

COVID-19 FUNDED RESEARCH PROJECTS IN FOCUS



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Key Findings:

Number of Long Covid projects:

72

Funding investments (known funding amounts):

\$33m

Top funder:

UKRI & NIH

Long Covid

Other names: Post-acute COVID; Chronic COVID; Long haul COVID

As the coronavirus pandemic evolves, there is increased interest in the emerging phenomenon, now commonly referred to as “long COVID”, which encompasses a wide spectrum of persistent and newly emerging multisystemic symptoms following COVID-19 infection. These include cough, fatigue, shortness of breath, alterations in taste and smell, depression and mood disturbances (1). Cardiac, pulmonary and renal sequelae may also follow COVID-19 infections. To date, there is a lack of consensus on a clear definition, diagnosis, clinical characterization and management, rehabilitation and appropriate support for sufferers in addition to difficulties in ascertaining its prevalence (1) (2). Here, we present the scope of funded research activity focussing on various aspects of long COVID, based on evidence from the second three-month update of the Living Mapping Review (LMR) of COVID-19 funded research projects and the UKCDR/GLOPID-R [COVID-19 Research Project Tracker](#).

Methodology

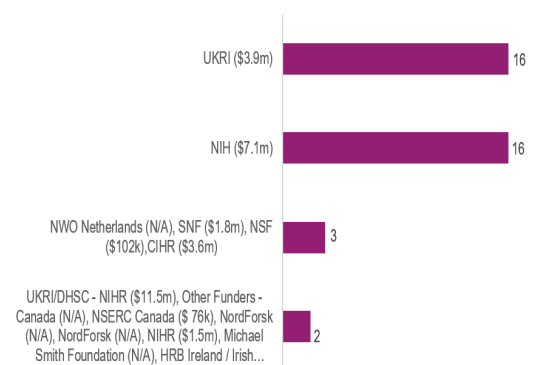
Descriptive and thematic analyses were done as outlined in the [LMR study protocol](#). Projects addressing Long Covid were identified and key funders, funding amounts, country distribution of projects, specific research focus, and study populations were determined.

Findings

Locations, funders and funding amounts

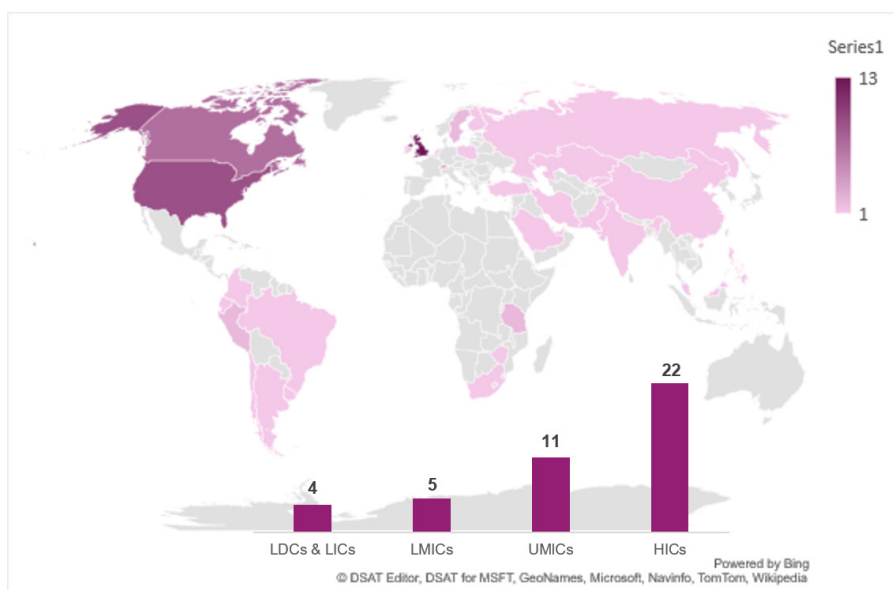
Seventy-two long COVID research projects representing a research funding investment of at least \$33m were identified. However, funding amounts were available for only 66% of projects and hence the total funding amount identified is underestimated. Figure 1 shows, the 25 funders who funded long COVID research projects. Of these, UKRI and NIH funded the most projects (16 projects each). Research involved at least one of 42 countries, as shown in Figure 2, although one large CIHR-funded project alone took place across 27 countries. Five other projects involved at least two countries. Most projects are taking place in high-income (HICs) and upper-middle income countries (UMICs) in Europe and the United States.

Figure 1: Funders of Long Covid projects (funders of 2 or more projects shown)



*Known funding amounts included

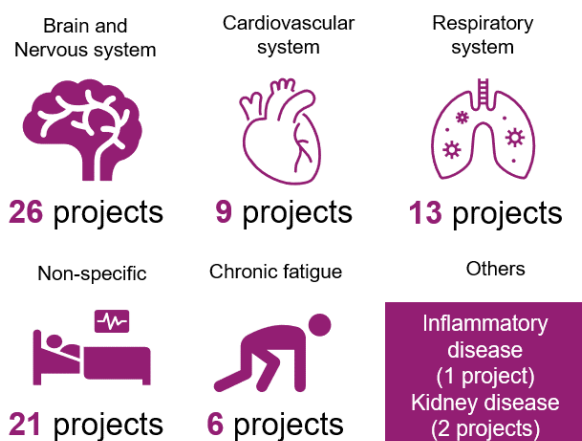
Figure 2: Locations of Long Covid projects



