

Biossegurança em fonoaudiologia

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ABSTRACT

Purpose: research, among a group of speech pathologists, the degree of knowledge and use of standards of biosafety in clinical routine. **Method:** a survey was conducted through a questionnaire answered by one hundred professionals from different areas (Clinical Audiology, Occupational Audiology, Voice, Neonatology, Language, Orofacial Motricity and more than one performing area). Each item, responded in a positive way, corresponding to 1 or 2 points and the maximum score (100%) corresponding to 80 points. The responses were analyzed and the found scores were standardized, or converted into percentage index indicating its performance. The percentage value of each questionnaire could vary from 0 to 100%, and the greater the percentage obtained, the more knowledge and applicability of standards of biosafety professionals in the clinical routine. Tracks were taken (0-25%), (26-50%), (51-75%) and (76-100%) to distinguish the level of knowledge and application of precautionary measures by the participants. **Results:** of one hundred speech therapists assessed by the questionnaires (100%), 1% obtained the percentage in the range (0 to 25%), 45% (26 to 50%), between 50% (51 to 75%) and 4% (76 to 100%). **Conclusion:** the most of the professionals who participated knows and applies biosafety measures.

KEYWORDS: Exposure to Biological Agents; Occupational Risks; Speech, Language and Hearing Sciences

■ **INTRODUCTION**

The Federal Council of Speech, Language and Hearing Sciences published, in 2007, the "Biosafety Manual on Measures Control of Infection for speech

therapists". The manual defines Biosecurity, as the set of actions geared towards the prevention, minimization or elimination of health risks of professionals, its customers and the environment ¹. As well as in one of the studies of literature, the document also addresses items such as immunization of health professionals hand hygiene, the use of individual protection equipment, surfaces processing, processing of articles, among others ^{1,2}.

In Brazil, biosecurity is regulated by Law N^o 11.105, of March 25, 2005, which provides for the National Biosafety Policy. This revoked the Law N^o 8.974/95, that Instituted the National Biosafety technical Commission (CTNBio), responsible for compliance with the prevailing Law ³.

The environmental risk prevention program – PPRA is required by law and should contain identification of biological hazards more likely, depending on the geographic location and characteristics of health and service sectors. Biosecurity measures are used in accordance with the risks presented ⁴. Two studies highlight that the actions of biosafety and bioethics isn't just in prevention and control

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standards accompanied of alterity. They require individual educational training that facilitates interpersonal relationship at work and can develop concrete actions and accountable, providing greater confidence and safety in various health sectors^{5,6}. It has also been found in the literature a study that examines the limitations of the concept of biosecurity, which comes from the premise that public health risks can be identified, assessed and controlled by science. However, the concept of post-normal Science is based on the concepts of uncertainty and complexity of risks discarded by normal science and features as a resolution of this problem the participation and mutual learning of various social groups involved in environmental issues and health⁷.

Professionals are exposed to various occupational hazards, such as, the physical, chemical, biological hazards, ergonomic and accidents. Some studies are especially focused on biological risks. Occupational exposure to biological materials enables the transmission of pathogens that can cause illnesses such as HIV, hepatitis, diphtheria, tetanus, tuberculosis, among others, representing a risk for workers⁸⁻¹¹. Epidemiologically those risks are not established in speech therapy yet. It is known, however, that this can occur to the professional and vice versa, since, at the time of speech therapy, there is exposure to microorganisms present in saliva, blood and oral, nasal and hearing mucous membrane¹². The analysis made in the literature demonstrates that the most common infections in the oral manipulation are: bacterial infections, viral infections and fungal infections^{12,13}.

Audiological field in practice, contamination can be through of equipment used in conducting audiological tests that in contact with the skin of the individual, can be contaminated with microbial flora present on auditory Pavilion and/or external acoustic meatus (headphones, electrodes, irrigation cannula, speculums or olives). Earwax can also be regarded as infectious substance¹⁴.

The routes of transmission of diseases are: by direct contact with infectious lesions (blood or saliva contaminated) that is transfer between a possible host and an infected individual-and by indirect contact (transfer of microorganisms present in contaminated objects, by contaminated

secretions spatter and transfer of micro-organisms for aerosols)¹⁵.

