what can effectively contribute to decreasing mortality from oral cancer.*

**Key words** Mouth neoplasms, Oral health, Basic health services

**Resumo** *O objetivo do presente estudo foi analisar a atuação dos cirurgiões-dentistas da rede pública de saúde frente ao câncer de boca. Foi realizado estudo transversal no qual foram entrevistados 121 dentistas a partir de questionário semiestruturado. O estudo não identificou diferença estatisticamente significativa em relação à capacidade de realizar biópsia por sexo, ano de graduação, especialização ou tempo de serviço público. Apenas 22 profissionais (18,2%) relataram ser capazes de realizar biópsias, e 13 (10,7%) poderiam fazê-la na Unidade de Saúde da Família. O sistema de referência e contrarreferência, por meio da inclusão de mais de uma etapa na assistência, aumenta a possibilidade de absenteísmo do paciente ao serviço de saúde. Embora identifique claramente a relevância da mortalidade do câncer bucal na população, a grande maioria dos dentistas não está preparada para realizar a biópsia como uma atividade de rotina. Considerando que a grande maioria das biópsias dos tecidos orais é realizada em ambulatório, a baixa complexidade tecnológica para realizar o procedimento e sua eficácia para o diagnóstico precoce do câncer de boca, é essencial a realização deste procedimento na atenção primária, o que pode efetivamente contribuir para a diminuição da mortalidade por câncer oral.*

**Palavras-chave** Neoplasias bucais, Saúde bucal, Serviços básicos de saúde

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## Introduction

Primary Health Care is essential for the organization of the Unified Health System (SUS) element in guiding policies to meet the demands and needs to access the network services<sup>1</sup>, with its principles and assumptions in the National Politics of Buccal Health (Brasil Sorridente)<sup>2</sup>. The incorporation of oral health team in the Family Health Strategy aimed to increase access to health promotion, procedures for the prevention of oral disease and their respective treatment<sup>3</sup>.

It is crucial to signalize the advances provided by National Curriculum Guidelines for Dentistry courses<sup>4</sup>, to educate dentists to develop specific skills, the ability to identify patients and population groups with oral diseases and disorders, appropriate conduct to research, prevention, treatment and control within the Unified Health System (SUS).

To achieve this goal, according to Villalba *et al.*<sup>5</sup>, professionals with a broadened view of health are needed; able to understand individuals, families, and communities in a systematic and comprehensive manner, consistent with the reality of municipal health systems, developing and evaluating oral health actions consistent to community needs.

Within these areas of expertise of the dentist, oral cancer occupies a prominent position, since is the seventh neoplasm that most affects the Brazilian population<sup>6</sup>. Estimates for 2014 point to 15.290 new cases of oral cancer in Brazil and may occupy the fifth place among the highest incidence of malignant neoplasms in men<sup>7</sup>. However, the prevention of oral cancer has a large inertia as the risk factors of the disease follow the patients for many years, even before any signs appear. For prevention effectiveness, it must be based on health promotion and professionals should be made aware of their importance to envisage the disease<sup>8</sup>.

The visual examination of the mouth for early detection of precancerous lesions and non-symptomatic tumors is an intuitive and attractive secondary prevention strategy, from which it is expected to enable the diagnosis of the disease in its initial stages<sup>9</sup>. The special ease of access to oral lesions has been a critical issue in discussions about early diagnosis. Empirically, the biggest obstacle seems to be the identification of precursor lesions, which implies the need for greater investment by health professionals to identify these injuries and take the correct course of action<sup>10</sup>. The prognosis of oral cancer diagnosed and treated in its early stage is very

satisfactory since 80% of the patients achieve a survival rate of five years after treatment due to less aggressive and complex interventions<sup>11</sup>.

The biopsy is a major mechanism of identification of oral cancer in its early stages, being recommended by the Ministry of Health<sup>12</sup> and accomplished by its own Basic Health Care, along with other complimentary examinations. It breaks the assumption that the initial neoplastic changes are easily detectable and primary care will need the closest monitoring of the patient, avoiding a late diagnosis and mutilating treatment, as observed in the current reality<sup>13</sup>.

