



## Editorial

## Are we ready for the new coronavirus? ☆

## ¿Preparados para el nuevo coronavirus?



31 December 2019: China (Wuhan) announces 27 cases of pneumonia related to a seafood and live animal market. On 7 January 2020, a new coronavirus is identified as the cause: 2019-nCoV, renamed COVID-19 by the World Health Organization (WHO) on 11 February 2020. We have since seen its rapid spread<sup>1</sup>.

COVID-19 is the third coronavirus causing severe pneumonia so far this century, together with those responsible for Severe Acute Respiratory Syndrome (SARS-CoV: 8098 cases in 2003 and a case fatality rate of 10% for 7 months) and Middle East Respiratory Syndrome (MERS-CoV: 2458 cases in 2012 and a case fatality rate of 34%). According to the Spanish Ministry of Health, as of 21 February, COVID-19 has accounted for 76 259 cases and 2247 deaths, representing an overall mortality of 2.9%, although in hospitalized patients it ranges between 4.3<sup>2</sup> and 11%<sup>3</sup>. Most cases are in China, but 1174 cases have also been reported in 25 other countries, with 9 deaths and a case fatality rate of 0.8%. All 3 viruses are zoonotic, their origin attributed to bats, with an intermediary step to other mammals (civet cats in SARS, camels in MERS and, it seems, pangolins in COVID-19)<sup>4</sup>. The new virus has probably emerged due to coexistence in the intermediate host of a bat coronavirus and a human one, capable of infecting man and being transmitted from person to person. There are 4 other coronaviruses that can cause the common cold.

The disease may have flu-like symptoms (high temperature, myalgia, respiratory symptoms, and possible progression to pneumonia), although with less abrupt onset, and upper respiratory symptoms appear to be insignificant or absent in coronavirus infection<sup>2,3,5</sup>. In both influenza and coronavirus, most patients do not present severe disease, but others may develop pneumonia. In hospitalized patients with COVID-19 pneumonia, 26% required intensive care; 61% of these developed acute respiratory distress syndrome and 30% shock<sup>2</sup>. Close contact with a confirmed case or a recent trip (14 days prior) to an affected region of China was important to differentiate them<sup>6</sup>.

Management involves isolation, symptomatic treatment, and support measures. There is no antiviral agent for this infection, although drugs used for other coronaviruses such as lopinavir-ritonavir and remdesivir are being tested<sup>7</sup>. Corticosteroids are not useful and should be avoided<sup>8</sup>. A vaccine is not foreseeable in the short term.

Transmissibility is very high, with a basic reproduction number—a measure of new cases from each infected patient—of 2.2 (at the level of SARS or the 1918 influenza pandemic)<sup>9</sup>, suggesting possible exponential growth. Transmission is by close contact, respiratory droplets or contaminated hands<sup>10</sup>. Transmission through infected surfaces is likely; human coronaviruses persist on metals, glass, or plastics for more than 9 days. A fecal-oral mechanism has not been ruled out. Nosocomial transmission, especially to health care workers (41% and 29%, respectively), is crucial<sup>2</sup>. An important factor is the potential for transmission from asymptomatic subjects<sup>11</sup>. Asymptomatic carriers are a concern, because they are difficult to identify and isolate, and therefore increase the chances of spread.

It is essential that all persons with symptoms suggestive of COVID-19 adhere to basic prevention measures (cough etiquette and hand hygiene). Since the detection of biological agents is not easy during health care, and it is initially difficult to establish specific preventive measures, the “Principle of Preventive Action” should be applied. Visual alerts should be posted at the entrance to health centers and in strategic locations inside, with instructions on hand hygiene and cough etiquette in the appropriate languages. These measures include isolation in a private room, restricted access and surgical mask. In addition to standard precautions, visitors should adopt measures against contact and droplets before entering the room of suspected or confirmed cases of COVID-19<sup>12</sup>.

Healthcare professionals should wear a gown (if not waterproof and splashes are anticipated, add a plastic apron), FFP3 mask<sup>13</sup>—single use in accordance with European standard EN149:2001 (American equivalent, NIOSH N95), with special emphasis on correct use<sup>12</sup>—gloves and eye protection.

Although airborne transmission by aerosols has not been demonstrated, it is thought that it could occur during invasive respiratory tract procedures<sup>14</sup> and if aerosols are generated (sputum induction, aerosol therapy, aspiration, bronchoscopy, etc.). The number of people in the room should be minimized<sup>12</sup>, performing the procedures in properly ventilated places<sup>15</sup>—ideally negative pressure rooms equipped with HEPA (High efficiency Particulate Air) filtration<sup>13</sup>—and using disposable shoe covers.

Prevention measures are required as soon as a case is suspected, especially hand hygiene at the 5 moments of clinical interaction, and before and after removing the facemask<sup>16</sup>. Consumables should be single-use, and, if they need to be shared between patients, cleaned and disinfected<sup>15</sup>. Cleaning staff should use the same protective equipment as described above. Consumables for which

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cleaning and disinfection are not practicable should be considered Class III Biomedical Waste, like other waste.

Reducing the number of contacts transmitting the disease by detecting and isolating carriers, developing drugs and vaccines, and educating the public would put us in a position to control or even eradicate the epidemic. There is also a need to clearly explain the actual incubation period, the role of asymptomatic carriers, the definitive reproduction number, and virus clearance after the cessation of symptoms.

The pathogenicity of COVID-19 is lower than that of SARS-CoV and MERS-CoV, and a seasonal slowdown of the epidemic, such as influenza outside winter, is possible. Nevertheless, a mutation of the new virus could appear to better adapt to man and enhance its virulence (as happened in SARS)<sup>17</sup>. For now, both appear to follow a similar pattern, with most patients not seriously ill and increased risk of mortality in individuals over 65 years of age with comorbidities or immunosuppression. It does not appear to be transmitted more rapidly or to have higher mortality than influenza.

Until very recently, the existence of sustained transmission outside China had not been taken into account, and confining the outbreak to China would have contained spread of the virus, as was the case with SARS. However, recent news of numerous rapidly-emerging cases in other parts of the world, such as South Korea and Italy, means that pandemic spread of the virus cannot be ruled out. We will know very soon and will invariably recommend adherence to the basic principle of preventive action.

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David Peña-Otero,<sup>a,e</sup> David Díaz-Pérez,<sup>b,e</sup> David de la Rosa-Carrillo,<sup>c,f</sup> Salvador Bello-Drona<sup>d,f,\*</sup>

<sup>a</sup> Hospital Sierrallana, Servicio Cántabro de Salud, Torrelavega, Cantabria, Spain

<sup>b</sup> Hospital Universitario Nuestra Señora de Candelaria, Servicio Canario de Salud, Santa Cruz de Tenerife, Tenerife, Spain

<sup>c</sup> Hospital de la Santa Creu i Sant Pau, Barcelona, Spain

<sup>d</sup> Servicio de Neumología, Hospital Universitario Miguel Servet, Zaragoza, Spain

<sup>e</sup> Área de Enfermería Respiratoria de la SEPAR, Spain

<sup>f</sup> Área de Tuberculosis e Infecciones Respiratorias (TIR) de la SEPAR, Spain

\* Corresponding author.

E-mail address: [sbello@salud.aragon.es](mailto:sbello@salud.aragon.es) (S. Bello-Drona).

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