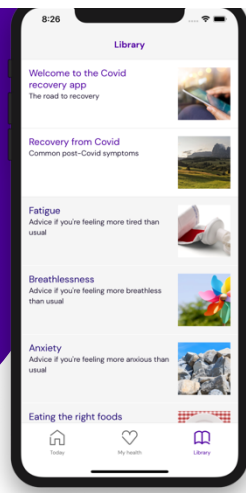


Living With Covid Recovery Programme



Information for clinicians

Programme overview

The programme addresses the lingering symptoms of patients who are recovering from Covid-19 following the more acute phase of the illness.

The role of the technology is to increase the number of patients getting high-quality treatment simultaneously and remotely across all aspects of the condition including breathlessness, fatigue, anxiety, coughs, voice changes and nutrition, to enable them to get back to their pre-Covid state of health.

The software and technology element combine bespoke treatment plans for each patient, whilst enabling clinicians to review patient progress and communicate with them remotely. This includes:

- An app for patients providing tailored advice, treatment plans and suggested exercises. The app gives patients guided support using tried and tested techniques for treating the individual symptoms. These symptoms can often be linked and related. Breaking these links down with support of an Allied Health Professional (AHP) can lead to measurable health improvements.
- A dashboard for clinicians (usually AHP or Physio) to review large numbers of patients safely and efficiently, and communicate with them.

So, there are three components:

A care pathway (shown later)

An NHS clinician who supports and monitors the patient through a digital dashboard following an initial assessment

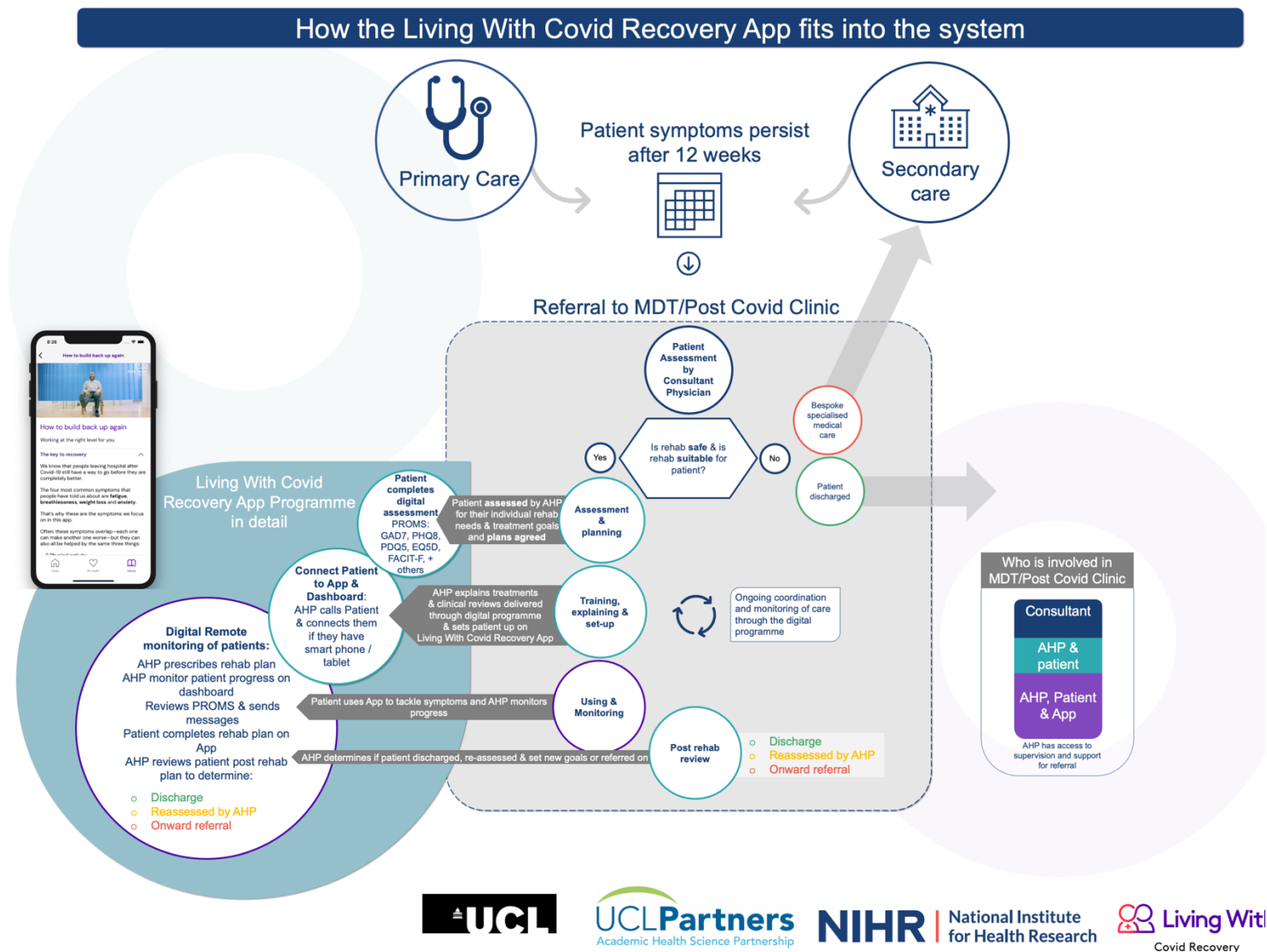
A smartphone/tablet-based app that gives the patient access to information and support as part of their rehabilitation

