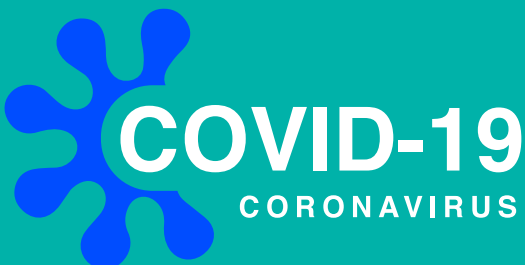




**World
Physiotherapy**

**World Physiotherapy
response to COVID-19
Briefing paper 7**

AN OVERVIEW OF COVID-19



May 2021

World Physiotherapy briefing papers

World Physiotherapy briefing papers inform our member organisations and others about key issues that affect the physiotherapy profession.

World Physiotherapy is producing a series of papers in response to COVID-19.

Acknowledgement

Jon Warren is thanked for preparing this paper.

➤ Introduction

The coronavirus disease 2019 (COVID-19) is a serious disease affecting the global population. It is caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Following an outbreak in December 2019 in Wuhan, China, the disease spread globally, and a pandemic was declared by the World Health Organization (WHO) on 11 March 2020. By the beginning of May 2021, globally, over 3.2 million COVID-19 related deaths and more than 155 million related cases had been recorded. ¹

Disease: coronavirus disease (COVID-19)

Virus: severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)

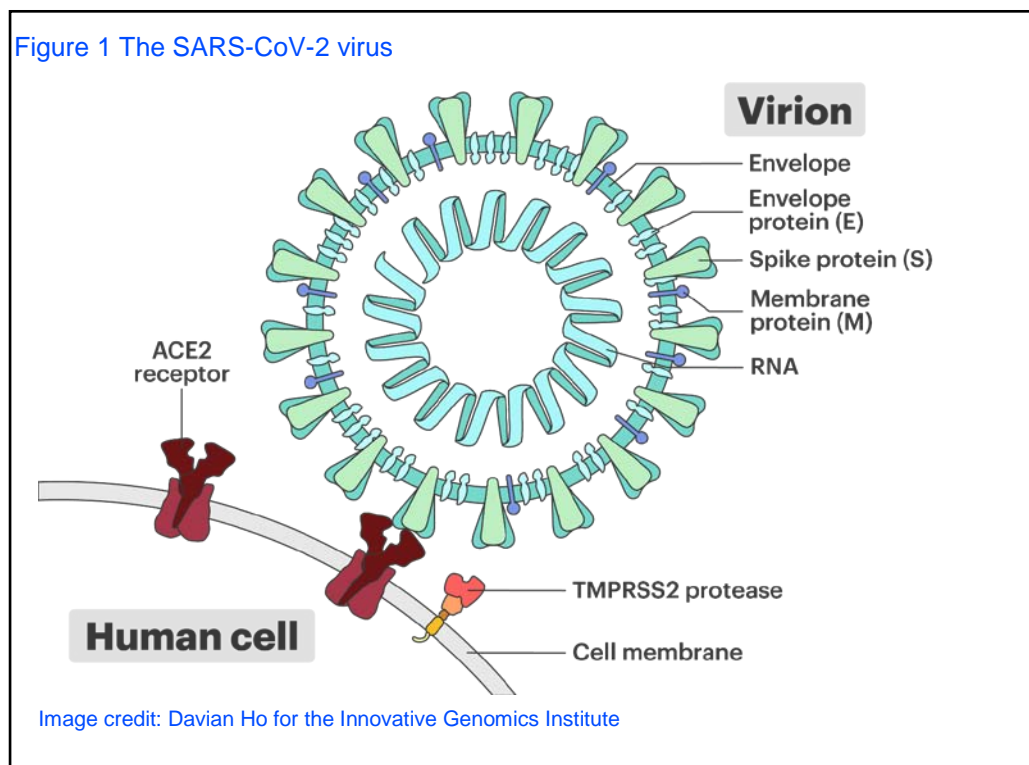
The coronavirus family includes viruses that infect both humans and animals. Human coronaviruses cause seasonal upper respiratory tract infections that are usually mild and associated with 'common cold' symptoms. ²