The result of a study shows that professionals do not remove (rings, wedding bands, watches and bracelets), don't wet their hands before applying the liquid soap, do not perform the correct friction of nails, interdigital, palms and wrists and don't rinse in the direction of the hands for the elbows, unfortunately the habit of hand washing has a low adhesion by health professionals¹⁶. The biggest challenge is in neonatology units, in which the infectious processes are mainly responsible for the high morbidity and mortality^{17,18}. Yet there are few studies on the impact of coats, but some researches reveal the risk of infection through these, when used inside and outside of clinical environments^{19,20}. In addition to the personal hygiene care of the professionals, it is important to prioritize the environment clean, since the transmission of hospital-acquired infections, or environmental crusade is facilitated by the survival of microorganisms in dry surfaces that can be favored by the presence of biological fluids. Cleaning tange sanitary and hygienic techniques and results in the removal of dirt, organic matter and greasiness, reducing microbial load²¹⁻²⁴.

Most of the professionals interviewed, answered the questionnaire, which acquired knowledge about biosecurity at graduation.

Considering that there are few studies about specific precautionary measures for performance, this study aims at analyzing a group of speech therapists, through a questionnaire, the degree of knowledge on the recommendations and procedures of Biosafety such as individual immunization, hand hygiene, use of personal protective equipment, proper management of waste and processing of articles and surface in clinical routine.

■ METHODS

On hundred speech therapists were invited to participate in the survey. They were chosen at random, these professionals work in the areas of Audiology, Occupational Audiology Clinic, voice, Neonatology, language, motor skills and Orofacial which act in more than one area. They have filled a questionnaire of biosafety composed of items and subitems, of forty-three issues, with a choice of answers "Yes" or "no" (Figure 1).

Search for completion of the specialization course in Clinical and occupational Audiology – CEFAC

Name (optional): _____ Sex: () F () M

Area of expertise: () Orofacial Motricity () Voice () Clinic Audiology
() Audiology Occupational () Language () Public health

Location of activity: () Private clinic () public hospital () private hospital () Home care () Health center
() Other

Training time: () less than 1 year () 1 to 5 years () 6 to 10 years () more than 10 years

Questionnaire on Biosafety

1- Remove (rings,wedding bands,watches and bracelets) before the attendance?
() Yes () No

2- Hold the hair for the attendance?
() Yes () No

3 – Personal Hygiene:

3.1 – Long nails () Yes () No
3.2 – Press-on nails () Yes () No
3.3 – Use of nail varnish () Yes () No

Using nail varnish:

3.4 – Light color () Yes () No
3.5 – Dark color () Yes () No
3.6 – Strip cuticles? () Yes () No

4- Baths immediately after the attendances?
() Yes () No

5 – General health:

5.1 – Meets with injuries on the skin? () Yes () No
5.2 – Meets with cold influenza? () Yes () No
5.3 – If Yes: wear a mask? () Yes () No

6 – How do you dress for the attendance:

6.1-Short dresses () Yes () no
Long dresses () Yes () no
Bermuda () Yes () No
Low-cut clothing () Yes () no
6.2- Closed-toe shoes () Yes () no
6.3- Trousers () Yes () no

7- Wash your hands:

7.1 – Before attendance? () Yes () No
7.2 – During attendance? () Yes () No
7.3 – After attendance? () Yes () No
7.4 – In front of the patient? () Yes () No

8 – Wash your forearms:

8.1 – Before the attendance? () Yes () No
8.2 – During attendance? () Yes () No
8.3 – After the attendance? () Yes () No
8.4 – In front of the patient? () Yes () No

9 – Use cosmetics (makeup, perfume...) before the attendance?
() Yes () No

10 – Take vaccines preventable diseases periodically?
 Yes No

11 – Use daily:
 11.1 – Apron/lab coat Yes No
 11.2 – Uses other PPEs:
 Bonnet Yes No
 Mask Yes No
 Gloves Yes No
 Goggles Yes No
 Trainers Yes No
 Lab coat:
 11.3 – Wear out of the workplace? Yes No
 11.4 – After use, put into plastic packaging? Yes No
 11.5 – After removal is transported inside out in plastic packaging?
 Yes No
 11.6 – Wash separately from other clothes? Yes No

