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# Health Professionals Coping with COVID-19: infections and occupational deaths in the pandemic in Ceará

Profesionales de la salud lidiando con COVID-19: infecciones y muertes ocupacionales en la pandemia en Ceará

Profissionais de Saúde no Enfrentamento da COVID-19: infecções e óbitos laborais na pandemia no Ceará

## ABSTRACT

**Objective:** to discuss the impact of COVID-19 infections and deaths on health workers in actions to combat the pandemic in the state of Ceará. **Method:** it is a qualitative analysis of secondary data related to COVID-19 in health professionals available in public databases and in published scientific studies. **Result:** it became evident that nursing professionals, doctors and community health agents were infected, with a higher incidence of death among doctors, nursing professionals and ambulance drivers. The female professionals were the most contaminated, however the deaths mostly affected the male gender. The age group most affected was 25 to 49 years. **Conclusion:** the health professionals at the epicenters of the pandemic in the state were the most affected, and the difficulty in providing personal protective equipment in health systems contributed to the occurrence of many deaths, according to data from the consolidated literature.

**DESCRIPTORS:** Coronavirus infections; Health Personnel; Communicable Diseases.

## RESUMEN

**Objetivo:** discutir el impacto de las infecciones y muertes por COVID-19 en los trabajadores de salud en acciones de combate a la pandemia en el estado de Ceará. **Método:** es un análisis cualitativo de datos secundarios relacionados con COVID-19 en profesionales de la salud disponibles en bases de datos públicas y en estudios científicos publicados. **Resultado:** se evidenció que los profesionales de enfermería, médicos y agentes comunitarios de salud estaban infectados, con mayor incidencia de muerte entre médicos, profesionales de enfermería y conductores de ambulancias. Las mujeres profesionales fueron las más contaminadas, sin embargo las muertes afectaron mayoritariamente al género masculino. El grupo de edad más afectado fue el de 25 a 49 años. **Conclusión:** los profesionales de la salud en los epicentros de la pandemia en el estado fueron los más afectados, y la dificultad para proveer equipos de protección personal en los sistemas de salud contribuyó a la ocurrencia de muchas muertes, según datos de la literatura consolidada.

**DESCRIPTORES:** Infecciones por Coronavirus; Personal de Salud; Enfermedades Transmisibles.

## RESUMO

**Objetivo:** discutir o impacto de infecções e de óbitos por COVID-19 nos trabalhadores da saúde em ações de enfrentamento à pandemia no estado do Ceará. **Método:** trata-se de uma análise qualitativa de dados secundários relativos à COVID-19 em profissionais da saúde disponibilizados em banco de dados públicos e em estudos científicos publicados. **Resultado:** evidenciou-se que foram infectados profissionais de enfermagem, médicos e agentes comunitários de saúde, destacando-se maior incidência de óbito em médicos, profissionais de enfermagem e condutores de ambulância. As profissionais do sexo feminino foram as mais contaminadas, no entanto os óbitos atingiram majoritariamente o sexo masculino. A faixa etária mais atingida foi de 25 a 49 anos. **Conclusão:** os profissionais de saúde dos epicentros da pandemia no estado foram os mais atingidos, e a dificuldade no fornecimento de equipamentos de proteção individual nos sistemas de saúde contribuiu para a ocorrência de muitos óbitos, segundo dados da literatura consolidada.

**DESCRIPTORIOS:** Infecções por Coronavirus; Pessoal de Saúde; Doenças Transmissíveis.

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**INTRODUCTION**

In December 2019, the world became aware of the beginning of a new major epidemic. It seems that so far, in the city of Wuhan, Hubei province, China, cases of a new respiratory syndrome have been found. Regarding this syndrome, shortly afterwards, it was discovered that it was a disease caused by a new type of coronavirus (SARS-CoV-2). With the rapid advancement of studies on the impacts of this virus on humans, the scientific community called the new disease COVID-19. Due to the countries' global interconnection configuration, as well as the delay in taking preventive action in several countries, COVID-19 spread across the planet very quickly, causing a significant number of infected people and number of deaths, as shown by Sayuri's data.<sup>(1)</sup> In this context, the World Health Organization (WHO) declared, on January 30, 2020, that the epidemic of the disease caused by the new coronavirus (COVID-19) constitutes a Public Health Emergency of International Importance.

It is important to note that several large-scale epidemics (pandemics) have occurred in the history of mankind and have resulted in great loss of life and social upheaval. According to studies by Resende<sup>(2)</sup>, the first reports of epidemics can be found in the biblical text with the

occurrence of extremely deadly diseases among the Hebrew and Philistine peoples. This same author points out that the

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historical period of antiquity was marked by several epidemics of major proportions, such as Smallpox, Exanthematic Typhus, Cholera, Malaria or Typhoid Fever. In the Middle Ages, the Black Plague (or Bubonic Plague) epidemic of the 14th century stands out. According to the studies of Barata<sup>(3)</sup>, Bubonic Plague decimated 25% of the world population (approximately 25 million people) in its first wave of contagion. The modern age, in turn, was affected by different epidemics of influenza, cholera and measles. Among the flu epidemics, the most devastating was that of the Spanish Flu, with its first contagion wave that occurred in 1918.

