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# Repercussions of the COVID-19 pandemic on Latin American anesthesiologists. Observational study

## *Repercusiones de la pandemia por COVID-19 en anestesiólogos latinoamericanos. Estudio observacional*

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### What do we know about this problem?

The SARS-CoV-2, COVID-19 pandemic has a huge impact on the Latin American healthcare systems which were not prepared for this global emergency. There is red flag in the international anesthesia community because of the high occupational risk due to the frequent exposure to patients affected by SARS-CoV-2.

### What does this study contribute with?

This study contributes with informed data from the societies, associations and federations members of the Latin American Confederation of Anesthesia Societies in 2020, showing the impact on the population of Latin American anesthesiologists in terms of infection and deaths from the COVID-19 pandemic, in addition to information about its geographical distribution.

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### Abstract

**Introduction:** The SARS-CoV-2, COVID-19 pandemic changed the world, causing a global impact on economic, social and public health aspects. This public health situation alerted the international community of anesthesiologists because of the high occupational hazards due to the frequent exposure to patients with COVID-19.

**Objective:** To identify the impact of this pandemic on Latin American anesthesiologists - in a setting with shortage of vaccines - identifying the professionals infected with SARS-CoV-2 and demises, and their geographical distribution.

**Methods:** An observational study was conducted in Latin American anesthesiologists infected SARS-CoV-2 between March and December 2020. The data was collected from the societies, associations and federations members of the Latin American Confederation of Anesthesia Societies in March 2021.

**Results:** 2,170 anesthesiologists infected with SARS-CoV-2 were identified. Of these, 1,550 were from South America and 620 cases were from Central America, Mexico and the Caribbean. Among the 2,170 anesthesiologists infected with SARS-CoV-2, 165 deaths were reported in Latin America, with a mean age of 58 years; 79% were males and the mortality rate was 7.6%.

**Conclusions:** COVID-19 is an emerging disease with significant impact on the population of anesthesiologists. The reports from the societies, associations and federations members of the Latin American Confederation of Anesthesia Societies show the impact in terms of infection and number of deaths associated with the pandemic.

**Keywords:** Biological risks; SARS-CoV-2 COVID-19 pandemic; Occupational risk; Anesthesiology; Infection.

## Resumen

**Introducción:** La pandemia por el SARS-CoV-2, COVID-19, cambió el mundo generando un impacto global en aspectos económicos, sociales y sanitarios. Esta situación sanitaria generó alerta en la comunidad anestesiológica internacional por el alto riesgo ocupacional, debido a la exposición más frecuente a pacientes afectados por COVID-19.

**Objetivo:** Conocer las repercusiones de esta pandemia en los anestesiólogos en Latinoamérica —en un escenario con escasez de vacunas— identificando los profesionales infectados por SARS-CoV-2 y fallecidos y su distribución geográfica.

**Métodos:** Se realizó un estudio observacional en anestesiólogos latinoamericanos infectados por SARS-CoV-2 entre marzo y diciembre de 2020. Los datos se obtuvieron en las sociedades, asociaciones y federaciones vinculadas a la Confederación Latinoamericana de Sociedades de Anestesia en marzo de 2021.

**Resultados:** Se identificaron 2.170 anestesiólogos infectados por SARS-CoV-2. De estos, 1.550 correspondieron a Suramérica y 620 casos a Centroamérica, México y el Caribe. Entre los 2.170 anestesiólogos infectados por SARS-CoV-2, se informaron 165 muertes en Latinoamérica, con una edad media de 58 años, 79 % de género masculino y con una tasa de letalidad de 7,6 %.

**Conclusiones:** El COVID-19 es una patología emergente, que causa una gran afectación a la población de médicos anestesiólogos. Los reportes de las sociedades, asociaciones y federaciones vinculadas a la Confederación Latinoamericana de Sociedades de Anestesia demuestran el impacto en términos de infección y muertes relacionadas con la pandemia.

