To: CMO	**From:**	**NR Long COVID policy team**
	Clearance:	**Alexandra Gowlland, Deputy Director, Provider Efficiency and Sponsorship**
	Date:	**22 January 2021**
	Copy:	**NR**
		Elin Jones, Lee McDonough, NR
		PS Bethell NR
		SOSPO (NR

Long COVID update

Issue	CMO and GCSA have been commissioned to write a note for no.10 on 'what we know' about long COVID. This note gives a high level overview on emerging evidence, system response, gaps and policy issues. This note covers the following areas: 1. What is Long COVID? 2. What do we know about the prevalence of Long COVID? 3. System response 4. Research priorities and funding 5. Risk assessment and potential impact 6. Cross UK engagement 7. Emerging policy issues

INTRODUCTION

As requested, this note provides briefing on some of the key themes and risks that have emerged linked to Long COVID. This note also outlines the system response thus far and highlights gaps in knowledge and areas for further policy exploration. In recent weeks, media and Parliamentary interest has increased and there was a Backbench debate on Long COVID on 14 January. The APPG on Coronavirus also held an evidence session focused on Long COVID on 12 January.

COVID-19 is a new disease and therefore it is not yet clear what the medical, psychological and rehabilitation needs will be for those experiencing long-term effects of the virus. We are lacking robust, real time data and research is still at an early stage. However, the emerging evidence suggests that Long COVID presents a risk to the health of the population and is likely to place continued demands on the health and care sector.

The challenge is quantifying that risk and understanding the impact at an individual, population and system level. New research commissions will help to close the evidence gap. However, they are unlikely to provide answers in the short-term to support decision-making on non-pharmaceutical interventions.

1. WHAT IS LONG COVID?

NHS England and Improvement (NHSEI) commissioned a clinical case definition of Long COVID from the National Institute for Health and Care Excellence (NICE), which was published on 30 October 2020, and evidence-based clinical guidelines, which were published on 18 December 2020[i]. NICE identified three phases post COVID-19 infection, the latter two of which are commonly described as Long COVID:

- Acute COVID-19: signs and symptoms of COVID-19 for up to four weeks
- Ongoing symptomatic COVID-19 (signs and symptoms of COVID-19 for between 4 and 12 weeks)
- Post COVID-19 syndrome: signs and symptoms of COVID-19 that continue for more than 12 weeks and are not explained by an alternative diagnosis.

The NICE guidelines explain that Long COVID presents with clusters of symptoms, often overlapping and/or fluctuating, and affecting any system in the body.[1] There are powerful patient stories highlighting the debilitating effects that some people are experiencing. Patient groups are active and have a strong social media presence, although due to variances in social media use there are risks that the patient voice is unrepresentative.

History of compatible illness without any confirmatory testing, and seropositivity, are implicitly included within the case definition as there is no diagnostic criterion, only a 'history of suspected or confirmed acute COVID-19'. Public Health England has suggested that further refinement of the existing case definition should include confirmed PCR cases and confirmed antibody positive. However, this may be resisted by patient groups due to limited availability of testing during the early stages of the pandemic.

2. PREVALENCE OF LONG COVID

Unlike COVID-19 case data, we are not in a position to provide daily updates or real-time data on the prevalence of Long COVID. The best estimates are currently provided through the ONS but there is a data lag. In December, the ONS published experimental statistics on prevalence. The ONS estimated that:

- Around 1 in 5 respondents testing positive for COVID-19 exhibit symptoms for a period of 5 weeks or longer and
- Around 1 in 10 respondents testing positive for COVID-19 exhibit symptoms for a period of 12 weeks or longer.

Using those figures alongside weekly incidence rates from the COVID-19 Infection Survey, the ONS suggested that during the week commencing 22 November 2020, around 186,000 people in private households in England were living with symptoms that had persisted for between 5 and 12 weeks (95% confidence interval of 153,000 to 221,000).[ii] This estimate does not however give information on severity of symptoms, duration of symptoms or information on what proportion of people might seek additional treatment.

