

2. Epidemiology and clinical characteristics

SARS-CoV-2 is a betacoronavirus closely related to SARS-CoV and MERS-CoV. It is an enveloped, non-segmented, positive sense RNA virus. It is thought to have originated in bats but the animal responsible for transmission to humans remains unknown.

2.1 Epidemiology

The median incubation period for COVID-19 is estimated to be 4-5 days, with an interquartile range of 2-7 days. Based on patients' viral shedding patterns and on epidemiological modelling, patients appear to be infectious for 2-3 days prior to the onset of symptoms, and the contribution of pre-symptomatic infections to the overall pandemic may be substantial.¹⁻⁷ Based on early data, the basic reproductive number for the virus was approximately 2.2 (meaning that on average each person spread the infection to two others).⁸ A male preponderance of cases has been noted globally both in terms of absolute case numbers, and in severe disease.⁹⁻¹¹ Risk factors for severe disease include older age, cardiopulmonary comorbidities and diabetes mellitus. Very few cases which required hospitalisation have been reported among children under the age of 15 years (~1%). To date there has been little reported on associations between patients with HIV or TB and COVID-19.

2.2 Clinical characteristics – what to look for

Truly asymptomatic COVID-19 patients (as distinguished from pre-symptomatic patients) have been described, but their proportion is not well characterised yet.^{6, 12} Among symptomatic patients in China, 81% developed mild disease, an estimated 14% developed severe disease (with hypoxaemia, marked tachypnoea and extensive lung infiltrates), while 5% became critically ill (with respiratory failure, septic shock and/or multiorgan dysfunction).¹³ Because of the strong effect of age on disease severity, the proportions of mild, severe, and critical cases seen in a country will partially depend on that country's population age structure however.

The most common presenting symptom has been fever in approximately 90%, but importantly this may only be present in a minority of patients on admission.^{11, 14} A cough is present in two-thirds of patients, but sputum production is only reported by one third of patients, as is dyspnoea. Myalgia, a sore throat, nausea, vomiting, and diarrhoea are all present in less than one fifth of cases.^{11, 14, 15} Anosmia (loss of sense of smell) and dysgeusia (alteration of the sense of taste) have also emerged as relatively common, early, and moderately specific symptoms.^{16, 17}

Abnormalities are visible on chest X-ray in at least 60% of hospitalised COVID-19 patients, with chest CT scans being more sensitive.^{11, 14, 18} These are typically bilateral patchy ground glass opacities, though other patterns have been described.^{11, 19} However, a normal chest X-ray or chest CT scan does not rule out COVID-19. This is especially true of patients with mild disease, in whom a majority of chest X-rays may be normal.²⁰

2.3 Outcomes and prognosis

The vast majority of cases will make a full recovery although this may take several weeks, particularly in severe cases. In a minority of cases, COVID-19 has been associated with rapid progression to acute respiratory distress syndrome (ARDS), multiple organ failure and sometimes death. Internationally, the case fatality ratio has ranged between 0.7-7%, and is partially determined by the particular population's age distribution, the pandemic's burden on the healthcare system at the time, and the extent to which mild or asymptomatic cases are diagnosed.^{9, 21} Long-term sequelae, if any, are currently unknown.