



## FEATURE

## REHABILITATION

# Covid-19: the challenge of patient rehabilitation after intensive care

As the UK's coronavirus patients begin to leave ICUs, **Jacqui Thornton** examines how the NHS plans to meet a “tsunami of need”

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Covid-19 has shone a bright light on the impressive work of NHS intensive care units (ICUs) around the UK. Now, as the first patients who have had the new virus and spent days ventilated in ICUs are discharged, the Chartered Society of Physiotherapy predicts a “tsunami of rehabilitation needs.”

Already there are question marks about whether appropriate rehabilitation—physical, cognitive, and psychological—will be available for the huge numbers of people who will need to deal with the enormous impact of a stay in critical care.

Rehabilitation after a heart attack, trauma, or stroke has well established pathways. But rehabilitation for many of the thousands of people who spend time in intensive care every year is not automatic—despite severe muscle wastage and deconditioning, sleep disorders and severe fatigue, memory problems, anxiety, depression, and post-traumatic stress disorder.<sup>1</sup> These “general” ICU patients may be the sickest people in the country, but once they leave they may be getting the least support.

## Lack of clarity and consistency of access

In 2017 the National Institute for Health and Care Excellence set out quality standards for adults after critical illness,<sup>2</sup> which were welcomed by specialists. However, it remains hard to say how many people who need this kind of rehabilitation receive it, as there are no consistently collected standardised data. In England, Wales, and Northern Ireland some 224 748 admissions were made to 263 NHS adult critical care units in 2018-19.<sup>3</sup> Experts suggest that two thirds of such patients would need some kind of rehabilitation.

One area where data are collected is pulmonary rehabilitation for people with chronic obstructive pulmonary disease (COPD), which is offered to only 13% of eligible patients despite good evidence.<sup>4</sup> There is also regional variability: five hyperacute regional inpatient specialist rehabilitation units take patients directly from the ICU, and some individual trusts have

developed excellent services for early post-ICU outpatient rehabilitation.

Elsewhere it is patchy, sometimes simply consisting of a nurse doing a one-off telephone follow-up. The biggest barrier is variability in funding despite evidence of cost effectiveness.<sup>5</sup>

## Rehabilitation in sharp focus with covid-19

Covid-19 has forced NHS England and individual trusts to think about rehabilitation with some urgency. Karen Middleton, chief executive of the Chartered Society of Physiotherapy, says, “Rightly, so far, the focus has been saving lives—but, as the first wave of patients begin to recover, the scale of the next phase is becoming clear.”

Patients with the virus seem to be ventilated for far longer than the average ICU patient, causing higher levels of deconditioning, and there are more of them at any one time. Evidence from China shows that covid-19 patients have neurological as well as respiratory after effects,<sup>6</sup> so recovery will be longer and more complex. The UK government predicts that 45% of patients will need some form of low level medical or social input for recovery and that 4% will require more focused, ongoing intense rehabilitation in a bedded setting.<sup>7</sup> Lynne Turner-Stokes, consultant in rehabilitation medicine, says, “We need all of those different levels of service. And, importantly, we need them to be joined up.”

Carl Waldmann started introducing rehabilitation after ICU 28 years ago, soon after he started as a consultant at the Royal Berkshire Hospital in Reading (box 1). He says that, as ICU demand has tripled, we will see a corresponding bulge in the need for rehabilitation. “It shouldn't have taken a pandemic,” he says, “but I think it will make people realise the problems you may have after a period in intensive care, and the vital need for rehabilitation.”

**Box 1: Case study—Royal Berkshire Hospital****Intensive aftercare: the right to rehabilitation**

This hospital offers "intensive aftercare" after intensive care for around 300 patients every year.

Patients are eligible if they have spent four days or more in intensive care or have been there for a shorter period because of a sudden illness, such as anaphylaxis after day surgery or a postpartum haemorrhage.

They are first seen at an outpatient clinic two months after discharge and then again at six months and a year. At each stage they are assessed and may be further referred for physiotherapy, psychological help, memory help, ENT treatment, or post-traumatic stress counselling.

Although cost is a barrier to providing these services, Carl Waldmann, intensive care medicine consultant at the Royal Berkshire, says that these are low when compared with ICU and are mainly staff costs: a sister, a half time nurse, and a consultant for each session.

He explains, "Our total budget for critical care would probably be something like £8m. You're looking at a minute fraction of that—something like £100 000—depending on the numbers of patients."

Such is the success of this service, as well as seeing its own former ICU patients it sees patients who have been treated in other hospitals and referred by GPs. Waldmann says, "GPs are slowly coming on board. At first, they didn't feel it was necessary. Now they actually refer patients that have not had follow-up at other hospitals to our hospital."

Melanie Gager, ICU nurse consultant, is adamant that covid-19 patients should benefit too. "Offering rehab is not an option—it is a necessity," she says. "It will be challenging and require increased resources, but these patients must be given the right to rehab."

