

## PMMB COVID-19 Bulletin: Spain (18<sup>th</sup> April 2020)

Hooi-Leng Ser<sup>1\*</sup>, Vengadesh Letchumanan<sup>1</sup>, Jodi Woan-Fei Law<sup>1</sup>, Loh Teng-Hern Tan<sup>1</sup>, Nurul-Syakima Ab Mutalib<sup>2</sup>, Learn-Han Lee<sup>1\*</sup>

<sup>1</sup>Novel Bacteria and Drug Discovery (NBDD) Research Group, Microbiome and Bioresource Research Strength (MBRS), Jeffrey Cheah School of Medicine and Health Sciences, Monash University Malaysia, 47500 Bandar Sunway, Selangor Darul Ehsan, Malaysia

<sup>2</sup>UKM Medical Molecular Biology Institute (UMBI), UKM Medical Centre, University Kebangsaan Malaysia, Kuala Lumpur, Malaysia

**Abstract:** The growing threat of pandemics around the world has contributed to rising uncertainty during various periods of age throughout history, with notable instances such as the Bubonic Plague in the sixth century caused by the pathogen *Yersinia pestis*, and more recently Middle East Respiratory Syndrome (MERS) caused by the coronavirus MERS-CoV in 2012. Fast forward to the last month of 2019, the WHO China Country Office was informed of pneumonia cases with unknown etiology, which later on determined as a new type of coronavirus known as SARS-CoV-2. Zooming into European countries, Spain is no stranger to coronavirus-related pandemics, given that this country was the first to publicly report the 1918 flu pandemic caused by the H1N1 coronavirus. Unfortunately enough, Spain is once again not spared from the current ordeal, recording the highest confirmed cases of COVID-19 (diseased caused by SARS-CoV-2) in Europe, with cumulative cases of 190,839 and 20,002 deaths. The Spanish government has taken counter-measures for the management of COVID-19, consisting of the announcement of “state-of-emergency” and subsequent extension to control movements, setting up research grants to expedite drug and vaccine development in addition to introduction of the use of artificial intelligence as an official channel to provide advice and enquires about COVID-19. These are all part of a collective effort worldwide in alleviating dwindling healthcare resources in hopes of starving the virus of hosts by introducing travel restrictions and movement control as well as giving more time for a cure to be engineered. Through the advancement in technologies, improved trade, heightened human mobility and as well as the spurning of social media, we are able to closely monitor the latest progress of this pandemic; working together to remove the gloomy clouds before us will eventually lead to a solution of this pandemic.

**Keywords:** COVID-19; novel coronavirus; Spain; pandemic; PMMB

**\*Correspondence:** Hooi-Leng Ser, Novel Bacteria and Drug Discovery (NBDD) Research Group, Microbiome and Bioresource Research Strength (MBRS), Jeffrey Cheah School of Medicine and Health Sciences, Monash University Malaysia, 47500 Bandar Sunway, Selangor Darul Ehsan, Malaysia; hooileng\_ser@y7mail.com; Learn-Han Lee, Novel Bacteria and Drug Discovery (NBDD) Research Group, Microbiome and Bioresource Research Strength (MBRS), Jeffrey Cheah School of Medicine and Health Sciences, Monash University Malaysia, 47500 Bandar Sunway, Selangor Darul Ehsan, Malaysia;