The interest of this study occurred in order to identify the development of technical protocol for active surveillance and early diagnosis of oral cancer directed to high-risk biological social groups by the Municipal Health Department of Fortaleza (Ceará-Brasil)<sup>14</sup>. This study focused on understanding the role of dentists inserted in Primary Care in Fortaleza - Ceará against oral cancer, considering their knowledge and willingness to intervene on early diagnosis and biopsy in Family Health Units.

## Methods

This study is characterized as transversal, as the factor under study and the effect were measured at the same time; and the description of the problem was made even without intervention. It is also an analytical study, which sought to relate the dependent variables with independent, seeking explanation for the observed phenomena.

The sample size calculation assumed a population of 238 dentists crowded in 87 Family Health Units in Fortaleza-Ceará, in 2008, with a minimum percentage of 10%, sampling error of 5%, and a confidence level of 99.9%.

For composition of the study sample, all units of the Family Health were preliminarily listed and grouped by Regional Executive Secretary to ensure proportional participation of all regions in Fortaleza. Inclusion criteria for definition of dentists in the sample involved formal employment with the Municipal Health Department of Fortaleza and providing clinical care in the Family Health Units, during the year preceding data collection. The exclusion criteria related to the time since graduation lower than 3 years and a period longer than six months off work during the last year.

In a second stage, dentists were grouped in each Family Health Unit according to the period

in which they worked (morning or afternoon). In a third stage, the dentists were listed in alphabetical order, which was constituted as the final link to draw participants. Considering the sample size necessary, the first element of the sample was selected to attend, and from there plus the constant ( $k = 2.0$ ) by means of an electronic spreadsheet, therefore a systematic random sample. This strategy allowed the participation of almost all the Family Health Units of the municipality. From this procedure, 121 dentists who composed the final study sample were identified, as shown in Figure 1.

As a preliminary stage of the research, a pilot study was conducted with ten dentists, in order to assess the clarity and objectivity of the questions. It is noteworthy that these professionals were not included in the final sample. At the end of the pilot study, a printed questionnaire was administered with the aim of raising the professionals' opinion about the quality and appropriateness of the research instrument. Because of this, two issues were improved, contributing to greater clarity in relation to the object of study.

To invite participants, the researchers made contact through phone calls to Family Health Units, briefly explaining the project objectives and scheduling the interview directly with the research subject. They headed to the Family Health Unit from the time the dentist confirmed the appointment. Despite this mechanism, sometimes the dentist could not be interviewed at that time,

for various reasons. To ensure the participation of all components of the sample, the researchers settled on a three return limit to the Family Health Unit for collecting the information. This approach associated with the prior contact let there be no loss in the total sample provided.

Data collection occurred through a semi-structured questionnaire as an interview, being filled in by the researchers from the responses of dentists.

The researchers went to all Family Health Units, for three months, carrying the questionnaire and two copies of the free and informed consent for each interview. The research project was submitted to the University of Fortaleza Research Ethics Committee and approved.

The data collected in the field were double entered and processed using Epi Info version 6.04. For data processing and statistical analysis, the SPSS for Windows software, version 17.0, was used to perform chi square test.

The dependent variables of the study are the attitudes of dentists regarding oral cancer (participation in educational activities about oral cancer, suspicion of potentially cancerous lesions in Family Health Units, appropriateness of biopsy, biopsies done in Family Health Units, and intervention conforming to lesion complexity), and the independent variables are related to the profile of the respondents, in particular, gender, time since graduation, specialty (lato sensu courses), and time in public service.