12 – Check daily hygiene:
 12.1 – Room Yes No
 12.2 – Equipment Yes No

13 – Clean equipment for every patient?
 Yes No

14 – Keep the natural ventilation of the environment while not in attendance?
 Yes No

15 – Is there a sink in the work-place?
 Yes No

16 – You use for disinfection:
 Container with 1% sodium hypochlorite for dip of 30 minutes followed by rinsing and alcohol 70% applied on friction, leaving dry and repeating the operation for three times (approximately 30 seconds of contact across the surface of the equipment)?
 Yes No

17 – Is there exclusive room for cleaning/disinfection/sterilization of equipment?
 Yes No

18 – Use scented disinfectant in the environment?
 Yes No

19 – Your furniture are:
 Wood Yes No
 Fabric Yes No

20 – Use in work-place:
 Liquid soaps Yes No
 Paper towels Yes No

21 – Apply the anamnesis in patients, in order to know their previous and current history, as well as to be able to adopt available measures in case of infections during attendance? Yes No

22 – Did you have Biosafety lessons in your graduation?
 Yes No

Suggestions: _____

Figure 1 – Questionnaire on Biosafety

The questionnaire was distributed during the period from May to July 2010, via email or in person, without inducing answers. All were told to respond with sincerity and without prior consultation to the relevant material.

Questions were raised about the removal of (rings, wedding bands, watches and bracelets) the attendance hair tied, overall health, clothing, use of cosmetics, vaccination, care of personal hygiene, use of PPEs, cleaning of the hands and forearms, cleaning of rooms and equipment, natural ventilation, disinfection procedures, use of deodorizers and scented disinfectants, furniture, environment, application of anamnesis and lessons biosecurity at graduation.

It was adopted in the questionnaire a point system; that is hygiene-related issues (personnel, equipment and environment), health, clothing, application of anamnesis in all patients and if biosecurity in the graduation class had had the value of 2 points; the other issues, 1 point, being the maximum score (100%) corresponding to 80 points. The responses were analyzed and the scores found, standardized, that is transformed into percentage scores indicating their performance. The value of the percentage of each questionnaire could vary from 0 to 100%, and the higher the percentage, the larger the obtained knowledge and applicability of biosecurity standards by professional in their clinical routine. The tracks were employed (0-25%), (26-50%), (51-75%) and (76-100%) to distinguish the level of knowledge and adoption of precautionary measures of each participant. In the end, it was elaborated a table, considering as a universe of study the set of 100 professionals distributed according to the area of expertise. Based on the results obtained in each questionnaire, the number of professionals in each track can be determined, as well as its percentage in relation to the Group of its area of operation.

The bibliographic material used in this study was published in the period between 2006 and 2010 and purchased in the databases LILACS (Latin American and Caribbean Literature on health sciences),

SCIELO (Scientific Electronic Library Online) and MEDLINE (Medical Literature Online). The survey was in Portuguese and English languages, with the keywords: "biosecurity"; "biological fluids"; "occupational hazard".

The study had the approval of the Research Ethics Committee of the Centre of expertise in speech therapy Clinic, under number 061/10, regarded as without risk and in need of an informed consent.

The data were grouped, sorted, transferred to a database (Excel) and then processed. A descriptive statistical analysis was performed for the characterization of the subject. In the first step, the score of each interviewee and the percentage was obtained by applying the rule of three using the gross score questionnaire and the score obtained by the respondent. Then applied again the same rule using the total number of respondents per practice area and the number of professionals according to the range of knowledge and implementation of precautionary measures. Through these findings might be noted the percentage of professionals by area of expertise who know and use the biosecurity measures in their clinical routine.

■ RESULTS

For the realization of the survey were approached 100 speech therapists of different States, acting in the areas of Audiology, Occupational Audiology Clinic, voice, Neonatology, language, Orofacial Motricity and with more than one area of expertise.

Figure 2 presents the number of positive responses, negative and blank each issue addressed in the questionnaire of biosecurity.

The results that best describe the knowledge of this population about biosecurity standards are described below.

