

## Evaluation of Teaching Specialty in Head and Neck Surgery in the Curriculum of Medical Courses in Fortaleza, Ceará



Larissa Albuquerque Oliveira<sup>1</sup>, Monalisa Emillene Nunes Ribeiro<sup>2</sup>, Lara Hannyella Gouveia Duarte<sup>3</sup>, Lauhelia Mauriz Marques<sup>4</sup>, Jonatas Catunda Freitas<sup>5</sup>

### ABSTRACT:

**Introduction:** Head and neck cancer is highly prevalent, but most tumors are identified late, compromising treatment, prognosis and patient survival. That is why it is important to include the Head and Neck Surgery discipline in the curriculum of the medicine course, so that trained professionals are able and safe to diagnose these conditions early, thus improving teaching in this area. This study was to analyze the teaching of head and neck surgery in medical schools in the city of Fortaleza, Ceará.

**Development:** This is an observational cross-sectional study in which a structured questionnaire was adopted to the coordinators of each college, in which the institution, curriculum and internship were analyzed. It was observed that only one of the four institutions has a structured HNS service. Only 6% of the total number of interns who completed the medical course attended the HNS during the internship in 2019.

**Conclusion:** It can be observed that there are gaps in the teaching of the specialty of HNS, from the base of academic training, to the surgical services, showing little emphasis aimed at that specialty.

**KEYWORDS:** Head and neck surgery. Cancer. Medical education. Diagnosis.

### 1. INTRODUCTION

The specialty of head and neck surgeries treat oncologic and non – oncologic conditions that develop in the head , scalp, face , paranasal sinuses, nose, mouth, pharynx, thyroid, larynx, parathyroid and lateral structures of the neck and esophagus. Head and neck cancer, in general, is among the sixth most common type of cancer in the world, behind only breast, colorectal, lung, prostate and stomach cancers. In addition, in 2020, 931,931 new cases of the disease and 467,125 deaths were estimated worldwide. In Brazil, the scenario is also worrying. 41,000 new cases are registered per year, however, diagnosis and late treatment are still among the main obstacles to facing the neoplasm, which in 2019 affected more than 13,000 Brazilians.<sup>1</sup>

The largest volume of treatment by the head and neck surgeon is cancer in this region. However, most tumors are identified late, compromising the treatment, prognosis and survival of patients<sup>2</sup>. Delays are often due to the lack of knowledge about these conditions, both by patients and by health professionals - they should instruct patients to look for doctors in a preventive way - and by the barriers of the health system, leading to lack of speed for diagnosis and initiation of treatment<sup>3,9</sup>. That is why it is important to include the Head and Neck Surgery discipline in the curriculum of the Medicine course, so that trained professionals are able and safe to diagnose head and neck disorders early, thus improving teaching in this area<sup>3</sup>. General practitioners need to have at least basic knowledge about diseases that affect this area, such as cervical nodules, parathyroid diseases, thyroid disorders, neoplasms of the mouth, larynx and oropharynx, as well as knowing how to proceed with clinical and endoscopic examinations, tracheostomies and handle emergencies in this area. This is so relevant and important, since head and neck cancer is highly prevalent, as an example, we can mention cancer of the oral cavity, which is the fifth most prevalent cancer in the Brazilian population. There are an estimated 11,180 new cases of the disease in men and 4,010 in women for each year of the triennium 2020-2022<sup>3</sup>. Another point to be highlighted is that neoplasms related to this area, such as mouth and oropharynx cancer, have high mortality and low survival rates, especially if discovered late, requiring early approaches in such situations. Another example to be mentioned is thyroid cancer, in which it is estimated that every three years 2020/2022, 13,870 new cases of the neoplasm are diagnosed, with an increase in mortality of 0.6% per year. Therefore, it is important that general practitioners leave with good training and knowledge about the area, in order to know how to diagnose these conditions early<sup>9</sup>.

## Evaluation of Teaching Specialty in Head and Neck Surgery in the Curriculum of Medical Courses in Fortaleza, Ceará

Thus, the study proposed to analyze the teaching of head and neck surgery in medical schools in the city of Fortaleza, Ceará.