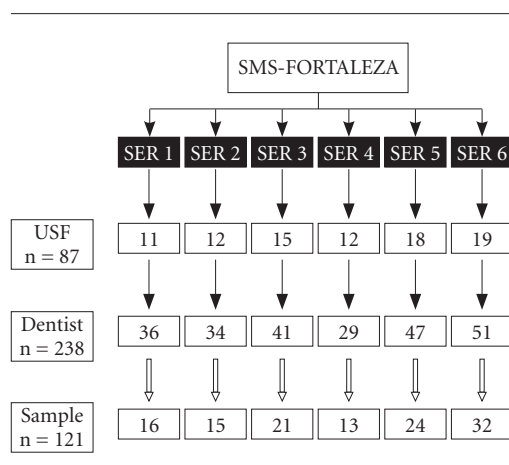
## Results

From the total interviewed, 87 (71.9%) were female, and 25.8% were up to 5 years since graduation, 46.7% of five to ten years since graduation, while 27.5% had more than 10 years since graduation. Regarding time in public service, 62 (51.2%) was admitted in the last five years, while 59 (48.8%) had been doing so for over five years. The vast majority (91.7%) of the total is less than five years at Family Health Unit where it was crowded at the time of interview.

It was observed that 98 dentists (81%) attended a lato sensu course, being 61 (62.2%) performed in the area of Public Health.

Of the total of dentists surveyed, 93.4% reported participation in educational activities related to mouth cancer promoted by the Fortaleza Municipal Health Department.

Regarding the suspicion of potentially cancerous lesions, 94 dentists (77.7%) had already ex-



**Figure 1.** Distribution of the sample according to total number of dentists and number of Family Health Units (USF) by Regional Executive Secretary (SER), Municipal Health Secretariat (SMS), Fortaleza-CE, Brazil, 2008.

perienced this occurrence in the Family Health Unit in which they were currently crowded. In the univariate analysis there was no statistically significant difference regarding the suspicion of second potentially cancerous lesions for gender, time since graduation, time and expertise of public service, as shown in Table 1.

However, despite the occurrence of potential cancerous lesions in the Family Health Units, only 52 professionals (43%) reported being able to perform biopsies, and of these, 30 (57%) depending on the complexity of the lesion. These findings have not identified a statistically significant difference in relation to ability to perform biopsy according to gender, time since gradu-

ation, time and expertise of public service, as shown in Table 2.

Of the 30 respondents who consider themselves capable of performing a biopsy depending on the complexity, only 13 dentists (43%) routinely would perform at the Health Unit, where most of the population seeks care. One should also stress that of those who report a biopsy at the Health Unit, only 4 (31%) professionals perform in any situation, according to data provided in Table 3. I.e. of the total surveyed professionals (121), only 10.7% routinely would perform biopsies, while only 3.3% would perform at the Family Health Unit in any situation.

**Table 1.** Suspected diagnosis of cancer malignancy by gender, year of graduation, how long in public service and specialty of dentists, Fortaleza-CE, Brazil, 2008.

Variables	N°	%	Yes	%	p
Gender					
Male	12	9,9	22	18,2	0,032
Female	15	12,4	72	59,5	
Year of graduation					
Before 2003	5	4,2	26	21,7	0,324
After 2003	22	18,3	67	55,8	
How long in public service					
Up to 5 years	9	7,4	53	43,8	0,035
Over 5 years	18	14,9	41	33,9	
Specialty					
Yes	4	3,3	19	15,7	0,529
No	23	19,0	75	62,0	

**Table 2.** Ability to biopsy by gender, year of graduation, how long in public service and specialty of dentists, Fortaleza-CE, Brazil, 2008.

Variable	N°	%	Yes	%	p
Gender					
Male	17	14,0	17	14,0	0,329
Female	52	43,0	35	28,9	
Year of graduation					
Before 2003	13	10,8	18	15,0	0,055
After 2003	55	45,8	34	28,3	
How long in public service					
Up to 5 years	34	28,1	28	23,1	0,619
Over 5 years	35	28,9	24	19,8	
Specialty					
Yes	11	9,1	12	9,9	0,322
No	58	47,9	40	33,1	

**Table 3.** Biopsy perform by complexity of the injury and its realization at the Center for Family Health (CSF), Fortaleza-CE, Brazil, 2008.