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### Main text

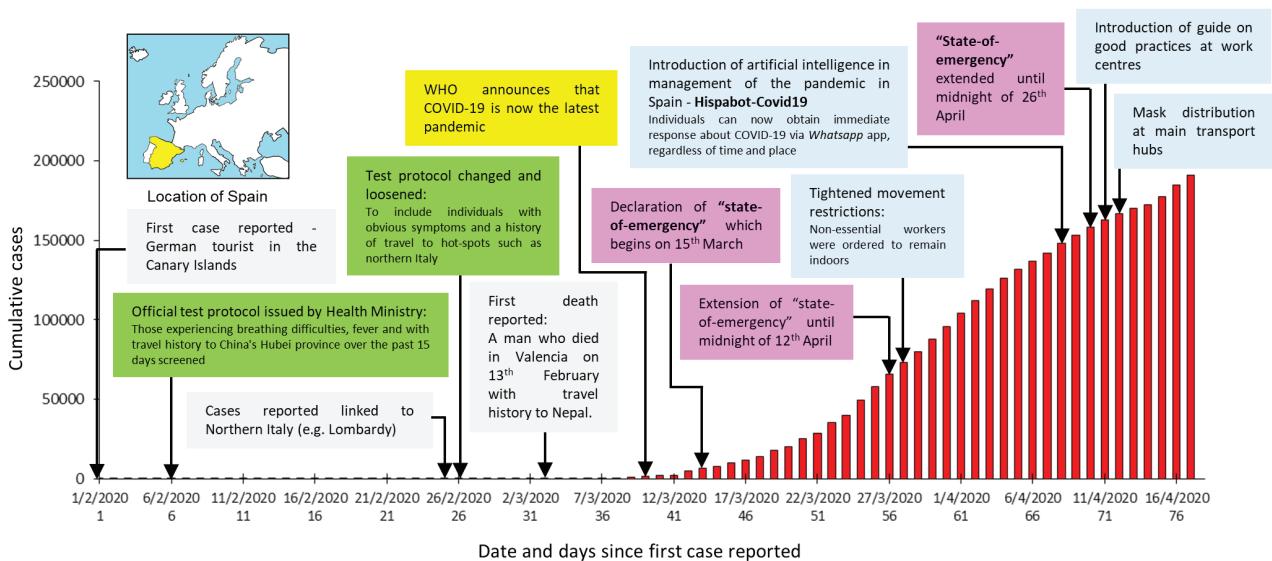
As a member of the European Union since January 1986, the population in Spain was reported to reach nearly 47 million with healthy life years (at birth) of 68 years for both male and female in 2018 based on report by World Bank and Eurostat<sup>[1,2]</sup>. Looking at the total of death (n = 418,516) in 2016, 80.5 % of them occurred in those above age of 70 years or older, while only 3.5 % of these cases were related to communicable diseases (n = 14,847; 95% uncertainty interval = 13,208–16,482)<sup>[3]</sup>. As a matter of

fact, the health reporting system in Spain has evolved much since the infamous health crisis during the World War I, known as the “Spanish Flu” or “La Grippe” and later on 1918 (H1N1) influenza pandemic<sup>[4–8]</sup>. The estimated worldwide mortality caused by this pandemic ranged from 20 to 100 million deaths. Even though Spain was the first country to publicly report this pandemic in the past, the true source of this pandemic remains a mystery till this date<sup>[6,7]</sup>.

Fast forward to more than 100 years later, another

pandemic is befalling humanity again; on 11<sup>th</sup> March 2020, the Director-General of World Health Organization (WHO) Dr Tedros Adhanom Ghebreyesus announced the disease COVID-19 to be the latest pandemic, caused by the novel coronavirus, SARS-CoV-2 as the number of cases increased drastically — as high as 13-fold compared to China where first few cases had been reported in December 2019<sup>[9-12]</sup>. Taking a view at the European countries, Spain was not spared from this novel coronavirus and the first case was reported on 31<sup>st</sup> January involving a German tourist in the Canary Islands, who has been in contact with people who had travelled to China (Figure 1)<sup>[10,11,13]</sup>. It was at this juncture the health authorities begun to set an official test protocol to have those experiencing breathing difficulties, fever and with travel history to China's Hubei province over the past 15 days screened. These criteria were later broadened to include those with obvious symptoms and a history of travel to "hot-spots" such as northern Italy. Within two months of the first case, the Spanish government has taken a lot of counter-measures in trying to reduce the widespread, including school shutdowns and later on flight control along with gatherings (of more than 1,000 people) at closed venues in hardest-hit hit areas. By the second week of March, the European countries have reported more than 5,000 cases, with Spain ranking

second in terms of most badly affected countries<sup>[11,13,14]</sup>. On the 14<sup>th</sup> March, the Spanish government used a Royal Decree (463/2020) to declare a "state-of-emergency", starting on 15<sup>th</sup> March which only allowed people to drive alone to perform basic needs activities such as procuring food or medication, attending health centres and financial institutions, returning to one's primary residence and caring for vulnerable people<sup>[15,16]</sup>. Another exception was those who are working in essential services. However, despite all of these measures, the number of confirmed cases in Spain continued to rise, leading to the subsequent announcement of extension on the "state-of-emergency" till midnight of 12<sup>th</sup> April and non-essential workers were ordered to remain indoors<sup>[17]</sup>. Along with these major announcements, the Spanish health ministry has also been constantly updating the general public regarding information on the disease along with advice on personal hygiene and preventive measures. The incorporation of artificial intelligence in management of the pandemic in Spain has also been deemed to be an important step to provide official response and inspire confidence in the public<sup>[18]</sup>. The conversational assistant known as Hispabot-Covid19 is a "chatbot service" set up by the government, allowing individuals to obtain immediate response about COVID-19 via Whatsapp app, regardless of time and place.



**Figure 1.** Graph of confirmed cases and important events including actions taken by the Spanish government for the management of COVID-19 (Data on number of confirmed cases retrieved from Coronavirus Resource Center, John Hopkins University of Medicine).