In the area of Audiology Clinic, of twenty-eight professionals who participated, 1

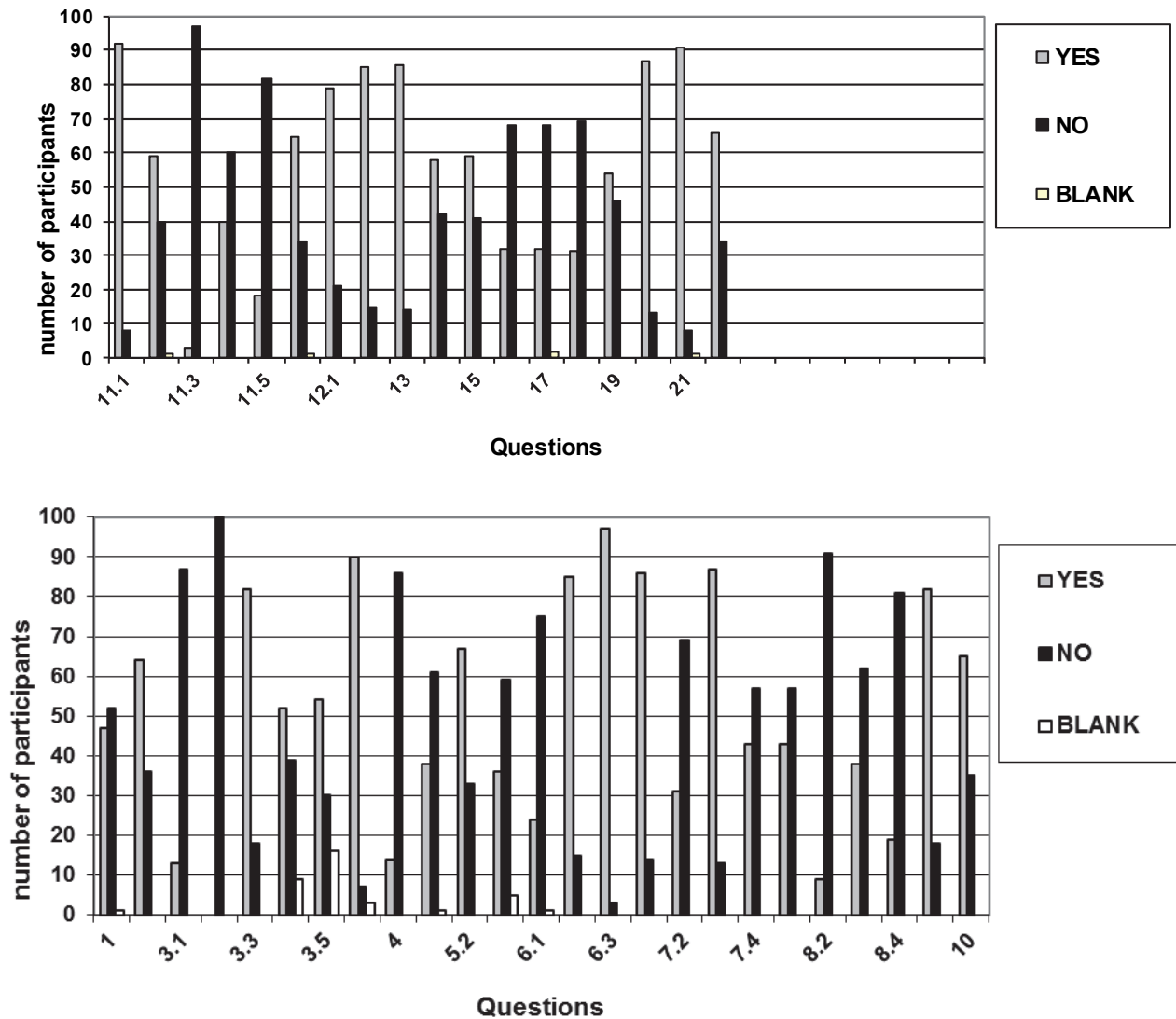


Figure 2 – Statement of questionnaire replies of biosecurity

(3.6%) had the percentage of questionnaire in the range (0 to 25%); 17 (60.7%), in the range of 26 to 50 (%) and 10 (35.7%) between (51 to 75%). With the six Occupational Audiology professionals, the result was divided into 3 (50%) in the range of (26 to 50%) and the other 3 (50%) between (51 to 75%). Of 3 respondents who work with voice, 2 (66.7%) were between 26 and 50 (%) and 1 (33.3%), between (76 to 100%). In neonatology, five respondents, 1 (20%) was among the 26 (50%), 3 (60%) between (51 to 75%) and 1 (20%) between (76 to 100%). Of the total of five respondents in the area of language, 3 (60%) were between 26 and 50 (%) and 2 (40%), in the range of (51 to 75%). In the case of Orofacial Motricity eighteen participated, being the result: 3 (16.7%) between (26 to 50%), 13 (72.2%) in the range of (51 to 75%) and 2 (11.1%) in the range of (76 to 100%). Finally, the thirty-five who work in

more than one area, 16 (45.7%) had the proportion between (26 to 50%) and 19 (54.3%) between (51 to 75%) (Table1).

