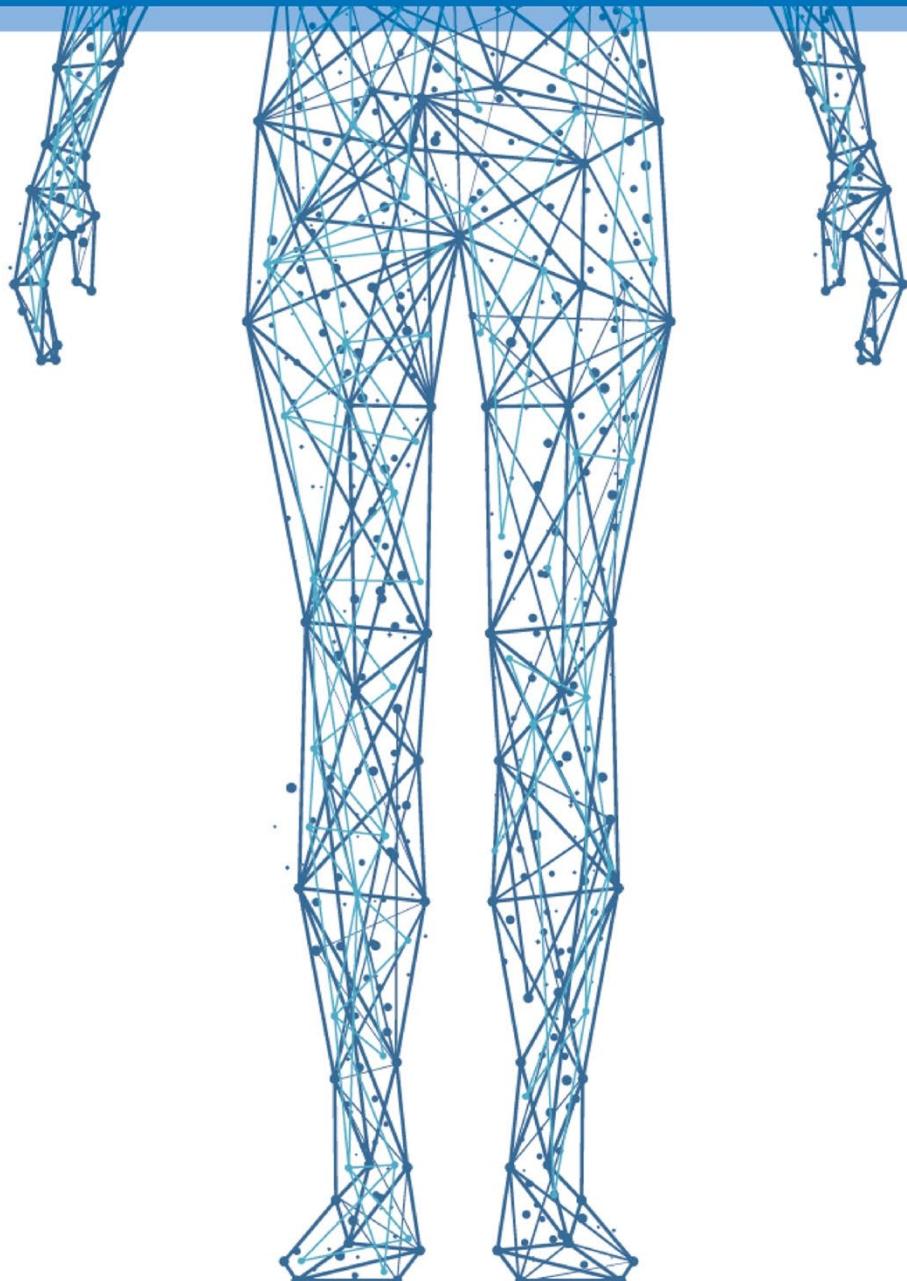


A clinical case definition of post COVID-19 condition by a Delphi consensus

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Acknowledgements

World Health Organization (WHO) clinical case definition working group on post COVID-19 condition: Joan B Soriano (Senior Consultant), Maya Allan, Carine Alsokhn, Nisreen A Alwan, Lisa Askie, Hannah E Davis, Janet V Diaz, Tarun Dua, Wouter de Groote, Robert Jakob, Marta Lado, John Marshall, Srin Murthy, Jacobus Preller, Pryanka Relan, Nicoline Schiess, Archana Seahwag.