What is the process for the rehabilitation programme?

The patient will normally be referred from hospital or a GP and then be assessed by a consultant who will then decide the best, safest and most effective treatment for them. If the consultant feels rehabilitation is safe and effective, then they will be referred to an AHP for an assessment. The AHP will then work with the patient to set

goals, treat the patient and monitor their progress through their reported symptoms, outcomes and in messages. This three-way interaction of patient-app/digital platform-AHP has been shown to help personalise care at scale effectively.

Below is an outline of how the care pathway can work – based on what other NHS Trusts and CCGs have done

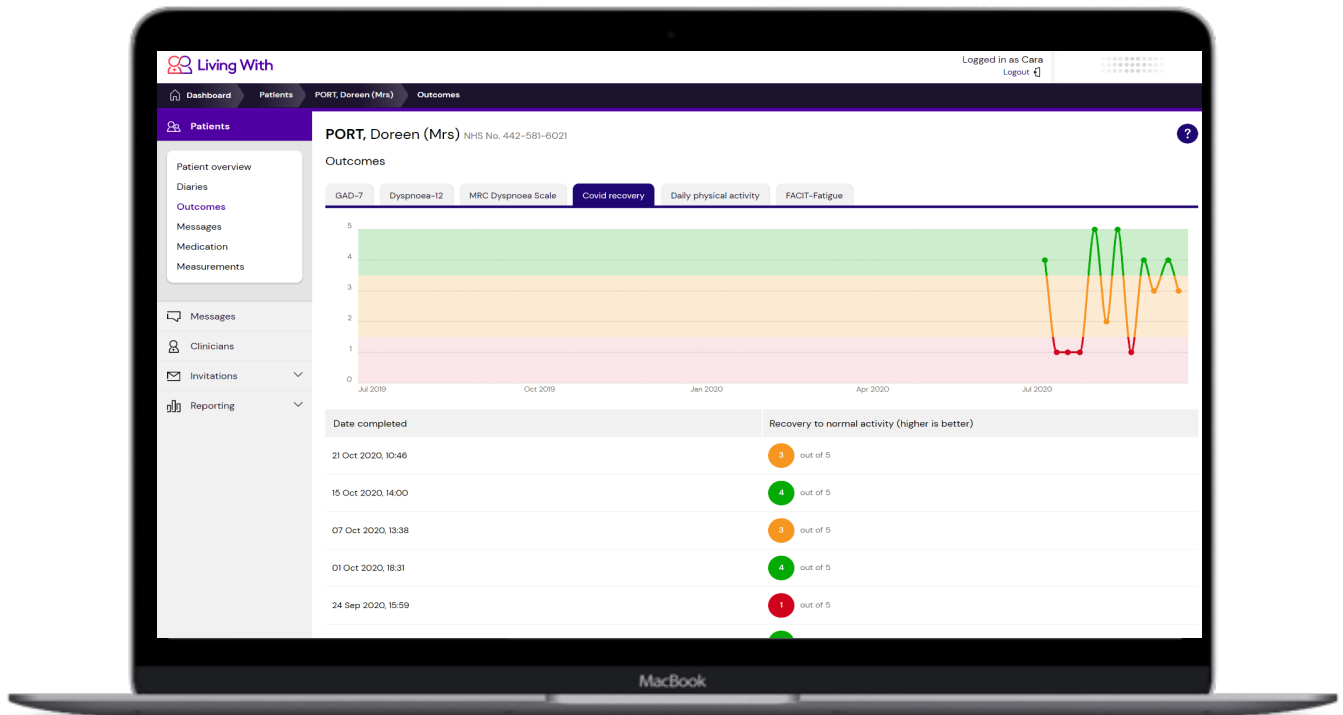


What is Covid Recovery App?