According to studies by Foust and collaborators<sup>(4)</sup>, more recently, humanity has had to learn to deal with new types of pandemics that are spreading very quickly in the face of global displacement of people. Between 2002 and 2003, starting in China, we recorded the first global coronavirus epidemic, SARS-CoV, which caused SARS disease. Later, in the Middle East, another coronavirus, this time the MERS-CoV, caused another epidemic of the disease called MERS. In 2019, as highlighted above, the world was again surprised by coronavirus epidemics, in the case of COVID-19. This disease, in turn, has had a health and social impact on the world never seen before in recent human history.

As demonstrated, epidemics and pandemics have always occurred at different times in the history of civilizations. Many of these epidemics were the result of the extremely precarious ways of life of different populations, as shown by the studies by Luna and collaborators.<sup>(5)</sup> It is noteworthy the fact that we currently have the highest levels of technology and, at the same time, a significant part of the population still lives in unhealthy conditions similar to those of the Middle Ages in cities and rural areas. Probably the combination of these factors, explains the permanent unpreparedness of the public power and the private initiative to deal with pandemics.

COVID-19 showed several weaknesses and a lack of preparation to deal with pandemics. The studies by Matos<sup>(6)</sup> already pointed out in 2018 that it was necessary to overcome difficulties in structuring the following types of action: improvement of epidemiological surveillance, improvement of clinical research and improvement of laboratory structure aimed at the formation of new and biological inputs. What was evident is that several countries have failed in these aspects described above. A development of these facts was the chronic lack of equipment, tests and Personal Protective Equipment (PPE) in sufficient quantity and quality to ensure safety for health professionals to act on the front line of fighting COVID-19.

In this sense, the studies by Teixeira and collaborators<sup>(7)</sup> point out that health professionals are among the vulnerable groups in the context of the pandemic due to the large-scale exposure to risk of contamination. For this reason, these professionals must be protected, trained and welcomed in the face of the strenuous demand for work in the context of the pandemic. Elements of Fiho studies<sup>(8)</sup> point to a large set of labor weaknesses in the context of COVID-19, such as: precarious working conditions, inadequate hygiene, strenuous work hours, lack of training and even insufficient or unavailability of protective equipment, even in intensive care services.

As a result of the elements presented

**As a result of the elements presented above, this research aimed to discuss the impact of COVID-19 on health professionals during the exercise of their work functions in the pandemic in the state of Ceará. The profile and characteristics of confirmed cases and deaths by COVID-19 were discussed in relation to the work context in the front line of health care.**

above, this research aimed to discuss the impact of COVID-19 on health professionals during the exercise of their work functions in the pandemic in the state of Ceará. The profile and characteristics of confirmed cases and deaths by COVID-19 were discussed in relation to the work context in the front line of health care.

## METHOD

This research, of qualitative and exploratory nature according to the studies by Silveira and Córdova<sup>(8)</sup>, was carried out from the analysis of data contained in the consolidated scientific literature on the topic, as well as secondary data of public access, IntegraSUS platform were analyzed<sup>(9)</sup>, which houses in real time the health information of 184 municipalities in the state of Ceará.

The following methodological strategy was used: 1) definition of descriptors; 2) survey of publications of scientific articles on the topic; 3) data collection on the IntegraSUS Platform; 4) analysis and discussion of results.

The consultation with DeCS and MeSH aimed to find descriptors to raise the collection on the researched theme. Only after this stage, an integrated search with descriptors in Portuguese and Boolean Operators (AND) of the abstracts of articles made available in Portuguese and published in 2019 and 2020, from the following databases, followed: SciELO; PubMed; Studies with a thematic approach on risky work and work in epidemics were read. These scientific foundations were used to qualify the debate on the results of this study.

The following indicators related to the SARS-CoV-2 (Covid-19) pandemic were extracted from the IntegraSUS platform: confirmed cases and deaths by profession, confirmed cases and deaths by sex, confirmed cases and deaths by age group. This environment gathers and consolidates data from other national and local notification systems from public and private institutions such as ESUS-VE, SIVEP,

GAL and COVER. The period from March to August 2020 was analyzed for all municipalities (184) in the state of Ceará.

Data were analyzed using descriptive statistics techniques and data interpretation was performed using the content analysis method.<sup>(10)</sup>

Resolution No. 466/12 and Resolution No. 510/16 of the National Health Council clarify that researches of data in the public domain and made available in the archives of institutions and (or) secondary databases that do not directly identify the research participants, do not require approval by the CEP-CONEP System.

## RESULTS

The results show that, in the state of Ceará, some health categories were infected in greater numbers when compared to other professional classes. Among

them, nursing technicians or assistants make up the professional category with the most confirmed cases of COVID-19, followed by nurses, doctors and community health agents.