We thank all participants, and particularly the patients and patient-researchers with post COVID-19 condition who contributed their time and expertise to this Delphi exercise. We also thank Professor Paula Williamson, at the University of Liverpool, Liverpool, United Kingdom of Great Britain and Northern Ireland, for providing free access to the DelphiManager software and Bridget Griffith for her technical support in organizing data from DelphiManager. Professor Joan B Soriano was a Senior Consultant at the COVID-19 Clinical Management Team, WHO Health Emergency Programme, World Health Organization, Geneva, Switzerland from November 2020 to June 2021.

Contributions: Joan B Soriano, Janet V Diaz, John Marshall, Srin Murthy and Pryanka Relan wrote the research protocol; Joan B Soriano and John Marshall wrote the first draft of the manuscript; Pryanka Relan performed the data analysis; all authors contributed to the writing and approved the final version.

Conflicts of interest: The authors declare there are no conflicts of interest in relationship with this manuscript.

Funding: This study was funded internally by WHO. There were no payments to participants.

Abbreviations

AIDS	acquired immune deficiency syndrome
CDC	Centers for Disease Control and Prevention
COVID-19	coronavirus disease 2019
HIV	human immunodeficiency virus
ICD	International Classification of Diseases
NICE	National Institute for Health and Care Excellence
PICS	post-intensive care syndrome
SEIS	systemic exercise intolerance syndrome
STROBE	Strengthening the Reporting of Observational studies in Epidemiology
WHO	World Health Organization

Abstract

Background: A proportion of those infected with SARS-CoV-2 experience long-term symptoms. Definitions of this emerging condition vary, leading to complexities in advancing research and clinical policy development. Over the course of the pandemic, various terminology including long COVID, long-haul COVID or the WHO-recommended post COVID-19 condition have been proposed. Still, a globally standardized clinical case definition of this condition remains lacking.

Aim: We aimed to determine the most important domains and variables for inclusion into a globally relevant and standardized clinical case definition for post COVID-19 condition.

Methods: We conducted a two-round Delphi exercise, followed by a mixed, iterative consensus process. Five groups of stakeholders were engaged: patients, patient-researchers, external experts, WHO staff and others. Participants were chosen for balanced representation across age, gender, specialty, area of expertise and geography. Pre-defined statistical thresholds for consensus and disagreement were established.

Results: There were 265 participants in Round 1, with 241 complete responses and 24 incomplete responses. In Round 2 there were 195 participants, with 178 complete responses and 17 incomplete responses. From an initial list of 14 domains identified, 11 were selected in Round 1, and one was added in Round 2 for a final total of 12. Each domain consisted of multiple questions and a total of 45 items were asked in the survey. A clinical case definition was developed with those domains that reached the pre-defined thresholds and further expanded with values that reached borderline significance. Wording was trimmed in an iterative process with patients and patient-researchers.

Conclusion: Through a large global consensus process, a working clinical case definition of post COVID-19 condition, including 12 domains, is now available for use in all settings. This definition may change as new evidence emerges and our understanding of the consequences of COVID-19 continues to evolve.

1. Research in context

1.1 Evidence before this study

Most patients who suffer from coronavirus disease 2019 (COVID-19) fully recover, but some remain with long-term effects on several body systems, including pulmonary, cardiovascular and nervous systems, as well as psychological effects. These effects appear to occur irrespective of the initial severity of infection, but occur more frequently in women, middle age, and in those with more symptoms initially. The absence of both a single terminology and a clinical case definition have been repeatedly signalled as drawbacks to advance on research and management of these patients.

1.2 Added value of this study

By means of a Delphi methodology, and in two rounds, this study identified the domains and variables to be included in a clinical case definition of post COVID-19 condition, which is the name proposed by the WHO International Classification of Diseases (ICD) – ICD-10 U09. They were scored by patients, clinicians, researchers and others, representing all WHO regions. A clinical case definition was built, and it was further expanded with those domains that reached the pre-defined thresholds and values that reached borderline significance. Wording was trimmed in an iterative process with a small group of patients and patient-researchers. Those involved in assessing the Delphi findings submitted conflict of interest forms that were reviewed and managed by the WHO technical unit. No conflicts of interest were identified. A definition with 12 domains and 88 words was identified.

Post COVID-19 condition occurs in individuals with a **history of probable or confirmed SARS-CoV-2 infection, usually 3 months from the onset of COVID-19 with symptoms that last for at least 2 months and cannot be explained by an alternative diagnosis**. Common symptoms include **fatigue, shortness of breath, cognitive dysfunction** but also others (see **Table 3** and **Annex 2**) which generally have an **impact on everyday functioning**. Symptoms may be **new onset**, following initial recovery from an acute COVID-19 episode, or **persist** from the initial illness. Symptoms may also **fluctuate** or **relapse** over time. A separate definition may be applicable for children.

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