In a televised address to the nation, the Spanish Prime Minister Pedro Sanchez pointed out that the "lockdown" has begun to show positive results noted by the "the start of the decrease in the epidemic"<sup>[19,20]</sup>. Shortly after the approval of a Royal Decree to extend the state of emergency until midnight of 26<sup>th</sup> April by the Extraordinary Council of Ministers, the government published "a comprehensive guide on good practices in work centres to prevent the spread of COVID-19, coinciding with the return of their work force, on Monday (13<sup>th</sup> April) or Tuesday (14<sup>th</sup> April), encompassing all those workers in non-essential activities that cannot work from home"<sup>[21,22]</sup>. Besides promoting the "essential distancing" of 2 metres, the guideline recommends

"travelling to work by means that do not involve more than two people being in the same place" and encourages individuals to take the appropriate hygiene measures including avoiding more than one person using a row of seats for those travelling in a car or in a vehicle for hire and for those commute via public transport are recommended to use a non-medical face mask. In the same announcement, the government has also emphasized that an individual who has symptoms or have been in close contact with people affected by the virus are recommended not to go to the work centre until he/she is confirmed not to be at risk or a risk to others, and also encouraged individuals to contact the COVID-19 hotline (available in each region) and refer to the published list of 10 actions (<https://www.mscbs.gob.es/>

profesionales/saludPublica/ccayes/alertasActual/nCov-China/documentos/20200325\_Decalogo\_como\_actuar\_COVID19.pdf) in the event of displaying symptoms.

Apart from ensuring supply of materials such as personal protective equipment, detection kits and ventilators to regional health authorities, the government has currently appointed several logistical points around the country to distribute a total of 10 million face masks at main public transport hubs “to those people who need to travel to work on those means of transport where it is more complex to respect the safety distance”<sup>[23–25]</sup>. Having that said, the Ministry of Health still recommends working from home as the top priority, while the State law enforcement officers will be performing corresponding checks at suburban and underground stations and at transport hubs to make sure that only authorized traveller are commuting under the Royal Decree on the state of emergency. The Spanish Minister of Health Salvador Illa has also pointed out in early April that the government would not make the use of face masks compulsory, unless the public can gain access to them easily and the ministry is still studying the measure before rolling it out<sup>[26,27]</sup>.

The COVID-19 pandemic is indiscriminate, posing as an “unseen threat” to every nation in the world. As of 18<sup>th</sup> April, the total number of confirmed cases in Spain is recorded at 190,839 and death cases were reported to be 20,002 according to the data reported by Coronavirus Resource Center, John Hopkins University of Medicine<sup>[13, 14]</sup>. The Spanish government has recently expressed their support to the work of WHO to fight this crisis. As the Public Research Organization of the government, the Carlos III Health Institute has approved another four new research projects to tackle SARS-CoV-2 and is now supporting 15 research projects under the COVID-19 Fund with a total allocation of 5 million euros<sup>[28]</sup>. For instance, one of the newly financed project carried out by University of Seville, Institute of Biomedicine of Seville and Group of Technical Specialists in the Deactivation of Explosive Artefacts of the National Police is looking at building optical visualisation system to detect residues of virus, by using cameras that cater for different light spectrum. On the other hand, the Institute for Biomedical Research and Innovation of Cadiz is exploring the potential use of nano-sensors as diagnostic tool to identify immunoglobulin antibodies (IgG) which are produced by the host upon exposure to the virus. Another two latest research projects are more focused at therapeutic interventions — (a) carrying evaluation on approved medication(s) which could be effective against COVID-19 via supercomputing, and (b) looking into possible modification of a Spanish-produced vaccine, known as MTBVAC (which is being developed against tuberculosis) to be used in the battle against COVID-19. It is particularly exciting for the vaccine development project carried out the University of Zaragoza as the invention is already in its final pre-clinical phase. In the event that the vaccine is capable of generating non-specific immunity against SARS-CoV-2, this could mean a vital breakthrough that permits next phase of clinical trial in humans.

Tackling a pandemic is surely not an easy task. Based on the protocols established by the WHO, every nation can

be a “Noah”, setting up surveillance system for diseases and notifying the WHO in a timely manner to ensure adequate preparedness plans<sup>[29–31]</sup>. With leaders over the world indicating that “failure is not as option”, it is indeed dire times now as the spread of the virus cripples cities around and crashes the economies worldwide<sup>[32,33]</sup>. It may not be saving astronauts or rescuing animals as in the movies but instead focusing on real life which is redefining the earth’s inhabitant way of life as we write. With every nation joining hands together in this battle against the “unseen enemy”, it will just be a matter of time for the scientists and clinicians to discover the panacea — be it vaccine or drug to tackle this life-threatening coronavirus.

## Conflict of Interest

The authors declare that there is no conflict of interest in this work.

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