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## The COVID-19 pandemic

### Introducción

I open this note with some alarming figures: as of May 26, 2020, over 5 635 000 people have become infected and nearly 350 000 have died from the new coronavirus (COVID-19) worldwide.<sup>1</sup> Meanwhile, in Colombia, there are already 21 981 people infected and 750 deaths from this disease, that is, a 3.4% mortality rate.<sup>2</sup>

COVID-19 is an infectious disease caused by a new coronavirus strain. Most people infected with COVID-19 will develop a mild to moderate respiratory illness and recover without the need for hospital care. However, the disease can significantly affect older people and those with underlying diseases such as diabetes, chronic respiratory diseases, cancer, obesity, and cardiovascular disease,<sup>3</sup> and it could even lead to death, which undoubtedly places a burden on health systems, particularly on intensive care units (ICUs).

Currently, no health system in the world has sufficient capacity to treat these patients in their ICUs and intermediate care units nor the necessary staff (doctors, nurses, and respiratory therapists) and equipment (ventilators and monitors). In other words, no country is prepared to face a pandemic of these dimensions, basically because the measures to be taken require having massive economic resources available, as well as the cooperation of a supportive and responsible community. Both requirements, together, will make it possible to achieve complete isolation of the population, which is the only effective action known to date to reduce the spread of the virus. However, achieving this also requires that governments, on the one hand, implement equity measures that meet the basic needs of a large part of the population and, on the other, inject considerable resources into health systems so that healthcare institutions and staff can serve as many people as possible under the best biosecurity conditions.

According to the Asociación Colombiana de Sociedades Científicas (Colombian Association of Scientific Societies),<sup>4</sup> there are approximately 12 000 ICU beds in Colombia. Even so, only 5 300 have ventilators, 80% of them are usually occupied, and only 10-15% are fully

isolated. This means that the country would only have about 750 ICU beds to deal with the COVID-19 pandemic.

On January 11, when the first death from pneumonia secondary to the new coronavirus was reported in Wuhan, a highly technological and populous city located in central China, this disease seemed a distant problem. Furthermore, when quarantine was declared in that city 12 days after the first death, many considered it an arbitrary measure that would have severe economic and social repercussions.

At this time, when the pandemic continues to spread at an alarming rate, the world must learn from the experience of countries such as China and Japan. These countries, in addition to abiding by the decisions taken by their governments (in the first case because of their authoritarian regime and in the second case because of their cultural tradition), faithfully adopted the following health measures:

**Containment phase:** frequent hand washing, physical distance of at least 1.5 meters, limitation of crowding in public places (no more than 10 people), and implementation of isolation protocols that included the closure of schools, colleges, universities, bars, entertainment sites, among others.

**Mitigation phase:** when the virus began to circulate in the population (not airborne but through contact routes), the decision was more drastic: people's mobility was completely limited and maximum willingness to comply with the measures was requested.

Also, the experience of South Korea should be considered. It is a powerhouse that exports and markets —among other products— ventilators, monitors, and other medical supplies, which the entire world is now requiring. There, authorities made a wise decision and initiated fast and creative actions against this virus because an uncontrolled pandemic can overflow and collapse any health system; therefore, this situation must be dealt with promptly. Thus, the South Korean authorities, knowing that RNA viruses, like the coronavirus, reproduce mainly in the respiratory tract and

have a high rate of transmission and mutation, decided to apply a *bali-bali* (quick-quick) strategy: more than 20 000 daily rapid tests were performed (in less than 5 minutes) for free in the largest cities of the country. These tests were randomly performed to pedestrians, drivers, students, employees, among others, which allowed identifying early a large number of people infected and put them in quarantine for 15 days, thus controlling the disease. By May 26, 2020, that country had reported 10 806 confirmed cases, 11 225 recovered patients, and 269 deaths, data that undoubtedly confirm an effective control of the pandemic.<sup>5</sup>

In the April editorial of the New England Journal of Medicine, Dr. Harvey Fineberg,<sup>6</sup> concerned about the unfortunate decisions of President Donald Trump in view of the imminent mortality of a large number of Americans from COVID-19, proposed six goals that the U.S. presidency should develop to deal with this pandemic successfully. These goals can be replicated in other countries according to their local characteristics:

1) *Establish unified command.* The President should appoint a commander that reports directly to him. This person should have the same powers to mobilize the resources necessary to overcome this pandemic. Moreover, each governor should designate one commander per state with the same authority because the variation of the pandemic phases in different regions will make it possible to focus actions in specific places and times target and redirect limited supplies to where they are most needed, and learn from experience as the situation progresses.

2) *Make millions of diagnostic tests available.* If millions of these tests are performed within two weeks, it will be possible to identify and trace the infected people and isolate them preventively; this was the key to the good results obtained in South Korea. Without diagnostic tests, the extent of the outbreak cannot be traced, so research laboratories and test collection and analysis centers need to be mobilized across the country to better screen the population.

3) *Supply health workers with sufficient personal protective equipment and provide hospitals with the necessary equipment to cope with the massive increase in critically ill patients.*

4) *Differentiate the population into five groups and treat accordingly.* It is necessary to establish: 1) confirmed cases, 2) suspected (symptomatic) cases, 3) persons exposed to the virus, 4) persons who are not known to have been exposed or infected, and 5) persons who have recovered and are now immune. Regarding the first two groups, these people should be separated from the general population in facilities temporarily fit for this

purpose (e.g., hotels, stadiums, etc.). In turn, patients in critical condition or at high risk should be hospitalized.

5) *Inspire and mobilize the public.* In this all-out battle, everyone has a role to play, and virtually everyone wants to play it. Everyone, without exception, must commit since we are all responsible for each other. We can all help reduce the risk of exposure and help friends and neighbors in these times of crisis.

6) *Learn while doing through real-time, fundamental research.* Clinicians and researchers require better predictors to determine which pre-existing conditions make patients with COVID-19 more likely to deteriorate or who may die from the disease. Decisions on public health actions and the restart of the economy must be guided by science because if we know for sure how many people have been infected and if they are now immune, we can determine whether it is safe for them to return to their jobs. If this science-driven approach is implemented, all types of businesses, including airlines and restaurants, can reopen, which in turn will allow us to resume our normal activities gradually.

In conclusion, not having lived through or contemplated the ravages of a health emergency such as the current pandemic is no reason to enter into despair and fear. Instead, it should strengthen and motivate us all to work together and bring out the best of humanity to overcome this situation.

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