Biopsy perform	N (52)	%
Complexity of injury		
In any situation	22	42,3
Depending on the complexity	30	57,7
In CSF		
In any situation	4	7,7
Depending on the complexity	9	17,3
Never realize	39	75,0

## Discussion

Tracing the profile of dentists working in the units of the Family Health Department of Fortaleza, we could observe that the majority is female, have up to 10 years after graduation and up to 10 years of entering the public service (with less than 5 years at the Family Health Unit at the time of the survey) and attended at least one specialization course after graduation, with a significant part in the area of Public Health.

The limited time and relatively recent entry into the public service could bring benefits to the health service if the training of dentists were effectively linked to the Health System, as recommended in the National Curriculum Guidelines for Dentistry courses<sup>4</sup>. Another important signal in this study corroborates that for the fact that most dentists have developed specialization in Public Health, this could make more effective the Unified Health System. However, the results of this study did not identify statistically significant difference regarding the suspicion of second potentially cancerous lesions and ability to perform biopsy by gender, year since graduation, expertise or time of public service. Because of this, the results do not depend from these variables, so the conclusions of this study can be generalized within the analyzed aspects.

From this analysis, constitutes as a major challenge for the educational system to encourage professionals about the proposed professional development activities with prospective health actions with reference to the universality and comprehensiveness, recommended by public health system, and enabling professional involvement to it to assume its responsibilities in an effective and committed manner.

The assignments of oral health professionals of the Family Health Program, particularly by

dentists, are provided for in Ordinance 267 of 06 March 2001<sup>15</sup>. Such requirements should be part of routine knowledge of the professionals working in the public service. When asked about the knowledge of such tasks as conducting clinical examinations, and coordinating public health actions aimed at promotion and prevention in oral health, the majority of respondents reported that they knew them, and showed interest in updating laws which govern the profession.

The dentist, by working on the oral, and maxillofacial complex and having training that includes propaedeutics, should be the professional closest to the reality of the prevention of oral cancer through early diagnosis and counseling about risk factors and self-examinations<sup>16,17</sup>. LeHew & Kaste<sup>18</sup> indicated that 92% of 518 dentists surveyed in Illinois reported performing oral examinations for cancer detection, however, most do not realize it properly or at frequent intervals. In this study, 77.7% of respondents reported having identified patients with suspicious lesions in the Family Health Units. The main initiatives to be taken by the dentist for early diagnosis of malignant neoplasms is conducting intra-oral and extra-oral examinations (biopsy included therein) and educate the public about the disease<sup>19,20</sup>. However, of the professionals interviewed, only 43% consider themselves capable of performing a biopsy, depending on complexity. In a more severe form, Ergun et al.<sup>21</sup> in a study of dentists in the private sector, at the University of polyclinics in Istanbul, indicated that 93% of respondents did not perform biopsies. When the analysis in the present study extends to the Family Health Units, an even more worrying attitude was found: only 13 (10.7%) professionals actually performed this procedure. This finding may have some explanations: either there isn't adequate physical framework for this examination, or even this can be performed on an outpatient basis without the need for major surgical apparatus; or there is an omission on the part of dentists who seek to exclude themselves from their duties and embarrassing attitude to tell their patients that it has a high mortality rate; or is there a preference for referring patients to reference centers.

In the view of Angelim-Dias and Sampaio<sup>22</sup> Ceará has no health practices that address the full complexity of diagnosis and treatment. Consolidated by the interviews, we observed that the Municipal Health Department promotes specific actions aimed at upgrading professionals and disease prevention. The vast majority of respondents reported having participated in at least one of these



activities. Improving the level of knowledge and the application of measures by dentists becomes very important for public health in reducing the mortality and morbidity for oral cancer<sup>23</sup>.

Of the surveyed participants who had expertise in public health, a field of knowledge and practice about the process health/disease<sup>24</sup>, only one reported that had never participated in such actions. Dentistry courses should provide further instructions on promotion, prevention, treatment, and rehabilitation of an assisted community.