---

[1] Common symptoms of Long COVID include: breathlessness, cough, chest tightness/pain, palpitations, fatigue, fever, body aches, cogitative impairment (brain fog), headache, insomnia, dizziness, delirium, abdominal pain, nausea, diarrhoea, reduced appetite, depression, anxiety, tinnitus, earache, sore throat, loss of taste and/or smell and skin rashes.

On 21 January 2021, the ONS published updated prevalence figures and estimated that during the week commencing 27 December 2020, 301,000 people in England had symptoms that had persisted for between 5 and 12 weeks (95% confidence interval: 274,000 to 329,000).[iii]

It should also be noted that ONS has suspended production of the weekly COVID-19 incidence rate whilst a methodological review is conducted, hence it is not currently possible to provide a more up-to-date estimate of point-in-time prevalence than that given above.

Prevalence figures from the ONS are higher than some other estimates. One reason for this could be that the numbers do not distinguish between symptoms that started at the point of infection and could include pre-existing symptoms. The ONS cannot rule out that some respondents are reporting symptoms which were not caused by COVID-19 infection. For example, emerging findings from the COVID Symptom Study app (also known as the ZOE app)[iv] (published via a pre-print and not peer reviewed) suggest lower estimates. Of 4182 incident cases of COVID-19 who logged symptoms prospectively, 558 (13.3%) had symptoms lasting longer than 28 days, 189 (4.5%) for longer than 8 weeks and 95 (2.3%) for longer than 12 weeks. Older people, women and those with a greater number of different symptoms in the first week of their illness were more likely to develop long COVID.

As part of the process for producing clinical guidelines NICE undertook literature searches on prevalence of symptoms between 4 and 12 weeks and beyond 12 weeks in October 2020[v]. The overall certainty in the evidence was low to very low and the expert panel who reviewed the evidence were unable to draw strong conclusions as to differences in symptoms at different timepoints. However, the published evidence and patient experience showed that for many people symptoms resolve by 12 weeks. NICE also undertook a literature review into risk factors. Because of the diverse range of risk factors reported and the low quality of evidence, the panel concluded that they could not be confident in identifying specific risk factors, but did note that the most common symptoms could be considered as 'warning signs' that should prompt follow up[vi]. Therefore, NICE recommended additional research into both the prevalence and incidence of post-COVID across population groups and the factors influencing the risk of developing post-COVID syndrome and the trajectory of post-COVID syndrome.

The Surveillance and Immunity team within the Joint Biosecurity Centres is currently in the process of reviewing work carried out by their range of existing studies (including the COVID-19 Infection Survey, REACT and the Zoe app) to identify current knowledge on Long COVID derived from these studies and whether further contributions can be made.

3) SYSTEM RESPONSE

Since October, Lord Bethell has hosted monthly roundtables on Long COVID, bringing together leading external stakeholders such as NHSEI, NICE, the Royal Colleges, clinical experts, researchers, academics and representatives of patient groups. The December roundtable focused on the issue of diversity and equity of access to services, as a result of which NHSEI committed to gathering and sharing equalities data on patients presenting with Long COVID. The next roundtable on 29 January 2021 will focus on data where we hope to discuss challenges at a system level with key stakeholders, external academics and lay representatives. DHSC's newly formed Long COVID policy team will liaise across other government departments, health and social care stakeholders and where appropriate the Devolved Administrations to identify and explore emerging policy issues.

NHS England and Improvement

The 'Your COVID Recovery' online service, announced on 5 July and developed by NHSEI with the University Hospitals Leicester NHS Trust, provides a digital, interactive, personalised recovery programme for people recovering from COVID-19. Phase 2 of the 'Your COVID Recovery' package went live at the end of October and the rollout is underway as part of a phased approach.

