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Differentiating COVID-19 response strategies

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Commentary

By 28th Mar., over 571 thousand COVID-19 cases had been reported outside of China, with 62,514 new cases reported on a single day (WHO, 2020). European Regions have contributed to more than half of the confirmed cases globally, with reports from Italy, Spain, Germany, France, the United Kingdom, and Switzerland accounting for about 10,000 of these cases (Figure 1), thereby making the European region the largest COVID - 19 pandemic center. This was very different from the situation two weeks ago when Italy was the only European country with over 10,000 cases (WHO, 2020). In addition to Europe, North America has become the second-largest battlefield and the number of confirmed cases in the United States rapidly increased to 124,739 on 28th March (1Point3Acres.com, 2020). Even though Iran has also been another epidemic center since early March, the disease outbreak development in the Eastern Mediterranean Region has been slow and most of Iran's neighboring countries had reported less than 1,000 cases as of 28th Mar (WHO, 2020).

The global epidemic pattern has dynamically changed from the first stage of a single epidemic center (China) in January and February to the second stage of multiple epidemic centers (Italy, Iran, and South Korea) in March. Towards the end of March however, the world began experiencing an extremely increasing number of cases with an estimated 50,000 cases confirmed globally per day. To combat this pandemic, different strategies need to be tailored and implemented in countries with different situations.

First, in countries with an ongoing explosion of the outbreak (i.e. the USA, Spain, and Italy), strategies suggested by the World Health Organization (WHO) which have been proven useful in China should be adopted for implementation. For example, with China's implementation of strict lockdown and social distancing during the onset of the outbreak, it only took one week for the number of new cases in Hubei province to reach a peak and to start declining (China's National Health Commission, 2020; Lin and Han, 2020). Even though countries such as Italy adopted a similar lockdown strategy on 8th Mar., the loose restrictions (i.e., allowing restaurants and bars to open during the day) has still made the country lose the most valuable time for containing the outbreak (WHO, 2020; Donato, Reynolds, and Picheta, 2020; Amaro, 2020). As more nations begun to lock down parts or the whole country in mid- and late-March, it is imperative that more rigorous restrictions with longer duration be followed, especially for countries that may have already been late in response to the disease control.

Secondly, countries in the regions that are still at the early stages of the outbreak (i.e., the Africa region, where many countries have only found imported cases) should further strengthen travel restrictions to reduce the risk of imported cases as well as the risk of developing local transmission. In addition, based on the lessons learned from the countries that have experienced the severity of this

pandemic, countries in the Africa region should implement stricter strategies in preventing the establishment of local transmission, allocating resources to improve testing, and facilitating their preparation in response to any potential rapid local transmission. In addition, strategies aimed to reduce hospital-acquired infection, which is usually happening at the early stage of the outbreak, should be emphasized. Given the limited sources in the region, researchers in the region should also focus on identifying the most cost-effective COVID-19 prevention and control strategies and facilitate the rapid implementation of these strategies to prevent the eruption of an epidemic center in the region.

Furthermore, countries that have achieved great success in COVID control (i.e. China, South Korea, and Singapore) should continue implement the successful strategies and further roll-out strengthened new strategies to prevent new imported cases. This also holds true for China, as the vast majority of its' newly identified cases since 16th March are imported (China's National Health Commission. 2020). This triggered concerns about a possible outbreak resurgence thereby prompting China to temporarily restrict the entrance of foreigners and the number of international airlines from 28th Mar. (Ministry of Foreign Affairs of the People's Republic of China National Immigration Administration, 2020; CAAC, 2020).

In addition, surveillance on the genomic changes of SARS-CoV-2 is in need in all countries as some studies have found multiple mutants of SARS-CoV-2, although the impact of the mutation on the infectivity and lethality of the virus was still unclear (Zhang et al., 2020; Wang et al., 2020). We, therefore, recommend national laboratories keep track of the mutations of SARS-CoV-2, especially the genes determining the ability to infect humans and leading to death. Effective strategies of disease control that deal with the evolution of SARS-CoV-2 with higher infectivity or lethality should also be prepared in advance to prevent large infections and high mortality.