There are many coronaviruses in animals, and occasionally these cross over to humans due to virus mutation or close contact. This is known as a spillover event and is likely to cause the SARS-CoV-2 virus, which causes COVID-19. Bats are often reported to be the most likely transmission source. It has been suggested that pangolins may have been the intermediary host in the SARS-CoV-2 transmission from bats to humans from a wet market in Wuhan, China. ³

There have been two previous spillover events in the last 20 years:

- 2003 Severe Acute Respiratory Syndrome (SARS-CoV-1) ⁴
- 2012 Middle East Respiratory Syndrome (MERS-CoV) ⁵

SARS-CoV-2 is a ribonucleic acid (RNA) virus. The spike protein gives the virus its shape and crownlike appearance (figure 1). This protein is the key to transmitting the virus into human cells via the angiotensin-converting enzyme 2 (ACE2) receptor. The virus replicates inside cells using its RNA.



➤ New Variants

Viral variants are normal and inevitable. In December 2020, the increase in reported COVID-19 cases was attributed to the new SARS-CoV-2 variants in the UK and South Africa. These variants had mutations in the spike protein, and the increase in transmission was estimated to range between 40% and 70%.⁶

➤ Transmission

Virus transmission occurs following the shedding of infectious virions from the infected host to a susceptible host. SARS-CoV-2 is a respiratory virus and is predominantly spread via airborne transmission of virus-containing particles, including droplets and aerosols, eg exhaled breath, talking, singing and shouting.^{7,8} Transmission from contaminated surfaces is uncommon.

Infection due to SARS-CoV-2 can be asymptomatic or mildly symptomatic, particularly in the young, generally fit population. Research estimates at least one-third of SARS-CoV-2 infections are asymptomatic,⁹ and these infected people could account for more than half of all transmission.¹⁰

The incubation period is generally around four to five days, though it has been suggested it could be as short as 48 hours and as long as 14 days. Shedding of a viable virus is short-lived with the peak viral load in the first week of illness.¹¹

Health care professionals (HCPs), including physiotherapists, have an increased risk of SARS-CoV-2 infection due to the close contact they may have with highly infected patients. A tenth of HCPs in screened hospitals were diagnosed as infected, with 40% asymptomatic at the time of diagnosis. Among the total positive diagnoses, 50% were nurses.¹² There is no reliable data available on the occupational exposure risk for physiotherapists. Appropriate personal protective equipment (PPE) is necessary for all physiotherapists that may be working with patients with COVID-19.

➤ Symptoms

COVID-19 has symptoms similar to influenza and the common cold. As most infected people develop only mild to moderate symptoms, this can undermine the disease's significance. The range of symptoms is summarised in table 1.¹³

Table 1: Range of symptoms

Most common symptoms	Less common symptoms	Serious symptoms
fever	aches and pains	difficulty breathing or shortness of breath
dry cough	sore throat	chest pain or pressure
tiredness	diarrhoea	loss of speech or movement
	conjunctivitis	
	headache	
	loss of taste or smell	
	a rash on skin or discolouration of fingers or toes	

➤ **Diagnosis**

Rapid and accurate detection of infection via laboratory analysis is the cornerstone to diagnosis for pandemic control. The range of symptoms and the similar presentation to other viral infections make a diagnosis of COVID-19 problematic without specific laboratory testing.

As COVID-19 is predominantly a respiratory illness, viral detection of specimens from the upper respiratory tract is recommended as the primary means of diagnosing an active infection. The current gold standard diagnostic test is the real-time polymerase chain reaction (RT-PCR) assay test.¹⁴ The sample is collected from a nasopharyngeal swab (NPS). This is a sensitive test and will detect viral shedding for a long time following the initial infection. Unfortunately, this test may not be available in less resourced areas.

Rapid antigen or lateral flow testing, which involves a hand-held device with an absorbent pad, can provide results within 30 minutes. This is effective in identifying people who have symptoms though there is variance in reliability with different brands.¹⁵ These kits are being offered in some countries (such as the UK) by employers to help ensure safe workplaces free of COVID-19.

