

Letter to the Editor

One million cases of COVID-19: what have we learned?

Um milhão de casos de COVID-19: o que aprendemos?

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Over 150 days have passed since the first case of infection caused by the novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was described on 7 November 2019 in China¹. In this period, the number of diagnosed cases of the coronavirus infection (COVID-19) surpassed 1.9 million and 116,000 deaths worldwide. In Brazil, the confirmed infection cases have exceeded 22,000 (14th place globally) death toll amounts to 1,241 (11th place globally). COVID-19 has affected a total of 210 countries and territories as well as 2 international conveyances¹. The available epidemiological data is likely to represent only a portion of the total number of infected patients, since the ability to identify COVID-19 cases is limited in several countries and, in many cases, colonization does not lead to clinical symptoms, or if present, the symptoms will be mild²⁻⁴.

COVID-19 is still a challenge in the globalized world, given that the ability of the virus to colonize and infect patients was faster and more effective than the physical and social barriers adopted by governments as containment measures to prevent the spread of the virus. However, in this 150-day period, we learned that we overestimated our habits and abilities to deal with health problems. Many of us remember stories told by our (great)grandparents about different endemic or pandemic in Brazil and, suddenly a story turned into reality. In a short-period of time, we had to adapt ourselves to the restrictions on daily life imposed by isolation and quarantine. A microorganism was able

to change a globalized society, regardless of ethnicity, social and economic status as well as environmental and genetic factors⁵. In short, all of us became vectors of viral dissemination, which reminded us of the fragility of life in today's world.

Numerous aspects can be addressed regarding the unprecedented moment we are facing as a result of the COVID-19 pandemic, namely:

Health Sector - Regardless of a country's financial health, COVID-19 increased the demand for specialized patient care worldwide, which was higher than the available medical and hospital capacity, especially regarding occupancy in intensive care units (ICUs) equipped with ventilators^{6,7}. Some deaths could be prevented if hospitals were prepared to provide care to all patients; however, the reality was a massive influx of patients in hospitals within a short period of time. Notably, healthcare professionals have been struggling on the frontline of the coronavirus pandemic, facing long work hours, being away from their partners and family, working under extreme stress^{8,9}, and in some cases being harassed as spreaders of the disease. The health care sector gained prominence due to its interdisciplinary characteristic and to the intensive and equally important work of doctors, biologists, physiotherapists, nurses, nutritionists and psychologists. In the future, healthcare professionals need to be prepared for two other critical situations: (i) the psychological effects of anxiety and depression due to death and other losses during the pandemic¹⁰; and (ii) the

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follow up and the treatment of diseases that were modified and postponed during the pandemic period, especially the respiratory diseases. The world has “stopped” and “taken a deep breath” to fight against COVID-19 and, when the crisis is over, efforts will be converted to ensure that other patients can “breathe” as well.

Laboratorial Sector - The gold standard for diagnosis of COVID-19 is the molecular detection of a viral genetic material¹¹. Essentially, the SRA-CoV-2 virus can be identified by means of the amplification of a fragment of its genetic material in a thermocycler and defined if the infection is present or absent. However, despite the apparent simplicity, this technique shows some limitations. The real-time polymerase chain reaction (PCR) technique, commonly used in research, shows effectiveness, sensitivity and specificity; however, larger quantities of medical supplies and equipment are needed in order to identify colonized patients (confirmed cases or patients still waiting for the results) and the potential effectors of new colonized patients. Thus, it is important to identify the most effective methods for the development of public health policies in order to slow the spread of the virus. Importantly, even though real-time PCR is the gold standard, it may yield discordant results according to the various biological materials obtained from the patient, which may provide false-negative results¹².

Scientific Sector - COVID-19 underscored the importance of science: it is essential to provide basic information about the disease and the virus, including its genetic and environmental aspects that determine and modulate the physiology of the disease with its wide phenotypic spectrum of clinical and laboratory manifestations. Additionally, science has offered hope for the management, treatment and eventually the cure of COVID-19, along with the expectations for a vaccine. Finally, epidemiological data have been effective in describing the evolution of the disease globally and in targeting preventive (social) measures to minimize loss of life. However, science will be able to reach its objective if governmental authorities and the civil society acknowledge its importance and credibility, so that scientists are able to exercise their function with adequate financial support.

Political Area - Undoubtedly, governmental authorities have pursued various approaches to tackle the COVID-19 worldwide, many times exposing a conflict between religious and scientific beliefs and raising questions regarding the legitimate right to freedom of movement and mandatory isolation. However, we were able to learn that science can be followed without losing faith in something bigger. We should not forget that science provides guidance and strengthens critical thinking; and guesswork and immediacy can lead to chaos, which in this case, it means a tragic number of fatalities. Until now, isolation and social

distancing have been effective at reducing the number of new cases and death toll due to COVID-19¹³⁻¹⁶, and therefore followed by many people. However, a consensus has not been reached regarding the duration of isolation¹⁶⁻¹⁸.

Educational Sector - The level and quality of education of a population should be the main markers of the human development index, since they enable the correct understanding of information and facilitate decision making. In Brazil, for example, misunderstanding has undermined the efforts to contain the pandemic, as a large portion of the population have questioned the existence of the disease, minimized the severity of the disease, or viewed the need for isolation or quarantine with skepticism. In some cases, it can be explained by social and financial reasons, such as loss of income and jobs; in other cases, it is an attempt to mock or deny the disease severity described by researchers, healthcare professionals, some governmental authorities and the media. The literature highlights the importance of understanding and implementing complete isolation and social distancing: these measures are associated with a smaller number of infected people, which results in a balance of supply and demand for ICU beds for COVID-19 patients, promoting a decrease in deaths in patients requiring respiratory support¹³⁻¹⁶. Without a doubt, the best outcome for social policies is based on science, voluntary participation and civic responsibility, and coercive measures can be counterproductive and erode public trust and cooperation¹⁹.

Media Sector - Information must reach the largest number of individuals during a pandemic. However, during the COVID-19 crisis, a great volume of rumors and fake news around the disease and governmental control measures have rapidly circulated in the media²⁰. Today, any piece of information or a personal opinion can develop into a news story and be widely disseminated through social media. Therefore, we must be careful about accessing credible sources of information, and above all, enhance our ability to analyze contents, tell right from wrong, and eventually reach conclusions based on facts.

Economic Area - Fears are growing that the COVID-19 pandemic will push the world into a major recession, and the degree of severity and damage will be measured according to each country's social and economic health. But, how important is it to rescue the economy at the expense of life and health? Are we really on the right track?

The laboratory testing capacity for COVID-19 should be increased, as well as the number of ICUs bed to cope with the rising number of patients in Brazil and worldwide. Also, scientists need to continue their efforts to find a more effective treatment and, eventually a vaccine to prevent the disease²¹. Finally, we should struggle to create a world with fewer diseases and/or risks for pandemics, respecting the environment, recognizing the vital role played

by health professionals, and offering support to a social demand for better working and research conditions. The need for research (science) should be highlighted, as it can optimize diagnosis, treatment and management of numerous diseases. Notably, the importance of research has been highlighted on the front line against COVID-19. Equally

important is the optimization of research funding allocation around the world, which would also make scientists earn greater respect from the civil society and governmental authorities. As human beings, we miss “that global hug”, which today is restrained and limited to our partners and in our homes. In a crisis situation, let us live light-heartedly and work together to make our world a better place.

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