Andrade *et al.*<sup>25</sup> indicate that only 13% of the dentists covered in their study had received training about oral cancer in graduation, remaining a unsatisfactory knowledge, signaling to the need for continuing education with aim of training dentists for early oral cancer diagnosis.

Cannick *et al.*<sup>26</sup> indicate the need for a broader approach to prevention and early diagnosis of oral cancer during graduation. With this measure, patients certainly would have potential for contribution to increasing their survival.

Dentists, because of the design of the traditional guidelines of vocational training, tend to focus more on healing practices and are often not adequately prepared in their training for satisfactory preventive work, thereby causing erroneous attitudes of early lesions of oral cancer to the initial recognition of malignant lesions, as well as biopsies, thus losing the opportunity of a less radical treatment and a wider cure potentiality. According Wade *et al.*<sup>27</sup> it would be one of the main initiatives that allows dentists to act decisively as the main health care provider for early diagnosis of oral cancer. Corroborating this perspective, Hertrampf *et al.*<sup>28</sup> indicate that little attention has been given to educate the population about the symptoms and risk factors of oral cancer, as well as the possibilities and benefits of an oral examination.

In a study by Patton *et al.*<sup>8</sup>, it was observed that dentists with greater knowledge about the risk factors and early diagnosis procedures are significantly more likely to identify precancerous lesions and refer or take biopsies. Such a situation should refer to the health service an even greater concern with health education activities and other preventive measures since, according to Horowitz *et al.*<sup>29</sup>, early diagnosis is essential for individuals at high risk of the disease.

Although there is a Health Municipal Department program that focuses the disease, further refinement in Fortaleza is still needed, as well as a routine periodic dental examinations and, above all, public information, for truly effective means.

A system of reference and counter-reference that meets the needs of the service in all its complexity is of utmost importance. Fortaleza has three Specialized Dental Care Centers which develop diagnostic services of oral cancer<sup>30</sup> and the guidelines of Fortaleza Municipal Oral Health Policy (2010-2013)<sup>31</sup> signalizes the importance of motivate the active pursuit of mouth cancer effecting actions of prevention and early diagnosis for social groups of higher social biohazard, continuing the permanent education processes for health professionals in the early diagnosis of oral cancer and ensuring Supplies to carry out biopsies in Basic Health Care.

In a recent study of Mendes Junior *et al.*<sup>32</sup> is possible to observe the mobilization regarding the approach to oral cancer in Fortaleza, when is identified the record of 3,143 diagnoses of oral mucosal changes in the year 2012, through routine oral exams in the Family Health Units and in prevention campaigns. However, the authors identify as the greatest difficulties for the dentist approach to oral cancer, insecurity in the clinical management in addition to the demand of services by traditional clinical activities.

Studies indicate the difficulties in the management of secondary health care, particularly with problems to fill the instruments to reference to specialized dental care center, appropriate educational guidance to the patient, difficulties related to the forgetting of the schedule, other appointments (work, meetings, classes etc.), inadequate time and distance with respect to the Health Unit<sup>33-35</sup>. In a study of 613 specialized dental care centers, Goes *et al.*<sup>36</sup> indicated that, by measuring the overall achievement of targets, most regions showed inadequate performance of specialized dental care centers. It is worth emphasizing the Ministry of Health recommends to the Family Health Strategy the routing to reference services at most 20% of clinical care<sup>37</sup>. This approach sets the key role of primary care in making the biopsy, in addition to self-examination guidance, leaving the secondary care situations that require more complex interventions and subsequent reference for hospital service. Therefore, it is a reflection on the responsibility of the dentist's primary care procedures both in health promotion, the prevention of oral cancer, either through educational guidance on self-examination and risk factors, or either from the realization of biopsies on an outpatient basis as effective mechanisms for early diagnosis, as signaled by Silverman<sup>38</sup>.