Saliva testing has the advantage of being sensitive, noninvasive and safer to healthcare workers as no close contact with the patient is necessary. Although saliva testing's sensitivity is less than the NPS, this test could be a suitable alternative first-line test in low resource settings.¹⁶

The antibody or serology testing looks for antibodies in the blood to determine if a person has previously had COVID-19. These antibodies are also produced following vaccination.

➤ **Severity**

There is a wide range of severity for COVID-19, from asymptomatic to death. Early in the epidemic, the Chinese Center for Disease Control and Prevention reported that from 44,672 confirmed cases, 81% were mild, 14% severe, and 5% critical.¹⁷ Research has found the infection fatality rate to be less than 0.2.% in most locations.¹⁸ This rate will vary substantially depending on the population demographics, health system capacity and other local factors.

A plethora of patient factors has been described to help clinicians predict COVID-19 severity, including demographic, immunologic, haematological, biomedical and radiographic findings.¹⁹ COVID-19-related death has been associated with greater age and deprivation, being male, and most comorbidities.²⁰

Most people infected with the SARS-CoV-2 will experience mild to moderate respiratory illness and recover without requiring special treatment. Older people and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness.¹³ It has been estimated that patients with COVID-19 are admitted to intensive care in hospital at a rate of six times greater than during the 2009 influenza pandemic.²¹

➤ **Management**

The management of COVID-19 has rapidly developed throughout the pandemic as more is known about the disease process. WHO has published a guide with the most up-to-date recommendations for the optimal care of patients with COVID-19.²² As COVID-19 is a multi-system disease, it requires rehabilitation from the full multidisciplinary team.

Physiotherapy has an important role in the management of patients hospitalised with COVID-19. ²³ A higher frequency and duration of physiotherapy has been found to improve mobility and increase the probability that a patient with COVID-19 will be discharged home. ²⁴

➤ Long COVID

Long term prolonged multiorgan system persistent symptoms and complications have been reported in 20% of patients post-acute COVID-19 infection phase. ²⁵ This has been termed 'long COVID' or post-COVID-19 syndrome. The related symptoms are extensive and include extreme fatigue, shortness of breath and chest tightness, a chronic cough, cognitive dysfunction and psychiatric disorders. The National Institute for Health and Care Excellence in the UK has published a guideline for the management and care of people with long-term effects of COVID-19. ²⁶ World Physiotherapy will be publishing a briefing paper specifically on long COVID.

➤ The COVID-19 timeline

The spread of the COVID-19 pandemic, the deadliest of the twenty-first century, caused a massive shift in focus and speed of scientific research and how it is shared. This has culminated in vaccines being developed, tested and approved within 11 months.

- 31 December 2019 ➤ clusters of cases of pneumonia in Wuhan, China was reported to WHO
- 12 January 2020 ➤ the genetic sequence of the causative agent of the outbreak was publicly shared
- 30 January 2020 ➤ WHO declares a Public Health Emergency of International concern
- 11 February 2020 ➤ WHO names the disease COVID-19
- 11 March 2020 ➤ WHO declares COVID-19 a pandemic, with 118,000 cases and 4291 deaths estimated to have occurred across 114 countries. ²⁷ This was the fifth documented pandemic since the 1918 influenza pandemic
- March 2020 ➤ Phase 1 COVID-19 vaccine clinical trials commence worldwide
- 28 September 2020 ➤ globally, the COVID-19 death toll passes one million
- 9 November 2020 ➤ announcement of the first COVID-19 vaccine efficacy results
- 8 December 2020 ➤ mass vaccination campaign started in the UK with the first person vaccinated
- 15 March 2021 ➤ globally, more than 359 million doses of vaccines against COVID-19 have been administered
- 30 March 2021 ➤ more than 547 million vaccine doses have been administered

Vaccines and immunisations are the topics of another World Physiotherapy [briefing paper](#).

➤ Resources

World Physiotherapy's [COVID-19 information hub](#).

World Physiotherapy's [#PPE4PT advocacy campaign](#)

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