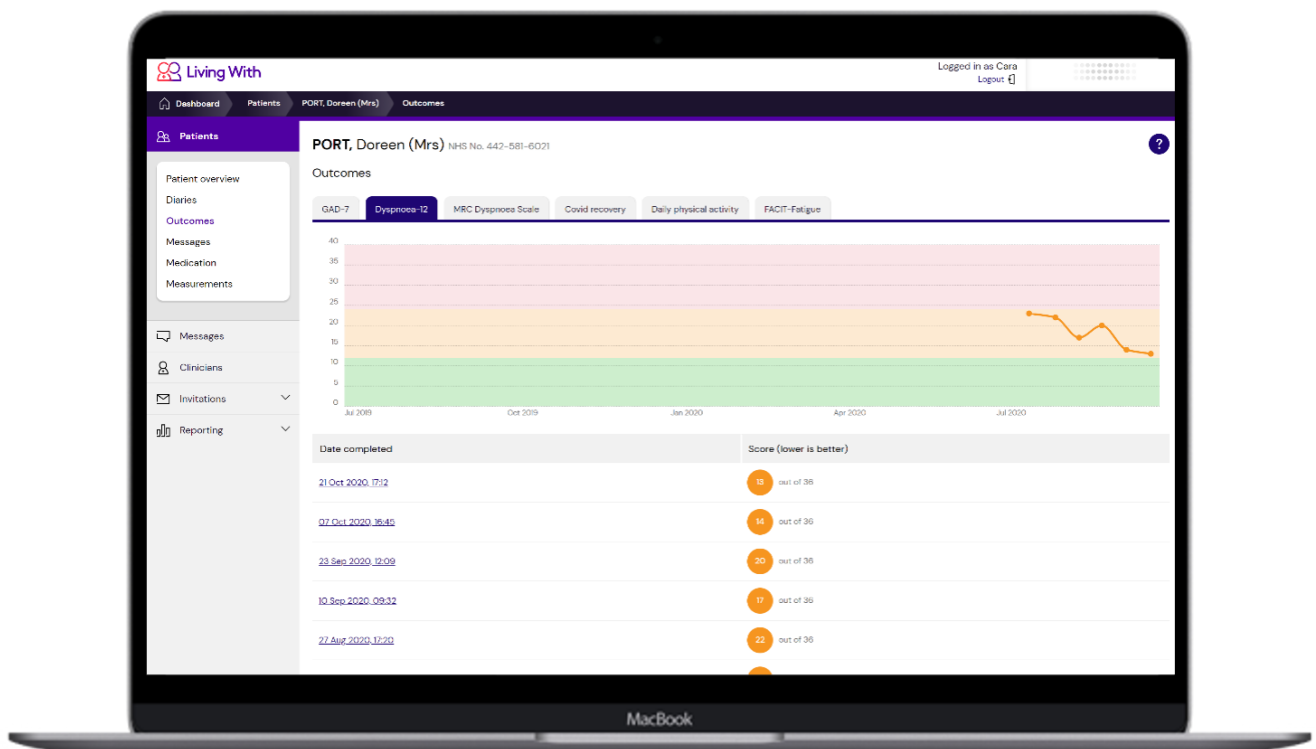
The app as mentioned is part of the whole programme. It is a smart phone/tablet app that supports patients recovering from the effects of Long-Covid. Symptoms can include, breathlessness, brain fog, depression and anxiety, fatigue, poor appetite and diet, and joint pain. The app gives patients guided support using tried and tested techniques for treating the individual symptoms. These symptoms can often be linked and related. Breaking these links down with support of an AHP can lead to measurable health improvements. AHP's can remotely monitor and advise patients using app data displayed on their laptop/desktop 'dashboard' and by messaging patients.

What does the clinician see?

