

## The need for an independent evaluation of the COVID-19 response in Spain

Spain has been hit hard by COVID-19, with more than 300 000 cases, 28 498 confirmed deaths,<sup>1</sup> and around 44 000 excess deaths, as of Aug 4, 2020.<sup>2</sup> More than 50 000 health workers have been infected, and nearly 20 000 deaths were in nursing homes.<sup>3</sup> With a population of 47 million, these data place Spain among the worst affected countries. Spain is also reported to have one of the best performing health systems in the world<sup>4</sup> and ranks 15th in the Global Health Security index.<sup>5</sup> So how is it possible that Spain now finds itself in this position?

Potential explanations point to a lack of pandemic preparedness (ie, weak surveillance systems, low capacity for PCR tests, and scarcity of personal protective equipment and critical care equipment), a delayed reaction by central and regional authorities, slow decision-making processes, high levels of population mobility and migration, poor coordination among central and regional authorities, low reliance on scientific advice, an ageing population, vulnerable groups experiencing health and social inequalities, and a lack of preparedness in nursing homes. These problems were exacerbated by the effects of a decade of austerity that had depleted the health workforce and reduced public health and health system capacities.

A comprehensive evaluation of the health and social care systems is now needed to prepare the country for further waves of COVID-19 or future pandemics, identifying weaknesses and strengths, and lessons learnt. We are calling for an independent and impartial evaluation by a panel of international and national experts, focusing on the activities of the Central Government and of the governments of the 17 autonomous communities. This evaluation must include three areas:

governance and decision making, scientific and technical advice, and operational capacity. Moreover, the social and economic circumstances that have contributed to making Spain more vulnerable, including rising inequalities, must be considered.

Specific concerns include public health functions, leadership and governance, financing, health and social workforce, health information systems, service delivery, access to diagnosis and treatment, the role of scientific research, and the experience and values of individuals, communities, and vulnerable groups.

This evaluation should not be conceived as an instrument for apportioning blame. Rather, it should identify areas where public health and the health and social care system need to be improved. Although this type of evaluation is not usual in Spain, several institutions and countries, such as WHO<sup>6</sup> and Sweden,<sup>7</sup> have accepted the need for such a review as a means towards learning from the past and preparing for the future.

We encourage the Spanish Government to consider this evaluation as an opportunity that could lead to better pandemic preparedness, preventing premature deaths and building a resilient health system, with scientific evidence at its core.

AA has advised the Spanish and Catalan Governments. BGLV is a member of the multidisciplinary working group on COVID-19 for the Ministry of Science and Innovation of Spain, a member of the scientific committee on COVID-19 for the Government of the Canary Islands, Spain, and a member of the COVID-19 group of the Medical Council of Spain. IH has assessed two regional Spanish Governments on COVID-19. All other authors declare no competing interests.

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## Seroprevalence and presentation of SARS-CoV-2 in pregnancy

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One of several case series of pregnant women diagnosed with COVID-19 by PCR reports that 41 (10%) of the 427 women required admission to a critical care unit.<sup>1</sup> Most women described in these case series are in the third trimester of pregnancy, which could reflect reporting bias, or a higher risk of infection or increased disease severity compared with women in the first trimester of pregnancy.<sup>2</sup> Seroprevalence studies can detect infections that test negative on PCR, and provide information on early pregnancy, when doing PCR in asymptomatic individuals is logistically difficult. We tested for antibodies for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in 874 pregnant women consecutively attending first trimester screening (ie, at 10–16 weeks of gestation; n=372) or delivery (n=502) from April 14 to May 5, 2020, at three university hospitals (ie, Hospital Sant Joan de Déu, Hospital Clínic, and Sant Pau) in Barcelona, Spain. At

enrolment, women were interviewed for COVID-19 symptoms during the previous 2 months. We tested for anti-SARS-CoV-2 IgG, IgM, and IgA antibodies in participants' serum using VIRCLIA (Vircell Microbiologist, Granada, Spain). We re-tested 107 indeterminate results using VITROS (Ortho Clinical Diagnostics, Rochester, NY, USA) and re-classified samples as positive or negative for these antibodies. Women with COVID-19 were treated according to a standard protocol.<sup>3</sup>

125 (14%) of the 874 women were positive for anti-SARS-CoV-2 IgG, IgM, or IgA; 54 (15%) of the 372 women in the first trimester of pregnancy and 71 (14%) of the 502 women in the third trimester. 75 (60%) of the 125 women who were seropositive reported having no previous symptoms and 50 (40%) reported one symptom or more. 31 women (25%) had at least three symptoms or anosmia and eight (6%) had dyspnoea. Seven women (6%) were admitted to hospital for persistent fever (>38°C) and dyspnoea. Of these seven women, three had pneumonia that was classified as severe (bilateral chest condensation, respiratory rate >30 breaths per min, and leucopenia), required oxygen support but not critical care, and were discharged well. Symptomatic infection, hospital admission, and dyspnoea were significantly more prevalent in women in the third trimester of pregnancy than in women in the first trimester of pregnancy (appendix pp 1–2).

We have found a substantially higher seroprevalence (14%) of SARS-CoV-2 than that found by use of the SARS-CoV-2 PCR-positive rates (0.78%) in women aged 20–40 years in Barcelona, Spain.<sup>4</sup> Our data suggest that COVID-19 is commonly asymptomatic in pregnant women<sup>5</sup> and illustrate that seroprevalence studies might capture undiagnosed infections and offer different estimates of infection severity. In this study, none of the 125 women who were infected with

SARS-CoV-2 required critical care, compared with the 10% of women diagnosed with COVID-19 by PCR.<sup>1</sup> We believe these data are reassuring and relevant to pregnant women and obstetricians. Seroprevalence was similar between women in the first trimester of pregnancy and women in the third trimester, suggesting a similar risk of infection, but the proportion of women with symptoms and the proportion of women who required hospitalisation were higher in the third trimester group than in the first trimester group. This result agrees with data reported from case registries of pregnant women with COVID-19,<sup>1</sup> suggesting that, as with other respiratory viruses, SARS-CoV-2 might cause more severe disease and require increased surveillance in late pregnancy than in early pregnancy. These findings should be further investigated in larger studies. Samples of serum and peripheral blood mononuclear cells obtained in this study are stored at biobanks for future studies with better or complementary immunological tests. Long-term follow-up of the infants is now underway given the fact that SARS-CoV-2 is potentially neurotropic.<sup>6</sup>

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See Online for appendix