In October, NHSEI announced £10 million (from their existing budgets) to launch a 5 Point Plan to tackle Long COVID:

- Rapidly develop a clinical case definition and clinical guidance for healthcare providers and clinicians and to make information available for patients (now complete);
- To establish post-COVID assessment services (underway, more details below);
- To extend the Your Covid Recovery platform (underway);
- To support research (underway, see section 4 below); and
- To convene a Long COVID taskforce (now established and meeting regularly).

69 multi-disciplinary Long COVID assessment service centres are currently open across England, with 12 more due to open in early 2021. These new services bring together doctors, nurses, physiotherapists, and occupational therapists to offer both physical and psychological assessments and refer patients to the right pathway of treatment and rehabilitation services. These centres are assessing and diagnosing people experiencing long-term health effects as a result of COVID-19 infection, whether or not they received a positive SARS-CoV-2 test or were admitted to hospital during their COVID-19 illness. We do not currently have access to data about the use of the clinics, referral numbers or health outcomes but are working with NHSEI to improve data capture and reporting. We anticipate that NHSEI may request additional funding from DHSC/HMT for 2021/22 for Long COVID services.

Public Health England (PHE)

In the past 3 months PHE has agreed priorities through its Strategic response group, established a small co-ordinating group, recruited staff to support the development of surveillance, and started to support the NHSEI Taskforce and its subgroups.

- PHE is working with academic partners to develop a passive national surveillance system using routinely available data to monitor post-acute health outcomes. Over time this will help to identify signals in morbidity and mortality in laboratory COVID-19positive cases in the first instance and areas for further investigation and research.
- The immunisations team are undertaking an observational study of the Health-Related Quality of Life impact for individuals with non-fatal SARS-CoV-2 to inform JCVI decision making.
- PHE created a clinician resource on GOV.UK, providing information on the health problems facing those recovering from COVID-19.
- PHE is providing advice across the system including NICE, the Professional Record Standards Body (PRSB), NHS specialised commissioning in the planning of rehabilitation services.

PHE regional teams have started to respond to requests for support from the NHS on planning services, including briefings to local Directors of Public Health. PHE, working

with academics, analysts and trust-based consultant in public health have estimated the impact of post-COVID on the development of post-acute clinics. PHE NW is also working with NHS England on a regional media campaign to raise awareness of post-acute COVID.

4. RESEARCH FUNDING AND PRIORITIES

The Government, NHS, and wider scientific community recognise the need for further research to better understand who is most likely to develop Long COVID and why, and how best to support recovery. There are a number of large research commissions which will provide valuable insights.

- The National Institute for Health Research (NIHR) and UK Research and Innovation (UKRI) have invested £8.4 million in the Post-HOSPitalisation COVID-19 study (PHOSP-COVID), led by Christopher Brightling at the University of Leicester. This study will involve 10,000 participants to better understand and improve long-term outcomes for people who were hospitalised with Long COVID.

- On 12 November, NIHR and UKRI announced a joint research funding call of up to £20m for 'ambitious and comprehensive' research into the long-term physical and mental health effects of COVID-19 in non-hospitalised people. The funding call has now closed and applications are being reviewed by the panel. Projects are expected to commence in early 2021. Applicants were asked to submit proposals which addressed the causes (biological and environmental), mechanisms and management of the longer term physical and mental health effects of COVID-19 infection as well as reducing health inequalities in non-hospitalised individuals.

  On 5 October the Scottish Government's Chief Scientist Office launched a funding call on the long-term effects of COVID-19 and 9 projects totalling around £2.5m were recommended for funding.

- The HEAL-COVID application is for a platform to test interventions in post-hospitalised COVID patients. The application has been submitted to the NIHR HTA Programme. It is being peer-reviewed and will be assessed by a selection panel before a decision on funding is taken. If funded, it will test primarily therapeutic interventions but also non-therapeutic ones if required. Later work of platform may be informed by results from the PHOSP study.