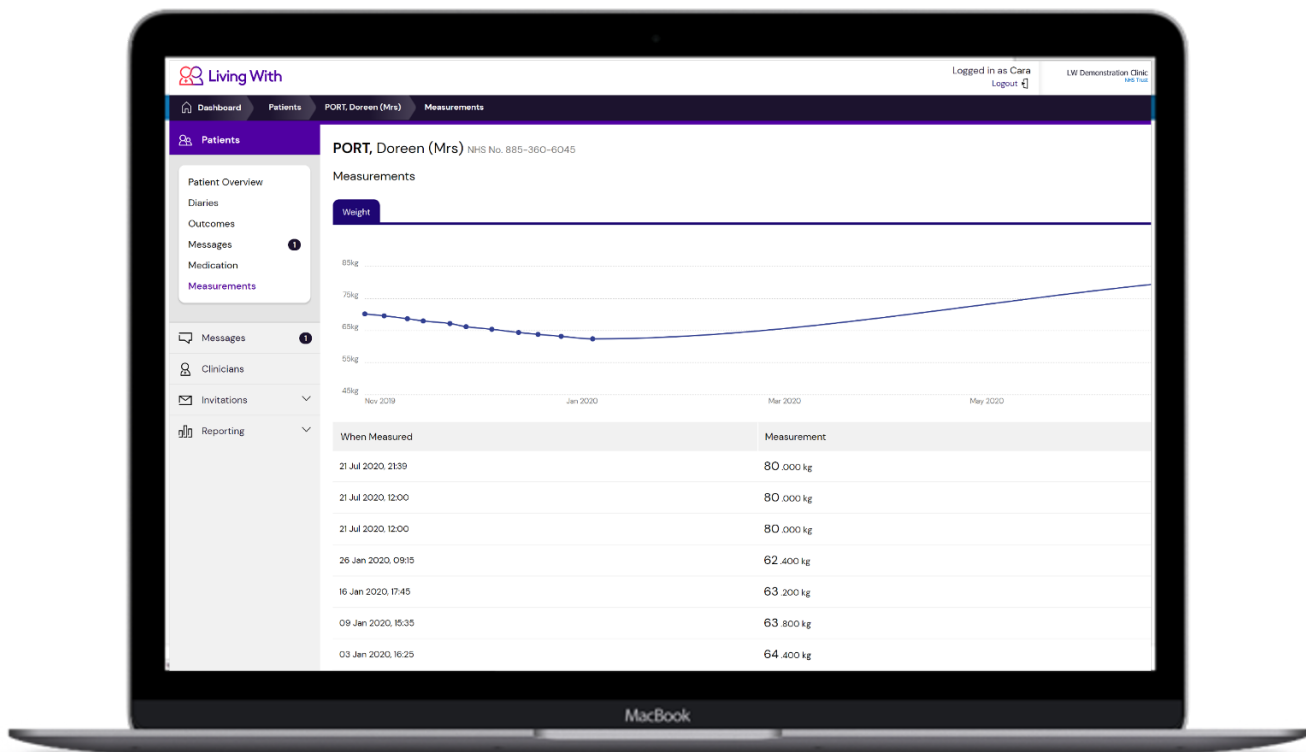
Clinicians dashboard showing details of patient outcome measures



Clinicians dashboard: Monitoring Dyspnoea over time



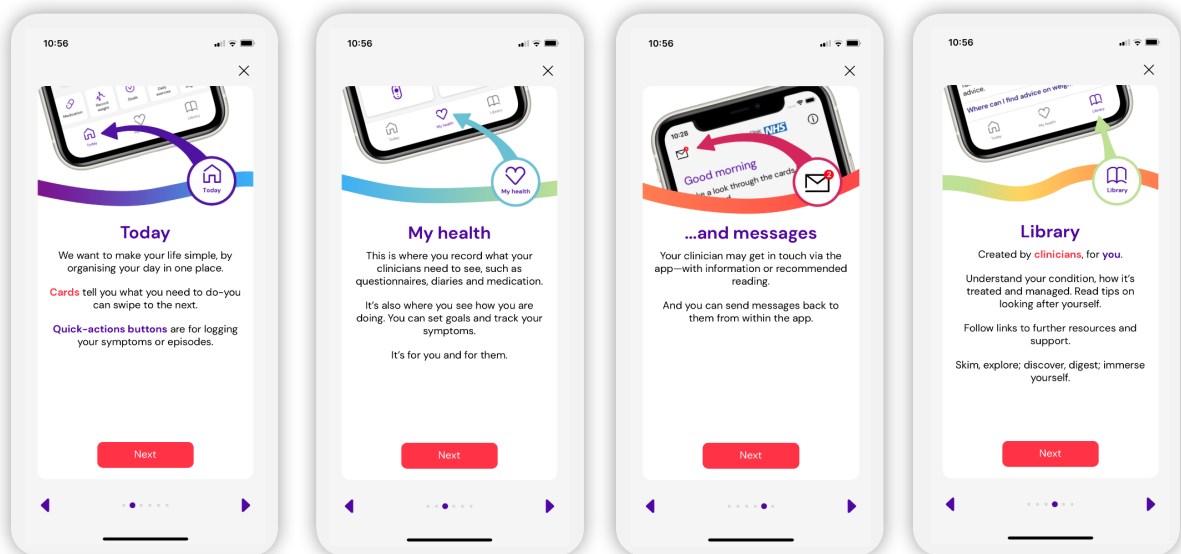
Clinician dashboard: patient weight over time



