

## COVID-19: The Pandemic Unfolds

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COVID-19 emerged from Wuhan, China in late 2019. A new strain of coronavirus, it was not previously identified in humans. Coronaviruses are a large family of viruses which cause illness ranging from a mild cold to severe disease, for instance Severe Acute Respiratory Syndrome (SARS-CoV).

The infective particles of COVID-19 are spherical, and have protruding proteins 'spikes' from their surface. The spikes latch onto human cells and the viral membrane fuses with the cell membrane. Viral genes enter the host cell, are copied and ultimately produce more viruses. In the case of COVID-19, spikes bind to receptors on the human cell surface called angiotensin-converting enzyme 2 (ACE2) [1].

Since the alarm was first raised in China, COVID-19 has spread throughout the globe. Initially deemed a Public Health Emergency of International Concern by the World Health Organisation (WHO), it was later declared a Pandemic on the 11<sup>th</sup> March 2020.

In Italy, we have seen the devastating impact of the virus. The healthcare service has been inundated, with cases of COVID-19 increasing exponentially. The number of Intensive Care beds across the country totals approximately 5,200, which is far from the number of beds required [2] Ultimately this has resulted extraordinary measures, totaling a national lockdown. Other countries including Spain and France have swiftly followed. Countries including Australia and Israel have imposed a compulsory 14-day quarantine for those arriving. Nations have been looking to Italy as an example, and taking action to avoid a similar trajectory.

As of the 17<sup>th</sup> March 2020, the WHO advised of 184,976 confirmed cases of COVID-19, spanning 159 countries/ areas/ territories, with 7,520 deaths [3].

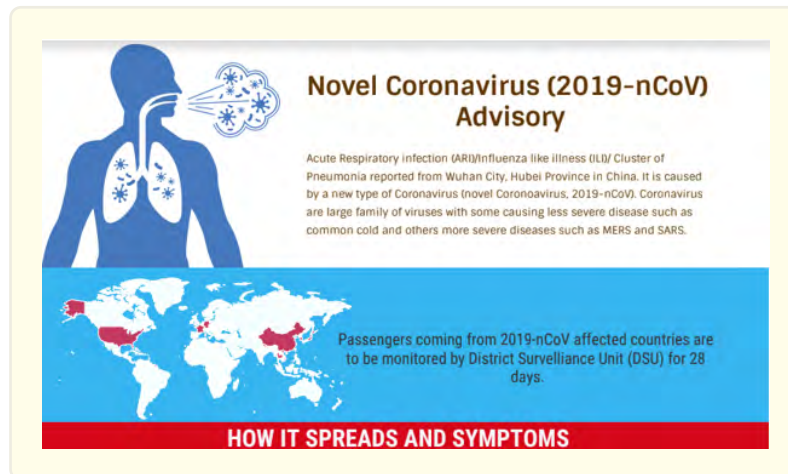
Nations must strive to 'flatten the curve', so as to reduce the burden on healthcare systems and reduce the number of deaths. There simply are not enough Intensive Care beds and ventilators for those who need them. This has resulted in what many refer to as 'war-time triage', as doctors are required to be stricter when deciding on admissions to ICU. Those who are older, less fit and with multiple comorbidities face being denied beds to give the previously fit and healthy preference based on likelihood of survival.

Globally, actions taken so far include closure of borders, grounding of air travel, social distancing, self-isolation, Public Health Advisories - see figure 1 as an example- and freeing up of hospital beds in preparation for a spike in COVID-19 cases.

Consequences are already proving to be profound, with thousands of deaths. Markets are tumbling- the worst since the financial crisis in 2008- as people self-isolate and supply chains are interrupted. Socially, on a global scale people are being forced to avoid socialising, work from home if possible and only travel if essential. It has been a real shock to the system. Psychologically, the effects

of social distancing and self-isolation could be stark, with anxiety simmering. Furthermore, schools have been shut in nations such as Ireland. On a positive note, pollution levels have been falling globally as travel and factory emissions have been significantly reduced.

Problems encountered so far- to name a few- have included ‘misinformation’, a lack of healthcare system capacity, a lack of ventilators, the public being slow to respond to draconian measures and the issue of stock piling out of panic.



**Figure 1:** COVID-19 Infographic, Division of Epidemiology and Public Health, Kashmir, India.

We find ourselves in a wartime situation. Huge uncertainty looms in the months ahead. Unprecedented measures are being taken by governments to try and tackle the economic impact of COVID-19. Public Health advisories are widespread, with draconian measures in place to break the chain of transmission. As nations move from containing COVID-19 to delaying its peak, time is of the essence to create a vaccine. We call for a concerted global effort- it is a time for solidarity and social support amongst necessary social distancing.

## References

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