**Covid recovery plans and prescriptions**

Both the Intensive Care Society (ICS) and the British Society for Rehabilitation Medicine have been working with NHS England to urgently develop soon-to-be-released covid-19 recovery plans. Zudin Puthuchery, honorary consultant in intensive care at the Royal London Hospital and senior lecturer at Queen Mary University of London, is leading from the ICS side. He says that the push on rehabilitation for covid-19 patients will be an "opportunity to improve care for all our ICU patients."

At Northwick Park Hospital in northwest London, the 24 bed regional hyperacute rehabilitation unit has not yet seen many covid-19 patients. Instead it has taken in more non-covid patients from other ICUs in London to free up capacity. Turner-Stokes, the unit's director, says that it is "waiting in the wings" to expand. But it has plans to record covid-19 patients' ongoing needs and how they will be met in a "rehabilitation prescription," as has been used for patients in trauma rehabilitation.

She hopes that this will be recorded in a national clinical audit similar to one for trauma, evidencing the need for services.<sup>8</sup> "There's a very positive opportunity to learn different ways of doing things from covid-19," says Turner-Stokes.

**Psychological support and GP awareness**

Early indications suggest that covid-19 patients will need even more psychological support than typical ICU patients because of higher levels of "survivors' guilt" and post-traumatic stress disorder.

At the Royal Berkshire, Waldmann's colleague Melanie Gager, a nurse consultant specialising in intensive care, says, "They're waking up seeing other people dying in front of them, knowing that they're all in there for exactly the same reason." And there is "no escape" when they leave hospital, she adds, because of the endless media coverage. This leads to them asking, "Why me?" which, while also seen in sepsis patients, is not typical of the cohort.

The Chartered Society of Physiotherapy is concerned that the focus will inevitably be on providing sufficient rehabilitation to move people along the pathway but that, when people go home, it will be an "out of sight, out of mind issue." GPs

therefore need to be aware of the huge impact of ICU and rehabilitation needs. Before covid-19, the average GP would see somebody who had been in an ICU once every two to three years. "This is an area that's completely outside GPs' experience," says Chris Danbury, consultant in anaesthetics and intensive care medicine at the Royal Berkshire.

Ron Daniels, intensive care consultant and executive director of the UK Sepsis Trust, says that discharge documentation letters need to be very explicit and clear, "to communicate that we expect there will be longstanding physical, psychological, and cognitive problems that the patient will need support and attention for."

Louise Worrall, inpatient physiotherapy lead at Milton Keynes University Hospitals Trust, says that rehabilitation must be given to justify the original treatment (box 2). She asks, "Why invest so much ICU time and resource to save a life, to then leave a patient with debilitating symptoms and a family floundering with no idea what to do to make anything better? We have to rehabilitate these patients to optimise recovery as much as possible, return them to the wider society, and, you could argue, justify the huge resource given to them in ICU."

**Box 2: Case study—Milton Keynes University Hospitals Trust****Eight weeks of gym sessions**

Here, rehabilitation is available to patients ventilated for over three days or unventilated patients with a length of stay of around a week or more. The hospital offers one-to-one appointments and support through telephone calls.

It also hosts a weekly rehabilitation group—a gym based, eight week minimum programme of cardiovascular exercise and strengthening, with specific individual goals.

"While there is still potential for further recovery, we keep going. The group is amazing," says Louise Worrall, inpatient physiotherapy lead. "To watch them all completing their exercise circuits on the exercise bike or treadmill, and remembering where they were just a few weeks before on a ventilator, is quite something!"

Worrall expects covid-19 patients' rehabilitation to be "very much along the same lines" as existing services but with double the demand.

She says, "The challenges for us will be the number that are likely to need rehab at the same time. We have never seen this many sick patients requiring such prolonged ventilation."

**Box 3: Case study—Morrison Hospital, Swansea****One-to-one rehabilitation advanced with pilot**

Every patient in Morrison's ICU for three days or more is referred to a follow-up clinic comprising a consultant and physiotherapist, who act as a triage to further services such as occupational therapy or musculoskeletal, psychological, or community support.

The hospital also offers a six week, twice weekly, one-to-one rehabilitation programme, which has been running for 10 years. Karen James, clinical lead physiotherapist for critical care, says, "Unlike cardiac rehab or pulmonary rehab where you can all go to a class together, our patients can be a 70/80 year old COPD and a 19 year old road traffic accident, so they're not going to have the same types of needs. So, we offer a one-to-one session which they can come to on a day they like, at a time they like."

Now these services are going further: they have won funding for a pilot in which physio rehabilitation technicians introduce themselves to critical care patients on the ICU before they are stepped down to another ward.

They will follow them up there and at home, because the RECOVER study<sup>9</sup> suggested that they can get reduced rehabilitation once they are stepped down from ICU. The scheme starts next month, and James says that covid-19 patients will be "ideal candidates." She adds, "They're going to have a lot of neuropathies and weaknesses because they've been paralysed and sedated for long periods of time, so they will be profoundly weak."

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