5. RISK ASSESSMENT AND POTENTIAL IMPACT

There are concerns that COVID-19 may present a longer-term risk to the health and social care system if demand for services increases due to Long COVID (over and above any indirect effects on health linked to social and economic impacts of restrictions). For example, a large study (n=47,780 participants in hospital with COVID-19 and discharged alive by 31 August 2020 matched to controls) led by the ONS and the University of Leicester[vii] found that Covid-19 hospital admission was associated with increased risk of re-admission and death following discharge. Nearly one third of people were re-admitted and more than 1 in 10 died. Rates of post-discharge multi-organ dysfunction were elevated in individuals with COVID-19 compared to matched controls (general population). Diabetes and MACE were common. The ONS work received a high level of media attention but we have heard in confidence that a new study will be published next week that challenges the ONS figures and suggests they

are overly high because of the decision to use the general population as a comparator, rather than people previously hospitalised with another condition of similar severity.

Another widely publicised study was a cohort study (n=1733) published in the Lancet involving patients who had been discharged from Jin Yin-tan Hospital (Wuhan, China) between 7 Jan 2020 and 29 May 2020. 76% of patients reported at least one symptom six months after symptom onset with the proportion higher in women. Fatigue or muscle weakness (63%) and sleep difficulties (26%) were the most common symptoms. Anxiety was reported among 23% of patients. Patients who were more severely ill during their hospital stay had more severe impaired pulmonary diffusion capacities and abnormal chest imaging manifestations. [viii]

As well as studies linked to hospitalised patients, we are also seeing some evidence of Long COVID affecting lower risk populations, highlighting the potential risk of harm to younger, healthier populations. As an example, the Coverscan study is mapping how COVID-19 impacts the health of multiple organs. Between April and September 2020, 201 individuals completed assessments following infection. While the sample size was small, the research found that in a young, low-risk population with ongoing symptoms, almost 70% of individuals had impairment in one or more organs four months after initial symptoms of SARS-CoV-2 infection. [ix]

While we believe Long COVID presents a risk to population health and could increase demand on the NHS in the short to medium term, we currently do not have good enough information to quantify that risk against the benefits/harms of other measures. We are lacking clear operational and surveillance data and we have an incomplete picture on potential affects on workforces. As far as we are aware, we do not currently have any information on the relationship (if any) between the emergence of new variants and the number of people presenting with Long COVID.

A Long COVID cost simulator is currently being developed in No 10's data science unit aiming to quantify the economic impact of Long COVID in terms of QALYS and productivity. DHSC's Long COVID policy team is also engaging with the joint DWP/DHSC Work and Health Unit on the wider impacts of Long COVID on employers and employees.

6. CROSS UK ENGAGEMENT

Long COVID has been discussed by the four UK Chief Medical Officers and senior clinicians across the Devolved Administrations, as well as at official level by policy teams. Lord Bethell has written to counterparts across the Devolved Administrations, requesting to meet at a Ministerial level to discuss the challenges posed by Long COVID and share collective responses. So far, Jeane Freeman, Cabinet Secretary for Health and Sport in Scotland has accepted the offer.

7. EMERGING POLICY ISSUES

There are a number of emerging policy issues related to Long COVID.

The impact of Long COVID on children

We are starting to see increased media and Parliamentary interest in Long COVID and children. Symptoms are generally mild and hospitalisation rates much lower among children and young people with COVID than adults with COVID. Nonetheless, paediatric services are beginning to receive referrals for children with symptoms

suggestive of long COVID. NHS England and Improvement is running an initial workshop on Long COVID to discuss how best to develop a case definition and model of care for children in conjunction with the NICE and the Royal College of Paediatrics and Child Health (RCPCH). More data is needed to gain a more accurate picture of prevalence among children.

Whether Long COVID should be considered as an occupational disease

The APPG on Coronavirus is campaigning for Long COVID to be recognised as an occupational disease and for there to be a Long COVID compensation scheme established for those who have acquired COVID-19 occupationally. There is likely to be increased pressure from unions and professional groups to explain and clarify the risks of Long COVID for those in key worker roles.