Other pieces of information of the questionnaire were also evaluated, such as, the level of knowledge and implementation of biosafety standards, it was observed that the professional who had the percentage of questionnaire in the range of 0 to 25% is in the area of Audiology Clinic, works in private clinic and have between one and ten years experience. Similarly, most professionals between 26 to 50% are also of Audiology Clinic, work in private clinic, however with more than ten years of graduation.

Those who had their percentage range of 51 to 75% work in more than one area, work in private clinic and has between one and five years of graduation. Those who are between 76 to 100% are mostly

Table 1 – Indicators of Knowledge and application of the rules on Biosafety by the professional interviewed according to area of expertise

AREA OF PERFORMANCE	Nº OF PROFESSIONALS INTERVIEWED	TRACK OF (0-25%)	TRACK OF (26-50%)	TRACK OF (51-75%)	TRACK OF (76-100%)
Audiology Clinic	28	1(3,6%)	17(60,7%)	10(35,7%)	
Occupational Audiology	6		3 (50%)	3 (50%)	
Voice	3		2 (66,7%)		1(33,3%)
Neonatology	5		1 (20%)	3 (60%)	1(20%)
Language	5		3 (60%)	2 (40%)	
Motricity Orofacial	18		3 (16,7%)	13 (72,2%)	2(11,1%)
Over an area of performance	35		16(45,7%)	19 (54,3%)	
Grand Total	100	1	45	50	4

professionals working in Orofacial Motricity, working in Hospital and private clinic and has between one and five years of graduation.

■ DISCUSSION

Currently, the speech therapy practice faces several possibilities that are not only related with the work environment, but also with different materials and procedures. Thus, it becomes necessary that each professional must have more responsibility with his own health and safety as well as his patients.

According to the results presented above, it is observed in Figure 2 that most professionals interviewed follow the biosecurity measures. However, some answers were used as target for discussion.

Figure 2 shows the overall responses given by audiologists interviewed in each issue of the questionnaire of biosecurity. In question 1, on the removal of (rings, wedding bands, watches and bracelets), 52 respondents negatively, 47 positively and 1 did not respond. According to the literature, it is recommended the removal of (rings, wedding bands, watches and bracelets) during the attendance, because of the accumulation of microorganisms, which characterizes risk of cross-contamination^{2,4, 14, 16}. In this study, it was observed that most professionals interviewed do not follow this recommendation. Most of professionals who do not remove the things mentioned above, act in the area of Clinical Audiology and occupational. In addition, some of the respondents who do not remove (rings, wedding bands, watches and bracelets), responded

in question 22 of the questionnaire did not have class on biosecurity.

In question 3.3, on the use of nail varnish, as shown in Figure 2, 82 respondents that use nail varnish and 18 not use, already in question 3.5, 54 responded that use dark nail varnish and many work in the area of Orofacial and Motricity in neonatology. The use of dark Nail Polish increases the risk of contamination and exposure to microorganisms, which should be avoided according to the literature, because it makes the viewing of dirt^{2,14}. This risk becomes even greater in neonatology Units, in which patients have immature immune system¹⁷.

In question 5.2, according to figure 2, 67 respondents answered that they work, even when they have a cold and don't wear protective masks. The air is one of the main way of disease transmission by droplets and aerosols, so the use of protective mask².

In Figure 2 there is another aspect, the replies given in the questionnaire issues 7.1 and 7.3, about hand washing is made by most respondents just before and after the patients' examination. This sanitation could also be held during therapy and in front of the patient, appreciating the careful with this. But, as the result of 7.2 issues, 69 responded that don't wash their hands during the examination and in question 7.4, 57 don't wash their hands in front of patients. In addition, it is also recommended the neatness of the forearms^{2,14}, which according to the responses, the majority of respondents did not do it at all.