Research focus and WHO research priorities

The majority of projects assess brain and nervous system sequelae following COVID-19 infections and most projects focussed on determining the spectrum of long COVID symptoms as well as understanding the pathogenesis and risk factors for its development, as seen in Figure 3 and Table 1 respectively. Interestingly, long COVID was not identified at the time the WHO roadmap priorities were being set and this theme emerged out of the LMR analyses. All but nine long COVID projects fell within the ‘clinical characterization and management’ priority area. Of these five fell under ‘epidemiological studies’, with some being prevalence studies of long COVID and two categorised under ‘Virus: Natural history, transmission and diagnostics’ which investigate the genetic determinants and pathogenesis of long COVID. Two other projects fell under ‘social sciences in the outbreak response’ which focus on mental health and rehabilitation.

Figure 3: Organ / System of research focus



Some projects fall under more than one area

Table 1: Research focus of Long Covid projects

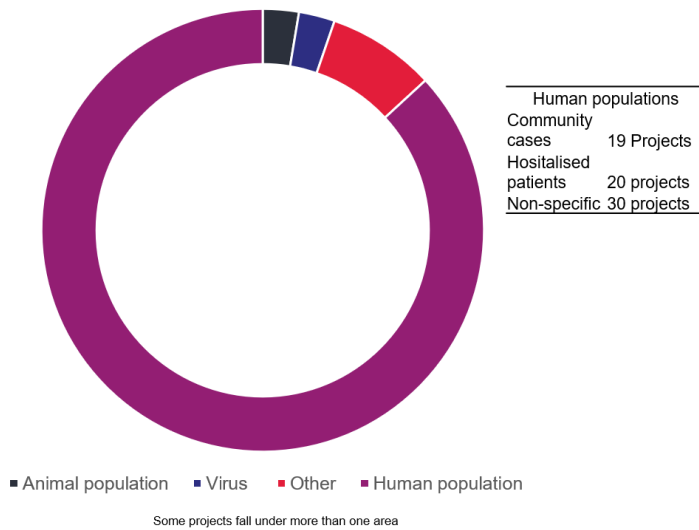
Research focus	No. of projects
Spectrum of long-term symptoms	30
Management	12
Pathogenesis	18
Risk factors	17
Prevalence	6
Prevention	2
Diagnosis	7

Study Populations

Almost 90% of projects (64 projects) involve human subjects with several studies planned for recovered and infected patients. Both symptomatic and asymptomatic hospitalised patients and community populations were included in research projects. Although many projects provided non-specific study population details as seen in Figure 4, the majority of projects involved individuals with confirmed COVID-19 infections.

Two projects investigate long COVID pathogenesis in animals whilst others focussed on digital innovations for management of long COVID. Seventeen projects are carried out in newly created or existing research cohorts pivoted for COVID-19 research and these predominantly investigated community cases of long COVID. Only two long COVID projects involved children whilst few or no projects involved other vulnerable populations and frontline workers.

Figure 4: Study populations involved in Long COVID research projects



Discussion and conclusion

As the COVID-19 pandemic evolves, researchers and funders are adapting research priority areas to emergent needs, highlighted by the expanding spectrum of research activity to further understand long COVID. Several studies seek to identify risk factors and understand the pathogenesis of long-term sequelae in order to prevent these aftereffects or minimise their severity. Identifying the scope of long COVID symptoms will enable a comprehensive definition, diagnosis and development of treatment protocols. We expect more research activity focusing on rehabilitation and management as the pandemic evolves. The GloPID-R/ISARIC long COVID meetings held in early December 2020 identified important research priorities which are now [published in BMC Medicine](#) and have already informed funder responses.

About the UKCDR/GloPID-R Tracker

The UKCDR/GLOPID-R [COVID-19 Research Project Tracker](#) (the Tracker) is a live open access database which categorises COVID-19 research activity funded around the world against the [WHO research priorities](#) outlined in the WHO Coordinated Research Roadmap. [COVID CIRCLE](#) has initiated a Living Mapping Review of these projects, published in Wellcome Open Research, to support funders and researchers in the achievement of a coherent response to this pandemic.

For more on the Tracker and our work on COVID-19, visit: ukcdr.org.uk/covid-circle

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Notes

Limitations of data and findings: Study protocol is outlined in Living Mapping Review of COVID-19 funded research projects. Analysis was limited by:

- o A lack of completeness of funding and/or qualitative data for some projects.
- o Tracker data is more likely to be derived from UKCDR and/or GloPID-R funders.
- o The absence of commercial research.

References

1. Del Rio C, Collins LF, Malani P. Long-term Health Consequences of COVID-19 [Internet]. Vol. 324, JAMA - Journal of the American Medical Association. American Medical Association; 2020 [cited 2020 Nov 25]. p. 1723–4. Available from: <https://jamanetwork.com/>
2. Mahase E. Long Covid could be four different syndromes, review suggests [Internet]. Vol. 371, BMJ (Clinical research ed.). NLM (Medline); 2020 [cited 2020 Nov 25]. p. m3981. Available from: <http://dx.doi.org/10.1136/bmj.m3981>