Thus, 4,544 cases were confirmed among nursing technicians and / or assistants, representing 29,56% of the total cases. Among nurses, there are 2,252 confirmed cases, that is, 14,65% of infected professionals. Followed by 1,494 (9,72%) cases among doctors and 1,374 contaminated community health workers, representing 8,94%.

Regarding deaths by professional category, it is observed that doctors are the most affected (32.1%), followed by nursing technicians or assistants (28.6%), nurses (10.7%) and ambulance drivers (7.1%). Numerically, nine doctors, eight nursing technicians or assistants, three nurses and two ambulance drivers died.

As for the disease's involvement by sex, it appears that female professionals were the most affected by COVID-19 infection, with the age group most affected between 25 and 49 years old.

Regarding the number of deaths, male professionals were the most affected, with the main age group being the group between 50 and 54 years old and between 65 and 69 years old.

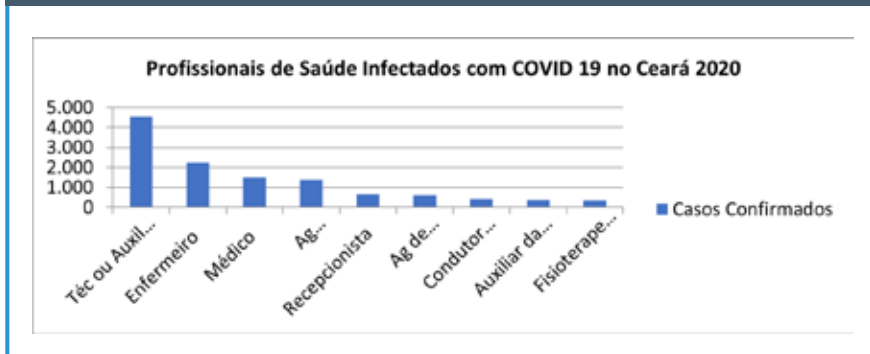
## DISCUSSION

It is possible to perceive that health professionals are workers exposed to several risks: contamination by COVID-19, different illnesses due to exposure to other types of diseases, as well as the effect of stress caused by this context of pressure and conditions of work. I work at the limit between the reasonable and the absurd.

According to data from studies by Lima and collaborators<sup>(11)</sup>, the professions with the highest risk of contamination and death by COVID-19 in the exercise of their work functions are: Dental health technician, Oral health technician of the family health strategy, Dental surgeon - temporomandibular disorder and orofacial pain, Dental surgeon - rehabilitation oral, Dental Surgeon - maxillofacial traumatologist, Nursing attendant, Assistant in oral health, Assistant in oral health of the family health strategy, Gynecologist and obstetrician. Obviously, the research data above must be read with due care, however they are very close to the data of professionals contaminated and deaths by COVID-19 in Ceará.

It is noted that mid-level professionals, especially technicians and/AMI-Lor nursing assistants, as well as professionals with higher education levels, especially doctors and nurses, are in the line most affected by contamination by COVID-19. It is important to note that many of these contaminations can result in permanent sequelae for health professionals, thus characterizing typified work accidents and already duly recognized by the Federal Supreme

Gráfico 1 - Profissionais de Saúde Infectados com COVID-19 no Ceará 2020



Fonte: elaboração própria. Dados sistema IntegraSUS (2020)

Gráfico 2 - Óbitos de Profissionais de Saúde por COVID-19 no Ceará 2020



Fonte: elaboração própria. Dados sistema IntegraSUS (2020)

Court (STF), as Santos points out.<sup>(12)</sup> It is noteworthy that the professional risk factors, taking up data from Lima and collaborators, show that primary care professionals are at a considerable risk scale and, thus, show that the territory health units are strategically relevant in combating pandemic when hospitals and emergency care units are.

With regard to deaths due to COVID-19 in Ceará, it is clear that the professionals most affected are doctors, technicians or nursing assistants and nurses. From the perceived profile, it is evident that the professionals responsible for emergency support in the respective health equipment are the most affected by deaths caused by COVID-19. It is important to note that these frontline professionals

most exposed to contamination were the ones who suffered the most from episodes of lack of PPE and strenuous journeys, as shown by Brito's data.<sup>(13)</sup>

## CONCLUSION

Health professionals are a structuring axis for the development of coherent care and for an adequate response from health services in the face of the COVID-19 pandemic in the state of Ceará, Brazil and the world. In this sense, valuing and preserving safe work in health care processes is an ethical imperative for the population to have quality care.

In this study, it was found that health professionals are quite affected by contamination and deaths caused by CO-

VID-19, especially due to the lack of adequate working conditions as demonstrated by the studies supporting this research. Several health services (public and private) have failed to provide adequate protection, through PPE in sufficient quantity and quality, as well as by training health professionals for new and unexpected situations brought about by virus contamination.

The commitment to act in the so-called front lines should not be a context for workers to have low protection or protection of dubious quality. In this sense, this study pays homage to the various professionals who, literally, put their health at risk and donated their lives for the protection of the population in such a difficult moment of public health. ■

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