With respect to the procedure used after using the lab coat, point 11.4 of the questionnaire, as

shown in Figure 2, 60 professionals interviewed replied that don't keep the coat in plastic bags and in question 11.5, 82 responded that transportation is not made inside out. The recommendation is that the coat should be used exclusively in the workplace and after the working, he should be transported inside out in plastic packing ².

As for question 16 of the questionnaire on the use of sodium hypochlorite for disinfection of articles, 68 respondents do not use this product. In literature there is a recommendation of sodium hypochlorite for disinfection of intermediate level of articles ², therefore other options of substances were not given, in order to obtain the amount of knowledge and use of this procedure by participating professionals.

In addition to the comments on the responses it was also observed in Table 1 that the professionals who had the knowledge of standard precautionary measures between 76 to 100%, are those who have, according to information gathered in the questionnaire, between one and five years of experience, which leads us to reflect if the responsibility with biosecurity decreases while the length of attendance of the professional increases or those who graduated a long time ago did not have this content at graduation.

The questioning about the effectiveness of the guidelines given the about Biosafety should be done. The guidelines must be given to the academic, in a didactic manner, so that the future professional can be able to practice them, and so, client and professional can be adequately protected and informed about the practice. It is important for the professional to be aware of the updates on the biosecurity standards, because new and great challenges appear every day.

The fact that the Professional does not pay attention to such precautionary measures like immunization, proper hygiene of the hands, use of personal protective equipment, proper management of healthcare, waste-Sharps disposal, processing of

items and surfaces, may cause what is usually called cross-infection, which disseminates pathogenic microorganisms to the patients professional, other professionals, families, and hospital environment. This is certainly a bad habit, with unforeseen consequences.

It Would fit here other discussions; However, these were cited in various areas and were considered very important.

It is hoped that this study will serve as a reflection to the professionals who participated in the survey and to all those who have access to it.

■ CONCLUSION

This research leads to the conclusion that most professionals interviewed know and apply the biosecurity measures, however, it is important to focus on the hundred professionals who participated in the survey, only 4% follow satisfactorily such measures. This result leads to reflection that even some actions have been performed, others can have been discarded or not used properly for example: the personal care (a good personal hygiene, remove rings, wedding bands, watches and bracelets before attendances, avoid using dark Nail Polish ...), use individual protection equipment and have the same care, make the correct washing of hands and forearms, make the process of disinfection and sterilization of articles properly, etc. It is relevant to the professionals ' statement on biosecurity standards in undergraduate period and promoting more studies on specific precautionary measures for speech therapy.

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RESUMO

Objetivo: pesquisar, entre um grupo de fonoaudiólogos, o grau de conhecimento e utilização das normas de biossegurança na rotina clínica. **Método:** foi realizada pesquisa por meio de um questionário respondido por cem profissionais de diferentes áreas de atuação (Audiologia Clínica, Audiologia Ocupacional, Voz, Neonatologia, Linguagem, Motricidade Orofacial e que atuam em mais de uma área). Cada item, respondido de forma positiva, correspondia a 1 ou 2 pontos, sendo a máxima pontuação (100%) correspondendo a 80 pontos. As respostas obtidas foram analisadas e as pontuações encontradas, padronizadas, ou seja, transformadas em índices percentuais indicando seu desempenho. O valor da percentagem de cada questionário poderia variar de 0 a 100%, sendo que quanto maior a percentagem obtida, maior o conhecimento e aplicabilidade das normas de biossegurança pelo profissional na rotina clínica. Foram adotadas as faixas de (0-25%), (26-50%), (51-75%) e (76-100%) para distinguir o nível de conhecimento e aplicação das medidas de precaução pelos participantes. **Resultados:** dos cem fonoaudiólogos avaliados por meio dos questionários (100%), 1% obteve a percentagem na faixa de (0 a 25%), 45% em (26 a 50%), 50% entre (51 a 75%) e 4% (76 a 100%). **Conclusão:** a maioria dos profissionais que participaram conhece e aplica as medidas de biossegurança.

DESCRIPTORIOS: Exposição a Agentes Biológicos; Riscos Ocupacionais; Fonoaudiologia

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