### 2. METHODOLOGY

This is an observational, qualitative and analytical cross-sectional study using a structured questionnaire (Appendix A) to the coordinators of Medicine courses. The sample was selected from the census type, and all faculties of medicine located in the city of Fortaleza-Ce were approached, from April 2020 to October 2020. The four faculties in Fortaleza were approached: Centro Universitário Christus (Unichristus); University of Fortaleza (Unifor); Federal University of Ceará (UFC); Ceará State University (UECE). Data were collected as follows: the researchers went to each of the faculties, took the questionnaire, met with the coordinator responsible for the medical course, and the questionnaire was answered by the coordinator, according to with the specific curriculum of each university. The present study had as inclusion criteria the questionnaires duly answered by the coordinators and /or responsible for the curriculum of each institution, and faculties that refused to participate in the research were excluded. The curricula of each medical course were analyzed, seeking to know if there is an exclusive module for the head and neck specialty in the basic cycle, the workload, if there are theoretical classes and experience and if the professor responsible for the discipline is an expert in the field, invited or hired. If the subject offered is optional, the percentage of students taking it was analyzed. If there was not an exclusive specialty module, it was investigated in which modules the classes on oral cancer, thyroid and parathyroid cancer, skin cancer, cervical lymph node enlargement, salivary gland tumors and congenital diseases of the neck are included; as well as the qualification of the teachers who teach these classes. Data were also collected on the experience of the head and neck discipline at the boarding school. An analysis was made if the faculties offer the student the possibility of going through the head and neck, or if only when the student is interested in the specialty.

Specific data for each of the colleges, such as type, whether public or private, year of foundation of the medical course, year of foundation of the college, undergraduate and internship workload were collected and recorded in a spreadsheet (Microsoft, Seattle, USA). The sample of this study consisted of a structured questionnaire and characterized in absolute (n) and relative (%) terms. Statistical calculations were performed using the SPSS 20 program (SPSS INC., Chicago, IL, USA), and the significance level of 5% was adopted.

### 3 .RESULTS

#### 3.1 - Profile of the institutions studied

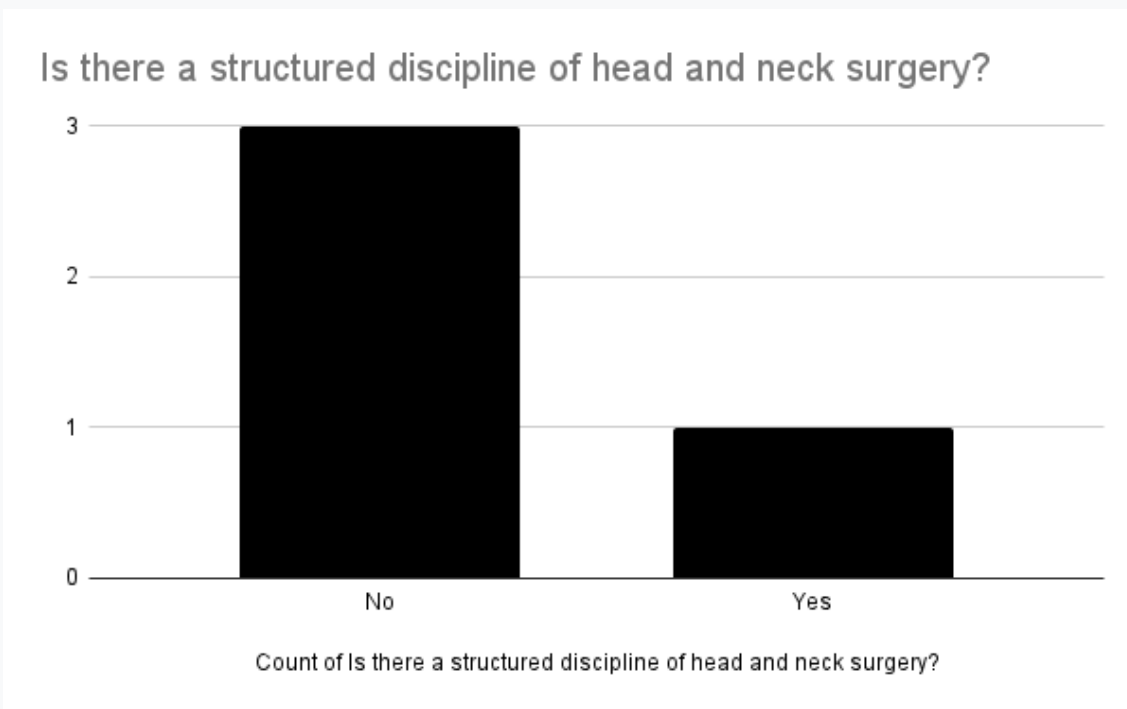
As a source of information, four medical teaching institutions, two public and two private, were analyzed. Both have similar undergraduate and internship hours. (Table 1)