Pay and Pensions colleagues have explored this with HSE and concluded that COVID-19 contracted as a result of occupational exposure is already reportable under Regulations 7 and 9 of The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) 2013. Long COVID is subsequently covered if the original COVID-19 infection was attributable to an occupational exposure.

Vaccines

Having prolonged COVID-19 symptoms is not a contraindication to receiving COVID-19 vaccine but if the patient is seriously debilitated, still under active investigation, or has evidence of recent deterioration, deferral of vaccination may be considered to avoid incorrect attribution of any change in the person's underlying condition to the vaccine.

PHE will be using existing surveillance systems and enhanced follow-up of cases to monitor how effective the vaccine is at protecting against a range of outcomes including: infection, symptomatic disease, hospitalisations, mortality and onwards transmission. There is an argument for extending existing research to include questions on Long COVID and officials will discuss the feasibility of this further.

Patient groups are likely to make representations for earlier access to vaccines on the basis of vulnerability. We have also heard concerns from stakeholders about the risks of long COVID to those in younger age groups who have not been prioritised for the vaccine.

SUMMARY

COVID-19 is still a new disease. It is not yet clear what the medical, psychological and rehabilitation needs will be for those experiencing long-term effects of the virus. There are still a number of significant unknowns which are unlikely to be resolved in the short-term. We believe that Long COVID represents a risk at an individual, population and system level. However, given the current evidence gaps, it is currently difficult to quantify that risk relative to broader social and economic decisions.

REFERENCES

[i] NICE. *COVID-19 rapid guideline: managing the long-term effects of COVID-19.* NICE; 18 December 2020. Available from: https://www.nice.org.uk/guidance/NG188

[ii] Office for National Statistics(ONS). *Estimating the prevalence of long COVID symptoms. ONS; 16 December 2021. Available from: https://www.ons.gov.uk/news/statementsandletters/theprevalenceoflongcovidsymptomsandcovid19complications*

[iii] Office for National Statistics (ONS). *Updated estimates of the prevalence of long COVID symptoms*. ONS; 21 January 2021. Available from :https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/adhocs/12788updatedestimatesoftheprevalenceoflongcovidsymptoms

[iv] Sudre C, Murray B, Varsavsky T, Graham M, Penfold S, Bowyer R et al. Attributes and predictors of Long-COVID: analysis of COVID cases and their symptoms collected by the Covid Symptoms Study App. *medRxiv* doi: https://doi.org/10.1101/2020.10.19.20214494

[v] NICE. *COVID-19 rapid guideline: managing the longterm effects of COVID-19 (NG188) Evidence reviews 2 and 3: prevalence*. NICE; December 2020. Available from: https://www.nice.org.uk/guidance/ng188/evidence/evidence-reviews-2-and-3-prevalence-pdf-8957626669

[vi] NICE. *COVID-19 rapid guideline: managing the longterm effects of COVID-19 (NG188) Evidence review 1: risk factors*. NICE; December 2020. Available from: https://www.nice.org.uk/guidance/ng188/evidence/evidence-review-1-risk-factors-pdf-8957625373

[vii] Ayoubkhani D, Khunti K, Nafilyan V, Maddox T, Humberstone B, Diamond I and Banerjee A. Epidemiology of post-COVID syndrome following hospitalisation with coronavirus: a retrospective cohort study. *medRxiv* doi: https://doi.org/10.1101/2021.01.15.21249885

[viii] Huang C, Huang L, Wang Y, Li X, Gu X et al. 6-month consequences of COVID-19 in patients discharged from hospital: a cohort study. *Lancet.* Vol 397: 10270. P220-232, 16 January 2021. DOI:https://doi.org/10.1016/S0140-6736(20)32656-8

[ix] Dennis A, Wamil M, Kapur S, Alberts J, Badley A,D, Decker GA et al. Multi-organ impairment in low-risk individuals with long COVID. *MedRxiV*. doi: https://doi.org/10.1101/2020.10.14.20212555