**Palabras clave:** Riesgos biológicos; Pandemia SARS-CoV-2 COVID-19; Riesgo ocupacional; Anestesiología; Infección.

## INTRODUCTION

The World Health Organization (WHO) declared the SARS-CoV-2, COVID-19 pandemic in March 11, 2020. (1) After the outbreak in Wuhan, China, in December 2019 and its subsequent worldwide spread (2), the world changed as a result of the global economic, social and public health impact. The SARS-CoV-2 virus accounts for more than 508 million people infected worldwide and more than 6.2 million deaths. (3)

By June 2021, around 28% of the world deaths due to COVID-19 had been registered in Latin America, notwithstanding the fact that this territory represents only 8.4% of the world population. (4) In this scenario, the Latin American anesthesiologists – already considered at high occupational risk (5-9) – faced and continue to face biological risks resulting from respiratory viruses of patients affected by SARS-CoV-2, COVID-19, with a significant occupational hazard during the so called “aerosol-generating” procedures and contact transmission. (10)

In order to learn about the scope and the impact of the pandemic on the Latin American anesthesiologists –

initially with no availability of vaccines – the objective was to identify the anesthesiologists infected with SARS-CoV-2, determine the number of associated deaths, their geographical distribution and mortality rates.

## METHODS

This was an observational descriptive study. This article adhered to the recommendations of the STROBE guidelines for reporting observational trials. (11) The research protocol was approved by the Ethics – Legal Secretariat of CLASA (Latin American Confederation of Anesthesia Societies) in March 12, 2020.

The study population comprised the Latin American anesthesiologists members of the societies, associations or federations members of CLASA who became infected and died from SARS-CoV-2. To collect the information each Society, Association or Federation members of CLASA were required to complete a pre-standardized survey which included the data of Latin American anesthesiologists (CLASA members in their respective countries) who became infected (with a confirmed

diagnosis of SARS-CoV-2) and died as a result of the infection, their age and gender. The records encompassed data from March to December 2020.

The information obtained was entered into a database, and a descriptive analysis of the information was conducted. The qualitative variables were summarized as frequencies and the quantitative variables were expressed as central tendency and dispersion measures. Additionally, the estimated mortality rates from SARS-CoV-2 of Latin American anesthesiologists members of CLASA were submitted. The calculation was done based on the ratio of the number of cases of CLASA member anesthesiologists who died, over the number of cases of CLASA member anesthesiologists infected with SARS-CoV-2, for the study period.

## RESULTS

Over the 10 months of observation, 2,170 anesthesiologists infected with SARS-CoV-2 in Latin America were reported, with 165 infection-associated deaths.

The geographical distribution was as follows: 1,550 were South American

anesthesiologists and Perú was the country with the largest number of infected individuals - 596 cases -. The region represented by Mexico – Central America and the Caribbean reported 620 cases, with Mexico exhibiting the largest number of cases: 350.

The geographical distribution of the 165 deaths was as follows: 85 in south America, with Peru representing the largest number of deaths: 16 cases. Mexico–Central America – the Caribbean reported 80 deaths and Mexico was the country with the largest

number of deaths: 75 cases. Moreover, Mexico was the country with the largest number of deaths of anesthesiologists in Latin America (Table 1).

Of the 2,170 anesthesiologists infected with SARS-CoV-2 in Latin America, 1,237 (57%) were males, 933 (43%) were females and the mean age was 59 years (SD 4.9 years).

Of the 165 reported deaths in Latin America, 131 (79%) were males and 34 (21%) were females, with a mean age of 58 years (SD 2.8 years). The mortality rate

estimated for Latin America was 7.6%, South America 5.4% and Mexico-Central America – Caribbean 12.9%.

## DISCUSSION

The biological risks for anesthesiologists in the 20th Century were mostly concentrated in infections transmitted through blood or other fluids. (12) In the 21st Century, biological risks were mostly associated with respiratory viruses responsible for the Severe Acute Respiratory Syndrome (SARS) (13) or H1N1 influenza. (14) Currently, the most significant biological risk is the SARS-CoV-2, COVID 19 pandemic.

This pandemic made visible the harsh reality experienced by anesthesiologists in Latin American, ranging from the negative impact on healthcare systems and changes in labor scenarios, to the development of a new normal labor environment for professionals facing diverse changes in their working conditions. (15) Anesthesiologists in Latin America are confronted daily with increasingly challenging and stressing conditions, with a high level of vulnerability and a heightened perception of the risk to become infected. (16) This study shows that 2,170 practitioners became infected over the course of 10 months, in a setting of vaccines shortage and significant uncertainty.