The COVID-19 pandemic is the first pandemic in the 21st century, which has and will continue to bring many new changes to the global. While the implementation of some basic strategies (such as population sensitization about preventive measures) should be global, countries in different regions should consider their specific situations and develop effective tailored prevention strategies, based on the price China already paid and the lessons learned.

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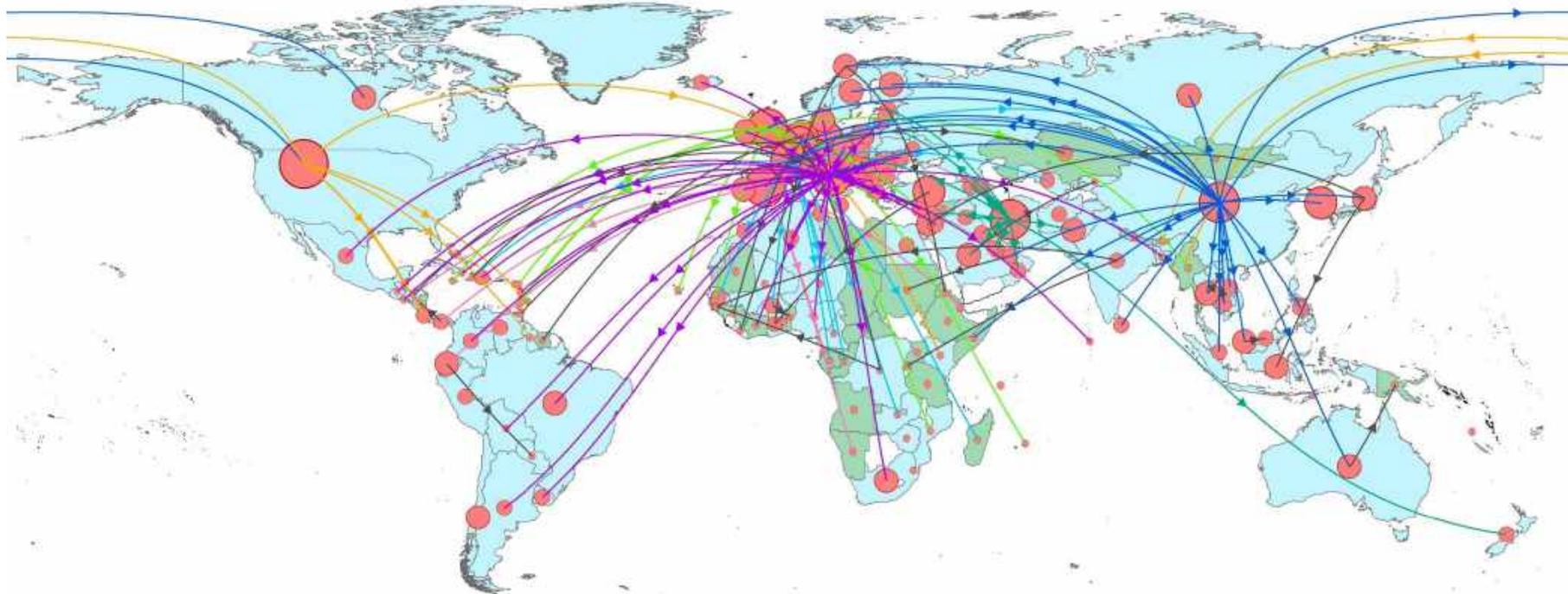
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Global Transmission and Distribution of the COVID-19 Pandemic



Transmission type

- Local transmission
- Imported cases only

Origin of the first cases reported in a country

- Italy
- France
- United Kingdom
- Spain
- China
- Iran
- United States
- Other countries

Number of reported cases

- 1 - 100
- 101 - 1,000
- 1,001 - 5,000
- 5,001 - 10,000
- 10,001 - 100,000
- >100,000

0 800 1,600 3,200 4,800 Miles

Figure 1