Table 1. Characteristics of universities.

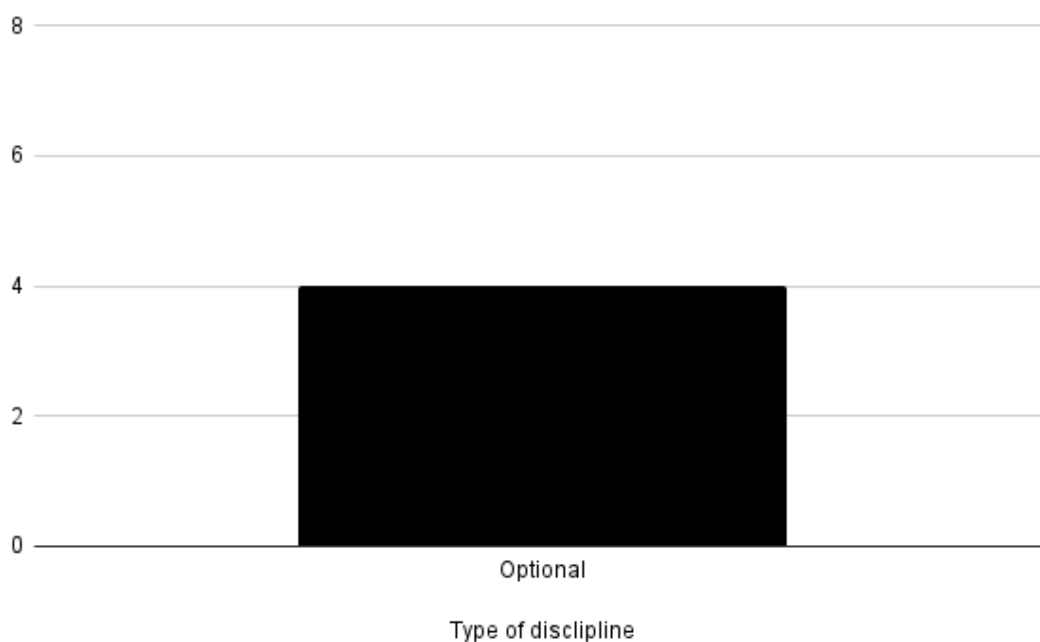
	Type	No. of Formed Classes	Founded in	Graduation workload	Boarding school hours
Institution A	Private	18	2006	8.532	3.960
Institution B	Private	17	2006	8.042	4.014
Institution C	Public	12	2002	8.428	3.840
Institution D	Public	115	1948	8.296	3.840

Regarding the specialty of Head and Neck Surgery, a survey was carried out about the existence of a structured service on this area in the preceptorship, the presence of a specialist, the option to offer the discipline during the internship period, in addition to observing if there is a mandatory module in the analyzed institutions, see (Graphs 1, 2 and 3).

Graphic 1:



Graphic 2:



**3.2 - Analysis of the curriculum of educational institutions**

In the institutions evaluated, only one university (25%) has a structured HNScourse, which is mandatory in the curriculum. Of the other three institutions that were evaluated, two present dialogic expositions on some topics, but are addressed in other disciplines such as endocrine, dermatology, surgery and oncology. And a university has the optional subject, not being mandatory for the curriculum. The topics covered in the area are head and neck neoplasms, surgical diseases of the parathyroids, skin cancer, laryngeal cancer, nodules, goiter and thyroid cancer. However, it was not found in any institution that addressed in a dialogic exhibition the topics of: cancer of the mouth, oropharynx, salivary glands and congenital diseases of the neck, thus showing how incomplete the medicine curriculum is in relation to such matters. . (Table 3).

