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Letter to the Editor

Intranational differences in the case fatality rates for COVID-19 among Peruvian physicians



Sir,

Peru is currently one of the most affected countries in Latin America and worldwide because of the COVID-19 pandemic, in terms of the number of infections and people who have died (Ministry of Health of Peru, 2020; Johns Hopkins University of Medicine, 2020). Unfortunately, physicians and other healthcare workers (HCW) have been significantly affected since the beginning of the pandemic (Ollarves-Carrero et al., 2020). This letter analyses and discusses the impact of COVID-19 among Peruvian physicians, in terms of infected professionals and those who have died.

Up to 27 August 2020, 3586 physicians out of 73,375 in Peru have been confirmed with COVID-19 by RT-PCR and/or serological tests (Table 1). Of them, 148 physicians have died (4.13%, case fatality rate, CFR%) (Table 1). The mean age was 58.66 years (± 15.27) and 142 (95.3%) were male. Sixty-eight (45.6%) were general practitioners, 41 (27.5%) worked in surgical specialities, 32

(21.4%) in clinical specialities, and three (2.15%) in specialities related to diagnostic procedures. Moreover, deaths of five recently graduated physicians (3.55%) have been reported.

In some departments—such as Loreto, Ucayali, Madre de Dios, Amazonas, San Martin (all of them from the Jungle region), and Tumbes, Huancavelica, and Ayacucho—where there is a significant lack of infrastructure in health services, number of physicians and well-standardised processes for health, the percentage of infected physicians, considering the total number of registered physicians, was $>20\%$. The CFR% among physicians was higher than the entire population (4.59%), being higher in Arequipa (8.75%), Loreto, Lima, and Piura (Table 1).

As of 19 August 2020, according to available information from 19 countries in the Americas, a total of 569,304 cases of COVID-19, including 2506 deaths, have been reported among HCW, including: 268,954 from Brazil (241 deaths, 0.09%), 143,100 from USA (660 deaths, 0.46%), 97,632 from Mexico (1320 deaths, 1.36%), 16,194 from Argentina, and 7692 from Colombia (52 deaths, 0.67%) (PAHO, 2020; CIDRAP, 2020). Although the number of physicians infected in Peru may be considered lower, compared with other countries in the region, the CFR% of physicians in Peru due to COVID-19 seems to be higher ($\sim 5\%$), reaching even higher values in some areas of the country, as discussed.

A lack of personal protective equipment (PPE) and its inappropriate use are risk factors for COVID-19 among physicians, especially in developing countries (Ing et al., 2020; Mhango et al., 2020). Moreover, overexposure to infected patients, excessive workloads in regions with few physicians, and poor infection control systems could be associated factors (Mhango et al., 2020). Diario Gestión Perú, has reported a lack of mechanical ventilators, well-equipped intensive care units and oxygen, in most departments, with higher levels of death among physicians (Diario Gestión Perú, 2020). Significant measures need to be taken to provide adequate PPE for physicians and other HCW, and increased attention to health services. At the end of August 2020, the number of infected nurses in Peru was ~ 5000 , with 71 (1.42%) who had died (Diario Co Latino, 2020). It is therefore vital to prioritize measures for physicians and HCW, taking into account that they are vital in the first line of defence during this pandemic.

Authors' contributions

GVR and AJRM conceived the review, developed the preliminary search strategy and drafted the manuscript. All authors critically reviewed the manuscript for relevant intellectual content. All authors read and approved the final version of the paper.

Conflicts of interest

None declared.

Table 1

Number of infected and deceased physicians due to COVID-19 by department, Peru (Ministry of Health of Peru, 2020; Medical College of Peru, 2020).

Department	Physicians				
	Registered ^a	Infected	% Infected	Deaths	CFR%
Arequipa	5220	217	4.15	19	8.75
Loreto	957	285	29.78	18	6.32
Lima	39,851	1048	2.62	62	5.91
Piura	2296	192	8.36	9	4.68
Puno	1663	116	6.97	5	4.31
Ucayali	585	142	24.27	6	4.22
Huánuco	806	98	12.15	4	4.08
Huancavelica	300	84	28	3	3.57
Amazonas	246	60	24.39	2	3.33
Ica	2044	125	6.11	4	3.2
Tumbes	213	50	23.47	1	2.0
Moquegua	303	50	16.5	0	2.0
Madre de Dios	176	51	28.97	1	1.96
La Libertad	5683	218	3.83	4	1.83
Ancash	1513	113	7.46	2	1.76
Lambayeque	2925	194	6.63	3	1.54
Junin	2082	70	3.36	1	1.42
Cuzco	2723	91	3.34	1	1.09
Ayacucho	457	98	21.44	1	1.02
Cajamarca	931	106	11.38	1	0.94
San Martin	546	113	20.69	1	0.88
Cerro de Pasco	266	24	9.02	0	0.0
Apurimac	467	30	6.42	0	0.0
Tacna	1122	11	0.98	0	0.0
Total	73,375	3586	4.89	148	4.13

CFR%, case fatality rate.

^a Number of physicians in the department.

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