All Latin American countries were represented in this study, except for Brazil, which failed to report the number of cases of infected anesthesiologists, but did report associated deaths.

This sample evidenced a prevalence of male practitioners infected. This may be due to a different immune response, with males being more susceptible to the disease as compared to females. (17) The information collected enabled the development of a geographical map which evidenced an asymmetric distribution. There were more cases of infected anesthesiologists in South America than in the Mexico - Central America – Caribbean region. This data is still valid notwithstanding the absence of

**TABLE 1.** Geographical distribution of anesthesiologists infected and deaths from SARS-CoV-2 reported to CLASA.

Region/Subregion	Infected practitioners	Number of associated deaths
<i>Mexico, Central America, Caribbean</i>	620	80
<i>Caribbean Islands</i>	42	0
Cuba	0	0
Dominican Republic	42	0
<i>Mexico-Central America</i>	578	80
Costa Rica	29	0
El Salvador	49	3
Guatemala	47	0
Honduras	9	1
Mexico	350	75
Nicaragua	32	1
Panama	62	0
<i>South America</i>	1.550	85
<i>Andean region</i>	979	33
Bolivia	156	8
Chile	132	1
Ecuador	95	8
Peru	596	16
<i>Caribbean</i>	114	27
Colombia	19	9
Venezuela	95	18
<i>Mercosur</i>	457	25
Argentina	420	11
Brazil	0	14
Paraguay	35	0
Uruguay	2	0
<b>Total for Latin America</b>	<b>2170</b>	<b>165</b>

**SOURCE.** Author.

data from Brazil. A subregional analysis shows that the Andean region was the most affected with 979 cases of anesthesiologists. These regional, subregional and country asymmetries may be primarily associated to the fact that the Latin American countries were not prepared to deal with this type of sanitary emergency; there was a lack of adequate contingency plans that unveiled the deficiencies in the organization of the healthcare systems of these countries and the fragility of the health economy. (15) There were of course additional concerns such as the potential deterioration of various medical, physical and mental comorbidities, particularly among practitioners over 60-years old, which may lead to critical conditions and even death. (15)

The associated world data is sparse. No similar specific studies of deaths of anesthesiologists due to the pandemic are available, though there are a few informative reports. There were reports of six practitioners who died in Europe (16), and specifically in Italy, seven anesthesiologists died from the infection. (17)

Some of the limitations of this study include the lack of data from Brazilian anesthesiologists infected with SARS-CoV-2 for the study period (the Brazilian Society of Anesthesia was unable to collect the information). Notwithstanding the availability of the report on the number of deaths, the lack of information affects the scope of the study. The study is not intended to generalize the information collected to other populations; on the contrary, the objective is to show how the COVID-19 pandemic impacts anesthesiology, as reported by the scientific societies, associations or federations of specialists.

The study evidences the impact of the pandemic for Latin American anesthesiologists during 2020. SARS-CoV-2, COVID-19, is an emerging disease generating morbidity and mortality among the healthcare workers and poses new challenges of which we have to be very much aware. Collective immunization, the manifestation of new strains, and new

challenges will continue to create a dynamic and changing labor scenario. (18,19)

## ETHICAL RESPONSIBILITIES

### Ethics committee approval

The research protocol was approved by the Ethics – Legal Secretariat of CLASA (Latin American Confederation of Anesthesia Societies) in March 12, 2020.

### Protection of persons and animals

The author declares that no experiments in humans or animals were conducted for this research. The author further states that the procedures followed were consistent with the ethical standards of the responsible human experimentation committee and pursuant to the World Medical Association and the Declaration of Helsinki.

### Confidentiality of the data

The author declares that he followed the protocols of his institution on the publication of patient data.

### Right to privacy and informed consent

The author declares that no patient data were disclosed in this article. The author obtained the informed consent of the patients and/or subjects mentioned in the article. The corresponding author is in possession of this document.

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### Author's contribution

The author planned the study, administered the survey for data collection, requested the information to each Society, Association or

Federation member of CLASA, interpreted the results, analyzed the data and prepared the final draft of the manuscript.

### Assistance for the study

None declared.

### Financial support and sponsorship

None declared.

### Conflicts of interest

The author declares that there are no conflicts of interest and no sponsorship or internal / external financing was received.

### Presentations

None declared.

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