Workload focused on the discipline structured in HNS at the recommended institution – 40 hours.

At the University that had the optional subject, only 15 total students chose to take the subject between 2018 and 2020.

## Evaluation of Teaching Specialty in Head and Neck Surgery in the Curriculum of Medical Courses in Fortaleza, Ceará

In none of the universities evaluated, there is no practical experience or internship focused on HNS, the practical part being seen in the internship, however, only for students who decide to run in this area.

Regarding professors, in two institutions these topics are given by HNS professionals, and in the other two, such topics are addressed by professionals from other areas such as endocrine, dermatologist and oncologist. And in none of the institutions is there a preceptor specialist in HNS in the internship.

**Table 3 - Classes offered by related undergraduate institutions: with head and neck themes**

Classes:	Number of institutions offering:
Head and neck tumors	75%
Surgical skin cancer parathyroid diseases	75%
Laryngeal cancer	50%
Nodules, goiter and thyroid cancer	100%
Cervical lymph node enlargement and differential diagnosis of cervical masses	25%
Cancer of the mouth, oropharynx, salivary gland tumors	0
Congenital neck diseases	0

### 3.3 - Analysis of the internship system

According to collected data, in 2019 the number of interns who attended the specialty of Head and Neck Surgery was a total of 27 students, corresponding to 6% of the total of interns who completed the medical course in that same year.

Table 1 - Internship in head and neck surgery	
Total Graduates in 2019	452
Total seats available for elective in CCP	56 (12,38%)
Interns who ran in CCP	27 (6%)

**Table 2 - Annual number of interns by specialty in 2019 at a tertiary health philanthropic institution in Fortaleza - Ce**

	Number of Interns at the Philanthropic Institution
<b>Internal in the surgical clinic</b>	<b>207</b>
<b>Interns who have gone through the head and neck surgery</b>	<b>8</b>
<b>Internal in the medical clinic</b>	<b>245</b>
	<b>Total: 452</b>

The curriculum of the medical faculties of Fortaleza still has gaps in the teaching of this specialty, many relevant topics, such as mouth and oropharynx cancer, congenital neoplasms of the neck and salivary gland cancer are not addressed in the institutions, generating a great lack of knowledge about pathologies that have high prevalence of learning, because through them, future

## Evaluation of Teaching Specialty in Head and Neck Surgery in the Curriculum of Medical Courses in Fortaleza, Ceará

professionals learn how to proceed with patients with such diseases, knowing how to perform a physical examination, diagnose and manage them, do not occur and are not part of the curriculum, thus culminating in a serious deficiency in the knowledge of future professionals. And in relation to the internship, few students are interested in working in the specialty, precisely because of this lack of knowledge, and mortality. In relation to experiences, practices and internships, which are important ways, then, many professionals leave college, really without having the general knowledge of the specialty, causing harm to the health area, since many patients cannot even have the correct diagnosis. of the pathology, and consequently, there is an increase in mortality due to these conditions. Therefore, cases are increasing along with morbidity and mortality.

### 4. DISCUSSION

A large portion of the population is unaware of the specialty of head and neck surgery. Furthermore, several doctors share this lack of knowledge. These, in addition to knowing little about these highly prevalent diseases such as thyroid nodules, mouth and pharyngeal cancer, also do not know which specialist to refer the patient afflicted by these conditions<sup>4</sup>. This is due to the limited offer of the subject of head and neck surgery at graduation, which can stigmatize and make the specialty less attractive for the vast majority of students. to search for it on their own<sup>5</sup>.

In addition, in many medical institutions, despite the existence of a specialty group, and some dialogued presentations that are held within the curriculum, the contents are taught in a divided and separate way, taking place in disciplines such as general surgery, otolaryngology, oncology, dermatology, endocrinology, among others, with, in most cases, not having a specific module focused on this specialty, or even that these classes are taught by the professional in the area<sup>6</sup>.

