Experts' request to the Spanish Government: move Spain towards complete lockdown

We would like to express our concern about the limited capacity of actions taken by the Spanish Government to successfully control the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) outbreak and end the exponential growth phase of new cases. The measures taken so far, consisting primarily of partial restriction mobility, are in the right direction, although some researchers have warned about the pressure placed on the building blocks of the health system.[1]

Given that the actual extent of an epidemic can only be assessed retrospectively, governments and policy makers are forced to make decisions on the basis of mathematical models of other diseases and previous experiences by other countries taking different actions.[2] In Spain, various models simulating the spread of infection and using different assumptions converge in a landscape of a high number of new cases within the next few weeks. Simulations have been done using the URV and UNIZAR models to predict the progression of the number of patients who will require admission into hospital intensive care units because of coronavirus disease 2019 (COVID-19) in three scenarios (appendix): scenario 1, no mobility restrictions; scenario 2, partial restriction of mobility (ie, movement to the workplace allowed for 30% of people); and scenario 3, complete restriction of mobility (ie, no workplace mobility allowed except for essential services).

The model suggests that the actions taken to date, consistent with scenario 2, will be insufficient to prevent hospitals and intensive care units from being overwhelmed over the coming weeks. The foreseen collapse of the health system, along with the age distribution of the Spanish population (ie, 18% of people aged ≥65 years), suggests a potentially high mortality rate associated with COVID-19 in the country. According to our models, the current state is associated with a very high risk of saturation of our health system, which is expected to last from March 26 to April 24, 2020 (appendix). Therefore, we urge the Spanish Government to implement, as swiftly as possible, more drastic measures to minimise the impact of the pandemic on the Spanish population.

As a reference framework (to be adjusted, if applicable), we suggest the following measures. Establish regional categories according to the number of cases per 100 000 population and implement a package of multiple interventions that fit each category (appendix). For example, type A areas (≥100 cases per 10^5 inhabitants in the past 7 days) implement a complete shutdown of the region and citizen lockdown, except for essential services (eg, hospitals, health care, and research centres) for a minimum period of 15–21 days. This category includes, as of March 26, 2020, the Autonomous Communities of La Rioja (166 cases per 10^5 inhabitants), Madrid (155), Navarra (142), Basque Country (124), Castilla-La Mancha (127), Catalonia (115), and Castilla y León (109).

Type B areas (<100 cases per 10^5 inhabitants), which include all areas that are not considered type A, apply partial confinement (30% of work activity and 25% of internal movement allowed) and close monitoring of the growth rate of new infections. If the number of cases in a type B area increases sharply, it becomes a type A area. All non-essential inter-regional land, sea, and air transport must be totally interrupted for at least 15 days.

To implement combined non-pharmacological interventions for several weeks, including complete restriction of movement, work interruption, and social distancing, banning all travel and all non-basic economic activities, together with the intensified use of diagnostic tests in suspected cases has proven to yield good results.[3] Also, there is an urgent need to establish a purchasing and supply channel for personal protective equipment, which is currently insufficient for health personnel who are highly exposed to and prone to contagion. The recent finding on the spreading capacity of SARS-CoV-2 by contamination of eyelashes and hair reinforces this need.[4]

The proposed suppression policies will not mean the end of CoVID-19 in Spain in the initial 3–4 weeks; therefore, the development of strategies to sustain the gains is critical. A key lesson from the Asian experience is the need to create a robust surveillance system capable of collecting and reporting epidemiological data down to the individual or household level.[5] There are two pillars for the development of such a system: (1) the development and implementation of a universal mobile application for self-reporting of suspected COVID-19 symptoms as well as apps to support contact tracing efforts (eg, TraceTogether mobile app; Singapore); and (2) increased diagnostic capacity to test all individuals with symptoms for early isolation. The identification of an increase in the number of cases in an area would trigger quick remedial measures like the implementation of early and targeted suppression actions.

Importantly, we beg the Spanish Government to facilitate the access of the scientific community to outbreak data, thus providing artificial intelligence support in simulation and modelling, and to create core support groups that coordinate a comprehensive, objective, and transparent scientific response.

We declare no competing interests.

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See **Online** for appendix

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