Clinician dashboard: messaging with a patient

The screenshot displays the 'Living With' app interface on a laptop, showing the messaging section. The top navigation bar shows 'Dashboard', 'Patients', and 'Messages'. The left sidebar lists 'Patient Overview', 'Diaries', 'Outcomes', 'Messages', 'Medication', and 'Measurements'. The main content area shows 'PORT, Doreen (Mrs) NHS No. 885-360-6045' and a 'Messages' section. A message from the patient is shown, along with a response from the clinic. The message from the patient is: 'Re problems Dear Cara, I am really struggling with my breathing. Can you help? Kind regards Doreen Patient - sent 21 Jul 2020, 23:15 Not Dealt With'. The response from the clinic is: 'Before your next appointment Hi Doreen, Your next appointment has been scheduled, the details of which are attached to this mess... Cara Reconhall - sent 12 Jul 2020, 18:15 Opened by patient'. Below this is an appointment card for 'Coronavirus Clinic Outpatient Appointment Wednesday, 15 Jul 2020, 12:00 (1hr 16m)'. At the bottom, a message from the patient is shown: 'Thank you I will continue to use the app, liking it so far Patient - sent 24 May 2020, 18:15 Dealt with'. Below this is another appointment card for 'Your next appointment Hi Doreen, Your next appointment has been scheduled, the details of which are attached to this mess... Cara Reconhall - sent 24 May 2020, 17:13 Opened by patient'.

What does the app look like to the Patient?



The patient has access to a daily to do list of agreed goals, a My Health area to record progress and medication, a messaging function to their clinician and a library of helpful support.

How can this app and digital platform help me and my service?

This app is useful to help patients self-manage and report their symptoms. It can reduce the caseload for clinicians while allowing them to measure patient progress safely (using the digital platform) and keep in contact with them. In the pilot the average time to assess and remotely monitor a patient was around two to three minutes. The physio involved had a caseload of over 100 patients.

Is there a cost?

No, not usually, but we need access to pseudonymised individual data to support improvement of the programme, and this has to be agreed with your NHS Trust. Some regions of the UK with different funding arrangements may have to pay a support fee for the product.

Are you evaluating the service?

The product has been piloted and results are positive. It is continually evolving and effectively being informed/codesigned by users. Partners using the product will have the opportunity to contribute to an important and rapidly emerging research field and further develop/codesign the technology.

What data do you have so far?

In the first 6 months, 99 patients were onboarded to the app. The mean age was 51 years (range 23 – 84), 53% were male and of those that stated their ethnicity, 66% were White and 34% BAME. Engagement with the App has been high, with >60% using it regularly. Patients undertake a mean average 7.0 actions per week covering recording weight, completing a patient reported outcome measure (PROM) such as FACIT-F, Covid Recovery, GAD-7, MRC Breathlessness, D-12, tracking exercise and/or fatigue diary. Overall, on average each patient has read eleven articles with approximately half of patients creating and tracking goals.

The questionnaire responses entered onto the App feedback to a clinician facing dashboard which is reviewed by the physiotherapist several times per week. Currently, for 102 patients registered, this takes 3-4 hours each week, significantly less time than reviewing this volume of patients in a traditional manner. Any clinical concerns are reported to the medical team. Patients have reported finding the app reassuring and helpful in their recovery.

What about patients who can't access the app?

The App is digital only and only in English. We have found that families and friends can often support with sharing a device to help a loved one or friend.

How do I get trained to use it?