According to BONFANTE et al<sup>1</sup>, the discipline of head and neck surgery is a medical specialty with little emphasis on graduation, in most university education institutions, with only a structured service for the discipline of Head Surgery. and Neck in only one of the studied institutions, in addition to not having a specialist tutor in this area in three of the analyzed institutions, thus emphasizing the existing gap in the base of the medical student's academic education.

This is due to the fact that this area covers pathologies that are also linked to other areas such as oncology, dermatology, endocrinology, otolaryngology, general surgery, so these subjects end up being addressed in these disciplines, which means that there is no exclusive discipline for this area in the medical curriculum. Another reason would be the low number of professionals in this area, precisely because of this lack of knowledge, since other professionals such as a general surgeon can perform the same procedures as a head and neck surgeon. In addition, when patients are diagnosed with such pathologies, they usually end up being referred to other specialists in the medical field, mainly oncology and general surgeons<sup>10</sup>.

The two medical specialties most closely related to HNS are oncology and general surgery. Many general practitioners, when faced with pathologies that involve such areas, usually refer them to one of these two areas, precisely because in the curriculum, these areas had a specific discipline, with experiences, which makes these professionals have, at least, general knowledge about these specialties. In addition, within the medical residency program, residents of these areas are trained to perform the surgeries and procedures that should be performed by head and neck surgeons, thus reducing the demand for their own specialty.<sup>9,10</sup>

It can be observed that of the four institutions analyzed in our study regarding the content of the curriculum, none of them specifically addresses, in dialogued exposure, classes on mouth cancer, oropharyngeal cancer, salivary gland cancer and congenital neck diseases, being pathologies of high prevalence and mortality. As an example, we can mention mouth cancer, which is closely related to alcoholism, smoking, poor oral hygiene, malnutrition and HPV, which has contributed to the increase in its incidence and severity, and due to the fact that it is not addressed properly during the course. in college, many general practitioners do not usually examine the mouth of their patients, who sometimes may already have a small lesion that goes unnoticed at the time of the consultation. When the severity of the injury increases, where it begins to affect other areas of this region, that is when the patient seeks the doctor, and it is precisely during this period that the diagnosis and treatment may or may not be done correctly. But the stage of the neoplasm is already advanced, and the chances of cure decrease, so the mortality from this disease is still so high, due to this late approach.<sup>9,10</sup>

Thus, many medical schools lack a specific module in this area. Thus, it is important that specialists in the field linked to Universities make their colleagues recognize the importance of a course with head and neck surgery during graduation<sup>7</sup>. Even with a restricted workload, not breaking down the specialty contents into other disciplines should promote better fixation by the students and enable better future management of these suffering patients. The proportion of services restricted to cancer hospitals, without a university link, with an emphasis on graduate *Latu Sensu*, that is, medical residency, is not negligible<sup>8</sup>.

And yet, after graduation, only those who undergo general surgery will be required to intern in head and neck surgery. A large part of this problem stems from a mistaken interpretation of the Curriculum Guidelines of the Undergraduate Course in Medicine, which recommends generalist training. The physician must have a good general education during his graduation, but this does not

## Evaluation of Teaching Specialty in Head and Neck Surgery in the Curriculum of Medical Courses in Fortaleza, Ceará

mean that he should only know general contents. During graduation, they must have contact with several specialties and learn from specialists the most prevalent conditions in that area. Second, SBCCP6, no one aims to train graduate specialists, but teaching the contents of head and neck surgery will certainly contribute to meeting the requirements of the Guidelines.

A relevant issue in our study is that 100% of the faculties that were analyzed in this work, none of them present a subject in this area as mandatory, only one has as an optional activity, that is, several important topics are not properly covered in the curriculum, such as cancer mouth, oropharynx and salivary glands, which further corroborates the precarious medical education in relation to this specialty.

Regarding the analysis carried out, specifically, in a tertiary health philanthropic institution in Fortaleza, Ceará, which receives students in the internship of a private educational institution among the four analyzed, our study observed that, in 2019, 207 students from the internships took place in the surgical clinic/general surgery, only eight of these were in HNS, which is equivalent to that only 4% of the trainees took part in this area in the internship, specifically, in that institution. According to the information collected, the students were awarded the rotation in the HNS specialty through drawings.