Regarding educational guidelines, the proper initiatives of the Municipal Health Department

of Fortaleza point to a professional for guidance. Also important is the involvement of public health laboratories for analysis of biopsies, the redefinition of the role of specialized dental clinics in coordinating actions and ensuring access of the most complex cases in specialized hospital units.

With all this evidence, the position of Torres-Pereira et al.<sup>39</sup> of emphasizing that despite the scientific advances about mouth cancer, it is clear that the disease remains a major public health problem, with few effective actions in reducing their incidence indicators and mortality almost all over the world. Thus, we agree with studies that address the need for public policies widely involving governments, managers, health professionals, and the population itself in the conquest of actions that contribute to the actual prevention of oral cancer<sup>40,41</sup>. For this, a discussion regarding changing the care model and training consistent with this new model and new patterns of work sponsored by the Health Strategy are crucial<sup>42</sup>. Despite the significant increase in the number of Oral Health Teams (ESB), especially in relation to population coverage and increased access to dental services, it is still possible to identify great difficulty in modifying the currently existing health care model<sup>43</sup>.

Regarding the health sector, more investment in training of health professionals from primary care to biopsies as could be observed in this study, in addition to intersectoral and multidisciplinary actions are necessary.

## Conclusion

With regard to oral cancer, the dentist inserted in primary care in Fortaleza-CE is able to carry out health education activities (in particular the guidance on self-examination) and early diagnosis, by identifying oral lesions, which are forwarded to the dental specialty centers (CEO). Although clearly identify the relevance of oral cancer mortality in the population, the vast majority of dentists is not equipped to perform the biopsy as a routine activity in the Family Health Units. This type of intervention in primary care may allow a greater understanding of the population about the problem as well as enhance the role of the dentist as responsible for the decline in mortality rates for oral cancer, specific area of performance of this professional. Possibly the prioritization of actions related to tooth decay,

still central in shaping the dentist and prioritized in dental care in primary care, occupy most of the dentist's working time, leading him to disregard their role as the protagonist of actions beyond this pathology. The patients usually sought professional medical help, rather than dental help when a lesion in the mouth appeared, being always referred to a specialist by the dentist, in advanced stages of the disease<sup>44</sup>.

According Santos et al.<sup>45</sup> the dentist must play a major role in the prevention of oral cancer, especially in the levels of primary and secondary prevention, to propose actions to facilitate the recognition of individuals belonging to the risk group and perform practices that seek early diagnosis of injuries suspicions.

In the oral cancer approach, Primary Health Care traditionally performs educational activities on self-examination and early diagnosis. Once identified any change in the soft tissues that indicate the need for biopsy, patient is reported to specialized dental center, which should perform the biopsy. As already identified in several studies, the reference and counter-reference system, by including another stage in patient care, increase the possibility of absenteeism from patient to health service. Because of this, it would be essential that patient could, if possible, perform this procedure in Primary Health Care, which probably would increase the resolution and effectiveness of the Unified Health System (SUS). Despite the prediction that Primary Care can perform biopsies<sup>12</sup>, 100% of biopsies of the soft tissues of the mouth registered (152,651) in the Ambulatory Information System from 2009 to 2014 were carried out in Secondary Care<sup>46</sup>.

Regarding the health sector, more investment in training of health professionals from primary care to biopsies, in addition to intersectoral and multidisciplinary actions are necessary. This need is evident considering the gap left by graduation training, since there was no statistically significant difference in the performance of biopsy in primary care, regardless of the time after graduation of the dentist. Whereas the vast majority of biopsies of the oral tissues is performed as an outpatient, low technological complexity to perform the procedure (physical structure, equipment and materials) and the effectiveness of biopsy in the early diagnosis of oral cancer, it is essential to discuss the possibility of holding this procedure in primary care, allowing act in the early stages of the injury, which can effectively contribute to decreasing mortality from oral cancer.

## Collaborations

LRA Noro participated in study conception, planning and implementation, data analysis, revision of the article, supervising all stages. JR Landim, MCA Martins and YCP Lima contributed to review and writing of the project, collection and analysis of data and in the drafting and revision of this article.

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