We can provide a guide and virtual mentoring for you to help set up and use the system (normally from a laptop) and help you to teach patients how to use the app. The digital platform and app itself are simple and intuitive.

What's the advantage of using digital interventions?

The rationale for a digital approach to supporting patients with Long Covid is:

- Very large numbers of patients, around 60% of those admitted to hospital are symptomatic after 12 weeks
- Symptoms very varied and variable, both between and within patients
- Treatments exist for these symptoms
- A skilled clinician is required, but in short supply, and many already have a full workload
- Services often symptom specific, which is inefficient (4 clinicians supporting 1 patient) and patient burden
- Patients often reluctant to attend hospitals/clinics

Benefits of using the app

- Increased support for patients across all levels of risk and improvements in patient's symptoms
- It enables clinicians to monitor all aspects of patient's conditions remotely
- You can manage the patient's care more efficiently, providing them quick and easily personalised treatment plans as they follow the pathway
- It can overcome the digital equity divide ensuring that all types of patient can get remote support

Features of the app

- Patients
 - Can track outcomes and symptoms including fatigue, anxiety, breathlessness, weight, cough, and diet/nutrition.
 - Can set and complete exercise plans
 - Are able to communicate directly with your clinical team

- Have a comprehensive range of condition information
- Clinicians
 - Are able to filter and triage patients by severity of symptoms
 - Monitor patient outcomes (e.g. FACIT-Fatigue, GAD-7, MRC Breathlessness, D-12, EQ5D, PHQ-8) and symptoms
 - And can efficiently communicate and manage patients including sending and receiving messages

What have people said about the Living With Covid Recovery Programme?

Hannah Hylton is a physiotherapist who tested the App in London:

"The Living With Covid Recovery App is an innovative way of providing digital health care. As clinicians we can monitor outcomes and offer patient education, support and encouragement for the emerging group of patients with long lasting Covid symptoms."

Sophie, a patient using the App as part of her recovery from Long-Covid symptoms:

"Five months after having Covid, I was still feeling very breathless and easily tired - even walks could frustratingly leave me coughing and wheezing. I started using the Living With Covid Recovery app in August and have found it very helpful in tracking my progress and building up my activity levels."

"One of the most important aspects for me is the connection to support and advice from my own physiotherapist through the app, which has helped reassure me and feel that I'm not alone."

What support do I get as a clinician?

We have asked commissioners and NHS Trusts to incorporate this programme into the clinical pathway for treating Long-Covid. Within the Covid Recovery Programme clinicians delivering the Living With Covid Recovery App should get supervision and training.

Who is behind the app and digital platform?

As well as the developers of the app and platform, Living With Ltd, there is a multidisciplinary team of clinicians and academics. Most importantly public and patient contributors have been involved in the work from the very beginning. The research element of this intervention has been supported by the National Institute of Health Research which is funded by the Department of Health and Social Care. Below is a list of the team behind the work:

UCL

- Prof Elizabeth Murray: Professor of eHealth and Primary Care; Prof Ann Blandford: Professor Human Computer Interactions; Dr Manuel Gomes: Associate Professor in Health Economics;

Dr Henry Goodfellow, Academic Clinical Lecturer in eHealth and GP; Dr Fiona Hamilton: Associate Professor in eHealth and GP; Prof Delmiro Fernandez-Reyes: Professor of Biomedical Computing; Prof Fiona Stevenson: Professor of Medical Sociology

Barts

- Dr. William Ricketts, Consultant Thoracic surgeon, Dr Paul Pfeffer: Consultant Respiratory Physician; Dr Richa Singh: Consultant Respiratory Physician, Hannah Hylton, Respiratory physiotherapist; Charlotte Foster: Dietitian at Barts Hospital

UCLH, CNWL AND Royal Free

- Dr Melissa Heightman: Clinical lead of the COVID follow up service at UCLH and integrated Consultant Respiratory Physician at UCLH; Dr Stuart Linke: Clinical psychologist at Camden and Islington Foundation Trust; and Professor John Hurst: Professor of Respiratory Medicine (UCL) and Consultant Respiratory Physician, Royal Free

Other Research Expertise

- Katherine Bradbury: Health Psychologist at Southampton University; Professor William Henley: Professor of Medical Statistics at Exeter University

What happens next?

If you would like to know more and get involved contact **Chris Robson** CEO and Founder Living With Ltd chris.robson@livingwith.health 07990 978 423