In addition, in 2019, the number of interns who studied in the specialty of Head and Neck Surgery was a total of 27 students, corresponding to 6% of the total interns who completed the medical course in that same year, thus showing, the low percentage of rotation in this specialty. The total number of places made available in Fortaleza by health institutions that receive students in the internship corresponded to the number of 56 places and the calculated probability of the intern running in head and neck surgery, according to the places made available in 2019, was 12.32%.

In other countries, such as the USA, it is possible to learn about all medical areas, including HNS, since there are specific modules for each area, experiences and practices, thus, a complete education, in which general practitioners know all areas of medicine, knowing how to act and proceed in each of them. Therefore, the prevalence of these conditions related to this area is low.<sup>10</sup>

Finally, it is necessary for the faculties of medicine to review the medical curriculum, and try to include this area of HNS as a form of compulsory subject, with experiences, internships and practices, addressing all relevant topics in this area, in addition, teaching also to future professionals to know how to do an anamnesis and physical examination directed to this topic in order to, in the future, know how to handle and proceed in the face of situations involving this area. And in relation to the internship, it would be interesting to put preceptors in this area to encourage students to rotate and experience this specialty better in practice.

## 5. CONCLUSION

With this study, it is possible to observe the existence of gaps in the teaching of the specialty of Head and Neck Surgery, from the base of academic training, to the surgery services, which, for the most part, do not have a structured service for this area, evidencing the little emphasis given to this specialty.

In addition, the low percentage of HNS vacancies offered by the surgical services was observed, as well as the low adherence of students to the HNS rotation, which corresponded to 6% of the interns graduated in the same period, which can make the specialty more unknown and less attractive for the vast majority of students, which directly reflects the lack of training of general practitioners in knowing how to diagnose and refer cases of head and neck cancer, a highly prevalent condition. Thus, we suggest new studies that address the internship population more specifically, in addition to expanding the study to other medical institutions in the state of Ceará and even across the country.

## REFERENCES

- 1) Bonfante GM. Five-year survival and factors associated with oral cancer in patients undergoing outpatient cancer treatment by the Unified Health System, Brazil. *Public Health Cad.* 2014;30(5):983–97.
- 2) Le Campion NA. Characterization of delayed diagnosis of oral and oropharyngeal cancer in two reference centers. *Cad health collect.* 2016;24(2):178–84.
- 3) Ligier K, Belot A, Launoy G, Velten M, Bossard N, Iwaz J, Righini CA, Delafosse P, Guizard AV. Descriptive epidemiology of upper aerodigestive tract cancers in France: incidence over 1980-2005 and projection to 2010. *Oral Oncol.* 2011;47(4):302–307.
- 4) MoroJU .Oral and oropharyngeal cancer: epidemiology and survival analysis. *Einstein (São Paulo).* 2018;16(2): 1-5.
- 5) Oliveira JL,Souza SV. Experience report in the monitoring activity developed in the discipline of basic stage of observation of development: a text written with four hands. *Academic Cad.* . 2012;4(1):35–46.
- 6) *Rev.Bras.C.C.P/S.B.C.P.* 2009; 23(3) – revista completa
- 7) Warnakulasurya SA. Global epidemiology of oral and oropharyngeal câncer. *Oral Oncol.* 2009;45:309–16.

## Evaluation of Teaching Specialty in Head and Neck Surgery in the Curriculum of Medical Courses in Fortaleza, Ceará

- 8) World Health Organization (WHO). Policies and managerial guidelines for national cancer control programs. Rev Panam Salud Publ. 2002;12(5):366-70.
- 9) AMERICAN CANCER SOCIETY. **Cancer facts & figures 2019**. Atlanta: American Cancer Society, 2019.
- 10) INSTITUTO NACIONAL DE CÂNCER JOSÉ ALENCAR GOMES DA SILVA. Tipos de câncer. Rio de Janeiro: INCA, 2019. Disponível em: <https://www.inca.gov.br/tipos-de-cancer>.



There is an Open Access article, distributed under the term of the Creative Commons Attribution – Non Commercial 4.0 International (CC BY-NC 4.0) (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits remixing, adapting and building upon the work for non-commercial use, provided the original work is properly cited.